

Psychosocial influences on malaria prevention and treatment in Sokoto, Kebbi and Zamfara

Breakthrough RESEARCH Nigeria
Behavioral Sentinel Surveillance (BSS)
Webinar Series - Key Baseline Results

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Webinar overview

- About Breakthrough RESEARCH and Breakthrough ACTION
- What is the Behavioral Sentinel Surveillance (BSS) survey?
- Focus on malaria
 - How did formative research inform the BSS survey?
 - New ideational metrics
 - Key BSS findings
 - SBC program implications
- Future work

About Breakthrough RESEARCH and ACTION

Breakthrough RESEARCH

- USAID's flagship project for social and behavior change (SBC) research and evaluation
- Five-year project: August 2017 to July 2022
- B-R Nigeria activity start: January 2019
B-R Nigeria office opened: September 2019
- Close collaboration with sister project Breakthrough ACTION and other IPs



Breakthrough ACTION in Nigeria

- USAID's flagship project for social and behavior change (SBC)

Overall Result

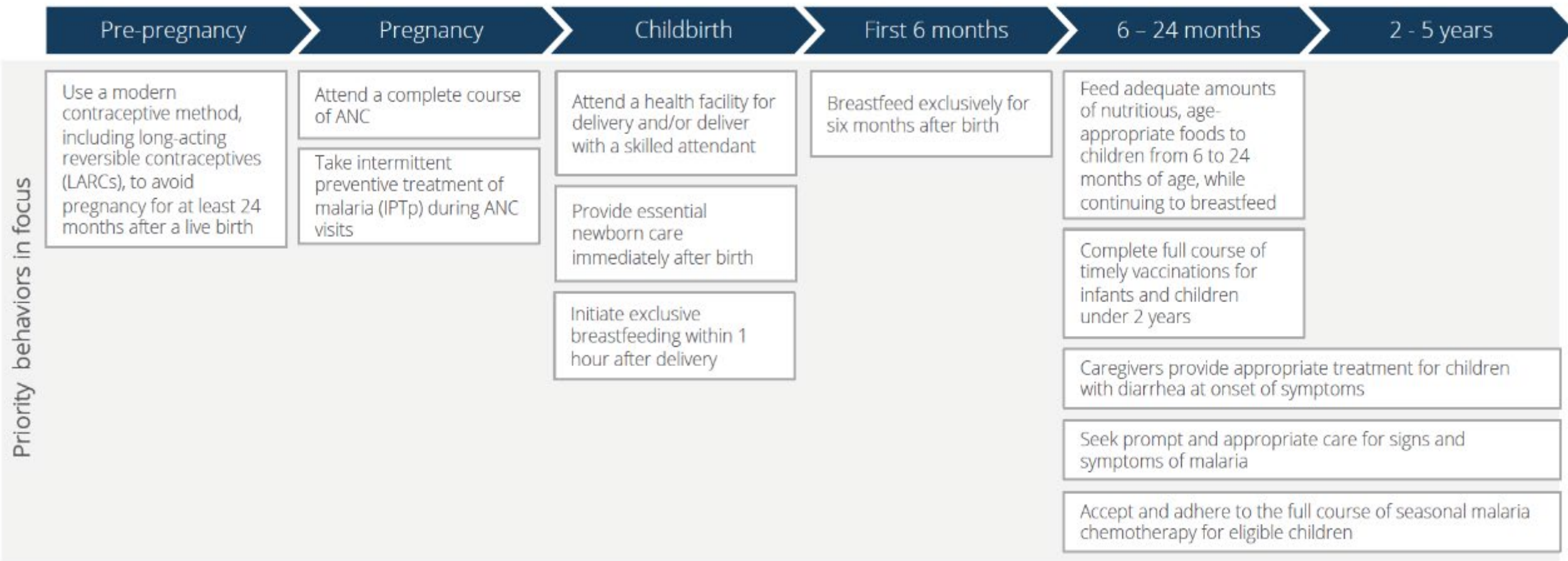
- Increase the practice of 17 priority health behaviors in the areas of maternal, newborn, and child health plus nutrition (MNCH+N), family planning and malaria

Intermediate Results

- Improved individual and social determinants of health
- Strengthened SBC coordination and collaboration among USG partners
- Strengthened SBC capacity of national and sub-national public sector entities

Priority Behaviors for Integrated SBC

Milestones



Priority Behaviors for Malaria

- Increased insecticide treated net use.
- Increased uptake of intermittent preventive treatment of malaria in pregnancy.
- Increased prompt care-seeking for fever.
- Increased demand for testing before treatment.
- Increased adherence to completing Artemisinin-based Combination Therapy for malaria.
- Increased Providers' adherence to national malaria case management (diagnosis and treatment) and national malaria in pregnancy guidelines.

Coordinated Multi-Channel Approach

Umbrella strategy with an overarching brand encompassing all the included health topics.

- Community Mobilization
 - *Community Social Behavior Change (SBC)*
 - *Community Capacity and Sustainability*
- Mass Media (Radio, Print, TV, Social Media)
- Mobile/Digital (SMS and IVR)
- Advocacy targeting- Religious, Traditional and Opinion Leaders
- Provider Behavior Change



Where do we work in Nigeria?

Breakthrough ACTION implements SBC programs in 11 States and FCT

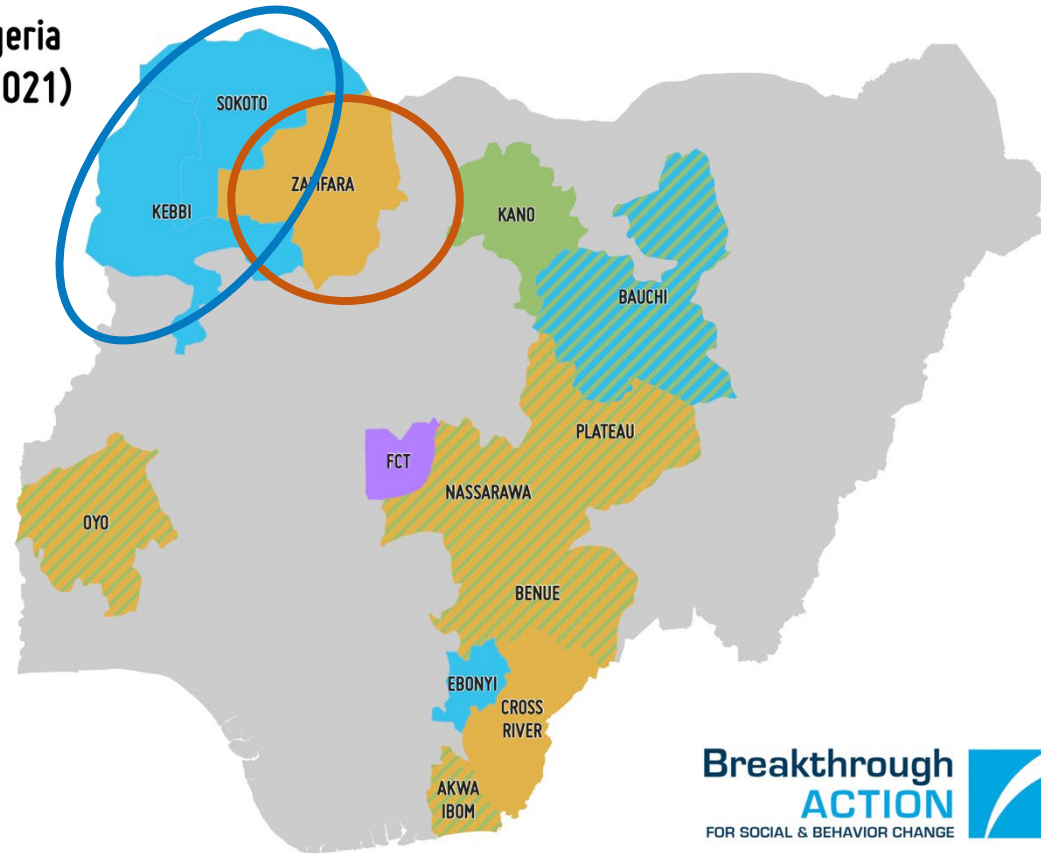
Breakthrough RESEARCH will implement the study in Kebbi and Sokoto (integrated) and Zamfara (malaria-only)

Breakthrough ACTION–Nigeria PROJECT MAP (eff. Q1 FY2021)

