ROUTINE IMMUNISATION IN KYRGYZSTAN

PERCEPTION STUDY REPORT

February 2024

Routine immunisation in Kyrgyzstan
Perception study report

Conducted by:

Red Crescent Society of Kyrgyzstan (RCSK) staff and volunteers

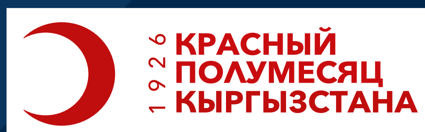
With support of International Federation of Red Cross and Red Crescent Societies (IFRC)

Lead researchers and designer: Klaudia Jankowska-Maddison, Asel Kadyrbekova, Cecilia Portillo

All photos credit: RCSK

This study could not have been delivered without the commitment and support of the Red Crescent Society of Kyrgyzstan staff and volunteers. IFRC and the lead researchers would like to express their sincere gratitude to the Red Crescent team for their invaluable contribution to the realisation of this report. They wish to thank, in particular, local health authorities, religious leaders, and Red Crescent branches' staff and volunteers for their continued dedication, support and excellent management.

This document is made possible by the generous support of the American people through the United States Agency for International Development (USAID). The contents are the responsibility of Red Crescent National Society of the Kyrgyz Republic and do not necessarily reflect the views of USAID or the United States Government.



ROUTINE IMMUNISATION IN KYRGYZSTAN

PERCEPTION STUDY REPORT

RED CRESCENT SOCIETY OF KYRGYZSTAN

Kyrgyzstan, February 2024

Executive summary

The global and European landscape of routine immunisation has encountered significant challenges in recent years, particularly with the onset of the COVID-19 pandemic. Globally, immunisation services have suffered disruptions, leading to a marked decline in vaccination rates for essential vaccines[1]. The COVID-19 pandemic, coupled with vaccine hesitancy fueled by misinformation and mistrust, has exacerbated the situation resulting in millions of children missing out on critical vaccinations and posing a dire threat to global health, including the risk of resurgence in vaccine-preventable diseases, such as measles.

In Kyrgyzstan, the state of routine immunisation reflects both the successes and challenges seen in the broader global and regional context. Prior to the pandemic, Kyrgyzstan had made significant strides in increasing vaccination rates. However, the primary factor contributing to the heightened incidence of preventable disease is a notable decline in vaccination rates among both children and adults within the framework of routine immunisation.

Misunderstandings about vaccine safety, efficacy, and the importance of immunisation contribute to this hesitancy, exacerbated by a lack of information and sometimes insufficient communication from healthcare providers. The situation in Kyrgyzstan is indicative of a wider problem, with misinformation and low levels of education among certain groups being significant factors. Additionally, there are reports that health workers may not always provide the necessary information or know how to address parents' concerns about vaccines and immunisation effectively.

Summary of the key findings

The study identifies multiple factors contributing to vaccine hesitancy, including misinformation about vaccine safety and efficacy, distrust in the pharmaceutical industry, and cultural beliefs. A significant portion of respondents express concerns over side effects and the belief that natural immunity is more beneficial than vaccination.

Socio-economic factors play a critical role in immunisation perceptions. Lower-income families are more likely to miss vaccination appointments due to logistical challenges, such as transportation costs and taking time off work. Education level is another critical determinant in vaccine acceptance, with lower levels of education correlating with increased susceptibility to misinformation and consequent vaccine refusal.

Practical barriers, such as vaccine availability, scheduling difficulties, and long wait times at healthcare facilities, negatively impact immunisation rates. Improving the convenience and accessibility of vaccination services is crucial for increasing uptake.

Men in Kyrgyzstan recognise their significant role in their children's healthcare decisions. Family dynamics, particularly shared decision-making with their wives, underscore a collective approach to managing family health, highlighting the evolving perspective of men towards shared responsibility in health and vaccination decisions. At the same time, men who oppose vaccinations seem to predominantly hold decision-making power in family health and vaccination, rooted in cultural norms that view men as the ultimate authority. While some responses suggest a shift towards valuing women's opinions and advocating for joint decision-making, the prevailing attitude still grants them the final say. This reflects a complex interplay between traditional gender roles and a gradual move towards more collaborative family dynamics in health-related decisions.

Many migrants exhibit a proactive approach to vaccinations, often inquiring about receiving vaccines that were missed or seeking detailed information from healthcare providers to catch up on their children's vaccination schedules. Unfortunately, despite a general willingness to vaccinate, migrants face challenges in accessing reliable information about vaccinations. This lack of information, coupled with logistical difficulties such as finding healthcare facilities or navigating healthcare systems without proper registration, present significant obstacles. Additionally, the care of children by extended family members, such as grandparents, during parents' absence due to work abroad, sometimes lead to missed vaccinations, indicating a need for broader community engagement in vaccination efforts.

The study revealed a wide disparity in trusted sources of information about vaccines. Healthcare professionals are the most trusted source, yet their reach is limited by accessibility issues. Social media and the internet emerged as significant sources of information but also as platforms for spreading misinformation.

Community and religious leaders have a substantial influence on vaccination decisions. In areas where leaders are supportive of immunisation efforts, higher vaccination rates are reported. Religious leaders generally view vaccination positively, acknowledging its importance but emphasising respect for individual choice and alignment with religious laws. They play a crucial role in shaping community attitudes towards health and vaccination, suggesting their advocacy could significantly reduce vaccine hesitancy. Engaging religious leaders by providing accurate vaccine information could enhance public health campaigns, leveraging their influence to promote informed decision-making and improve vaccination rates within communities.

The current strategies employed by health authorities to communicate about vaccines are not fully effective in addressing hesitancy. The survey suggests a need for more personalised, community-level engagement rather than broad, national campaigns.

Despite concerns, there is a general acknowledgement of the benefits of vaccines in preventing serious diseases. However, the perceived risks associated with vaccination, often amplified by misinformation, outweigh the recognized benefits for a significant portion of the population.

Call to action

The perception research underscores the complexity of vaccine hesitancy in Kyrgyzstan, highlighting the need for a multi-faceted approach to enhance routine immunisation coverage. By addressing misinformation, building trust in the healthcare system, and ensuring equitable access to vaccines, Kyrgyzstan can move closer to achieving its public health goals. Stakeholders at all levels are called to action to implement the recommendations, which are critical for improving the health and well-being of the population.

Table of contents

Executive summary 4
Introduction 8
Context 8
Role of the Red Crescent Society of Kyrgyzstan 8
Goal and objectives of the study 9
Methodology 10
Participant demographics 10
Sampling 10
Ethical considerations 10
Limitations and challenges 11
Main findings 12
Previous iteration 12
Pregnant women 12
Women willing to vaccinate/vaccinating their children (“Doers”) 15
Women unwilling/refusing to vaccinate their children (“Non-Doers”) 18
Men willing to vaccinate/vaccinating their children (“Doers”) 21
Men unwilling/refusing to vaccinate their children (“Non-Doers”) 25
Immunisation specialists 29
Primary healthcare workers 31
Religious leaders 33
Summary 36

List of Annexes

Annex 1 *Kyrgyzstan: Routine immunisation coverage (%), 2010-2022* 38
Annex 2 *Routine immunisation against measles coverage; comparison of Kyrgyzstan, WHO Europe region, and global coverage (%), 2010-2022* 40
Annex 3 *Kyrgyzstan: Number of reported cases of measles, 2010-2022* 41
Annex4 Sampling 41

Abbreviations

CEA	Community Engagement and Accountability
FGD	Focus Group Discussion
IFRC	International Federation of Red Cross and Red Crescent Societies
KII	Key Informant Interview
MoH	Ministry of Health
NGO	Non-Governmental Organisation
NS	National Society
RCI	Republican Center for Immunoprophylaxis
RCSK	Red Crescent Society of Kyrgyzstan
RCCE	Risk Communication and Community Engagement
UNICEF	United Nations International Children's Emergency Fund
WHO	World Health Organisation

Focus Group Discussion with pregnant women in Osh

Introduction

The global and European landscape of routine immunisation has encountered significant challenges in recent years, particularly with the onset of the COVID-19 pandemic. Globally, immunisation services have suffered disruptions, leading to a marked decline in vaccination rates for essential vaccines. The COVID-19 pandemic, coupled with vaccine hesitancy fueled by misinformation and mistrust, has exacerbated the situation resulting in millions of children missing out on critical vaccinations and posing a dire threat to global health, including the risk of resurgence in vaccine-preventable diseases, such as measles.

Measles is an acute viral respiratory illness and is one of the most contagious. The virus is transmitted by direct contact with infectious droplets or by airborne spread when an infected person breathes, coughs, or sneezes[2]. The disease has emerged as a significant global public health concern with an 18% rise in cases and a 43% increase in deaths in 2022 compared to the previous year, and with an estimated 9 million cases and 136,000 deaths, primarily affecting children[3]. Despite slight improvements in vaccination coverage in 2022, there remains a significant gap, with 33 million children missing measles vaccine doses[4], leaving communities vulnerable to outbreaks. The global vaccination coverage rates for the first and second doses of the measles vaccine are below the required threshold to prevent outbreaks, highlighting the need for urgent action to increase vaccine uptake and restore immunisation services, particularly in low-income countries where the risk of measles-related deaths is highest[5 6].

The WHO European Region[7] has been particularly hard-hit, with a more than 30-fold rise in measles cases reported between January and October 2023 compared to the entire year of 2022[8]. This dramatic increase has led to thousands of hospitalizations and several deaths, underlining the critical need for urgent vaccination efforts and enhanced surveillance to halt the spread of the disease. Measles affects all age groups, with a notable burden on children aged 1 to 4 years and adults over 20 years[9], emphasising the importance of comprehensive vaccination strategies that target all vulnerable populations.

