

Tuesday, August 15

Preparing Early Adopter Countries for Maternal Vaccination: COVID-19, RSV, GBS

Maternal Immunization Readiness Initiative (MIRI)
Demand Generation Formative Research Findings: Kenya
Johns Hopkins Bloomberg School of Public Health



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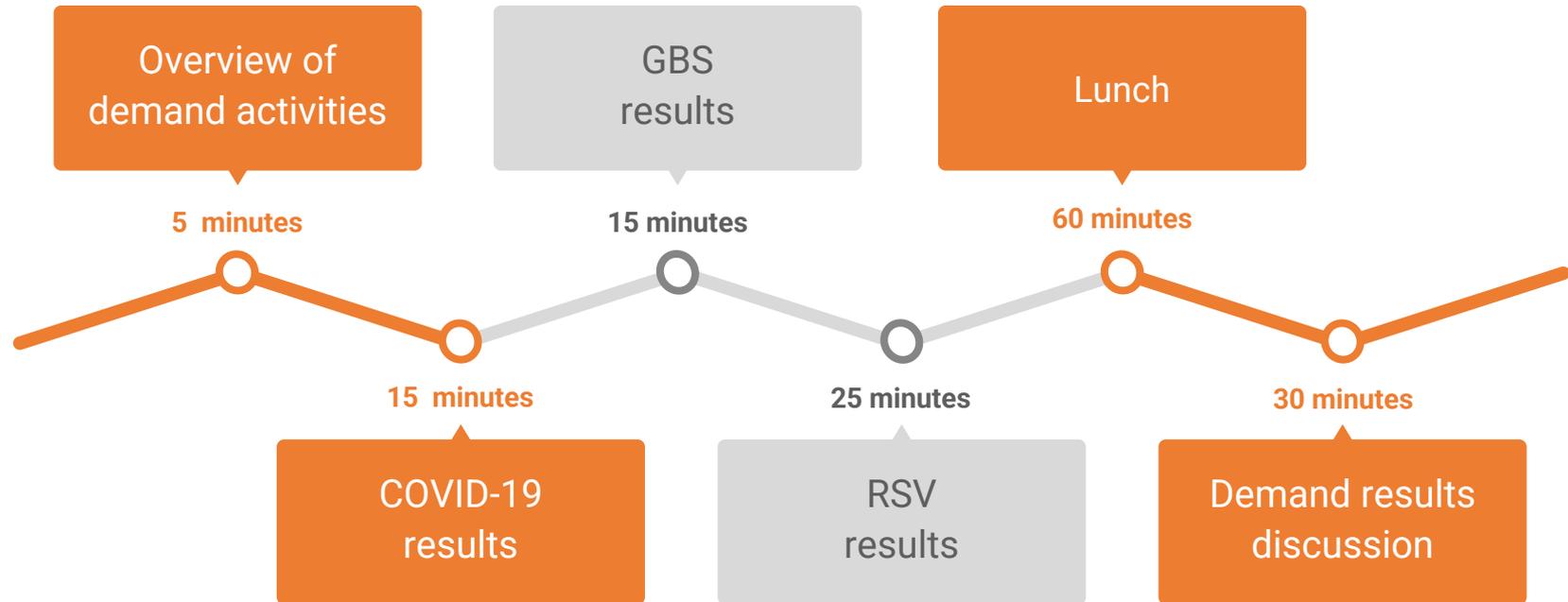


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Roadmap of demand activities: sessions for August 15



Overview of MIRI

Maternal Immunization Readiness Initiative (MIRI):

Conduct research to inform the future delivery of new maternal vaccines during pregnancy (COVID-19, RSV, GBS) in Kenya & Bangladesh

Immunization Readiness

Develop tools to assess readiness of MNH facilities for maternal immunization and quality of ANC before and after MI introduction

(Jhpiego)

Maternal Immunization Policy

Assess the policy environment for maternal immunization
COMIT: comitglobal.org

(Johns Hopkins Bloomberg School of Public Health)

Demand Generation & Communication

Gather insights on knowledge, attitudes, & behaviors, relevant to maternal immunization for demand generation strategies

(Johns Hopkins Bloomberg School of Public Health)

Objectives of demand generation and communication

1

Explore disease conceptualization of COVID-19, RSV, and GBS among pregnant and lactating women and other key stakeholders

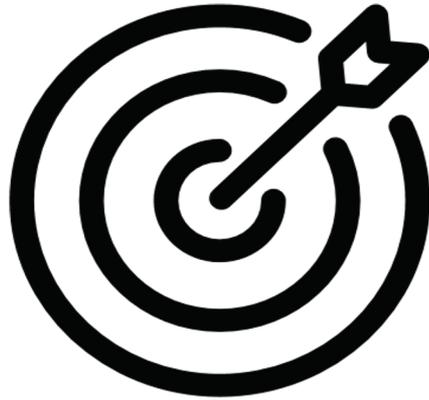
2

Explore the decision-making process for maternal vaccines among pregnant and lactating women and other key stakeholders

3

Design communication strategies informed by research results and conduct rapid testing of such strategies

Demand Generation: Overall Study Objective



- Examine the factors influencing the decision-making process for **COVID-19** vaccines in pregnant and lactating people to inform demand generation strategies in Kenya and Bangladesh
- Examine the factors that could influence the decision-making process for **RSV** and **GBS** vaccines in pregnant and lactating people to inform demand generation strategies in Kenya and Bangladesh
- Today: we will focus on results from Kenya only - COVID-19, RSV, GBS

Results from Demand Generation Activities



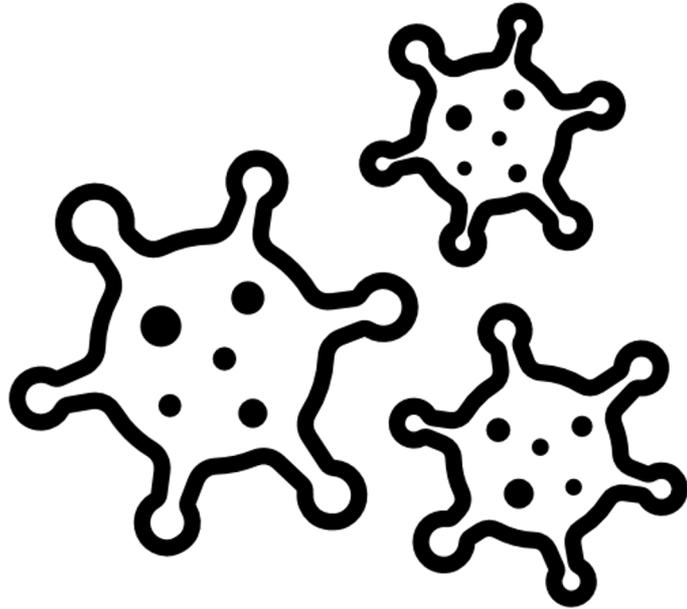
- COVID-19 disease and vaccines
 - Background
 - Findings from Kenya
 - Implications
- GBS disease and vaccines
 - Background
 - Findings from Kenya
 - Implications
- RSV disease and vaccines
 - Background
 - Findings from Kenya
 - Implications

COVID-19 disease and vaccines

- *Objective: Examine the factors that could influence the decision-making process for **COVID-19** vaccines in pregnant and lactating people to inform demand generation strategies*
- *Presenter: Prachi Singh*



Background for COVID-19 Research



- COVID-19 vaccine trials have *generally excluded* pregnant women, despite their increased risk of severe COVID-19, including illness results in ICU admission, mechanical ventilation, and death compared to non-pregnant people
- Pregnant people with COVID-19 may also be **at increased risk of adverse pregnancy outcomes** compared to pregnant people without COVID-19

Objective and Methods

Objective: Examine the factors that could influence the decision-making process for **COVID-19** vaccines in pregnant and lactating people

Study population:

- 1) Pregnant and lactating women (PLW)
- 2) Community members (CM)
- 3) Healthcare providers (HCP)
- 4) Policymakers (PM)

Qualitative methodology:

In-depth interviews (IDIs)

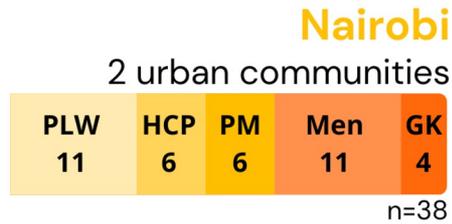
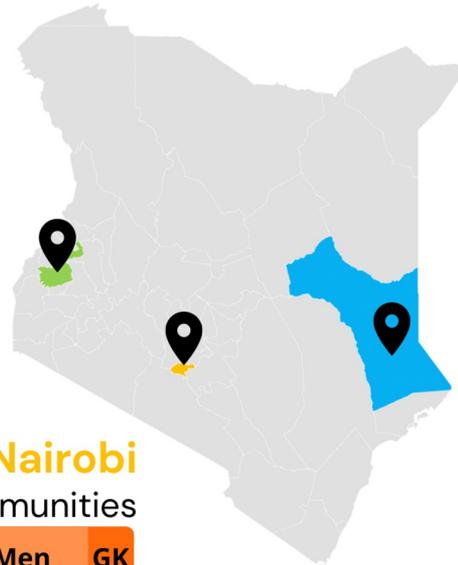
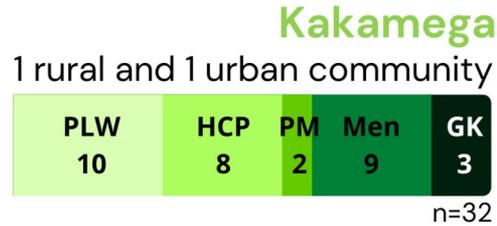


