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Britton A. Tuck Date

Childhood Illness Prevalence and Determinants of Skilled Care-Seeking Behavior in Rural Eastern Uganda

By

Britton A. Tuck
Degree to be awarded: MPH

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Childhood Illness Prevalence and Determinants of Skilled Care-Seeking Behavior in Rural Eastern Uganda

By

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Bachelor of Science

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2009

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An abstract of
A thesis submitted to the Faculty of the
Rollins School of Public Health of Emory University
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ABSTRACT

Childhood Illness Prevalence and Determinants of Skilled Care-Seeking Behavior in Rural Eastern Uganda

By

Britton A. Tuck

Introduction: This study identifies the prevalence of fever, diarrhea, and acute respiratory infection (ARI), and factors associated with skilled health care-seeking behavior among women of children under age three in rural Uganda.

Methods: Using cross-sectional survey data collected in Iganga District, Uganda, the analysis included 3,718 mothers who lived with 4,321 children under three years old. Logistic bivariate and multivariate regressions were used to analyze disease prevalence and factors related to skilled health care-seeking behavior for treatment of child illness.

Results: 57.6% of the children experienced fever in the past two weeks, 26.3% had an illness with cough and 12.4% experienced diarrhea. Children two years of age and older were less likely to experience morbidity than children under one year [ORfever = .82, 95 % CI .66-1.02; ORARI = .52 95% CI .39 - .70; ORdiarrhea = .47 95 % CI .31 - .70]. Of these children, 923 (33.7%) had been taken to an appropriate health facility for care. Factors associated with skilled care-seeking behavior were child age and mother's recognition of signs and symptoms related to child illness. Children aged two and older were more likely to have mothers seek care at a health facility [ORfever = 1.03, 95% CI .72-1.47; ORARI = 1.58, 95 % CI .78-3.20; ORdiarrhea = 1.87, 95% CI .74-4.69] than for children under one year.

Conclusions: The results suggest that child age and mother's recognition of signs and symptoms of child illnesses may be associated with skilled care-seeking behavior. Interventions should be explored that focus on caregivers according to these factors, thereby better addressing barriers and optimizing health outcomes especially for children at risk of dying before the age of five.

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TABLE OF CONTENTS

DEFINITION OF TERMS

MCH: Maternal and Child Health

Healthcare facility: a health facility, including all government and non-governmental organizations (NGOs), that provides allopathic medical services. These facilities were further categorized into hospitals and health centers. Healthcare facilities do not include traditional healers or those who practice alternative medicine, clinics, and drug shops.

Healthcare utilization: the use of skilled health care, healthcare facilities, and skilled providers when seeking treatment for child illness

SAFE: The official abbreviation of the organization, Safe Mothers, Safe Babies

Skilled care: health care provided by a certified doctor, nurse, nurse practitioner, and/or a clinically trained midwife in a "healthcare facility" as defined above

Under-five mortality: the probability of dying between birth and exactly five years of age expressed per 1,000 live births (2).

CHAPTER 1: INTRODUCTION AND BACKGROUND

INTRODUCTION

Although substantial improvement has been made in reducing child mortality in the recent decade, 5.9 million children under the age of five still die every year (3, 4). If the child mortality rate maintains the rates reported in 2015, 94 million children under age five will die by the year 2030 (3). Millennium Development Goal 4 (MDG) – to reduce child mortality by two-thirds between 1990 and 2015 - was not met at a global scale (5), and a staggering 49.6% of this global burden of under-five mortality is shouldered by Sub-Saharan Africa (6).

As the world shifts focus to attain Sustainable Development Goal 3 (SDG) --to reduce child mortality to 25 deaths per 1,000 live births by 2030 (6) - it is essential to understand the primary clinical causes of, and underlying socio-behavioral factors related to, child mortality. In particular, an estimated 30% of the under-5 deaths caused by the three leading conditions: pneumonia (17%), diarrhea (8%) and malaria (5%) (6), and, the greatest burden of mortality lies in the age range of birth to three years, which is also the age group that experienced the least global progress (6). Yet, very few studies have focused on mortality in this specific age group (birth to age three) or skilled care-seeking for illnesses for children within this age range, despite the fact that it could have extensive implications for child health and survival.

Uganda is one country that faces unacceptably high rates of child mortality (6, 7), particularly in the first three years of life. Although it was one of 12 countries in sub-Saharan Africa to meet the MDG 4 goal at a country-wide level (6), Uganda currently ranks 40th globally for highest under-five child mortality rate with approximately 85,000 children under 5 dying each year (3). Parallel to the top global causes for under-five mortality, Uganda's leading causes of under-5 mortality are acute respiratory infections (18%), diarrhea (8%) and malaria (7%)—

accounting for 33% of under-5 mortality overall (8). These deaths are predominately concentrated in the first three years of life, and following the global trend, little research has focused specifically on the health and care-seeking behaviors for children in the first 1,000 days of life. Uganda's efforts must remain steadfast in order to reach the Sustainable Development Goal 3.

Monitoring and evaluating health in countries with limited ability to gather vital statistics, along with inadequate human resources and budgetary constraints, poses a challenge for understanding public health issues and, subsequently, designing appropriate, effective, and timely interventions. The ability to successfully intervene to improve child mortality in Uganda is dependent upon developing evaluation methods that are robust, accessible, and low-cost.

One organization in Uganda seeking to address this problem—both on the improving child mortality and data collection fronts—is Safe Mothers, Safe Babies (SAFE), a nonprofit organization focused on reducing maternal and child mortality and morbidity in the first 1,000 days of life (defined as conception to the second birthday). SAFE employs a comprehensive approach to the Three Delays (delays in decision-making, accessing care, and receiving quality care) that incorporates community-based, participatory methods with health systems strengthening to improve mortality and morbidity of maternal and child populations. With a new program set to launch in late 2015, SAFE conducted a baseline populations-based survey in the East Central Region, Uganda between May and August 2015, for which the thesis author was the Survey Manager. Because this region has the 6th highest number of under-five deaths in the country (9), the baseline survey sought to assess maternal and child morbidity and mortality in the first 1,000 days of life, with a focus on assessing childhood illness, skilled-care seeking, and risk factors associated with non-skilled care seeking for childhood illness in this time period.

Moreover, the baseline survey also sought to develop a replicable methodology that could facilitate other organizations conducting evaluation of maternal and child health in the first 1,000 days on a low budget. Following the conclusion of survey implementation, the thesis author was asked to assess the indicators related to early childhood illness and care-seeking behaviors.

PURPOSE STATEMENT

The purposes of this study were to: (1) Determine child illness prevalence of fever, acute respiratory infection, and diarrhea of children between the ages of birth to three years in rural eastern Uganda (2) Determine factors associated with skilled care-seeking behavior for treatment of fever, acute respiratory infection, and diarrhea among mothers of children who were ill in the two weeks prior to the survey (3) To develop a training tool to facilitate the deployment of a low-cost but scientifically-grounded study by other organizations.

RESEARCH QUESTIONS

(1) What is the prevalence of fever, illness with cough, and diarrhea in the first 1,000 days of life in East Central Region, Uganda?

(2) What are the determinants of skilled care-seeking for fever, illness with cough, and diarrhea in East Central Region, Uganda?

The remainder of Chapter 1 provides a more in-depth overview of child mortality at a global level, assesses child health and survival in the Ugandan context, and provides a brief overview of the partner organization, Safe Mothers, Safe Babies (SAFE) and the *ACT for Child Health Project.*

BACKGROUND

Under-5 Mortality – Globally and in Uganda

Sub-Saharan Africa has a disproportionately high portion of the world's under-five mortality rate (83 per 1,000 live births) compared to other regions and the globe as a whole (43 per 1,000 live births) (6). Per recent estimates, Uganda's under-five mortality rate 55 per 1,000 live births (6). More specifically, acute respiratory infections, diarrhea, and malaria are among the top causes of death among children under five in Uganda (Figure 2).

Figure 1. Estimates of Under-Five Mortality by World Region, UNICEF (6)

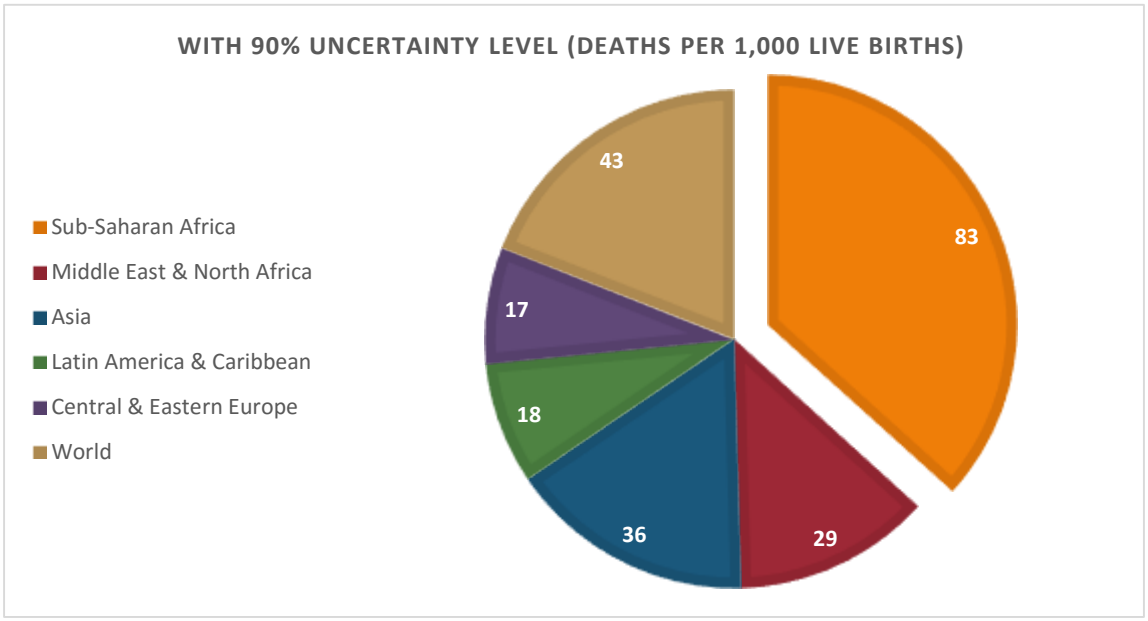
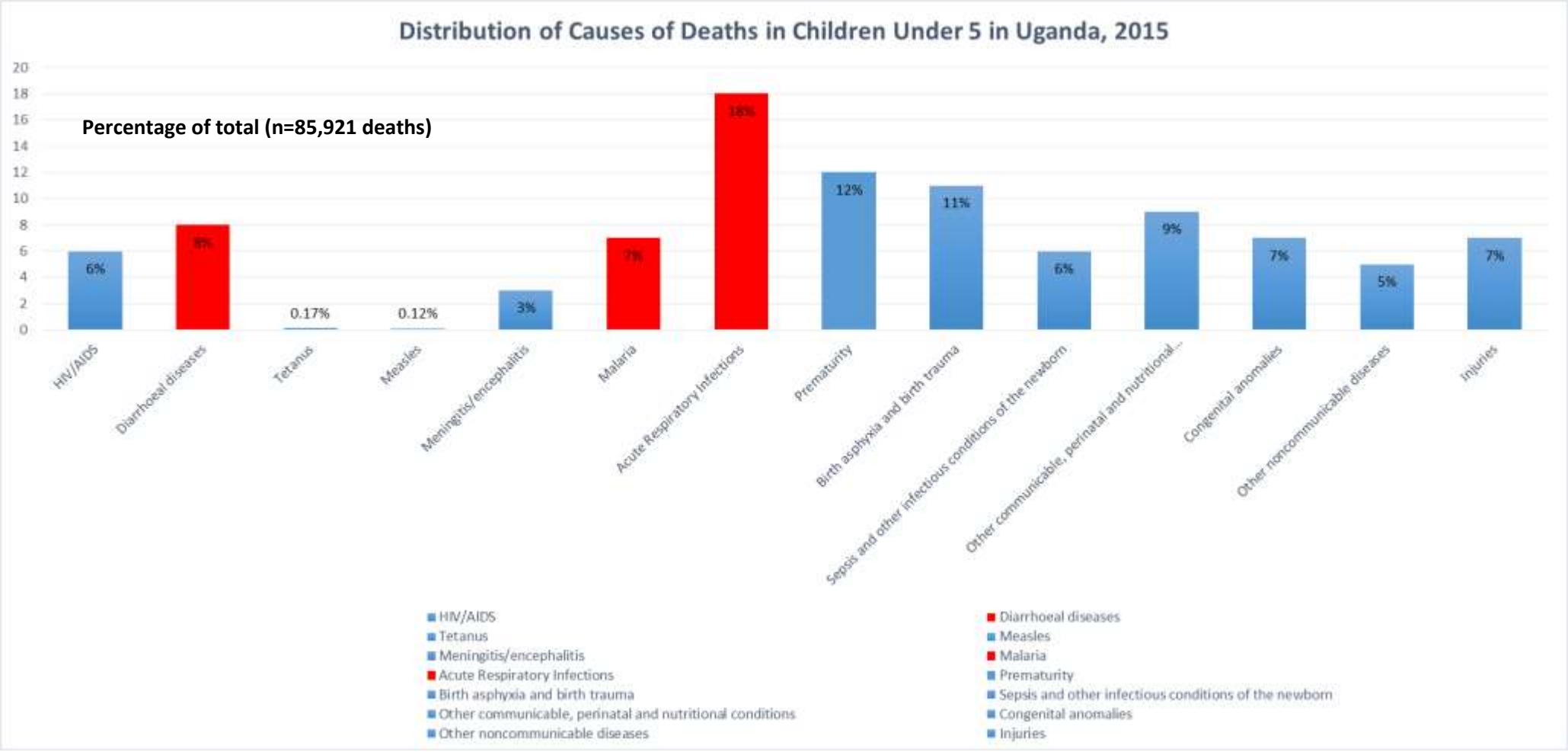


Figure 2. Distribution of Causes of Under-Five Mortality in Uganda, 2015 (8)



Study focus areas (diarrhea, malaria, and acute respiratory infections) are highlighted in red.

Uganda's Healthcare System and Health Care Services

Uganda's healthcare system is highly decentralized and is comprised of both public and private sectors with the Government of Uganda (GOU) owning a majority of the facilities (10). Public health services are delivered through a tiered health center structure (VHTs, HC II, HC III, HC IV), general hospitals, and regional and national referral hospitals (10, 11). Village Health Teams (VHTs/Health Center I) provide health promotion and outreach, especially in rural areas. VHTs are volunteers who have been trained in community health outreach but are not trained medical professionals (10). VHTs encourage others to seek skilled health care when appropriate by engaging in health-related community mobilization efforts (10). Health Center IIs are the lowest tier of health facility and are the most abundant; national referral hospitals are highest on the tier and specialize in advanced tertiary care (Figure 3). The range of health services delivered varies by level of healthcare facility. HC IIs are responsible for outpatient services including immunizations and antenatal care. If a health center cannot meet the needs of a patient, the patient is the referred to the next health facility level (e.g. HC II refers patients to HC III, etc.). The East Central Region has a total of 489 functional health facilities and, more specifically, 57 of these facilities, including one hospital, are located in Iganga District (Figure 4). Also shown in Figure 4, 40 of these health facilities (70.1%) are Health Center IIs, which provide basic healthcare services. An estimated 533,000 people rely on 14 HC IIIs and 2 HC IVs, and 1 hospital in Iganga District. These health centers (all levels) and hospitals are denoted as *skilled* care facilities for the purpose of this study.

Additionally, traditional medicine (e.g. spiritual therapies, plant, animal or mineral based therapies, manual techniques and exercises) is also practiced throughout Uganda (12). The World Health Organization estimated that 60% of Uganda's population used complementary and

alternative medicine at least once, primarily because of reduced cost compared to skilled medical care (12). Bone setters, herbalists, spiritual healers, and traditional birth attendants are more readily accessible (1:200 – 1:400 traditional healers compared to 1:20,000 trained medical provider) which may also increase caregivers' utilization of traditional medicine in lieu of skilled medical care for treatment of child illness (12, 13).

Figure 3. Structure, Characteristics, and Size of the Health Care Service Delivery System, Uganda (10)

Type of Facility	Physical Structure and Services	Clinical Personnel	Location	Population Served		Number of Facilities			
				Standard	Current	Govern-Ment	Private Not-For-Profit	Private For-Profit	Total
Health Center I (A.K.A. Village Health Team)	None	N/A	Village	1,000	N/A	N/A	N/A	N/A	N/A
Health Center II	Stand-Alone Facility, Outpatient Services	Nurse	Parish	5,000	14,940	1562	480	964	3,006
Health Center III	Inpatient Facilities (Maternity and General Ward) and Laboratory/Microscopy	Clinical Officer	Sub-County	20,000	84,507	832	226	24	1,082
Health Center IV	Outpatient and Inpatient Services, Wards, Operating Theatre, Laboratory and Blood Transfusion Services	Doctor	County	100,000	187,500	12	1	177	190
General Hospital	Hospital, Laboratory, and X-Ray	Doctor	District	500,000	263,157	64	56	9	129
Regional Referral Hospital	Specialists Services	Doctor, Specialists	Region	3,000,000	2,307,692				
National Referral Hospital	Advanced Tertiary Care	Doctor, Specialists	National	10,000,000	30,000,000				
Totals						2,470	763	1174	4,407

Figure 4. Allocation of functional health facilities in East Central Region of Uganda by District, 2012 (14)

District Name	Hospital	HC IV	HC III	HC II	Total
Bugiri	1	1	9	39	50
Busia	2	1	9	22	34
Buyende	0	1	12	10	23
Iganga	1	2	14	40	57
Jinja	4	5	16	88	113
Kaliro	0	1	6	14	21
Kamuli	2	2	11	39	54
Luuka	0	1	7	20	28
Mayuge	1	2	5	34	42
Namayingo	0	1	7	24	32
Namutumba	0	1	6	28	35
Totals:	11	18	102	358	489

The status of health facilities has been classified into four categories namely: Functional, Unfunctional, Completed and under construction. Functional refers to facilities that have been operating as of June 2012; Unfunctional refers to facilities that have the basic infrastructure but are not operational for reason such as conflict, lack of staff and equipment, and for which there is plan to operationise them in financial year 2012/13.Only functional facility numbers are shown.

As part of Uganda's 1997 Poverty Eradication Action Plan, a specific focus on health emerged from concerns that ill health led to and perpetuated poverty (15, 16). In 2001, the Government of Uganda developed a strategy to improve the nation's health and simultaneously address poverty: abolish public health center and hospital services free of charge (10) and the lack of health facility revenue was absorbed by the government (15). The elimination of user fees increased the utilization of healthcare services by poor individuals in the first two years of fee abolition (15). While the removal of user fees at public health facilities initially increased utilization, preference for private health care facilities has increased among both the non-poor and poor because of perceived quality of care (15, 17-19). Private facilities require out-of-pocket (OOP) payments for services which may impose a financial burden on households due to a steady rise in the OOP percentage of healthcare expenditures (17, 18). The combination of

perceived quality of care and out-of-pocket fees for private healthcare services may deter caregivers from seeking skilled care for treatment of childhood illnesses.

The Ministry of Health acknowledges that healthcare utilization is low due to several factors including, but not limited to, lack of supplies and medications, human resource shortages and/or low salaries for trained medical providers, poor infrastructure such as road quality (10) . Average distance to a healthcare facility in the Eastern Region is 3.8 kilometers; 84.4% of the population in this region reported that they live within 5 kilometers of a health facility (20). 36.3% of respondents said that the distance to the nearest health facility was a barrier to accessing care for herself (9). Subsequently, these barriers may also be the same that a mother faces when accessing care for a child who is ill.

Overview of Safe Mothers, Safe Babies

One organization in East Africa striving to reduce maternal and child mortality is Safe Mothers, Safe Babies (SAFE), founded by a Rollins graduate, Jacqueline Cutts, in January 2009 (21). The organization prides itself on utilizing an integrated model that pairs health systems strengthening with community-based methods to improve the Three Delays, which extends from maternal health to the first 1,000 days of life (conception to the second birthday). The Three Delays Model, which will be discussed in greater depth in Chapter 2, includes delays in (1) making the decision to seek care, (2) accessing care, and (3) receiving appropriate, quality care once at a health facility. SAFE's methodology focuses on partnering with rural communities in Uganda to "sustainably improve the health and empowerment of women and children before, during, and after childbirth" by combating the barriers that these vulnerable populations face when accessing and receiving healthcare (22).

SAFE currently works in 3 geographic areas in the East Central Region with projects in more than 90 villages and more than 20 health centers, serving over 100,000 direct beneficiaries every year. The interventions are adapted to the specific needs of target communities in that region, and include the following:

- First Delay Projects: forming community groups comprised of women and men to improve maternal and child health behavior through culturally sensitive platforms, such as songs, dramas, trainings, and home-to-home outreach.
- Second Delay Projects: utilizing family savings projects and motorcycle ambulances to improve financial and transportation access to appropriate health care facilities and medical supplies.
- Third Delay Projects: improving the quality of care in health facilities through the use of solar lighting, medical supplies, and continued medical training of healthcare providers.

SAFE'S ACT (ACTION, CARE, TRANSPORT) FOR CHILD HEALTH PROJECT

SAFE was recently awarded the Data for Life Prize from the CappSci Foundation. This prestigious award was given to "support the scientific evaluation of interventions designed to save the lives of children under the age of five" (23). The ACT for Child Health project aims to…

> "reduce the incidence of child mortality between seven months gestation and twenty-three months of age in rural Eastern Uganda by 20% over 12 months through an integrated, evidence-based model improving the Three Delays in the first 1,000 days of life and to position it for scale-up" (23).

The ACT Project will replicate SAFE's model addressing the Three Delays in the first 1,000 days of life in a new intervention region, with the intent to evaluate impact one year after the

project begins. Results from the intervention region results will be compared with a comparably sized control region.

In order to better understand and address the specific health needs of the intervention communities and to meet the ACT for Child Health project goals, a thorough mixed methods evaluation was conducted by Safe Mothers, Safe Babies in both the intervention and control regions. This baseline assessment was a comprehensive population-based survey assessing maternal demographics, birth history, maternal and child health in the first 1,000 days, and child survival for all pregnancies in the three years prior to the survey. The survey was implemented by the thesis author between May and August 2015.

CHAPTER 2: LITERATURE REVIEW

This review sought to identify literature related to four main subject areas: (1) the burden of childhood illness at the global, national, and local levels and the methods used to attain those estimates; (2) under-5 mortality reduction strategies as they pertain to the measurement of maternal and child health related indicators; (3) determinants of care-seeking behavior for child illness in the first 1,000 days of life; and (4) theoretical frameworks used to conceptualize care seeking behavior, pertinent to situating the discussion and results of the survey and its implications for interventions.

Included are primary and secondary literature as well as technical reports published from 1990 through 2015. The electronic databases PubMed, EMBASE, Web of Science, Popline, Cochrane, WHOLIS, and Google Scholar were searched to identify relevant publications from Uganda and other developing countries. Keywords and phrases used in the web search engines included: "sub-Saharan Africa," "Asia", "malaria", "diarrhea", "pneumonia", "caregiver", "decision-making", "care seeking" and additional terms reflecting socioeconomic determinants. Keywords and phrases were used in a variety of combinations, and included synonyms, alternative terminologies, and related terms. Examples of topics explored include maternal, caregiver, behavior, knowledge, attitude, practice, treatment, perception, usage, health system (private and public), and others. Keywords and MESH terms identified relevant literature from academic databases.

As fever is the common proxy for malaria, the literature reviewed here uses the term "fever" to indicate the presence of malaria although fever may be a symptom of many different illnesses. Likewise, illness with cough is the proxy for acute upper respiratory infection (ARI) and is referenced as such below. Two systematic reviews from 2012 were also referenced

pertaining to care-seeking and childhood illnesses. However, these articles do not encompass more recent publications (5, 24). All relevant documents were collated using EndNote©, a web-based database manager.

GLOBAL, NATIONAL, AND LOCAL BURDEN OF CHILD ILLNESS

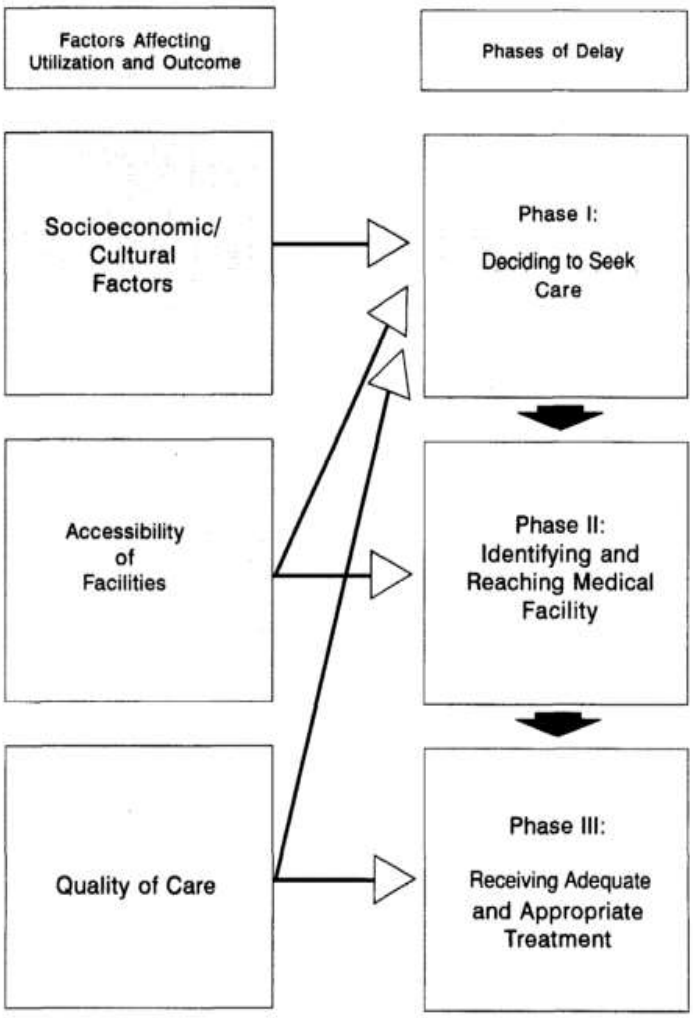
Malaria, acute upper respiratory infections, and diarrheal diseases continue to be leading contributors in global childhood morbidity and mortality (3, 25). Each year, it is estimated that nine out of ten children (< age 5) who die reside in low- and lower-middle income countries, a statistic that can be partially attributed to these countries' disproportionately high burden of these three illnesses (6, 25). As these illnesses continue to dominate the global disease burden, the awareness of researchers, public health officials, and policy makers remains steadfast. Since the introduction of the Millennium Development Goals in 1990, much research has relied on disease surveillance to ascertain illness prevalence globally and nationally, but also locally, in an effort to develop and implement evidence-based policy, prevention strategies, and treatment interventions (24).

THEORETICAL FRAMEWORKS FOR CONCEPTUALIZING CARE-SEEKING

Theoretical frameworks used to conceptualize care-seeking behavior were also reviewed. The primary frameworks described below were deemed most relevant to the thesis research questions were the Three Delays Model and Andersen's Health Belief Model – Phase 4.

The Three Delays Model

Figure 5. The Three Delays Model (26)



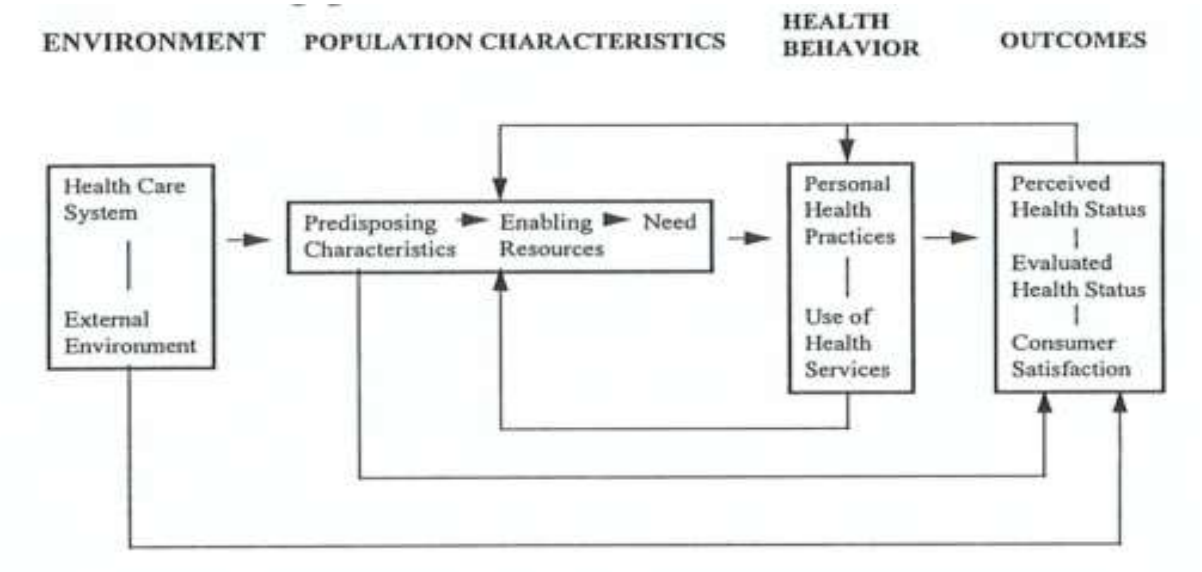
In 1994, Thaddeus and Maine introduced the "Three Delays" framework as a way to identify the barriers a woman experienced in accessing antenatal and obstetric care. This conceptual framework (Figure 5) is still widely referenced and utilized in many maternal health studies, programs, and for related intervention scale-up (26). This framework may also be applied to the barriers that women experience in obtaining health care for children because of the similar barriers women face when trying to access skilled care for a sick child.

Determinants of care-seeking for child illness can be reframed using the "Three Delays" framework, more specifically, the "First Delay". The First Delay is defined as a "delay in deciding to seek care on the part of the individual, the family, or both" (26). Causes for First Delays include low social and economic status of women, poor understanding of health complications and when to seek medical care, and poor previous experiences with the healthcare system (26).

Consistent with other researchers who sought to extend the model to conceptualize perinatal and neonatal outcomes, SAFE has adapted the model to conceptualize the spectrum of maternal and child health outcomes in the first 1,000 days of life, which was the theoretical basis for development of the ACT for Child Health baseline survey (27-30).

Health Behavior Model

Figure 6. Andersen's Health Behavior Model, Phase 4 (1)



Within the Three Delays Model, it is the First Delay that focuses on the decision to seek care and would be most related to individual behavior and action. Several additional models of theory exist to conceptualize health and action behavior (31-33). Andersen's Health Behavior Model is a widely accepted behavior theory on why people use health care services; this model has evolved throughout the years since its debut in the 1960's (1). Andersen's initial Health Behavior Model featured three main population characteristics that influence the utilization of healthcare services: 1) predisposing factors such as demographic characteristics (age, sex, race/ethnicity/tribe) and social characteristics (education level, employment status, household size), 2) enabling resources such as household income and geographic location in proximity to a health facility and, 3) health needs including recognition of illness and perceived severity of illness (1).

Andersen has revised his initial model through the decades and his most recent iteration – Phase 4 (Figure 6) – now encompasses the feedback loops within the cycle of health behavior to

demonstrate how health outcomes (e.g. consumer satisfaction with health care received) which may further encourage or impede future health action (1).

MORTALITY REDUCTION STRATEGIES

In reviewing the multitude of final reports aimed at synthesizing the results of the Millennium Development Goals at the end of 2015, most highlighted the need to strengthen health systems, increase access to vaccines and medicine, and improve quality of healthcare services at health facilities (4, 6, 7, 25). A subset of studies have focused on care seeking behavior; very few of them focus specifically on *skilled* care-seeking and decision-making practices of mothers of children in the first 1,000 days of life who are suffering from these preventable and treatable illnesses (5, 24). The phrase *skilled* care-seeking, versus any care-seeking, is essential, as there are many caregivers who seek care from unskilled health care providers or from illegally run "clinics" staffed by untrained providers which are marketed and widely accepted to be providing skilled care.

Child deaths in developing countries are caused in part by delays in seeking skilled care from an appropriate source (34, 35). Factors such as not seeking care at all or from inappropriate sources, the inability to recognize potentially life-threatening conditions, and time to decide to seek care were found to be associated with child mortality and morbidity (5, 6, 36, 37).