UNICEF has highlighted a 3266% increase in measles cases in Europe and Central Asia in 2023 compared to 2022, with Kazakhstan and Kyrgyzstan reporting the highest rates of measles cases. This surge is directly linked to decreased immunisation coverage, fueled by misinformation, mistrust, and weakened health systems[10]. In response, UNICEF is calling for urgent measures to identify and vaccinate all children, especially those who have missed vaccinations, strengthen demand for vaccines, prioritise funding for immunisation services, and build resilient health systems.

Context

In Kyrgyzstan, the state of routine immunisation reflects both the successes and challenges seen in the broader global and regional context. Prior to the pandemic, Kyrgyzstan had made significant strides in increasing vaccination rates[11]. However, the primary factor contributing to the heightened incidence of preventable disease is a notable decline in vaccination rates among both children and adults within the framework of routine immunisation.

The reduction in vaccination coverage during the COVID-19 pandemic has played a significant role in the resurgence of the viral preventable diseases cases[12]. Vaccine hesitancy within the country has also been on an upward trajectory. Since 2016, the Republican Center for Immunoprophylaxis (RCI) has documented a growing number of vaccination refusals. The year 2021 saw more than 10,000 such refusals, a figure that has since risen to an estimated 17,000 refusals reported at healthcare facilities across the country as of the current year[13].

Misunderstandings about vaccine safety, efficacy, and the importance of immunisation contribute to this hesitancy, exacerbated by a lack of information and sometimes insufficient communication from healthcare providers. The situation in Kyrgyzstan is indicative of a wider problem, with misinformation and low levels of education among certain groups being significant factors. Additionally, there are reports that health workers may not always provide the necessary information or know how to address parents' concerns about vaccines and immunisation effectively[14]. This escalation in cases is further compounded by a rise in

migration to urban centres such as Bishkek and Osh. In these cities, migrant children often do not receive services from local primary healthcare facilities, leading to missed vaccination appointments[15].

The measles vaccination challenge is a pressing public health issue, mirroring broader trends observed globally and within the European and Central Asian region. According to the Kyrgyz Republic Centre for Immunoprophylaxis, at least 5,532 cases were identified in the country in 2023[16]. The majority of the cases were identified among children below five years of age, and 87.3% of the cases were individuals who had not been vaccinated against measles[17].

The current measles situation is a stark reminder of the importance of maintaining high immunisation coverage to protect against vaccine-preventable diseases. It underscores the need for global, regional, and efforts to address vaccine hesitancy, strengthen health systems, and ensure that all children, regardless of where they live, have access to lifesaving vaccines.

Role of the Red Crescent Society of Kyrgyzstan[18]

Since the beginning of the 2023 measles outbreak, the Red Crescent Society of Kyrgyzstan (RCSK) has been at the forefront of the national response. Recognizing the evolving situation, the RCSK has tailored its activities to meet the increased demand for risk communication and vaccine promotion, particularly in January and February. Special attention is being paid to migrant populations, providing vital information about measles and vaccinations in newly constructed areas outside the central cities. To ensure accessibility, RCSK and RCI have set up mobile vaccination points, emphasising the availability of vaccines to every child with parental consent, especially in underserved areas.

The RCSK's Risk Communication and Community Engagement (RCCE) efforts have extended to media outreach, with TV and radio broadcasts dedicated to routine immunisation. This has been complemented by the creation of educational animations about measles for children and social videos promoting vaccination, which have been distributed through Kyrgyz TV channels and online platforms. Additionally, vaccination points feature QR codes linking to the Republican Center for Immunoprophylaxis website, offering comprehensive vaccination information and a hotline for measles vaccinations. The RCSK volunteers have also engaged with family medicine centres to reach families with zero-dose and under-immunised children through household visits and calls. In addition, they involved social media influencers in promoting vaccination among their followers on their social media channels by providing correct information about vaccines and their safety, and dispelling myths.

Highlighting the importance of dialogue and strategy in addressing public health challenges, the RCSK, with IFRC technical support, organised a roundtable discussion on the national immunisation programme. This forum brought together key stakeholders, including MOH officials, health centres, epidemiological services, WHO representatives, and volunteers, to deliberate on the immunisation programme's challenges, potential solutions, and the collective effort required to manage the measles outbreak and improve overall immunisation coverage in Kyrgyzstan.

Goals and objectives of the study

Initially designed as a multi-iteration perception study focused on COVID-19, including knowledge, attitudes, and practices towards vaccination against it, the study's direction evolved in response to the diminishing impact of the pandemic[19]. As the situation regarding COVID-19 improved, the emerging public health challenge shifted towards a decline in general immunisation coverage, alongside an uptick in global measles cases. This shift prompted a reorientation of the study's focus towards routine immunisation, aiming to address and understand the underlying causes of reduced vaccine uptake and the consequential rise in preventable diseases.

This study aims to delve into the practices and perceptions surrounding routine immunisation in Kyrgyzstan, with a special emphasis on exploring the factors driving anti-vaccination sentiments among caregivers, healthcare professionals, immunisation specialists, and religious leaders. This inquiry is of paramount importance, especially in the context of the current measles outbreaks in the country. Understanding the complex interplay of factors that contribute to vaccine hesitancy is crucial for developing targeted health promotion strategies and policies that can effectively counteract these challenges.

By gaining insights into the attitudes and influences shaping immunisation views in Kyrgyzstan, the study seeks to pave the way for interventions that enhance vaccine acceptance and uptake. This, in turn, is expected to bolster health outcomes across the nation, reinforcing health security at a time when the threat of infectious diseases is palpable and immediate action is required to mitigate further spread.

Methodology

The study adopted a qualitative research approach to delve into the intricacies of routine immunisation practices within Kyrgyzstan, particularly focusing on understanding the dynamics behind vaccine hesitancy. By employing Focus Group Discussions (FGDs) and Key Informant Interviews (KIIs), this methodology allows to capture the depth and context-specific insights of participants' attitudes, beliefs, and experiences, and thereby offering critical insights for crafting targeted health interventions. This qualitative lens is regarding immunisation that might otherwise not be identified through quantitative analysis.

Participant demographics[20]

The study engaged a varied participant pool for FGDs, comprising pregnant women, non-doer and doer caregivers, both female and male. This segmentation is vital for capturing the varied perspectives influenced by gender roles and societal positions. For KIIs, the study extends to healthcare professionals directly involved in immunisation services, including immunisation specialists, paediatricians, and nurses, as well as antenatal clinic staff. Their frontline experiences provide invaluable insights into the operational challenges and community engagements in vaccine delivery. Furthermore, religious leaders, recognized for their influential role in community dynamics, were interviewed to explore the interplay between cultural, religious beliefs, and immunisation attitudes. Participants were recruited in five project sites - Bishkek, Chui, Osh, Jalal Abad, and Batken.

Sampling

Participant recruitment for Focus Group Discussions necessitated distinct strategies across different demographic groups, including religious individuals, pregnant women, and caregivers, both 'non-doers' and 'doers', spanning genders. Engaging with local religious leaders was pivotal, fostering a collaborative effort to emphasise the significance of routine immunisation education. This partnership proved instrumental in mobilising male participants, often the primary decision-makers within families, yet typically underserved with relevant health information. Simultaneously, identifying and engaging parents opposed to vaccination involved close coordination with healthcare professionals, leveraging their insights to facilitate informed discussions. Invitations to the focus groups, held at accessible community locations, underscored the value of participant contributions to public health discourse while ensuring privacy and anonymity, thereby encouraging open and candid dialogue.

Ethical considerations

In conducting this study, several ethical considerations were introduced and adhered to:

- Informed consent - participants were informed about the study's objectives and methodologies, and their consent was obtained prior to participation.
- Privacy and confidentiality - strict measures were implemented to safeguard participants' identity and maintain confidentiality throughout the data analysis and reporting phases.
- Voluntary participation - participation in this study was strictly voluntary, with assurances that withdrawal could occur at any stage without repercussions.
- Cultural sensitivity - the research tools and methods were sensitively designed to respect the cultural, religious, and societal norms of the communities involved.
- Ethical review - the study protocol underwent review by the Ethical Board to guarantee compliance with ethical research standards.

Limitations and challenges

- Generalisability - the qualitative focus, not supported with quantitative data might limit the ability to extrapolate findings across the broader population.
- Regional and demographic representation - selected regions and demographic groups might not capture the full spectrum of attitudes and experiences, particularly in remote or underserved areas.
- Desirability bias - reliance on FGDs and KIIs may introduce biases due to socially desirable responses or incomplete articulation of views on vaccination.
- Sampling bias - ensuring understanding and voluntary participation without coercion is challenging, particularly in communities with significant vaccine hesitancy.
- Topic sensitivity - sensitive topics like vaccine hesitancy could lead to resistance from some participants or communities, especially where there's strong mistrust of healthcare interventions. To minimise the impact of the bias, establishing trust with the community through community engagement and collaboration with local leaders was prioritised to encourage open discussions. In addition, the process of obtaining informed consent was designed to be clear, easy to understand, and transparent.
- Recruiting male participants was notably difficult, primarily due to their reluctance to engage, stemming from limited availability, time constraints, and a tendency to delegate topics related to health or children to their wives. This led to delays in the data collection process.

Focus Group Discussion with male doers in Osh

Main findings

"*Covid-19 vaccination. Perception study.*" report, published in January 2023 - summary of the main relevant findings

Although the study mainly set out to explore perceptions surrounding Covid-19 and vaccination against it, a small component of the research was designed to address broader concerns regarding routine immunisation of children and vaccinating children against Covid-19.