SBC Program Areas

- Integrated (MNCH+N, FP, Malaria)
- Integrated (MNCH+N, FP)
- Malaria
- TB

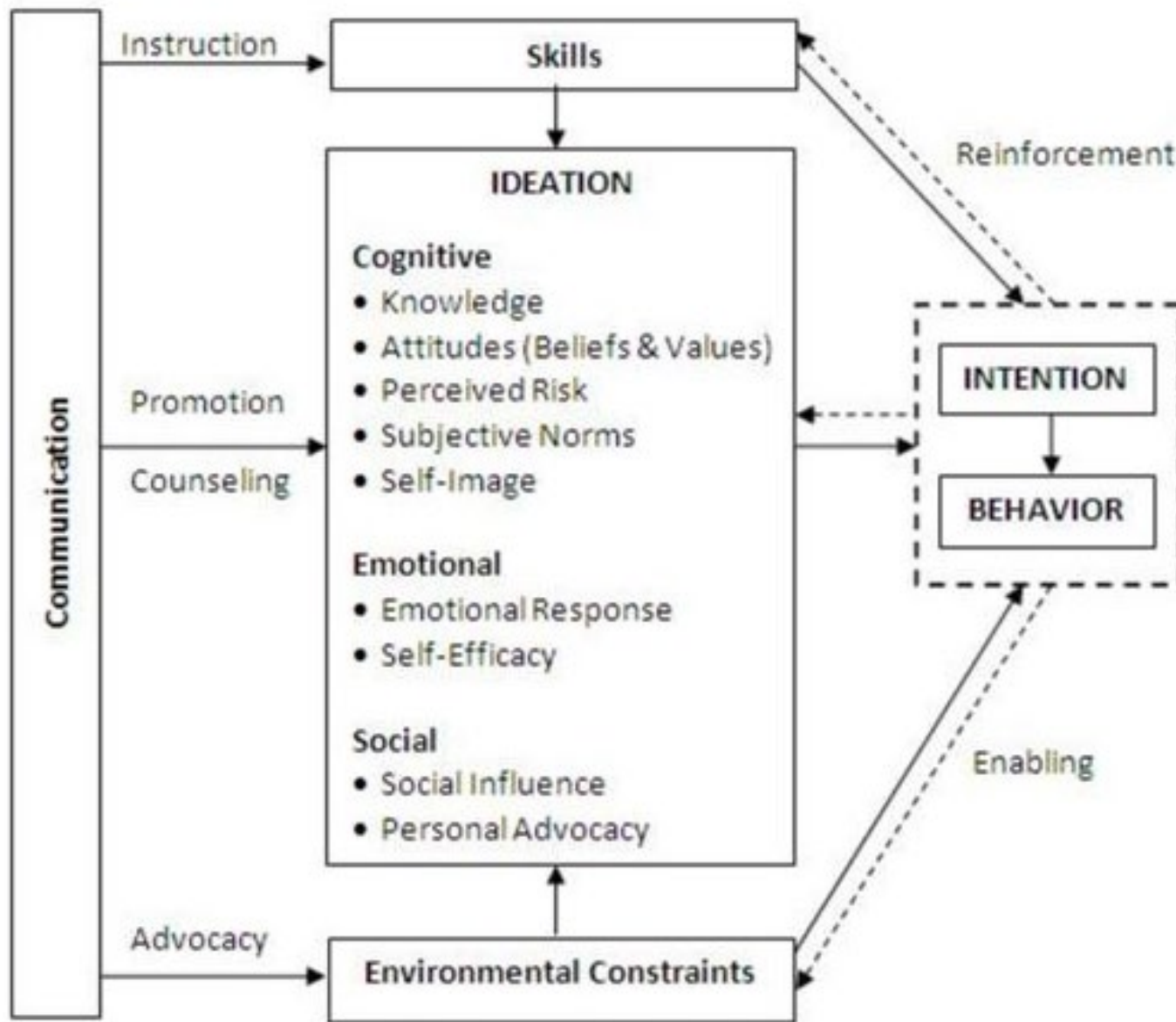
States with stripes indicate multiple program focal areas



What is the Behavioral Sentinel Surveillance (BSS) Survey?

What does the BSS measure?

- Aims to assess the effectiveness of integrated vs. malaria-only SBC on malaria, family planning and MNCH+N behaviors and ideations among pregnant women and women with a child under 2 years in program areas
- BSS measures priority behavioral outcomes including:
 - Malaria** (LLIN use, IPTp, fever treatment/diagnosis); **family planning** (modern contraceptive use, postpartum family planning); **MNCH+N** (ANC, facility-based delivery, newborn and postpartum care, routine immunization, breastfeeding/nutrition, childhood illness care-seeking and treatment)*
- BSS measures psychosocial influences or ideations – cognitive, emotional, social – theorized as intermediate determinants of behavioral outcomes



Kincaid's Theory of Strategic Communication and Behavior Change

BSS design

Study population

Pregnant women and women with a child under 2 years living within Breakthrough ACTION program areas in the 3 states
(not representative at state level)

Study design

Cross-sectional and cohort components
Quasi-experimental and dose-response designs
Conducted in September 2019, midline and endline planned

Sample size

3,032 pregnant women
3,043 women with a child under 2 years

Sampling method

108 wards across three states; census of pregnant women and random selection of women with children under 2 years

Data analysis

Predicted probabilities of outcomes were derived using mixed-effects logistic regression models adjusted for ideational and sociodemographic variables: wealth, age, education and employment (respondent and spouse)

BASELINE TECHNICAL REPORT

Behavioral Sentinel Surveillance Survey in Nigeria

JUNE 2020



Highlights

- Describes theory, rationale and study methods
- Summarizes results for ~500 questions by state (Kebbi, Sokoto and Zamfara)
- Estimates standard DHS indicators by state across malaria, family planning and MNCH+N
- Presents new ideational metrics by state across malaria, family planning and MNCH+N

Available at:

http://breakthroughactionandresearch.org/wp-content/uploads/2020/07/BR_Nigeria_BSSBSln_Report.pdf



Malaria:

Formative work and literature reviews

Nigeria malaria control strategy

- **Long-lasting insecticidal nets (LLIN)** use for malaria prevention, especially among pregnant women and young children; households should own sufficient total nets (at least 1 net for every 2 household members)
- **Intermittent preventive treatment (IPTp)** to prevent malaria in pregnancy (3 or more doses of SP/Fansidar during antenatal care visits)
- **Malaria case management** includes seeking care from a formal medical source, getting a malaria test and receiving anti-malarial treatment for confirmed malaria cases
- **Seasonal Malaria Chemotherapy (SMC)** to prevent malaria in children 3-59 months especially during the rainy season (not measured in BSS survey)

How did formative research inform the BSS?

- Breakthrough ACTION conducted formative research and literature reviews to inform SBC programs in Nigeria
- Breakthrough RESEARCH used this work to inform BSS ideational questions:
 - High LLIN use if sufficient nets are available in the household, but most households don't have enough nets (defined as 1 net for every 2 people)
 - Low IPTp use associated with poor awareness of malaria risks in pregnancy, low antenatal care attendance, and IPTp not offered by the provider in previous studies
 - Poor malaria case management practices associated with healthcare costs, facility distance, negative views of health services, gender dynamics and sociocultural norms

Malaria:

New ideational metrics

Innovative MNCH+N ideational metrics

- Limited ideational research for MNCH+N in contrast to FP and malaria
- Need to develop new MNCH+N ideational questions for BSS using theory-based design and by adapting questions from other settings or health areas
- Applied previous malaria ideational research from Nigeria
- Used both pregnancy-and malaria-related ideational questions in IPTp analysis for multi-sectoral ideational analyses unique to the BSS dataset
- BSS asked a limited set of ideational questions within each health area

Malaria case management ideational metrics

Applied previous malaria ideational research from northwestern Nigeria

| Dimension | Domain | Likert-scale statement or question |
|------------|-------------------------------|--|
| Cognitive | Knowledge | What do you think causes malaria? |
| | | What are some things people can do to stop them from getting malaria? |
| | Beliefs about malaria | A blood test for malaria is the only way to know if someone really has malaria |
| | | Even if the malaria test is negative, I always worry that it may still be malaria |
| | | When a child develops fever, it is almost always caused by malaria |
| | Beliefs about health services | A health provider is the best person to talk to when a child is sick |
| | | Health facilities in my community frequently have the treatments that are needed to treat a sick child |
| Emotional | Self-efficacy | How confident are you that you could convince your husband/partner to let you seek advice or treatment for a sick child? |
| Social | Social influence | Besides yourself, who else may influence your decision about whether to seek advice or treatment for a sick child? |
| Intentions | Intentions | How likely is it that you would seek care the same day or next day if your child developed a fever |

Main references:
Do M, et al. Associations between malaria-related ideational factors and care-seeking behavior for fever among Children under five in Mali, Nigeria and Madagascar. Malaria Journal 2018;13(1).

Malaria in pregnancy ideational metrics

Applied previous IPTp ideational research and new pregnancy-related ideations

| Dimension | Domain | Likert-scale statement or question |
|-----------|--|---|
| Cognitive | Knowledge of malaria, pregnancy, and maternal health services | What can happen to a pregnant woman's unborn baby if the woman gets malaria? |
| | | What signs or symptoms let you know that a pregnant woman should go to a health facility immediately? |
| | | In your opinion, if a pregnant woman goes to ANC what are the benefits to herself? |
| | | How many times should a woman receive a check-up during pregnancy? |
| | | In your opinion, when should a woman go to ANC for the first time? |
| | Beliefs about malaria, pregnancy, and maternal health services | When a pregnant woman gets malaria, the effect on her and her unborn child is very serious |
| | | The medicine given to pregnant women to prevent malaria works well to keep mother/baby well |
| | | Pregnant women need antenatal care only if they are sick |
| | | Pregnant women attending ANC4+ have safer pregnancies |
| | | Only first-time pregnant women need ANC |
| | | It's important for a woman to discuss her pregnancy with her husband to make decisions together |
| | | It is better to use a traditional provider than a health facility for ANC |

Main reference:
Awanteng GN, et al. Malaria-related ideational factors and other correlates of IPT during pregnancy in Madagascar. Malaria Journal 2018;17(1).

Malaria in pregnancy ideational metrics

Applied previous IPTp ideational research and new pregnancy-related ideations

| Dimension | Domain | Likert-scale statement or question |
|------------|------------------|---|
| Emotional | Self-efficacy | How confident are you that to start a conversation with your husband about attending ANC? |
| | | How confident are you that you could get to a health facility for ANC? |
| Social | Social influence | Besides yourself, who else may influence your decision to go to ANC4+ during pregnancy? |
| Intentions | Intentions | How likely is it that you would take IPTp during your next pregnancy? |
| | | How likely is it that you would attend ANC4+ times during your next pregnancy? |

Main reference:
Awanteng GN, et al. Malaria-related ideational factors and other correlates of IPT during pregnancy in Madagascar. Malaria Journal 2018;17(1).

Malaria:

Key findings

Key findings by SBC program priorities

1. Behavioral patterns

How frequently do respondents practice the promoted health behaviors? What are the key behavioral patterns by geography or sociodemographic characteristics?

2. Knowledge and Beliefs

Are respondents aware of promoted health behaviors, e.g. how to prevent disease? Are certain beliefs held by respondents that could impede progress?

3. Barriers

How do respondents view health services in their communities? What are the main reasons for choosing certain treatment locations or for not using services at all?

4. Social Influence and Decision-Making

How do health decisions get made in households? Who mainly influences women's healthcare practices?

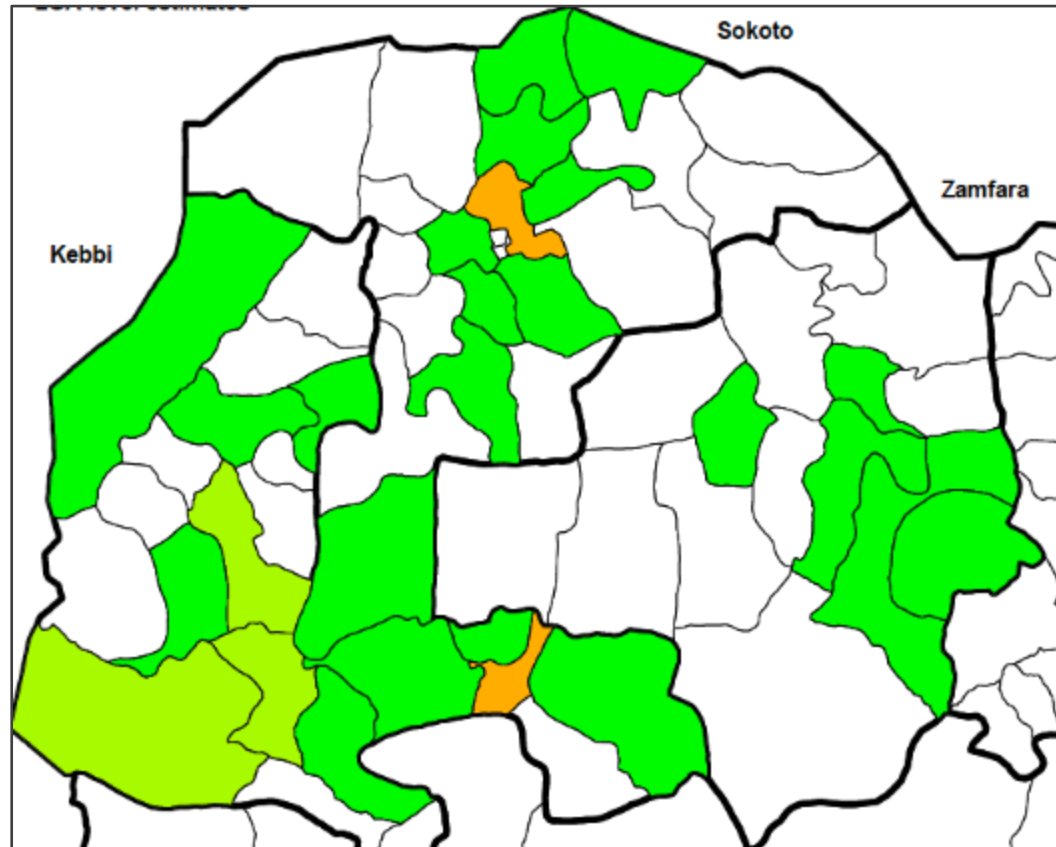
5. Ideational Relationships

How important are the individual components of behavioral change frameworks? What ideations should SBC programs target to maximize impact?

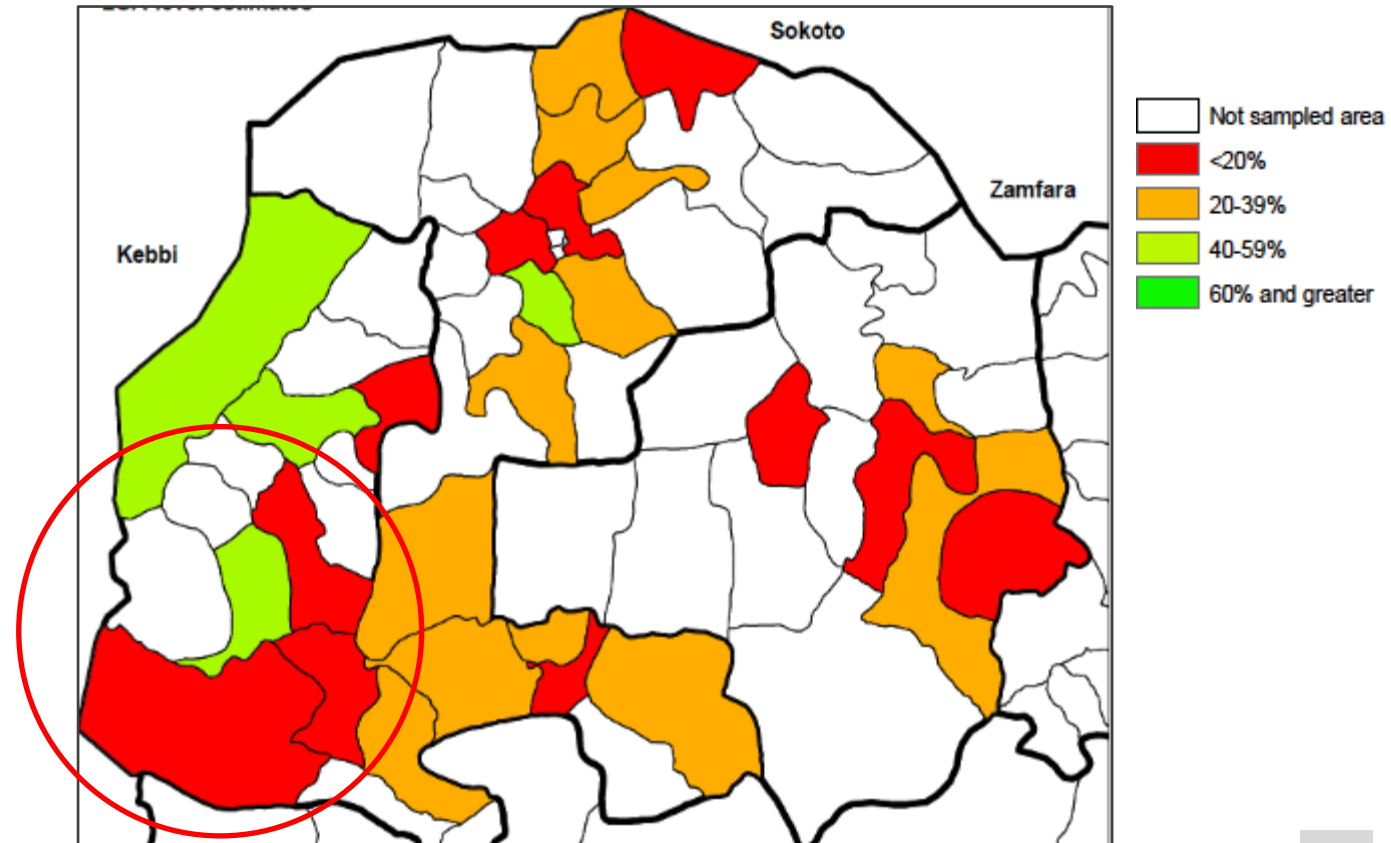
I. Behavioral patterns

High LLIN ownership, but not enough nets

Percentage of household with at least one LLIN
(High LLIN availability (at least one LLIN) in a household)



Percentage of households that have at least one LLIN for
every two household members
(Much lower “LLIN access” in a household)



High and equitable LLIN use among under-2s

| Last-born children under 2 years who live in a household with 1 net for every 2 people who slept under an LLIN the previous night | Kebbi | | Sokoto | | Malaria-Only (Zamfara) | | Integrated (Kebbi/Sokoto) | |
|---|-------|-----|--------|-----|------------------------|-----|---------------------------|-----|
| | % | N | % | N | % | N | % | N |
| Total | 97.6 | 158 | 89.0 | 113 | 92.8 | 124 | 94.2 | 271 |
| Household wealth quintile | | | | | | | | |
| Lowest | 98.6 | 99 | 95.4 | 62 | (..) | 2 | 97.5 | 161 |
| Highest | 96.5 | 31 | (..) | 0 | 80.5 | 37 | 96.5 | 33 |
| Maternal education, highest level attended | | | | | | | | |
| None | 98.6 | 141 | 87.4 | 98 | 98.2 | 82 | 94.2 | 239 |
| Secondary or higher | (..) | 10 | (..) | 0 | 79.6 | 38 | (..) | 10 |