Methods: Participants

<i>Target Population Type</i>	Rural	Urban	Total
Pregnant & lactating women (PLW)	14	15	29
Family members & neighbors of PLW	13	13	26
Gatekeepers (<i>religious leaders, community leaders</i>)	5	4	9
HCPs (<i>midwives, nurses, doctors, immunizers</i>)	10	10	20
Policymakers (<i>Kenya Midwifery Association, Kenya Paediatric Association, Kenya Obstetrician and Gynaecologist society, national vaccine and immunization program, maternal and neonatal health, deputy county directors of health</i>)	2	8	10
	44	50	94

Methods

Study Population and Setting



Methods

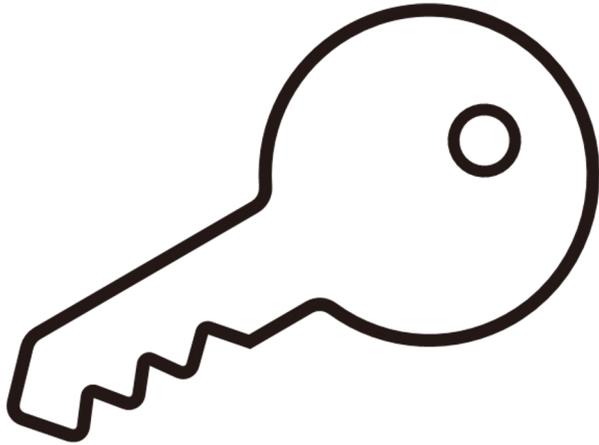
Data Analysis

- Conducted three rounds of open coding to finalize code list
- Coded transcripts and identified emerging themes
- Data were managed using Atlas.ti



Results

Key Themes



COVID-19 Vaccination Themes

- **Individual:** Safety, Myths, Risk Perception
- **Interpersonal:** Risk Perception, Norms, Religion
- **Health Care System:** Cost, Eligibility, Provider Recommendation
- **Policy:** Description, Implementation, Decision-making

Questions about Vaccines

Information Sources

COVID-19 Vaccination

Results

Individual Level

Participants noted safety, myths circulating the COVID-19 vaccine, and perceived benefits of the vaccine as central factors for acceptance.

- Safety: “Some people were explaining about having some blood clot. That has also brought a lot of issues to the people, especially health workers and other people who are willing to take the vaccine.” **Healthcare provider, Garissa**
- Myths: “Some say “I have just started giving birth and then they render me infertile and I don't even have one child.” Someone else would be like “it's like the Chinese want to reduce Kenyans because Kenya has a huge debt.” **Male family member, Kakamega (urban)**

Results

Interpersonal Level: Peer Influence

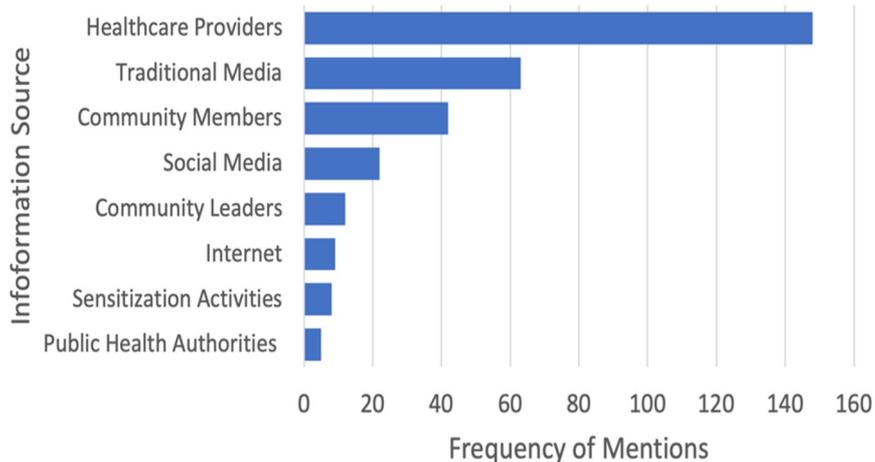
Peer influences included both norms and religious influence.

- Norms: “I will consider being educated first and then seeing the number of people that will be vaccinated. If the mass of those who are afraid will be many, then I will be afraid too.” [Lactating mother, Kakamega \(rural\)](#)

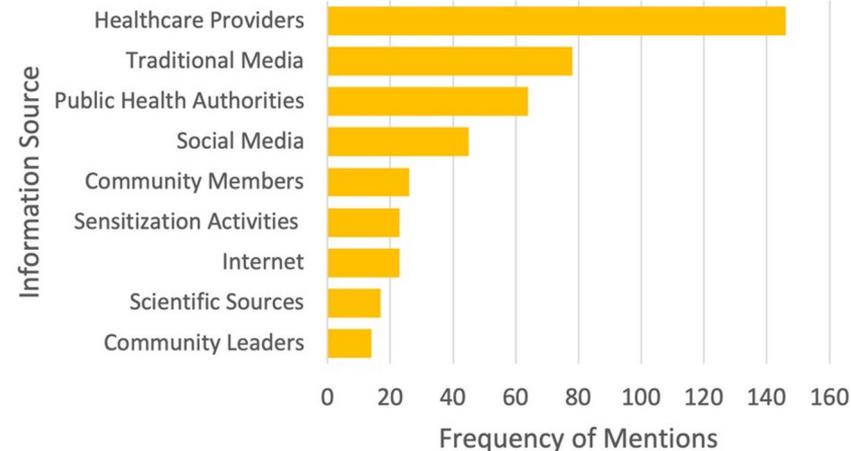
Results

Information Sources

Information Sources for **Pregnant and Lactating Women**



Information Sources for **Healthcare Providers and Policymakers**



Results

Healthcare System Level

Participants noted cost, eligibility, and HCP recommendation as important factors within the healthcare system affecting vaccine acceptance.

- HCP Recommendation: “I just know pregnant women and breastfeeding women are contraindicated so I'm not even telling them to go for the vaccine.”
Healthcare provider, Kakamega (rural)
- Of the 20 healthcare workers interviewed, 8 would not recommend the COVID-19 vaccine to PLW or were hesitant about recommending the vaccine

**Note: data collection took place during the policy shift to include pregnant and lactating women in COVID-19 vaccination.*

Results

Policy Level: Policy Guidance & Implementation

Descriptions and implementation of COVID-19 vaccine policies:

- Evident uncertainty around the national policy stance on the use of COVID-19 vaccines in PLW, including from health workers and policy makers.
- Policy for PLW ranged from unclear to exclusive to permissive

Decision making factors for vaccine policies include:

- Risk/burden of the disease
- Safety and effectiveness evidence for the vaccine
- Recommended by authoritative bodies

Results

Questions about Vaccines

Participants had questions related to the following topics (in descending order of frequency):

- Vaccine safety and administration
- Policy changes (i.e. changes in recommendations, eligibility)
- Benefits of vaccines
- Vaccine access
- COVID (i.e. questions about the disease, prevention, risk, etc.)
- Non-COVID-19 vaccines

Results: Summary of Findings in Kenya

INDIVIDUAL

- All have vaccine safety concerns: infertility, death, immobility
- COVID-19 risk perception is high

INTERPERSONAL

- Myths are ubiquitous; healthcare workers play a role in spreading myths
- PLW are highly influenced by their male family members
- Faith-based leaders hold the trust of their communities

HEALTH CARE SYSTEM LEVEL

- Healthcare provider recommendation is a critical influence
- Accessibility/cost are critical structural barriers

POLICY

- There is much uncertainty related to PLW recommendation
- Eligibility for PLW is unclear

QUESTIONS & INFORMATION SOURCES

- Safety, policy, and benefits of vaccines most frequent questions
- Healthcare providers are the most trusted source for vaccine info

Presentation of Results

Presented at Vaccine Acceptance Research Network 2023 (won 1st place in Demand Generation track), Society of Behavioral Medicine 2023, Consortium of Universities of Global Health 2023



Poster #20

A socio-ecological comparison of the COVID-19 vaccine decision-making processes among pregnant and lactating women: Findings from Kenya and Bangladesh
 Prachi Singh BA¹, Berhaun Fesshaye MSPH², Eleonor Zavala MSPH³, Clarice Lee MSPH⁴, Ruth A. Karron MD⁵, Rupali J. Limaye MPH PhD¹
¹Johns Hopkins Bloomberg School of Public Health

Background & Objectives

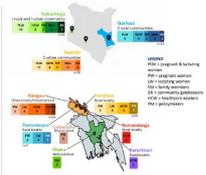
Pregnant women are at increased risk for severe disease and poor health outcomes from COVID-19. Despite being mostly excluded from COVID-19 vaccine trials, real-world evidence suggests that COVID-19 vaccines are safe and effective for pregnant and lactating women (PLW)¹. However, the vaccine decision-making process for this group is complex, as these persons are influenced by numerous social, psychological, and structural factors².

In this study, we used a socio-ecological approach³ to explore and compare factors influencing the decision-making process for COVID-19 vaccination among PLW in Kenya and Bangladesh.

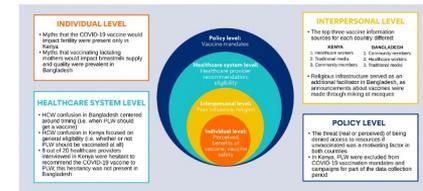
Methods

We conducted 133 in-depth interviews with a variety of stakeholders across urban and rural settings in Kenya (n = 84) and Bangladesh (n = 49), including 53 PLW, 36 healthcare workers, including nurses, midwives, doctors, and frontline workers, 34 community members including family members of PLW, and 10 gatekeepers including community and faith-based leaders. We applied a grounded theory approach to identify emerging themes.

Maps



Graphs/Figures



Conclusions

This study demonstrates how vaccine decision-making among PLW across global regions comprises both shared experiences and unique challenges. Understanding these experiences and challenges is essential to inform immunization policy and demand generation activities for future vaccines. For communication strategies to create demand for vaccines, they must address concerns specific to communities. The results derived from this study can aid to tailor communication efforts to increase vaccine acceptance and inform future maternal vaccine delivery strategies.

Read more about our findings below:

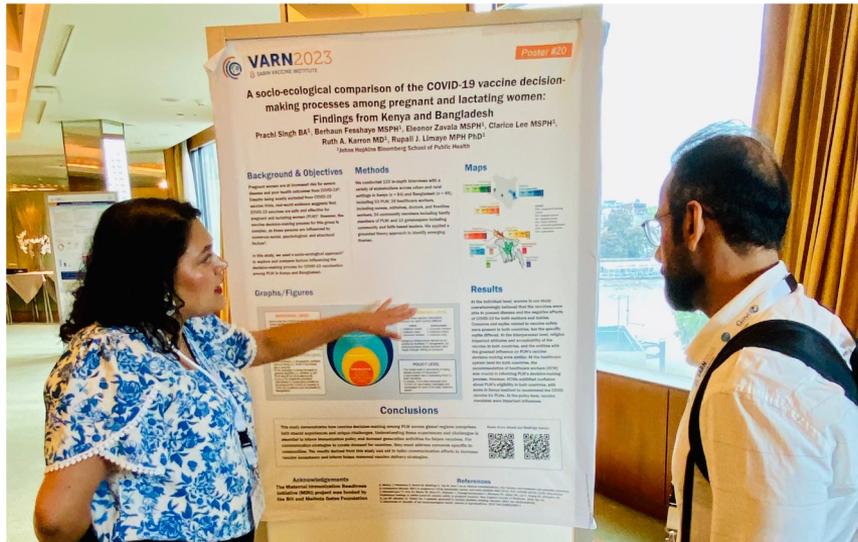


Acknowledgements

The Maternal Immunization Readiness Initiative (MIRI) project was funded by the Bill and Melinda Gates Foundation

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3. Lee BY, Mueller LE, Thacker CC. A systems approach to vaccine decision making. *Vaccine* 2017 Jun 30;35(A6):42.
4. Rosenfield JF. Benefits of the socio-ecological model. *Journal of Agorism*; 2012. doi:10.24251/2012.01



Publications: Kenya



ELSEVIER

Vaccine

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A socio-ecological exploration to identify factors influencing the COVID-19 vaccine decision-making process among pregnant and lactating women: Findings from Kenya

Rupali J. Limaye^{a b c d 1} , Alicia Paul^{b 2} , Rachel Gur-Arie^{e 3} , Eleonor Zavala^{a 4} , Clarice Lee^{a 4} , Berhaun Feshshaye^{a 4} , Prachi Singh^{b 5} , Wincate Njagi^{f 6} , Paul Odila^{f 6} , Paul Munyao^{f 6} , Rosemary Njogu^{f 6} , Stephen Mutwiwa^{f 6} , Lisa Noguchi^{g 7} , Christopher Morgan^{g 8} , Ruth Karron^{a 4}

Lack of clear national policy guidance on COVID-19 vaccines influences behaviors in pregnant and lactating women in Kenya

Eleonor Zavala , Berhaun Feshshaye, Clarice Lee, Stephen Mutwiwa, Wincate Njagi, Paul Munyao, Rosemary Njogu, Rachel Gur-Arie, Alicia M. Paul, Taylor A. Holroyd, Prachi Singh, Ruth A. Karron & Rupali J. Limaye [...show less](#)

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Conceptualizing the COVID-19 Pandemic: Perspectives of Pregnant and Lactating Women, Male Community Members, and Health Workers in Kenya

by Alicia M. Paul^{1,2,*} , Clarice Lee³ , Berhaun Feshshaye³ , Rachel Gur-Arie⁴ , Eleonor Zavala³ , Prachi Singh¹ , Ruth A. Karron⁵ and Rupali J. Limaye^{1,2,3,6,*}

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BRIEF RESEARCH REPORT article

Front. Commun., 25 January 2023
Sec. Health Communication
Volume 8 - 2023 |
<https://doi.org/10.3389/fcomm.2023.995538>

This article is part of the Research Topic
The Role of Media and Communications in Vaccine
Hesitancy during the COVID-19 Pandemic.
[View all 4 Articles >](#)

A qualitative inquiry in understanding trusted media sources to reduce vaccine hesitancy among Kenyans

Berhaun Feshshaye^{1,*} , Clarice Lee^{1,2,*} , Alicia M. Paul^{1,2,3} , Eleonor Zavala¹ , Prachi Singh² , Ruth A. Karron⁴ and Rupali J. Limaye^{1,2,3,5,6}

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Group B Streptococcus (GBS) disease and vaccines

- *Objective: Examine the factors that could influence the decision-making process for **GBS** vaccines in pregnant and lactating people to inform demand generation strategies*
- *Presenter: Berhaun Fesshaye, MSPH*



Methods: Study Design

Study population:

- 1) Pregnant and lactating women (PLW)
- 2) Community members (CM)
- 3) Healthcare providers (HCP)
- 4) Policymakers (PM)

Mixed method methodology:

- In-depth interviews (IDIs): Pregnant and lactating women, community members, healthcare providers, policymakers
- Cross-sectional surveys: healthcare providers



Methods

Participants

Note: the sample was evenly split between urban and rural.

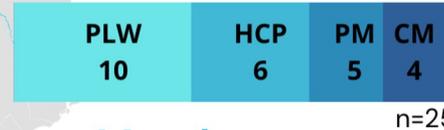
	<i>Target Population Type</i>	Total
Qualitative IDIs	Pregnant & lactating women	20
	Community members	8
	HCPs (<i>midwives, nurses, doctors, immunizers</i>)	12
	Policymakers	10
		50
Quantitative surveys	HCPs (<i>midwives, nurses, doctors, immunizers</i>)	
		100

Methods

Study Population and Setting

Nakuru

Rural county



Mombasa

Urban county

Survey: n=100
HCP total (50 in each county)

Methods

Data Analysis

Quantitative Analysis

- Data were cleaned
- Preliminary data analysis was conducted
- Data were managed using Stata

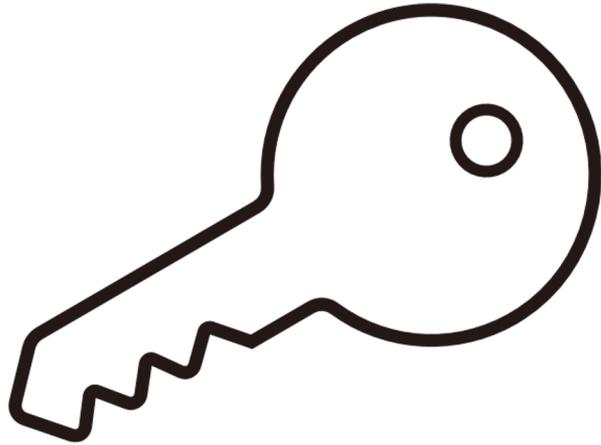
Qualitative Analysis

- Conducted three rounds of open coding to finalize code list
- Coded transcripts and identified emerging themes
- Data were managed using Atlas.ti



Results

Key Themes



Qualitative (Pregnant and lactating women, community members, healthcare providers, policymakers)

GBS Disease

- Awareness
- Knowledge
- Causes of adverse birth outcomes
- Testing and treatment

GBS Vaccines

- Vaccine acceptability
- Questions
- Vaccine decision-making influences

Quantitative (healthcare providers)