During the Focus Group Discussion conducted at the end of 2022, participants from Bishkek and Chui reported high compliance with the national immunisation schedule, contrasting with Jalal-Abad and Osh, where hesitancy was more pronounced due to safety concerns and negative perceptions of vaccine effects. Despite these regional variations, there was a consensus on the necessity of vaccinations for protecting children from diseases, with the protective value of vaccinations firmly acknowledged.

Concerns highlighted by the discussions encompassed potential physical development issues and allergic reactions due to vaccination, underscoring the need for clear communication and reassurance from healthcare providers. At the same time, the Soviet Union's successful vaccination campaigns were cited as historical evidence of vaccination efficacy, bolstering the argument for comprehensive immunisation.

Questions about the vaccination process's transparency and the reliability of pre-vaccination medical examinations were raised, indicating gaps in public understanding and trust. The risk perception regarding unvaccinated children varied, with some participants downplaying the risks while others advocated for mandatory vaccination to ensure community safety.

The discussions also shed light on the decision-making processes within families, where women would often take the lead, sometimes in consultation with their husbands and/or older family members. Influential figures in convincing vaccine-hesitant parents include healthcare professionals and community leaders, with a noted openness among some parents to vaccinate their children against Covid-19 if endorsed by the Ministry of Health, albeit with reservations about long-term effects.

Recommendations from FGD participants included conducting information sessions for vaccine-hesitant parents, enhancing outreach in remote areas, and improving the visibility and accessibility of vaccination schedules and information. Questions from participants about the HPV vaccine and procedures for vaccinating sick children or those with missed vaccinations highlighted the demand for more comprehensive and accessible information on vaccination.

Pregnant women

Interviewing pregnant women, the aim was to understand their attitudes towards childhood immunisation and intentions regarding vaccinating their future children. This demographic was pivotal as their decisions directly affect the immunisation rates among newborns and infants, thereby influencing general community health outcomes.

Awareness and knowledge

A significant theme emerging from the responses was the varying levels of awareness and knowledge regarding the national routine immunisation schedule. Some respondents were aware of the existence of an immunisation calendar but admitted to not knowing its specifics or understanding its importance thoroughly. This indicates a gap between the availability of information and its effective communication or understanding among pregnant women.

"We know that there is a calendar according to which we vaccinate children. But I cannot list exactly what vaccinations we receive before the age of 6."

Female FGD participant, Batken

"I've heard from [other] parents, but I haven't gotten any information from a doctor yet."

Female FGD participant, Bishkek

"No, my doctor didn't tell me anything about it."

Female FGD participant, Bishkek

Information access

Responses also highlighted a lack of direct communication from healthcare providers about immunisation, with some participants reporting that their doctors did not provide any information, and others reporting that they received advice from paediatricians at outpatient clinics. However, the effectiveness and comprehensiveness of this information were not detailed, leaving questions about the quality of information dissemination and whether it meets the needs and concerns of pregnant women. The inconsistencies in communication between healthcare providers and pregnant women can contribute to missed opportunities for educating and encouraging future mothers about the importance of routine immunisations for their children.

"I'll be honest, I trust my doctor, but at some point I was influenced by the internet. I confess that my 2 children-daughter and son-did not receive vaccinations, because at one point there were many stories about the child who died after vaccination and so on, so I was afraid and did not vaccinate them. But then I thought, everyone's body is different, and what if my children needed this vaccination. After that I regretted that I had not vaccinated my children."

Female FGD participant, Bishkek

"I agree that doctors can explain if you ask, but I think a person may just not even know what to ask, so I would like to get more information from medical professionals during the pregnancy itself."

Female FGD participant, Bishkek

Focus Group Discussion with pregnant women in Bishkek

Community attitude

The responses suggested a generally positive attitude towards vaccination within communities. A participant noted that a significant majority, estimated at 80%, are "in favour" and support vaccination, indicating strong community backing for immunisation practices. The reference to community support for vaccination suggests that there is an awareness of the benefits of vaccination and a collective understanding of its importance for public health and individual well-being. At the same time, there were individual voices sharing the experience of their communities not trusting the vaccines targeting newborns, which indicates the persisting need for education and awareness campaigns.

"The family has a positive attitude because we understand the importance of children's health. These vaccinations have been done for many years and there is no doubt about their effectiveness."

Female FGD participant, Osh

"According to the majority of the group, the public does not accept vaccinations for newborns very well. Recently, more and more mothers are refusing vaccinations for newborns in the maternity hospital. [...] people from the focus group believe that the vaccinations that children receive in the maternity hospital are very important."

FGD report, female participants, Chui

Personal practice

When it comes to personal practices, responses highlighted the influence of family members and significant others in the decision-making process regarding vaccination. Statements like "*My mother-in-law and my mom*" and "*My husband and I*" indicate that the decision to vaccinate children is often discussed within families and is influenced by the opinions and experiences of close relatives.

This familial involvement in decision-making pointed to a collaborative approach towards health care and prevention practices within families. It underscores the importance of educating not only the pregnant women but also their families about the benefits and safety of vaccination to ensure that children receive the necessary immunisations.

"Our parents, we ourselves were vaccinated, which means that our children should also be vaccinated: I am the mother of 5 children, everyone was vaccinated, and everyone is healthy. We moms have to make a decision."

Female FGD participant, Chui

Focus Group Discussion with pregnant women in Jalal Abad

Women willing to vaccinate/vaccinating their children ("*Doers*")

Women categorised as "*Doers*" are those who have shown a willingness to vaccinate their children according to the national routine immunisation schedule in Kyrgyzstan. This group's responses can facilitate understanding of the motivators and barriers to vaccination from the viewpoint of individuals who are proactive about following immunisation guidelines.

Awareness and knowledge

Responses indicated a high level of familiarity with the vaccination schedule, however knowledge regarding the timing of vaccinations and the diseases they prevent is not well established. This group's awareness was likely a key factor in their decision to vaccinate, underscoring the importance of accurate and accessible information in guiding parental decisions. At the same time, more guidance and information is needed to spread awareness about the details of the vaccination schedule.

"We are aware of the existence of a vaccination schedule for children, but specific vaccinations that are carried out before the age of six are unknown to us, since we did not pay attention to their specific names."

Female FGD participant, Batken

Information access

The information gathered suggested that "*Doers*" have relatively good access to information about vaccination schedules and the importance of immunisations. This accessibility might have been facilitated through healthcare providers, community programs, or educational materials, which play a crucial role in supporting informed decisions about vaccination.

"At the appointment, the local doctor gives us full information about what reactions the child may have after the vaccine and how to care for the child."

Female FGD participant, Jalal Abad

"Medical workers go door-to-door and provide information about vaccinations. When we visit medical centres, we also receive sufficient information. The Internet is also a source of information."

Female FGD participant, Batken

Community attitude

The community's attitude towards vaccination was considered crucial by the participants. They stressed the importance of loved ones having a positive view of vaccination. The family was again perceived as playing a significant role in the decision to vaccinate, indicating that family attitudes are influential in determining vaccination choices. The decisions about vaccination were typically made within the family, often involving the husband and other family members.

Concerns were raised about the impact of anti-vaccination information on the internet and how it could shape opinions within a community. Society was seen as disseminating information that may not always be

reliable, leading participants to rely more on verified sources like doctors.

While participants acknowledged that society could have some influence on their decisions, they generally believed that their responsibility as parents was paramount in deciding to vaccinate their children. They also mentioned that society's influence might lead to doubts, especially during periods when rumours are circulating, and there is a need to filter information received from society, particularly when it comes to rumours and negative stories about vaccination.

"The role of the community is great not only in matters of vaccination, but also in everyday life, because we always consult with family, friends or colleagues."

Female FGD participant, Jalal Abad

"Society plays a role in disseminating information that is not always reliable. Sometimes it happens that it can influence our decision, but we still try to listen to doctors and check the information."

Female FGD participant, Osh

Personal practices and experiences

The motivations behind the decision to vaccinate children were highlighted by a strong sense of responsibility towards the child's health and well-being. Participants expressed a proactive stance on prevention, emphasising the importance of vaccination in protecting their children from preventable diseases. The underlying motivation was largely driven by an understanding of the benefits of vaccination and a commitment to ensuring their children's health and safety. Some participants mentioned that they had decided to vaccinate their children after hearing about increasing cases of infections, particularly measles, and the fear of severe consequences, including death. Some individuals also indicated that one of the primary factors motivating them to vaccinate their children was the requirement for vaccination to enrol in kindergartens.

The decision-making process about getting children vaccinated was described again as a family affair, with most participants reporting that discussions and decisions involved family members. This collective approach indicates the significance of family support and agreement in the vaccination process, highlighting the role of familial consensus in health practices. A few participants noted that they had faced barriers to vaccination from their grandparents, who held opposing views. However, in such cases, the participants asserted their own decisions regarding vaccination.

"The main reason for the decision to vaccinate against measles was information about the increasing incidence of this infection. From the media we learned about the death of two babies and were afraid of death, which is why the decision was made to vaccinate the children."

Female FGD participant, Chui

"I know a family in which all the children got whooping cough because they were not vaccinated. I don't want my children to suffer, so they got all their age-appropriate vaccinations."

FGD report, female participants, Jalal Abad

Recommendations from the FGD participants

- Implement a law that mandates compulsory vaccination. Such a legal requirement could help ensure that a larger portion of the population receives vaccinations, contributing to public health.
- Disseminate reliable information about vaccination through television and the Internet. Participants noted the existence of an Instagram account called "Vaccination KG" as a valuable resource for learning about vaccinations. Expanding the use of social media and online platforms for educational purposes could help reach a broader audience.
- Continue providing comprehensive information about vaccinations during appointments with healthcare providers. Participants emphasised that they had received sufficient information during these visits, indicating that this approach is effective and should be maintained.
- Offer vaccination information in various formats, including brochures, videos, and vaccination calendars with detailed information on each vaccine. This approach could cater to different learning styles and facilitate sharing information within families.
- Focus efforts on providing information to conscientious objectors who may refuse vaccinations, and individuals with limited access to reliable information. Conduct information campaigns specifically targeting and addressing vaccination-related rumours. Increasing awareness and addressing concerns among these groups could contribute to higher vaccination rates.
- Maintain ongoing efforts to provide information and education about vaccinations. Participants who did not experience difficulties may still benefit from continued information campaigns to reinforce the importance of vaccination.

Focus Group Discussion with female elders in Osh

Women unwilling/refusing to vaccinate their children ("*Non-Doers*")

Female "*Non-Doers*" refers to women who refuse to vaccinate or do not vaccinate their children against recommended diseases as per the national routine immunisation schedule in Kyrgyzstan. Understanding their perspectives, concerns, and motivations of this group is essential for identifying barriers to vaccination and developing strategies to address vaccine hesitancy.

Awareness and knowledge

Overall, the findings indicated that there was a varying degree of awareness and understanding among mothers regarding vaccination calendars and the consequences of not vaccinating. While many had been informed about vaccination schedules and the importance of vaccination, there were also concerns and misconceptions about vaccine risks. Despite refusing vaccination, respondents demonstrated some level of awareness of the vaccination calendar, suggesting that the decision to not vaccinate is not solely due to a lack of awareness but rather concerns and beliefs about vaccine safety and efficacy.

A few mothers mentioned that they were aware of the potential consequences of not vaccinating their children, but they also expressed concerns about the consequences of receiving vaccines. They believed that the risks were equal and feared for their children's health.

Many mothers were able to list the names of some diseases against which vaccinations are given, including measles, hepatitis, tuberculosis, and whooping cough. They had a basic understanding of the vaccines provided to children. At the same time, some mothers mentioned that they did not have information about the consequences of not vaccinating their children. This suggests that there may be gaps in their knowledge, possibly due to limited access to information.

"We know about the existence of a vaccination schedule for children, but we are not familiar with the specific vaccines that are given before the age of six years, since we did not pay attention to their exact names."

Female FGD participant, Osh

"Yes, we know about the consequences, but there are also great risks leading to death from receiving the vaccine. The eldest son is 5 years old and so far he has not had any serious illnesses, thank God."

FGD report, female participants, Batken

Information access

Health workers played a significant role in providing information about vaccinations. However, some mothers felt that the information they had received from healthcare providers may not have been detailed enough to make fully informed decisions. They expressed a desire for more comprehensive information about the potential risks and benefits of vaccination. While some mothers trusted the information provided by health workers, others expressed reservations or lack of trust. For example, one mother mentioned not trusting vaccination due to a doctor's inability to provide specific information about vaccine composition. In some cases, mothers sought additional information beyond what was provided by health workers. They turned to the internet to find answers to specific questions or concerns they may have had about vaccines.

Mothers used various sources to access information about vaccinations, including news and television programs, internet searches, and social networks. They also engaged in discussions with other parents and friends to learn about their opinions and experiences regarding vaccinations.

Responses hinted at the accessibility of information, yet it seems that the information leading to refusal might be influenced by sources sceptical of vaccination. This points to a challenge in ensuring that accurate and science-based information is more influential than misinformation.

"During my pregnancy, I went to the clinic for appointments. When the doctor told me about vaccines, I asked about the specific composition of the vaccine, she [the doctor] did not answer, so I don't trust vaccination."

Female FGD participant, Jalal Abad

"Some of them watch news and television programs where vaccination issues are discussed. Others search for information on the Internet and social networks. They also talk to other parents and friends to find out their opinions and experiences regarding vaccinations."

FGD report, female participants, Chui

Personal practices and experiences

Vaccine refusal forms were reported to be commonly used by mothers to assert their right to choose whether to vaccinate their children. Medical professionals actively engaged with parents who had signed these forms to persuade them to reconsider vaccination. However, individual decisions regarding vaccination may still vary, and some mothers continue to have doubts about vaccines despite these efforts.

"Many of us have signed the vaccine refusal form because it allows us to maintain our right to choose. Some of us actually had medical professionals contact us to convince us to change our minds. However, this has not generally led to a change in our opinion, as we still have doubts about the safety and effectiveness of vaccines."

Female FGD participant, Chui

Many mothers expressed concerns about the safety of vaccines. They worried about potential side effects and allergic reactions to vaccine components. Negative experiences related to vaccination, such as adverse reactions or incorrect administration of vaccines, led some mothers to lose trust in vaccines and medical professionals. Some also had doubts about the quality of vaccines available in their country. In some cases, mothers mentioned a lack of information as a factor in their decisions. They may not had been adequately informed about vaccines and their benefits, and although medical advice played a role in vaccination decisions, some mothers mentioned that medical staff had not recommended vaccination for their children, which influenced their choices.

Husbands played a significant role in the decision to vaccinate or not. In several cases, husbands were the primary decision-makers regarding vaccination. In general, family members, including grandparents and in-laws, were reported to influence vaccination decisions. Additionally, some mothers mentioned that their families had not allowed vaccination.

Religious beliefs were also cited as a reason for refusing vaccination. Some families believed that vaccination was prohibited according to their religious views.

Some mothers did not encounter any specific obstacles but made decisions based on their own beliefs and experiences.

"My husband is against the vaccine, so we refused."
Female FGD participant, Jalal Abad

"Basically, my husband insisted that the child not get vaccinated. The doctors called us, but we refused. Thank God the child did not get sick."
Female FGD participant, Batken

"This is the business of the Jews, my husband says, the Jews themselves do not receive these vaccinations, they pursue their own interests."
Female FGD participant, Osh

Recommendations from the FGD participants

- Share well-documented and scientifically-backed information about the safety and effectiveness of vaccines. Highlight the benefits of vaccination in preventing serious diseases.
- Collaborate with local religious leaders and social workers to conduct conversations and educational sessions about vaccination, addressing concerns and misconceptions within the community.
- Keep the community informed about the current disease situation in the area. Share new information from medical experts that emphasises the safety and benefits of vaccines.
- Take action to remove fake advertisements and misinformation related to vaccines on the internet. Promote accurate and reliable sources of information.
- Respect individual choices regarding vaccination while promoting informed decision-making. Acknowledge that vaccination decisions may vary, and it's important to engage in constructive dialogue rather than imposing mandates.
- Ensure that clinics follow proper procedures for storing and transporting vaccines, addressing concerns about vaccine quality and trustworthiness. Conduct comprehensive information campaigns that provide details about all vaccinations, including formulations and manufacturers, to ensure transparency and understanding.
- Encourage healthcare providers to communicate the importance of vaccines with specific examples and evidence that demonstrate the benefits of vaccination for children. Emphasise the risks associated with not vaccinating, including the potential for serious diseases and complications, to help parents make informed decisions.

Men willing to vaccinate/vaccinating their children ("*Doers*")

Male "*doers*" are fathers or male guardians who take an active role in the health decisions of their children and support or encourage decisions about getting their children vaccinated. This group is crucial for understanding the dynamics of decision-making in families based on cultural norms and the position of a man in the society.

Social norms

Men acknowledged having a "special role" in decision-making about their children's health, indicating a shift towards more egalitarian views on parental responsibilities. This reflects an understanding and acceptance among men that their involvement goes beyond traditional expectations, emphasising the importance of being informed and participative in their children's health and vaccination decisions. Family dynamics in general were reported to play a crucial role in vaccination decisions. Some men mentioned that they consulted with their wives and made decisions together, emphasising shared responsibility for family health.

Awareness and knowledge

The responses from men regarding their awareness and knowledge about vaccinations were mixed. Some participants were aware of vaccinations and could name specific vaccines, while others had limited knowledge about them and were not familiar with the vaccination calendar.

"Men, for the most part, are not as attentive to their health as women, it is easier for them to come up with a million reasons to refuse to see a doctor and wait until the last minute than to see a specialist. This applies to dentists, therapists and other doctors. A man must be strong. He thinks that everything will pass by itself, and then - one day, and when everything becomes really serious, then, when there is nowhere to go, he goes to the doctor."

Male FGD participant, Bishkek

"A man, as the head of a family, can easily convince all other family members about health issues and getting vaccinated."

Male FGD participant, Jalal Abad

Focus Group Discussion with male doers in Bishkek

Men generally rely on healthcare workers or school teachers to inform them about the vaccination schedule for their children. Some participants expressed that medicine was a complex field for those who were not medical professionals, suggesting a general perception of healthcare as a specialised domain. This might also indicate that they trust medical professionals to provide them with the necessary information. Some men also recognised that the state recommended vaccinations to protect against diseases - this can reflect an understanding of the public health importance of vaccinations.

"We know that the National Vaccination Calendar is a list of injections that need to be given to protect against diseases. The state recommends which vaccinations to take and when to stay healthy."

Male FGD participant, Batken

"Medicine [...] is a dark forest for many non-medical men."

Male FGD participant, Bishkek

Information access

Overall, participants seemed to be content with the information they received, particularly from medical professionals. Medical staff, such as family doctors, paediatricians, and nurses, were cited as essential sources of information and reported to be proactive in sharing information about vaccinations during appointments. Participants generally appreciated their efforts in providing information about vaccinations, but there were cases where they believed more detailed explanations were needed.

Television and the Internet were reported to be commonly used channels for accessing information about vaccinations. Television programs, websites, and social networks were mentioned as sources for reliable information.

Schools and daycare centres were also reported to play a role in information dissemination. They informed parents about the vaccination schedule and requirements for enrollment.

"We usually receive information about vaccinations from medical workers when visiting clinics."

Male FGD participant, Batken

"Men responded that doctors and nurses try to provide information about vaccines during appointments. In matters of vaccination, parents are greatly helped by the paediatrician, who informs about vaccines, calls and invites them to receive the vaccine."

FGD report, male participants, Jalal Abad

Community attitude, and policies

The majority of participants confirmed that when enrolling their children in a public kindergarten or school, they had been required to provide a medical certificate of vaccination.

Some participants noted that private kindergartens and schools may have accepted children without vaccination certificates. This indicates that there may be some flexibility in this policy for private institutions, although the majority of participants emphasised the strict vaccination requirement.

While the focus of the responses was on the policy aspect, it is also noteworthy that the participants' belief in the fundamental role of families and communities in vaccination decisions aligned with the broader perspective of community engagement and individual responsibility in vaccination practices. For example, participants noted that advice from the older generation, such as grandparents, could influence vaccination decisions. Similarly, some men mentioned that they consulted with their wives and made decisions together. Participants also mentioned that open discussions between men and women were essential for making informed decisions.

Religion was also mentioned to be a factor. While some participants mentioned that Islam did not prohibit vaccination, others implied that religious beliefs might have influenced decisions.

"We believe that families and communities play a fundamental role in decisions about vaccination."

Male FGD participant, Chui

"Children need to be vaccinated, otherwise they will not be admitted to kindergarten."

Male FGD participant, Bishkek

Focus Group Discussion with male doers in Batken

Personal practices and experiences

The personal practices and experiences of "men doers" revealed a proactive approach to their children's health, with motivations rooted in a desire to ensure their well-being and protection against preventable diseases. Their engagement was driven by a sense of responsibility and the understanding that vaccinations were critical for their children's health. This sense of duty was complemented by a desire for knowledge and involvement in healthcare decisions.

However, experiences may have varied, with some men facing challenges in accessing healthcare services or encountering resistance due to prevailing community attitudes.

Trust in vaccines was a recurring theme. Participants mentioned their confidence in the safety and effectiveness of vaccines, and they attributed lower mortality rates from diseases to vaccination. They also believed that vaccines strengthen children's immunity against infections. Interestingly, the COVID-19 pandemic influenced some participants to get vaccinated, as they had witnessed the severe consequences of the virus and recognized the importance of vaccination in preventing its spread. This experience had also taught them to recognise the influence of fear of the unknown and misinformation, especially from social media, as factors contributing to vaccine hesitancy in some individuals.

"Vaccinated people are less likely to get sick because their immune system is generally stronger."

Male FGD participant, Bishkek

"My decision to get vaccinated was influenced by my confidence in the effectiveness of the vaccine and its safety for my child."

Male FGD participant, Jalal Abad

"We are all vaccinated; in our youth we were told and shown films about the consequences of diseases such as cholera and plague. Therefore, we understand the importance of vaccinating children. Also, the situation with coronavirus prompted us to get vaccinated, as we witnessed mortality, and only the vaccine helped slow down the spread and stop the severe course of the disease."

Male FGD participant, Osh

Recommendations from the FGD participants

- Provide comfortable conditions for the vaccination procedure. This includes conducting vaccinations without long queues, minimising waiting times, and allowing patients to choose the nearest clinic for vaccination. This recommendation reflects the importance of convenience for parents and caregivers when seeking vaccinations for their children.
- Include thorough medical examinations for children before vaccination at vaccination points. This proposal aims to ensure that children are in optimal health conditions for vaccination and to address any potential concerns or contraindications.
- Provide information about the composition of vaccines, the vaccination process, and related topics through social networks, television, and local explanations. Engage in conversations with individuals who refuse vaccinations. Ongoing dialogues and discussions with vaccine-hesitant individuals could help address their concerns and encourage them to consider vaccination.
- Several participants expressed their satisfaction with the vaccination process and stated that they wouldn't make any changes to the current vaccination process, as they believed it was already functioning well. However, they highlighted the importance of conducting conversations with vaccine refusers, indicating a proactive approach to address vaccine hesitancy.

Men unwilling to vaccinate/not vaccinating their children ("Non-*Doers*")

Involving male non-doers in the study offers additional insights into the societal and personal barriers to vaccination, highlighting the influence of cultural norms, misinformation, and personal beliefs on vaccine hesitancy. This profile is again essential for understanding the dynamics within families and communities where men often play a decisive role in health-related decisions.

Social norms

The responses overwhelmingly underscored the perceived dominant role of men in family decision-making, particularly concerning health and vaccination. This dominant role was culturally ingrained, with many respondents highlighting the traditional view that men, being the heads of families, had the final say in health-related decisions. This viewpoint was encapsulated in statements that elevated the man's role to a position of ultimate authority, where the term "*MAN*" was equated with the law within the nation.

However, there was a spectrum of attitudes towards the involvement of women in these decisions. Some respondents advocated for a joint decision-making process, acknowledging the importance of a woman's opinion in vaccination matters. This perspective aligned with more collaborative family dynamics, where both parents' views are considered in making health-related decisions. Yet, even within this more inclusive approach, the underlying sentiment often leaned towards men having the final say, reflecting a balance between traditional gender roles and evolving attitudes towards shared decision-making.

"The role of a man is very important. The word "MAN!" - this is the law in our nation, therefore, in order not to harm our offspring, we refuse vaccination."

Male FGD participant, Chui

"I believe that my wife's opinion should be listened to, but the final decision will be made by me personally."

Male FGD participant, Jalal Abad

"The man is the head of the family. We play a decisive role, but we also listen to the wives. Since the mother is often responsible for the upbringing and health of the child, we cannot always be aware of vaccinations and their stages. Therefore, we consult with my wife and make a decision together."

Male FGD participant, Batken

Awareness and knowledge

A significant portion of the male non-doers demonstrated a lack of awareness or knowledge about the national routine immunisation schedule and the measles vaccine. The data indicated that in one focus group out of eight participants, none had heard about the vaccination program, suggesting a profound gap in public health communication.

There was a notable divergence in beliefs about natural versus vaccine-induced immunity. Some men expressed a preference for natural immunity, questioning the effectiveness of vaccines and suggesting that unvaccinated children may have stronger immune systems. Some men drew on personal anecdotes to argue that unvaccinated children are healthier or less prone to illness than their vaccinated peers, further entrenching their stance against vaccination.

Many respondents did not perceive significant consequences of refusing vaccination, relying instead on the belief that a healthy diet and natural immunity will protect their children from disease. A minority

acknowledged potential legal or social consequences, such as school attendance restrictions, yet framed these in the context of human rights, reflecting a complex interplay between health decisions and perceived personal freedoms.

Responses also indicated a concerning level of misinformation, with references to "pork fat"[21] being a vaccine component, and unfounded claims linking vaccination to severe adverse outcomes, including death. Such beliefs underscore the profound impact of misinformation on vaccine hesitancy.

"As a consequence of refusing vaccination, children may be prohibited from attending school. But this would be a violation of human rights to study."

Male FGD participant, Jalal Abad

"We know that a child can get sick, but I would like to give an example: my neighbours constantly vaccinate their child and he gets sick very often, but mine doesn't get sick at all. We haven't heard yet that if a child is not vaccinated, he can get sick or die. But everywhere we hear that when receiving the vaccination, the child "DIED". Because of this, there is no trust in vaccines."

Male FGD participant, Chui

"We know that there is a national calendar of preventive vaccinations in the Kyrgyz Republic, but we don't know exactly what vaccines are administered to our children [...], but we heard that it contains "pork fat"."

Male FGD participant, Chui

Information access

Participants reported a range of sources for vaccination information, including TV, social media, internet sites, medical personnel, relatives, friends, and imams. This diversity indicates that while information is available through multiple channels, the credibility and influence of these sources can vary significantly. During the discussions concerns were raised about the reliability of online information, with some men acknowledging that it's not always sourced from official or trustworthy channels.

Despite receiving information from various sources, including direct conversations with medical personnel, many participants expressed scepticism and a lack of trust in the information provided, especially regarding modern vaccines compared to those received in childhood.

In addition, some men indicated a reluctance to engage in discussions with healthcare workers on the topic of vaccination, which they attributed to a pre-existing distrust or dissatisfaction with medical staff. A recurring theme was the perception that the information provided by healthcare workers was insufficient, leading many to seek additional data online. This suggests a gap in communication effectiveness between medical personnel and this demographic.

"The majority of focus group participants said that they did not even listen to the arguments of doctors, since they have their own opinion on this issue."

Male FGD participant, Chui

"The information the doctor gave us was not enough for me. I additionally searched for data on the Internet."

FGD report, male participants, Jalal Abad

Community attitude, and policies

Responses indicated varied awareness and compliance with policies requiring medical certificates of vaccination for school or kindergarten enrollment. While some were unaware or surprised by these requirements, others acknowledged them but it did not change their minds about vaccination. Some also mentioned trying to find a "*workaround*" - navigating this through refusal forms, medical exemptions, or leveraging personal connections. Frustration was evident in the repeated need to provide refusal forms at multiple institutions, suggesting an administrative burden on parents. The suggestion for a unified database for those opting out of vaccination reflects a desire for a more streamlined process that respects parental decisions while reducing redundancy.

There's a consistent mention of medical workers attempting to inform and convince parents about the benefits of vaccination. However, these efforts often clashed with deep-rooted beliefs and resulted in refusal despite repeated attempts. The act of signing a refusal form was recurrent, highlighting a formal acknowledgment of the decision against vaccination. This process sometimes involved considerable persuasion attempts by healthcare providers, reflecting a policy-driven effort to mitigate vaccine hesitancy.

"Yes, everyone signed a form refusing vaccination. The doctors did not immediately give us a form, they told us to think and talked about the importance and consequences of vaccination. But we still decided to refuse at that time."

Male FGD participant, Osh

"Yes, they ask everywhere, but sometimes it is possible to enrol a child without vaccinations through friends or a certificate of refusal."