Low and variable IPTp use during pregnancy

| Women 15-49 years with a child under 2 who took IPTp (3+ doses SP/Fansidar) during last pregnancy | Kebbi | | Sokoto | | Malaria-Only (Zamfara) | | Integrated (Kebbi/Sokoto) | |
|---|-------|-----|--------|-------|------------------------|-------|---------------------------|-------|
| | % | N | % | N | % | N | % | N |
| Total | 23.1 | 884 | 15.0 | 1,064 | 19.1 | 1,064 | 18.5 | 1,948 |
| Lowest | 8.4 | 263 | 11.8 | 334 | 11.8 | 111 | 10.5 | 597 |
| Highest | 33.3 | 166 | 32.1 | 151 | 33.8 | 302 | 32.7 | 317 |
| Maternal education, highest level attended | | | | | | | | |
| None | 19.4 | 667 | 11.5 | 843 | 13.8 | 693 | 14.7 | 1,510 |
| Secondary or higher | 28.5 | 95 | 18.2 | 58 | 43.3 | 180 | 27.3 | 153 |

Low malaria testing among febrile under-2s

| Last-born children under 2 years with fever in past 2 weeks who were tested for malaria | Kebbi | | Sokoto | | Malaria-Only (Zamfara) | | Integrated (Kebbi/Sokoto) | |
|---|-------|-----|--------|-----|------------------------|-----|---------------------------|-----|
| | % | N | % | N | % | N | % | N |
| Total | 22.8 | 200 | 16.8 | 285 | 24.0 | 188 | 19.0 | 485 |
| Household wealth quintile | | | | | | | | |
| Lowest | 14.9 | 48 | 10.1 | 81 | (..) | 20 | 11.9 | 129 |
| Highest | 22.5 | 42 | 26.5 | 38 | 42.7 | 49 | 24.4 | 80 |
| Maternal education, highest level attended | | | | | | | | |
| None | 19.0 | 158 | 15.0 | 245 | 15.8 | 113 | 16.4 | 403 |
| Secondary or higher | (..) | 20 | (..) | 10 | (..) | 25 | (..) | 30 |

2. Knowledge and Beliefs

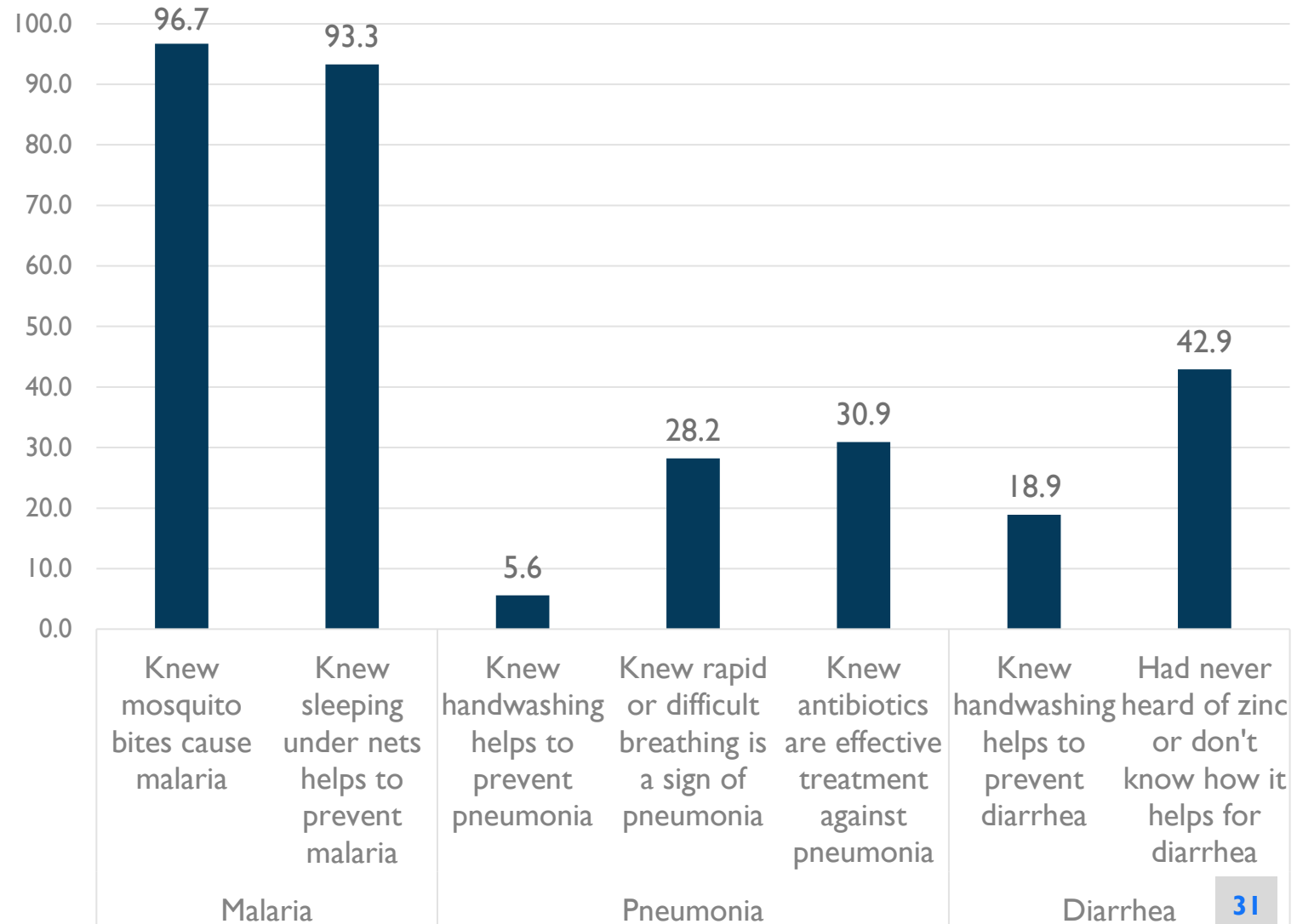
High malaria knowledge, low for pneumonia/diarrhea

While nearly all respondents knew mosquito bites cause malaria and sleeping under nets helps to prevent malaria ...

43% had never heard of or didn't know how zinc helps for diarrhea

Only 31% knew antibiotics were an effective pneumonia treatment

Only 28% knew rapid or difficult breathing is a sign of pneumonia

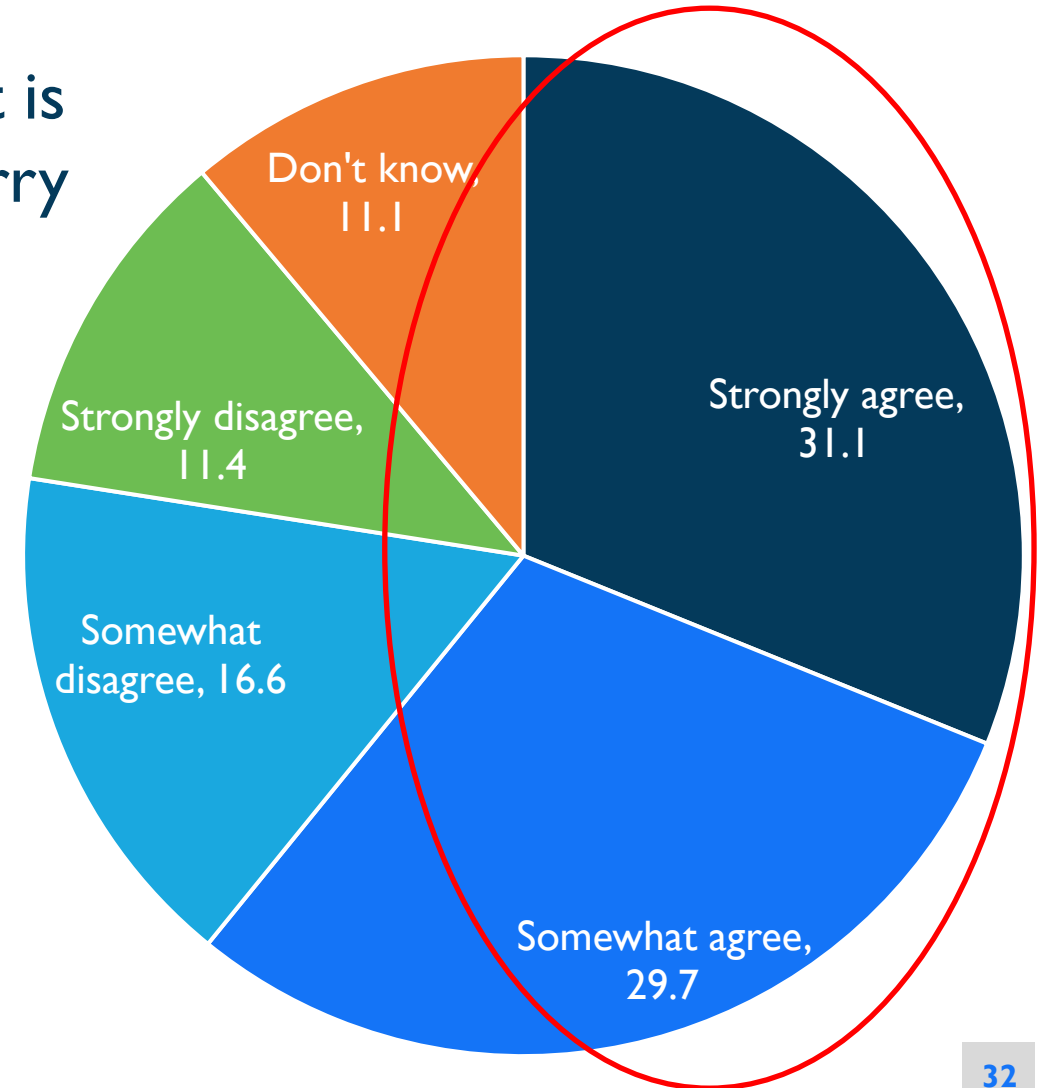


Strong doubts about malaria testing ...

61% agreed they always worry it may still be malaria even if the blood test is negative

Nearly one-third (31%) strongly agreed indicating a firmly held misperception about malaria testing

Even if the blood test is negative, I always worry that it may still be malaria



3. Barriers

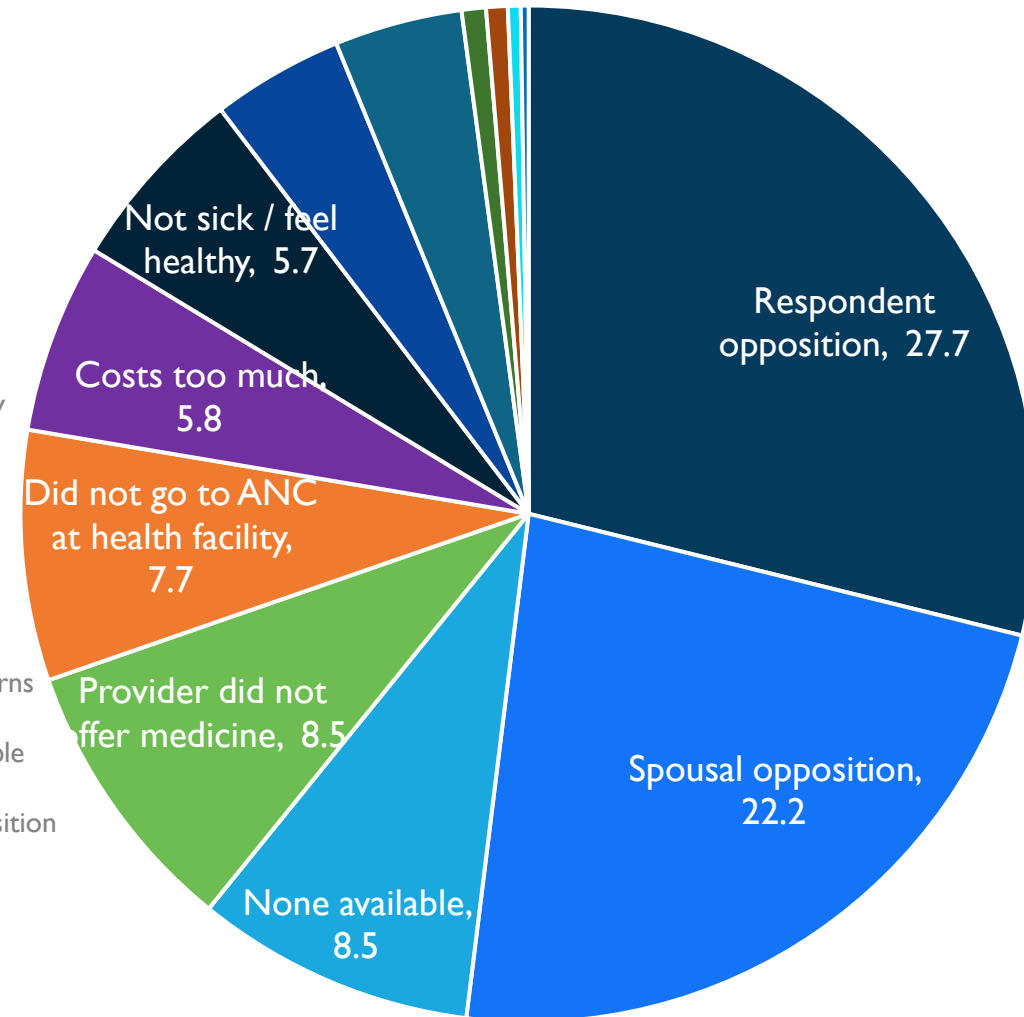
Spousal and respondent opposition to IPTp

Among women who did not take IPTp during last pregnancy and gave reasons for non-use

About half said that either **she** or **her husband** opposed it

Other reasons included **not available, not offered, no ANC attendance, costs too much** or **she was healthy / didn't feel sick**

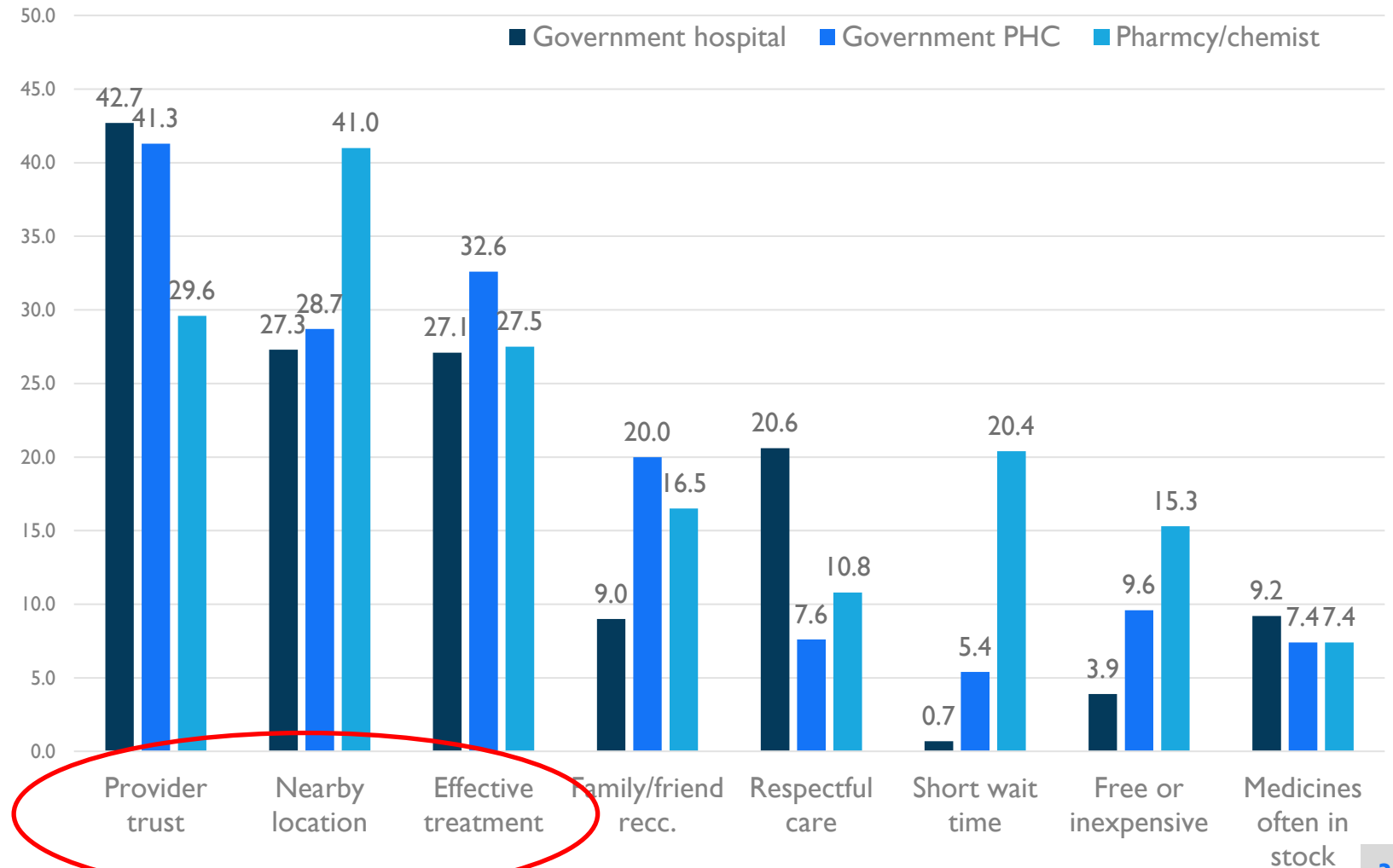
- Respondent opposition
- Spousal opposition
- None available
- Provider did not offer medicine
- Did not go to ANC at health facility
- Costs too much
- Not sick / feel healthy
- Not necessary
- Afraid of side effects / health concerns
- Facility closed / provider not available
- Religious / community leader opposition
- Not customary
- Fatalism ("Up to God")



Treatment location choice for fever care-seeking

Provider trust, nearby location and perceived treatment effectiveness were common reasons for choosing the treatment location