While many studies have highlighted the importance of health systems strengthening, improved healthcare quality at health facilities, and increased vaccine coverage for malaria, acute respiratory infection, and diarrhea, there has been little focus on caregiver recognition and decision-making in relation to seeking skilled care for children that are ill. Efforts to increase mothers' utilization of health services for treatment of child illnesses have largely focused on improved services in the health facilities themselves or improving the geographical accessibility

to care; comparatively few studies have investigated how sociodemographic factors, decision-making, and mothers' recognition of child illness affect utilization of skilled health services. The following section is an analysis of those factors affecting care-seeking and decision making practices for childhood illnesses on a global level.

FACTORS ASSOCIATED WITH CARE-SEEKING BEHAVIOR FOR CHILDREN UNDER FIVE

Certain demographics were shown to be related to the likelihood of care-seeking. Most specifically, the following were found to be related to the tendency to seek care, or not, during childhood illness: education, marital status, maternal age, household income, and employment status. Each of these factors is described in greater detail below.

Education

Mothers with little to no primary education are less likely to seek healthcare when a child is sick compared with mothers who have some secondary education or higher (38-43). Bennett et al. found that mothers with no or only primary education were less likely than mothers with secondary or higher education levels to seek treatment for diarrhea, acute respiratory infection, and fever; this finding was statistically significant for all three illnesses (25). Globally, studies suggest that those women with little to no primary education are less likely to recognize the severity of their child's illness and are more likely to seek care from a traditional practitioner or healer (25, 39). Some research has found that women with lower levels of educational attainment are less likely to have the financial resources and other support necessary to take a sick child to a health facility for prompt and appropriate treatment (38, 42).

The association between paternal education and seeking skilled care for child illness shows differing results; husband's education level was not a statistically significant predictor of

child health inequities in a nationally representative study in Uganda (43). Furthermore, a similar representative study found both the woman and her husband's education levels were not strong predictors of care-seeking behavior when household income was factored into analysis (39). In general, maternal education has a greater effect on care-seeking behaviors for treatment of child illness than paternal education.

Marital Status

Some studies suggest that marital status of women is not strongly associated with skilled care-seeking for treatment of a sick child (40). In Tanzania, bordering Uganda, women were no more likely to seek skilled care for treatment for a sick child than single or unmarried women (40). However, a recent finding from a similar study in Nigeria found that married women are significantly more likely to seek appropriate care for children suffering from febrile illnesses compared to those who are living with a partner as if married or have never been married ($p < .001$) (44). Additionally, marital structure, such as polygamy, may be associated with care seeking for a child illness. Based on a studies conducted in sub-Saharan Africa, younger children (> 1 year) who lived in polygamous households were more likely to be taken for treatment of illness than older children within the same household, however, these findings may be confounded by other socio-contextual factors that were not able to be measured at the time of the studies (45, 46). Differences across studies may also be attributed to gender roles in paternalistic cultures in regards to the relationship between husbands and wives and decision-making power within the marital structure in various countries (47) .

Mother's Age

Review of effects of age on care-seeking behavior for treatment of child illness in developing countries has been found to be less consistent (25). A nationally representative study

in Nigeria found that a mother's age was statistically significant predictor of care-seeking for treatment of children with malaria ($p<0.05$) (48). Several studies indicate that women in their thirties sought skilled care less often than women between the ages of 15-24 years (39, 49). Some researchers postulate that older mothers may perceive themselves as capable of knowing when it is appropriate to seek skilled care for a child illness (25). Yet, other studies suggest that women's age is not a significant predictor of seeking skilled care for child illness (40, 50, 51). Compared to other world regions, East Africa had the strongest effect of association between care seeking for children ill with symptoms of diarrhea and fever (AOR for diarrhea = 1.09, OR for fever=1.14); maternal age had no effect on care seeking for ARI in this region (AOR for ari= 1.04) (25).

Household Income

Recent studies demonstrated that women with high economic status were significantly more likely to seek skilled care early than those with low economic status (36, 37, 52, 53). This may be attributed to the ability to pay for healthcare fees or pharmaceuticals, costs associated with securing transportation to a health facility or provider, or the opportunity cost of losing income from work in order to take a child for treatment (36, 52, 53). In Bangladesh, those who were in the lowest wealth quintile were five time less likely to seek skilled care for a child illness than those in the highest quintile (54), which is consistent with similar studies in other developing countries (36, 39, 55-57). In contrast, maternal participation in income-generating activities in Nairobi slums in Kenya was not significantly associated with health care seeking for child illnesses (36). While household income level is not associated with skilled care-seeking behavior, women's employment or her other income generating activities may deter her from

seeking care for an ill child due to time constraints despite the increase in financial resources (58).

Factors Related to Decision-Making

Two important factors related to decision-making and care seeking include maternal recognition of illness and length of time to decide to seek care.

Recognition of Illness

Recognition of illness in relation to seeking skilled care is influenced by a number of cultural beliefs and knowledge about illness, including women's knowledge of the severity of illness (24, 47, 59). Less than one fourth of mothers interviewed in Zambia about signs and symptoms of pneumonia were able to correctly identify the illness (60). A study in rural Tanzania found most respondents had limited knowledge of which signs and symptoms were dangerous (61). While knowledge of signs and symptoms of child illness slightly improved among those respondents with a higher socioeconomic status, 29% of caregivers in the highest quintile failed to recognize two or more complications (61). Additionally, of 292 mothers surveyed about recognition of child illness and care seeking practices in Nepal, roughly half were aware of fever and 42.5% were aware of drinking and eating poorly as signs of illness (62). An inability to recognize signs of child illness has also been associated with low levels of educational attainment in previous studies (51, 63).

Time to Decide to Seek Care

The time between recognition of signs and symptoms of an illness and the time in which a caregiver decides to seek care outside the home is associated with child health outcomes and mortality. Makiira et al found that the longer the duration of illness, the less likely caregivers

sought appropriate care for the child (50). Delayed care seeking contributed to mortality from acute respiratory infections in Uganda (64) and from malaria in Tanzania (61).

A case-series study in 2008 based in Iganga District, Uganda found that for 167 children who were ill and later died from pneumonia were taken for skilled care on average of two days from initial symptom recognition by a caregiver (64). In Ghana, Saha et al found that caregivers decided to seek care an average of three days for diarrhea (63).

Study findings in Kenya found that only 2.3% of children accessed first line treatment for uncomplicated malaria within 24 hours (65) and in Ghana only 11% of the children suspected of having malaria received prompt treatment at a health facility (66). Furthermore, a study by Rutebemberwa et al in rural Uganda found that the lowest socio-economic quintile was more likely to delay care-seeking (OR 1.41) than the highest quintile (67)

Child Variables

Additionally, two child characteristics-- age and gender -- are shown to be related to the likelihood of care-seeking. Most specifically, the following were found to be related to the tendency to seek care, or not, during childhood illness:

Child Age

Children under the age of two years who are sick are more likely to be taken outside the home for treatment than older children (35, 68-71). This may be due to younger children displaying more acute signs and symptoms of an illness (35, 68-71). A recent study utilizing national survey data from six countries found that children two years or younger in Nigeria, Ethiopia, Uganda, Tanzania, and DRC were more likely to be taken to a skilled care provider (35). Additionally, an analysis of 248 nationally-representative datasets from 2000-2013 found

that child age was a predictor for care seeking for treatment of diarrhea, fever, and illness with cough for children less than two years of age compared to older children (24-59 months) (25). In contrast, a prospective study by Mukirra and Ibisomi found that caregivers in Kenya were more likely to seek care for children between 24-35 months of age rather than for infants aged 0-11 months ($P < 0.01$) (50). Moreover, previous studies in Kenya, Nigeria, Ethiopia, Ghana, and Uganda found no statistically significant association between a child's age and care-seeking for illness. (63, 64, 72, 73).

Child Gender

Some studies have found contrasting evidence in care-seeking disparities between genders with male children being more likely to be taken for skilled treatment than females (54). Child gender was not strongly associated with the likelihood to be taken for care regardless of the illness (25, 36, 38, 61, 63). A 2015 Demographic and Health Survey study of care seeking across world regions found that males were slightly more likely than females to be taken for treatment of diarrhea (AOR= 1.07), fever (AOR= 1.05) , and acute upper respiratory infection (AOR=1.06) (25) . However, these estimates were not statistically significant for the Eastern Africa region as a whole (25). In contrast, the Malhotra et al study found a gender bias in a nationally representative sample of mothers in India; male children had lower odds of not being taken for treatment compared to female children (OR 0.71) (42).

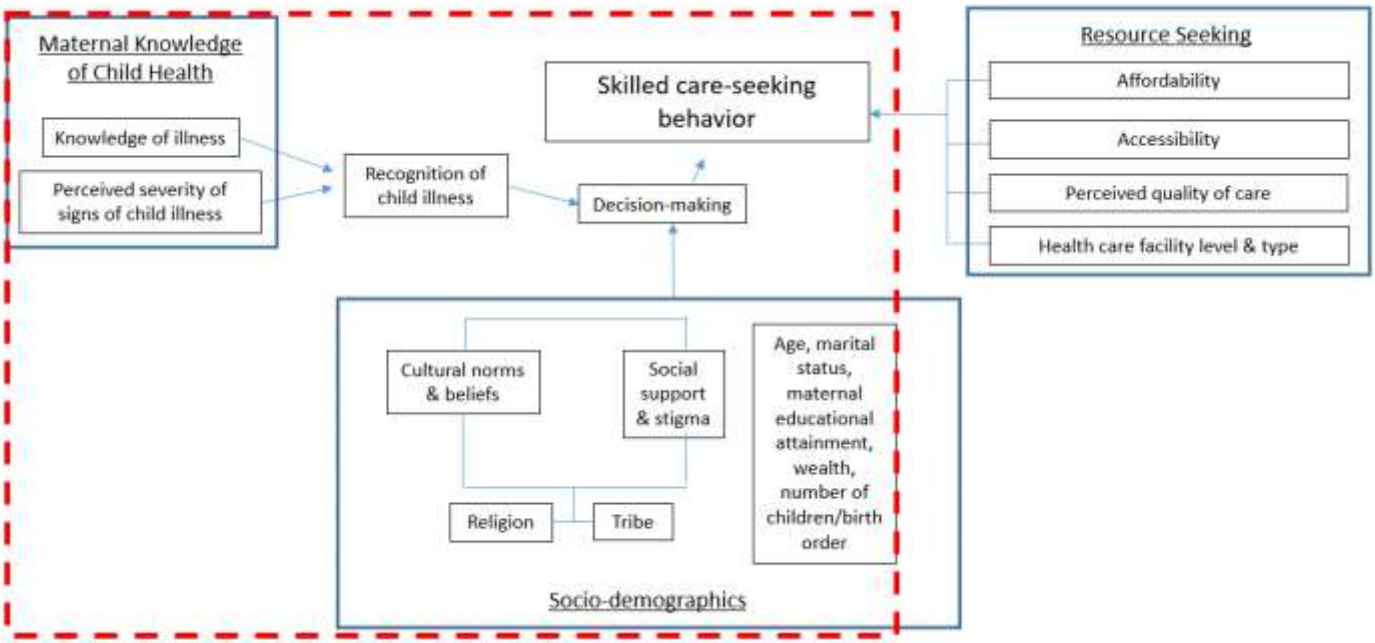
Literature Review: Selected Study Limitations

Some limitations exist with studies that assessed relationships between socio-contextual factors and care seeking for treatment of child illness. Many of them focused either on neonatal health or did not stratify by skilled versus unskilled care seeking. Very few focused on skilled care seeking

for treatment of child illnesses. Many of these studies also looked at both parents, not solely mothers as caregivers; other studies did not define the relationship of the caregiver to the child. Also, while majority of these studies looked at cohorts, some studies differ in how they created or measured various variables related to a child's household, such as, income, child and maternal age range, or education level. However, even with these limitations, these studies helped to inform the relationship of maternal care seeking behavior for treatment of fever, illness with cough, and diarrhea by illustrating their complex and multifaceted intersection with sociocultural and economic factors. This study, which looks at the association between skilled care seeking and child illness, will add to the literature by providing another perspective on mothers' care seeking practices to strengthen interventions related to prevention and treatment for childhood malaria, acute respiratory infections, and diarrheal disease.

CHAPTER 3: CONCEPTUAL FRAMEWORK

Figure 7. Conceptual Framework (Adapted from Andersen (1)



In applying both Thaddeus & Maine's "Three Delays" framework (Figure 5) and Andersen's Health Behavior Model - Phase 4 (Figure 6), the conceptual framework (Figure 7) proposed that the determinants of seeking skilled care for child illness are diverse and complex. Sociocultural and economic characteristics include age, marital status, level of education attainment, mother's occupation, and household income. Enabling characteristics include time to decide to seek skilled care, distance to facilities, cost incurred during care seeking process (transport, health care costs), and time to reach health facilities. Mother's recognition of signs and symptoms of child illnesses (fever, illness with cough, diarrhea) is also included. The proposed conceptual framework is used in this study to portray the various potential determinants that might influence skilled care-seeking behaviors of mothers of sick children. More specifically, the components included within the red outline are those factors that this

study aims to explore; resource seeking factors have been included in the framework for reference but are not explicitly addressed.

Socio-contextual factors (e.g. age, gender, religious affiliation, economic status, etc.), mothers' knowledge and recognition of child illness are related and each facet is intricately laced with skilled care-seeking behavior. The social-contextual factors, maternal knowledge, and recognition of illness that in turn intersect with skilled care-seeking behavior. As described in the literature, a mother's ability to recognize the need to seek skilled care is critical for appropriate and prompt treatment of child illness.

The resources available to a woman in the household are critical in understanding skilled care seeking as woman can either choose to seek or not seek skilled care for her children. Of course, like all resources available to women, the decision to seek skilled care for an ill child is influenced by social-contextual factors related to socioeconomic status, family structure, culture and beliefs. Household income may also be related to children receiving skilled care that could also be associated with child mortality (36, 37, 52, 53) It is plausible that children whose mothers work outside the home may seek skilled care less often due to time constraints and potential loss of income by taking leave from paid work. In addition to resources available to the child, the family environment can mediate treatment for childhood illness through mothers' influence and the resources that are available to the child. Not all women may have the decision-making power to seek care for an ill child where decisions are made by other members of the household including her partner and other relatives. Some studies have shown that marital structure, more specifically, polygamy, is may have protective factors for younger children who are ill but, by contrast, have negative associations with older child survivorship (45, 46).

Culture and beliefs surrounding perceptions of child illness (e.g. illness as spirit possession) are shown to be related with care-seeking (47). Cultural norms and traditional healing practices can also mediate relationships between decision-making and skilled care seeking for treatment of child illness (48). Children of certain ages may also be less likely to be taken for skilled care than younger children. This may be because signs and symptoms in children younger than one year are more severe or onset of illness is more rapid therefore a mother's perceived severity of illness prompts her seek skilled care.

As shown in the conceptual framework, there are many factors between recognition of child illness and decision-making and *skilled* care seeking behavior for treatment of children who are ill (Figure 3.).

SUMMARY OF RESEARCH GAP AND STUDY RATIONALE

Consistent with global trends in developing countries, the East Central Region of Uganda has a high rate of mortality in children under the age of five (9), with the majority of mortality concentrated in the first 2 years of life. There are very few studies that have focused on the prevalence of the illnesses that are the leading cause of death in this age range, or the social and economic determinants of skilled care-seeking during such illness in eastern Uganda and, more specifically, Iganga District (30, 74). As such, this study seeks to fill a critical gap in the understanding skilled care-seeking during early childhood illness for the leading causes of mortality in this region and age-range. This study hopes to provide insight into the determinants of mothers' skilled care seeking behaviors for treatment of child illness in the first 1,000 days of life.

CHAPTER 4: DATA AND METHODS

This chapter provides an overview of the research context and study population, describes the design of the original data collection tool as well as data collection and analysis procedures, along with all relevant processes. These include interviewer recruitment, training, and management; survey pilot testing, refinement, and validation; field work; data quality management; and analysis methods.

Part of the goal of this thesis was to develop, validate, and refine a process that could be used in other contexts; the Appendix contains the modified tools for use in further research. The Safe Mothers, Safe Babies Maternal and Child Health Survey Trainer's Manual was created by the thesis author for the interviewer baseline survey training including all documents related to survey and personnel management. This manual was used during the *ACT for Child Health Baseline Survey* training and will be used for endline survey enumerator training.

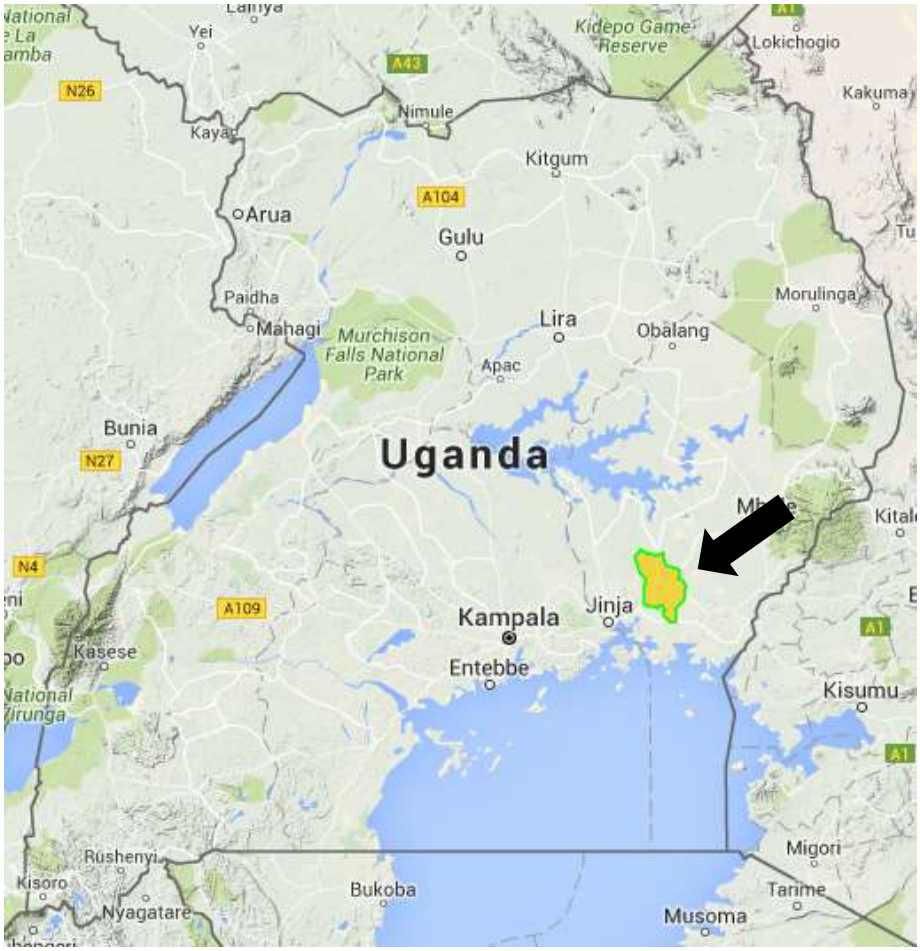
Prior to the thirteen-week data collection process, interviewers were provided with extensive training on quantitative data collection, maternal and child health in Uganda, and technical training for electronic data entry to help them succeed in their role. The SAFE ACT for Child Health Baseline Survey Training Manual was developed between March and May 2015, and the training was implemented in the last week of May 2015. The training was then iteratively revised to reflect the needs of the interviewers and facilitator. The baseline survey revealed a need for additional survey management structure, facilitator and interviewer instruction, and household cluster sampling design instruction. This training manuals will be part of a Safe Mothers, Safe Babies future research projects and survey implementation. Thus, this thesis aims to meet these needs as Safe Mothers, Safe Babies continues to move forward.

POPULATION AND SAMPLE

Setting

This study took place in the East Central Region of Uganda where under-five mortality is 20% higher (106 deaths/1,000 live births) than the national average (90 deaths/1,000 live births). More specifically, the study focused on two of Iganga District's twelve sub-counties, both of which were 90 – 95% rural (Figure 8). A total of 58 villages were in the sub-county catchment area.

Figure 8. Outline of Iganga District in East Central Region, Uganda, Uganda Bureau of Statistics (75)



Study Population

The survey was administered to any woman between the ages of 15 to 49 years who had been pregnant in the last three years prior to the survey or currently pregnant at the time of the survey. Any woman who met the eligibility criteria and was present in a randomly sampled household was eligible to participate. If a woman was below the age of 15 or over the age of 49, or if the woman had not been pregnant in the past three years, they were ineligible to participate. Moreover, respondents only gave information for their own biologic children, not for children living in their household that were not their biologic children. Based on the sampling methodology (detailed below), the *ACT for Child Health Baseline Survey* is representative of all women between the ages of 15-49 in both Sub-county 1 and Sub-county 2 in Iganga District.

Sample Size and Sampling Methodology

This survey utilized proportionate-to-population based sampling methods. To develop the sampling frame, Safe Mothers, Safe Babies conducted an enumeration census of both intervention and control sub-counties between December 2014 and January 2015, prior to the start of the survey. In total, it was demonstrated that the intervention region had approximately 6,800 households and 37,200 people, including 7,600 women of reproductive age and 6,400 children under five; and that the control region had approximately 6,600 households and 37,500 people, including 7,100 women of reproductive age and 6,900 children under five.

The study utilized a two-stage cluster design using modified proportionate to population size sampling. All calculations were based on a 95% confidence level, 80% power, and 1.0 ratio of control (Sub-county 1) to intervention (Sub-county 2). Per similar studies, an 8% non-response rate was assumed when calculating the final sample size, then adjusted based on the

number of people/household of a corresponding age range for each indicator. The total sample size for each Sub-county was 3,752 (7,504 total surveys).

Modified Cluster Sampling (MCS) was used to create clusters for each Sub-county. Larger villages were divided into smaller clusters. Some smaller villages were combined with neighboring villages in order to achieve an appropriate number of households per cluster. After both sub-counties were divided into clusters, the sample size calculations and census data were used to create a sampling frame for the two-stage cluster design. Based on the sampling frame, 88 households/cluster in Sub-county 1 and 77 households/cluster in Sub-county 2 were required to obtain a representative sample; households were randomly selected.

In order to define cluster boundaries, the thesis author (then acting as Thesis author) and SAFE Program Director conferred with the Local Chairperson (LC) in each village to map cluster boundaries and mark important waypoints on a handheld GPS unit for later use in mapping the data (boreholes, churches, mosques, schools, etc.). Local Chairpersons sketched maps by hand of his/her village while indicating the fore mentioned waypoints. Once a map was sketched, the Local Chairperson escorted the team throughout the village on foot (sometimes by motorcycle or van) in order for the Thesis author to collect satellite data via the GPS handheld. Houses were re-enumerated during the cluster mapping process Thesis author to ensure accuracy; adjustments were made to the sampling frame prior to data collection. This process was replicated for each of the 60 clusters prior to data collection.

ETHICAL CONSIDERATIONS

The study protocol and survey instrument was submitted to two IRBs for review. Emory University's Institutional Review Board (IRB00002551) determined it to meet the criteria for exemption. The AIDS Support Organization Uganda (TASO) Institutional Review Board (IRB) approved the study as #TASOREC/020/15-UG-REC-009. The survey was administered between June through August 2015 by trained field staff employed by Safe Mothers, Safe Babies. Participants confirmed their informed consent verbally at the beginning of the survey, using the consent document at the beginning of the survey, which had been translated from English to Lusoga and then back translated to English by a different translator to ensure full retaining of meaning.

RESEARCH DESIGN

Survey Instrument

The survey instrument was developed by the SAFE team and the thesis author to assess the following:

- Child characteristics (child age and gender)
- Maternal characteristics (age, religion, tribe, marital status, etc.)
- Lifetime pregnancy history (aggregate numbers)
- Birth history for each pregnancy in the three years prior to the survey
- Detailed pregnancy history for all living infants born in the 12 months prior to the survey
- Illness history for all living children born in the past three years
- 24 hour food recall for each child born in the past three years
- Mid-upper arm circumference measurement for living children born in the three years prior to the survey and above age 6 months

- General health beliefs
- Birth history and illness history for any pregnancy that ended in the past three years and for which the child was no longer alive

The first three modules were administered to all consenting respondents, and the average time of completion was 10-15 minutes; these modules included respondent background characteristics, pregnancy history (aggregate for lifetime), and outcome of each individual pregnancy for the past three years. Respondents' answers in the first three modules prompted the appropriate survey skip patterns to queue additional questions related to a respondent's antenatal and birth history, general questions about child health and nutrition, the respondent's opinions about pregnancy and childbirth, and a battery of social autopsy questions related to any fetal loss and/or child death a respondent reported experiencing in the 12 months prior to the survey. The duration of the survey varied based on a respondent's answers, but no survey lasted more than 45 minutes. All questions were optional and respondents could end the survey at any point in time.

A majority of questions related to demographics, birth history, pregnancy history and illness history questions were based on the 2011 Uganda Demographic and Health Survey (DHS). These survey questions had been validated in the Ugandan context, and would allow for comparison between the ACT survey results and the DHS data. Other questions, particularly those related to the prevalence of certain delivery and postpartum complications and related to the Three Delays, were developed by the team itself, as a population-based survey assessing the Three Delays was not available in any published literature.

Following the development of the survey, the SAFE Program Director and field staff translated the data collection tool into the local language, Lusoga. The translation process will be further described in the "Survey Translation" section.

Following translation, the survey instrument was digitized via Excel and converted into an XML file in order to be administered on password-protected Android-based tablets (Samsung Galaxy Tab 4) via an app called Open Data Kit, a database system that was also password encrypted. Administering the survey via a tablet allowed data collection to be easily monitored and eliminated the costly use of paper surveys, resulting in more secure data collection, a reduction in data entry errors, and a dramatic decrease in data entry and cleaning time.

Survey Procedures

Interviewer Hiring and Training

Fifteen interviewers were hired for the ACT Survey. These individuals were native of Uganda and, more specifically, to Iganga District. The Thesis author posted job announcements in heavily trafficked areas in Iganga Town. Applications were reviewed by the Program Director and Thesis author for key qualifications and skills including, but not limited to, the following: at least a secondary education diploma (university diploma preferred), excellent written fluency in English, fluent in both spoken English and spoken Lusoga, and previous employment or experience with enumeration and/or research projects (also preferred but not required). Potential candidates were contacted for in-person interviews at the SAFE office. The top candidates were hired as temporary SAFE employees.

Once hired, interviewers were mandated to attend a one-week training designed and led by the Thesis author. The training included in-depth sessions on research ethics, quantitative data collection, rapport-building with respondents, review of survey translations (to ensure accuracy), basics of tablet usage, and peer-to-peer practice of survey implementation (see Appendices A and B for training manuals). At the end of the training, interviewers piloted the survey for two days, adjusting for survey and/or tablet coding errors as appropriate.

Survey Translation

Survey questions were initially written in English with multiple revisions prior to being translated into Lusoga, the local dialect predominantly spoken in Iganga District. The SAFE Program Director, with highly proficient skills in both English and Lusoga, translated the entirety of the survey into Lusoga; the translations were spot checked by the SAFE President (who has elementary level proficiency in the language but is also an editor by training), and by an additional SAFE staff member. To ensure that original meaning was retained, both the introduction and informed consent were back-translated into English.

Additionally, the enumerators, Program Director, and thesis author reviewed all questions and answer choices in both English and Lusoga during the enumerator training. Each was reviewed extensively ensure that all questions and answer choices retained their original meaning from the English version. Questions more sensitive in nature (e.g. those pertaining to childbearing and related complications) were discussed at length among the team due to variations within the local dialect. The most appropriate Lusoga words were chosen in order to avoid inadvertently offending respondents. Grammatical errors were also corrected. All corrections were made both in the paper-based version of the survey and in the electronic version of the survey, and all questions were reviewed in both formats.

Piloting

The electronic version of the survey was piloted in areas of Iganga District that were similar in size and demographics to the intervention and control regions. SAFE's Program Director and Thesis author were on-site with the survey team during the pilot-testing to troubleshoot any tablet issues and to help interviewers practice household skip patterns. A few

survey skip patterns were found to have errors, which were subsequently logged by the Thesis author, were submitted to the SAFE President for revision on a daily basis.

Data Collection Procedures

Interviewers arrived at the departure point each morning at 7:00 am, Monday-Saturday, for the duration of data collection. Upon arrival, each interviewer was issued his or her tablet that had been assigned to him or her during the interviewer training. No interviewer was permitted to use another team member's tablet; sharing of tablet login identification codes and passwords was strictly prohibited.

Upon reaching the field, the Thesis author assigned interviewers to specific clusters, usually in three teams consisting of five interviewers each. Depending on the size of the cluster and amount of households, the number of interviewers per team was adjusted to maximize data collection efficiency. Once assigned to a survey cluster, interviewers were instructed on which cluster code and skip pattern to use for that day's data collection. The Program Director then explained the cluster boundaries to each team per the map sketch created with the Local Chairperson and GPS. Interviewers were escorted to different starting points within their assigned clusters and given express start/stop instructions so that no household would be sampled twice.

Interviewers returned their tablets into the Thesis author at the end of each field day. The Thesis author inspected the tablet for any damage before initialing the interviewer's timesheet (Appendix A). Any damage incurred to a tablet was recorded by the Thesis author and reported to the SAFE President. Once all tablets were signed back into the Thesis author, they were recharged for the next day's data collection.

Data Quality Checks and Data Management

To ensure data quality, the survey team implemented a number of daily, monthly, and overall data quality checks. The Thesis author and SAFE's Program Director held a daily morning meeting with all interviewers prior to embarking on the day's fieldwork. The survey team discussed any issues that occurred during fieldwork the prior day, and common errors made the prior day, if any, as revealed in short-term data analysis by the SAFE President.

During field work, the Thesis author and Program Director remained in the survey area to answer interviewer questions as they arose during the data collection process and to troubleshoot tablet issues, if any occurred. Interviewers were required to record his or her household skip patterns, notes from interviews (if applicable), and any issues with data collection in assigned notebooks. All notebooks were required to be returned at the end of each day to the Thesis author where they were kept in a secure location at SAFE Headquarters. The Thesis author reviewed each notebook daily to make administrative notes about data collection issues and poignant interviewer observations or concerns. All issues were reported to SAFE's Program Director and President in order for appropriate action to be taken, if required.

Once all tablets were returned by the interviewers at the end of the day, the Thesis author uploaded all survey data to a secure server via Google Appspot. From the server, the SAFE President downloaded the data every evening to review certain variables to check for data entry errors. She then contacted the Thesis author via Skype or email at the beginning of each field day prior to the survey team's morning meeting to address any data entry errors, with emphasis on incorrectly entered Sub-county and cluster codes. Interviewer data entry compliance, per the survey training guidelines, was validated through this data check and any errors were

immediately addressed to the team during the following morning's field staff meeting prior to data collection.

DATA ANALYSIS

Following the conclusion of all data collection, the data were combined into two STATA files: one "maternal file" detailing respondent information and responses (in which each woman was represented one time) and a second "child file" in which each pregnancy, regardless of outcome, was provided along with the child's maternal demographics and variables (in which maternal demographics were used as a proxy for child demographics, meaning that each woman could be represented more than one time if she had more than one child in the dataset). This second child file was then utilized to generate a third dataset, in which only the women who had at least one living child were represented only one time in a "mother of living children" dataset.

For each living child represented in the Child Dataset, mothers were asked whether a child had been sick with fever, illness with cough, and/or diarrhea within the two weeks prior to the survey (Table 2). If a mother indicated 'yes' for any of the three illnesses, she was asked whether she sought advice or treatment (yes or no) for said illness, and, if so, where treatment was sought (health center, hospital, drug shop, market, traditional practitioner, or clinic).

First, descriptive statistics were run on each variable to understand the over distribution of the variables in the sample. Second, chi square tests for categorical variables and two sample t-tests were run to see the differences in characteristics for children who received skilled care for fever, acute respiratory infection and cough and those that did not. Third, chi square tests for categorical variables and two sample t-tests were run to see the differences in characteristics for

children who received skilled care for one illness, two illnesses, or all three illnesses and those that did not.

Illness prevalence and skilled care seeking outcomes were estimated in terms of odds ratios (OR) that were adjusted for each covariate using multivariate logistic regression analyses. To calculate the odds ratio for each category of the independent variables, the first group was taken as the reference category.