FGD report, male participants, Osh

Personal practices and experiences

Participants expressed a strong belief in their autonomy regarding health decisions for their children, viewing the right to refuse vaccination as a fundamental aspect of parental responsibility. Attempts by others to persuade them otherwise were seen as infringements on their rights.

Despite efforts by medical personnel to educate and persuade, many men reported unchanged attitudes toward vaccination, citing inadequate information or outright distrust in the healthcare system as barriers. Personal stories of adverse health outcomes following vaccination again proved to strongly influence perceptions. Anecdotes of children who had become ill or experienced severe side effects post-vaccination served as significant deterrents to vaccinating their own children; fear of potential complications post-vaccination heavily influenced decision-making. On top of that, reports from media and social networks about severe adverse reactions, including death and disability following vaccination, amplified these fears.

Reports of healthcare workers administering vaccines despite explicit parental refusals exacerbated tensions, leading to mistrust and resistance against the healthcare system. These claims, whether verified or anecdotal, highlight a critical area for improving communication and consent practices within healthcare settings.

For some, religious beliefs informed their stance on vaccination, contributing to the refusal. Misinformation about vaccine ingredients, such as unfounded claims about "*pork fat*" in vaccines, exacerbated hesitancy.

"My wife signed a refusal to vaccinate the child in the maternity hospital. However, while she left the room, the nurse turned out to come and give the vaccine. How can this happen? We then spent a long time dealing with the management of the maternity hospital."

Male FGD participant, Jalal Abad

"First of all, because of the composition of the vaccine. There is a lot of talk about pork fat in vaccines. Also, many people say that after vaccination the child becomes weak and begins to get sick more often, or may even become disabled. No one had a medical exemption."

Male FGD participant, Osh

Recommendations from the FGD participants

- Provide more detailed and comprehensible explanations, especially about the diseases vaccines protect against and the rationale for the vaccine schedule, could influence their attitudes positively.
- Provide timely information and detailed explanations about vaccines - as early as in the maternity hospital to impact decision-making from the beginning.
- Involve in discussions both medical professionals and community members for the greatest benefits, which indicates a preference for diverse perspectives and shared experiences to inform their choices.
- Concerns about the perceived excessive number of vaccines given simultaneously and their potential impact on children's health were mentioned, hinting at a need for reassurance about vaccine safety and monitoring.
- A striking observation was that only the prospect of legal consequences for vaccine refusal would definitively change some participants' minds, reflecting the potential influence of stricter enforcement policies.

Focus Group Discussion with male non-doers in Osh

Immunisation specialists

Immunisation specialists play a vital role in shaping vaccination policies, providing critical information to the public, and addressing concerns related to immunisation. Through interviews with these representatives, valuable insights into the factors contributing to vaccine hesitancy, as well as their recommendations and experiences in tackling vaccination-related issues were gathered.

Personal experiences and attitude among the society

According to the information shared, vaccine hesitancy is multifaceted, with various factors contributing to this phenomenon. Notably, some individuals refused vaccines due to religious beliefs, and there was a presence of religious sects among those refusing vaccination. These groups tend to be particularly resistant to vaccination. Additionally, the spread of negative comments on social networks, fueled by religious views, could significantly impact public perceptions of vaccines. It had been observed that people with strong religious convictions often gained authority within their communities and may have imposed their vaccination-related opinions on others.

According to the interviewees' observations and experiences, vaccine hesitancy in the region was often observed among young parents who lacked access to reliable information about vaccines. Parents' hesitancy was often attributed to the influence of uninformed individuals and the circulation of misinformation, both of which contributed to their doubts about vaccine quality and safety. Some parents mistakenly believed that free vaccines are of lower quality, leading to hesitancy.

Outbreaks of measles among unvaccinated children was noted, emphasising the consequences of vaccine refusal. The involvement of organisations like the Red Crescent and their volunteers had been playing a crucial role in providing moral and physical support to medical professionals and bolstering social mobilisation efforts over the years.

"Most of the "refusers" are people from a kind of "new youth movement" who have their own religious views in relation to medicine. They are very difficult to work with. Such people gain authority among their environment and impose their opinions on other people."

Immunisation specialist, KII participant, Jalal Abad

"In the process of promoting vaccination among the population, problems are created by refusers, people who doubt the quality of the vaccine. Among the reasons why people refuse vaccines are the following: 1) they consider vaccines to be "haram"; 2) they believe that the vaccine contains pork fat; 3) false medical referrals from doctors; 4) distrust of vaccine manufacturers; people do not trust vaccines from China and India; 5) religious beliefs. Problems in promoting vaccination are also associated with the lack of modern, well-equipped laboratories and equipment for transporting vaccines that meet international standards."

Immunisation specialist, KII participant, Jalal Abad

Information access and sharing

One common challenge identified was the lack of reliable information about vaccines among the population. Misinformation, particularly on social media platforms, had been a prominent issue that negatively affected people's understanding of vaccines. In response to these challenges, healthcare professionals and volunteers were actively engaged in communication and outreach efforts to provide clear and accurate information about vaccines and their benefits. This included establishing channels for two-way communication with parents and citizens, creating platforms for asking questions, and open feedback mechanisms.

"We have two-way communication with parents and citizens. You have just seen how many parents and grandmothers came to me with questions about immunisation, about vaccines."
Immunisation specialist, KII participant, Bishkek

"People know that, if necessary, they can contact the city's Immunoprophylaxis Department, family doctors and nurses regarding immunisation issues."
Immunisation specialist, KII participant, Jalal Abad

Policy

Various policies and strategies had been employed to address vaccine hesitancy in the region - collaboration with local authorities, district administrations, and religious leaders had proven beneficial in promoting vaccination. Advocacy and outreach work was ongoing, with a particular focus on using social networks for informational campaigns. The implementation of the Law on Immunoprophylaxis, which restricted unvaccinated children from certain group settings and activities during outbreaks, served as a crucial policy tool.

"In our region, work is underway to prevent unvaccinated people from entering collective institutions such as schools, kindergartens, regular informational conversations are held in educational institutions and groups. In order to increase the interest of the population in vaccination, work should be strengthened at the local level, in each of the regions of the region it is necessary to work to involve local authorities. For example, at the level of village governorates, together with religious leaders, it is necessary to strengthen the ongoing informational conversation about vaccination during meetings before going to Umrah or Hajj. In the Law on Immunoprophylaxis, Clause No. 5 states that if an outbreak of measles, rubella or other vaccine-preventable infections occurs, do not allow unvaccinated children into children's groups, schools or other institutions where there is a high risk of spreading diseases. It is important to disseminate this information and carry out explanatory work among the population."
Immunisation specialist, KII participant, Jalal Abad

Recommendations from the interviewees

- Intensify advocacy work at the local level, involving local authorities and religious leaders in discussions about vaccination, and utilise social networks for informational campaigns.
- Continuously support and train medical staff as it is essential to enhance their capacity to address vaccine hesitancy.
- Organise television broadcasts featuring imams discussing vaccination issues to help reach communities with strong religious convictions.
- Promote collaborative efforts among various stakeholders, including NGOs, in order to encourage them to promote vaccination.
- Establish feedback mechanisms and open channels for questions to facilitate dialogue and address concerns among the population effectively.

Primary healthcare workers involved in the vaccination process

Primary healthcare workers represent an extremely important perspective of vaccination attitudes and practices, as they are on the frontline of public health efforts, directly interacting with communities - they witness firsthand the challenges and successes of vaccination campaigns, understand the common concerns and questions of the population, and are pivotal in implementing strategies to increase vaccine uptake.

Personal experiences and attitude among the society

Interviewed doctors and nurses expressed concern over the pervasive influence of social media and the internet, where misinformation spreads rapidly, fostering scepticism and fear about vaccine safety and efficacy. This digital dilemma was particularly problematic as individuals, influenced by unverified sources, often exhibited heightened distrust towards vaccines produced abroad, questioning their composition and safety.

Religious beliefs and migration status emerged as pivotal factors in vaccination decisions, with religious individuals expressing hesitancy due to concerns over vaccine components, such as their halal status. Healthcare workers observed that these groups were particularly challenging to engage with due to deeply ingrained beliefs and systemic obstacles.

Education level was another critical determinant in vaccine acceptance, with lower levels of education correlating with increased susceptibility to misinformation and consequent vaccine refusal. Efforts to counteract these trends included targeted information campaigns, conferences, and the involvement of organisations like the Red Crescent Society of Kyrgyzstan; aiming to improve understanding and acceptance of vaccination was a crucial preventive measure against infectious diseases.

Despite these challenges, some improvements in vaccine uptake had been noted due to increased requirements by educational institutions and discussions about making vaccination refusals subject to legal accountability, particularly in the wake of the COVID-19 pandemic. Health workers had been attempting to counteract hesitancy by explaining the low risk of side effects relative to the benefits of vaccination, but the pervasive influence of digital misinformation and the weight of cultural and religious opposition presented ongoing barriers to achieving higher vaccination rates.

"People from different religious movements refuse to vaccinate their children. There are also people who have had negative experiences after vaccination and forbid their other children from receiving vaccines."

Medical personnel, KII participant, Jalal Abad

"Probably, religious people can be distinguished here. But as you know, religion has different currents that do not obey the same laws of religion. Most often, it is more difficult to work with them. Also, in our culture, a man is the head of the family, who makes decisions. This also affects the vaccination of children."

Medical personnel, KII participant, Batken

"Lack of information. Many migrants do not have information about where they can vaccinate their children, whether they can do without registration, and so on. Due to lack of documents, they are hesitant to get vaccinated."

Medical personnel, KII participant, Batken

"Migrants themselves come and ask for vaccines for their children, due to the fact that they missed scheduled vaccinations when they were away."