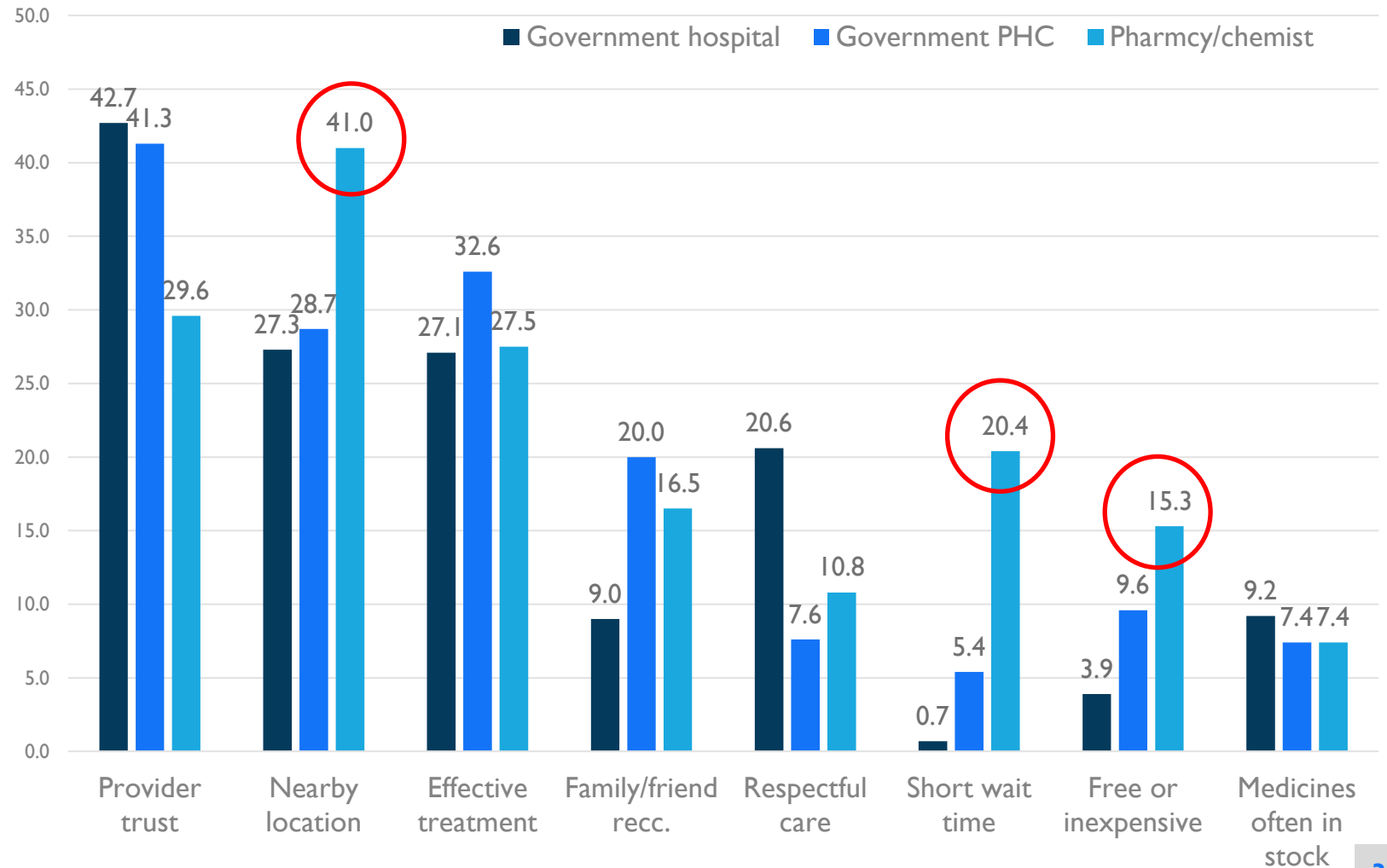
Women who attended pharmacies more commonly cited short wait time, nearby location and low cost than those attending government hospitals and PHCs who instead cited provider trust, effective treatment and respectful care



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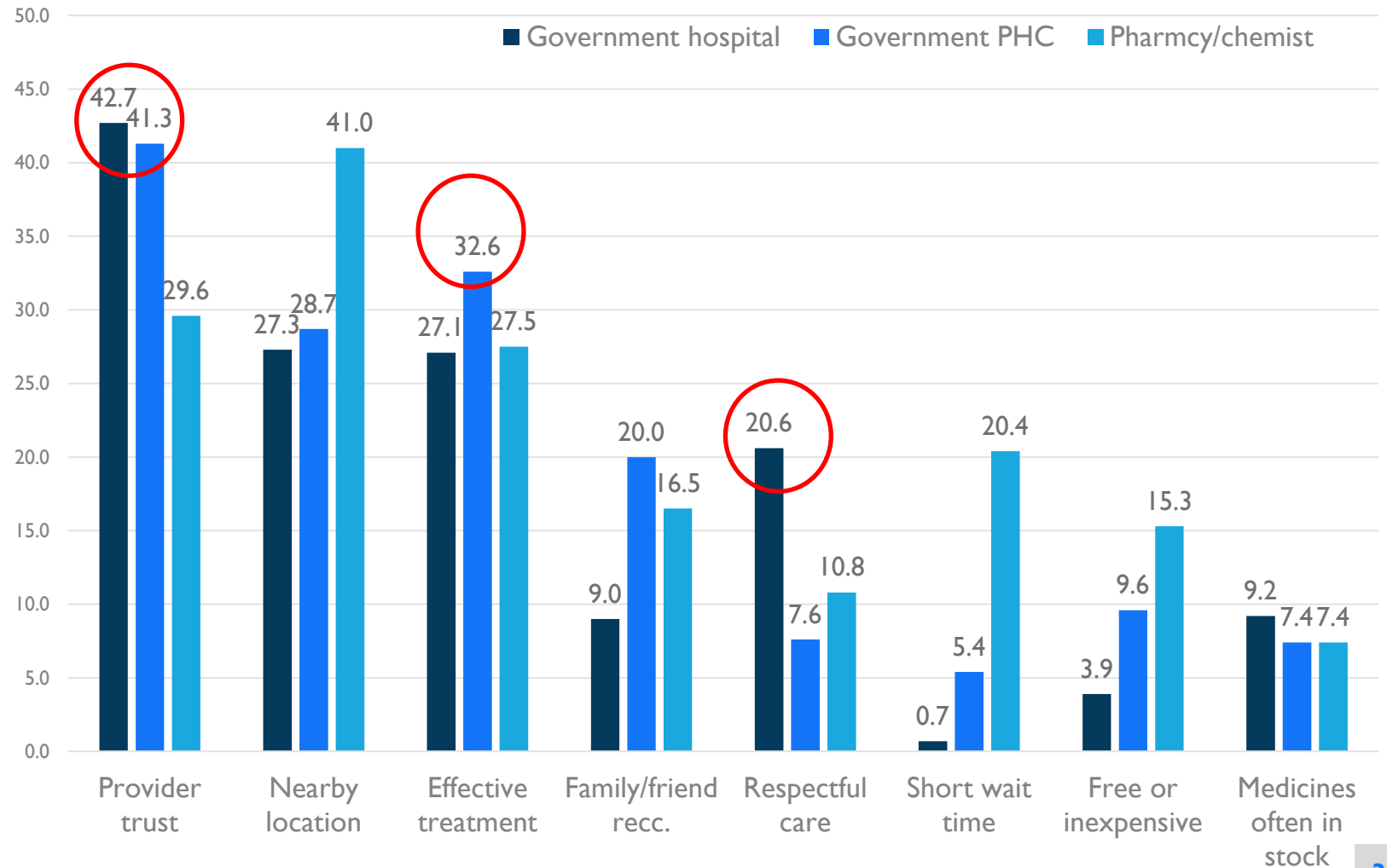
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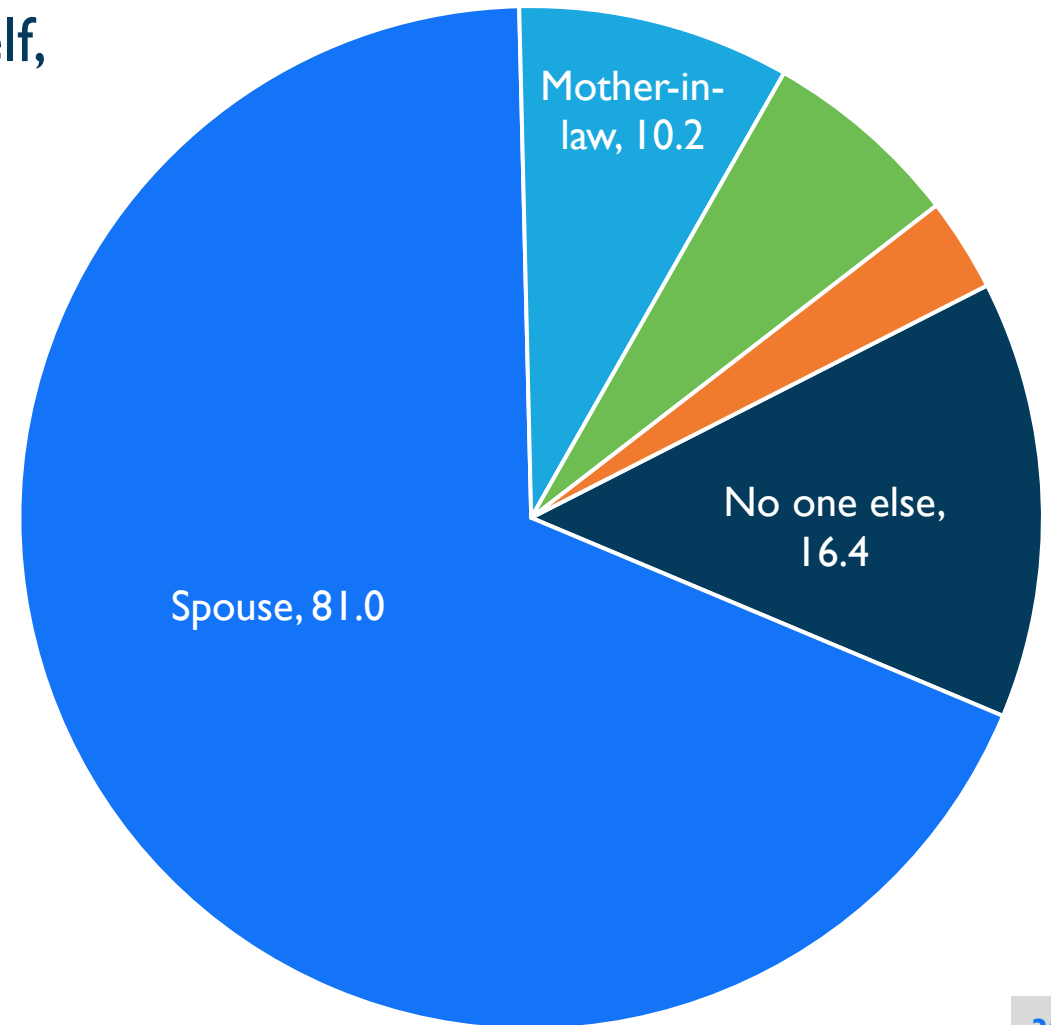
4. Social influence and decision-making

