

CONCEPT NOTE

WASHPaLS #2 SBC Research: Improving Handwashing and Food Hygiene Behaviors Specific to Infant and Young Child Feeding

PURPOSE OF THIS DOCUMENT

WASHPaLS #2 seeks to explore social and behavioral change (SBC) approaches to improve hygienic behaviors and environments, including handwashing (HW) and food hygiene (FH) behaviors around meal preparation and feeding for infants and young children (IYC). The proposed research activity will build on the current evidence base on FH and HW, including from the Malawi Hygienic Family trial that identified key psychosocial predictors of food-related HW and FH behaviors in rural Malawi (Chidziwisano, Slekiene, Mosler, & Morse, 2020). The Hygienic Family-2 trial is being continued in Malawi by our proposed research partners as described below.¹ WASHPaLS #2 proposes to conduct a study complementary to the Malawi Hygienic Family-2 trial, in which we will generate evidence on the package of interventions required to adopt and sustain hygienic behaviors around complimentary food preparation and consumption, and the role of HW and FH hardware in that change. We summarize our rationale and proposed study in the adjacent Box 1.

The purpose of this document is to present:

- Rationale and relevant concepts
- Research questions
- Implementation context for the proposed research
- Proposed research design and methods
- Anticipated contributions
- Roles and responsibilities for research partners.

RATIONALE

The central role of hands in the fecal-oral contamination route is strongly supported in the literature. Pathogens in/on contaminated environments (e.g., soil, floor, fomites in off-ground areas), can be transferred to the mouth via hands, a mechanism influenced by the frequency of contact and the

Box 1. Summary

HW and FH are critical pathways to reducing diarrheal disease and improving the health of IYC at the pivotal stage when complementary foods are introduced. The behavioral determinants driving the intersection of HW and FH are understudied, especially at the point of food preparation and feeding. Thus, researchers need to:

- identify feasible and desirable interventions to support caregivers' improved performance of HW and FH behaviors;
- determine the effects of these interventions on caregivers' performance of HW and FH behaviors;
- and examine the contributions of technology interventions including varying levels of SBC.

We propose a two-phase study to (phase 1) conduct formative research to design an then (phase 2) test an intervention to promote and sustain desired HW and FH behaviors.

¹ In this document the two phases of the Malawi Hygienic Family trials are denoted as follows: Hygienic Family-1 refers to the original trial conducted by World Vision and partners results for which were presented in Chidziwisano et al., 2020; Hygienic Family-2 refers to the second phase of the study and it is with this phase that WASHPaLS #2 will work.

concentration of microbes on the surface. Following hand exposure, children ingest those pathogens through mouthing of contaminated hands and contaminated objects, or through contact with caregivers' contaminated hands during feeding in the absence of proper hand hygiene (Wang, Moe, Null, Raj et al., 2017; Woldt & Moy, 2015). IYC also are exposed to fecal and other pathogens introduced during food handling, preparation, feeding, and storage; further increasing IYC's risk of exposure to foodborne pathogens (Wang et al., 2017; Woldt & Moy, 2015). Complementary foods are particularly susceptible to fecal contamination (Bick, Perieres, D'Mello-Guyett, Baker et al., 2020), and were identified as the major source of ingestion of fecal pathogens for IYC in low-income countries (Wang et al., 2017). In some settings, these exposure pathways are sustained by a high prevalence of risky practices by caregivers such as hand feeding of infants with unclean hands, limited handwashing with soap, storage of food in inappropriate containers and conditions, and inadequate or no reheating of infant food (Biran et al., 2022; Chidziwisano, Slekiene, Kumwenda, Mosler et al., 2019; Simiyu, Czerniewska, Aseyo, Baker et al., 2020; Takanashi, Chonan, Quyen, Khan et al., 2009). As a result, handwashing with soap and good food hygiene practices, defined as the "measures and conditions necessary to control hazards and to ensure fitness for human consumption of a foodstuff taking into account its intended use," are critical to improve IYC health (van der Velde, 2011).

Additionally, food hygiene is an under-appreciated pathway to reduce diarrheal disease among IYC and, as indicated in USAID's Multi-Sectoral Nutrition Strategy 2014–2025 (FANTA, 2015), is a cross-cutting issue that should be integrated across sectors, including WASH. As such, the Strategy recommends that given current evidence, programs should develop evidence-based guidance on practical, feasible ways to address food hygiene in low-resource environments, including SBC interventions (FANTA, 2015).

The literature suggests that in general FH and HW interventions, particularly those using SBC, are effective in preventing fecal-oral contamination among IYC as evidenced by their positive impact on incidence of diarrhea (Ejemot-Nwadiaro, Ehiri, Arikpo, Meremikwu et al., 2020; Manaseki-Holland, Manjang, Hemming, Martin et al., 2021; Walker, Walker, & Black, 2022). However, gaps remain around effective approaches to promote the adoption and sustainment of FH and HW behaviors related to food preparation and IYC feeding. Notably, while studies have highlighted the role of psychosocial drivers of general HW such as disgust, nurture, aspiration, affiliation, and self-efficacy (Biran et al., 2022; Briceño, Coville, Gertler, & Martinez, 2017; Greenland, Chipungu, Curtis, Schmidt et al., 2016; Swarthout, Ram, Arnold, Dentz et al., 2020), only a few studies have focused on the specific psychosocial determinants of food-related HW and other FH behaviors. One such study, the Hygienic Family-I trial in rural Malawi, suggested that descriptive norms (perceptions that others in the household or the community are performing the behavior), the ability to remember to perform the behavior, and the perceived difficulty of getting enough soap for washing hands are key drivers of HW with soap at critical times around feeding and food preparation, safe storage of kitchen utensils, and washing kitchen utensils with soap (Chidziwisano et al., 2020). But while this provided some initial insight into the psychosocial predictors of HW- and FH-related behaviors, more evidence is needed on the effective design of SBC approaches that can elicit HW and FH behavior adoption and use around this critical juncture.

Evidence on HW and FH hardware, including characteristics and desirable attributes that will facilitate adoption and ongoing use in low resource environments, is promising (Simiyu et al., 2020). Studies suggest that HW and FH hardware are essential to create sustainable routines to support behavioral

performance and habit formation (Biran et al., 2022; Neal, Vujcic, Hernandez, & Wood, 2015; Simiyu et al., 2020). For HW stations, attributes such as user friendliness, water and soap availability, and the location of the washing station have been linked to performance of HW behaviors at critical times, including but not specifically focusing on times related to food preparation and feeding. (White, Thorseth, Dreibelbis, & Curtis, 2020). These aforementioned attributes of HW facilities also play a critical role in *nudging* desirable handwashing behaviors, working at both the conscious and subconscious levels (Grover, Hossain, Uddin, Venkatesh et al., 2018). However, these studies did not seek to understand in detail how determinants might differ across the various critical times, and little is known about the relevant attributes of HW stations that support handwashing before and during food preparation/eating/feeding, and the relevant type and attributes of cooking and feeding utensils to support caregivers' hygienic behaviors related to complementary food preparation and IYC feeding. Moreover, the physical attributes of the HW stations and the FH hardware may carry different importance based on caregiving contexts, and therefore, require an understanding of their relevance before their implementation (Simiyu et al., 2020). Potential attributes to consider include, user friendliness, water and soap availability, the location of the washing station, as well as cost, size, device stability on existing surfaces within the household, water reservoir size, hands free on/off valve, and others as identified by end-users.

Furthermore, a cross-sectional study in Peshawar, Pakistan found that when behavior change communication programs are done with individual and community needs, level of understanding, beliefs, and sociocultural norms in mind, all the domains of hand hygiene showed statistical improvement (e.g., handwashing before meals, before cooking, before feeding a child, after defecation (Qazi and Anwar, 2021). But, designing programs based on extensive formative research regarding needs, levels of understanding, beliefs and norms is complex and resource intensive, as are the behavior change communication (BCC) and individual-level interpersonal communication (IPC) approaches commonly used in SBC programming (Avenir Health, 2021). Recent cost-effectiveness studies for SBC have mixed findings in the literature, providing no clear path on what level of SBC interventions yield desired results while also being considered cost-effective (Avenir Health, 2021).

In summary, given our review of the literature, WASHPaLS #2 proposes a study that will focus on HW and FH in relation to preparation and feeding of complimentary food, as a) this is an under-appreciated pathway contributing to IYC development and health, b) little evidence exists on HW behavior change linked to this particular critical time, and c) there is no clear package of interventions for FH and complementary feeding hygiene. The study will set out to generate evidence on the effects of introducing hardware and altering the home environment, using aspirational HW stations and FH hardware, as environmental interventions that can minimize the need for more resource intensive behavior change communication approaches. Interventions will be assessed based on criteria such as ease of roll-out, cost-, resource- and time-intensity, reception by the target audience, and potential for scale.

RESEARCH QUESTIONS

We will explore three research questions:

RQ3.2a. What is a feasible and desirable intervention package to support caregivers' improved performance of HW and FH behaviors around complementary food preparation and consumption by IYC?*

*Potential attributes that the team will consider based on our desk review summarized above include: user friendliness; the location of the washing station; cost, size, device stability on existing surfaces within the household; water reservoir size; hands free on/off valve; and others attributes identified by end-users.

RQ3.2b. What is the effect of the HW and FH hardware and relative role of SBC messaging within the broader intervention package, on caregivers' performance of HW and FH behaviors around complementary food preparation and consumption by IYC? *

RQ3.2c. What is the effect of the HW and FH hardware and relative role of SBC messaging within the broader intervention package, on reported diarrhea incidence among IYC?

IMPLEMENTATION CONTEXT

According to the 2015-2016 Malawi Demographic and Health Survey (DHS), the majority of urban households (98%) have access to an improved source of drinking water², compared to 85% of rural households, including only 2% that have piped water on their property; moreover 47% of rural households are required to travel 30 minutes or more to acquire drinking water. So even while they may have access to an improved source, this only qualifies as limited service³. While 82% of rural households have a designated location for washing hands, only 9% of those households were observed to have soap and water at the hand washing locations, and 58% of households had no water, soap, or other cleaning agents observed at the HW locations. The country also faces significant levels of diarrhea among young children and general mortality. According to the 2015-2016 DHS data, 22% of children under age five had diarrhea episodes in the previous two weeks. While infant mortality declined significantly between 2000 and 2010, per the 2015-2016 DHS report, one in 16 children in Malawi dies before his or her fifth birthday, with two-thirds of these deaths occurring among children under one year of age. Again, there is an urban-rural divide with higher deaths in rural areas (77 deaths per 1,000 live births versus 61 deaths per 1,000 live births in urban areas) (CSA/Malawi & ICF, 2017).

Implementing Partner Description

To address these HW and health disparities, World Vision and the Government of Malawi (GoM) have developed and adopted the Nurturing Care Group (NCG) Core Project Model (CPM) approach which provides a behavior change platform that enables the promotion of integrated behavior change messages and activities based on evidence-based, high-impact interventions. NCGs are commonly used in food security, nutrition, and maternal and child health programs and have been shown to be an effective

² Improved water sources include protected dug well, tube well or borehole, public tap/standpipe, piped to neighbor, or piped water into dwelling or yard.

³ As per the service ladder for drinking water used by the UNICEF-World Health Organization (WHO) Joint Monitoring Program (JMP).

strategy for reaching large populations in remote areas in LMICs (Perry et al., 2015). NCGs typically consist of 10 to 15 community-based volunteers who meet bi-weekly with project staff or government Community Health Workers (CHWs) for programmatic training, and then cascade down behavior change messages and activities to caregiver groups at the neighborhood level. These NCG's use interpersonal behavior change activities to build social support systems, link neighborhood groups with community leaders, government staff, and social services. Current main health issues addressed by the NCG groups include issues such as, poor IYC feeding, disease prevention practices for IYC's (Health and Nutrition), poor early child development and stimulation practices (Education), and poor water collection, storage and treatment, hygiene, and sanitation practices (WASH).

In addition to working with the Government of Malawi to develop the national NCG model, World Vision is leading a 3 year, \$10m privately funded program aimed at reaching universal WASH coverage in the Chiradzulu District.⁴ As part of this program, World Vision is working with Water for People and learning partners the London School of Hygiene and Tropical Medicine (LSHTM) and Malawi University of Business and Applied Sciences (MUBAS) to implement a learning agenda. This includes the Malawi Hygienic Family-2 study. Based on learnings from the Hygienic Family-1 study, formative research and a process evaluation conducted in the first year of the program (in which the key program activities were completed in two of the 10 targeted sub-district areas), the World Vision program is promoting key hygiene behaviors through a combination of Community-led Total Sanitation (CLTS) and NCGs. In the Hygienic Family-2 study, LSHTM and MUBAS will be conducting a 3-arm RCT consisting of CLTS, CLTS + NCGs, and a control group.

WASHPaLS #2 will collaborate with World Vision, MUBAS, LSHTM, and the University of Strathclyde to conduct a separate study to address our proposed three research questions. This proposed study will be separate from the current Malawi Hygienic Family-2 RCT. However, MUBAS, LSHTM, and the University of Strathclyde study partners have agreed to share data from the RCT as they are able to inform design and analysis. Our proposed study will aim to complement the RCT, to generate evidence on FH and HW behaviors and their determinants.

Of note, in Malawi, NCGs bring together caregivers selected by their peers to attend a group meeting with other such "leader caregivers," who then return to their communities and share the lessons with their neighbors. These bi-weekly group meetings allow for a regular, high-coverage and high-frequency behavior change communications involving opportunities for group learning, troubleshooting, and promoting or distributing simple hardware. This range of approaches has been shown to target individual behavior change, collective action, and social norms, and may be an effective vehicle for distributing or promoting the sale of hardware. As our study intervention will be designed to be integrated into the ongoing World Vision program, it is expected that any SBC messaging that may be part of the proposed intervention package (as informed by Phase I of our study – see below), will be implemented through the NCGs. The psychosocial determinants of FH and HW in rural Malawi identified by Chidziwisano et al. (2020) will serve as the basis upon which the SBC component of our

⁴ The Water, Sanitation and Hygiene (WASH) Technical Program funded by World Vision and Water for People includes a broad range of WASH CLTS and SLTS interventions. The activity includes the Hygienic Family studies which aim to contribute to the evidence base on social and behavioral interventions and the role of NCGs in promoting behavior change and improving WASH-related health outcomes.

intervention will be designed, to target community norms and individual attitudes. The final intervention package will integrate the SBC messaging with provision of FH and HW hardware.

METHODOLOGICAL APPROACH

Phase I. Formative research

RQ 3.2a - What is a feasible and desirable intervention package to support caregivers' improved performance of HW and FH behaviors around complementary food preparation and consumption by IYC? - will be explored through formative research, with the goal of identifying the opportunities and barriers, as well as a set of "small doable actions" to improve HW and FH. Specifically, formative research will aim to (1) understand the caregiving context; (2) design the intervention; and (3) identify appropriate delivery channels for the intervention. Six group discussions will be conducted with purposively selected caregivers and community members. This number is larger than the minimum of four needed to reach saturation with focus group discussions (Hennink & Kaiser, 2022). The group discussion methodology will vary from classical focus group discussions, in that we will use more interactive techniques, role plays, and gaming to elicit the range of opinions, preferences, and perceptions of power dynamics and decision-making. Examples of topics to be explored in the group discussions include:

- caretaking and decision-making roles within the household, including male involvement and women's empowerment in FH/HW
- community-level influencers susceptible to influence HW and FH norms
- availability (including where they currently access products), affordability and desirability of commercially available HW stations and food storage and consumption utensils, as it pertains to various relevant intended and unintended uses.
- translation of findings from the "Hygienic Family" study on HW and FH determinants into SBC messages
- other relevant psychosocial factors of HW and FH behaviors to tailor SBC strategies
- existence of current community groups, in addition to NCGs (e.g. community health committees, village savings and loan groups, farmers groups) and how they can be leverage points for intervention delivery.

WASHPaLS #2 and its implementing partners will design and evaluate a HW and FH intervention package to address individual and community-level factors that drive the uptake and sustainment of key HW and FH behaviors.⁵ The intervention will be tested to assess its impact on HW and FH behaviors and on IYC health and the role of hardware in that change. Using results from the caregiver discussion groups and findings from the completed Hygienic Family-I trial (Chidziwisano et al., 2020), the team will design/refine the intervention package, identifying desirable and feasible attributes for the intervention package and associated hardware such as: the location of the washing station; cost, size, device stability

⁵ While packages will be determined during the formative research phase, WASHPaLS #2 has begun exploring the feasibility of market-ready HW stations within the Malawian context, with potential partners such as Happy Tap and Lixil. Thus far, conversations indicate that these aspirational and portable HW stations are not currently available on the Malawian market but could be made available expeditiously. We are awaiting firm projections of timeline and costs for establishing a market presence for their products. Meanwhile, we will gather more information on available HW stations during scoping visits and in collaboration with our implementing partner.

on existing surfaces within the household; water reservoir size; hands free on/off valve; and others attributes identified by end-users. The intervention will be piloted among potential beneficiaries using the Trials for Improved Practices (TIPS) approach, which will include iterative in-depth interviews among caregivers and other household members (for example the head of household) to document users' experience over time with the intervention and gather participant inputs on the intervention for further refinements. The initial intervention packages will likely consist of commercially available HW and FH hardware with minimal communication to facilitate use, plus another package that includes an SBC intervention, and will be delivered through the NCGs or other channels identified through the caregiver discussion groups.

The pilot phase will be conducted in 2 clusters (nature of clusters to be determined) that will receive community-level SBC messaging on FH and HW. Within each cluster, 10 households will be randomly selected to receive HW and FH hardware, as well as individual level SBC messages over a four-week period. During the pilot, participants will receive three home visits where in-depth interviews will be conducted to learn from their experience and get suggestions for improvements. The study team will also directly observe the use of the HW and FH hardware to assess barriers to their appropriate use. As they are identified, improvements to the HW + FH + SBC interventions will be rolled out among the same participants to use until the next visit. We will explore the feasibility of including simple microbiological testing in a subset of households to complement the qualitative and quantitative TIPS findings. The final intervention package will be tested during a subsequent efficacy study (Phase 2). The formative research will be conducted over four months.

Phase 2. Efficacy study

Despite some evidence on the effect of SBC interventions on hygienic behaviors in the Malawi context, an efficacy study is indicated because the study will introduce aspirational FH and HW hardware for which evidence is limited in the local context. The novel (but commercially available) hardware requires a design allowing their testing under controlled conditions.

The efficacy study will aim to answer RQ 3.2b and RQ 3.2c, the primary aim being to measure intervention impact on diarrhea episodes among IYC. Phase 2 will use quasi-experimental design in 16 intervention and 8 control clusters. A systematic sample of 600-800 households with at least one IYC (aged 6-23 months) will be selected in both treatment arms combined. Households in half of the intervention clusters will receive the HW + FH intervention package, and households in the other half of the intervention clusters will receive the FH + HW + SBC intervention package. Households in the control clusters will receive no additional intervention besides ongoing routine activities (NCGs or others). SBC interventions will be conducted through NCGs or other community groups, using community events, group level SBC sessions, and supplemental visual and print media materials adapted to low literacy target audiences. Community-wide SBC activities will target norms around FH and HW. Clusters will be exposed to the intervention for 6 months, including introducing the hardware intervention(s), the individual-level SBC messaging, and community-level SBC sessions (SBC intensity and dosage to be determined in consultation with the implementer, USAID, and WASHPaLS #2).⁶ We will

⁶ Note that the HW and FH behavioral SBC messages will be integrated into existing and planned NCG learning modules, not a stand-alone activity.

conduct baseline and endline surveys to gather data on FH and HW behavior change and reported IYC health outcomes. Examples of potential outcomes include:

- Primary outcome: recent diarrhea episodes reported by the caregiver (may also include fecal contamination of care giver's hands).
- Secondary outcome:
 - HW and FH behaviors: observed and reported HW with soap at food preparation and consumption junctions using the provided HW stations, observed and reported recommended food prep, storage, and feeding practices using the provided FH hardware
 - FH and HW determinants: theory-driven emotional and psychosocial factors associated with FH and HW behaviors
 - We will also explore including simple microbiological testing of fomites and food in a subset of households to complement the findings. Microbiological testing will be conducted pending our assessment of its feasibility and affordability during Phase I.

We will conduct a process evaluation to systematically collect data on implementation activities to understand the fidelity of the intervention, the implementation context, and other unanticipated factors that may influence our findings. Process evaluation will use both quantitative and qualitative methods.

We also note that the proposed study may be modified to generate evidence on the effectiveness of varying levels of SBC intervention (high/low touch) that might lead to sustained behavior change. If the budget and implementation conditions allow, we will add appropriate and feasible options to the base design to tease out the effects of the implemented SBC intervention. These options may include but are not limited to a three-arm study comparing a high and low dosage of SBC, varying SBC dosage over time and measuring the effects on behavior change, and decomposing effects through process evaluation and statistical modeling.

ANTICIPATED CONTRIBUTIONS

- Overall, the results from this study will inform policy and programming decisions and thereby contribute to improved FH and HW by caregivers in Malawi and ultimately improve health and reduce morbidity and mortality among IYC in Malawi.
- Findings from the study will provide ground-breaking evidence on HW and FH packages necessary to change complementary feeding behaviors, including the promises and/or limitations of hardware focused SBC.
- Results from our study will contribute to follow-on research for the Hygienic Families studies, and our findings will inform national policy and strategies for NCG models and hygienic behavior interventions implemented by the GoM, World Vision, Water for People, and other implementing partners.
- Results will also be used to inform the current and future USAID and national funding of WASH interventions in rural Malawi and other similar areas.
- Although the findings will be specific to Malawi, they will contribute to the evidence base to inform WASH policy and programming globally.

- The designed FH and HW package will advance the understanding of the hardware and devices likely to support and sustain FH and HW behaviors and positive health outcomes.

RESEARCH TEAM ROLES AND RESPONSIBILITIES

	WASHPaLS #2	Malawi Project Team (World Vision, MUBAS, LSHTM, University of Strathclyde)
Roles	<ul style="list-style-type: none"> • Research Lead, Principal Investigator Dr. Gretchen Thompson, co-Investigator Dr. Dieudonne Bidashimwa, and Baby WASH/SBC Senior Technical Advisor Ms. Julia Rosebaum FHI 360 	<ul style="list-style-type: none"> • Implementation Lead, co-Principal Investigator, MUBAS Dr. Kondwani Chidziwisano and co-Investigators Dr. Ben Tidwell with World Vision and Dr. Tracy Morse with University of Strathclyde (duties performed as co-Investigators may be funded by WASHPaLS#2)
Activities	<ul style="list-style-type: none"> • Collaborate with Malawi project team to refine theory of change and SBC interventions • Fully fund, design, implement, manage and disseminate research activities and results, including research design, sampling frame, IRB review and approval, study administration, data collection instrument development, data collection training and field implementation, data quality monitoring and assurance, quantitative modeling and analysis, report/manuscript writing and research results dissemination 	<ul style="list-style-type: none"> • MUBAS and World Vision will collaborate with WASHPaLS #2 to finalize behavioral interventions and refine theory of change as it pertains to the research question • World Vision will fully fund, implement, manage and monitor program interventions and activities, including: implementation design, refining program theory of change, implementing HW and FH behavior change strategies and providing necessary hardware (HW station and/or FH package) • MUBAS will lead field data collection and monitoring activities and contribute to report/manuscript writing and research results dissemination • University of Strathclyde will provide technical subject matter expertise, contribute to study design, consult on field data collection activities, and contribute to report/manuscript writing and research results dissemination
Resources	<ul style="list-style-type: none"> • Principal investigator, co-Investigator, research associate, quantitative and qualitative analysts • Funding to support Field Research Manager and Data Collectors, research participation incentives, and publication and dissemination activities 	<ul style="list-style-type: none"> • Co-Principal Investigator MUBAS, co-Investigators World Vision, LSHTM and University of Strathclyde, Field Research Manager, research associate • Field implementation and data collection team, NCGs SBC module, Care Group visits and/or HH visits, SBC communications materials, HW station and FH intervention package

The research collaboration process will align the WASHPaLS #2 and World Vision Malawi activity theory of change and research and learning agendas. We will work together to define expectations for the partnership and outcomes, including respective roles for collaborators and resources required. Finally, we will seek to formalize the partnership during the first quarter of CY2023, including

establishing a MOU or partnering agreement, as well as establishing data sharing and communications norms and procedures. These activities will be undertaken to help ensure partner satisfaction (e.g., responsiveness of WASHPaLS #2 staff and quality of the team's responsiveness, assistance, and broad impact of partnership).

Timeline

The timelines below outline research activities through the start-up period and are tentative and subject to change.

- February - April 2023: Engagement with the Mission and subsequently the Government of Malawi; seek Mission Concurrence; finalize partnership agreement (e.g., MOU) with FHI 360, World Vision, MUBAS, LSHTM, and University of Strathclyde.
- April 2023: Scoping visit to Malawi to work with MUBAS and meet with stakeholders (including the Mission, World Vision team, GoM, USAID projects such as *Akule ndi Thanzi*).
- April – May 2023: Finalization of the research objectives and protocol.
- June – July 2023: Obtain global (FHI 360) and local (MUBAS) IRB approval
- August 2023: Conduct Data collection training and begin study.
- August 2023 – February 2025: Conduct phase 1 and phase 2 of outlined research
- February 2025 – September 2025: Analyze phase 2 data and develop study report
- September 2025 – September 2026: Disseminate study results, including findings from both phases

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