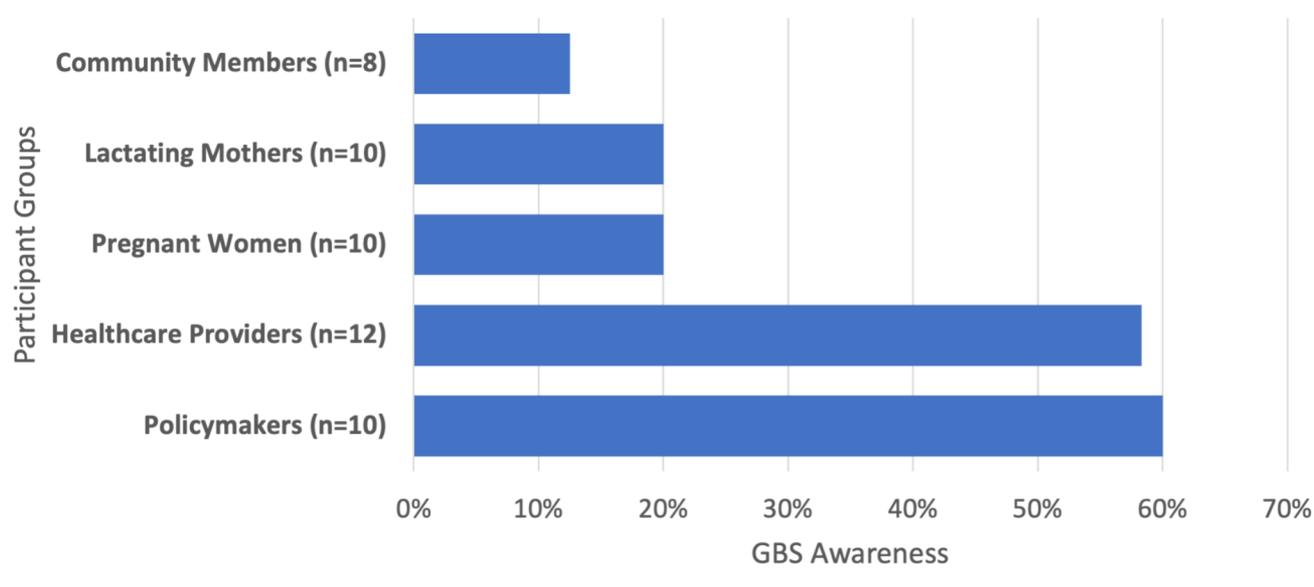
- Risk perception
- Vaccine confidence

GBS Disease

Results

GBS Awareness

- Participants were given a description of GBS and then asked if they had ever heard of it



Results

GBS Knowledge

Most participants had not heard of GBS, especially pregnant women, lactating mothers, and community members.

- “We learned it in medical school but when we come here we forget about it or we test it if we have a premature rupture of membranes, we take a swab, I just do random testing not necessarily looking for the GBS. In terms of the medical practitioners themselves, that awareness, that reminder that this GBS is not in their head. We concentrate on the five big killers.” [Healthcare provider, Mombasa](#)

Results

Adverse Birth Outcomes

If participants were not aware of GBS, but described other outcomes, they were coded as “adverse birth outcomes”

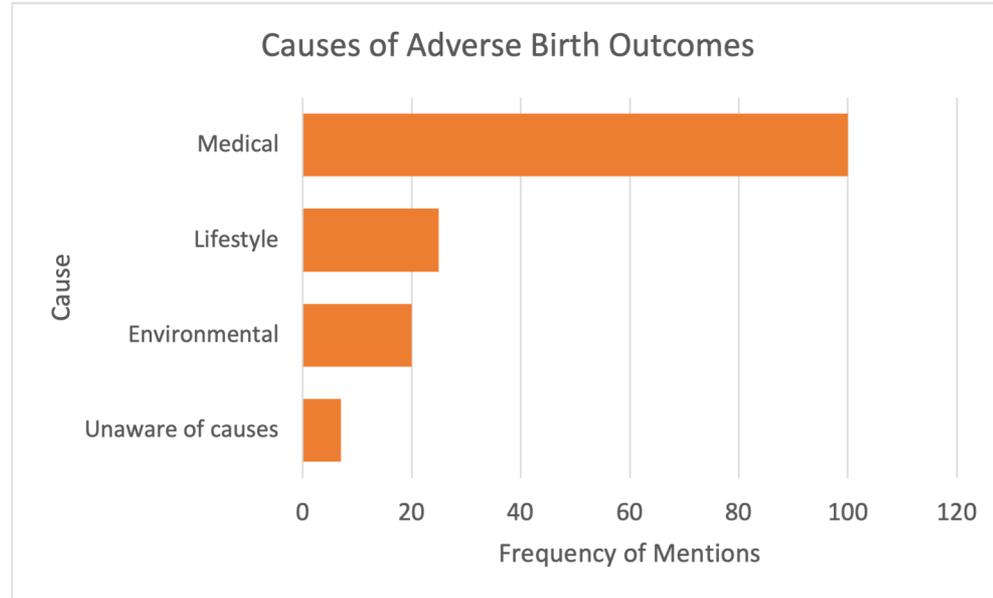
These included stillbirth, neonatal infections, pneumonia, miscarriage, prematurity, etc.

Results

Causes of Adverse Birth Outcomes

Participants were asked about causes of stillbirth and causes of illness in newborns. Responses were organized into the following categories:

- Medical (comorbidities, medicines)
- Lifestyle (working conditions, nutrition, rest during pregnancy)
- Environmental (cleanliness, temperature, etc.)
- Unaware of causes



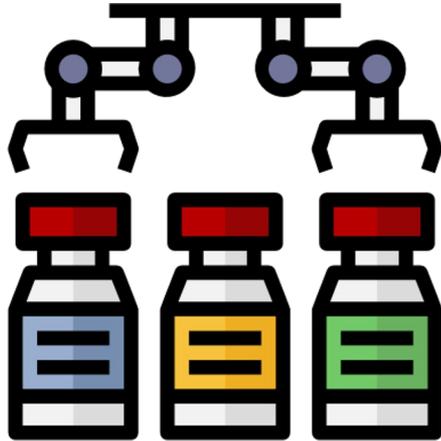
Results

GBS Testing & Treatment

- “Yes for now as I told you we have bigger problems, we have it on our list, probably when we start screening then we will know the burden.” [Healthcare provider, Mombasa](#)
- “Since we are not able to actually diagnose it, we don’t have a laboratory way of diagnosing it.” [Healthcare provider, Nakuru](#)

GBS Vaccines

Background GBS Vaccines



- A maternal GBS vaccine administered during pregnancy may prevent early and late-onset disease.
- A maternal vaccine may also mitigate the need for intrapartum antibiotic prophylaxis in otherwise healthy women.
- At least one GBS vaccine may be licensed and pre-qualified by 2026.

Results

GBS Vaccine Acceptability

- “With time I need to trust it, and if it reaches majority of people it needs to work then I will be ok with it...If it comes tomorrow and I see people are getting it and they are ok and their children are ok, they are giving birth well, they have healthy babies, it has been there, I will go for it.” **Pregnant woman, Nakuru**
- “Some people will say that vaccine is not good, it will cause babies to die so because of that there will be a lot of concerns about that new vaccine. I am ready because it may help us to give birth well and also our babies not to be infected with diseases.” **Lactating mother, Mombasa**

Qualitative Results

GBS Vaccine Questions

Participants had questions related to GBS vaccines (in descending order of frequency):

1. What are the side effects of the GBS vaccine?
2. What are the benefits of the GBS vaccine?
3. How does the GBS vaccine work, for the mother and baby?
4. Who will receive the GBS vaccine, and when?
5. How effective is the GBS vaccine?

Qualitative Results

Vaccine Decision-making influences

Participants were asked who they believe should make the decision for a woman to receive a vaccine:

- **7/10 (70%) pregnant women** report themselves as the primary vaccine decision-maker
- **8/10 (80%) lactating mothers** reported themselves as the primary vaccine decision-maker

Qualitative Results

Vaccine Decision-making influences

- “His life is his life. Mine is mine. If men got to see what women go through in the wards then they wouldn’t oppose the woman’s decision. Now that it’s the woman who gets to witness it, the woman gets to decide. Nobody can influence that decision.” [Pregnant woman, Mombasa](#)
- “...so long as I have been told and understood it well, then I will just be jabbed.” [Lactating mother, Mombasa](#)

Quantitative Results

- n=100 (50 from Nakuru, 50 from Mombasa)
- Sociodemographics: **all healthcare providers**
 - 87% from public facilities
 - 67% were nurses
 - 54% had at least one child

Quantitative Results

GBS Risk Perception

<i>GBS disease risk perception: susceptibility and severity</i>	Agree	Disagree	Don't Know
The majority of pregnant women get GBS	61%	31%	8%
GBS is dangerous for pregnant women	87%	12%	1%
GBS is dangerous for fetuses and babies	96%	3%	1%

Quantitative Results

Vaccine Confidence

<i>Maternal vaccine confidence</i>	Agree	Disagree
I am confident that vaccine recommended for pregnant women during pregnancy are safe for pregnant women	100%	0%
I am confident that vaccine recommended for pregnant women during pregnancy are safe for fetuses and babies	99%	1%

Quantitative Results

Vaccine Recommendation

<i>Maternal vaccine recommendation</i>	Likely	Unlikely
If a new vaccine was approved for pregnant women and recommended by the Ministry of Health, how likely would you be to recommend the vaccine?	97%	3%
If a new vaccine was approved for pregnant women and recommended by the head doctor at your facility, how likely would you be to recommend the vaccine?	89%	11%
If a new vaccine was approved for pregnant women and the head doctor at your facility did not recommend it, how likely would you be to recommend the vaccine?	53%	47%

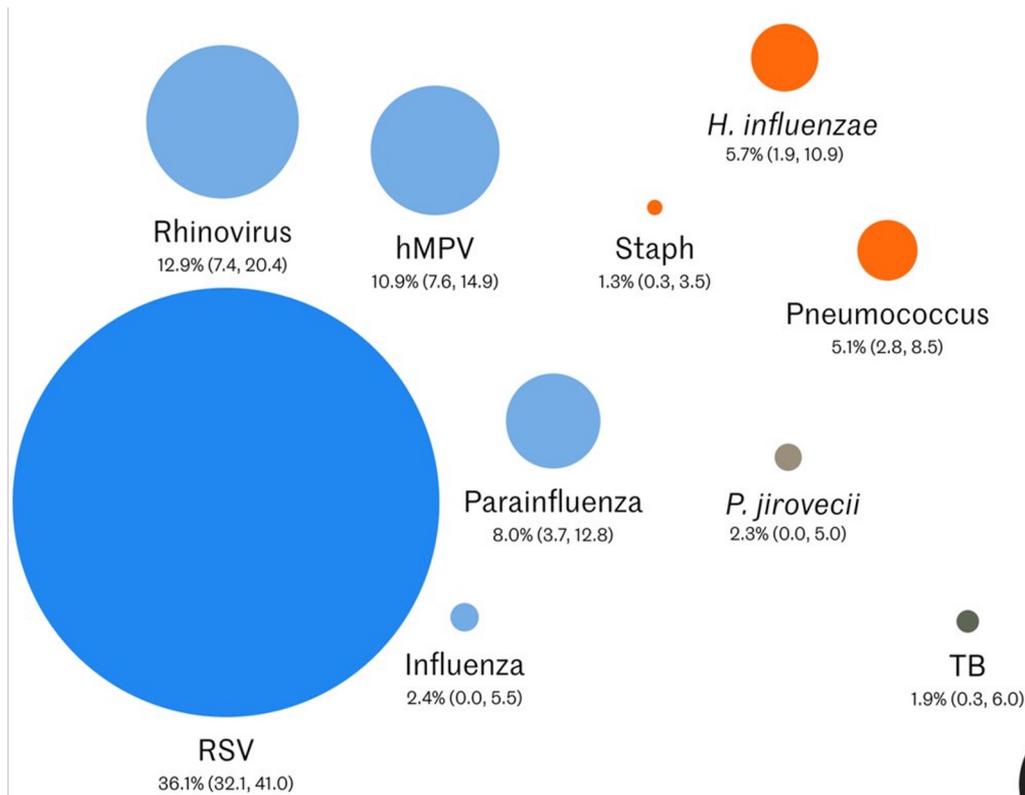
Respiratory Syncytial Virus (RSV) disease and vaccines

- *Objective: Examine the factors that could influence the decision-making process for **RSV** vaccines in pregnant and lactating people to inform demand generation strategies*
- *Presenter: Rupali Limaye, PhD*



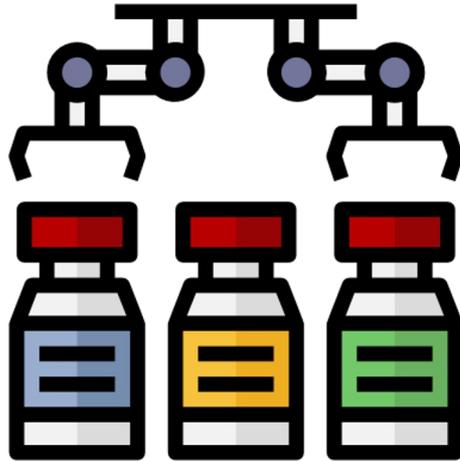
Background RSV in Kenya

RSV was the leading source of pneumonia requiring hospitalization in Kenya in a 2019 study



Source: Pneumonia Etiology Research for Child Health (PERCH) Study Group. Causes of severe pneumonia requiring hospital admission in children without HIV infection from Africa and Asia: the PERCH multi-country case-control study. *Lancet*. 2019 Aug 31;394(10200):757-779.

Background RSV Vaccines



- Multiple RSV vaccines are currently being developed: pregnant people are one target audience.
- At least one maternal RSV vaccine may be licensed and pre-qualified by 2024.

Methods

Study Design

Study population:

- 1) Pregnant and lactating women (PLW)
- 2) Community members (CM)
- 3) Healthcare providers (HCP)
- 4) Policymakers (PM)

Mixed method methodology:

- In-depth interviews (IDIs): Pregnant and lactating women, community members, healthcare providers, policymakers
- Cross-sectional surveys: pregnant and lactating women



Methods

Participants

Note: the sample was evenly split between urban and rural.

	<i>Target Population Type</i>	Total
Qualitative IDIs	Pregnant and lactating women (PLW)	24
	Community members (gatekeepers, relatives, male partners of PLW)	10
	HCPs (midwives, nurses, doctors, immunizers)	16
	Policymakers	10
Quantitative surveys	Pregnant and lactating women (PLW)	400

Methods

Study Population and Setting: Kenya



Survey: n=400
 PLW total (200 in each county)

Methods

Data Analysis

Quantitative Analysis

- Data were cleaned
- Preliminary data analysis was conducted
- Data were managed using Stata

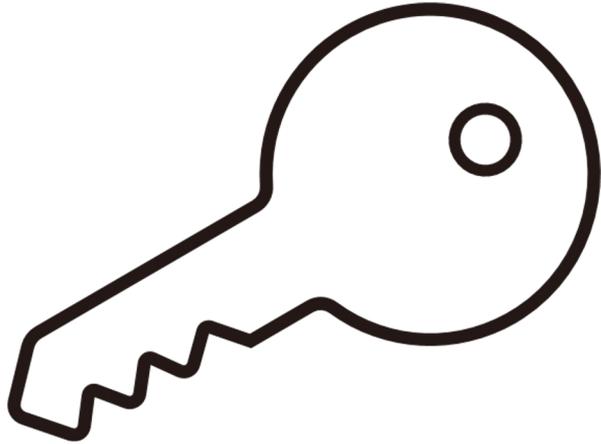
Qualitative Analysis

- Conducted three rounds of open coding to finalize code list
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Results

Key Themes



RSV Disease Themes

- Awareness
- Terms
- Knowledge
- Treatment

RSV Vaccination Themes

- **Individual:** Perceived Benefits, Safety, Vaccine Decision-Making
- **Interpersonal:** Peer Influence, Religion
- **Health Care System:** Prioritization, Eligibility, HCP Recommendation
- **Policy:** Community Engagement, Stakeholder Outreach & Training, Facility Readiness

Questions about Vaccines

Information Sources

RSV Disease

Qualitative Results

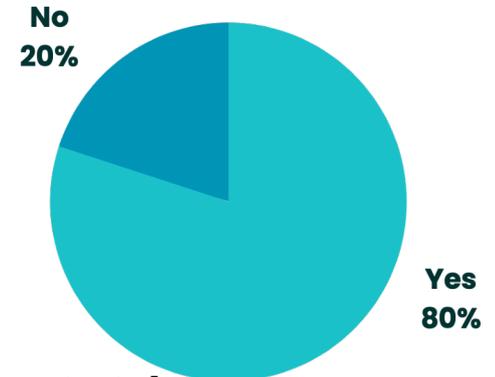
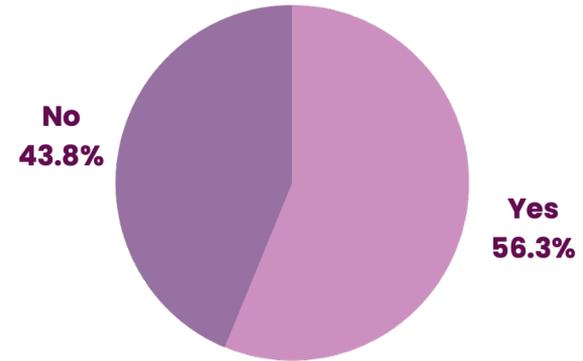
Awareness of RSV

Only 17 out of 60 participants had heard of the term "RSV" (28%)

- All of them were healthcare providers (HCP) or policymakers (PM)

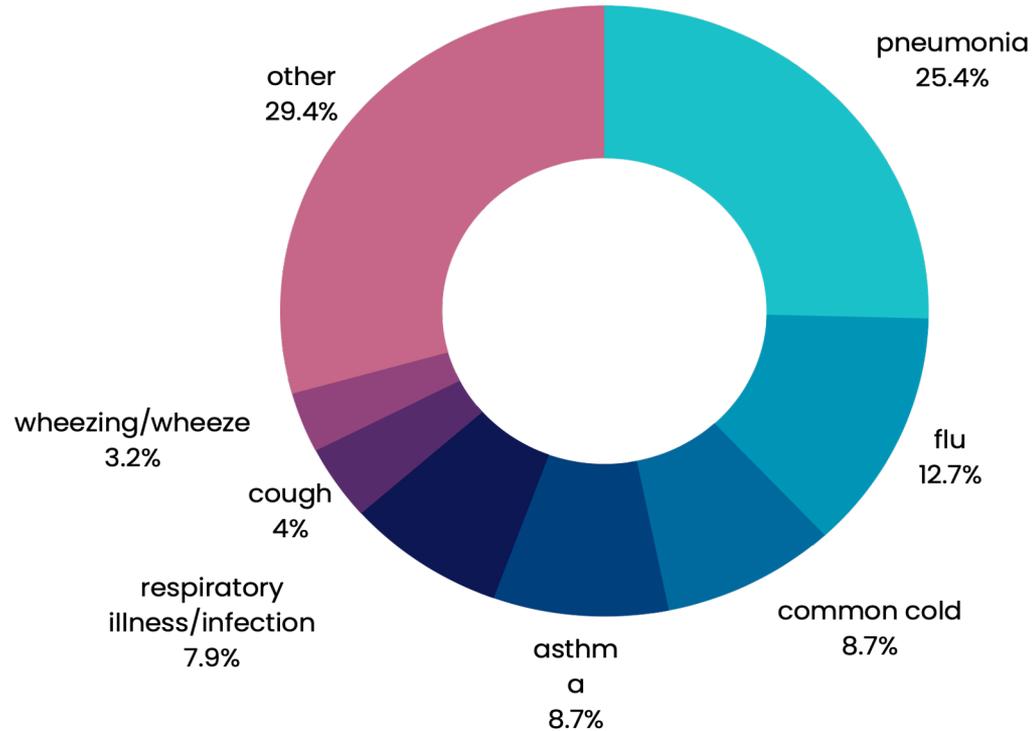
But when we showed participants a video of baby with RSV wheezing and asked if they had seen/heard it before