Spousal influence on sick child care decisions...

Most respondents (81%) cited **spouses** as main influencers of decisions to seek sick child care

Yet regression analyses show that spousal influence is not associated with care-seeking or diagnosis of pediatric fevers

Besides yourself, who else may influence your decision to seek care for a sick child?



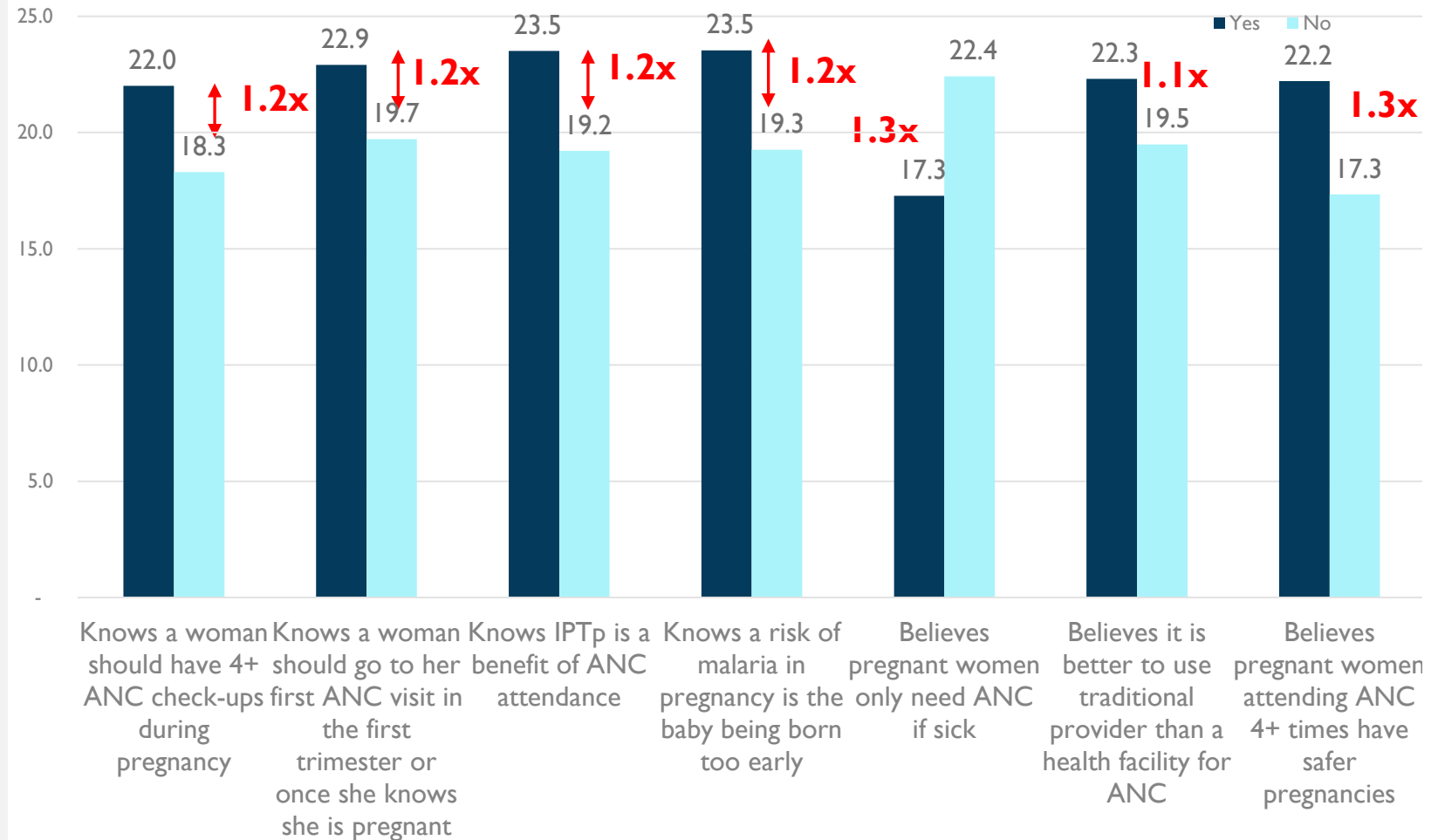
5. Ideational Relationships

IPTp use related to ANC knowledge and beliefs

ANC knowledge and beliefs are critical for IPTp uptake ...

Knowledge of number and timing of ANC visits; IPTp as ANC benefit; risks of malaria in pregnancy

Beliefs that ANC is only for sick pregnant women; better to use traditional provider for ANC; ANC leads to safer pregnancies



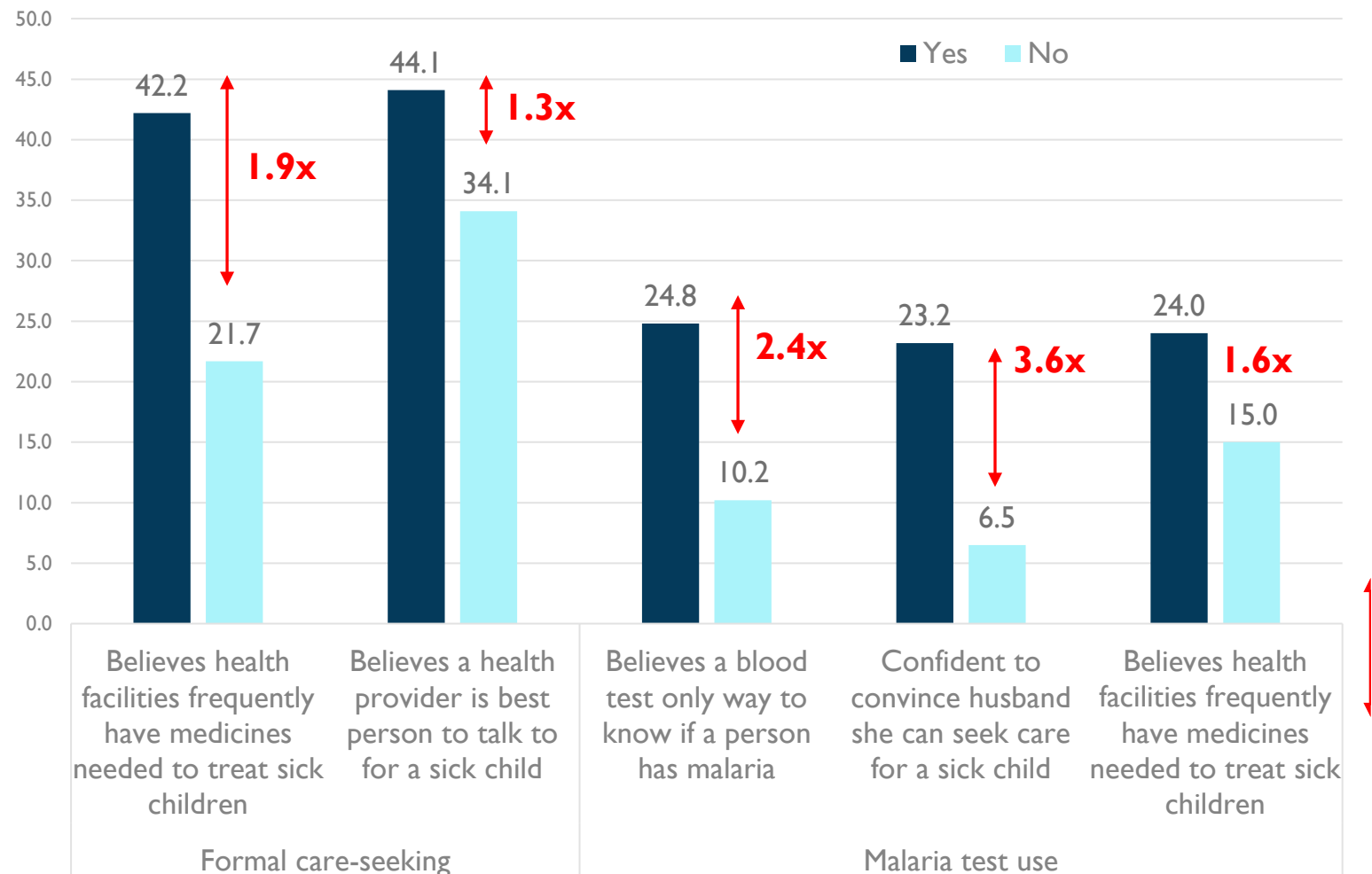
Differences in likelihood are statistically significant at <0.05 level in mixed-effects logistic regression analysis adjusted for ideational and sociodemographic variables, e.g. wealth, age, employment and education (respondent and spouse)