Medical personnel, KII participant, Jalal Abad

Recommendations from the interviewees

- Create detailed brochures that compile information on all vaccines and vaccine-preventable diseases. These brochures would serve as a useful guide for parents, providing them with a reliable reference.
- Produce more informational posters and stands in hospitals, educational institutions, and government buildings to raise awareness about the importance of vaccinations and address common concerns.
- Utilise media to broadcast videos about the benefits of vaccination and organise public events or competitions dedicated to promoting vaccination as recommended strategies to engage the public and improve vaccine literacy.
- Involve respected figures in the promotion of vaccination, acknowledging the role of medical workers and community leaders.
- Address parents' fears about vaccine side effects as a critical area for educational efforts. Emphasise the rarity of serious complications to help alleviate concerns and encourage more parents to vaccinate their children.
- For strongly religious individuals who believe vaccines are prohibited by their faith, target information campaigns that clarify misconceptions and highlight religious endorsements of vaccinations.
- Make vaccination compulsory for all children as means to improve vaccine coverage and protect public health.

Interview with a doctor in Batken

Interview with an immunisation specialist in Batken

Interview with a doctor in Jalal Abad

Interview with an immunisation specialist in Jalal Abad

Religious leaders

Interviewing religious leaders was an important step in understanding the complex interplay between cultural, religious beliefs, and health practices. Given their influential role within the community and their ability to shape social norms and attitudes, engaging with these individuals provided invaluable insights into potential barriers and facilitators of vaccine acceptance, thereby informing more effective public health strategies.

Attitude

The attitudes of religious leaders towards vaccination were generally positive, with a clear recognition of its importance. However, this positive attitude seemed to be tempered by a respect for individual autonomy in health decisions and a conditional acceptance of vaccines, predicated on their compliance with religious dietary laws or the absence of prohibited components. The responses indicated a consensus that religious beliefs did significantly influence community attitudes towards vaccination. This highlights the potential of religious leaders to sway public opinion positively if they advocate for vaccination.

"Yes, in our community, religion plays an important role in vaccination and health decisions."

Muslim religious leader, KII participant, Jalal Abad

"In recent years, the number of people who adhere to the traditional rules of Islam has increased (wearing hijabs, men's religious clothing, etc.), despite this, I believe that this trend should not influence the decision to vaccinate. You can't refuse vaccinations because of religion."

Muslim religious leader, KII participant, Jalal Abad

"Yes, religion plays a significant role in vaccination decisions. Many people refuse vaccination because they believe that vaccines contain pork fat and lead to severe illness and infertility."

Muslim religious leader, KII participant, Jalal Abad

Information access and sharing

The approach to discussing vaccines among religious communities was characterised by a respect for personal choice and the dissemination of accurate information. Religious leaders emphasised the right of individuals to make informed decisions about vaccination. This underscores the importance of providing these leaders with accurate, comprehensive information about vaccines to ensure that community discussions are informed and constructive.

"As I know, our Muftiyat works closely with medical professionals."

Muslim religious leader, KII participant, Bishkek

"If possible, I explain to people, I tell them that you are responsible for your health and life before Allah. I tell them that it is possible to be vaccinated according to religion, that it is not forbidden, but on the contrary it is encouraged if it is a matter of life and health."

Muslim religious leader, KII participant, Bishkek

"No, I did not actively work among the population on health issues. I respect other people's choices and believe that whether to vaccinate or not is everyone's choice. As a general recommendation, I always tell my circle of friends and relatives that vaccines are important and we need to get vaccinated on time."

Muslim religious leader, KII participant, Jalal Abad

"Religious leaders can help promote vaccination among the population during Friday prayers, meetings of imams and during meetings with local government officials."

Muslim religious leader, KII participant, Jalal Abad

Social norms

Religious leaders acknowledged their influential role within the community, especially regarding health practices. They saw themselves as pivotal in shaping social norms around health behaviours, including vaccination. Their engagement in promoting vaccination could leverage their authority to counteract vaccine hesitancy.

The insights from religious leaders revealed a complex interplay between religious beliefs, personal autonomy, and public health initiatives. Their potential to influence community attitudes towards vaccination is significant, suggesting that public health campaigns could benefit from actively engaging with religious leaders. By addressing their concerns and providing them with accurate information, health authorities could enlist their support in promoting vaccination, ultimately enhancing vaccine acceptance and coverage within their communities.

"They come to us to find out if it is possible according to religion and we give all the information, tell us that there is a fatwa where it is written that it is not forbidden to get vaccinated."

Muslim religious leader, KII participant, Batken

"Yes, indeed religious representatives play an important role in promoting information about vaccines. It is worthwhile to bring to religious leaders and to local moldo all reliable information about vaccination. And in turn, we can give reliable information to people."

Muslim religious leader, KII participant, Bishkek

Interview with a religious leader in Batken

Recommendations from the the interviewees

- Prove accurate information about vaccination to religious leaders and local moldos (Islamic teachers). This would enable religious leaders to disseminate reliable information to their followers, leveraging their trust and authority to encourage vaccination. Hold regular meetings with district and regional religious leaders to discuss immunisation issues; improve engagement with religious leaders through training on common diseases and vaccinations.
- Emphasise the importance of consolidating research and opinions to present a unified stance on vaccination. Conflicting messages contribute to public confusion and scepticism.
- Utilise the Internet, WhatsApp, radio, and television to disseminate correct information to reach a wider audience. Given the high usage of these platforms, they could be effective channels for promoting vaccination.
- Encourage the public to seek information from reliable sources and distribute accurate information through official channels like the Ministry of Health to counteract misinformation.

Interview with a religious leader in Jalal Abad

Summary

The situation in Kyrgyzstan serves as a call to action for public health officials, healthcare providers, and the international community to collaborate in addressing the multifaceted challenges of vaccine hesitancy and access. By focusing on education, communication, and system-wide improvements in healthcare delivery, Kyrgyzstan can make significant strides toward controlling measles and protecting its population's health. It is imperative for Kyrgyzstan to implement targeted community-oriented public health interventions. These should include campaigns to educate the public on the importance of routine immunisation - including measles vaccination -, efforts to improve the delivery of information by healthcare workers, and strategies to address specific barriers to vaccination in both urban and rural areas. The goal must be to ensure that all children in Kyrgyzstan, regardless of where they live, have access to the lifesaving vaccines.

Summary of the recommendations shared

Implementing solutions recommended by the study participants requires a coordinated effort involving stakeholders at all levels, including government authorities, healthcare providers, community leaders, and NGOs. Continuous advocacy, training, and feedback mechanisms are essential to adapt strategies based on community needs and concerns.

Legal and policy enhancements

- Implement laws mandating compulsory vaccination.
- Stricter enforcement policies against vaccine refusal.

Information dissemination and education strategies

- Disseminate reliable vaccination information through TV, internet, and social media platforms like "*Vaccination KG*".
- Continue providing comprehensive vaccination information during healthcare appointments.
- Utilise various formats (brochures, videos, calendars) for vaccination information.
- Address misinformation and rumours through targeted information campaigns.
- Share scientifically-backed information on vaccine safety and effectiveness.
- Increase public education on vaccine composition, process, and benefits.

Community and healthcare workers engagement

- Collaborate with religious leaders and social workers for educational sessions.
- Maintain dialogue with conscientious objectors and those with limited access to reliable information.
- Ensure proper vaccine storage and transport procedures in clinics.
- Encourage healthcare providers to communicate the importance of vaccines effectively.

Service and accessibility improvements

- Improve conditions for vaccination procedures to enhance convenience and comfort.
- Offer thorough medical examinations before vaccination.
- Create comfortable conditions for vaccination, minimising waiting times.

Advocacy and outreach

- Intensify advocacy work at local levels, involving authorities and religious leaders.
- Support continuous training for medical staff on addressing vaccine hesitancy.
- Organise TV broadcasts featuring imams to reach religious communities.
- Establish feedback mechanisms for questions and concerns.

The Red Crescent Society of Kyrgyzstan has played a crucial role in enhancing vaccination efforts by developing and distributing comprehensive educational materials in collaboration with healthcare providers and religious leaders, thereby ensuring accurate information reaches all community segments. Launching social media campaigns and interactive platforms can significantly expand vaccine education outreach. Additionally, organising community programs, including discussions with healthcare professionals, can address concerns and misinformation effectively. Facilitating training for medical staff to improve communication skills and strategies for addressing vaccine hesitancy could further bolster vaccination campaigns, ensuring broader public engagement and trust in vaccination programs.

The International Federation of Red Cross and Red Crescent Societies (IFRC) is the world's largest humanitarian organisation, reaching 150 million people in 192 National Societies, including the Red Crescent Society of Kyrgyzstan through the work of 13.7 million volunteers.

Together, we act before, during and after disasters and health emergencies to meet the needs and improve the lives of vulnerable people. We provide assistance without discrimination as to nationality, race, gender, religious beliefs, class or political opinions.

The Red Crescent Society of Kyrgyzstan (RCSK) is a humanitarian organisation that operates in all regions of Kyrgyzstan, providing assistance to the population through its 7 regional, 3 cities, 38 district branches, and a network of over 3,000 volunteers. The overarching goal of the RCSC is to prevent and alleviate human suffering while upholding impartiality and non-discrimination based on nationality, race, age, gender, religious beliefs, and political views, and to promote mutual understanding and friendship among all people, contributing to world peace. The RCSK is a structure auxiliary to the government supporting it in addressing various social needs of the country's population and also collaborates with numerous international and non-governmental organisations in order to provide assistance to the most vulnerable groups.