- 57 out of 60 participants said yes (95%)
- 1 PW, 1 LM, 1 CM said no; all from Nakuru (rural)



Qualitative Results: RSV Terms

- **pneumonia** (including acute and severe pneumonia) was the most mentioned across all target groups
- PLW and community members tended to use **flu, common cold, asthma**
- terms containing "**respiratory**" (i.e. URTI, respiratory distress, respiratory illness) were used only by HCP and PM



Qualitative Results

RSV Knowledge: Causes

Although participants recognized RSV disease presentation, most were not aware it is caused by a virus.

- “These ones that get it are still children, and their immunity system is still low, it is not yet like for grown-ups. So they are prone to so much disease. I am a breastfeeding mum - my child in one way or another can get the infection that am having. I breastfeed her, when I breathe maybe there are some clothes I might be using and maybe with bad luck she uses the same and gets affected.” **Community member, Mombasa**
- “The child’s mother exposed the child to cold water and the mother did not have him wear shoes or sock. So the cold got into this child.” **Lactating mother, Mombasa**

Qualitative Results

RSV Knowledge: Symptoms

- “The common thing is a cough, running nose and a wheeze - those are the most common - and sometimes fever.” [Healthcare provider, Mombasa \(urban\)](#)
- “They are not able to cough as if there are mucus somewhere and also difficulty in breathing.” [Pregnant woman, Nakuru \(rural\)](#)

Qualitative Results

RSV Knowledge: Seasonality

- “Usually in cold seasons and rainy seasons.” [Lactating mother, Mombasa](#)
- “Mostly towards the beginning of the hot season, probably. But it can be across the seasons.” [Healthcare provider, Mombasa](#)

Qualitative Results

RSV Knowledge: Conflation with other diseases

- “You know the main problem is difficulty in breathing. So you find people do not go to the hospital immediately because they usually think it is flu they do not know it is pneumonia. After that the baby may die or now you have the problem of looking for doctors.” **Community member, Mombasa**
- “For my son even when very hot, especially when there was a lot of pollen, I remember pollen during windy times when it was very hot he would get an attack and also when it was very cold. So, I cannot really say it was seasonal, it would come any time.” **Pregnant woman, Mombasa**

Qualitative Results

RSV Knowledge: Community burden

- “It is a big problem because if a person falls sick and is not treated well, a person can die. Because the temperatures rise until it very high you know it is easy for a person to lose their life.” **Community member, Mombasa**
- “It’s quite common - in children under two years.” **Healthcare provider, Mombasa**
- “Yes, there is an outbreak of it in the community because almost everybody is having it.” **Lactating mother, Mombasa**

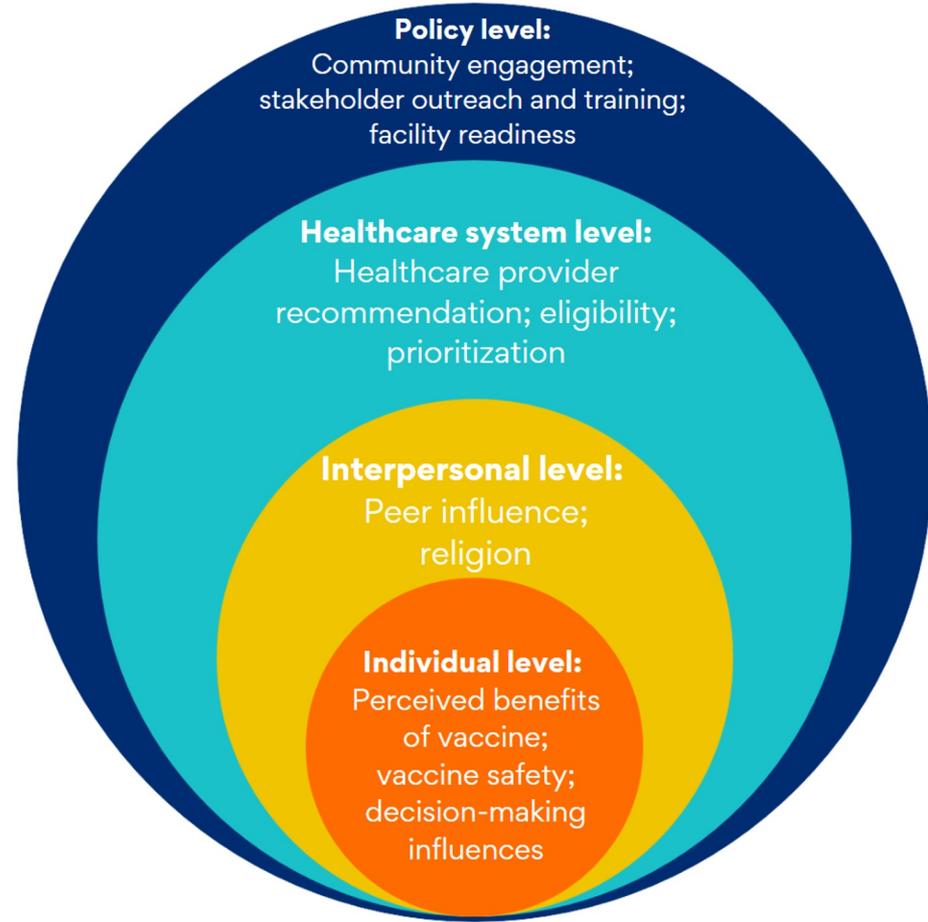
Qualitative Results

RSV Treatment

- “It can be separated but I don’t think we have that parameter to single out each virus. If we see the signs of bacteria...we try to use an antibiotic to cover that spectrum. But if everything is within the normal parameters, vitals are fine, low grade fevers, no test showing that it is an acute bacteria or infection, then we manage symptomatically.” [Healthcare provider, Mombasa](#)
- “We only explain to them that this is a viral illness and it is severe because even when we know it is RSV we manage symptoms - if there is fever we give antibiotics, if there is pain we give painkillers.” [Policymaker, Nakuru](#)

RSV Vaccines

Socio-ecological model of vaccine decision-making



Qualitative Results

Individual Level: Perceived Benefits

- “As I said, it might take a lot of convincing [to receive an RSV vaccine] because you see getting a disease that affects 1 in 10, I still don’t think that is a reason for me to get the vaccine. We have to be 9 over 10 and know that this disease is really, really bad you know?” **Pregnant woman, Mombasa**
- “[An RSV vaccine] is good because it prevents when you give birth the baby will not have problems and even if they will get it it will not be that strong, it will be somehow not strong because already you have treated them when they are in the mothers’ womb.” **Lactating mother, Nakuru**

Qualitative Results

Individual Level: Safety

- “I support the vaccine, it’s just how safe is it, so long as it is safe and does not cause any side-effects later, not to have later side-effects then it will be good, I advocate for prevention than cure, than medication itself, treatment”
Community member, Mombasa

Qualitative Results

Individual Level: Vaccine Decision-Making

Participants were asked who they believe should make the decision for a woman to receive a vaccine:

- **16/18 (89%) lactating mothers** reported themselves as a primary vaccine decision-maker
- **4/6 (67%) pregnant women** reported themselves as a primary vaccine decision-maker

Qualitative Results

Individual Level: Vaccine Decision-Making

- “There is no part I should involve parents or my family because this is my child and his life I am protecting - it is I who should know, my child needs this. Yes, I may ask my mother and if she tells me no and then I do not take him, I am the one who will lose and will be hurting my baby. I should be the one who should decide.” [Lactating mother, Nakuru](#)
- “If maybe [my husband] wants me to get the vaccine and then I follow whatever he has said, because I know he would want good things for me. Maybe I don’t know much concerning that, about the vaccine and maybe he insists that it’s good so I would not doubt him.” [Pregnant woman, Nakuru](#)
- “The final decision is normally the doctor. I cannot say I do not want because they have already done the research and know it can help me.” [Pregnant woman, Nakuru](#)

Qualitative Results

Interpersonal Level: Peer influence

- “Also peer pressure, you know you do not want to risk, when you see many people are getting it, there is that fear as to why they are going for it. So definitely you would also want, so I might go for it.” [Lactating mother, Nakuru](#)
- “Mostly men [will be hesitant]. They can still affect the other groups, they will influence them about the uptake, some of them they will discourage the other groups.” [Healthcare provider, Mombasa](#)

Qualitative Results

Interpersonal Level: Religion

- “[Religious leaders] have influence on how women take vaccines. In some part of that community, they only listen to one leader. If that leader tells them this thing is good, they follow them and it’s their belief so you have to respect it.”
[Healthcare provider, Mombasa](#)
- “Most (religious leaders) ignore [vaccines] - they do not see if it is important because they are putting God ahead: He is their priority. They will tell you vaccines are not important God so put God ahead of everything.” [Pregnant woman, Mombasa](#)

Qualitative Results

Healthcare System Level: Prioritization, Eligibility, & HCP Recommendation

- “Those who have low immunity starting with pregnant mothers, chronic illnesses, and the elderly should be prioritized.” [Healthcare provider, Mombasa](#)
- “I don’t have any concerns with vaccines. Obviously, the vaccine is developed after fully and thorough research. Everything has its side effects. Do the benefits outweigh the risks?” [Healthcare provider, Mombasa](#)

Qualitative Results

Policy Level: Community Engagement

- “Definitely, you have to consult the recipients, before a new vaccine is introduced - the community members, sensitization of the community is key and critical. They should clearly understand the benefits of this vaccination and once they actually understand then it becomes easier for them to actually accept to be vaccinated.” [Policymaker, Mombasa](#)

Qualitative Results

Policy Level: Stakeholder Outreach & Training

- “We have worked with developing committees related to maternal child health and we know the people who challenge us most, it is not the women - it is the men within the society and the chief stakeholders like religious leaders and civil society.” [Policymaker, Nakuru](#)

Qualitative Results

Policy Level: Facility Readiness

- “Yes, I will recommend if we have been trained and know the benefits of it. It must be communicated that it is not a trial or an experiment. So a sustainable program, availability, knowing the benefits of the vaccine, training of the healthcare workers on its safety, and then what tools do we need?” [Healthcare provider, Mombasa](#)

Qualitative Results

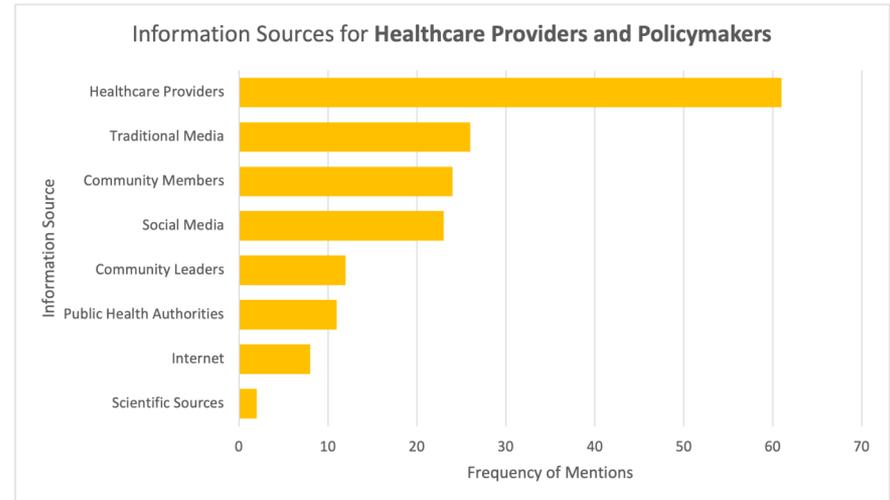
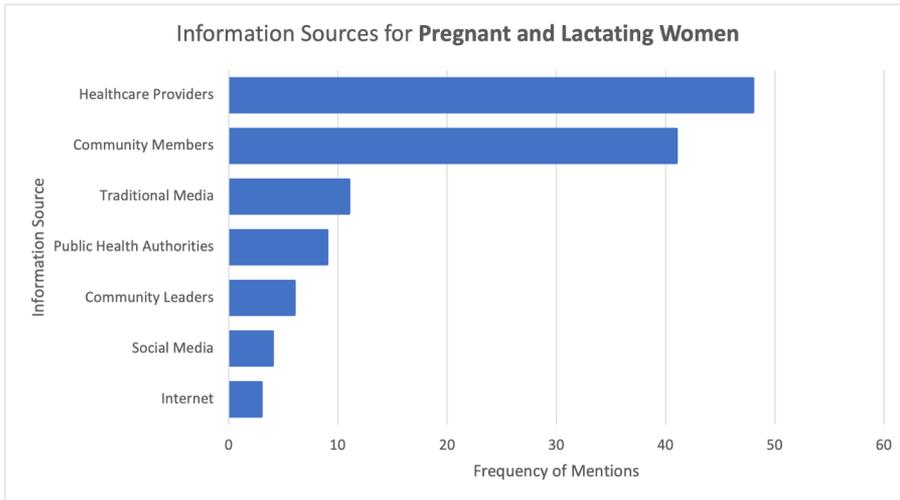
Questions about RSV Vaccines

Participants had questions related to RSV vaccines (in descending order of frequency):

1. What will be the potential side effects/risks of the vaccine for the mother and/or baby?
2. How will the vaccine work to protect the baby if it is given to the mother? Why will the mother be given the vaccine and not the baby?
3. What will the vaccination schedule be (which trimester, how many doses)?
4. What will the benefits of the RSV vaccine be?
5. How effective will the RSV vaccine be? Will it prevent infection or reduce severity of the disease?

Qualitative Results

Information Sources



Qualitative Results

Negative Information Sources

Participants discussed sources they do not trust or those that spread misinformation.

- “They do get information from the neighbors and friends but when they come here we try to demystify because they are being told many things - don’t take this vaccine when you are pregnant, the baby will come out sick.” [Healthcare provider, Mombasa](#)
- “You know social media it has advantages and disadvantages. A wild rumor can spread like a bushfire, I think you know about the tetanus toxoid vaccine. So it has a major role to play but there are pros and cons.” [Policymaker, Mombasa](#)

Quantitative Results:

Characteristics of Study Participants (n=400)

- Approximately 1/3 (35%) of participants were pregnant with their first child (primagravida) or breastfeeding their first child
- Approximately 2/3 (65%) of participants were multigravida or breastfeeding a subsequent child
- Approximately 1/4 of participants indicated that they were pregnant
 - Among pregnant participants, 45% were in their second trimesters and 55% were in their third trimester

Factor	Total sample (n=400)	Primigravida or breastfeeding first child (n=140, 35.2%)	Multigravida or breastfeeding subsequent child (n=260, 64.8%)
Gender			
Female	400 (100%)	140 (100%)	260 (100%)
Age			
18-29	269 (67.2%)	130 (92.9%)	139 (76.2%)
30-44	131 (32.8%)	10 (7.1%)	121 (46.5%)
Pregnancy status			
Pregnant	101 (25.2%)	39 (27.9%)	62 (23.8%)
Lactating / not pregnant	299 (74.8%)	101 (72.1%)	198 (76.2%)
Trimester (if pregnant)			
Second trimester	45 (44.6%)	19 (49.0%)	26 (42.9%)
Third trimester	56 (55.4%)	20 (51.0%)	36 (58.0%)
Education level			
Less than primary school	45 (11.2%)	1 (0.7%)	44 (16.9%)
Primary school	130 (32.5%)	34 (24.3%)	96 (36.9%)
Secondary/high school	121 (30.2%)	49 (35.0%)	72 (27.7%)
College/university/post-graduate	104 (26.0%)	56 (40.0%)	48 (18.5%)

**Primigravida or breastfeeding first child = Pregnant persons reporting no children (under age 18) and lactating persons reporting one child; Multigravida = pregnant persons reporting one or more child and lactating persons reporting two or more children*

Quantitative Results: Items

Construct	Item	Answer Options
Perceived prevalence	The majority of babies <2 years old get RSV.	Strongly Agree Agree Disagree Strongly Disagree Don't Know
Perceived risk: susceptibility of baby	I worry that my baby could get RSV.	
Perceived risk: severity for baby	I believe RSV is dangerous for babies.	
Perceived risk: severity for mother	I believe RSV is dangerous for pregnant women or women who have recently given birth.	
Social norms: peer descriptive norm	If there was a Ministry of Health approved maternal vaccine for RSV, the majority of my pregnant friends and family would get it.	Strongly Agree Agree Disagree Strongly Disagree
Social norms: peer injunctive norm	If there was an approved maternal vaccine for RSV, the majority of my friends and family would encourage me to get it.	
Self-efficacy	I have some control over whether or not I get vaccines during my pregnancy.	
Perceived barriers	If I need to visit a health facility for an appointment or a vaccine, I can easily go to that health facility.	
Safety: baby	I am confident that vaccines recommended for me during pregnancy are safe for my baby.	
Safety: mother	I am confident that vaccines recommended for me during pregnancy are safe for me.	
Vaccine effectiveness: baby	If a new vaccine were approved for use among pregnant women, I trust that the vaccine would protect the fetus.	
Vaccine effectiveness: mother	If a new vaccine were approved for use among pregnant women, I trust that the vaccine would protect me	

Quantitative Results: Knowledge, Attitudes, and Behaviors by Pregnancy Status

Construct (<i>number of items</i>)	Level	Total (<i>n=400</i>)	Currently pregnant <i>101 (25.2%)</i>	Not pregnant (currently lactating) [†] <i>300 (74.8%)</i>	p-value
Perceived prevalence (<i>1 item</i>)	High perceived RSV prevalence	347 (86.5%)	84 (83.2%)	263 (87.7%)	0.25
	Low perceived RSV prevalence	54 (13.5)	17 (16.8)	37 (12.3)	
Perceived risk (<i>3 items</i>)	High perceived RSV risk	215 (53.6)	44 (43.6)	171 (57.0)	0.051
	Moderate perceived RSV risk	155 (38.7)	46 (45.5)	109 (36.3)	
	Low perceived RSV risk	31 (7.7)	11 (10.9)	20 (6.7)	
Social norms (<i>2 items</i>)	High supportive norms	319 (79.6)	82 (81.2)	237 (79.0)	0.64
	Low supportive norms	82 (20.4)	19 (18.8)	63 (21.0)	
Self-efficacy (<i>1 item</i>)	High self-efficacy	347 (86.5)	86 (85.1)	261 (87.0)	0.64
	Low self-efficacy	54 (13.5)	15 (14.9)	39 (13.0)	
Perceived barriers (<i>1 item</i>)	Low perceived barriers	333 (83.0)	86 (85.1)	247 (82.3)	0.51
	High perceived barriers	68 (17.0)	15 (14.9)	53 (17.7)	
Safety (<i>2 items</i>)	High confidence in vaccine safety	389 (97.0)	98 (97.0)	291 (97.0)	0.99
	Low confidence in vaccine safety	12 (3.0)	3 (3.0)	9 (3.0)	
Vaccine effectiveness (<i>2 items</i>)	High trust in vaccine effectiveness	357 (89.0)	86 (85.1)	271 (90.3)	0.15
	Low trust in vaccine effectiveness	44 (11.0)	15 (14.9)	29 (9.7)	

Quantitative Results

Knowledge, attitudes, and beliefs of sample, stratified by number of children:

- Women were significantly more likely to have higher perceived prevalence of RSV if they were multigravida or breastfeeding a subsequent child.
- Women who were multigravida or breastfeeding a subsequent child had significantly higher perceived risk of RSV.



Construct (no. of items)	Level	Total (n=400)	Primigravida or breastfeeding first child (n=140, 35.2%)	Multigravida or breastfeeding subsequent child (n=260, 64.8%)	p-value
Perceived prevalence (1 item)	Higher perceived RSV prevalence	346 (86.5%)	112 (80.0%)	234 (90.0%)	0.005
	Lower perceived RSV prevalence	54 (13.5%)	28 (20.0%)	26 (10.0%)	
Perceived risk (3 items)	Higher perceived RSV risk	214 (53.5%)	69 (49.3%)	145 (55.8%)	0.048
	Moderate perceived RSV risk	155 (38.8%)	54 (38.6%)	101 (38.8%)	
	Lower perceived RSV risk	31 (7.8%)	17 (12.1%)	14 (5.4%)	
Social norms (2 items)	High supportive norms	318 (79.5%)	109 (77.9%)	209 (80.4%)	0.55
	Low supportive norms	82 (20.5%)	31 (22.1%)	51 (19.6%)	

*Primigravida or breastfeeding first child = Pregnant persons reporting no children (under age 18) and lactating persons reporting one child; Multigravida = pregnant persons reporting one or more child and lactating persons reporting two or more children

Quantitative Results

Knowledge, attitudes, and beliefs of sample, stratified by number of children:

- There were no differences between primagravida or breastfeeding a first child and multigravida or breastfeeding a subsequent child related to self-efficacy perceived barriers, safety, and vaccine effectiveness.

Construct (no. of items)	Level	Total (n=400)	Primagravida or breastfeeding first child (n=140, 35.2%)	Multigravida or breastfeeding subsequent child (n=260, 64.8%)	p- value
Self-efficacy (1 item)	High self-efficacy	346 (86.5%)	121 (86.4%)	225 (86.5%)	0.98
	Low self-efficacy	54 (13.5%)	19 (13.6%)	35 (13.5%)	
Perceived barriers (1 item)	Low perceived barriers	333 (83.2%)	117 (83.6%)	216 (83.1%)	0.90
	High perceived barriers	67 (16.8%)	23 (16.4%)	44 (16.9%)	
Safety (2 items)	High confidence in vaccine safety	388 (97.0%)	133 (95.0%)	255 (98.1%)	0.085
	Low confidence in vaccine safety	12 (3.0%)	7 (5.0%)	5 (1.9%)	
Vaccine effectiveness (2 items)	High trust in vaccine effectiveness	356 (89.0%)	125 (89.3%)	231 (88.8%)	0.89
	Low trust in vaccine effectiveness	44 (11.0%)	15 (10.7%)	29 (11.2%)	

*Primagravida or breastfeeding first child = Pregnant persons reporting no children (under age 18) and lactating persons reporting one child; Multigravida = pregnant persons reporting one or more child and lactating persons reporting two or more children

Quantitative Results

Univariable Regression

Factors associated with higher vaccine hesitancy:

- Younger age, primagravida or breastfeeding first child, having fewer children, higher education status, and not having been vaccinated during a previous pregnancy were associated with higher vaccine hesitancy.

Factor	OR	p-value	95% CI
Age			
18-29	Ref		
30-44	0.46	0.02	(0.24-0.88)
Pregnant			
Lactating / not pregnant	Ref		
Pregnant	1.52	0.15	(0.85, 2.71)
Gestational age[^]			
Second trimester (13-26 weeks)	Ref		
Third trimester (from 27 weeks)	2.38	0.104	(0.84, 6.75)
First/subsequent children			
Multigravida	Ref		
Primagravida	3.21	<0.001	(1.86, 5.55)
Number of children under 18 years of age			
None	Ref		
One	0.59	0.18	(0.27-1.28)
Two	0.30	0.005	(0.13-0.69)
Three	0.06	0.001	(0.01-0.31)
Four or more	0.22	0.01	(0.06-0.74)
Education level (highest level attained)			
Less than primary school	Ref		
Primary school	4.87	0.04	(1.10, 21.50)
Secondary/high school	4.26	0.06	(0.95, 19.02)
College/university or higher	4.81	0.04	(1.07, 21.60)
Previous vaccination during pregnancy			
No	Ref		
Yes	0.29	0.04	(0.09, 0.93)

[^] Pregnant individuals in the first trimester (<13 weeks) were excluded from this study

Quantitative Results

Univariable Regression

Factors associated with higher vaccine hesitancy:

- Lower supportive norms and lower self-efficacy were associated with higher vaccine hesitancy.

Factor	OR	p-value	95% CI
Perceived prevalence			
Higher perceived RSV prevalence	Ref		
Lower perceived RSV prevalence	1.58	0.20	(0.78, 3.20)
Perceived risk			
Higher perceived RSV risk	Ref		
Moderate perceived RSV risk	1.02	0.95	(0.58, 1.79)
Lower perceived RSV risk	1.27	0.63	(0.48, 3.33)
Social norms			
Higher supportive norms	Ref		
Lower supportive norms	2.56	0.002	(1.43, 4.58)
Self-efficacy			
Higher self-efficacy	Ref		
Lower self-efficacy	2.28	0.02	(1.17, 4.44)
Perceived barriers			
Lower perceived barriers	Ref		
Higher perceived barriers	1.01	0.97	(0.50, 2.06)
Safety			
Higher confidence in vaccine safety	Ref		
Lower confidence in vaccine safety	1.75	0.41	(0.46, 6.66)
Vaccine effectiveness			
Higher trust in vaccine effectiveness	Ref		
Low trust in vaccine effectiveness	1.38	0.43	(0.63, 3.02)

[^] Pregnant individuals in the first trimester (<13 weeks) were excluded from this study

Quantitative Results

Heatmap of Concerns

When a new vaccine is approved for use and recommended for me/my family, I am typically concerned with:

Ingredients in the vaccine

Side effects of the vaccine

Availability of the vaccine at my health facility

Cost to get the vaccine

What others are saying about the vaccine

Provider recommendation to get the vaccine

Family member input about me getting the vaccine

Ranking from most (1) to least concerning (7)

	1	2	3	4	5	6	7
Ingredients in the vaccine	57	95	78	63	49	30	29
Side effects of the vaccine	205	75	40	38	20	12	11
Availability of the vaccine at my health facility	41	68	98	80	46	38	30
Cost to get the vaccine	27	66	62	76	55	39	76
What others are saying about the vaccine	7	17	35	51	57	96	138
Provider recommendation to get the vaccine	38	57	56	51	103	61	35
Family member input about me getting the vaccine	26	23	32	42	71	125	82

Limitations



Findings were heavily dependent on nature of cross-sectional design: when data collection occurred (ex: policy status awareness and implementation; COVID transmission in chosen participants' communities)



Findings are not generalizable given the study design



Social desirability bias may have impacted interviews

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Funding: Bill & Melinda Gates Foundation



Results from Demand Generation: Discussion

We'd like to hear your feedback on the findings we just presented.

A few questions to get us started:

- Were the key questions for new vaccines (RSV, GBS) surprising to you? What kind of information would decision-makers need to feel confident about a new vaccine recommended in pregnancy?
- Our findings identify key decision-making influences. Were any of these surprising? Are there other influences that influence the decision-making process?



Wrap-Up and Key Takeaways: Day 1