For illness prevalence and child and mother characteristics, a bivariate logit model was run of each of the three illness types (fever, ARI, diarrhea), followed by a separate bivariate model of number of illnesses (one illness, two illnesses, three illnesses). A multivariate logit model was then run for all three illness types and number of illnesses. Categorical variables were set as factor variables; continuous variables were kept linear.

For seeking skilled care, bivariate logit models were run by illness type and number of illnesses and child and maternal characteristics. A bivariate logit model was run to assess the association of skilled care seeking and maternal and child characteristics by type of illness (sought skilled care for fever, sought skilled care for ARI, sought skilled care for diarrhea). Additionally, a bivariate logit model was run for skilled care seeking and number of illnesses for child and maternal characteristics (one illness, two illnesses, three illnesses). Multivariate logit models were run for all three illness types and number of illnesses with categorical variables set as factor variables; continuous variables were kept linear. Unadjusted and adjusted odds ratios were reported for all models (Table 4, 5, 8 &9). All analyses were analyzed using an alpha of 0.05. Analyses were done with STATA/C Version 14 (76).

Outcome Measure

The outcome measure of interest is seeking *skilled* care at a health facility for a child who was ill in the two weeks prior to the survey with any of the following: fever, illness with cough, and/or diarrhea. This was assessed through the question "Did you seek advice or treatment for the [illness] from any source?" Responses of "yes" and "no" were recorded within the survey denoting whether or not care was sought in any form. Respondents who answered "yes" were then asked, "Where did you seek advice or treatment?" This question allowed for multiple answers with standardized categories such as "hospital," "health center," "clinic", "drug shop," "traditional practitioner and "other". If a respondent stated that she sought care at a "hospital" or "health center", follow-up questions asked about the specific name of the hospital or health center (coded numerically so as to protect respondent confidentiality). Those who responded that they sought care at a clinic were asked to provide the name of the clinic. All respondents who reported seeking care for a sick child were then asked the type of provider they sought care from.

The term "clinic" refers to an unregistered, illegally-run health facility that is staffed by an unskilled provider (80% unskilled attendants per a SAFE survey of clinics in both regions), but that respondents often perceived as being equivalent or better than a registered health center (government or private). Facility names given by respondents were checked against the names of all registered health facilities in the area to classify each location as skilled or not. "Skilled care" was defined as any care sought at a registered health center or hospital with a doctor, clinic office, nurse, or midwife. Any respondent who sought care for a child somewhere other than a health center or hospital or who sought care from a provider other than the ones listed above were defined as having sought unskilled care. A new dichotomous variable was generated for skilled care seeking ("yes" or "no"). Additionally, new dichotomous variables for skilled care

seeking by type of illness were generated (e.g. “yes” or “no” for sought skilled care for fever). For all observations that were not ascertained, reported as do not know, or were declines to answer were set to missing.

Explanatory Variables

The predictor variables selected for these analyses were chosen based on empirical literature as set forth in the literature review, theoretical inquiry, and the research interests of Safe Mothers, Safe Babies and the researcher. In relation to the proposed theoretical model, Andersen’s Health Behavior Model – Phase 4, the predictor variables assessed by the survey can be classified under two of the three main categories: predisposing characteristics and enabling resources (health care system factors were not assessed systematically in this survey).

Predisposing Characteristics

Predisposing characteristics analyzed for this survey included child, mother, household, and contextual factors associated with the odds of experiencing fever, illness with cough, and diarrhea, and of mothers seeking skilled care during those episodes of illness for children under three years old. Variables in the bivariate regressions that were shown to be significant in previous studies (25, 36, 40, 77-79) and, therefore, were included in multivariate analyses to assess the association of individual and household factors with likelihood of experiencing illness and of not seeking skilled care or seeking skilled care at a health center or hospital. Predictors of illness prevalence and skilled care-seeking behavior selected based on the literature were chosen based on the following: demographic characteristics of children (child gender; age group: less than one year old, between one year and two years old, and two to three years old) characteristics of mothers (age; educational attainment: (no education, some primary/primary, and secondary or

higher level of education); marital status (unmarried, married); religion (Muslim, Christian, or other); and ethnic group (Muganda, Musoga, Munyole, or Other). The variable for child age was set as specific age ranges and only one response was allowed. Child age was then recoded as "0-1 year", 1-2 years" and "2-3 years" for data analysis. Those that reported child age 1 year or less were set as the reference group. For all variables, those observations that were not ascertained, reported as do not know or were declines to answer were set to missing.

Enabling Resources

Economic status of households was determined by indicators related to self-reported ownership of assets: mobile phone, radio, animal-drawn cart, boat with motor, boat with no motor, car/truck, motorcycle, or bicycle. For the household asset ownership variable, those that owned none of the eight assets were the reference group. The highest number of assets owned was five out of a total of eight possible assets. These variables were dichotomous ("yes" or "no") and were set to continuous. Children in the fifth category (five assets owned) were compared with those in first category (no assets owned) to assess whether socioeconomic status is a predictor of seeking skilled care for treatment of child illness.

The maternal education category was classified into mothers, who had no formal education, some primary to completed primary education, and secondary and higher education. Women who reported "no education" were set as the reference group. All don't know and decline to answer responses were coded as missing. The same was done for paternal education.

The maternal employment status was a dichotomous variable ("yes" or "no"). Respondents were asked if they had received any compensation for work in the 12 months prior to the date of

the survey. This variable was not altered, and women who did not receive compensation in the past 12 months were set as the reference group.

Socio-Demographic Variables

Child gender was not modified in this study and males were used as the reference group. The tribe variable consisted of 14 tribes. Tribes other than Muganda, Musoga, and Munyole were collapsed into one category as "Other" for easier comparison with the reference group, Muganda tribe. All don't know and decline to answer responses were coded as missing.

Household Structure Variables

The variables of the number of lifetime births and maternal age were not altered. These variables were numeric and continuous. The number of siblings for each child was a numerical variable and was not altered. A marital status variable was created that asked if respondents were currently married, living with a partner as if married, separated, divorced, widowed, or never married. Those that responded that they were never married, separated, divorced, or widowed were collapsed into one category as "Not Married" and set as the reference group, while all others were placed in the married category.

Recognition of Child Illness and Time to Decide to Seek Skilled Care Variables

Respondents were asked a general question about recognition of child health complications. This was assessed through the question "Thinking about your children in general, what are the signs of illness that would make you think that your child needs treatment?" This question was open-ended and allowed for multiple responses to be entered as the following

standardized categories: "does not look well/not playing normally," "not eating or drinking," "lethargic," "high fever," "convulsions," "coughing," "vomits," and "trouble breathing." A new variable was generated to create a continuous variable (range was from 0 signs/symptoms recognized to 9 signs/symptoms recognized) to assess the average number of signs and symptoms recognized by respondents. Women who did not recognize any of signs or symptoms related to child illness were reported as "0" and were set as the reference group.

Time to decide to seek skilled care was assessed through the question "How long after the illness started did you first try to seek care for this baby?" and was asked for each illness that the respondent said she had a child suffer from in the past two weeks. This question was open-ended and allowed for responses to be entered as the following standardized categories: "less than 12 hours," "12-23 hours," "1 day," "2 days", "3-6 days" and "1 week or more". This variable was not altered, and women who sought skilled care less than 12 hours from onset of signs and symptoms of illness were set as the reference group.

CHAPTER 5: RESULTS

DESCRIPTIVE STATISTICS

Maternal and Child Characteristics

From the Safe Mothers, Safe Babies 2015 ACT Survey are data from surveys with 3,718 women who were caregivers for 4,321 children born in the three years prior to the survey. A review of the demographics of these women and their children is presented below in Table 1. The mean age of mothers was 26.93 years (SD = 6.5; range 15-49 years) (Table 1). Most women (90.23%) were married or living with a partner as if married at the time of the survey; 55.4% had attended at least some primary school and 22.4% had completed secondary school or higher,

while 19.2% had no formal education (Table 1). A total of 362 women reported owning none of the eight assets (9.7%) compared to 16 women who reported owning the most assets (0.4%) (Table 1). A little more than half of the children of respondents were male (50.7%) and a little under half were female (49.3%) (Table 1). A majority of these children were between 1-2 years of age (56.7%) (Table 1).

Table 1. Population characteristics in Iganga District, Uganda, 2015 (children, n=4,321, mothers, n=3718)

Characteristic	n (%/SD)
Child characteristics	
Child Gender	
Male	2191 (50.71%)
Female	2130 (49.29%)
Child Age (years)	
0 -1 year	1,593 (26.68%)
1-2 years	2,454 (56.79%)
2- 3 years	714 (16.52%)
Mothers' Characteristics	
Mean age (years)	26.9 (6.5)
15-24 years	402 (10.8%)
25-34 years	1170 (31.47%)
≥35 years	884 (23.78%)
Educational Attainment	
None	713 (19.23%)
Primary	2,164 (58.36%)
Secondary or higher	831 (22.41%)
Marital Status	
Not married	362 (9.7%)
Married (monogamous)	2,225 (60.0%)
Married (polygamous)	1,119 (30.19%)
Religion	
Muslim	1397 (37.60%)
Christian	2,300 (61.91%)
Other	18 (0.48%)

Tribe	
Muganda	97 (2.61%)
Musoga	2,843 (76.51%)
Munyole	232 (6.24%)
Other	544 (14.64%)
Received Compensation in Past 12 Months (Mother)	
Yes	481 (12.98%)
No	3,224 (87.02%)
Partner's Education Level	
None	466 (15.94%)
Primary	1,345 (46.01%)
Secondary or higher	1,112 (38.04%)
Lifetime Births (mean)	**3.7 (SD: 1.92)**
Asset Ownership	
No assets owned	1402 (37.72%)
2	492 (13.24%)
3	361 (9.71%)
4	802 (21.58%)
5 assets owned	660 (17.76%)

Asset Ownership is used a proxy for economic status. An 8-item asset inventory was used. The most assets owned by any one respondent was 5.

Recognition of Child Illness

The majority of mothers of children who were ill in the two weeks prior to the survey respondents named three of the seven signs and symptoms associated with child illness (36.8%). Nineteen respondents (0.5%) were not able to list any signs or symptoms; only one respondent listed all seven (0.03%) (Figure 9). Of the nine signs and symptoms of recognition categories, the sign that respondents most often recognized as a signal to seek treatment was “does not look well/not playing normally” (57.2%) (Table 2).

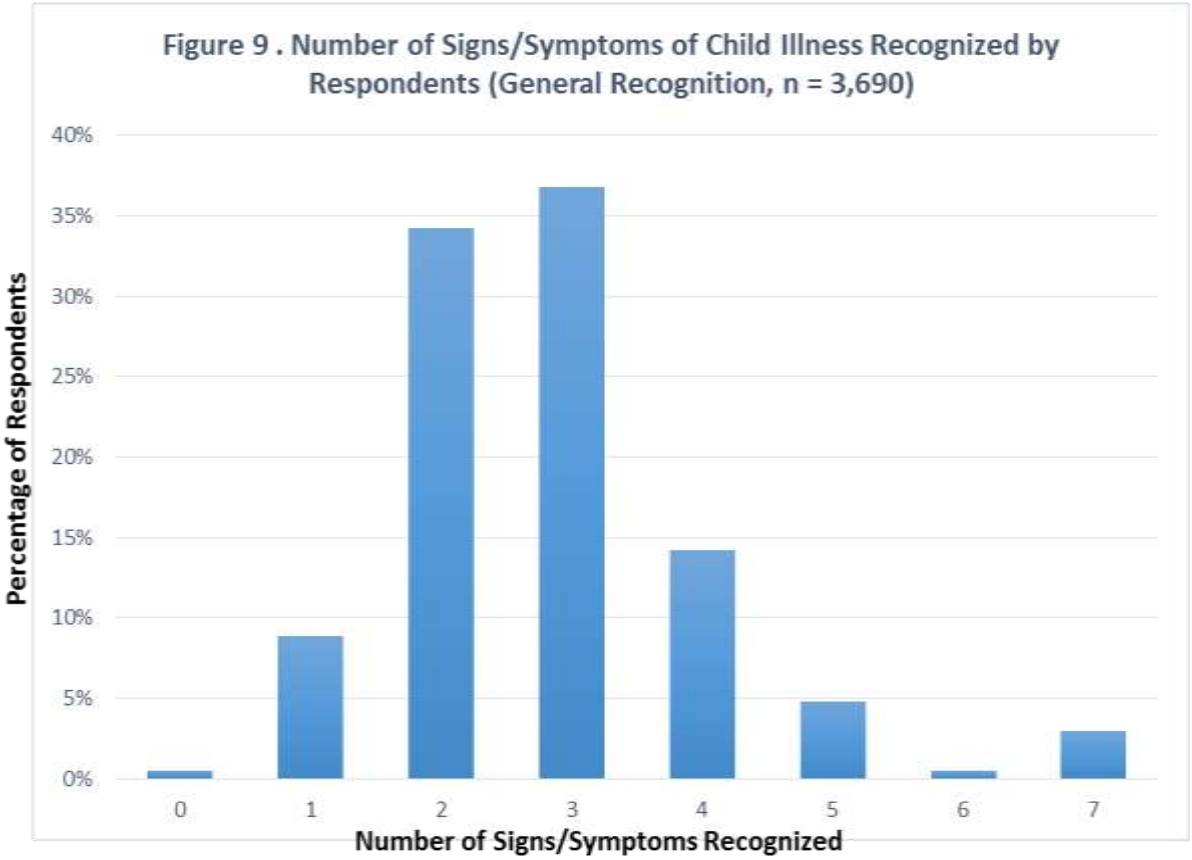


Table 2. General Signs and Symptoms of Child Illness Recognized by Respondents (n=3,690)

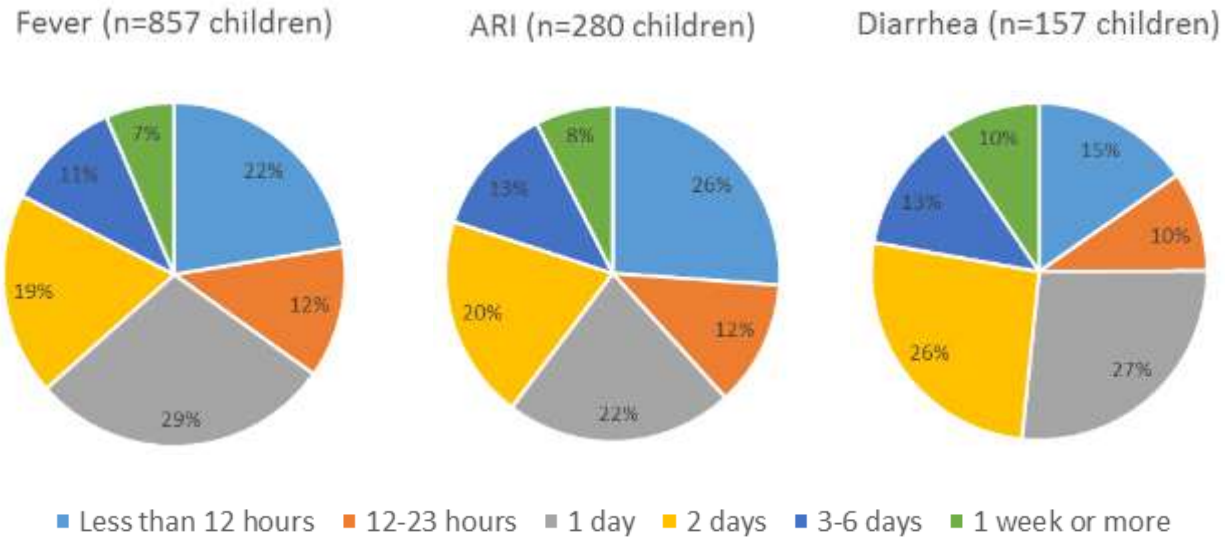
Named Complication: Looks Unwell/Not Playing Normally	
Yes	2109 (57.16%)
No	1581 (42.84%)
Named Complication: not eating or drinking	
Yes	2007 (54.39%)
No	1683 (45.61%)
Named Complication: lethargic	
Yes	1272 (34.47%)
No	2418 (65.53%)
Named Complication: high fever	
Yes	2967 (80.41%)
No	723 (19.59%)
Named Complication: trouble breathing	
Yes	618 (16.75%)
No	3072 (83.25%)

Named Complication: vomits	
Yes	657 (17.80%)
No	3033 (82.20%)
Named Complication: convulsions	
Yes	311 (8.43%)
No	3379 (91.57%)
Named Complication: coughing	
Yes	86 (2.33%)
No	3604 (97.67%)
Named Complication: diarrhea	
Yes	13 (0.35%)
No	3677 (99.65%)

Time to Decide to Seek Skilled Care

Respondents were asked the length of time before they sought care for a child's illness. Of those children whose mothers sought skilled care for treatment of fever, 28.5% sought care within a day of the child's symptoms (Figure 10). Additionally, a majority of mothers said that they sought care within one day of a child displaying signs of fever (28.5%), acute respiratory infection (22.1%), and diarrhea (26.7%).

Figure 10. Time to Decide to Seek Skilled Care by Illness Type



Time to decide to seek skilled care for those children whose mothers said they sought care at either a health center or hospital for child illness. Children who were ill but were not taken for skilled care are not included in this figure.

PREVALENCE OF EARLY CHILDHOOD ILLNESS

Prevalence of Early Childhood Illness

Of all women who were eligible and consented to participate in the survey, 3,718 mothers had at least one child who had been ill in the two weeks prior to the survey (Table 3). 2,808 children were ill within the past two weeks and 212 children had symptoms associated with all three illnesses (Table 3). Over half of children (58.4 %, n = 2,493) had fever within the two weeks prior to the survey, 12.4 % (n = 509) had diarrhea and 26.34% (n = 1,123) had ARI (Table 3). Of the 2,808 children who were ill in the two weeks prior to the survey, 1,469 (38%) children displayed signs and symptoms of two illnesses (e.g. fever and cough, fever and diarrhea, cough and diarrhea). Additionally, 212 children had mothers that reported that they exhibited signs and symptoms of all three illnesses (12.7%) (Table 3).

Table 3. Illness Prevalence of Children between birth and three years and Skilled Care Seeking in Iganga District, Uganda, 2015 (Children, n= 4,267)

Child Was Sick in Past 2 Weeks	
Yes	2,808 (65.8%)
No	1,459 (34.1%)
Don't Know	51 (1.18%)
Illness Prevalence in Past 2 Weeks by illness type (sick children, n= 2,808) Fever	
Yes	2,493 (57.6%)
No	1,775 (41.1%)
Don't Know	50 (1.16%)
ARI	
Yes	1,123 (26.3%)
No	3,137 (73.6%)
Don't Know	58 (1.34%)
Diarrhea	
Yes	509 (12.4%)

No	3,590 (83.1%)
Don't Know	219 (5.07%)
Illness Prevalence in Past 2 Weeks by number of signs/symptoms exhibited Had only 1 illness (n=3,152)	
Yes	1,692 (53.7%)
No	1,460 (33.8%)
Had 2 illnesses (n=2,353)	
Yes	893 (38%)
No	1,460 (62.0%)
Had 3 illnesses (n=1,672)	
Yes	212 (12.6%)
No	1,460 (87.3%)

Illness prevalence by type: children may be counted more than once if he/she exhibited signs/symptoms of more than one illness
Illness prevalence by number of signs/symptoms exhibited: children who were sick with any combination of illnesses are represented once

Table 4 shows the multivariate regression of illness prevalence by illness type. Of all assessed determinants, only child age and maternal and paternal education level were shown to have a statistically significant related to illness prevalence (Table 4). More specifically, children between the ages of 1-2 years had 59% higher odds of fever and had 34% higher odds for ARI than those under one year (OR for fever = 1.59 $p<.001$; OR for ari = 1.34 $p<.01$) (Table 4).

Additionally, children between ages two and three years were less likely to suffer from all three illnesses than those children under one year (Table 5). Children whose mothers attended primary school had 25% lower odds to have ARI than those children whose mothers had no formal education. However, children whose mothers attended primary school did not have lower odds of being ill with fever or diarrhea (Table 4).

Table 4. Illness Prevalence by Illness Type: unadjusted and adjusted odds ratios (OR) and 95 % confidence intervals (CI) estimated through bivariate and multivariate logistic regression of illness prevalence in Iganga District- Uganda- 2015

	Unadjusted OR (95% CI)			Adjusted OR (95% CI)		
Illness Prevalence	**Fever**	**ARI**	**Diarrhea**	**Fever**	**ARI**	**Diarrhea**
	(n=2,493)	**(n=1,123)**	**(n=509)**	**(n=2,493)**	**(n=1,123)**	**(n=509)**
Child Characteristics						
Child Gender						
Male	Ref	Ref	Ref	Ref	Ref	Ref
Female	1.06(.94- 1.19)	.99(.86- 1.14)	1.15(.95- 1.38)	1.10(.95- 1.26)	1.05(.90-1.23)	1.16(.94-1.43)
Child Age						
0 - >1 year	Ref	Ref	Ref	Ref	Ref	Ref
1 year-2 years	1.60(1.39- 1.85)***	1.34(1.14- 1.57)***	1.00(.81- 1.22)	1.59 (1.35- 1.88)***	1.34 (1.12-1.61)**	1.09 (.86-1.39)
2-3 years	.88(.73- 1.07)	.58(.28- .74)***	.45(.32- .64)***	.82 (.66- 1.02)	.52 (.39-.70)***	.47(.31-.70)***
Mother's Characteristics						
Mother's Age	1.00 (1.00-1.01)*	1.00 (.99-1.01)	.98 (.97-.99)*	.99 (.98-1.00)	1.00 (.99-1.01)	1.00 (.97-1.02)
Marital Status						
Not married	Ref	Ref	Ref	Ref	Ref	Ref
Married	1.01 (.81-1.26)	.87 (.68-1.10)	.94 (.67-1.31)	1	1	1
Mother's Education						
None	Ref	Ref	Ref	Ref	Ref	Ref
Some Primary/Primary	1.05(.90- 1.24)	1.29(1.07- 1.55)**	1.14(.88- 1.46)	.98(.80- 1.20)	1.25(.99- 1.58)*	.93(.68-1.27)
Secondary or Higher	1.04 (.86- 1.26)	1.16(.93- 1.45)	1.24(.92- 1.66)	1.00(.77- 1.28)	1.10 (.83-1.47)	1.07 (.73-1.56)
Partner's Education						
None	Ref	Ref	Ref	Ref	Ref	Ref
Some Primary/Primary	1.20(.98- 1.46)	1.38(1.09- 1.74)**	1.71(1.23- 2.37)***	1.20(.97-1.48)	1.31 (1.02- 1.68)*	1.60 (1.13-2.25)**
Secondary or Higher	1.17(.96- 1.44)	1.38(1.08- 1.75)**	1.18(.83- 1.66)	1.18(.94- 1.49)	1.38(1.06-1.81)*	1.04(.71-1.52)

Religion						
Muslim	Ref	Ref	Ref	Ref	Ref	Ref
Christian	.89(.78- 1.01)	1.06(.92- 1.22)	.83(.69- 1.00)*	.86 (.74- 1.00)	1.04(.88- 1.22)	.83 (.67-1.03)
Other	.42(.16 1.08)	.58(.16- 2.01)	.39(.05- 2.98)	.45(.15- 1.32)	.75 (.20-2.74)	.51 (.06-4.00)
Ethnic Group						
Muganda	Ref	Ref	Ref	Ref	Ref	Ref
Munyole	1.07(.68- 1.69)	1.07(.65- 1.77)	1.12(.58- 2.19)	1.05 (.72-1.74)	1.00 (.57-1.76)	1.28(.61-2.66)
Musoga	1.04(.70- 1.54)	.88(.57- 1.35)	.90(.50- 1.60)	1.12 (.72- 1.74)	.84 (.52-1.36)	.89 (.47-1.69)
Other	1.12(.74- 1.69)	1.02(.65- 1.62)	1.04(.56- 1.92)	1.30 (.81- 2.08)	1.11 (.66- 1.86)	1.22 (.62-2.40)
Asset Ownership	1.10 (1.04-1.16)***	1.01 (.95-1.07)	1.06 (.98-1.16)	1.07 (1.00-1.15)*	.97 (.90-1.05)	1.04 (.94-1.15)
Lifetime Births	1.03 (1.00-1.07)*	1.03 (.99-1.06)	.94 (.89-.98)*	1.05 (.98-1.12)	1.03 (.96-1.10)	.93 (.85-1.02)
Compensated for Work in Past 12 Months						
No	Ref	Ref	Ref	Ref	Ref	Ref
Yes	1.04(.86-1.25)	1.06 (.86-1.30)	.75 (.55-1.02)	.97 (.78-1.20)	1.05 (.83-1.33)	.79 (.56-1.11)

*p<0.05 **p<0.01 ***p<0.001

Asset Ownership is used a proxy for economic status. An 8-item asset inventory was used. The most assets owned by any one respondent was 5.

Table 5. Illness Prevalence by Number of Illnesses Adjusted for Child and Mother Characteristics: unadjusted and adjusted odds ratios (OR) and 95 % confidence intervals (CI) estimated through bivariate and multivariate logistic regression of number of illnesses had in past two weeks, Iganga District, Uganda, 2015

	Unadjusted OR (95% CI)			Adjusted OR (95% CI)		
Illness Prevalence	**One Illness (n=1, 6292)**	**Two Illnesses (n=893)**	**Three Illnesses (n=212)**	**One Illness (n=1, 6292)**	**Two Illnesses (n=893)**	**Three Illnesses (n=212)**
Child Characteristics						
Child Gender						
Male	Ref	Ref	Ref	Ref	Ref	Ref
Female	1.05 (.91-1.21)	1.03 (.87-1.22)	1.20 (.90-1.60)	1.09 (.92-1.28)	1.10 (.90-1.34)	1.34 (.95-1.89)
Child Age						
0 - >1 year	Ref	Ref	Ref	Ref	Ref	Ref
1 year-2 years	1.61 (1.36-1.90)***	1.86 (1.53-2.27)***	1.33 (.97-1.83)	1.56 (1.29-1.89)***	1.85 (1.47-2.32)***	1.47 (1.00-2.14)*
2-3 years	.99 (.80-1.22)	.61 (.46-.82)**	.28 (.15-.53)***	.89 (.69-1.13)	.51 (.36-.71)***	.31 (.16-.63)**
Mother's Characteristics						
Mother's Age	1.01 (1.00-1.02)**	1.01 (1.00-1.02)*	.98 (.96-1.01)	1.01 (.99-1.03)	1.01 (.98-1.03)	.94 (.86-1.02)
Marital Status						
Not married	Ref	Ref	Ref	Ref	Ref	Ref
Married	1.19 (.92-1.54)	.88 (.66-1.18)	.95 (.57-1.57)	1	1	1
Mother's Education						
None	Ref	Ref	Ref	Ref	Ref	Ref
Some Primary/Primary	1.14 (.95-1.36)	1.16 (.93-1.44)	1.54 (1.02-2.31)*	1.08 (.85-1.36)	1.00 (.76-1.33)	1.50 (.89-2.54)
Secondary or Higher	1.03 (.83-1.28)	1.13 (.87-1.47)	1.43 (.88-2.30)	.98 (.73-1.31)	.93 (.66-1.32)	1.37(.72-2.62)
Partner's Education						
None	Ref	Ref	Ref	Ref	Ref	Ref
Some Primary/Primary	1.19 (.95-1.49)	1.59 (1.20-2.11)***	1.86 (1.11-3.10)*	1.13 (.89-1.45)	1.49 (1.09-2.02)*	1.72 (.98-3.01)
Secondary or Higher	1.10 (.88-1.39)	1.45 (1.09-1.94)*	1.43 (.84-2.43)	1.03 (.79-1.34)	1.37 (.98-1.90)	1.30 (.70-2.41)

Religion						
Muslim	Ref	Ref	Ref	Ref	Ref	Ref
Christian	.92 (.79-1.06)	.99 (.83-1.18)	.72 (.53-.96)*	.95 (.80-1.13)	1.00 (.81-1.23)	.68 (.48-.96)*
Other	.40 (.13-1.20)	.48 (.13-1.78)	1(empty)	.46 (.13-1.58)	.70 (.17-2.78)	1 (empty)
Ethnic Group						
Muganda	Ref	Ref	Ref	Ref	Ref	Ref
Munyole	1.31 (.77-2.22)	1.05 (.55-1.99)	1.23 (.50-3.03)	1.44 (.78-2.65)	.95 (.45-1.99)	1.49 (.52-4.29)
Musoga	1.17 (.74-1.84)	1.10 (.64-1.89)	.64 (.29-1.40)	1.32 (.78-2.22)	1.10 (.60-2.02)	.72 (.29-1.78)
Other	1.26 (.78-2.05)	1.33 (.75-2.36)	.78 (.33-1.83)	1.55 (.89-2.72)	1.55 (.81-2.99)	1.13 (.42-3.05)
Asset Ownership	1.14 (1.07-1.22)***	1.15 (1.07-1.24)***	.99 (.87-1.12)	1.13 (1.04-1.22)**	1.13 (1.03-1.24)**	.92 (.79-1.07)
Recognition of Signs/Symptoms of Child Illness	1.04 (.94-1.15)	1.20 (1.05-1.38)**	.90 (.5-1.24)	.96 (.85-1.08)	1.21 (1.03-1.41)*	.76 (.47-1.21)
Lifetime Births	1.03 (1.00-1.07)*	1.04 (.99-1.09)	.98 (.90-1.06)	1.02 (.95-1.09)	1.01 (.93-1.11)	1.05 (.89-1.24)
Compensated for Work in Past 12 Months						
No	Ref	Ref	Ref	Ref	Ref	Ref
Yes	1.32 (1.06-1.63)**	1.06 (.82-1.38)	.73 (.44-1.22)	1.23 (.96-1.57)	1.01 (.74-1.37)	.83 (.47-1.49)

*p<0.05 **p<0.01 ***p<0.001

Asset Ownership is used a proxy for economic status. An 8-item asset inventory was used. The most assets owned by any one respondent was 5.

PREVALENCE AND DETERMINANTS OF SKILLED CARE-SEEKING FOR EARLY CHILDHOOD ILLNESS

Prevalence of Skilled Care-Seeking for Early Childhood Illness

Care-seeking by illness type and are presented in Table 6 below. Of children who had at least one symptom suggestive of malaria, acute respiratory illness, or diarrhea during the two weeks prior to the survey, 1,816 (66.3%) of children were not taken for any type of skilled care, while the remaining 923 (33.7%) children had mothers who sought skilled care for at least one of their children's illnesses (Table 6). Overall, children with fever (34.62%) and diarrhea (30.91%) were taken for skilled care more frequently than children of mothers who had ARI (24.69%) (Table 6). Children with fever (40.86%) and diarrhea (39.64%) were initially treated at a health center while this proportion was only 32.97% for children with ARI (Table 6).

Table 6. Skilled Care Seeking of Mothers of Children who were ill in the past 2 weeks (Children, n= 2,739)

Mother Sought Any Skilled Care		
Yes, did seek skilled care		33.7%
No, did not seek skilled care		66.3%
Mother Sought Skilled Care by Illness Type		
Fever (n=2,487)		
	Yes	34.62%
	No	65.38%
ARI (n=1,118)		
	Yes	24.69%
	No	75.31%
Diarrhea (n=509)		
	Yes	30.91%
	No	69.09%

About 26.09% of children with ARI were not taken for skilled care while this proportion was 17.21% for children with fever and 23.97 % for children with diarrhea (Table 7). Only 8 (0.39%) children who had fever were treated outside the home with traditional care while 7 (1.81%) children who suffered from diarrhea were taken to a traditional practitioner (Table 7). No children were taken for traditional care for ARI (Table 7).

Table 7. Place of care (first sought) by illness type

	Fever (n=2,487)	ARI (n=1,123)	Diarrhea (n= 509)
No Care	17.21%	26.09%	23.97%
Health Center			
Yes	40.86%	32.97%	39.64%
No	40.86%	67.03%	60.36%
Hospital			
Yes	1.36%	0.48%	1.04%
No	98.64%	99.52%	98.96%
Drug Shop			
Yes	35.57%	37.09%	27.46%
No	64.43%	62.19%	72.54%
Traditional			
Yes	0.39%	0.00%	1.81%
No	99.61%	100%	98.19%
Market			
Yes	0.00%	0.00%	0.00%
No	100%	100%	100%
Clinic			
Yes	27.11%	31.52%	32.64%
No	72.89%	68.48%	67.36%

Determinants of Skilled Care-seeking Behavior

Table 8 illustrates the characteristics of children whose mothers sought skilled care for treatment of child illness by type of illness. Table 9 shows the adjusted odds ratios of seeking skilled care for one, two, or three illnesses (in any combination of illness type).

Per multivariable analysis of skilled care seeking, children between the ages of 1-2 years had 59% higher odds of being taken for skilled care for fever and had 34% higher odds for ARI than those under one year (OR for fever = 1.61 (1.36-1.90) p<.001; OR for ARI= 1.34 (1.12-1.61) p<.01). Child age was shown to be a determinant of skilled care-seeking, with older children with diarrhea being more likely to be taken to a registered health facility for treatment. In addition, children taken care of by women with lower educational attainment or women caring for more than one child under age three, and those who lived in a household with fewer assets were less likely to seek skilled care. Religious affiliation and tribe were shown to be associated with skilled care-seeking behavior. Children of mothers who were Christian had 43% higher odds of being taken for skilled care for fever than those children of mothers who identified as Muslim. There is no statistically significant association between skilled care seeking and child age or gender (Table 8 & 9). Children whose mothers reported owning three of the eight assets had odds of being taken for skilled care for treatment of fever (Table 8). Additionally, for every additional child the mother had, children who had any of the three illnesses were more likely to be taken for skilled care (OR for fever= 1.01; OR for ARI = 1.10; OR for cough = 1.09). Number of births in a mother's lifetime was not found to be a statistically significant determinant of skilled care seeking (Table 8 & 9).

Table 8. Skilled Care Seeking by Illness Type Adjusted for Child and Mother Characteristics: unadjusted and adjusted odds ratios (OR) and 95 % confidence intervals (CI) estimated through bivariate and multivariate logistic regression of skilled care seeking by illness type in Iganga District, Uganda- 2015

Skilled Care Seeking	Unadjusted OR (95% CI) Skilled Care vs No Skilled Care (fever) (n=2,493)	Adjusted OR (95% CI) Skilled Care vs No Skilled Care (fever) (n=2,493)	Unadjusted OR (95% CI) Skilled Care vs No Skilled Care (ARI) (n=1,123)	Adjusted OR (95% CI) Skilled Care vs No Skilled Care (ARI) (n=1,123)	Unadjusted OR (95% CI) Skilled Care vs No Skilled Care (diarrhea) (n=509)	Adjusted OR (95% CI) Skilled Care vs No Skilled Care (diarrhea) (n=509)
Child Characteristics						
Child Gender						
Male	Ref	Ref	Ref	Ref	Ref	Ref
Female	.96(.81- 1.15)	.99(.81- 1.22)	1.10(.84- 1.45)	1.20 (.85-1.70)	.96 (.65 - 1.40)	.68 (.42-1.12)
Child Age						
0 - >1 year	Ref	Ref	Ref	Ref	Ref	Ref
1 year-2 years	1.17(.96 - 1.44)	1.15(.90- 1.47)	1.17(.84- 1.62)	1.04 (.69-1.58)	1.40 (.90- 2.17)	1.39 (.77-2.48)
2-3 years	.97 (.73 - 1.29)	1.03(.72- 1.47)	1.14(.68-1.91)	1.58 (.78-3.20)	2.17(1.08-4.36)*	1.87 (.74-4.69)
Mother's Characteristics						
Mother Age	1.00 (.98-1.01)	.98 (.96-1.00)	.99 (.97-1.01)	.96 (.92-1.00)	.98 (.95-1.01)	.97 (.91-1.03)
Marital Status						
Not married	Ref	Ref	Ref	Ref	Ref	Ref
Married	1.17 (.86-1.59)	1	1.21 (.74-1.98)	1	.61 (.32-1.16)	1
Mother's Education						
No education	Ref	Ref	Ref	Ref	Ref	Ref
Some Primary/Primary	.82(.66-1.01)	.78(.58- 1.05)	.86(.60-1.25)	1.02(.60- 1.72)	.91(.55- 1.53)	.79 (.38-1.67)
Secondary or Higher	.95(.73-1.22)	.84(.58- 1.21)	1.02(.66- 1.58)	.90 (.47- 1.70)	1.19(.66- 2.14)	.98 (.42-2.31)
Partner's Education						
No education	Ref	Ref	Ref	Ref	Ref	Ref
Some Primary/Primary	.79(.60- 1.04)	.79(.58- 1.05)	.56(.36- .88)*	.54(.30- .96)*	.75(.39- 1.44)	.57 (.24-1.35)
Secondary or Higher	.85(.64-1.12)	.85(.61- 1.21)	.75(.48-1.17)	.69(.37- 1.26)	.98(.49- 1.95)	.62 (.25-1.56)

Religion						
Muslim	Ref	Ref	Ref	Ref	Ref	Ref
Christian	1.43(1.20-1.70)***	1.43(1.15- 1.77)**	1.25(.94-1.67)	1.26 (.87- 1.82)	1.18(.80- 1.73)	1.05 (.63-1.76)
Other	1.77 (.36-.48)	2.73(.43- 17.3)	1.76 (.15-19.7)	1.33(.06- 26.40)	1 (empty)	_____
Ethnic Group						
Muganda	Ref	Ref	Ref	Ref	Ref	Ref
Munyole	.41(.22-.799)**	.32 (.14-.75)**	.55(.19- 1.60)	.28 (.07-1.11)	.22(.05- .91)*	.17 (.03-.98)*
Musoga	.85(.50-1.44)	.70(.34- 1.43)	1.21(.51-2.86)	.75 (.23-2.34)	.62(.21- 1.84)	.60 (.15-2.37)
Other	.64(.39-1.11)	.50 (.23-1.06)	.75(.30- 1.91)	.39 (.11-1.34)	.60(.19- 1.93)	.69 (.16-2.95)
Household Asset Ownership	.96 (.89-1.03)	.92 (.84-1.00)	.98 (.87-1.11)	.91 (.79-1.06)	1.05 (.89-1.24)	.93 (.76-1.4)
Recognition of Child Complications	1.08 (1.00-1.17)*	1.05 (.95-1.15)	1.00 (.87-1.15)	1.04 (.88-1.22)	.99 (.82-1.20)	.94 (.75-1.18)
Lifetime Births	1.00 (.95-1.04)	1.01 (.93-1.10)	.99 (.92-1.06)	1.10 (.95-1.26)	.96 (.87-1.06)	1.09 (.89-1.34)
Compensated for Work in Past 12 Months						
No	Ref	Ref	Ref	Ref	Ref	Ref
Yes	1.03 (.80-1.32)	1.05 (.77-1.43)	1.19(.80- 1.76)	.83 (.50-1.39)	1.20(.64- 2.23)	1.08(.46-2.51)

*p<0.05 **p<0.01 ***p<0.001

Asset Ownership is used a proxy for economic status. An 8-item asset inventory was used. The most assets owned by any one respondent was 5.

Table 9. Skilled Care Seeking by Number of Illnesses Exhibited at Time of Survey: unadjusted and adjusted odds ratios (OR) and 95 % confidence intervals (CI) estimated through bivariate and multivariate logistic regression of skilled care seeking by number of illnesses the child had, Iganga District, Uganda, 2015

	Unadjusted OR (95% CI)			Adjusted OR (95% CI)		
Skilled Care Seeking	**Skilled Care vs No Skilled Care (one Illness) (n=1, 6292)**	**Skilled Care vs No Skilled Care (two Illnesses) (n=893)**	**Skilled Care vs No Skilled Care (three Illnesses) (n=212)**	**Skilled Care vs No Skilled Care (one Illness) (n=1, 6292)**	**Skilled Care vs No Skilled Care (two Illnesses) (n=893)**	**Skilled Care vs No Skilled Care (three Illnesses) (n=212)**
Child Characteristics						
Child Gender						
Male	Ref	Ref	Ref	Ref	Ref	Ref
Female	1.06 (.86-1.30)	.99 (.75-1.30)	.76 (.43-1.35)	1.13 (.89-1.43)	.97 (.70-1.34)	.63 (.29-1.37)
Child Age						
0 - >1 year	Ref	Ref	Ref	Ref	Ref	Ref
1 year-2 years	1.35 (1.04-1.78)*	.96 (.69-1.33)	1.44 (.76-2.73)	1.31 (.97-1.77)	.83 (.57-1.21)	2.33 (.96-5.64)
2-3 years	1.18 (.84-1.65)	.77 (.45-1.31)	2.12 (.62-7.13)	1.10 (.74-1.63)	.81 (.43-1.52)	5.45 (1.06-27.86)*
Mother's Characteristics						
Mother Age	1.00 (.99-1.02)	.99 (.97-1.01)	.95 (.90-1.00)	.99 (.97-1.02)	.98 (.94-1.02)	.85 (.75-.96)*
Marital Status						
Not married	Ref	Ref	Ref	Ref	Ref	Ref
Married	1.10 (.73-1.67)	1.06 (.65-1.71)	1.16 (.41-3.30)	1	1	1
Mother's Education						
No education	Ref	Ref	Ref	Ref	Ref	Ref
Some Primary/Primary	.76 (.58-1.00)	.96 (.67-1.38)	.57 (.26-1.26)	.81 (.57-1.14)	.90(.57-1.43)	.41 (.11-1.46)
Secondary or Higher	.91 (.66-1.26)	.99 (.64-1.52)	.87 (.35-2.16)	1.00 (.64-1.49)	.86 (.49-1.51)	.45 (.10-1.95)
Partner's Education						
No education	Ref	Ref	Ref	Ref	Ref	Ref
Some Primary/Primary	.77 (.55-1.07)	.70 (.44-1.12)	.44 (.16-1.18)	.85 (.59-1.22)	.74 (.45-1.24)	.43 (.11-1.60)
Secondary or Higher	.90 (.64-1.27)	.68 (.42-1.11)	.57 (.20-1.60)	1.01 (.68-1.49)	.75 (.43-1.30)	.75 (.17-3.17)

Religion						
Muslim	Ref	Ref	Ref	Ref	Ref	Ref
Christian	1.60 (1.28-2.00)***	1.09 (.82-1.45)	1.38 (.77-2.45)	1.58 (1.23-2.05)**	1.05 (.75-1.47)	1.50 (.68-3.26)
Other	.71 (.07-6.40)	3.78 (.33-.42.2)	.44 (.28-.69)***	.73(.07-7.63)	2.85 (.24-33.97)	1
Ethnic Group						
Muganda	Ref	Ref	Ref	Ref	Ref	Ref
Munyole	.57 (.23-1.38)	.43 (.14-1.35)	.13 (.02-.85)*	.84 (.28-2.50)	.30 (.08-1.09)	.08 (.009-.82)*
Musoga	1.37 (.66-2.87)	.99 (.40-2.43)	.19 (.03-1.01)	1.93 (.76-4.92)	.72 (.26-1.93)	.11 (.01-.80)*
Other	1.18 (.54-2.58)	.74 (.28-1.90)	.07 (.01-.46)**	1.68 (.63-4.46)	.54 (.18-1.54)	.05 (.006-.51)*
Household Asset Ownership	.99 (.90-1.09)	1.00 (.88-1.13)	.80 (.62-1.02)	.98 (.88-1.10)	.93 (.80-1.08)	.75 (.53-1.06)
Lifetime Births	1.02 (.96-1.08)	.98 (.91-1.06)	.93 (.80-1.08)	1.01 (.06-.80*	1.02 (.89-1.18)	1.34 (.93-1.95)
Compensated for Work in Past 12 Months						
No	Ref	Ref	Ref	Ref	Ref	Ref
Yes	.76 (.56-1.04)	1.32 (.87-2.00)	1.18 (.43-3.20)	.68 (.47-.98)*	1.39 (.85-2.27)	1.16 (.32-4.09)

*p<0.05 **p<0.01 ***p<0.001

Asset Ownership is used a proxy for economic status. An 8-item asset inventory was used. The most assets owned by any one respondent was 5.

CHAPTER 6: DISCUSSION

This study explored illness prevalence for children under age three years old. In addition, the thesis author looked at the association between maternal and child characteristics as determinants of skilled care seeking for children who were ill within the two weeks preceding the survey. The underlying assumptions of this study are that since sociodemographic and economic characteristics are shown in the literature to be associated with any care seeking behavior, similar associations may exist for children who receive *skilled* care from appropriate sources.

The prevalence of fever (57.6%), acute respiratory infection (26.3%), and diarrhea (12.4%) in children under age three in Iganga District, Uganda are comparable to national and regional estimates reported in the most recent DHS report (9). The findings of disease prevalence by age group of child were comparable to recent DHS reports for the East Central Region which showed that acute respiratory infection and diarrhea were more common among the children between the age 1 to 2 years compared to those children younger than one year (9). Additionally, the thesis author found that of children between 2-3 years were significantly less likely to have signs and symptoms associated with all three illnesses compared to children less than one year.

Children with signs and symptoms associated with ARI or diarrhea were more frequently taken for skilled care than for those children who had fever. In general, children of mothers were more likely to be taken for skilled care when a mother recognized more than one sign or symptom related to an illness. One explanation may be that mothers are less likely to seek skilled care for children with one symptom because many of these symptoms resolve on their own.

Seeking skilled care was significantly associated with child age. For children that showed signs associated with fever and acute respiratory infection, children were more likely to seek skilled care for treatment of child illness for children between the ages of 1 year to 3 years than for those children under 1 year of age. This was not consistent with studies in Uganda and neighboring countries (25, 39).

Some studies suggest that child gender is associated with caregivers' care seeking behavior for child illness however, the thesis author's results show that child gender is not a factor in skilled care seeking behavior in rural eastern Uganda (25, 36, 38, 54, 61, 63).

Interestingly, we found that educational attainment of both mothers and their partners was not a strong determinant of skilled care seeking behavior for treatment of child illness. This finding is surprising because it does not align with previous studies in sub-Saharan Africa (25, 36-39, 41-43). Additionally, maternal age was also not found to be statistically significant determinant of child illness prevalence or skilled care seeking behavior, but it was shown that women who were age 35 and older were more likely to report instances of acute respiratory infection and diarrhea than those women between the ages of 15-24 years. However, younger women were more likely to seek skilled care than older women. This finding is comparable to recent studies that have shown similar relationship between maternal age and care seeking behavior (39, 49-51).

STRENGTHS AND LIMITATIONS

A limitation of this study was that information used in the analyses was collected retrospectively and therefore susceptible to recall bias especially on the events surrounding child illness. However, respondents were asked to recall child health status from the past two weeks which improves the likelihood that a respondent would remember events from this timeframe. Measurement of all illnesses was based on the mothers' perception of illness and was not validated via clinic records. Although not clinically verified at time of the survey, the three illnesses of interest have signs and symptoms that are easily perceived (e.g. loose stool, fever, and coughing/wheezing). Another limitation of the study is the sampled population's self-reporting may be incomplete or inaccurate due to social desirability bias in hopes that the respondent and/or her community will receive some tangible benefit from research organizations. Additionally, determinants of *skilled* care-seeking behavior, namely actual distance and time to a health facility, are not available.

Due to technical difficulties with the tablet-based survey, a small portion of respondents were not asked about childhood diarrhea in the past two weeks resulting in a loss of 3.8% of data for analysis (n=340). Therefore, the study was unable to determine if those particular children suffered from any diarrhea, diarrhea with fever, diarrhea with a cough, or a combination of any or all three illnesses. However, because this is a small subset of a much larger dataset, any missing results, although not ideal, has minimal impact on results.

Other studies in Uganda have broadly focused on care-seeking behaviors without differentiating between types of skilled care (e.g. hospital vs. health center) (30). In addition, most studies use cross-sectional data that are not representative of the larger target population. One of the main strengths of this study is the proportionate to population sample size therefore study results are representative of the study population. The study also provides more up-to-date,

population-based maternal and child health data for rural eastern Uganda compared to the most recent DHS survey that was conducted in 2011. The survey also employed the use of tablet-based data collection which decreased data entry errors. This data collection method reduced the time needed for data entry and data cleaning and, in turn, allowed for faster data analysis and dissemination of results to stakeholders.

CHAPTER 7: CONCLUSION AND RECOMMENDATIONS

Efforts to increase Ugandan mothers' utilization of health services for treatment of child illnesses have largely focused on improved services in health facilities and geographical access to care; comparatively few studies have investigated how sociodemographic factors and mothers' recognition of child illness affect utilization of skilled health services. Studies based in Iganga District, Uganda have primarily focused on a woman's decision to seek antenatal care or her care-seeking behaviors during labor and obstetric emergencies (80). No previously published studies on barriers to skilled care-seeking for childhood illnesses in the baseline survey region were identified. Studies examining antenatal and neonatal care-seeking and health outcomes in Iganga District suggest that key barriers include the distance to health facilities, cost of health care and the perception of poor quality of care at public health facilities (29, 30).

This study presents an exploratory analysis of the determinants of *skilled* care-seeking behavior for an ill child ages three and under. Innovative approaches are needed in both research and intervention monitoring and evaluation to decrease the annual rate of child deaths from preventable and treatable illnesses. Based on these results, we suggest that Safe Mothers, Safe Babies' interventions should be designed and implemented to address skilled care-seeking patterns in order to optimize health outcomes for children at risk of dying before the age of three. In order to design appropriate interventions to increase child survival between birth and age

three, further data collection and analysis are needed to assess skilled care seeking behaviors of not only mothers, but also other decision-makers in the household. Further research should focus on process evaluation of the tiered healthcare system with a specific focus on referrals for child illness to higher tiered health facilities.

Based on the finding that recognition of signs and symptoms of child illness were shown to be significantly associated with seeking of skilled care, interventions should continue to improve caregiver knowledge about recognizing these signs and symptoms and when skilled medical care is necessary. Moreover, future studies should focus on community awareness of verified health centers (public and private) versus those that are unauthorized "clinics" is necessary to inhibit inappropriate or unnecessary treatments for child illnesses by untrained practitioners. These solutions may enable rural eastern Uganda to overcome barriers to improved child health and reduce child mortality from preventable and treatable illnesses.

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APPENDICES

Appendix A: Safe Mothers, Safe Babies Maternal and Child Health Survey Trainer's Manual (pdf)

Maternal and Child Health Survey Trainer Manual

Produced by
Safe Mothers, Safe Babies

For information about Safe Mothers, Safe Babies, write to SAFE, 1160 Mayfield Drive, Decatur, Georgia 30033, U.S.A.; e-mail: info@safemotherssafebabies.org; Internet: http://www.safemotherssafebabies.org).

Recommended citation: Safe Mothers, Safe Babies. 2016. Maternal and Child Health Survey Trainer Manual. Atlanta, Georgia, U.S.A.: Safe Mothers, Safe Babies.

Contents

ABOUT US

Welcome and Introductions

READ ALOUD: "Welcome to the first day of Safe Mothers, Safe Babies' enumerator training! We are excited to have you here with us this week and look forward to working with you in the next few months as we complete the survey! We have a lot of material to go over this week but before we begin, I would like for us to go around the room and introduce ourselves. I'll begin…"

ACTIVITY: INTRODUCTIONS

Introduce yourself (the trainer) and then go around the room so that each participant can introduce themselves. Insert an ice breaker activity of your choosing here (see Appendix I), if time permits.

TRAINER'S NOTE

After introduction/ice breaker activity, bring the group back together to explain the purpose of the training by reading the following prompt:

READ ALOUD: Now that we've gotten to know each other a little better, let's discuss this week's team training. This training will consist of a combination of classroom training and practical experience. Before each training session, you should study this manual carefully along with the survey, writing down any questions you have. Ask questions at any time to avoid mistakes during actual surveys. Enumerators can learn a lot from each other by asking questions and talking about situations encountered in practice and actual survey situations. ***Please note:*** *You should study this manual independently (before and after class) and learn its contents since this will reduce the amount of time needed for training.*

TRAINER'S NOTE

Next, distribute Enumerator Training Packets to each team member. Go through each document to ensure that everyone has all training materials.

First, go over the training schedule (see Appendix A) with the group and answer any questions. This is a good time for housekeeping matters (bathroom breaks, lunch, cell phone reminders, etc.)

READ ALOUD: "Each of you has a packet with the following materials. We will briefly look through these documents today but will go more in-depth as the week progresses. As I go through the packet, please let me know if you are missing any of the documents. You will need to bring this packet with you each day of training."

- *Enumerator Training Schedule*
- *Enumerator Training Manual*
- *Enumerator Personnel Policies Acknowledgement Form*
- *Enumerator Memorandum of Understanding (MOU)*
- *Sample Timesheet and Compensation Verification Form*
- *Baseline Survey (English version)*
- *Baseline Survey (Lusoga version)*
- *Survey Timeline/Calendar*

"During the training, the survey sections, questions, and instructions will be discussed in detail. You will see and hear demonstration surveys conducted in front of the class as examples of the surveying process. You will practice reading the survey aloud to another person several times so that you may become comfortable with reading the questions aloud. You will also be asked to take part in role playing in which you practice by surveying another trainee. The training will also include field practice surveying in which you will actually survey eligible women."

UP NEXT: ACTIVITY – ESTABLISHING GROUND RULES

READ ALOUD: "Now that everyone is familiar with their training materials, we will now work together to establish group Ground Rules. These are the rules that we wish for our group to follow this week during our training and throughout the duration of the project. The rules should reflect the behaviors we want to demonstrate to ensure open dialogue and maximum participation. Our ground rules will be displayed for the remainder of the training. I will now ask for a volunteer to come up to the front of the room to write our ground rules for us on this large sheet of paper."

ACTIVITY: GROUND RULES

Materials needed: 1 sheet of large paper, markers, tape

Time needed: 10-15 minutes

Volunteers needed: All enumerators should participate however only 1 scribe is needed

Have group brainstorm ground rules for the entirety of the training. Enlist the help of a volunteer to act as "scribe". Tell group that these will be rules that they will follow throughout the training in order to show respect for one another. Once ground rules are complete and all group members agree to them, post them at the front of the training room (if possible). Recall the rules each morning before training beings, and refer back to ground rules throughout the duration of training as needed.

Example Ground Rules:

1) No cell phone use during training; step outside if you need to take/make a call

2) Show respect for all group members

3) Only one person speaks at a time

4) Time: What are the expectations regarding time (e.g. beginning on time each day, etc.)

5) Confidentiality: Some of the subjects in the sessions will involve stories or case

studies of mothers, children, and/or healthcare providers. Neither the trainers nor the enumerators should ever mention the subjects of these stories or case studies by name. What is discussed in the training should not be repeated outside the group.

UP NEXT: OVERVIEW OF SAFE and Maternal and Child Health

OVERVIEW OF SAFE

READ ALOUD: "Safe Mothers, Safe Babies (SAFE) is a nonprofit organization working in rural areas of _____ and _____ Districts to improve maternal and child health. SAFE works with rural communities to improve what is called the "Three Delays"—delays in making the decision to seek care, delays in physically accessing care, and delays in receiving care in a health facility—that collectively cause death and illness for mothers and their children in the first 1,000 days of life."[2]

TRAINER'S NOTE

Take time "introducing" the SAFE Team (listed below). Allow Program Director to speak about his experiences with SAFE and the SAFE Team. This may spur discussion about SAFE's mission, vision, and values (page 12).

OUR TEAM

Jaquie Cutts, MPH
Founding President & CEO

Jacquie is SAFE's Founding President and CEO. An honors graduate of both Vassar College (BA in Political Science) and Emory University Rollins School of Public Health (MPH in Global Health and Certificate in Maternal and Child Health), Jacquie's greatest passions are the sustainable improvement of maternal and child health in empowering ways that marry community participation with scientific evidence of what works. As a wife and mother of three great kids, maternal and child health are always on her mind. Jacquie is a social innovator and problem-solver, a fierce advocate for women's rights and health, and a dedicated mentor to aspiring public health leaders.

Stephanie Hackett, MPH, PA-C, MMSc
Vice President

Stephanie is SAFE's Vice President. Stephanie received her MPH in Global Health and Physician Assistant degrees from Emory University, and brings an extraordinary amount of knowledge and experience to SAFE, having worked in several countries on different continents on MCH projects. In daytime hours, Stephanie maintains her clinical practice as a Physician Assistant in pediatric HIV in Atlanta, GA.

Mukalu Mohamed, BA, MPHc
Program Director

Mukalu Mohamed (Medie) is the Safe Mothers, Safe Babies Program Director. He is responsible for managing and executing all in-country projects in consultation with SAFE officers, and oversees the international internship program in Uganda every year. Medie is one of the most passionate people we have ever met; he is dedicated to ensuring good maternal, child, and community health for the longterm future of his country. Medie graduated with a Bachelor of Arts in Social Work from St. Lawrence University in Uganda, and is currently pursuing his Master of Public Health in Maternal and Child Health Leadership through the Save the Mother's Program at Uganda Christian University.

Whitney Williams Skowronski, MPH
International Operations Director

Whitney is SAFE's International Operations Director. In this role, she helps plan and execute SAFE's international programs through managing our international staff and volunteers. Whitney holds a BA from Princeton's Woodrow Wilson School of Public and International Affairs and an MPH in Global Health form Emory University Rollins School of Public Health. Along with her extensive domestic and global experience in reproductive, maternal and child health, Whitney brings her intense passion for maternal health, knowledge of the field, and human resources management skills to the organization and our team!

Jamie Hill, MSA, CRPC
Chief Financial Officer

Jamie is SAFE's CFO. A passionate, experienced, and well-educated accountant holding both bachelor and master degrees in the field, Jamie brings organization and financial planning skills to SAFE. Also having led her local church organization's young women's program, Jamie is passionate about the empowerment of women and young girls. She is excited about using her organizational, business, and accounting skills to add to SAFE's long-term financial planning and sustainability plans.

Richard Cutts, MDc
Technical Director

Richard is SAFE's Technical Director, charging him with all things related to technology. This includes both domestic management of SAFE's photos, video, website, and social media sites, and with international programming related to the deployment of solar, information, and communication technologies. Richard is married to founder, Jacquie Cutts. Together, they have three children and live in Atlanta, Georgia, where Richard is a 3rd year medical school student at Emory University School of Medicine.

OUR PHILOSOPHY

MISSION:

Safe Mothers, Safe Babies' mission is to sustainably improve the health and empowerment of women and children before, during, and after childbirth. We seek the reduction of maternal and child mortality, and the more general improvement of health and well-being of women, girls, and children around the world, by facilitating long-term solutions to the diverse barriers to good health.

VISION:

We envision a world in which pregnancy and childbirth are safe experiences, and in which women, children, and families lead healthy and empowered lives.

VALUES:

At our core, we value:

- **Partnership:** We partner with people to ensure that maternal and child health is supported by the communities impacted by it, and improved in ways that they value and can maintain.
- **Respect:** We respect the people with whom we work, and their rights to be intimately involved with the development of their own health, well-being, and communities.
- **Dignity:** We hold the dignity of all people to be paramount in the consideration of all people at all stages of life, and we particularly aim to protect the rights and dignity of pregnant and post-partum women, adolescent girls, and young children, whose dignity is so often marginalized.
- **Teamwork:** We believe in our team, and we hold that the great work ahead of us can only be achieved by the dedication and effort of a group of talented, passionate, and committed people.

WHAT WE DO

SAFE currently works in 3 geographic areas in the East Central Region with projects in more than 90 villages and more than 20 health centers, serving over 100,000 direct beneficiaries every year. The interventions are adapted to the specific needs of target communities in that region, and include the following:

FIRST DELAY

Delay in recognizing problems or making decision to get care

First Delay Projects: forming community groups comprised of women and men to improve maternal and child health behavior through culturally sensitive platforms, such as songs, dramas, trainings, and home-to-home outreach.

SECOND DELAY

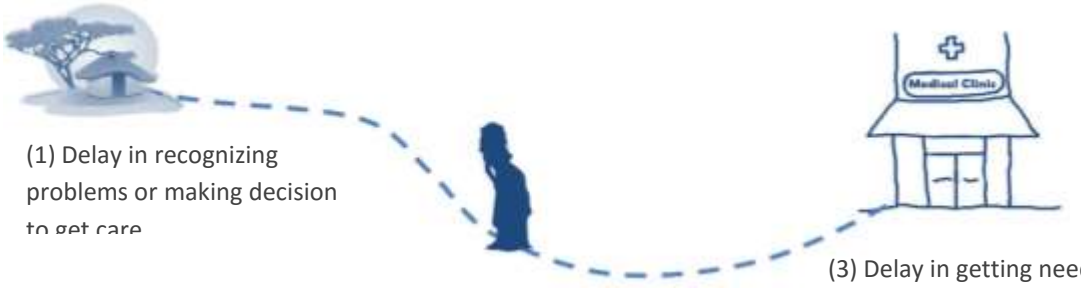
Delay in reaching the health facility

Second Delay Projects: utilizing family savings projects and motorcycle ambulances to improve financial and transportation access to appropriate health care facilities and medical supplies.

THIRD DELAY

Delay in getting appropriate care at health facility

Third Delay Projects: improving the quality of care in health facilities through the use of solar lighting, medical supplies, and continued medical training of healthcare providers.

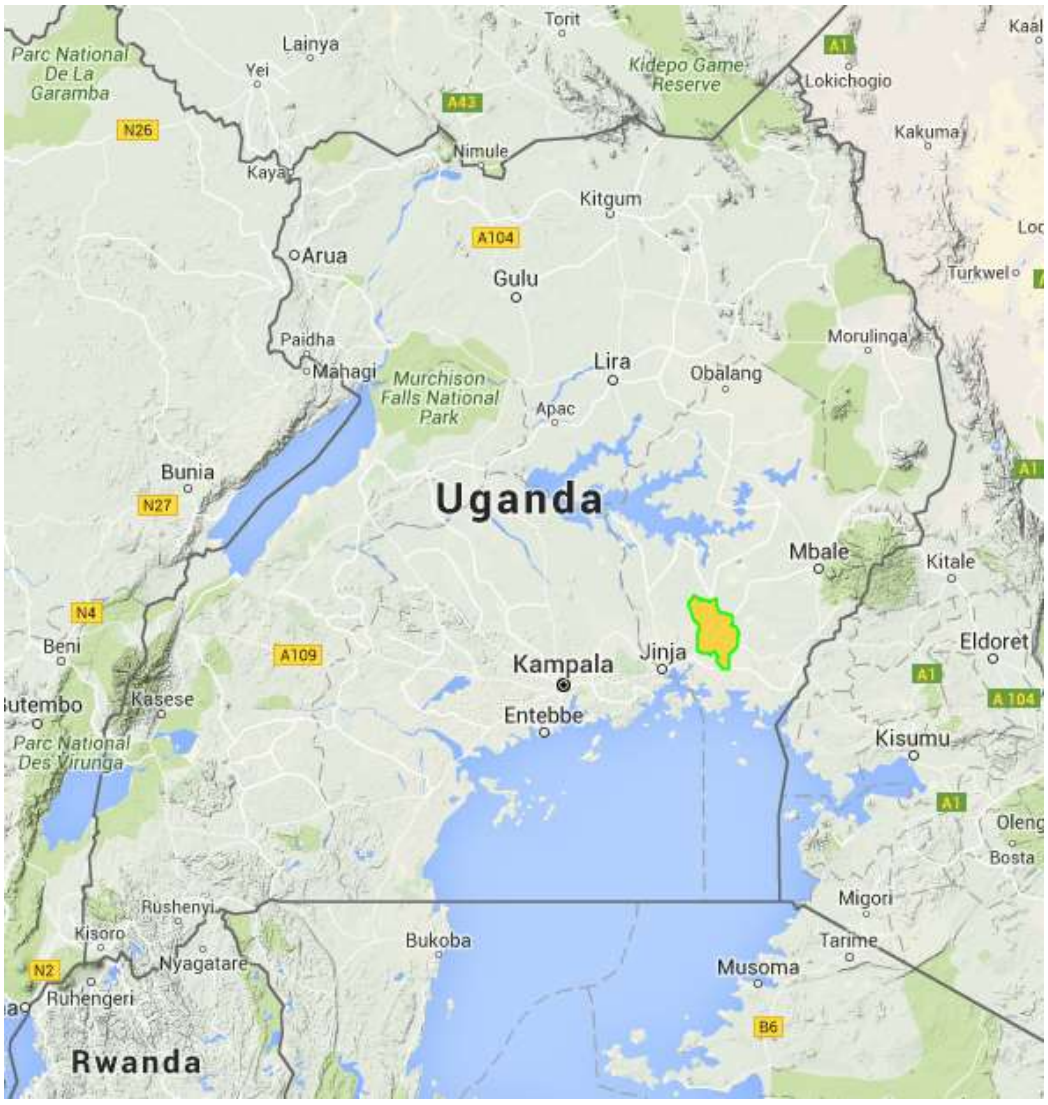


(1) Delay in recognizing problems or making decision to get care

(2) Delay in reaching health facility.

(3) Delay in getting needed care at health facility.

WHERE WE WORK



Safe Mothers, Safe Babies works in the following districts and sub-counties:

Iganga District

OVERVIEW OF MATERNAL & CHILD HEALTH

TRAINER'S NOTE

This is a vital component of the training. Several enumerators will be unfamiliar with the topics presented in the survey. An overview of the state of maternal and child health in the country and region is helpful in establishing overall enumerator knowledge and further encourages project buy-in. Use the Topic Lead-In activities (see below) to help generate discussion about maternal and child health.

READ ALOUD: "The survey that we will be conducting over the next several weeks, as all of you know, focuses on multiple aspects of maternal and child health. These topics are broad and complex so to help the team better understand the concepts and terms within the survey, we're going to spend the next hour learning about basic maternal and child health and, more specifically, the state of maternal and child health in Uganda.

You will have the chance to learn about each question in-depth during the Survey Translation module, the MCH Overview session will orient the team by providing context and highlighting the need for MCH research in the area.

TOPIC LEAD-IN ACTIVITIES

Materials needed: poster paper, markers, notebook paper, pens/pencils

Time required: Dependent upon topic

Purpose:

- Generate interest in the topic of the training
- Activate participants' prior knowledge of the subject
- Help the facilitator and participants to identify individual learning needs and goals
- Encourage the sharing of information and resources
- Surface resistance to discussion or learning

Topic Lead-In Activity #1: "I Want/Need to Know!" Questions"

Have enumerators state one or two questions that they hope will be answered during the session. Write the sentences on a large sheet of paper for all participants to see and refer back to the questions throughout the session.

Topic Lead-In Activity #2: Word Tree

Generate a list of words related to the topic. For example, if discussing maternal health, ask participants to give you words related to the topic. Participants may suggest: 'pregnancy,' childbirth,' 'antenatal care,' 'nutrition,' 'family planning,' etc. Write all suggestions on the board, clustering by theme where possible. You can use this opportunity to introduce essential terms, too.

Topic Lead-In Activity #3: Multiple Choice or True/False Quiz

Rather than giving participants a multiple choice or true/false quiz at the end of a session, try giving it at the beginning. As trainer, you can walk around and discretely scan participants' responses -- this can help you to identify where to focus your attention during the training. Check the answers with the group at the end of the session. This can also be used as a pre-test for enumerators if you are interested in how much knowledge was obtained within the beginning and end of the session or entire training.

Retrieved from: Sixth College UC San Diego - Icebreakers, Team Building Activities, and Energizers
http://www.ultimatecampresource.com/site/camp-activity/people-to-people.html

SUSTAINABLE DEVELOPMENT GOAL 3 (SDG 3):

Ensure healthy lives and promote well-being for all at all ages

3.1: By 2030, reduce the global maternal mortality ratio to less than 70 per 100,000 live births

3.2: By 2030, end preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under-5 mortality to at least as low as 25 per 1,000 live births

SURVEY OBJECTIVES

The Safe Mothers, Safe Babies (SAFE) Baseline Survey is a population-based survey designed to provide information on maternal and child health and child survival in Iganga District, Uganda. The survey will involve surveying a randomly selected group of women who are between 15 and 49 years of age and who have been pregnant in the three years prior to the survey. These respondents will be asked questions about their homes and family, pregnancies, births, the health of their children, and their thoughts and opinions about pregnancy and childbirth. We will also ask if we can take a measurement of each young child's upper arm. You will be trained how to take this simple measurement.

You are being trained as an enumerator for SAFE. After this training, which will take about two weeks to complete, you will be working in teams and going to different parts of the district to survey women in selected households. Depending on the areas assigned to your team and on how well you perform the tasks given to you, you may be working on the Safe Mothers, Safe Babies Baseline Survey for up to three months. The actual duration of your work with SAFE will depend on several factors that will become clearer over the next several weeks.

During the training course, you will listen to lectures about how to fill in the surveys correctly. You will also conduct practice surveys with other trainees and with strangers. You will be given practice surveys and scenarios so that you will feel comfortable in your role as an enumerator.

ENUMERATOR ROLE

The enumerator has a vital role in the survey because he/she collects information from respondents. Therefore, the success of this survey depends on the quality of each enumerator's work.

In general, the responsibilities of an enumerator include the following:

- Locating the structures and households in the area.
- Identifying all eligible respondents in each selected household
- Surveying all eligible respondents in the households using the survey instrument
- Checking completed surveys to be sure that all questions were asked and the responses recorded
- Returning to households to survey respondents who could not be surveyed during the initial visit

These tasks will be described in detail throughout this manual.

SUPERVISION OF ENUMERATORS

Training is a continuous process. Observation and supervision throughout the fieldwork are a part of the training and data collection process. Your team Supervisor and the Survey Manager will play very important roles in continuing your training and in ensuring the quality of the survey data. They will:

- Spot-check your surveys to be sure that you surveyed the correct households and the correct respondents
- Review each survey to be sure it is complete and to ensure consistent data-collection
- Observe some of your surveys to ensure that you are asking the questions in the manner in which it was taught, and recording the answers correctly
- Meet with you on a daily basis to discuss performance and give out future work assignment
- Help you resolve any problems that you might have with finding the assigned households, understanding the survey, or dealing with difficult respondents

TRAINER'S NOTE

Throughout the duration of the training, make observations of enumerator demeanors, leadership abilities, and those who command respect from the rest of their peers. Also, make mental note of those individuals who understand the survey, the data collection process, and who are having little to no difficulty with the data collection technology. These may be the persons you recruit as your Team Leads for the duration of the project.

Share with the team that Team Leads will be selected on the last day of training. Describe the Team Lead responsibilities and the qualities and traits that you and the Program Director desire for those chosen for these leadership roles.

BREAK

PROJECT **TIMELINE**

Weeks	1	2	3	4	5	6	7
Enumerator Interviews/Hiring							
Enumerator Training							
Pilot Survey							
Data Collection							
Data Cleaning							

DISCLAIMER:

Project timeline is subject to change per the discretion of Safe Mothers, Safe Babies administration based on, but not limited to, inclement weather, holidays, tablet issues, and enumerator performance reviews.

SAFE PERSONNEL POLICIES

In order to retain necessary flexibility in the administration of policies and procedures, Safe Mothers, Safe Babies reserves the right to change, revise, or eliminate any of the policies described in this manual, except for its policy of employment-at-will.

For the workload to be equally divided and the support equally shared, the following survey regulations have been established and will be strictly enforced:

A. Professionalism

Throughout the survey training and the fieldwork period, you are representing Safe Mothers, Safe Babies (SAFE). Your conduct must be professional and your behavior must be congenial in dealing with all people. We must always be aware of the fact that we are only able to do our work with the good will and cooperation of the people we survey. Therefore, any team member who is consistently overly aggressive, abrupt, or disrespectful to the people in the field may be dismissed from the survey team.

B. Teamwork

For the survey to succeed, each team must work closely together, sharing in the successes and difficulties and cooperating and supporting each other. We will attempt to make team assignments in a way that enhances the cooperation and goodwill of the team. However, any team member who, in the judgment of the Program Director and/or Survey Manager, creates a disruptive influence on the team may be asked to transfer to another team or may be dismissed from the survey.

C. Dress Code

In order to retain necessary flexibility in the administration of policies and procedures, Safe Mothers, Safe Babies reserves the right to change, revise, or eliminate any of the policies described in this manual, except for its policy of employment-at-will.

For the workload to be equally divided and the support equally shared, the following survey regulations have been established and will be strictly enforced:

D. Survey Quality

It is critical that the data gathered during the fieldwork be both accurate and valid. To control for inaccurate or invalid data, spot checks will be conducted. Enumerators may be dismissed at any time during the fieldwork if their performance is not considered adequate for the high quality this survey demands.

E. Data Confidentiality

ALL survey data are confidential. **Data should not be discussed with anyone other than members of your survey team. All such discussion may only take place during work hours, and may not be discussed after the survey ends.** Under no circumstances should confidential information be discussed or shared with anyone in any way. In keeping with this policy, it is also important that you never survey anyone you may know in the survey. If you identify a house that has people you know residing in it, you should communicate with your supervisor and ask that another enumerator be assigned that house. Persons breaking these rules, and therefore the confidence placed in them, will be dismissed.

F. Safety

It is the responsibility of each employee to conduct all tasks in a safe and efficient manner complying with all safety and health regulations and program standards, and with any special safety concerns for use in a particular area or with a specific respondent.

Each employee has the responsibility to identify and familiarize her/himself with the emergency plan for his/her working area.

Emergencies such as medical crises should be reported to your assigned Supervisor immediately.

It is the responsibility of the employee to submit a written report in hard copy and by email for each safety and health infraction that occurs by an employee or that the employee witnesses. This report must include the following details: date of event, individuals involved in the event and their respective parts in it, a description of what happened that includes the "five W's" (who, what, when, where, why), and a short description regarding what actions, if any, are being requested of SAFE administrators. The hard copy of the report should be given to your supervisor or manager; the email version should be emailed to the SAFE President—support@safemotherssafebabies.org. Failure to immediately report such an infraction may result in employee disciplinary action, including termination.

Health safety rules include the following: All enumerators should drink adequate water during survey administration to avoid dehydration; they should also eat at reasonable hours, take any prescribed medications for existing conditions as instructed by the prescribing health official, and communicate any health problem immediately.

Furthermore, management requires that every person in the organization assumes the responsibility of individual and organizational safety. Failure to follow safety and health guidelines or engaging in conduct that places the employee, respondent or company property at risk can lead to employee disciplinary action and/or termination.

G. Transportation

Vehicles and gasoline are provided for the survey for official use only. Any person using the vehicle for an unauthorized personal reason will be dismissed from the survey immediately. Transportation will be provided from SAFE's office in _____ (or at another agreed upon central meeting location) to the field and back. Enumerators will be responsible for getting them to the departure location on time each

day. If any enumerator anticipates being late, he/she should communicate the anticipated tardiness immediately.

H. Drug-Free Workplace

SAFE has a longstanding commitment to provide a safe and productive work environment. Alcohol and drug abuse pose a threat to the health and safety of employees. For these reasons, SAFE is committed to the elimination of drug and/or alcohol use and abuse in the field.

This policy outlines the practice and procedure designed to correct instances of identified alcohol and/or drug use in the workplace. This policy applies to all employees and all applicants for employment of SAFE.

Whenever employees are working, operating a company vehicle, present on company premises, or conducting related work off-site, they are prohibited from:

- Using, possessing, buying, selling, manufacturing or dispensing an illegal drug (to include possession of drug paraphernalia).
- Being under the influence of alcohol or an illegal drug as defined in this policy.

The presence of any detectable amount of any illegal drug or illegal controlled substance in an employee's body while performing company business or while in a company facility is prohibited.

SAFE will not allow any employee to perform their duties while taking prescribed drugs that are adversely affecting the employee's ability to safely and effectively perform their job duties. Employees taking a medication other than very simple painkillers must have a prescription for the medication. Even if the employee has a prescription, if the medication impairs the employee's performance at work, he/she will be asked to discontinue use or take time off (without pay) until the medication use can be ended in accordance with the employee's physician's instruction.

Should SAFE find any illegal drugs or drug paraphernalia, SAFE administration will turn it over to an appropriate law enforcement agency which may result in criminal prosecution of the offending employee.

I. Sexual Harassment

(Demographic and Health Surveys Program Enumerator Training Manual)[5]

Sexual harassment will not be tolerated during any Safe Mothers, Safe Babies-related activities. By sexual harassment, we mean any sexual advances, requests for sexual favors, and other sexual comments or actions that make the receiver feel uncomfortable, offended, or intimidated. Sexual harassment hurts work performance, and in some cases, an individual may feel that they must comply with the unwelcome advances or requests in order to keep their job. Sexual harassment can be

committed by a man towards a woman, by a woman towards a man, or between two individuals of the same gender.

To avoid any appearance of sexual harassment, individuals should be careful to avoid unnecessary physical contact and suggestive language and should maintain a professional work climate at all times.

Anyone who feels that he or she has been the target of sexual harassment or who has witnessed an apparent incident of harassment should immediately report the incident to his or her supervisor, or to the Program Director and/or Survey Manager. SAFE will investigate the claim and keep reports confidential to the extent possible, as required by law. If sexual harassment is confirmed, SAFE will take actions to prevent and correct harassing behavior. These actions could include changing workspace, reassigning enumerators or supervisors to different teams and other disciplinary actions, including immediate dismissal without compensation. Retaliation against individuals filing complaints of sexual harassment will also trigger disciplinary action and the involvement of law enforcement.

****Please note: The SAFE CEO/Project Director/Survey Manager may terminate the service of any enumerator who is not performing at the level necessary to produce ethical and high-quality community engagement, data collection, and project reporting.**

TRAINER'S NOTE

Direct everyone to find the Enumerator Personnel Policies Acknowledgement Form in their Enumerator Packets (See Appendix E). Read this form through and answer any questions. Allow enough time for each employee to read through the document on his/her own and then have each person sign and date the form. Take up the forms immediately after signing and put in personnel files.

Program Director will more than likely need to orally translate this form for the group.

THIS IS NOT THE CONTRACT/MOU. Employees will sign the contract/MOU after Training Day 1 with Program Director (Appendix C).

compensated for this day. The Program Director and Survey Manager will try to reschedule this missed day as the survey schedule permits. Work will resume the next day unless told otherwise.

K. Timesheet and Compensation Verification Form Overview

READ ALOUD: "Timesheets are vital for tracking employees' hours and will provide a record of an employee's absences, tardiness, and, if applicable, a log of when he/she did not turn in survey equipment (e.g. tablets, field notebooks, MUAC tapes, etc.). Each enumerator will have his/her own set of timesheets for the duration of the project. Every work day morning you will sign in BEFORE you leave to survey (signature or initials); you will also return each afternoon and sign out."

*"Your timesheet will be checked and, if there are no discrepancies, approved by the Program Director and/or Survey Manager at the end of each week. This record of your work hours is directly related to your salary; forms **must** be completed accurately each day."*

TRAINER'S NOTE

Direct enumerators to the sample timesheet and compensation verification form provided in their packets. Walk through the timesheet components and explain each required section. This is also a good time to reiterate the hours of operation/work day schedule.

Sample Time Sheet and Compensation Verification Form (Appendix D)

L. Absenteeism and Tardiness

Except for illnesses, any person who is absent from duty during any part of the training or any part of the fieldwork (whether it is a whole day or part of a day) without prior approval from the Program Director and/or Survey Manager may be dismissed from the survey. Program Director/Survey Manager must be contacted by the employee via phone when he/she will be absent or late.

M. Lunch Break

Employees will be given 30 minutes each day for lunch, usually inside the vehicle that provides transportation to and from the fieldwork site. The employee should bring adequate quantities of food and water for him/herself.

N. Per Diem Compensation

All enumerators will be compensated for their time and quality of deliverables, as stated in the Memorandum of Understanding (MOU). An outline of how and when each enumerator will be compensated should be provided in the MOU as well as explained verbally at this stage of the training.

Enumerators will be contracted on a monthly basis. Compensation will occur weekly dependent upon satisfactory completion of each week's tasks, including returning the assigned tablet. Any enumerator who has not returned his/her tablet will not receive any compensation until the unit has been received by the Survey Manager.

O. Social Media and Texting/Short Message Service (SMS) Policy

SAFE permits the use of texting/short message service (SMS) to communicate with colleagues and SAFE Administration pertaining to the project including project planning and changes to the fieldwork schedule. Texting/SMS communication between members of SAFE staff must remain professional at all times.

SAFE permits the incidental use of social media website for personal use however, this is a privilege and not a right. Social media use must neither be abused or overused and SAFE reserves the right to withdraw our permission at any time at our entire discretion.

Social media use must meet these requirements for personal use to continue:

- Use must be minimal and take place substantially outside of normal working hours
- Use must not interfere with the project goals, timelines, and/or other enumerator duties
- Use must comply with other SAFE policies in the Personnel Policies Agreement

Any member of staff who feels that they have been harassed or bullied, or are offended by material posted or uploaded or shared by a colleague onto a social media website or text messaging application should inform SAFE Program Director and/or Survey Manager.

Never disclose sensitive, confidential, private information related to Safe Mothers, Safe Babies, the project, and/or staff and administrators. If you are unsure whether the information you wish to share falls within one of these categories, you should discuss tis with SAFE Program Director and/or Survey Manager.

Do not upload, share, post, link, or forward any abusive, obscene, discriminatory, harassing, derogatory, or defamatory content.

Do not upload, share, post, link, or forward any content about the project unless you have SAFE Administration's consent.

P. Policy on Witchcraft and Spirit Possession

SAFE does not condone the use of witchcraft, hexes, spirit possession, shrines or the hiring of such services, whether paid or voluntary, in the workplace, including all fieldwork.

BREAK

CONDUCTING A SURVEY

READ ALOUD: "Practice makes perfect! The more you practice your surveying skills, the better you will become. In this section you will find a number of general guidelines on how to build rapport with a respondent and conduct a successful survey."

"Before you start to work in an area, your Supervisor will have informed the local leaders that you will be visiting selected households to survey them. You will also be given a letter and an identification badge that states that you are working with Safe Mothers, Safe Babies (SAFE)."

A. Building Rapport with the Respondent[5]

"The supervisor will assign an enumerator to make the first contact with each of the households selected for the survey. Any woman age 15- 49 years who has been pregnant in the past three years is a suitable respondent for the survey. If an eligible respondent agrees to participate, the enumerator will go on to complete a survey. *ALL respondents in a given household that are eligible to participate should be approached for participation; this means that if there are two women between 15 – 49 years old who have been pregnant in the past three years both women could be surveyed (if they agreed to participate).

As an enumerator, your first responsibility is to establish a good rapport with a respondent. At the beginning of a survey, you and the respondent are strangers to each other. The respondent's first impression of you will influence their willingness to cooperate with the survey. Be sure that your manner is friendly as you introduce yourself.

1. Make a good first impression.

When you arrive at the household, do your best to make the respondent feel at ease. With a few well-chosen words, you can put the respondent in the right frame of mind for the survey. Open the survey with a smile and greeting such as "good afternoon" and then proceed with your introduction.

2. Obtain respondent(s) consent to be surveyed.

You MUST obtain a respondent's informed consent for participation in the survey before you begin a survey. Special statements are included at the beginning of the survey. The statements explain the purpose of the survey. They assure a respondent that participation in the survey is completely voluntary

and that it is their right to refuse to answer any questions or stop the survey at any point. Be sure to read the informed consent statement exactly as it is written before asking a respondent to participate in a household or individual survey. Be certain that you read this statement in a relaxed way that does not pressure the respondent into participating in any way. Make sure that you give the respondent an opportunity to ask questions, and answer them. If the respondent has a question that you do not know how to answer, call your supervisor. Each respondent should understand the survey to their satisfaction, and agree to participate freely without any pressure from anyone else.

3. Always have a positive approach.

Never adopt an apologetic manner, and do not use words such as “Are you too busy?” Such questions invite refusal before you start. Rather, tell the respondent, “I would like to ask you a few questions” or “I would like to talk with you for a few moments.”

Never yawn during the interview, refuse a break when asked, use judgmental language, ask questions that are not in the survey, tell the participant not to cry, tell the participant not to feel the way she feels, be funny or sarcastic, sound irritated, act bored, or try to hurry the participant.

4. Assure confidentiality of responses.

If the respondent is hesitant about responding to the survey or asks what the data will be used for, explain that the information you collect will remain confidential, no individual names will be used for any purpose, and all information will be grouped together to understand maternal and child health at the regional level, and to convey that information in written reports and presentations.

As such, you should never mention other surveys or show completed surveys to the supervisor or other enumerators in front of a respondent or any other person.

5. Answer any questions from the respondent frankly.

Before agreeing to be surveyed, the respondent may ask you some questions about the survey or how he or she was selected to be surveyed. Be direct and pleasant when you answer.

The respondent may also be concerned about the length of the survey. If they ask, tell the respondents that the survey usually takes about 60-75 minutes. Indicate your willingness to return at another time if it is inconvenient for the respondent to answer questions then.

Respondents may ask questions or want to talk further about the topics you bring up during the survey, e.g., about specific health clinic visits. It is important not to interrupt the flow of the survey so tell them that you will be happy to answer their questions or to talk further after the survey. Make sure that you then provide the respondent this opportunity after the survey is over by saying something like, “I remember that you had some questions/wanted to talk about [THIS SUBJECT] further. I would be happy

to answer those questions or listen to your thoughts now." It is important that the respondent feels good about their experience with the survey.

6. Survey the respondent alone.

The presence of a third person during a survey could prevent you from getting frank, honest answers from a respondent. It is very important that the individual survey be conducted privately and that all questions be answered by the respondent herself, without other adults or older children present whenever possible.

If other people are present when you first make contact, explain to the respondent that some of the questions are private and ask to survey the person in the best place for talking alone. Sometimes asking for privacy will make others more curious, so they will want to listen; you will have to be creative. Establishing privacy from the beginning will allow the respondent to be more attentive to the survey questions.

If it is impossible to get privacy, you may have to carry out the survey with the other people present. However, in such circumstances, it is important that you remember that:

- If there is more than one eligible respondent in the household, you must not survey one person in the presence of the other person who will also complete the survey.
- Extra effort should be made to gain privacy if the other person is of the opposite sex, particularly the husband or wife.

In all cases where other individuals are present, try to separate yourself and the respondent from the others as much as possible. That being said, always be respectful and never refuse to interview someone if you cannot have complete privacy. This would probably cause suspicion and could create problems for you and the survey team in future surveys, and SAFE as an organization."

B. Tips for Conducting the Survey[5]

1. Be neutral throughout the survey.

"Most people are polite and will tend to give answers that they think you want to hear. It is therefore very important that you remain absolutely neutral as you ask the questions. Never, either by the expression on your face or by the tone of your voice, allow the respondent to think that he/she has given the "right" or "wrong" answer to the question. Never appear to approve or disapprove of any of the respondent's replies.

The questions are all carefully worded to be neutral. They do not suggest that one answer is more likely or preferable to another answer. If you fail to read the complete question, you may destroy that neutrality. For example, the following is a question in a Demographic and Health Surveillance survey:

"Would you like to have another child or would you prefer not to have any more children?" It is a neutral question. However, if you only ask the first part—"would you like to have another child?"—you are more likely to get a "YES" answer. This is what we call a "leading question." That is why it is important to read the whole question as it is written, and not to add or subtract any part of the question.

If the respondent gives an ambiguous answer, try to probe in a neutral way, asking questions such as the following:

"I did not quite hear you; could you please tell me again?"
"There is no hurry. Take a moment to think about it."

2. Never suggest answers to the respondent.

If a respondent's answer is not relevant to a question, do not prompt her by saying something like "I suppose you mean that. . . Is that right?" In many cases, she will agree with your interpretation of her answer, even when that is not what she meant. Rather, you should probe in such a manner that the respondent herself comes up with the relevant answer. You should read out the list of answers to the respondent **ONLY** if the survey prompts you to do so. If you need to probe for a more clear answer, use neutral probes, which will often be given to you in the hints below the question. If you need a neutral probe and one is not given to you, carefully consider what questions you can use to help the respondent better understand the question in a neutral, non-leading manner. We will practice this together later during training. If you experience this during a survey, make sure that you write down the question number after the survey so that you can give feedback to the survey team regarding the question; how you handled the situation; and brainstorm ways that you and/or other enumerators could address the same question in future surveys.

3. Do not change the wording or sequence of questions.

The wording of the questions and their sequence in the survey must be maintained. If the respondent has not understood the question, you should repeat the question slowly and clearly. If there is still a problem, you may use probes or reword the question, being careful not to alter the meaning of the original question. Remember to be neutral and non-leading, as discussed above. Provide only the minimum information required to get an appropriate response.

4. Handle hesitant respondents tactfully.

There will be situations where the respondent simply says, "I don't know," gives an irrelevant answer, acts very bored or detached, or contradicts something they have already said. In these cases, you must try to re-interest them in the conversation. For example, if you sense that they are shy or afraid, try to remove their shyness or fear before asking the next question. Spend a few moments talking about things unrelated to the survey (for example, their town or village, the weather, their daily activities, etc.).

If the respondent is giving irrelevant or elaborate answers, do not stop them abruptly or rudely, but listen to what they have to say. Then try to steer them gently back to the original question. A good atmosphere must be maintained throughout the survey. The best atmosphere for a survey is one in which the respondent sees the enumerator as a friendly, sympathetic, and responsive person who does not intimidate them and to whom they can say anything without feeling shy or embarrassed. As indicated earlier, a major problem in gaining the respondent's confidence may be one of privacy. This problem can be prevented if you are able to obtain a private area in which to conduct the survey.

If the respondent is reluctant or unwilling to answer a question, explain once again that the same question is being asked of women all over the region and that the answers will all be merged together. If the respondent is still reluctant, simply mark DECLINES TO ANSWER next to the question and proceed as if nothing had happened. Remember, the respondent **cannot be forced** to give an answer, and you should never make anyone feel compelled to answer if they don't want to answer.

5. Do not form expectations.

You must not form expectations of the ability and knowledge of the respondent. For example, do not assume women from rural areas are less educated or illiterate or do not know about the survey content. Forming expectations will prevent you from administering the survey in a friendly and approachable way, and it will interfere with the results of the survey. Conduct each survey with no expectations or judgment of the respondent to whom you are speaking.

6. Do not hurry the survey.

Ask the questions slowly to ensure the respondent understands what is being asked. After you have asked a question, pause and give the respondent time to think. If the respondent feels hurried or is not allowed to formulate their own opinion, they may respond with "I don't know" or give an inaccurate answer. If you feel the respondent is answering without thinking just to speed up the survey, say to the respondent, 'There is no hurry. Your opinion is very important, so consider your answers carefully.' "

UP NEXT: CONDUCTING A SURVEY ROLE PLAYING

ACTIVITY: ROLE PLAYS

Materials needed: Scenario role playing scripts

Time required: 1 hour to 1 hour and 30 minutes

Encourage volunteers to join you in front of the group to participate in the following role plays. The trainer should play the role of enumerator, the volunteer acts as the respondent. Sample role playing scenarios should be developed for the survey based on the following demonstrations:

- Rushing the respondent
- Coercing the respondent to participate
- Suggesting answers
- Changing survey questions
- When a respondent becomes upset by a survey question

After each scenario, have participants describe what went wrong in each role play. THEN demonstrate the proper enumerator response for each scenario.

BREAK

C. Language of the Survey

The survey has been translated into English and Lusoga. One of the first things you will do when you approach a household to do a survey is to establish in which language the eligible respondent would prefer to take the survey.

We will be practicing surveys in English during training, and reviewing all the translations in Lusoga. If you notice—either during training or during the actual administration of the survey—that a question is hard to understand in Lusoga, that the meaning in Lusoga is different than it is in English, or that it is getting unexpected responses (which might be related to how it is worded in Lusoga), it is important that you communicate with the rest of the team about these questions. For the results of the survey to be valid, the questions must be asked of all respondents in the same way. If a particular question needs to be changed, the change should be made to ALL surveys.

Please remember that if you need to elaborate on a question, clarify a question, or probe for more information, it is very important not to change the meaning of the question when you rephrase it or interpret it into Lusoga. Recall our prior discussion about ensuring that probes and questions remain neutral and non-leading.

If you come across an individual whose primary language is something other than Lusoga, call your supervisor. Do NOT proceed with the survey using either yourself or someone else as a translator, unless you are told to do so by your supervisor. Additionally, you should NEVER use a husband, co-wife, or child as a translator. This could influence the responses. If a husband said something like, “It’s okay, I will translate for you,” you should respond in a non-offensive and professional way with a statement like, “Thank you for offering to help, but since the survey is only translated into Lusoga, my supervisor asked me to call if I encounter someone who speaks a different language. I’ll just give him/her a quick call.”

INFORMED CONSENT

A. Informed Consent: What is it?

Consent is the process of informing the participant about a study and allowing him or her to think about it and come to a voluntary decision. Consents can be in oral (spoken, without signature) or documented in a signed format. For the purpose of our survey, we will be obtaining oral/spoken consent.

It is important to read the informed consent exactly as it is written on the survey, to ensure that the participant knows what we will be doing and asking so they may decide to participate or not

B. Coercion and/or the Appearance of Coercion

What is coercion? Coercion is persuading by intimidation, authority, or force or threatening someone into participation.

NEVER coerce a respondent to participate in the survey. It is important to prevent coercion for ethical reasons, as well as for collecting good data.

We only want those who would like to participate of their own free will to be surveyed. If you feel like the participant is being coerced by you or someone else to participate, or at any time during the survey if you feel they are too upset, **stop** the survey.

C. Enumerator Gender and Possible Impacts on Respondents

Be aware that your gender may or may not have a tendency to impact a respondent's answers. Particularly true for male enumerators talking with female respondents, you must be especially aware of how your gender within the region's cultural context will be perceived. Remember that we truly want to hear the answers of the respondents, not the answers that she thinks you, as the enumerator, want to hear. If this is likely to be an issue, be extra vigilant not to make negative comments or use leading probes, questions, or statements. Also be careful to create a positive and non-coercive environment that really allows the respondent to decide if she wants to participate, both at the beginning of the survey and for individual questions. The respondent should never feel coerced into participating for any reason.

UP NEXT: INFORMED CONSENT ACTIVITY

D. Components of the Informed Consent Form

The informed consent form is required for all surveys. It is to be read aloud by the enumerator each time he/she begins a new survey. The entire form must be read, word for word. The form includes the following:

- An introduction of enumerator (your name) and the purpose of the survey: Sentence 1,5
- Eligibility requirements: Sentence 2,3
- States that participation is voluntary: Sentence 12
- Duration of the survey: Sentence 6,9
- What topics the survey questions cover: Sentence 4, 7, 8
- Tells the participant that she has the ability to take breaks and end the survey if she desires: Sentence 11
- Confidentiality – the information shared will not be shared with anyone not involved in the project or organization: Sentence 14, 15, 16, 17
- Assures the participant that all information is anonymous (her name will not be on the survey): Sentence 14
- Explains that there are no right or wrong answers: Sentence 10
- Allows the participant to ask questions about the survey: Sentence 18, 19
- Informs participant that some questions may elicit emotional discomfort but that a counselor is available to speak with her at her request: Sentence 13
- Asks participant if she is willing to participate in the survey: Sentence 20

READ ALOUD: "Next we will look at an example of the informed consent from our survey. Please read through and identify all the important components that we just discussed."

ACTIVITY: INFORMED CONSENT

Materials needed: Sample informed consent form (next page)

Time required: 1 hour

Read through the informed consent as a group. Then, ask participants to identify the important components using the list above. The trainer will need to read each item from the list above and ask participants which sentences meet the informed consent requirements.

Participants can use the superscripted numbers at the end of each sentence as their answer choices. An answer key is provided in Appendix G.

INTRODUCTION AND INFORMED CONSENT

INTERVIEWER READ THE FOLLOWING TO RESPONDENT:

Hello, my name is _____ and I am working with a nonprofit organization called Safe Mothers, Safe Babies[1].

INSTRUCTIONS TO INTERVIEWER: CIRCLE PARTICIPANT'S RESPONSES.

Z1: Are you between the ages of 15 and 49?[2] YES.....1 NO.....**2** **END** →

Z2: Have you been pregnant in the past 3 years or are you currently pregnant?[3] YES.....1 NO.....**2** **END** →

Thank you. We are conducting a survey about maternal and child health funded by the Whole New World Foundation.[4] The information we collect will help us plan programs to improve the health of mothers and children in this region.[5] Your household was selected for the survey. Most surveys will take 60-75 minutes.[6] If you participate, you will be asked questions about your home and family, pregnancies, births, the health of your children, and your opinions.[7] We will also ask to measure each young child's upper arm.[8] It will not hurt and will only take 1-2 minutes.[9] There are no right or wrong answers.[10] You can ask me to skip any question, pause the interview, or end the interview.[11] You do not have to participate, but we hope you will agree because your views and experiences are important.[12]

Because we are asking about your family's health, you could experience emotional discomfort; we do not foresee any other risks. We also have a counselor you can talk with after the interview if it would help you.[13]

Your privacy is very important to us. Your name will not be recorded and your answers will be kept private following all Ugandan and U.S. laws.[14] Your answers will not be shared with anyone outside of our research team, and monitoring boards at The AIDS Support Organization (TASO) Uganda and Emory University whose jobs are to monitor the ethical conduct of research.[15] The only other time we will share your information is if we are required by law.[16] If information such as locations and dates are removed from your responses, then the remaining information will not be subject to the Privacy Rules and could be shared with other people, but could not be linked back to you.[17]

If you have any questions about this research, or about your rights and welfare, you may contact the following individuals:[18]

- Questions about research: Mr. Mukalu Mohamed, Co-investigator: (+256) (0) 702 853 830
- Questions about participant rights and welfare: Mr. Bakanda Celestin, Chair of the Research Ethics Committee: (+256) (0) 752774281

INSTRUCTIONS TO INTERVIEWER: CIRCLE PARTICIPANT'S RESPONSES.

Z3: Do you have any questions about the interview?[19] YES.....1 NO.....2

Z4: Are you willing to participate in the interview?[20] YES.....**1** NO.....**2** **END** →

START ↓

READ ALOUD: "The survey will be conducted on tablets. Skip patterns are built into the survey and will jump to the next appropriate question when you enter in a response."

E. Ongoing Consent

Consent is not obtained only once at the beginning of the survey; it must be maintained throughout the entirety of the survey. If a respondent does not want to answer a question, she doesn't have to. Just as it is essential to never coerce a respondent to participate in the survey at the beginning, it is also essential to ensure that a respondent is not coerced to answer particular questions.

This is likely to be particularly true for questions that may be a source of discomfort for respondents, namely questions about difficult pregnancies, stillbirths and/or child deaths. If a respondent doesn't want to answer a question, you MUST, without any judgment, move on with a statement like, "That's okay. I'll move to the next question." In this instance, mark "DECLINES TO ANSWER."

It is also possible that the respondent could become very upset or overly hesitant. In these instances, you will need to use your judgment to ensure that the respondent really wants to answer that question. Some people may truly want to answer the question, but might need a moment to calm down before doing so. Others may need to skip that question or stop the survey, but may not feel comfortable saying that because they want to please you. As such, if you feel that a respondent is upset or hesitant, you should say something like, "It's okay to take a moment." Then, after the respondent has calmed down, you can assess whether the respondent really seems to want to answer the question or not.

BREAK

UP NEXT: FIELDWORK PROCEDURES

FIELDWORK PROCEDURES

Fieldwork for the survey will proceed according to a timetable, and the survey will be successful only if each member of the surveying team understands and follows correct field procedures. The following sections review these procedures and describe the proper procedures for receiving work assignments and keeping track of survey materials.

After signing in each morning, your Supervisor will brief you on your day's work and explain how to locate the households assigned to you. When you receive your work assignment, ask any questions you might have. Remember that your Supervisor will not always be available to answer questions when the work begins.

A. Supplies and Documents Needed for Fieldwork

Before starting fieldwork each morning, verify that you have everything you need for the day's work. Some necessary supplies include:

- Tablet with your assigned ID number
- A few paper surveys (in case of tablet malfunction)
- Enumerator's Manual
- Survey Protocol and Codebook
- Blue ink pens
- MUAC tape measure
- Washable marker
- SAFE-issued backpack to carry all materials
- Your identification badge

***During fieldwork, please keep your tablets in your backpacks when not in use**. These tablets are essential for our survey collection and, as such, it is best practice to keep them safe from damage and/or being stolen. Each tablet comes with a protective case. Please keep your tablet in its case and in your backpack when it is not being used.

B. Keeping surveys confidential

You are responsible for seeing that the surveys are kept confidential. Do not share the results with other enumerators. **You should never survey a household in which you know one or more of the members, even if they are only casual acquaintances.** If you are assigned to a household in which you know a person even if that person is not eligible for survey, you should notify your supervisor so he can assign that household to another enumerator. You should not attempt to see the completed survey for that household nor discuss the survey results with your colleagues.

C. Contacting Households and Eligible Respondents

1. Respondent Eligibility

To be "eligible" means to "qualify" for something. An eligible respondent is someone who is qualified to be included in our survey. You will use survey to identify who is eligible to be surveyed.

All women age 15-49 who have been pregnant in the past three years or who are currently pregnant are considered eligible.

In certain cases, you may find it difficult to decide whether or not a respondent is eligible because she may not know her exact age. Ask the respondent to make the best approximation possible.

In some households, there will be no eligible respondents (i.e., there will be no usual household members eligible age). For these households, you will not have any survey data, but you will still mark the survey as complete and complete the eligibility section, as we want to assess the number of households that had an eligible participant.

After an eligible women has been identified, you will use the survey to survey the women you are assigned. The survey collects information on the following topics:

- Home and family
- Pregnancies, births, the health of their children
- Respondent thoughts and opinions about pregnancy and childbirth
- We will also ask if we can take a measurement of each young children's upper arm
- Some respondents who have had a stillbirth or child age 2 or under who died in the past 12 months will also be asked about the pregnancies and births of those children, and events leading up to that death

2. Locating sample households

A structure is a freestanding building, for a residential or commercial purpose. It may have one or more rooms in which people live; it may be an apartment building, a house, or a thatched hut, for instance.

Within a structure, there may be one or more dwelling (or housing) units. A *dwelling unit* is a room or group of rooms occupied by one or more households. It may be distinguished from the next dwelling unit by a separate entrance. For instance, there would be one dwelling unit in a thatched hut, but there may be 50 dwelling units in an apartment building or five dwelling units in a compound.

Within a dwelling unit, there may be one or more households. By definition, a *household* consists of a person or group of persons, related or unrelated, who live together in the same dwelling unit, who acknowledge one adult male or female as the head of household, who share the same living arrangements, and are considered as one unit. In some cases one may find a group of people living

together in the same house, but each person has separate eating arrangements; they should be counted as separate one-person households. Collective living arrangements such as hostels, army camps, boarding schools, or prisons are not considered as households in the SAFE baseline survey.

3. Problems in Contacting a Household

In some cases you will have problems locating members of the household that was selected. Here are two common problems that enumerators experience where trying to contact a household:

a) No one is home and neighbors tell you the family has gone to work in the fields or gone to the market, etc. Enter "PROBABLY WILL RETURN TODAY" to the question "INTERVIEWER: DOES IT SEEM LIKE THE RESPONDENT WILL COME BACK TODAY, IN THE NEXT 1 WEEK, OR IN MORE THAN 1 WEEK?" and return to the household at a time when the family will be back on the same day. Make sure that you call your supervisor and ask him/her to mark the location of the house, so that you will know to which house you should return later.

b) The house is all closed up and the neighbors say the people are on the farm (or away visiting, etc.) and will be back in the next 1 week. The house should be revisited at least two more times on different days to try and make contact with the household. To do this, mark "YES" to the question, "INTERVIEWER: DOES THE HOUSE LOOK INHABITED?" and "PROBABLY WILL RETURN IN NEXT 1 WEEK" to the question, "INTERVIEWER: DOES IT SEEM LIKE THE RESPONDENT WILL COME BACK TODAY, IN THE NEXT 1 WEEK, OR IN MORE THAN 1 WEEK?" Then, ask for your supervisor to record the location of the house so that it can be re-visited on a future day.

c) The house is all closed up and the neighbors say the people are away and will not be back for some time (if at all). In this case, mark "PROBABLY WILL RETURN IN MORE THAT 1 WEEK" and go to the next house. Given time and resource constraints, we will not return to selected households if the household members are likely to be gone more than one week.

Discuss with your supervisor any problems you have in locating the households that you are assigned to survey. Remember that the usefulness of the sample in representing the entire area depends on the enumerators locating and visiting all the households they are assigned, whenever possible.

4. Identifying Eligible Respondents

As discussed previously, our eligibility criteria are: **All women age 15-49 who have been pregnant in the past three years or who are currently pregnant are considered eligible.**

In some households, there will be no eligible respondents. For these households, you will not have any survey data, but you will still mark the survey as complete after completing the eligibility section, as we

want to assess the number of households that had an eligible participant. In this case, thank the household member with whom you spoke and proceed to the next household.

In some households, there will be more than one eligible respondent. For these households, you will ask each eligible respondent if she is interested in taking the survey. If any or all of these respondents agree to participate, then you will survey them separately and away from each other. This is to ensure that each respondent has complete privacy and that a respondent's answers are not influenced by the previous respondent's answers or her presence next to other respondents.

5. Problems in Obtaining Individual Surveys

You may experience the following types of problems in obtaining a survey with an eligible respondent:

a) Eligible respondent not available. If the eligible respondent is not at home when you visit, mark "PROBABLY WILL RETURN TODAY" to the question, "INTERVIEWER: DOES IT SEEM LIKE A POTENTIALLY ELIGIBLE RESPONDENT WILL COME BACK TODAY, IN THE NEXT 1 WEEK, OR IN MORE THAN 1 WEEK?" Then, ask your supervisor to record the location of the household for return later the same day or the following day. Try to make each visit at a different time of day than the original.

b) Survey not completed. A respondent may be called away during the survey or they may not want to answer all the questions at the time you visit them. If a survey is incomplete for any reason, you should arrange an appointment to see the respondent again as soon as possible to obtain the missing information. At the end of the survey, mark "NO" to the question "INTERVIEWER: IS THIS SURVEY COMPLETE?"

6. Making Callbacks

Because each household has been carefully selected, you must make every effort to conduct surveys with the individuals who are identified as eligible in that household. Sometimes a household member will not be available at the time you first visit. You need to make at least 2 visits at different times of the day when trying to obtain an individual survey to maximize the possibility of successfully completing the individual survey. These instances of re-visiting a selected household are called "Callbacks."

At the beginning of each day, you should recall yesterday's surveys to see if you made any appointments for revisiting a household or eligible respondent. If no appointments were made, make your callbacks to a respondent at a different time of day than the earlier visits; for example, if the initial visits were made in the early afternoon, you should try to arrange your schedule so you make a call back in the morning or late afternoon. Scheduling callbacks at different times is important in reducing the rate of non-response (i.e., the number of cases in which you fail to contact a household or complete an individual survey).

D. Returning Survey Materials

At the end of each workday, you will return to the SAFE office. You will need to complete the following tasks when you arrive at the office:

- Sign out on your timesheet (initials and time)
- Turn in your tablet, backpack, and other survey materials to the Survey Manager
- Ask any questions about your fieldwork to the Program Director or the Survey Manager

BREAK

GENERAL SURVEY PROCEDURES

To collect the information needed by SAFE, you must understand how to ask each question, what information the question is attempting to collect, and how to handle problems that might arise during the survey. You must also know how to correctly record the answers the respondent gives and how to follow special instructions in the survey. This part of the training manual is designed to familiarize you with the survey and the procedures discussed in this paragraph.

A. Asking Questions

It is very important that you ask each question exactly as it is written in the survey. When you are asking a question, speak slowly and clearly so that the respondent will have no difficulty hearing or understanding the question. At times you may need to repeat the question to be sure the respondent understands it. In those cases, do not change the wording of the question but repeat it exactly as it is written.

If, after you have repeated a question, the respondent still does not understand it, you may have to restate the question. Be very careful when you change the wording, however, that you do not alter the meaning of the original question. Also note the number of the question that you needed to clarify so that we can discuss as a team whether or not the question should be changed for all surveys.

In some cases, you may have to ask additional questions to obtain a complete answer from a respondent (we call this 'probing'). If you do this, you must be careful that your probes are "neutral" and that they do not suggest an answer to the respondent. Probing requires both tact and skill, and it will be one of the most challenging aspects of your work as a survey enumerator. We will practice this later during the training.

B. Skip Patterns

The paper version of the survey has "skip patterns." These skip patterns tell you which question to go to next, following a specific answer to a prior question. Skip patterns are shown to you using arrows from the answer choice into the "SKIP" column, in which there will be a letter-number combination that indicates the question to which you should skip. We will look at this in greater detail when we practice with the paper version of the survey shortly.

UP NEXT: SURVEY TRANSLATION

C. Understanding the Survey Questions

READ ALOUD: "At this time, we are going to read through the survey together as a group. I will lead us through each survey module. Looking at the paper surveys that are in your training packets, we want to ensure that the questions in Lusoga have the same meaning as they do in English. Please let me know if you think something isn't quite right."

"We will also look at each question and its corresponding answer choices to see if all appropriate answer choices are present. Please let me know if you think an answer choice is missing or could be improved.

I will be taking notes throughout this session so that I don't forget any of your valuable feedback and opinions."

ACTIVITY: SURVEY TRANSLATION

Materials needed: Paper-based surveys OR projector with computer connection capabilities to project electronic version of the survey on a blank wall, Survey Translation Log, pencil

Time required: 1-2 days (depends on length of survey)

Read through the entire survey as a group. Trainer will explain each module and facilitate group discussion of each survey question.

Enumerators will more than likely suggest edits throughout this process. Trainer will take notes about any recommended changes. All suggested changes should be discussed with Program Director and SAFE President/CEO. Changes should be made following this discussion. See Appendix S for Survey Translation Log.

BREAK

UP NEXT: SURVEY READ THROUGH (GROUP)

READ ALOUD: "Next, we will practice the survey as a group. A volunteer will role play as an eligible participant. When she answers a question, everyone should mark her answer on his/her paper survey. We will take turns asking the survey questions until the survey is complete."

ACTIVITY: READING THROUGH THE SURVEY (GROUP)

Materials needed: Paper-based surveys for all enumerators, Survey Translation Log, pencil

Time required: 2 hours (depends on length of survey)

Read through the entire paper survey as a group. Trainer will ask a volunteer (SAFE staff) to role play as an eligible respondent. Enumerators will take turns reading questions to the volunteer. When the volunteer gives an answer, all enumerators will mark the answer on the paper survey.

This will be time consuming!

BREAK

UP NEXT: PRACTICE SURVEY WITH ROLE PLAYS (PAIRS)

READ ALOUD: "Now we will practice the survey in pairs. One person will role play as an eligible participant, the other person will write in his/her answers. Then, you will switch roles. I will walk around and listen to each pair practice the survey. If you have any questions or concerns, please feel free to ask me."

ACTIVITY: PRACTICE SURVEY WITH ROLE PLAY (PAIRS)

Materials needed: Paper-based surveys for each enumerator, Survey Translation Log, pencils, survey scenarios

Time required: 2 hours (depends on length of survey)

Trainer will put participants in pairs. One person in each pair will role play as an eligible respondent. The other person will fill in the paper-based survey. Then, the pairs will switch roles and practice the survey again. Trainer and other SAFE staff should circulate from group to group to provide feedback and answer any questions at this time.

BREAK

UP NEXT: MUAC PROCEDURE

MEASURING MID-UPPER ARM CIRCUMFERENCES (MUAC)

Section H of the survey asks you to measure the mid-upper arm circumference of each child's arm who is between the ages of 6 months and 2 years. We will now learn how to do this.

Figure 1. Finding the mid-point [4]

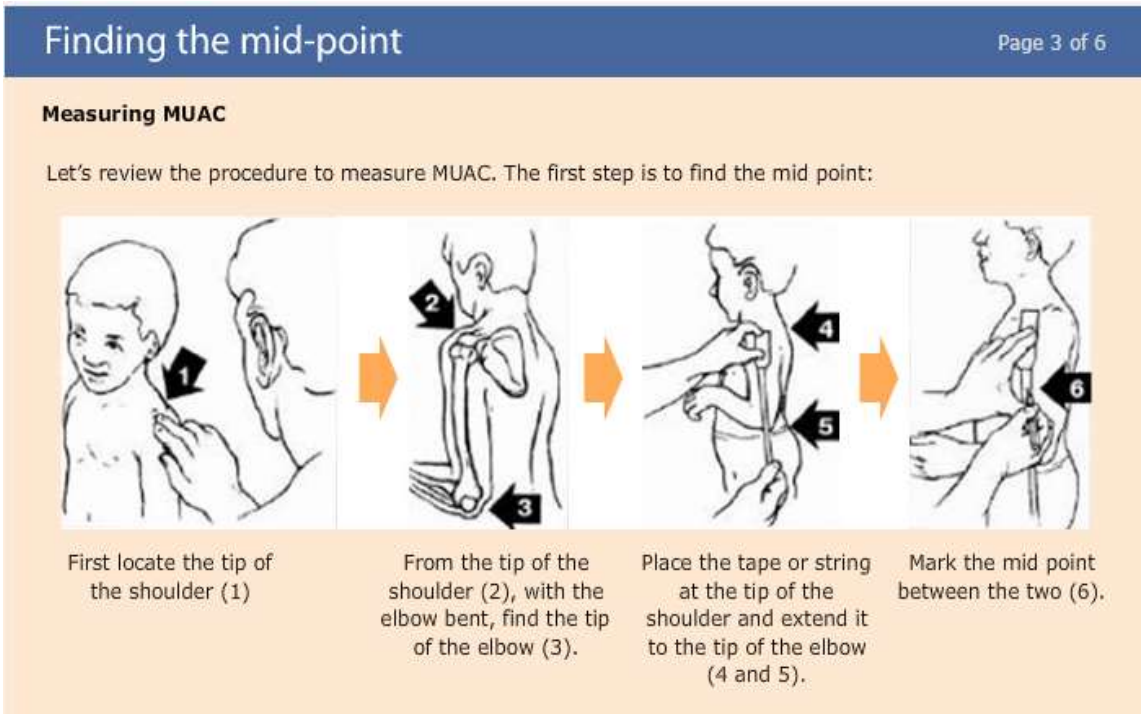


Figure 2: Taking the measurement[4]

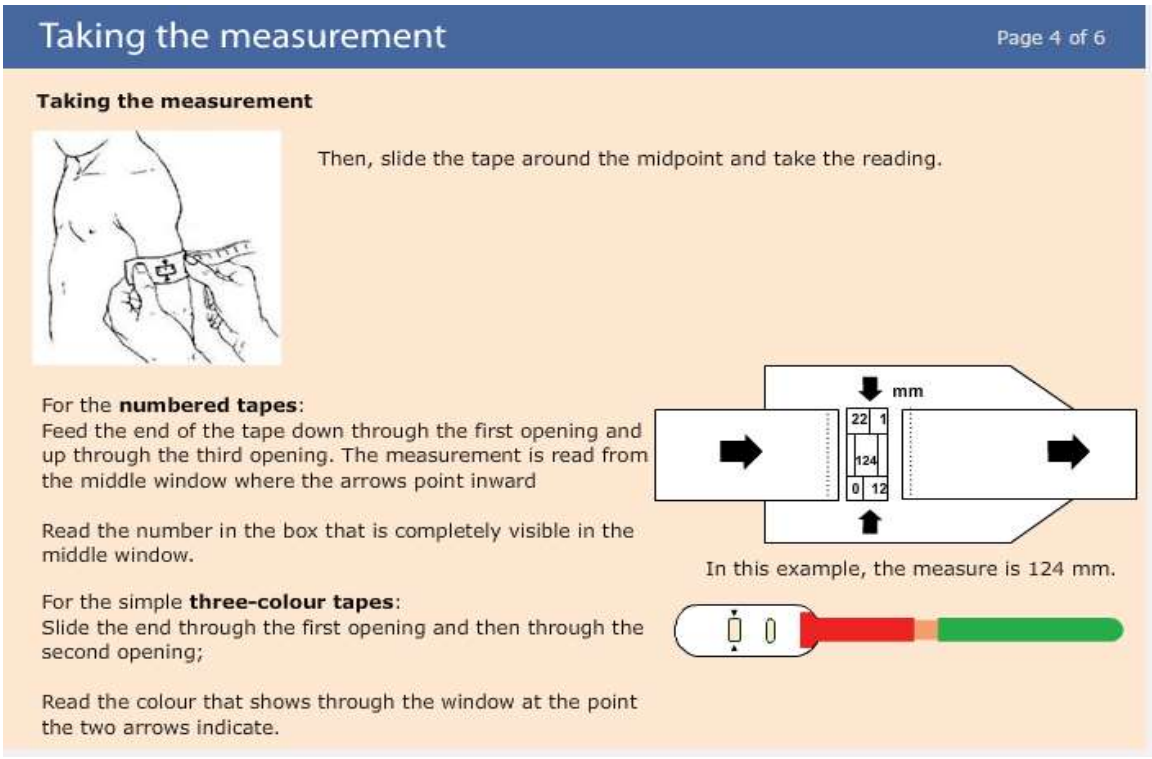
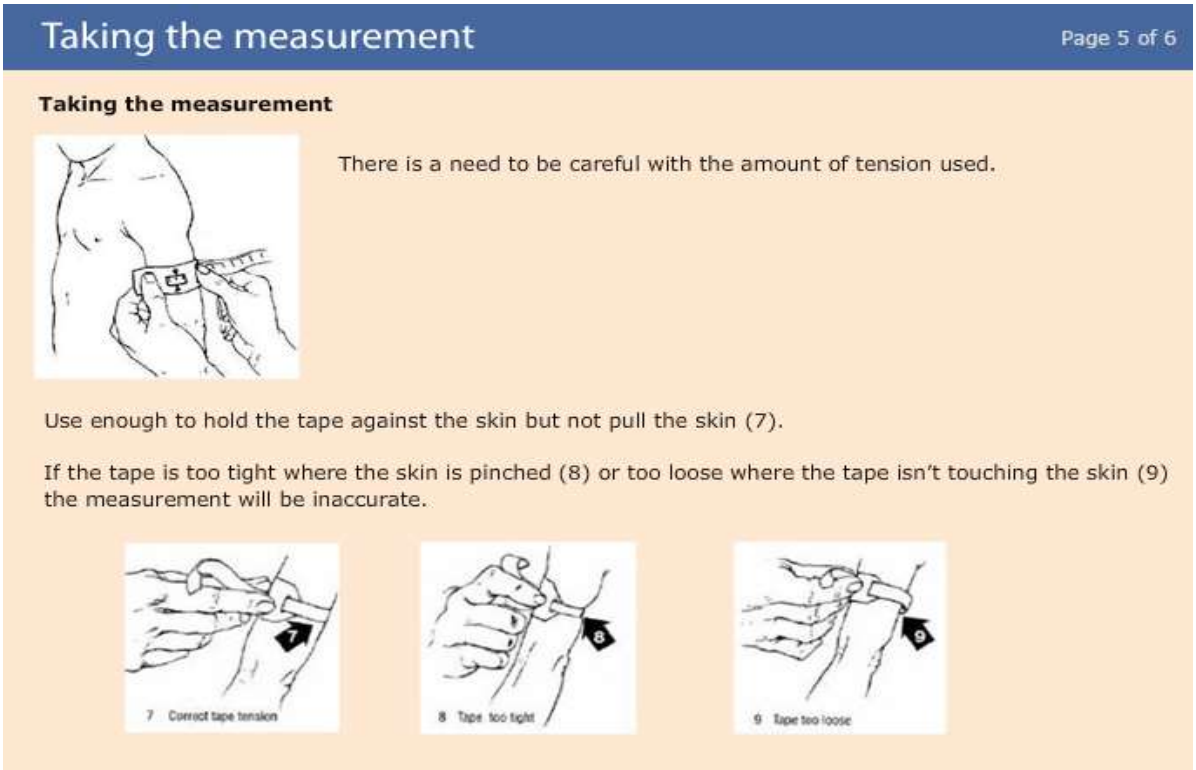


Figure 3: Taking the measurement - errors[4]



ACTIVITY: MUAC DEMONSTRATION

Materials needed: MUAC tape and a volunteer

Time required: 15 minutes

Trainer will enlist the help of a volunteer to demonstrate the proper MUAC procedure.

ACTIVITY: MUAC PRACTICE (PAIRS)

Materials needed: Paper-based surveys for each enumerator, Survey Translation Log, pencils, survey scenarios

Time required: 2 hours (depends on length of survey)

Trainer will put participants in pairs. One person in each pair will role play as the child. The other person will use the MUAC measuring tape to take the measurement.

Then, the pairs will switch roles and practice MUAC again.

CONDUCTING SURVEYS ON A TABLET

A. Introduction to tablet-based survey collection

The actual surveys that you complete in the field will be conducted using tablets. We have decided to use tablets because they will reduce data collection errors; will be easier to administer; will improve confidentiality; and cost less than printing thousands of paper surveys. That being said, administering the survey on a tablet is slightly different than it is on a paper form. As such, this section of the training manual will focus on teaching enumerators to conduct the survey on the tablet.

B. Tablet Rules

To ensure the safety of you as an enumerator, the team as a whole, and the tablets themselves, we have a number of rules that must be followed when using the tablets:

- Tablets must be checked in and out from Survey Manager each day. No one should take a tablet home with them for any purpose.
- Enumerators will be assigned the same tablet every day.
- Enumerators MUST keep their assigned tablet in its case and inside the backpack when not in use. A tablet must never, ever be left unattended, and care should be taken not to display it in any unnecessary manner. This is important for safety from theft and damage.
- **DO NOT** share your user name and password with anyone except the Survey Manager or Program Director. Each tablet will be assigned a unique user name and password, which must be kept confidential in order to protect the privacy of the survey forms.

C. Signing in/Signing out Your Tablet

For the remainder of this section, you will need to use your assigned tablet. As we distribute these, we will conduct our first sign in/sign out session, which you will be expected to repeat every day.

READ ALOUD: "I will now assign each of you a specific tablet and ask you to check it out on the sheet. You will also check your tablet back in during lunch, and at the end of the training."

ACTIVITY: ASSIGN & SIGN OUT TABLET TO EACH ENUMERATOR

Materials needed: tablets, enumerator IDs and passwords, mock timesheet, pencil/pen

Time required: 15-20 minutes

Assign each enumerator a tablet and ask them to check it out on the timesheet, just as you will have them do it during fieldwork. Be sure that the tablet is checked in during lunch time, and checked in again at the end of the training day.

At some point during a break, if you see a tablet being left unattended, "steal" the tablet and hide it until the enumerator starts looking for it once the break is over. Use this as a good example of the importance of securely storing the tablet at all times.

TRAINER'S NOTE

At some point during a break, if you see a tablet being left unattended, "steal" the tablet and hide it until the enumerator starts looking for it once the break is over. Use this as a good example of the importance of securely storing the tablet at all times.

D. Tablet Basics

This survey will use Samsung Galaxy Tab 4 tablets. In this section, we will discuss the basics of using these tablets.

1. An Overview of Your Tablet

Look at the right side of your tablet. You will see one shorter button towards the top of the right side and one larger button just below it. The smaller button at the top is the power button. Holding this button down will allow you to turn the tablet on and off (this is called the **Power Button**). The larger of the two buttons (below the Power Button) is the volume (**Volume Button)**. You should not need to use volume at any point during the survey, so it should remain all the way turned down, which is also called "muted."

Now look at the front screen of the tablet. At the bottom of this front face, you will notice one button in the center of the screen and two icons, one to the right and one to the left of the button in the center. The center button is called the **Home Button**, it will return you to the home (or first) screen, where you will eventually see the program that houses the survey on the tablet. The small icon to the left of it that looks like two sheets of stacked paper; this is the **Recent Button**, and will allow you to view all the applications used recently on your tablet. You may or may not ever have to use this button, and if you do, it should only be seldom (which we will address in a future section). The small icon to the right of the Home Button is the **Back Button**; it will allow you to go back one screen.

Next, look at the bottom of the tablet. On that bottom face of the tablet, at the same position as the Home Button, you will see a small opening. This is the **Charging Port**. This is where you will plug your tablet into a charging cable to charge the battery of the tablet.

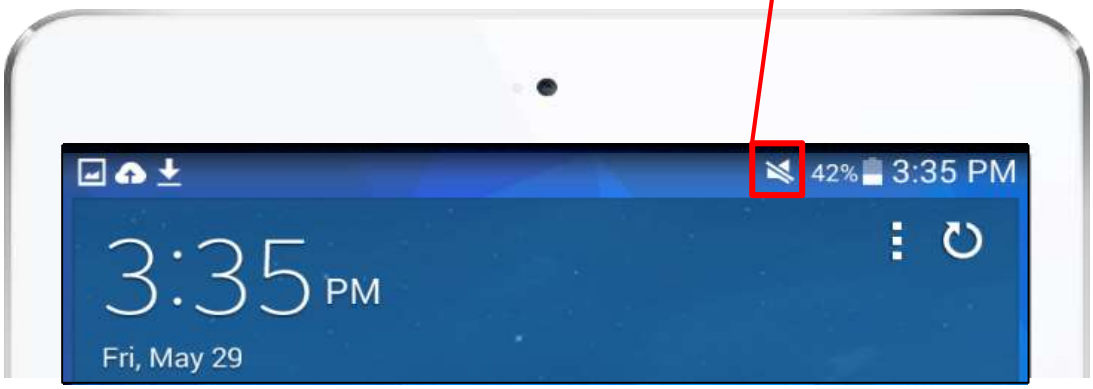
2. Enumerator Tablet Access

Now that you know the basics of what is on the tablet itself, we will discuss how to access the home screen in the tablet, which will include a discussion about privacy and safeguards. Each tablet has an associated number (written as "SAFE 2" or "SAFE 5", etc. on the back side of the tablet), a user name, and a password. The usernames and passwords are unique to each tablet. Each enumerator will be assigned one single tablet and he/she should use this same tablet every day. Keeping this information confidential (meaning that you do not tell anyone else other than the Survey Manager and Program Director) your username and password is very important. It is how we can safeguard the privacy of the information we collect.

To log into your tablet, begin by pressing the **Power Button** (recall that it is the small button at the top of the right side of the tablet). This will turn on your tablet. After a few moments, a colorful screen will light up, where you will see two icons that look like faces, with words underneath them. You should click on the face that has the word underneath it corresponding to your assigned number (for example, "SAFE 7"). This will open a screen that asks for a password; enter your assigned password.

3. Basics of Tablet Usage

Home Page: Now that you have logged into the tablet, you will see the **Home Page.** In the top right hand corner of the home page, you will see several icons. One is the **Volume Sign**; on most tablets, this will appear like a loudspeaker with a line through it, which indicates that the volume is turned all the way down (on mute).



Charging: Next to the Volume Sign in the top right hand corner of the screen, you should see a percentage next to a battery sign; this is the **Battery Measure** which shows how much charge is left in your battery. ***One full charge will last for approximately 8 hours.*** Tablets will be charged every night by the Survey Manager or Program Director. That being said, it is possible that with constant use or long survey days, your tablet could run out of battery power. As such, you should monitor the level of your battery. If you notice that your battery gets too low (a good rule is to not allow the battery to get below 20% before the beginning of a survey), you should ask your supervisor if you can charge your tablet before your next survey.

