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EBOLA BARRIER ANALYSIS COMPENDIUM:

SUMMARY OF BARRIER ANALYSIS STUDIES ON EBOLA-RELATED BEHAVIORS

ABSTRACT

The outbreak of Ebola Virus Disease (EVD) in West Africa devastated the countries of Guinea, Liberia, and Sierra Leone. The rapid spread of the virus revealed the extent to which existing systems were weak and non-functional. Though much attention was given to the faults in the health care systems in these countries, of equal importance were the flaws in the system for communication. Trust between communities and Government was sub-optimal, and those in a position to communicate to the affected communities (e.g., Government, Non-Government Organizations [NGOs]) did not apply the best principles of behavior change communication. As of March 2016, Liberia was successful in achieving Ebola free status. However, the World Health Organization (WHO) has warned about possible Ebola flare ups. One case of death was reported in Sierra Leone on 15 January 2016, and two people tested positive for Ebola in Guinea on 17th March 2016. It is therefore a good time to take stock of lessons learned in the promotion of life-saving behaviors during an Ebola epidemic. This compendium was put together to add to the growing body of Ebola-related research and to understand ways in which improvements can be made in community mobilization and the promotion of behaviors and activities (e.g., hand washing with soap, referral of cases) that help reduce transmission of Ebola and other serious diseases. These lessons learned can be used to ensure that individuals in affected communities and globally are reached with effective, contextualized health behavior promotion that can save lives in the future. This paper summarizes gaps in the knowledge on uptake of preventive measures for Ebola Virus Disease (EVD), findings from studies that have been conducted on treatment and management of EVD, Barrier Analysis studies on behaviors related to EVD, and the lessons learned from these studies. This paper is primarily addressed to governments, NGOs, Faith-based organizations (FBOs), