Antenatal Care Client Segmentation

PMI 5.11

Report on the Secondary Analysis of Malaria Behavior Survey Data in Three Countries

Illustration by Kimberly Carney / Fred Hutch News Service

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Context and Objectives (4–8)

Malaria in pregnancy (MiP) is a major health problem with critical risks for mothers and their babies

A pregnant woman has an increased risk **(up to four times)** of getting malaria and **two times the chances of dying** from malaria

Each year, MiP is responsible for

20% of **stillbirths** in sub-Saharan Africa

11% of all **newborn deaths** in sub-Saharan Africa

10,000 **maternal deaths** globally

Maternal outcomes of MiP

- Maternal anemia
- Cerebral malaria
- Severe malaria
- Maternal mortality
- Recurrence of malaria infections

Child outcomes of MiP

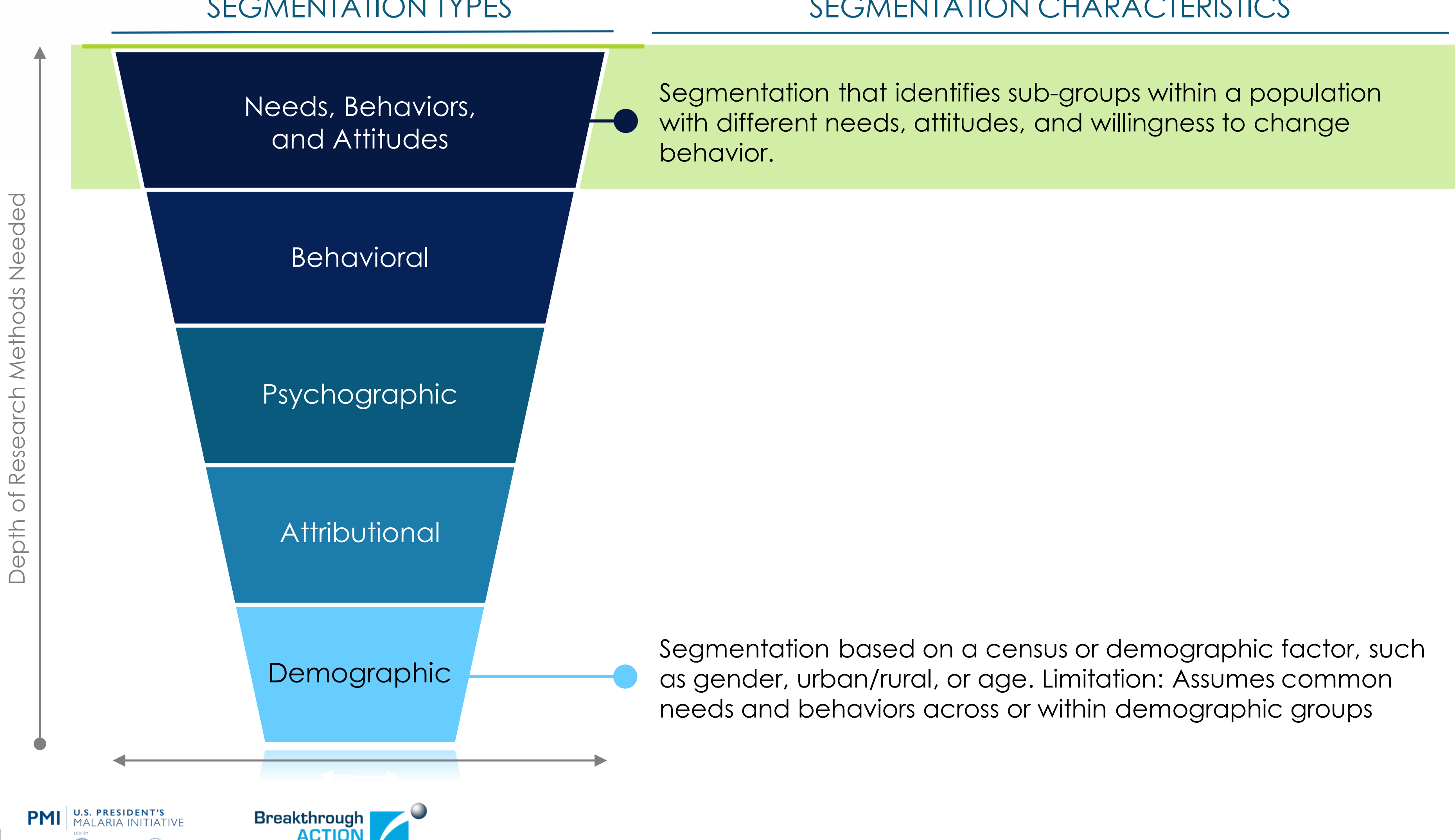
- Spontaneous Abortion
- Stillbirth
- Preterm delivery
- Low birth weight
- Neonatal mortality
- Congenital malaria
- Anemia
- Poor developmental/ behavioral outcome

Improving women's experience during ANC visits can reduce MiP prevalence

Women play a critical role in preventing and treating MiP by	However, some challenges make effective MiP prevention challenging for women
Seeking **early and regular antenatal care (ANC)** at a health facility	• The World Health Organization (WHO) now promotes a minimum of eight contacts between pregnant women and the health system. • Access gaps paired with women's experience at health facilities make it challenging to attend all ANC visits and benefit from all doses of intermittent preventive treatment during pregnancy (IPTp).
Effectively **taking preventive malaria treatment**	• Access to healthcare, cost of preventive care and social norms remain barriers to malaria preventive care.
Sleeping **under insecticide-treated nets (ITNs)** to reduce exposure to infections	• Access, social norms, and knowledge of ITN utilization remain a challenge in certain areas.
Identifying malarial signs and symptoms to seek prompt, quality diagnosis	• Adults in high endemic areas develop natural immunity; thus, MiP rarely results in fever and remains undetected and untreated.
Effectively **following malaria treatment** once diagnosed	• Diagnosis of MiP remains a challenge due to low parasite density. • Suboptimal healthcare access and equity, along with norms and perceptions that could prevent treatment completion.

To reduce MiP and enhance ANC services, Breakthrough ACTION seeks to improve provider-client interactions and increase preventive malaria actions by segmenting ANC clients to better understand their needs and barriers to ANC services.

Segmentation can be used to understand factors surrounding the ANC experience and develop tailored interventions to reduce MiP prevalence



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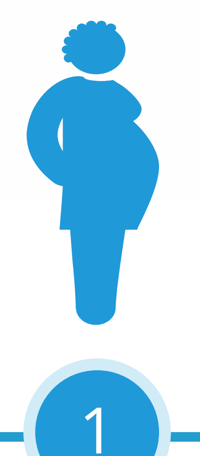
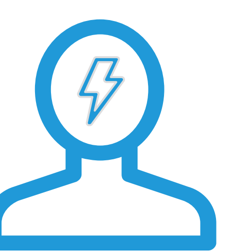
Objectives





1. **Understand key drivers of ANC clients**’ attitudes, needs, and behaviors.
2. Conduct a **segmentation analysis** and identify opportunities to influence positive behavior change for each segment.
3. Share the segmentation with country of implementation partners and identify **programmatic use cases and opportunities**

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Our approach

	Dec. 2021–Jan. 2022	Feb.–Apr. 2022	Apr.–Aug. 2022	Sept.–Oct. 2022
	Phase I **Understanding ANC care-seeking**	Phase II **Identifying ANC client sub-groups**	Phase III **Building a tailored counseling tool**	Phase IV **Validation and Dissemination**
Purpose	*Identify key determinants of ANC care-seeking*	*Understand ANC clients and group them based on their behaviors, perceptions, norms, and attitudes*	*Develop a counseling tool for providers to improve and tailor MiP ANC services and hence augment provider-client interactions*	*Ensure relevance of tool in local context and refine further as needed*
Key Elements	▪ Analyzed questionnaires for three countries. ▪ Merged countries datasets and data analysis to identify ANC care seeking determinants. ▪ Conducted secondary analysis of determinant variables.	▪ Ran and iterated on latent class analysis on merged dataset. ▪ Discussed/confirmed hypothetical segmentation. ▪ Collected feedback and insight from local stakeholders in one country.	▪ Defined identification criteria and questions. ▪ Built profiling tool and counseling cards.	▪ Discussed and integrated final feedback from stakeholders. ▪ Dissemination with stakeholders. ▪ Final PMI dispatch.

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Quantitative Analysis and Findings (10–22)

Methodology and Geographic Focus

01 *Understand ANC clients' needs, attitudes and behaviors*

- We merged **three country** datasets from the **Malaria Behavioral Survey (MBS)**, focusing on **the variables present in all three surveys.**
- We identified the **outcomes of interest** that we wanted to better understand (see next slide).
- We ran **chi-squared tests** between the outcome variables and the other variables in the dataset to understand correlation.

02 *Identify ANC client subgroups*

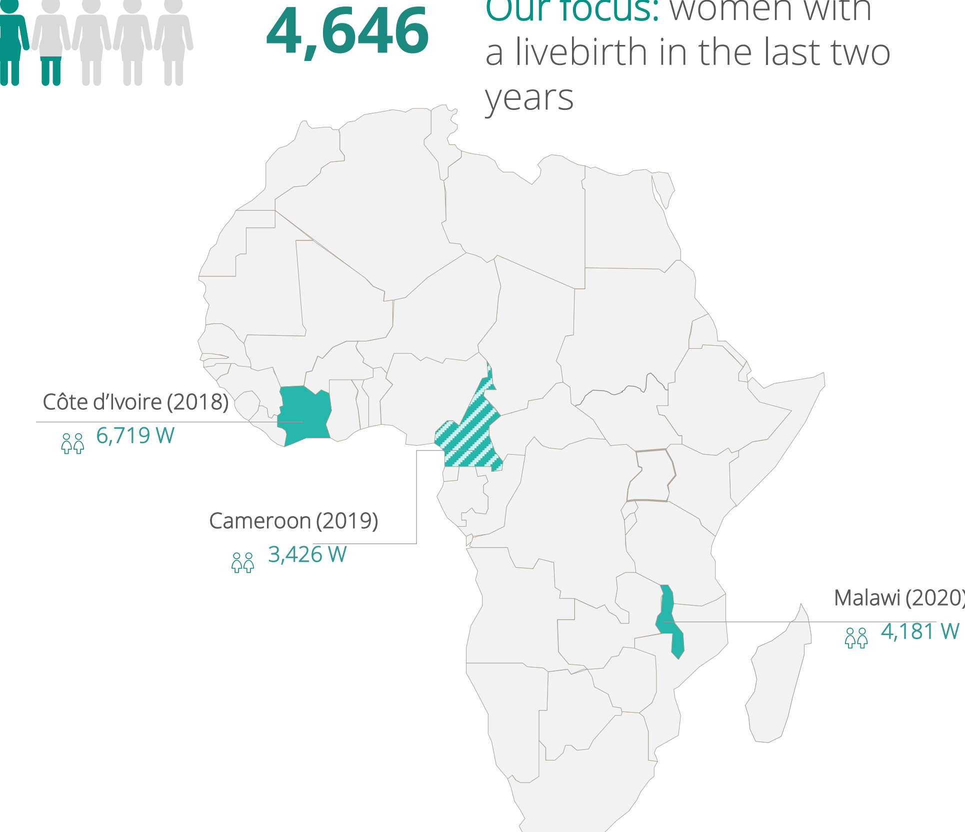
- We ran **latent-class analysis** to understand how the different variables grouped together into different profiles of subgroups.
- We narrowed down the number of clusters based on **model fit statistics** as well as **a qualitative assessment of the segmentation.**
- We **iterated** upon the segmentation until both the quantitative (fit) and qualitative interpretation was robust and actionable.

03 *Prototype a counseling tool*

- We **built a profiling tool**, which enables providers to assign a segment to a women walking into the health facility based on a handful of questions selected with a chi-square determinant analysis.
- We built **counseling cards with targeted messages and recommendations** for each segment to increase number of ANC visits, IPTp uptake, and satisfaction with providers.

14,326 women aged 15–49 years

4,646 Our focus: women with a livebirth in the last two years



Nation-wide survey   Partial coverage survey

We focused on three outcome variables to better understand women's ANC experience

	How early and how often does she seek ANC care	Her perception of the ANC care experience	Her likelihood to take preventive care
Questions in the MBS we selected as outcome variables	**How many checkups** did you have for this pregnancy? That is, how many times did you go for antenatal care?	Do you believe ANC service providers in this community generally **treat pregnant women with respect?**	How **many times did you take the medicine** to keep you from getting malaria during this pregnancy?

Several themes emerged that drive a women's experience with ANC during their pregnancy

Trust in ITNs and Treatment

- Women who have **positive attitudes toward ITNs** are more likely to regularly seek ANC.
- Women with **high trust in treatment drugs, especially the ones coming from health facilities,** also showed higher preventive care adherence and more satisfaction with ANC visits.

Spouse/Partner Influence

- Spouses/partners showed a significant influence in women's behaviors. Women who **discuss ANC with their husband** and who feel **their opinion is valued** in those discussions are more likely to take IPTp three or more times (IPTp3+).*
- Women who **make decisions jointly with their spouses** are also more likely to attend more ANC visits.

Social norms

- Women who **believe other people don't use ITNs** in their community are more likely to take IPTp3+.*
- Women **not prioritizing their children based on their gender when using nets** tend to have more ANC visits (more than four) and to follow more preventive care recommendations (IPTp3+).*

Perception of Health workers

- Women who **doubt the abilities of community health workers (CHWs)** are less likely to attend the recommended four ANC visits. However, they are more likely to take recommended preventive medicine (IPTp3+).*
- Women who **believe they will pay out of pocket** for preventative medicine are less satisfied with the ANC visit.

** WHO recommends three or more doses of IPTp (sulfadoxine pyrimethamine (SP)) for all pregnant women living in areas of moderate-to-high malaria transmission in Africa*

Our segmentation analysis revealed five groups of women who have specific attitudes and behaviors regarding ANC and IPTp

We built the following stories based on the key drivers, biases, and behaviors of each segment. These **stories were refined based on stakeholder experiences** during in-country workshops and dissemination.

Active Modernists (36%*)	Unhurried Informed (33%)	Cautious Moderates (10%)	Uncertain New Mothers (12%)	Seldom Adopters (10%)
"My spouse and I are aware of ANC benefits during my pregnancy. I go to ANC early and as many times as I can, as do other women in my community."	*"I know ANC is useful but I'm not in a hurry to go to my first visit. I'm less convinced about IPTp."*	*"I discuss key decisions with my spouse, such as going to ANC visits. I'm not too worried about malaria, and people in my community don't really go to ANC visits."*	*"I'm a single mother. I don't have much experience with ANC providers but I'm not sure they will treat me with respect."*	*"My partner generally decides for me. I don't go to ANC visits or take IPTp."*

**The percentages reflect the average portion of the segment across 3 countries.*

Distribution of the segments by country

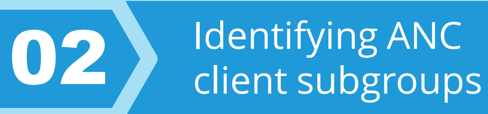
	Cameroon	Ivory Coast	Malawi
Active Modernists	36%	45%	21%
Unhurried Informed	39%	26%	34%
Cautious Moderates	3%	1%	31%
Uncertain New Mothers	8%	17%	12%
Vulnerable Unawares	15%	12%	3%

Programmatic implications

Countries should consider **focusing on the four main segments** present in their geographies

Note: Malawi stakeholders additionally desire to focus on the Vulnerable Unawares (~3% in Malawi), as they are a particularly high-risk population in Malawi.

Five segments stand out from our analysis
Summary of each segment characteristics by outcome variable



■ Statistically higher than all other segments (shown in **bold**)

Segmenting variables

		Average	Active Modernists (36%) *Action-oriented; well-informed*	Unhurried Informed (31%) *Laid-back; aware*	Cautious Moderates (10%) *Unconvinced; awakening*	Uncertain new mothers (13%) *Systemically barred; Influenceable*	Vulnerable Unawares (10%) *Lack of agency; uninformed*
How many times did you go for antenatal care?	0	12%	0%	0%	0%	**16%**	**99%**
	1-3	20%	0%	**43%**	**37%**	25%	0%
	4	24%	0%	**57%**	**32%**	20%	0%
	5+	44%	**99%**	0%	30%	39%	0%
How many times did you take the medicine to keep you from getting malaria?*	0	19%	16%	17%	4%	20%	**55%**
	1-2	33%	28%	**39%**	**45%**	35%	16%
	3	27%	28%	28%	30%	26%	17%
	4+	21%	**27%**	16%	22%	19%	12%
ANC providers in this community generally treat pregnant women with respect	agree	83%	86%	85%	88%	68%	78%
	disagree	13%	12%	13%	10%	11%	14%
	uncertain	5%	2%	2%	2%	**20%**	**8%**

* During pregnancy

Five segments stand out from our analysis

Each segment has specific drivers and biases towards ANC and IPTp

- statistically higher (95% CI)
- statistically lower (95% CI)
- Segmenting variables

	Average	Active Modernists	Unhurried Informed	Cautious Moderates	Uncertain New Mothers	Vulnerable Unawares
		(36%)	(31%)	(10%)	(13%)	(10%)
No. ANC visits (0, 1–3, 4, 5+)		0%, 0%, 0%, 99%	0%, 47%, 53%, 0%	0%, 37%, 32%, 30%	16%, 25%, 20%, 39%	99%, 0%, 0%, 0%
No. IPTp taken (0, 1–2, 3, 4+)		16%, 28%, 28%, 27%	17%, 39%, 28%, 16%	4%, 45%, 30%, 22%	20%, 35%, 26%, 16%	55%, 16%, 17%, 12%
Providers treat pregnant women with respect**		86%, 12%, 2%	85%, 13%, 2%	88%, 10%, 2%	68%, 11%, 20%	86%, 12%, 2%
		Action-oriented; well-informed	*Laid-back; aware*	*Unconvinced; awakening*	*Unmarried; steadily barred; Influenceable*	*Low agency; uninformed;*
Have ever **discussed going to ANC visit with her spouse**	63%	76%	72%	88%	n/a	50%
Have never **discussed going to ANC visit with her spouse**	23%	23%	27%	12%	n/a	50%
Makes decision to go to ANC visit	18%	21%	20%	26%	n/a	17%
Spouse makes decision to go to ANC visit	33%	41%	40%	14%	n/a	48%
Makes the decision jointly to go to ANC visit with her spouse	35%	37%	39%	58%	n/a	33%
Believe most women in her community go to at least 4 ANC visits	54%	66%	56%	4%	52%	56%
Believe fewer than half of women in her community go to ANC visits	11%	8%	10%	22%	9%	15%
Believe **health workers will send her away** if she goes w/o her spouse	20%	9%	10%	94%	16%	19%
Is not worried about malaria because it can be easily treated	37%	31%	31%	79%	38%	37%
Believes **ITN does not reduce chances of getting malaria**	30%	32%	31%	29%	31%	38%
Believes **a woman should wait before going to ANC visit***	41%	38%	45%	35%	41%	47%
Believes a **blood test is the only way** to know if a person has Malaria	90%	90%	88%	97%	90%	65%
Residence type	Urban 35%, Rural 64%	Urba 48%	Rural 67%	Rural 88%	Rural 62%	Rural 85%

* Even if she thinks she may be pregnant

** Agree/Disagree /Uncertain

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Five segments standout from our analysis

Summary of each segment's behaviors, drivers, and biases

1. Spouse/Partner Influence

Represents spousal influence in decision making regarding going to ANC visits ***(higher = less autonomy to make decision on her own)***

2. Social Norms

Perception of how many women in the community take preventative care and go to at least four ANC visits ***(higher = believe more women goes to ANC and take IPTp***

3. Trust in ITNs and Treatment

Represents trust level in ITNs and/or preventive /treatment drugs coming from the health facility ***(higher = greater trust)***

4. Perception of Health Workers

Represents the perception of health workers at the facility ***(higher = more positive perception of health workers)***

5. Perception of Malaria

Represents perception of gravity of malaria care and how easily it can be treated ***(higher = greater awareness of malaria risk)***

Spouse Influence
Social Norms
Trust in ITN and Treatment
Perception of Health Workers
Perception of Malaria

- Active Modernists
- Unhurried Informed
- Cautious Moderates
- Uncertain New Mothers
- Vulnerable Unawares

Active Modernists (36%)

Key Segment Characteristics

Demographics

- More likely than any segment to live in **urban areas.**
- More likely to be **between 25 and 40 years old.**

Attitudes & Beliefs

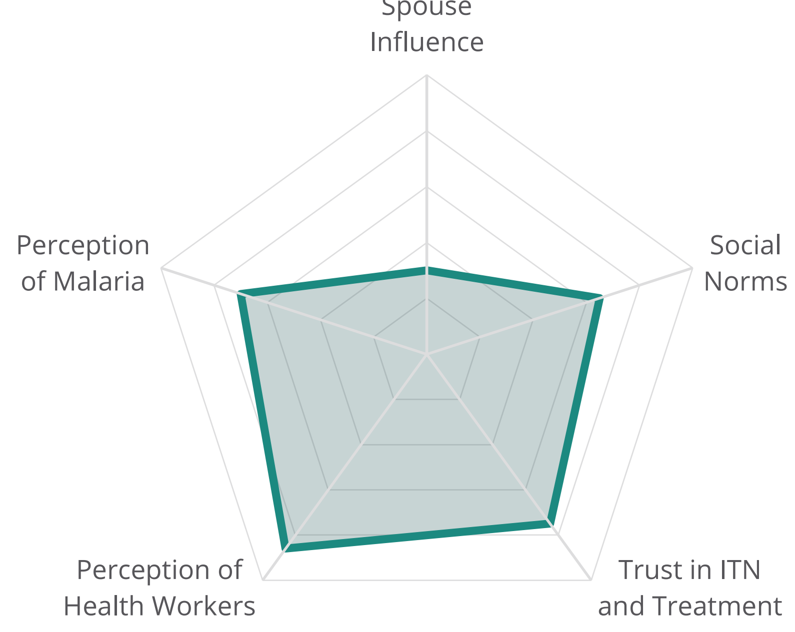
- Believes **women go to four or more ANC** visits.
- Mostly positive perception of providers.
- **Mixed feelings** about the threat of malaria, but adhere to ITN,

Behavior

- Likely to **discuss ANC with spouse (76%).**
- Attend **four or more ANC** visits.
- **Despite high number of ANC visits, IPTp uptake remains low.**

Behavior Change Opportunities

- During ANC visits, **stress benefits of preventive care and encourage accepting IPTp during subsequent visits** and requesting it if it is not offered.
- **Continue campaigns focused on benefits of IPTp** during pregnancy highlighting how others seek early ANC and request/take IPTp.
- Leverage this group's influence on their family members, peers, and social circles. Encourage this subset of **women to become community advocates for early and frequent ANC attendance** and IPTp uptake.



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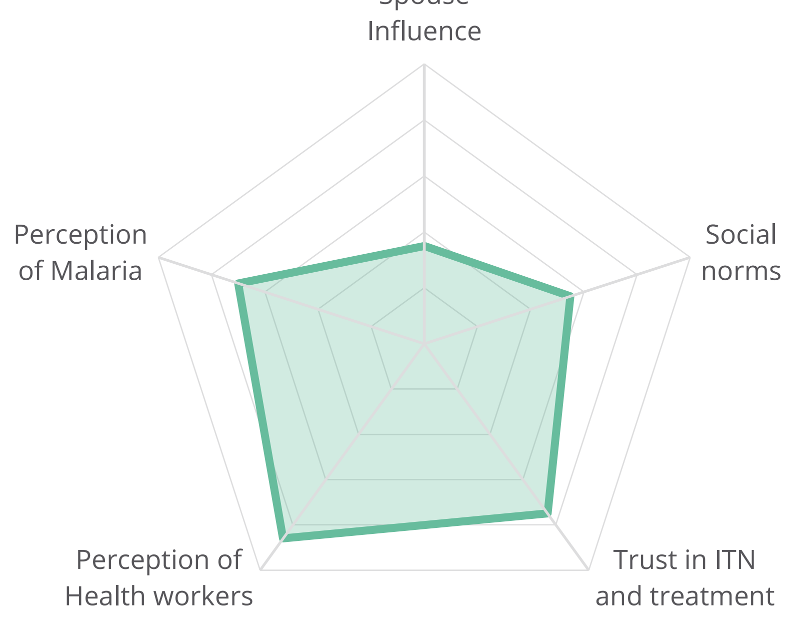
Unhurried Informed (33%)

	Demographics	Attitudes & Beliefs	Behavior
Key Segment Characteristics	▪ Two-thirds are **rural.** ▪ Two-thirds are **25–40 years old.**	▪ Believes **women go to four or less ANC** visits. ▪ Mostly **positive perception of providers.**	▪ Likely to discuss ANC visit with spouse. ▪ **Attend one to four ANC visits**, but no more. ▪ **IPTp** usage is **low to moderate**, rarely completes series.

Behavior Change Opportunities

- **Highlight the benefits of going for early ANC** and multiple visits to access IPTp and prevent malaria.
- Providers should emphasize the importance of **completing full IPTp dosage** when counseling ANC patients and the urgency for those attending ANC later in pregnancy, **stressing the fact that the medicine is preventive.**
- **Encourage spouse to support their partners in attending early ANC** in such as accompanying them, providing transportation, or providing them a travel partner.



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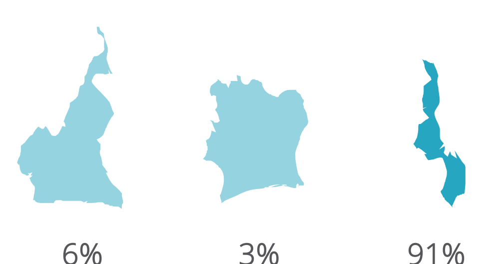
Cautious Moderates (10%)

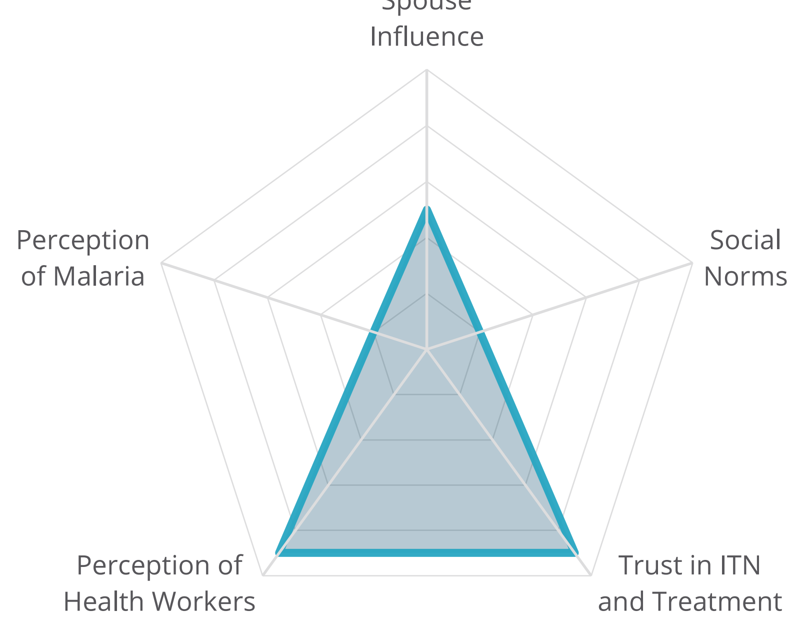
Key Segment Characteristics

Demographics	Attitudes & Beliefs	Behavior
▪ Mostly **rural** (88%). ▪ Mixed ages.	▪ Believes other women sporadically seek ANC visits and IPTp care. ▪ Believes she will be **sent away** from ANC **without her spouse.** ▪ Believes **malaria is easy to treat.** ▪ Mostly **positive perception of providers.**	▪ **Discusses going to ANC** visit with spouse more than any other group. ▪ **Attends only one (or more) ANC** visit. ▪ **IPTp** usage **is low to moderate**; rarely completes series.

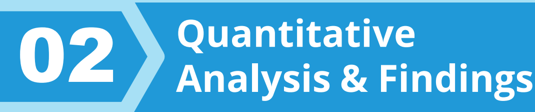
Behavior Change Opportunities

- **Leverage exemplar groups** to share their ANC behaviors to Cautious Moderates to improve perception of norms.
- **Identify positive deviants** (for example, women who may not have progressive husbands but who manage to attend ANC early and frequently despite these common barriers) and draw attention to the example they set, particularly among other women who identify with them in terms of social or economic status.
- **Target spouse to support ANC visits** and the benefits of IPTp while addressing concerns. This is essential in Malawi, where a spouse is required to be present at the time of ANC visits.





Uncertain New Mothers (12%)



Key Segment Characteristics

Demographics

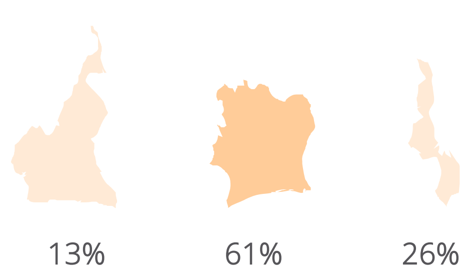
- Two-thirds are **rural.**
- More likely to have had **one previous livebirth** than two or more.
- Typically **single mothers**: Never married, widowed, or separated.
- Mixed ages.

Attitudes & Beliefs

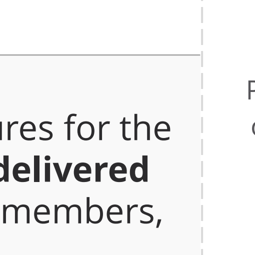
- Believe **women go to four or less ANC** visits.
- More **neutral perception of providers**

Behavior

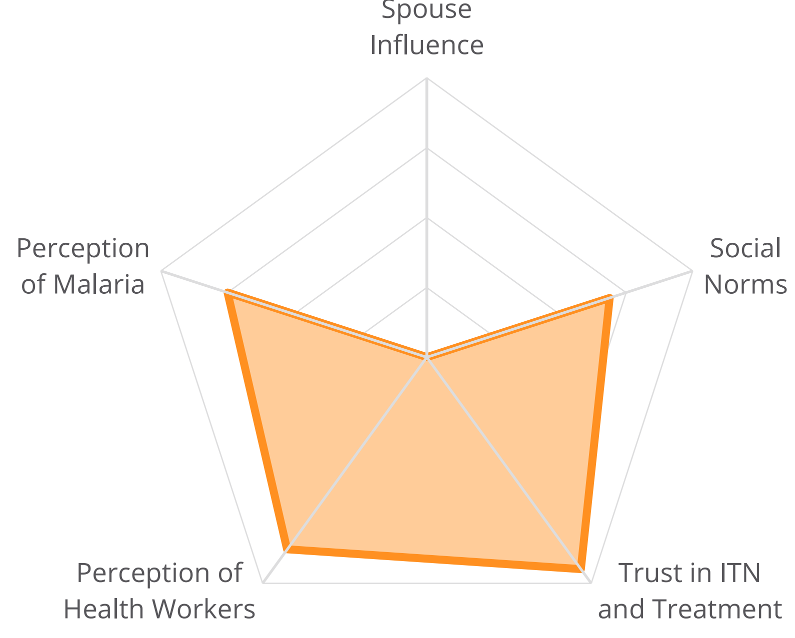
- **Attend one to four ANC visits**, but no more.
- **IPTp** usage is **low to moderate**; rarely completes series.



Behavior Change Opportunities



- Develop **targeted messages to reach newer, single mothers** to reinforce knowledge on the importance of preventive measures for the health of the mother and child. **Adapt these messages to be delivered by people close and trusted by her** in the community (family members, peers, and social circles).
- Incentivize and/or encourage providers to **treat newer, single mothers with respect and empathy during ANC visits**.
- Ensure the benefits of early and frequent ANC are explained during this important and likely formative first visit.



Vulnerable Unawares (10%)

Key Segment Characteristics

Demographics

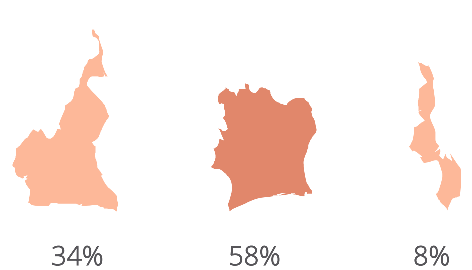
- Two-thirds are **rural.**
- **Least likely to recognize former mass campaigns** for ANC and IPTp than any other group.

Attitudes & Beliefs

- Believes **ITNs are not useful** to prevent malaria.
- **Mixed feelings about malarial** threat.

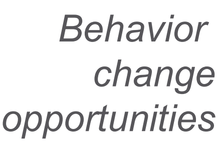
Behavior

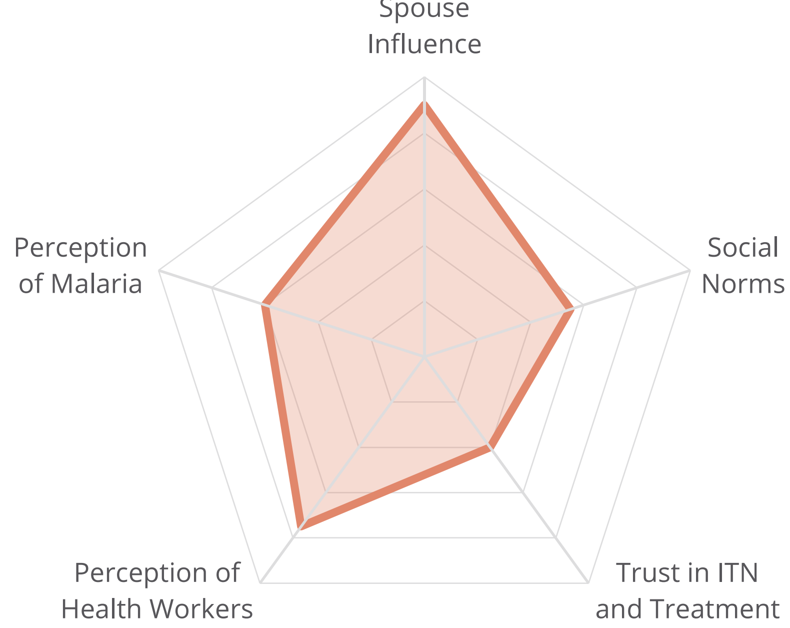
- **Less likely to discuss ANC** with spouse.
- **Spouse decides on ANC** more than any other group.
- Very **rarely attends ANC** visits.
- **Unlikely to take IPTp.**



Behavior change opportunities

- Explore **synergies with broader women empowerment interventions** regarding ANC and healthcare decision making, as **this group showed lower agency in decision making.**
- Focus on **male interventions** that stress benefits of ANC for the mother and the child, as well as emphasize women involvement in decision making.
- Build **community knowledge and attitudes around prevention of malaria** during and after pregnancy for the health of the entire family.
- **Explore other barriers to knowledge and access** that may be impacting this group disproportionally relative to others.





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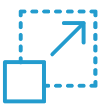
Counseling Tool Testing and Findings (24–30)

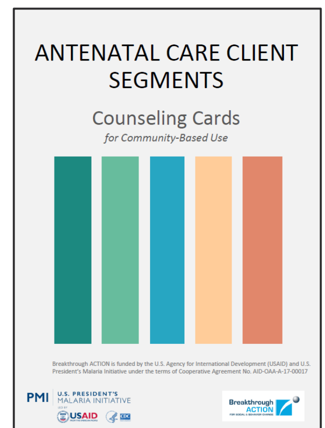
- We developed a counseling tool to be **used by the provider** at the start of each counseling session.
- The counseling tool includes a **profiling tool to identify which client segment** the provider is talking with.
- After the segment is identified, a short **empathy-based discussion** follows.
- The counseling tool has **segment-specific messages** targeted to each woman to guide the provider **in addressing the relevant barriers**.
- The counseling tool comes as a written guide and in card format.

Enable providers to better understand the background of each client

Providers focus on most relevant factors for the women



Easy to scale in low-resource context



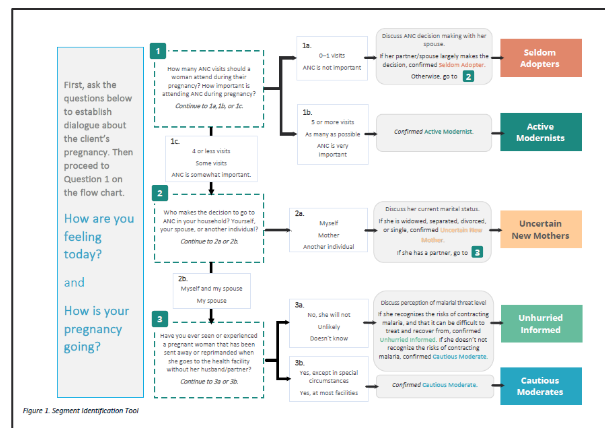


Figure 1. Segment Identification Tool

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We conducted a workshop in Malawi with key stakeholders to test the segmentation analysis and the counseling tool

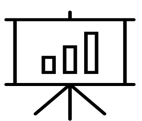
Four national-level leaders

- Two National Malaria Programs (NMPs), including the national head of Malawi's National Malaria Control Program.
- One Reproductive Health Directorate (RHD) representative.
- One Development Aid from People to People representative.