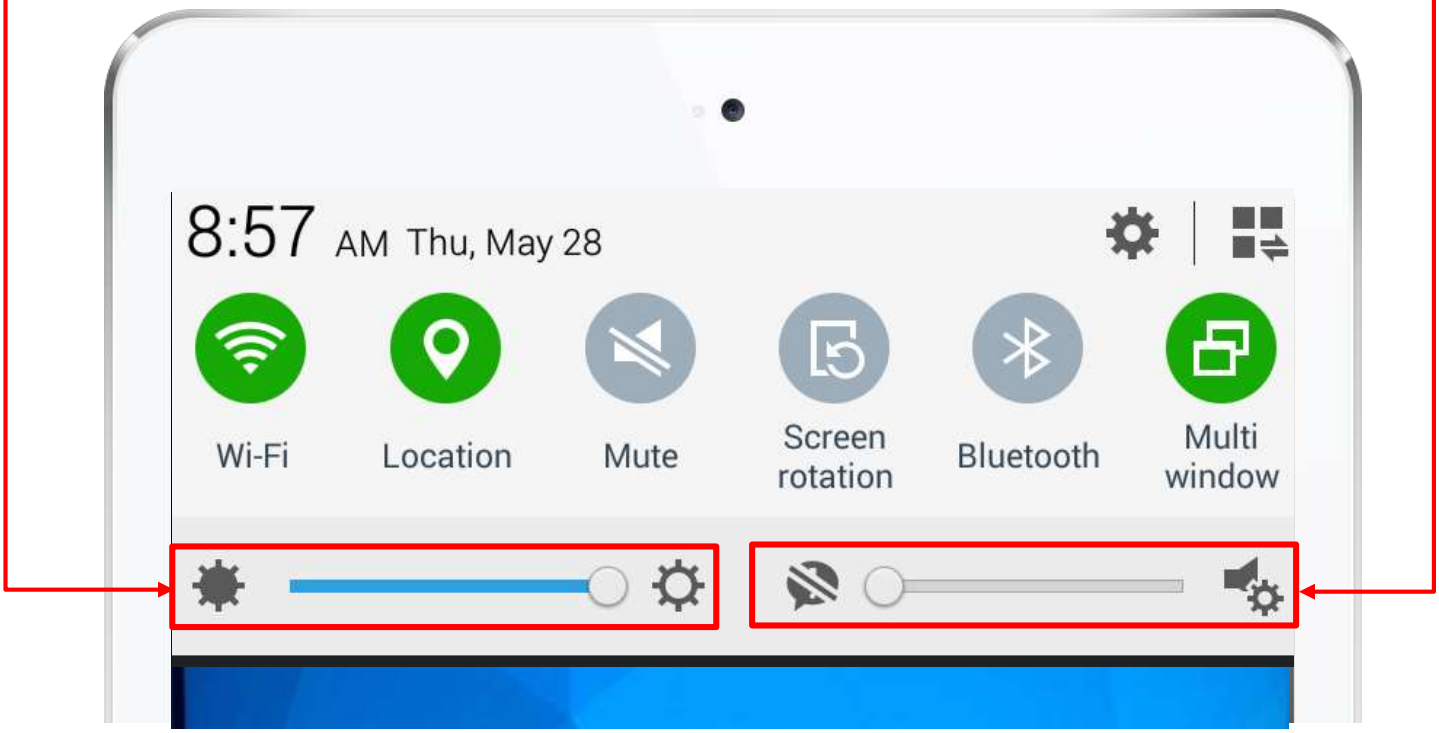
***Please Note: Charging the battery before it is necessary will reduce the life of the battery, so only charge the tablet when you really need to (do not plug it in whenever you are in the car).**

General Controls: To move between screens (or to go to the next question once you get to the administration of the survey), you will use your finger to swipe forwards (swipe towards the left) or backwards (swipe to the right).

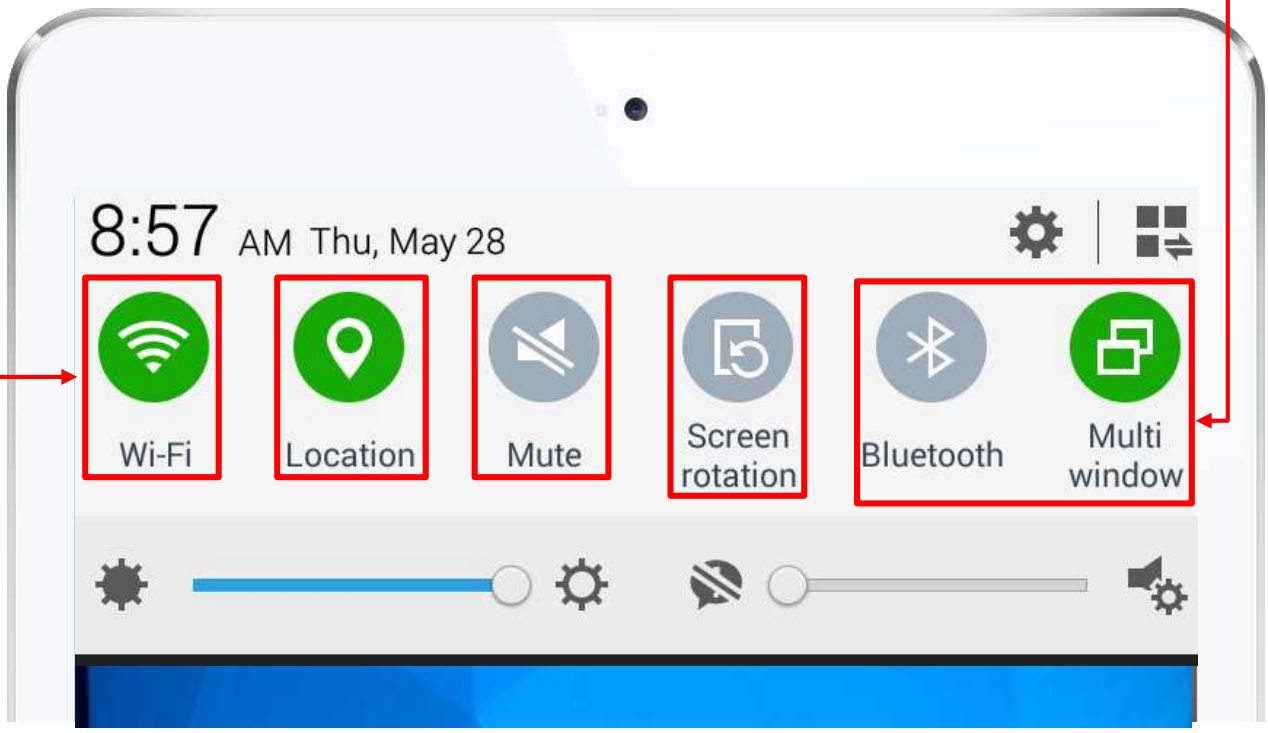
If you are on a screen that has more content than the length of the screen will show, you can continue viewing the content by **Scrolling**. To "scroll", use your finger and move it up and down on the screen.

Top Menu: You can adjust the **Brightness** (how light or dark the screen is) and **Volume** by accessing the **Top Menu**. To access the Top Menu, use your finger to swipe down from the top of the Home Screen. This will make a new screen appear that has a white box and a dark grey box. In the white box, you will see several circle icons with words underneath them. The only icon you need to worry about here is the **Sounds Button** (which will either read "Volume" or "Mute"). Touching this button will turn the volume on or off, without touching the volume controls on the side of the tablet.

Just below the icons at the top of the **Top Menu**, you will see two scales. The first is opened with a dark sun on one side and closed with an open sun on the other side; this is the **Brightness Scale**. Using your finger to move the scale control will make the screen darker or lighter. The second of the two scales is opened by a circular quote icon with an exclamation mark in it, and closed by a loudspeaker icon with a settings sign next to it; this is the **Volume Scale**. Whereas the **Sounds Button** allowed you to mute the sound completely, the Volume Scale allows you to make the sounds louder or softer, just like the buttons on the right hand side of the tablet. Although we have shown you how to use these volume controls, you should not need to turn the volume of the tablet up during the survey.



Just below the icons at the top of the **Top Menu**, you will see seven circles with different icons. The first is opened with a dark sun on one side and closed with an open sun on the other side; this is the **Brightness Scale**. Using your finger, tap a circle to turn the control on and/or off. You will know an control is on when it turns green. A control turns gray when off. Look at the first of the seven circle controls with a signal icon exclamation mark in it; this is the **wireless internet** (**Wi-Fi)**. The next control, **Location**, is the GPS. You will need to turn this control on when geo-tagging the location of an eligible household. The next control, **Mute**, allows you to silence all tablet sounds. **Screen rotation** enables the tablet screen to move from portrait to landscape orientation when the tablet is turned. **Bluetooth** and **Multi window** will not be used during the data collection process.

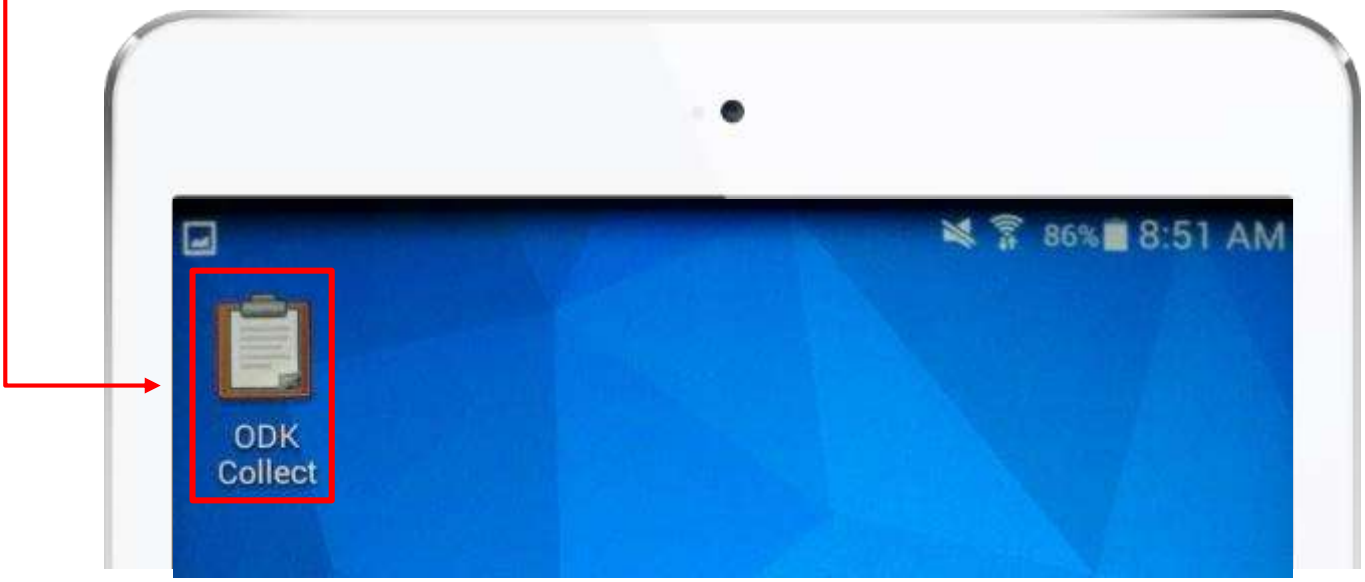


4. Conducting a Survey on the Tablet

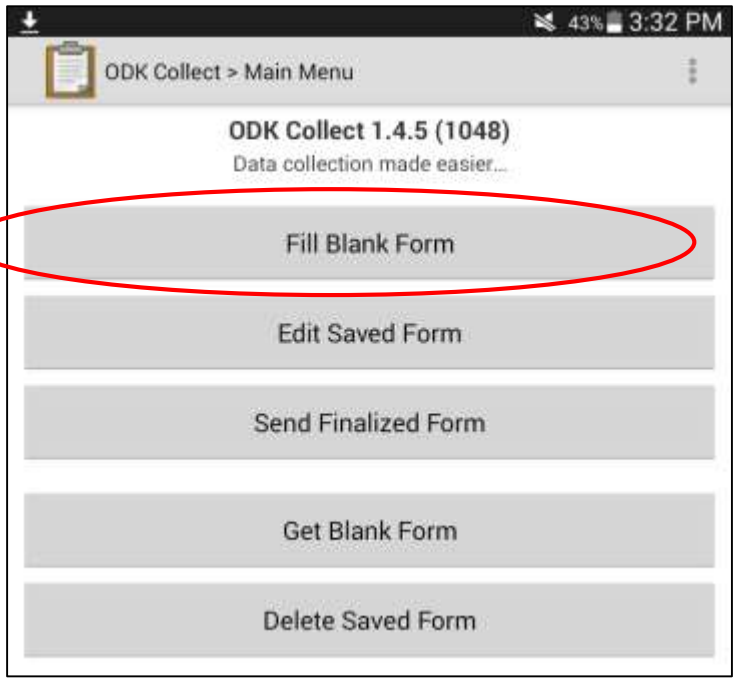
Conducting the survey on the tablet is similar to conducting it on the paper form in that the questions are the same. What differs is the control of the tablet and a few questions that ask you to draw certain information together. We will discuss all of this in this section, and then practice using the tablets together during training and during field testing.

Opening the Survey: In order to conduct the survey using a tablet, we are using a software called Open Data Kit, or ODK. Open Data Kit is comprised of several software programs that collectively allow surveys to be completed on electronic devices, sent to an electronic database, and downloaded all surveys submitted from all tablets at the same time by the people who developed the survey and research project.

The physical survey itself is housed on the tablet in an application called "ODK Collect." You should see an icon on the first page of the Home Screen. Click this icon to open ODK Collect.



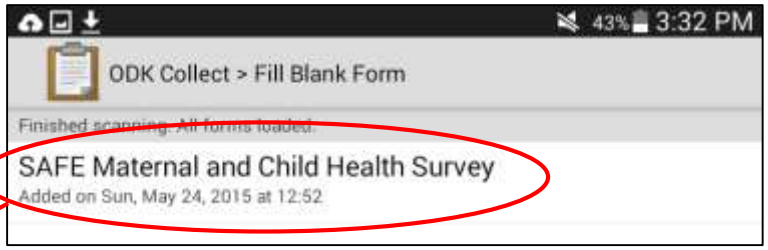
Navigating ODK Collect: Once ODK Collects opens, you will see a screen with a number of buttons. The survey has been pre-loaded on the application. To access a blank survey, click on "**Fill Blank Form**", which should be the button at the top of the page.



The other buttons you will see and their functions are described below:

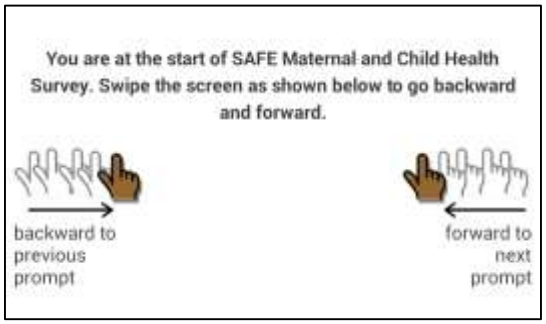
- **Edit Saved Form**: This button will allow you to access any forms that you have already started and saved.
- **Send Finalized Form**: This button will send all of your saved forms to the online survey depository. The Survey Manager or Program Director will handle this; you do not need to use this button.
- **Get Blank Form**: *Most enumerators will not see this button.* It is the button that allows the user to load a new blank survey form (for example, if the survey team made changes to the blank survey and wanted to load the updated form to the tablet). You should not need to use this button.
- **Delete Saved Form:** *Most enumerators will not see this button.* It is what will allow users to delete saved surveys and saved blank survey forms. You should not need to use this button.

Starting a Survey: Each time you want to fill out a blank survey, follow these steps:

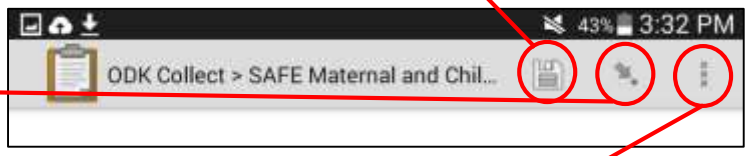


- Click on **Fill Blank Form**.
- Click on the name of the survey that you will be completing, which should be titled "SAFE Maternal and Child Health Survey."
- Wait for the survey to load. You will see a screen that looks like this:

- The front screen will state that you are at the beginning of the survey, and will demonstrate how to navigate through the survey. Swiping towards the left will take you forward in the survey; swiping towards the right will take you backwards in the survey.



- You should also know about a few buttons in the top right hand corner of the ODK home screen:
  - The small square disk is the **Save** button, which is used to save the survey.
  - The arrow button next to the Save button is the **Navigate** button, used to navigate to other parts of the survey; however, <u>you should not use this button as it will likely result in errors in survey completion</u>.



  - The three dots in a vertical row at the far right is the **Settings** button, which is used to change the language and general settings. You <u>should not need to change the settings of the tablet</u>, as this has already been set up for you. However, you may want to change the language. To do so, click the three dots and select the **Change Language** button. Then, you can choose between English and Lusoga.

<u>Completing the Survey</u>: Swipe forwards from this intro page to access page 1 of the survey. When you do, you will notice that each question and note is on a separate page. When you finish reading/answering the content on one page, use your finger to swipe forward.

Similar to the paper form of the survey, you will encounter four types of questions in the electronic survey on the tablet:

- **Select One Questions:** Questions in which you are allowed to select only one answer choice. 'Select one' questions have circle answer choices.
- **Select Multiple Questions:** Questions in which you are allowed to select multiple answer choices. 'Select multiple' questions have square box answer choices.
- **Integer Questions:** Questions in which you are asked to type in a number.
- **Text Questions:** Questions in which you are asked to type in a brief answer to the question.

The majority of questions are 'select one' or 'select multiple' questions. Most questions will require that you select an answer before you can move to the next question.

Many questions have "other" as an answer choice. If you select "other", on either a 'select one' or a 'select multiple' question, the next screen will ask you to specify the "other" answer. You should type in the answer as provided by the respondent.

Differences between Paper and Electronic Forms of the Survey: All the questions should be worded the exact same between the paper and electronic forms of the survey. The only differences have to do with questions that are asked of you, as the enumerator (and not directed to the respondents). For example, in Section C (Birth History), if the respondent indicated that a particular birth was a stillbirth, the electronic version asks the following series of questions:

C2. In what month and year was your (MOST RECENT/NEXT) baby born?

C3. Was this baby a boy or a girl?

C4. Was the baby born alive or dead?

C4-b. (IF C4 = dead) **INTERVIEWER:** DID THIS STILLBIRTH OCCUR IN OR AFTER MAY 2014?

For this series of questions, you as the enumerator would have to remember the birth date of the baby in question, as this would also be the stillbirth date. Then, you would enter 'YES' if the baby was born in/after May 2014, and 'NO' if the baby was born before May 2014. The important part to note here is that C4-b is not in the paper version of the survey because the skip patterns are visible.

Another example of this is later in section C in which you will be asked "INTERVIEWER: DID RESPONDENT HAVE ANY STILLBIRTHS SINCE MAY 2014?" and "INTERVIEWER: DID RESPONDENT HAVE ANY CHILD DEATHS SINCE MAY 2014?" This will require you to have paid attention to the individual outcomes of each pregnancy and the dates of any stillbirths or deaths. You may want to write down in your notebook anytime there is a stillbirth or child death and the date of that event for reference in this latter part of section C; you can also swipe backwards to review all the responses you have made until that point.

Another difference between the two forms of the survey is that the skip patterns are already embedded in the electronic form of the survey. That means that you should not have to follow skip patterns, but that the tablet will do it for you. If, however, you notice an error in the skip pattern (for example, you know that you answered 'other' to a particular question but never saw a "please specify" screen pop up afterwards), please bring this to the attention of your Supervisor, Survey Manager, or Program Director.

BREAK

5. Troubleshooting Common Problems

At some point during the survey, you are likely to encounter a technical problem. Some common problems include the following:

- Error messages: A rectangular box might appear on the screen that talks gives you an "Error Message." If this happens, you should write down exactly what the error message says in your notes. Then, complete the survey on a paper form and ask your Supervisor to help you address the error message. Often, error messages mean that something in the electronic form needs to be programmed differently; our ability to fix the problem will depend on a thorough description of the problem—what happened, in which section, and what the error message said.
- Falling out of the survey then returning to survey: If you accidentally hit the "Home Screen" button, you will exit ODK. Simply re-open the application and click on "Fill Blank Form." This will usually bring you to the screen where you left off. Alternatively, it might show you a long list of all the questions you have answered, along with some questions you have not. **Click on the question where you left off; do not move forward in the survey.** Then, proceed with the survey as planned.
- Tablet crashes: It is possible that the tablet could suddenly turn itself off or the application could stop working. In this event, write down a thorough description of what happened, including where you were in the survey and any potential contributing problems. Complete the ENTIRE survey on a paper form, and then communicate what happened to your Supervisor or the Survey Manager.
- Tablet freezes: If the screen on your tablet stops permitting you to move backwards or forwards, the screen is probably "frozen." If this happens, wait 1 – 1½ minutes to see if the problem corrects itself. If it does not, hit the Home Screen Button. If that does NOT work and the tablet remains frozen, put your tablet away and **fill out the entire survey on a paper form** (it is likely that the data you have already collected will be loss, meaning that for us to use the data, you will need to complete the entire survey on a paper form). If it DOES takes you to the Home Screen, hit the **Recent Button** (the icon on the bottom of the tablet to the left of the Home Screen button. This will bring up a list of all recent applications. The first you see should be ODK Collect. Use your finger to swipe it upwards. This will close out of the application entirely. Then, re-open the application from the Home Screen and click on "Fill Blank Form." Often, this will re-open the same form you already started completing.

READ ALOUD: "Now, we will practice using the tablets. To begin, each enumerator should get out their own tablet and start to work through the questions him/herself to get accustomed to the way that the tablet survey works. The SAFE team and I will be wandering around the group to help each enumerator and answer any questions."

ACTIVITY: SELF-INTERVIEWS WITH TABLET-BASED SURVEY

Materials needed: tablets, enumerator IDs and passwords

Time required: 45 minutes

Enumerators read the questions out loud to themselves and record the answers on the tablets.

Trainer and other SAFE staff should circulate from group to group to provide feedback and answer any questions about tablets or survey at this time.

READ ALOUD: "Now, we will practice using the tablets in pairs. Each enumerator should have one partner. You will each take turns being the respondent and the enumerator. Pay close attention to drawing everything together—focus on obtaining true informed consent and maintaining it through the entire survey; answer the respondent's questions; practice developing a good environment; and use neutral and non-leading probing/clarifications. The SAFE team and I will be wandering around the group to help each enumerator pair and answer any questions."

ACTIVITY: INTERVIEWS WITH TABLET-BASED SURVEY (PAIRS)

Materials needed: tablets, enumerator IDs and passwords, mock timesheet, pencil/pen

Time required: 1 hour

Trainer will put participants in pairs. One person in each pair will role play as an eligible respondent. The other person will fill in the tablet-based survey.

Then, the pairs will switch roles and practice the survey again.

Trainer and other SAFE staff should circulate from group to group to provide feedback and answer any questions at this time.

BREAK

Trainer and other SAFE staff should circulate from group to group to provide feedback and answer any questions at this time.

BREAK

TRAINER'S NOTE

Once participants feel comfortable with the tablet-based survey, the group should conduct a pilot test.

APPENDICES

Enumerator Training Schedule				
Monday **Date:**	**Tuesday** **Date:**	**Wednesday** **Date:**	**Thursday** **Date:**	**Friday** **Date:**
• Welcome and Ice Breakers • Introduction to SAFE • Personnel Policies • Overview of Maternal and Child Health • Conducting A Survey • Informed Consent	• Welcome and Morning Energizer • Refresh Session: Informed Consent • Fieldwork Procedures • General Survey Procedures • Survey Translation	• Welcome and Morning Energizer • Refresh Session: Fieldwork Procedures • Survey Translation • MUAC	• Welcome and Morning Energizer • Refresh Session: MUAC • Tablet Training	• Welcome and Morning Energizer • Daily Fieldwork Prep Procedure Practice • Pilot test

Daily agendas are not printed to reduce printing costs. Additionally, the daily schedule will vary for each training depending on the amount of material covered each day and enumerator comprehension and content mastery. Two full days of survey translation are typically needed for longer survey instruments therefore, piloting on Day 5 may need to be rescheduled.

Appendix B: Enumerator Job Description

Safe Mothers, Safe Babies
Uganda Address: Box 355 Iganga, Uganda, East Africa
Website: www.safemotherssafebabies.org

Enumerator Job Description

Introduction: In accordance with the Standard Operating Procedures set forth by the organization, the following represents a brief job description of all SAFE employees when fulfilling the function of "Enumerator." Please also review the Enumerator Memorandum of Understanding for further information regarding roles and responsibilities.

Job Description: Enumerators will be physically responsible for the actual administration of the *ACT for Child Health* baseline and endline surveys, covering a range of topics pertinent to maternal and child health. Administering the survey shall include, but not be limited to, the following activities:

- Completing initial and ongoing training
- Providing feedback regarding the survey instrument and its translation during the training process
- Following the defined skip pattern as instructed to identify selected households in each cluster
- Approaching respondents and assessing respondent eligibility, exactly as instructed during training and within the survey
- Reading the informed consent document verbatim from the Lusoga version of the survey
- Answering any and all questions from any potential respondent
- Obtaining informed consent, or leaving the respondent if she declines participation
- Developing rapport with the respondent through respectful interaction
- Administering the survey in private near the respondent's home whenever possible
- Ensuring ongoing consent throughout the administration of the survey
- Taking thorough field notes regarding anything of note in his/her organization-provided notebook
- Recording the name and phone number of any woman who requests a referral for obstetric fistula evaluation or malnutrition education, as detailed in the survey instrument
- Reporting any respondent concerns, distress, or other related events to the Program Director and Survey Manager
- Reporting any challenges to the Program Director and Survey Manager
- Representing the Project in the best way possible in all capacities

Enumerators will be evaluated on a regular basis, and must be found satisfactory in order to continue employment. Initial and ongoing training will be provided to address and deficiencies, but enumerators must make a strong effort to follow instructions exactly.

Enumerator Compensation Enumerators shall be compensated 20,000 Ugandan shillings per day of field work, and shall also be provided with 7,000 shillings for water and food for any day in which field work necessitates 6 hours or more of field work. Transportation to and from the field will be provided by the Project, departing the Office at the appointed time; transportation to and from the office will be provided by the enumerator.

Appendix C: Sample Enumerator Memorandum of Understanding (MOU)

Safe Mothers, Safe Babies
Uganda Address: Box 355 Iganga, Uganda, East Africa
Website: www.safemotherssafebabies.org

MEMORANDUM OF UNDERSTANDING:

Partnership between Safe Mothers, Safe Babies and Enumerators of Iganga District

ACT for Child Health Project – Baseline Survey

This Memorandum of Understanding is between the nonprofit organization, Safe Mothers, Safe Babies (herein referred to as SAFE), and the ENUMERATOR, _____, (herein referred to as ENUMERATOR) to solidify the roles and responsibilities of each party in the *ACT for Child Health Project Baseline Survey*, described in greater detail in a section below.

ABOUT SAFE MOTHERS, SAFE BABIES (SAFE)

Safe Mothers, Safe Babies (SAFE) is a nonprofit organization working in Uganda to improve maternal and child health (MCH) through networking, advocacy and project innovation in Iganga District, Uganda. SAFE's model emphasizes reducing all delays that families encounter when seeking to prevent health problems and access healthcare services, for example, community groups that use drama, song, and home-to-home outreach to improve maternal and child health behaviors; community-based motorcycle ambulance programs to address transportation delays; and the installation of solar electricity in maternal health facilities to improve quality of care during birth and maternal/child health emergencies, among others.

ABOUT THE *ACT FOR CHILD HEALTH PROJECT*

Having successfully implemented this approach in two Sub-Counties of Iganga District, SAFE is in the process of scaling up into a new Sub-County. The *ACT (Action, Care, and Transport) for Child Health Project* is the name given to SAFE's efforts to expand into a new sub-county. The primary objective of the project is to reduce the incidence of child mortality between 7 months gestation and 23 months of age in the catchment area of the intervention area through the replication of SAFE's model targeting the improvement of the Three Delays in the first 1,000 days of life. The package includes: Forming community groups to improve knowledge and practice of healthy behaviors; developing motorcycle ambulance and family savings projects to increase physical and financial access to a healthcare facility; and improving the supplies, technology, and medical training of healthcare providers to facilitate the provision of high-quality care during the first 1,000 days. The conditions targeted by the intervention include maternal conditions: malaria, anemia and malnutrition, pre-eclampsia/eclampsia, post-partum hemorrhage, and toxemia; neonatal conditions: prematurity, birth asphyxia, septicemia, pneumonia, and malnutrition; and child conditions: malaria, diarrhea, pneumonia, and malnutrition. Towards demonstrating effectiveness, the project will conduct baseline and endline research in two regions—the

first, the area where the intervention will take place (herein referred to as "INTERVENTION"), and the second, a similar area where the intervention is not taking place (herein referred to as "CONTROL").

COMMITMENTS OF SAFE MOTHERS, SAFE BABIES

A. **Selection of Intervention and Control Regions:** In consultation with Iganga District Health officials and the funders of the *ACT for Child Health Project*, SAFE agrees to select the sub-counties that will be enrolled in the project—one as the intervention area, and one for control region.
B. **Conducting Baseline survey**: In partnership with Iganga District Health officials and local leaders and sub-county health leadership, SAFE agrees to lead a baseline survey to facilitate the most accurate sampling method in the research protocol. If ENUMERATOR physically participates in the administration of baseline survey, SAFE agrees to provide transportation from the SAFE office to baseline survey areas and from survey areas back to the SAFE office at the end of each work day.
C. **Development of Research Protocol**: SAFE agrees to develop the baseline and endline surveys; identify appropriate research staff; train the research staff; and physically conduct the surveys.
D. **Implementation of the Project**: SAFE agrees obtain the requisite materials for all projects activities, work with community members to implement all projects, and orchestrate their continual operation in partnership with community members and sub-county, county, and district leadership.
E. **Lunch Provisions**: SAFE agrees to pay ENUMERATOR a work day lunch and water allowance at an amount at SAFE's discretion for the duration of the project. SAFE reserves the right to amend lunch provisions and protocols at any time during the project.
F. **Compensation**: SAFE will disburse compensation to ENUMERATOR on the last day of each work week upon ENUMERATOR's successful completion of high quality data collection and the approval of his/her time sheet by the Program Director and/or Survey Manager.

COMMITMENTS OF ENUMERATOR

A. **Participation in Training**: ENUMERATOR agrees to participate in research training orchestrated by SAFE regarding the baseline survey and the project itself.
B. **Conduct the Baseline Survey:** ENUMERATOR agrees to conduct the baseline survey by physically travelling to intervention and control regions as requested by SAFE staff.
C. **Responsibility for SAFE tablet:**
    i. ENUMERATOR must check tablet in and out from Survey Manager each work day.
    ii. ENUMERATOR will be assigned the same tablet every day.
    iii. ENUMERATOR MUST keep their assigned tablet in its case and inside the backpack when not in use. A tablet must never be left unattended, and care should be taken not to display it in any unnecessary manner.
    iv. ENUMERATOR WILL NOT share his/her user name and password with anyone except the Survey Manager or Program Director.
    v. ENUMERATOR should never take a tablet home with them for any purpose.
    vi. If tablet is damaged or lost, ENUMERATOR agrees to reimburse SAFE for the cost of the original tablet.
D. **Reporting:** ENUMERATOR agrees to report project successes and challenges to the SAFE Program Director and Survey Manager. ENUMERATOR agrees to report all medical emergencies and sexual harassment to his/her Team Leader, the Program Director, and the Survey Manager.

E. **Abide by all SAFE Personnel Policies:** ENUMERATOR agrees to follow all SAFE Personnel Policies (as outlined in the Enumerator Training Manual) at all times during the baseline survey. Any violation of these personnel policies will result in employee probation and/or termination.

TERMINATION OF EMPLOYMENT

Failure to uphold the commitments made by ENUMERATOR will be seen as a lack of commitment to the important endeavor of improving child and maternal health and survival, which could result in termination of employment. SAFE reserves the right to remove the ENUMERATOR from any and all project activities if the commitments from ENUMERATOR are not upheld.

The ENUMERATOR listed above has entered into an employment relationship with Safe Mothers, Safe Babies voluntarily, and understands that there is no specified length of employment. Although the baseline survey is projected to be completed by July 2015, the project deadline is subject to change per advisement of the Program Director and/or Survey Manager. Accordingly, either Safe Mothers, Safe Babies or the ENUMERATOR can terminate the relationship at will, at any time, with or without cause, and with or without advance notice.

We, the undersigned, hereby commit to fulfill the above commitments to our utmost abilities, and in doing so commit to serve our partnership with all available energies.

_____ _____

Name and Signature of Authorized SAFE Representative Date

_____ _____

Name and Signature of ENUMERATOR Date

Appendix D: Sample Employee Timesheet and Compensation Verification Form

Employee Name: ___________________ Tablet #: ___

DATE	TIME IN	TABLET # OUT	TIME OUT	TABLET # IN	Manager Verification (Initials)	Compensation Received
	AM		PM			Date Received:
	AM		PM			
	AM		PM			Amount Received:
	AM		PM			
	AM		PM			Employee Initials:

DATE	TIME IN	TABLET # OUT	TIME OUT	TABLET # IN	Manager Verification (Initials)	Compensation Received
	AM		PM			Date Received:
	AM		PM			
	AM		PM			Amount Received:
	AM		PM			
	AM		PM			Employee Initials:

DATE	TIME IN	TABLET # OUT	TIME OUT	TABLET # IN	Manager Verification (Initials)	Compensation Received
	AM		PM			Date Received:
	AM		PM			
	AM		PM			Amount Received:
	AM		PM			
	AM		PM			Employee Initials:

DATE	TIME IN	TABLET # OUT	TIME OUT	TABLET # IN	Manager Verification (Initials)	Compensation Received
	AM		PM			Date Received:
	AM		PM			
	AM		PM			Amount Received:
	AM		PM			
	AM		PM			Employee Initials:

Appendix E: Acknowledgement of Receipt of Personnel Policies

ACKNOWLEDGMENT OF RECEIPT OF PERSONNEL POLICIES

The Training Manual contains important information about Safe Mothers, Safe Babies and its personnel policies, and I understand that I should consult the Program Director or the Survey Manager regarding any questions not answered in the manual. I have entered into my employment relationship with Safe Mothers, Safe Babies voluntarily, and understand that there is no specified length of employment. Accordingly, either Safe Mothers, Safe Babies or I can terminate the relationship at will, at any time, with or without cause, and with or without advance notice.