Case management: beliefs & health services views

Women who believe facilities often have medicines for sick children were **1.9x** and **1.6x** as likely to seek formal care and get a febrile child tested for malaria

Women who believe a blood test is the only way to know a child has malaria were **2.4x** as likely to get a febrile child tested for malaria

Women who felt confident to convince husband to seek sick child care were **2.4x** as likely to get a febrile child tested for malaria



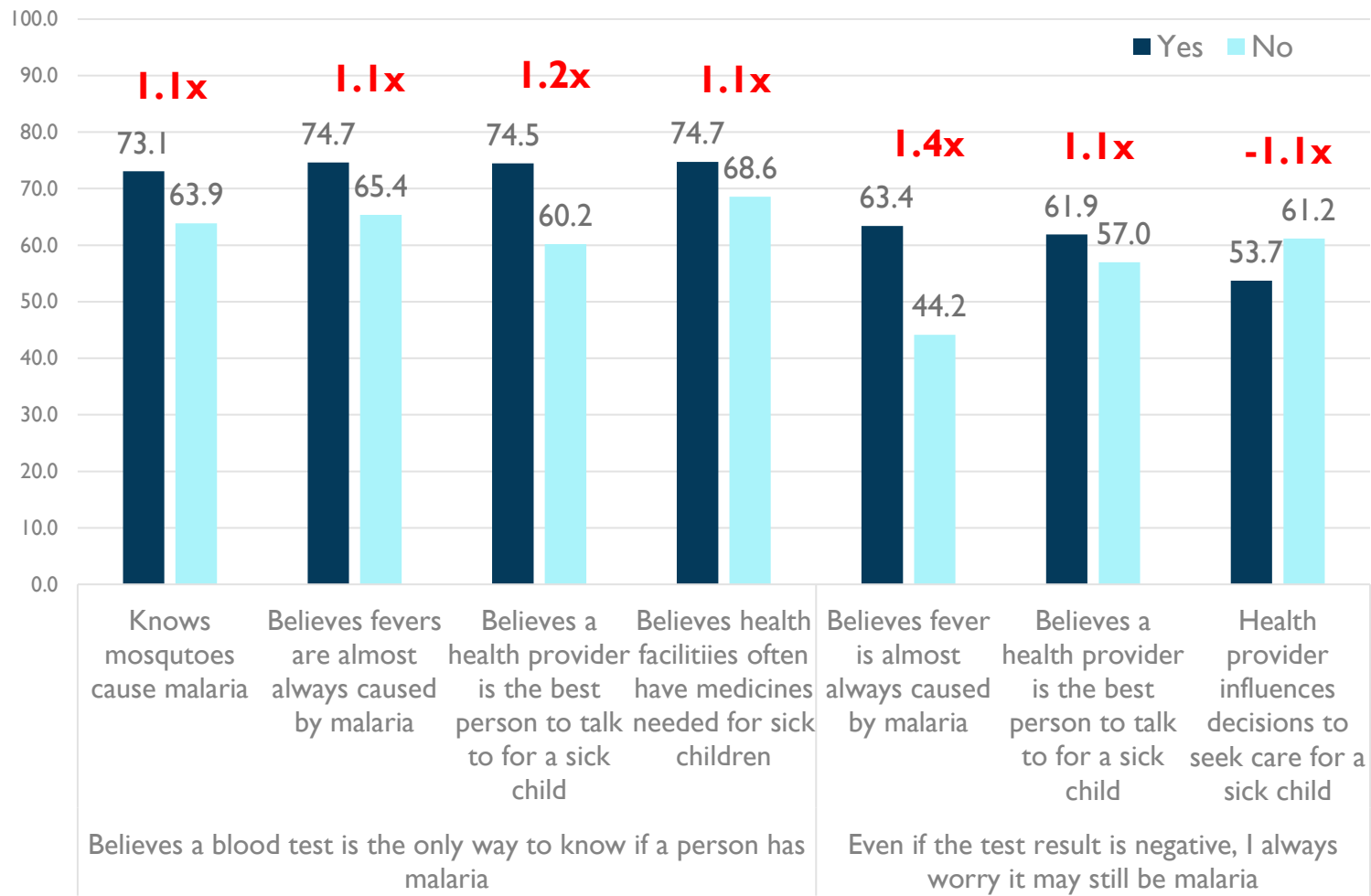
Differences in likelihood are statistically significant at <0.05 level in mixed-effects logistic regression analysis adjusted for ideational and sociodemographic variables, e.g. wealth, age, employment and education (respondent and spouse)

Trust in malaria tests and health services views

Women who believed fevers were almost always due to malaria were **1.4** as likely to distrust negative test results (worry it's still malaria...)

Women who said the health provider influenced their decision to seek care for a sick child were **14% less likely** to distrust negative test results

Women who believed the health provider is the best person to talk to for a sick child were **1.2x** and **1.1x** more likely to feel confident in blood tests and trust negative results



Differences in likelihood are statistically significant at <0.05 level in mixed-effects logistic regression analysis adjusted for ideational and sociodemographic variables, e.g. wealth, age, employment and education (respondent and spouse)

Program Implications

Program implications

High LLIN use if household has sufficient nets (1 LLIN for 2 people)

- Most households don't have enough nets, making improved access a top priority
- SBC programs could target messaging to older women (35-49 years), those living in larger homes or in Sokoto where there was lower use despite having sufficient nets

IPTp use is linked to pregnancy ideations, less about malaria beliefs

- SBC messaging could focus on improving ANC knowledge and beliefs, emphasizing IPTp as an ANC benefit, and raising awareness about risks of malaria in pregnancy
- Perceived (and actual) health services quality also matters for IPTp uptake requiring SBC programs to work closely with efforts to improve maternal health services

Program implications

Health services perceptions matter for care-seeking, malaria test uptake and trust in negative test results

- Reinforces importance of perceived (and actual) health services quality to raise not only service use rates but also trust in diagnostic tools used by health providers
- Provider trust, nearby location and effective treatment were main reasons for choosing treatment locations; healthcare costs were main reason for not seeking care or for choosing pharmacies, suggesting focus areas for improving health services

Promote self-efficacy and dispel misperceptions about fever causes

- Strong doubts about negative malaria test results as found in qualitative research
- SBC messaging could dispel myth that most fevers are due to malaria and support women's confidence to seek sick childcare to improve test use and trust in results
- Provider behaviour change interventions can target health workers' perceptions about fever causes and improve provider adherence to malaria testing and treatment guidelines

Program implications

Self-efficacy in spousal communication is critical for seeking formal care, testing for pediatric fevers and IPTp uptake

- Women's confidence in convincing her husband to seek care for sick children is important, programs may need to think about ways to support women's empowerment to decide on how to care for sick children.

Understanding the factors responsible for opposition to IPTp is critical to IPTp uptake

- Spousal and respondent opposition to IPTp were commonly reported barriers to uptake. More research is needed to better understand the nature of this opposition in order to inform SBC programming.

What's next?

Next steps

- Conduct BSS analyses to inform SBC program adaption and scale-up
- Prepare manuscripts and research briefs to disseminate results
- Plan the BSS midline survey (although delays due to COVID19)
- Present BSS results by specific health area in our webinar series

Future webinar events

| Webinar Topic | Date |
|---|-----------|
| Global webinar – BSS results overview | June 11 |
| National webinar – BSS results overview | June 25 |
| Pregnancy and childbirth | July 23 |
| Breastfeeding | August 6 |
| Vaccination | August 20 |
| Sick child care-seeking and treatment | Sept 3 |
| Malaria | Sept 17 |
| Family planning | Sept 30 |
| Inequalities | Oct 7 |

Future work and significance

- BSS baseline results are a first step for assessing the effectiveness and cost-benefit of integrated versus malaria-only SBC programs in Nigeria
- Highlight ideations and behaviors during this baseline period to inform SBC program scale-up and adaption
- Present new ideational metrics across MNCH+N areas and quantify their relationship with behavioral outcomes to test behavioral change theories
- Link BSS results with routine program data or health facility records to examine impact of supply- and demand-side factors on service use

Project Team

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THANK YOU



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<https://breakthroughactionandresearch.org/>

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