Eight health providers in the Salima district

- Five midwives/nurses.
- Two health service assistants.
- One health promotion officer.

Two-day workshop



Presentation of **segmentation results** and the **counseling tool**

Six role-play sessions enacting tool use in a **facility context**

Two rounds of written feedback on tool integration

Two formats of the counseling card explored by participants

Stakeholders reviewed the segmentation results and shared additional insights for each segment

Overall, providers recognized all segments and were able to recall women they counseled before that matched each segment.

Segment	Insight
Active Modernists	Some women eager for pregnancy may seek ANC prior to being pregnant in order to clarify pregnancy status.
Unhurried Informed	Women may not be in a rush as they don't believe that ANC clinics are equipped (i.e., pregnancy kits).
Cautious Moderates	Some women don't take the symptoms of malaria seriously and thus do not seek care in a timely manner.
Uncertain New Mothers	Women may deny their pregnancy at first, thus delaying early ANC attendance.
Vulnerable Unawares	Women may have ANC experience from previous pregnancies, and don't see the value or added benefit of going.

In addition to the original drivers, stakeholders uncovered additional factors that influence pregnant women's ANC and IPTp behaviors

Factors uncovered during MBS data quantitative assessment

1. Spouse/Partner Influence

Represents spousal influence in decision making regarding going to ANC visits

2. Social Norms

Perception of how many women in the community take preventative care and go to at least four ANC visits

3. Trust in ITNs and Treatment

Represents trust level in ITNs and/or treatment drugs coming from health facility

4. Perception of Health Workers

Represents perception of health workers at the facility

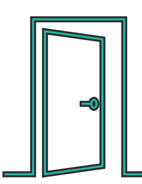
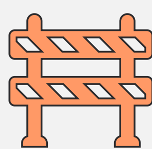
5. Perception of the Risk of Malaria

Represents perception of gravity of malaria for pregnant women

Additional factors uncovered during stakeholder testing

Factor	Description
Uncertainty of the pregnancy outcome	Early in the pregnancy, when there is still a risk they might lose the baby, some women view ANC attendance as a public announcement of their pregnancy and do not want to attend.
Traditional or religious beliefs	Some women do not take or adhere to IPTp, as some believe it may cause abortion or negatively impact the pregnancy.
Fear of side effects	Some women reported having nausea after taking preventative medication, especially on an empty stomach.

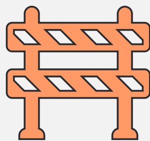
Direct Opportunities and Barriers for Tool Integration

	At the **Facility-Level**	At the **Community-Level**
Key Opportunities Include … 	1. The presence of skilled health personnel to administer counseling. 2. Facilities are a prime location to administer counseling and disseminate anti-malarial materials (i.e., IPTp, general malaria messages, positive stories) to target population.	1. The presence of health personnel and programs in local communities creates infrastructure for community-level rollout. 2. The potential use of secret mothers* in the community to administer tool to pregnant women.
Key Barriers Are … 	1. Facilities can be overcrowded and understaffed, and the time allocated to ANC is generally limited. 2. The lack of supervision and training for health personnel may translate to improper administration of counseling tool. 3. Counseling will not be as effective for women that attend ANC late in their third trimester.	1. Limited human and financial resources to support tool rollout.

- Idea mentioned by multiple participants.
- Would require infrastructure and resources to train and manage secret mothers on administering the tool.

** Secret Mothers: A feature of the safe motherhood initiative. Women in the community that are highly trusted & confided in by other women in their community on maternal health matters.*

Direct Opportunities and Barriers for Tool Integration

	At the **Country-Level**	Through **Ministry of Health Programs**	**Other Partner Initiatives**
Key Opportunities Include …	1. The opportunity to build capacity for health workers to administer tool. 2. National infrastructure and oversight could support roll-out for tool in facilities across Malawi.	1. The tool may be implemented by integrating with other maternal and child health initiatives, such as HIV Prevention of Mother-to-Child Transmission programs that already have the infrastructure to reach pregnant women.	1. The opportunity to share with other implementing partners and consider if some are open to jointly or solely implementing this tool to achieve their objectives.
Key Barriers Are … 	1. Procuring funding to scale the intervention.	1. Staffing limitations due to shortages or overworked health personnel. 2. Inadequate resources or support for local MoH programs (e.g., Health surveillance assistants have too much activities to cover).	1. Generating buy-in from another implementing partners. 2. Procuring the resources to manage a collaboration with an implementing partner.

Summary of in-country stakeholder learnings

On Segmentation Results

- Overall, providers recognized all segments and were able to identify women they counseled before that aligned to each segment.
- Providers provided additional insights and perspectives to the quantitative findings for each segment.

On the Counseling Tool

- Providers has positive responses to the tool and found it simple to use after minimal training.
- After becoming familiar with it, they could complete the counseling process in as little as 10 minutes.
- Stakeholders noted that to be most effective, the counseling tool should be utilized at the first ANC visit. They also noted that a follow-up discussion should occur in follow-up visits, particularly for the highest risk segments.
- Providers recommended light edits to certain phrases in the counseling tool, which were included in the final version.

On Integrating Them

- Stakeholders stated desire for a two-pronged tool rollout.
- NMPs pushed for the tool to also be used at the community-level to reach women who delay seeking ANC, so they may still be identified and advised early in their pregnancies.
- NMPs and RHDs are interested in piloting tool at the community level within the safe motherhood initiative. Further background on the initiative can be found in the appendix.

Recommendations (32–33)

Pilot the tool at the **facility level** to **increase ANC attendance** and **IPTp3+ uptake** for the Active Modernist, Unhurried Informed, and Cautious Moderate segments.

Pilot tool at **community-level** to **reach** the **Vulnerable Unawares** and **Uncertain New Mother** segments as early as possible in pregnancy.

Recommendations for future monitoring and evaluation

Based on previous pilot testing and a segmented counseling card evaluation, below are recommendations regarding …

Pilot Design

- If possible, implementers could design initial piloting and could compare chosen parameters against a "control group" (i.e., a number of facilities or communities).
- After training, and if budget permits, having a "coach" for the pilot site providers for the first three to four months would be beneficial:
  - This person would visit the pilot sites in rotation to observe the counseling sessions and answer any questions that the providers might have.
  - The coach would fill out an evaluation based on their observations, and these learnings can be used to improve counseling sessions.
- If implementers can ensure the provider's supervisors are trained on the tool, the providers who wish to continue using it after the end of the pilot will be able to receive support.