I understand and agree that no persons other than the SAFE CEO, SAFE Program Director, and SAFE Survey Manager may enter into an employment agreement for any specified period of time, or make any agreement contrary to Safe Mothers, Safe Babies stated employment-at-will policy.

Since the information, policies, and benefits described herein are subject to change at any time, I acknowledge that revisions to the manual may occur, except to Safe Mothers. Safe Babies' policy of employment-at-will. All such changes will generally be communicated through official notices, and I understand that revised information may supersede, modify, or eliminate existing policies. Only the President of Safe Mothers. Safe Babies has the ability to adopt any revisions to the policies in this manual.

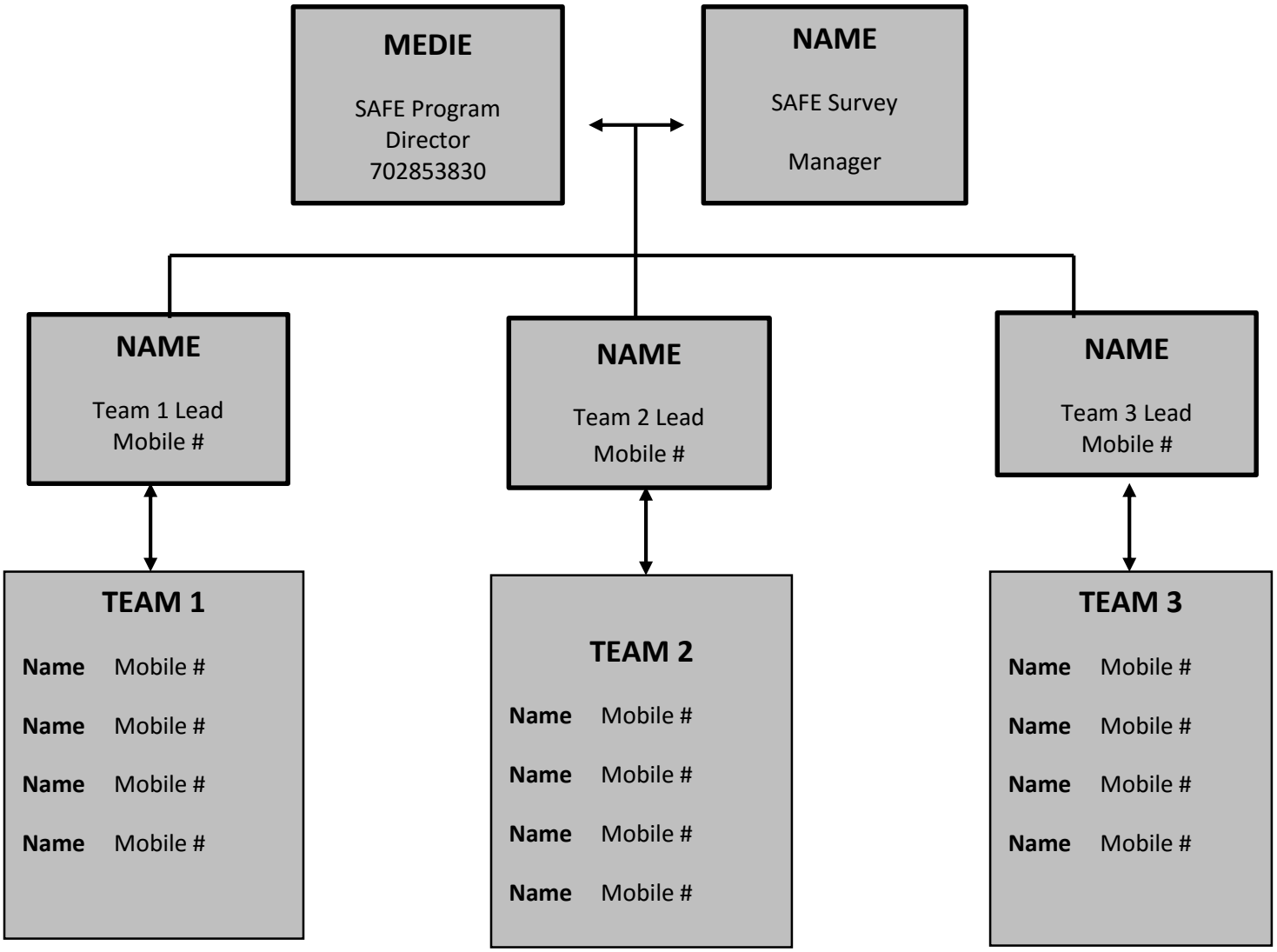
Furthermore, I understand that this manual is neither a contract of employment nor a legally-binding agreement. I have had an opportunity to read the manual, and I understand that I may ask my supervisor, the Survey Manager, or Program Director any questions I might have concerning the manual. I accept the terms of the manual. I also understand that it is my responsibility to comply with the policies contained in this manual, and any revisions made to it. I further agree that if I remain with Safe Mothers, Safe Babies following any modifications to the manual, I thereby accept and agree to such changes.

I have received a copy of the Manual on the date listed below. I understand that I am expected to read the entire manual. Additionally, I will sign the two copies of this Acknowledgment of Receipt, retain one copy for myself, and return one copy to Safe Mothers, Safe Babies' representative listed below on the date specified. I understand that this form will be retained in my personnel file.

_____	_____	_____
Signature of Employee	Employee's Name - Printed	Date

_____	_____
SAFE Representative	Date

Appendix F: Sample Survey Chain of Command Chart



**** ALWAYS contact your Team Lead when… *****

- When a respondent becomes upset and requests to speak to a guidance counselor

- If you or a colleague is lost, sick, or injured

- If you have difficulty with your tablet

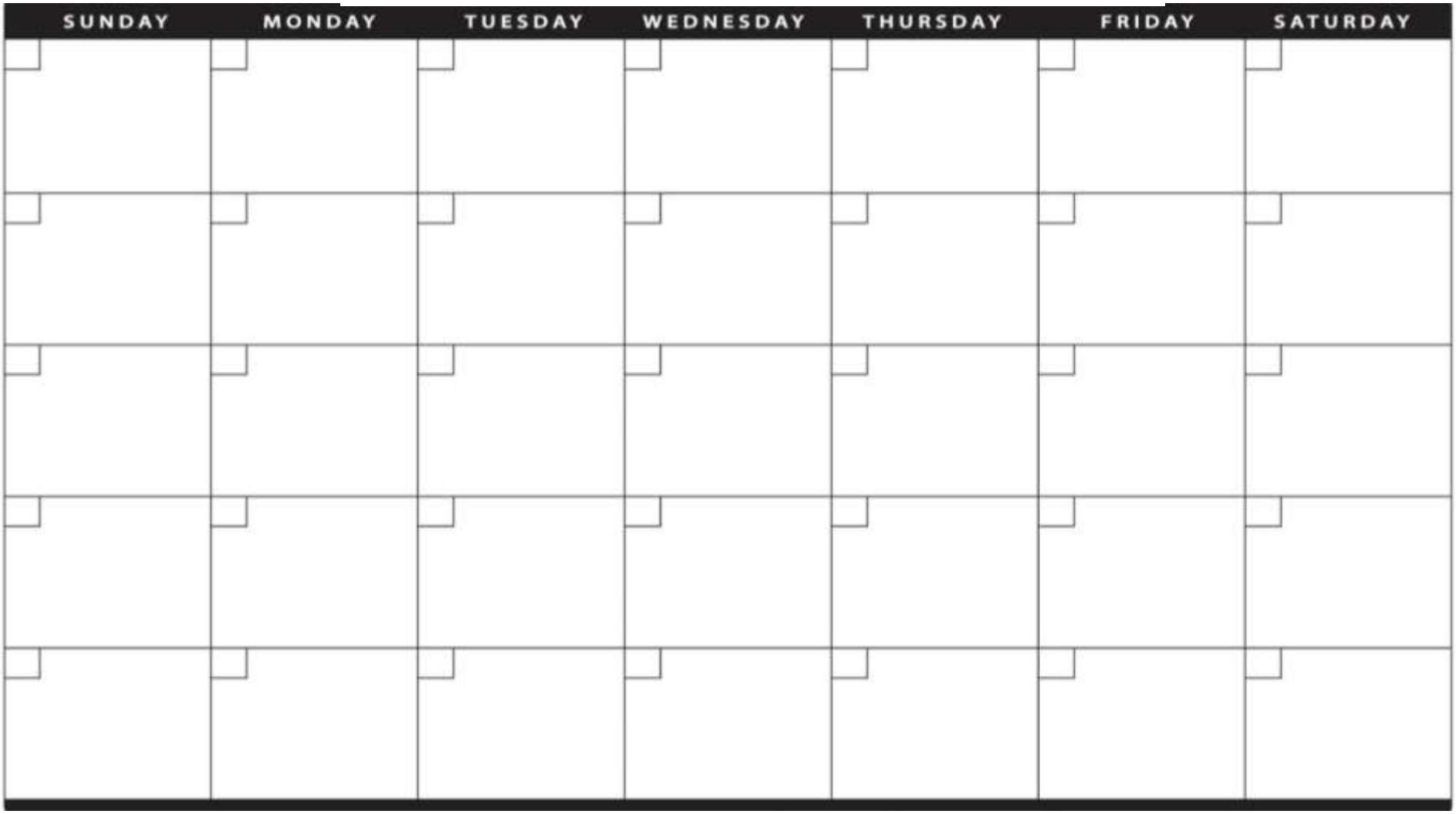
ALWAYS ASK THE RESPONDENT IF SHE IS COMFORTABLE WITH YOU CALLING YOUR TEAM LEAD!

Appendix G: Identify the components of the informed consent – Answer Key

- An introduction of enumerator (your name) and the purpose of the survey: Sentence 1,5
- Eligibility requirements: Sentence 2,3
- States that participation is voluntary: Sentence 12
- Duration of the survey: Sentence 6,9
- What topics the survey questions cover: Sentence 4, 7, 8
    - In this project we will be asking about sensitive issues. It is very important that you tell the participant what we will be asking about so that they can decide if they want to be a part of the study.
- Tells the participant that she has the ability to take breaks and end the survey if she desires: Sentence 11
- Confidentiality – the information shared will not be shared with anyone not involved in the project or organization: Sentence 14, 15, 16, 17
- Assures the participant that all information is anonymous (her name will not be on the survey): Sentence 14
- Explains that there are no right or wrong answers: Sentence 10
- Allows the participant to ask questions about the survey: Sentence 18, 19
- Informs participant that some questions may elicit emotional discomfort but that a counselor is available to speak with her at her request: Sentence 13
- Asks participant if she is willing to participate in the survey: Sentence 20

Appendix H: Blank Calendars (Set of 3)

MONTH/YEAR: _____

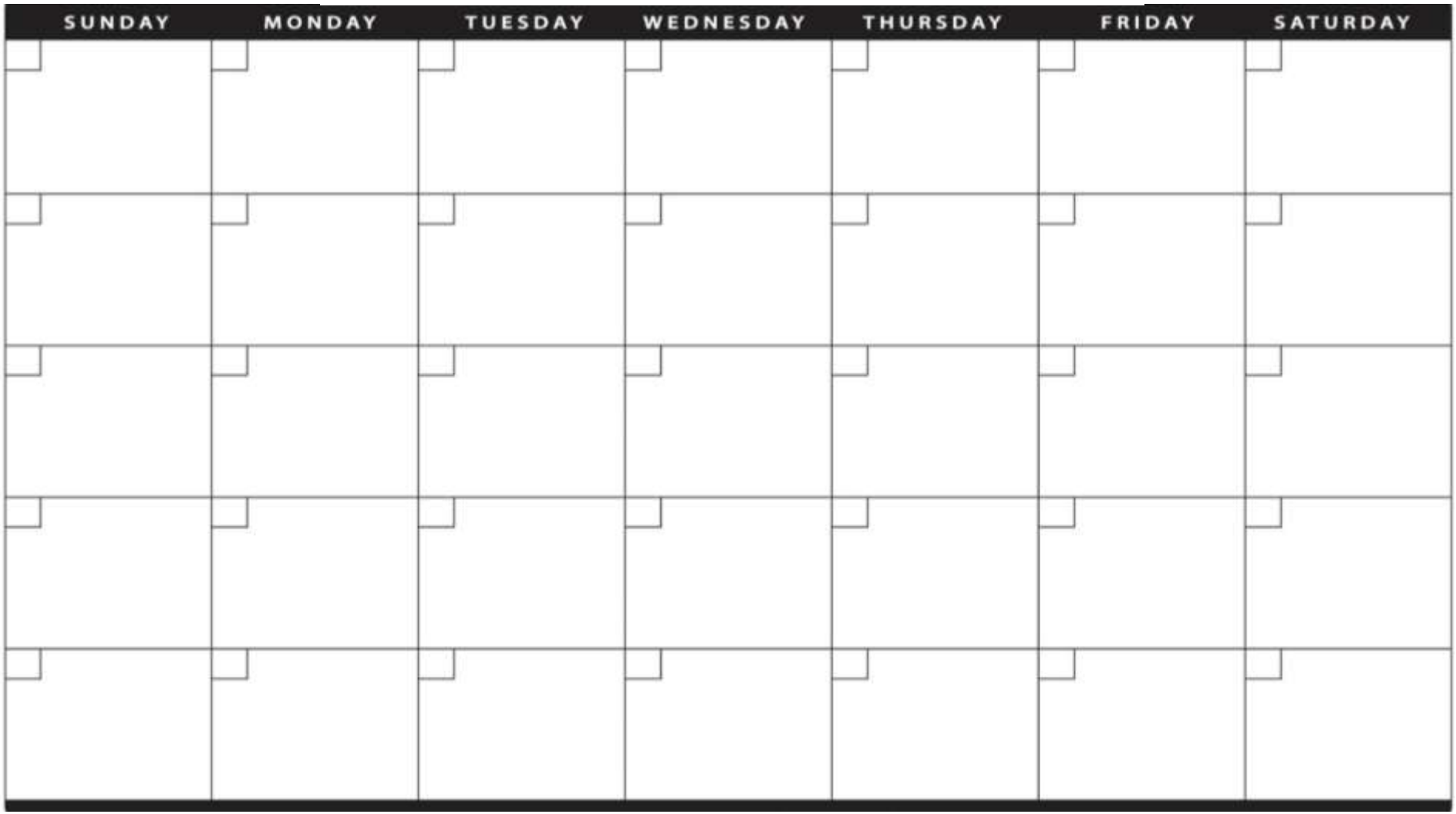


MONTH/YEAR: _____

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY

A13

MONTH/YEAR: _____



Appendix I: Sample Ice Breakers, Team Building Exercises and Energizers

PEOPLE TO PEOPLE

Materials needed: none
Time required: 10-15 minutes

Instructions:

Pair up in groups of two and stand back to back. Make sure participants introduce themselves to one another.

Then the leader will say different combinations that the group has to try to get to while staying back to back (right hand to right hand, left foot to right foot, head to head, right hand to left leg, etc.). The pairs must maintain all called combination until they switch partners.

Once the leader says "People to People!" everyone will switch partners.

If you have an odd number of participants, the odd person is the leader. Once pairs switch, the odd person out is the new leader.

Retrieved from: Ultimate Camp Resource *http://www.ultimatecampresource.com/site/camp-activity/people-to-people.html*

RAIN

Materials needed: none
Time required: 10 minutes

Instructions:

Everyone sits in a circle, shoulder to shoulder. No talking is allowed. The leader starts the exercise

and each person joins in when they hear the sound the person to their left is making. The leader

starts the exercise by rubbing their palms together. This continues in the circle until it comes back to the leader who then changes the sound (snap fingers, clap hands, slap thighs, stomp feet, and then in reverse order). The sensations created are akin to the sounds of a rainstorm.

Retrieved from: Lions Club International *https://sixth.ucsd.edu/_files/_home/student-life/icebreakers-teambuilding-activities-energizers.pdf*

A15

CONSENSUS

Materials needed: none
Time required: 10-15 minutes
Group Size: 10-12
Purpose: Team building, discussing consensus & teamwork, compromise

Instructions:
1. Divide the participants up into 3-4 groups depending on the number of people.

2. Ask each group to huddle together and create a noise and action to perform for other groups.

3. After each has demonstrated noise and action twice for other groups, the facilitator gives 10 seconds time for each group to huddle.

4. The goal is for all of the groups to be doing the same noise and action together, without consulting one another.

5. After the huddle, the facilitator counts to three and all of the groups at the same time must perform one of the action/noise combinations. (It doesn't have to be their original one).

6. Keep re-huddling until all groups are doing the same noise/action.

Variations: If for some reason the groups are successful on the first or second try, break participants up into smaller groups and have them repeat the activity.

Debrief/ Discussion Questions:
1. How did it feel to be successful (unsuccessful) with this activity?
2. What made it so hard to reach consensus?
3. What was most frustrating about this activity?
4. How did it feel to have your noise/ action not be chosen by the group?
5. Did any of you make any compromises during this activity, how did that feel?
6. How did it feel to not be able to communicate with the other groups?

Retrieved from: Lions Club International *https://sixth.ucsd.edu/_files/_home/student-life/icebreakers-teambuilding-activities-energizers.pdf*

ANIMAL ROUNDUP

Materials needed: none
Time required: 10 minutes

Instructions:

1. Tell group members to silently think of their favorite animal.

2. Then tell group members that without talking, they need to arrange themselves from largest to smallest animals.

3. Group members can only make gestures and the noise of their animal.

4. After they have finished, have group members

Retrieved from: Lions Club International *https://sixth.ucsd.edu/_files/_home/student-life/icebreakers-teambuilding-activities-energizers.pdf*

SILENT INTERVIEWS

Materials needed: none
Time required: 30 minutes
Group size: 10-15
Purpose: Team members learn about one another to establish familiarity within the group; learn about importance of both non-verbal and verbal communication

Instructions:

First, divide the group into pairs – try to mix the group into pairs of folks who don't know each other well.

Ask the participants to introduce themselves to their partner (e.g. his/her name).

Then, instruct the groups that from this point forward, speaking is not allowed (including whispering, mouthing words, and making sounds).

Inform the group that they must tell their partner 3 things about themselves without speaking, similar to charades. These things cannot be physical characteristics such as hair color, presence or absence of rings depicting marital status, etc.).

Once all of the partners have finished miming to each other, call everyone back into a circle.
Ask for each pair to verbally introduce their partner to the group, as well as the three things they learned (or think they learned).

Retrieved from University of Florida International Center: *https://www.ufic.ufl.edu/PD/downloads/ici-Activities/silent.pdf*

SUPERLATIVES

Materials needed: none
Time required: 15 minutes

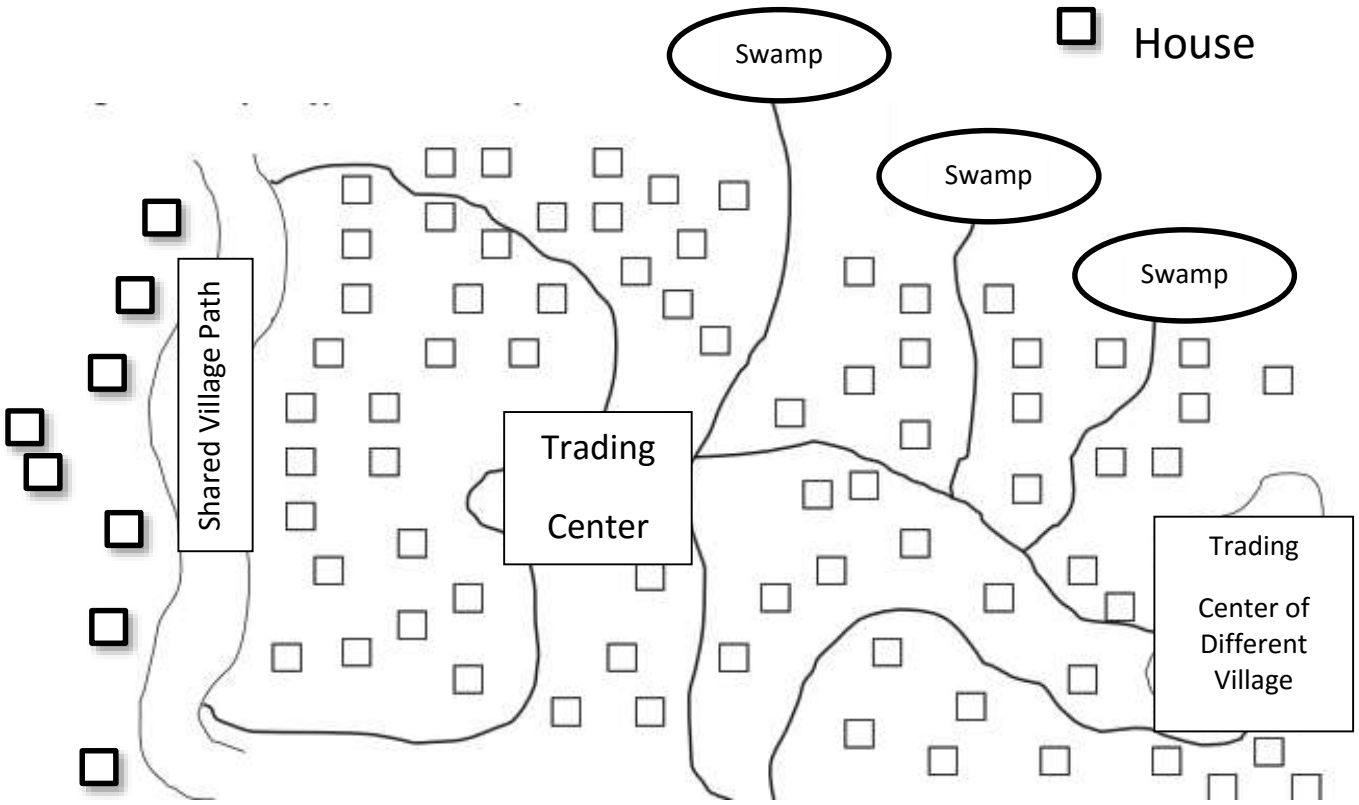
Instructions:
Divide the group into two equal teams. The goal of this game is for players to reorder themselves as quickly as possible without speaking or making noise. You can use your own category or one of the following:

From shortest to tallest – how many letters are in your first name.
From smallest to largest – shoe size
From least to most – how many brothers and sisters you have.
Shortest to tallest – height.
Beginning to end of year – birth month

Variation: Have the entire group work together to reorder themselves while remaining silent.

Retrieved from: Ice Breaker Ideas *http://icebreakerideas.com/best-icebreaker-games-adults/#Superlatives*

Module: Household Sampling and Skip Pattern Template



Adapted from the Reproductive Health Assessment Toolkit for Conflict-Affected Women (6)

APPENDICES: **SURVEY MANAGEMENT RESOURCES**

Appendix J: Enumerator Recruitment Announcement

Safe Mothers, Safe Babies
Box 355 Iganga, Uganda
Phone: +256 (0) 702 853 830
Website: www.safemotherssafebabies.org

Announcement: Research Assistant/Interviewer Positions

Date Posted: 20 May 2015
Application Close Date: 25 May 2015
Positions Available: Research Assistant—Enumerators and Interviewers

Organization Overview
Safe Mothers, Safe Babies (SAFE) is a local organization partnering with rural communities in the East Central Region of Uganda to improve maternal and child health by reducing the "Three Delays" (a delay in recognizing the need to seek health care during pregnancy, birth, and health emergencies; a delay in accessing a health facility; a delay in receiving quality care in the facility). SAFE has been operating in the region for eight years and has a track record of success.

Position Overview
Safe Mothers, Safe Babies and graduate student researchers from Emory University's Rollins School of Public Health are conducting four research projects in the East Central region. The study team is seeking enumerators for a quantitative research study, and interviewers for qualitative research projects, to be paid for data collection, transcription, and translation services. Candidates will be interviewed beginning 25 May 2015. Selected individuals must complete a week long training session. Field work will begin 1 June 2015. Employment length depends upon the project and ranges from four to ten weeks. Interviews and surveys will be conducted in several areas throughout Iganga District.

Qualifications
Above all, candidates must be honest, hard-working, reliable individuals who learn quickly and show up to work on time every day. They must be willing to learn new skills and be dedicated to improving health in the Iganga region. Additionally, candidates should possess the following qualifications:

- *MUST* be fluent in both English and Lusoga
- Ability to read and translate between Lusoga and English
- Familiarity with quantitative or qualitative research is helpful, though not required
- A flexible schedule, with ability to work very long hours for 6 – 10 weeks beginning June 1st

Application Procedures
Submit a cover letter and CV for consideration to [email@email.com] by 25 May 2015. If you have any questions please contact Mukalu Mohamed at +256 782 961097. Candidates selected for an interview will be contacted by 29 May 2015.

Appendix K: Enumerator Hiring Questions

Introduction of Interviewer(s) and Overview of Safe Mothers, Safe Babies

We are currently conducting interviews to hire enumerators for our baseline survey. This survey asks women to share their experiences with pregnancy, births, their children's health, and opinions about accessing healthcare. The survey will be conducted in _____ and _____ for approximately ____ weeks. Those who are hired as enumerators will be required to attend a week-long training and are expected to commit for the duration of the project until it is complete.

LOOK OVER RESUME AND ASK QUESTIONS ABOUT WORK HISTORY/EXPERIENCE.

Interview questions:

1) If selected to be an enumerator for our study, you will be working in a group setting each day. Can you tell me about a time when you worked as part of a team?

2) Sometimes conflict can arise in a group work setting. Can you tell me of a time you had a conflict with a co-worker? How did you handle this conflict?

3) As part of the survey, enumerators will be required to ask questions about pregnancy, childbirth, child health, etc. Some of these questions are sensitive in nature but are important to the study. If hired, how would you go about asking these types of questions to a respondent?

4) The survey will require enumerators to visit villages and communities that they may not be familiar with. How do you feel about approaching a person or household with whom you are unfamiliar?

5) Individuals hired for an enumerator position will be required to learn new technology. Extensive training will be provided. Do you have any experience with smartphones, tablets, etc.?

6) Why do you want to work for Safe Mothers, Safe Babies as an enumerator?

7) Do you have any questions for me about the job?

Appendix L: Nametag Template

_____

Safe Mothers, Safe Babies

Interviewer

_____

Safe Mothers, Safe Babies

Interviewer

_____

Safe Mothers, Safe Babies

Interviewer

Appendix M: Obstetric Fistula Referral Report

FOR SAFE MOTHERS, SAFE BABIES ADMINISTRATIVE USE ONLY

Obstetric Fistula Referral Report

Date Submitted: _____

SAFE Representative (Preparer): _____

UVP Representative (Receiver): _____

Directions: For each woman who indicated that she had experienced the symptoms of obstetric fistula and indicated that she wanted help, complete a separate entry in the below table. Attach additional sheets if necessary. Make two copies of this form; retain one for SAFE's records. Hand deliver the other copy to the Uganda Village Project staff person overseeing obstetric fistula outreach personally at the end of the baseline/endline survey period.

Number	Date of Interview	Survey UUID	Name of Respondent	Phone Number of Respondent	Sub-County

Appendix N: Malnutrition Referral Form

FOR SAFE MOTHERS, SAFE BABIES ADMINISTRATIVE USE ONLY

Malnutrition Referral Report

Date Submitted: _____

SAFE Representative (Preparer): _____

Directions: For each woman who had a child with a MUAC score indicative of moderate to severe malnutrition and who indicated that she wanted help, complete a separate entry in the below table. Attach additional sheets if necessary. Give the form to the SAFE Program Director, who will then set up a nutrition outreach and notify women of the event after baseline/endline data collection is over.

Number	Date of Interview	Survey UUID	Name of Respondent	Phone Number of Respondent	Sub-County

Appendix O: MUAC Check Form

MUAC Standardization

Name of MUAC Supervisor: _____

Date of MUAC Check	Name of Enumerator	Age of Child in Months	Enumerator's Measure	My Measure	Difference	Unable to get MUAC? List reason:

Appendix P: Team Meeting Minutes

Safe Mothers, Safe Babies
Box 355 Iganga, Uganda
Phone: +256 (0) 702 853 830
Website: www.safemotherssafebabies.org

Meeting Minutes

Meeting Date:	[enter date]	**Meeting Time:**	
Minutes taken by:	[list name]	**Meeting Location:**	
Meeting Attendees:	[list names]		
Absent:	[list names]		
Discussion:			
Conclusions:			

New Actions

Ref	Action Items	Status	Who	Due By

Outstanding Actions

Ref	Action Items	Status	Who	Due By

Appendix Q: Pilot Test Log

Print several pages of this log and record each issue encountered during the pilot test.

CLUSTER CODE	ENUMERATOR ID	ISSUE	UUID #	NOTES/CHALLENGES
123	1489			Example: Respondent was taking care of a child that was not her biological child. Enumerator was unsure if this child's information should be recorded in the survey. Enumerator did not include this child's info.
258	378	GPS		Example: GPS would not record location
456	202			Example: Respondent didn't understand Question 29
369	111			

Appendix R: Enumerator Notebook Master Log

Note to Survey Manager: Go through each enumerator's field notebooks at the end of every day. Record the challenges, questions, and inquiries that enumerators write. This may be easier to keep track of via a Google Spreadsheet which can be accessed by all SAFE President to aid in data cleaning, etc.

DATE	CLUSTER CODE	ENUMERATOR ID	UUID #	NOTES/CHALLENGES
7/29/2015	123	1489	###########	Example: Woman wanted more information about family planning. Her neighbor's number is ###-###-####. Ask for Mama Betty.
7/29/2015	123	378	###########	Example: GPS would not record location
7/29/2015	123	202	###########	Example: Respondent didn't understand Question 29
7/29/2015	123	111	###########	

Appendix S: Survey Translation Correction Log

Note to Survey Manager: Keep close track of all changes made during the survey translation process including questions asked by enumerators, spelling errors, skip pattern discrepancies (if any), etc. Re-create this document and all notes in a shared Google Spreadsheet to share with SAFE President to ensure all necessary changes are communicated for survey instrument updates prior to pilot testing.

ACT for Child Health Baseline Survey – Enumerator Survey Translation Session - Date:		
QUESTION	**TYPE OF CHANGE**	**CHANGE NEEDED**
E34	Spelling	Change spelling of CIRLCE to CIRCLE (question)
G5	Translation	The word for “antenatal” does not exactly translate in Lusoga. The word “Lusoga word here” was suggested as an alternative.
A8 (F)	Enumerator Question/Concern	Most people in this region don’t own boats so why is this question needed?

Appendix T: Incident Report

Incident Report

(To be completed within 24 hours of incident)

If the enumerator is completing this form, s/he must make sure that s/he discusses the situation with the SAFE Program Director and Survey Manager.

If SAFE Lead Staff is completing this form, s/he must make sure to discuss the situation with the SAFE President.

Enumerator name: _____
Date and time of incident: _____
Incident Location (Subcounty, village, etc.):_____

Incident

(Check where appropriate)

☐ The enumerator stopped interview due to participant being unable to complete the interview.

☐ The enumerator left premises because s/he felt s/he was in danger.

☐ The enumerator broke confidentiality procedures due to [circle ALL appropriate response(s)]:

A. Participant danger to self
B. Participant danger to others
C. Mandated report of child abuse
D. Mandated report of abuse of older or other vulnerable adult
E. Other (describe): _____

Incident Overview

(Brief description of incident—include times, locations, and dates)

_____
_____
_____
_____
_____

Incident Report *(continued)*

Action taken

(Brief description of action taken)

_____
_____
_____
_____
_____
_____
_____

Reported to

(Name, agency, title, contact information)

_____
_____
_____
_____
_____

_____

Signature of Interviewer Date

_____

Signature of SAFE Representative Date

REFERENCES

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