Contact us:

Red Crescent Society of Kyrgyzstan | A *10 Erkindik Blvd., 720040 Bishkek, Kyrgyzstan*
Asel Toktomambetova, Head of Health Department | E a.toktomambetova@redcrescent.kg

IFRC Central Asia Country Cluster Delegation | A *10 Erkindik Blvd., 720040 Bishkek, Kyrgyzstan*
Oyungerel Amgaa, Health & Care Manager for Central Asia | E oyungerel.amgaa@ifrc.org

Follow us:
Red Crescent Society of Kyrgyzstan
www.redcrescent.kg | twitter.com/redcrescent_kg | facebook.com/kyrgyzredcrescent

IFRC
www.ifrc.org | twitter.com/ifrc | facebook.com/ifrc | instagram.com/ifrc | youtube.com/user/ifrc

Annex 1

Kyrgyzstan: Routine immunisation coverage (%), 2010-2022; source, source

Official coverage: *"Estimated coverage reported by national authorities that reflects their assessment of the most likely coverage based on any combination of administrative coverage, survey-based estimates or other data sources or adjustments. Approaches to determine official coverage may differ across countries."*

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
BCG[1]	98	98	98	98	97	97	97	97	97	96	96	97	97
DTP1[2]	99	97	96	98	96	100	97	94	98	99	90	87	90
DTP3[3]	96	96	96	97	96	97	96	92	94	95	87	89	90
Pol3[4]	*n/a*	94	94	97	95	97	97	93	92	96	87	90	92
IPV1[5]	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*	54	94	86	87	91
MCV1[6]	99	97	98	99	96	99	97	95	96	96	92	93	94
MCV2[7]	98	98	98	97	97	96	98	96	96	98	93	97	95
RCV1[8]	99	97	98	99	96	99	97	95	96	96	92	93	94
HepBB[9]	99	73	94	96	99	97	96	97	97	96	95	96	96

1 The birth dose of bacille Calmette-Guérin (BCG) vaccine.
2 The first dose of diphtheria, tetanus toxoid and pertussis containing vaccine.
3 The third dose of diphtheria, tetanus toxoid and pertussis containing vaccine.
4 The third dose of polio containing vaccine.
5 The third dose of the inactivated polio vaccine. Estimates for IPV began in 2015 following the Global Polio Eradication Initiative Strategy.
6 The first dose of measles containing vaccine.
7 The second dose of measles containing vaccine.
8 The first dose of rubella containing vaccine. No official data, estimates based on MCV1.
9 The birth dose of hepatitis B vaccines.

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
HepB3[1]	96	96	96	97	96	97	96	92	*n/a*	95	86	89	90
Hib3[2]	96	96	96	97	96	97	96	92	*n/a*	94	86	88	90
RotaC[3]	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*	52	90	86
PcV3[4]	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*	88	92	96	90	90	92

Table 1 Kyrgyzstan: Routine immunisation coverage (%), 2010-2022

1 The third dose of hepatitis B containing vaccine.
2 The third dose of Haemophilus influenzae type b containing vaccine.
3 The second or third dose of rotavirus vaccine, depending on the vaccine.
4 The third dose of pneumococcal conjugate vaccine.

Annex 2

Routine immunisation against measles coverage; comparison of Kyrgyzstan, WHO Europe region, and global coverage (%), 2010-2022; source

Official coverage: "Estimated coverage reported by national authorities that reflects their assessment of the most likely coverage based on any combination of administrative coverage, survey-based estimates or other data sources or adjustments. Approaches to determine official coverage may differ across countries."

- MCV1: The percentage in the target population who have received one dose of measles-containing vaccine in a given year.
- MCV2: The percentage in the target population who have received two doses of measles-containing vaccine in a given year.

WHO/UNICEF estimates (WUENIC):

- MCV1: Percentage of surviving infants who received the 1st dose of measles containing vaccine. In countries where the national schedule recommends the 1st dose of MCV at 12 months or later based on the epidemiology of disease in the country, coverage estimates reflect the percentage of children who received the 1st dose of MCV as recommended.
- MCV2: Percentage of children who received the 2nd dose of measles containing vaccine according to the nationally recommended schedule.

	Antigen	Source	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Global	**MCV1**	WUENIC	84	84	84	84	84	85	85	85	86	86	83	81	83
	MCV2	WUENIC	42	48	51	56	59	63	67	68	70	71	72	71	74
European region	**MCV1**	WUENIC	94	94	95	95	94	94	93	95	95	96	94	94	93
	MCV2	WUENIC	80	83	83	89	89	89	88	90	91	92	91	92	91
Kyrgyzstan	**MCV1**	Official	98.9	97.2	98	98.6	95.6	99	97	94.7	96.2	96.1	91.71	93.38	94.45
	MCV1	WUENIC	99	97	98	99	96	99	97	95	96	96	92	93	94
	MCV2	Official	97.7	98.1	98.4	97.3	96.8	95.6	97.5	95.7	96	98.5	92.55	96.95	94.53
	MCV2	WUENIC	98	98	98	97	97	96	98	96	96	98	93	97	95

Table 2 Routine immunisation coverage (%) comparison, 2010-2022

Annex 3

Kyrgyzstan: Number of reported cases of measles, 2010-2022; source, source

2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
0	222	0	1	318	17,779	0	5	1,007	2,380	733	3	5,532[1]

Table 3 Kyrgyzstan: Measles cases, 2010-2022

1 As of 05.12.2023, source.

Annex 4

Sampling

Table 4 Number of FGD participants, per profile and region (number of FGDs)

Profile	*Bishkek*	*Chui*	*Osh*	*Jalal Abad*	*Batken*
Pregnant women	15 (2)	30 (3)	22 (2)	30 (3)	20 (2)
Male doers	22 (3)	30 (3)	14 (2)	30 (3)	20 (2)
Female doers	30 (3)	22 (2)	20 (2)	30 (3)	30 (3)
Male non-doers	8 (1)	30 (3)	24 (3)	30 (3)	4 (1)
Female non-doers	30 (3)	30 (3)	14 (2)	30 (3)	20 (2)

Table 5 Number of KII interviewees, per profile and region

Profile	*Bishkek*	*Chui*	*Osh*	*Jalal Abad*	*Batken*
Religious leaders	6		2	5	3
Medical workers	5		8	5	6
Immunisation specialists	2		1	5	2
Medical instructors	5		-	-	-

Endnotes

1 https://immunizationdata.who.int/

2 https://www.cdc.gov/measles/hcp/index.html

3 Minta AA, Ferrari M, Antoni S, et al. Progress Toward Measles Elimination — Worldwide, 2000–2022. MMWR Morb Mortal Wkly Rep 2023;72:1262–1268. DOI: http://dx.doi.org/10.15585/mmwr.mm7246a3

4 *ibid.*

5 https://www.who.int/news/item/16-11-2023-global-measles-threat-continues-to-grow-as-another-year-passes-with-millions-of-children-unvaccinated

6 Portnoy A, Jit M, Ferrari M, Hanson M, Brenzel L, Verguet S. Estimates of case-fatality ratios of measles in low-income and middle-income countries: a systematic review and modelling analysis. Lancet Glob Health. 2019 Apr;7(4):e472-e481. doi: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6418190/

7 [*author's note*] Kyrgyzstan is one of the 53 WHO European Region's Member States.

8 https://www.who.int/europe/news/item/14-12-2023-a-30-fold-rise-of-measles-cases-in-2023-in-the-who-european-region-warrants-urgent-action

9 *ibid.*

10 https://www.unicef.org/eca/press-releases/measles-cases-europe-and-central-asia-skyrocket-3000-cent-year-compared-last

11 *Vide* Annex 1 and Annex 2 for detailed data.

12 https://www.who.int/news-room/fact-sheets/detail/immunization-coverage

13 https://reliefweb.int/report/kyrgyzstan/kyrgyzstan-epidemic-2023-dref-operation-update-ndeg-mdrkg018

14 Namazova A, Minbaeva L. Knowledge, Attitudes, and Practices Towards Immunization in Kyrgyzstan. United Nations Children's Fund; 2018. https://www.unicef.org/kyrgyzstan/media/4796/file/Knowledge,%20attitudes,%20&%20practices%20towards%20immunization%20in%20Kyrgyzstan%20.pdf

15 https://reliefweb.int/report/kyrgyzstan/kyrgyzstan-epidemic-2023-dref-operation-update-ndeg-mdrkg018

16 As of 05.12.2023, https://privivka.kg/novosti/situacziya-po-kori-v-kyrgyzskoj-respublike-2/. According to the Republican Centre for Immunoprophylaxis, there were additional 1,088 cases registered in Kyrgyzstan between 27.12.2023 and 22.01.2023 https://24.kg/obschestvo/285230_nahodit_samyih_slabyih_mediki_rasskazali_osituatsii_skoryu_vkyirgyizstane/. Vide Annex 3 for the number of measles cases reported between 2010 and 2022.

17 https://reliefweb.int/report/kyrgyzstan/kyrgyzstan-epidemic-2023-dref-operation-update-ndeg-mdrkg018

18 Based on the operational updates provided by the Red Crescent Society of Kyrgyzstan https://go.ifrc.org/emergencies/6600/reports

19 Report outlining the findings from the first iteration of the study - focused on Covid-19 - can be found here: https://www.redcrescent.kg/ru/about/docs/index.php

20 Detailed sampling can be found in Annex 4.

21 In Islam, pork and pork derivatives are considered "*haram*" - impure and forbidden. Therefore, Muslims refrain from consuming pork and using products containing pork derivatives.
The misinformation about vaccines containing "*impure*" components most likely originated from a viral claim stating that the COVID-19 vaccine contained pig fat as a stabiliser. According to the CDC, "*None of the COVID-19 vaccines contain ingredients like preservatives, tissues (such as aborted foetal cells), antibiotics, food proteins, medicines, latex, or metals. Exact vaccine ingredients vary by manufacturer.*" https://www.cdc.gov/coronavirus/2019-ncov/vaccines/facts.html