Evaluation Tool

- Client exit surveys are one potential avenue; however, clients often give an overly positive rating (in both control and pilot sites) while still at the facility. To reduce this effect, evaluators could conduct the exit interview after the provider interaction.
- Here are ways to test if the client was segmented correctly:
  - During the evaluation, the provider will give her clients a colored card to let the evaluator know which segment she belongs to.
  - The evaluation survey will then ask the client which messages were relayed to see if the correct segment–specific messages were relayed.
- Other survey questions should include the client's appreciation of the counseling interaction (e.g., felt listened to, trusted the provider), her understanding of the health advice provided to her, and her motivation to attend additional ANC visits and take IPTp.

Appendix

Summary of quantitative findings: Our early learnings
Outcome variable #1: Women attending regular ANC

● *Statistically significant (CI 95%) for the three countries*

⬟ *Surprising finding,*

		How many checkups did you have for this pregnancy? That is, how many times did you go for antenatal care? (N = 4,201)			
		Less than 4 visits *(22%)*	Exactly 4 visits *(26%)*	More than 4 visits *(48%)*	*Especially true for*
Insecticide-Treated Nets (ITNs)	Q503b. **Thinks ITNs are not safe** to sleep under	●			
	Q507. Perceives **ITN as the best way** to avoid malaria ⬟	●	●		
	Q511. Believes that **most people in her community who have ITNs use them every night**			●	
	Q809. Does NOT prefer **her female children to sleep under ITN** over **her male children**			●	CI
Preventive Treatment (IPTp/SP)	Q601. Knows she should **seek ANC care as soon as she knows she is pregnant**			●	CI M
	Q610. Believes a pregnant women should **take several doses of SP to prevent malaria** ⬟	●	●		
	Q621. **Takes the decision alone** to go for an ANC visit	●			
	Q621. **Takes the decision jointly** with her spouse to go for an ANC visit		●		CI M
	Q627. Feels **her spouse valued her opinion** during discussion on ANC		●	●	CI M
Care-Seeking and Treatment	Q706. Believes that **blood test is the only way to detect malaria**		●	●	CI
	Q708. **Trusts that treatment drugs** received from the health facility are effective			●	
	Q714. Able to **find the money for recommended treatment** medication			●	CI
Perceptions of Health Workers	Q803. **Doubts CHW** ability to treat malaria in children	●	●		
	Q806. Believes HW give preventive medicine **only if she has eaten** recently ⬟			●	C CI
	Q807/8. Believes **she will be sent away** if she goes to the facility too early or w/o her spouse	●	●		

***4%** of respondent "didn't know" how many visits they did during their last pregnancy*

Summary of quantitative findings : Our early learnings
Outcome variable #1: Women's perceptions of quality of care

● *Statistically significant (CI 95%) for the three countries*

⬟ *Surprising finding, for discussion*

Antenatal care service providers in this community generally treat pregnant women with respect (N = 4,143)

Topic	Question	Surprising	Disagree *(13%)*	Agree *(85%)*	*Especially true for*
Insecticide-Treated Nets (ITNs)	Q201. Sleeps under an **ITN most nights of the week**			●	C
	Q501a. Has a **positive attitude** towards ITN use			●	CI M
	Q507. Perception that **sleeping under an ITN every night** is the best way to avoid malaria			●	CI
	Q511. Believes among people who have nets, **most do NOT use it every night**		●		C M
Preventive Treatment (IPTp/SP)	Q601. Believes she should seek ANC care **as soon as she knows she is pregnant**	⬟	●		C
	Q601. Believes she should **seek ANC care in the first trimester**			●	CI M
	Q601. Believes she should **seek ANC care after the fourth month**		●		
	Q611. Has a **high trust in medicine** given to treat malaria			●	C
	Q619. Believes **fewer than half women go to at least four ANC** visits		●		CI
	Q622. **Discussed with her spouse/partner** about going for ANC			●	C CI M
Care-Seeking and Treatment	Q704. Values **taking the entire course of treatment** medication to cure malaria completely			●	M
	Q708. **Trusts that treatment drugs** received from the health facility are effective			●	C M
Perceptions of Health Workers	Q803. **Doubts CHW** ability to treat malaria in children		●		C CI M
	Q804. Believes health workers make **pregnant women pay for preventive medicine**		●		C CI

Summary of quantitative findings: Our early learnings
Outcome variable #1: Women taking preventive treatment (IPTp)

● *Statistically significant (CI 95%) for the three countries*

⬟ *Surprising finding, for discussion*

		How many times did you take the medicine to keep you from getting malaria during this pregnancy? (N = 3,774)			
		Less than 3 times *(39%)*	Exactly 3 times *(31%)*	More than 3 times *(24%)*	*Especially true for*
Insecticide-Treated Nets (ITNs)	Q201. Sleeps under an ITN **every night**		●	●	C
	Q511. Believes among people who have nets, **most do not use it every night** ⬟			●	
	Q809. Does not think **female children should sleep under ITN** over **her male children** ⬟			●	CI
Preventive Treatment (IPTp/SP)	Q601. Knows she should **seek ANC care as soon as she knows she is pregnant**			●	M
	Q610. Believes a pregnant women should **take several dose of SP to prevent malaria**		●	●	C
	Q614. Believes **she is able to convince her spouse/partner** to accompany her for ANC visit			●	CI
	Q615. Believes **she is able to go to at least four ANC visits**			●	CI
	Q621. **The decision** to go for an ANC visit **is taken solely by the spouse** ⬟	●			
	Q621. **Takes the decision jointly** with her spouse to go for an ANC visit		●	●	C CI
	Q627. Feels **her spouse valued her opinion** during discussion on ANC			●	
Care-Seeking and Treatment	Q708. **Doesn't trust that treatment drugs** received from the health facility are effective	●			
	Q710. Able to **find the money to bring her child to the clinic** at first sign of malaria			●	CI
Perceptions of Health Workers	Q803. **Doubts CHW** ability to treat malaria in children ⬟		●	●	

6% of respondent "didn't know" how many times they took preventive medicine during their last pregnancy

2% of respondent took more than 7 doses of IPTp. These might be cases of overdosage of IPTp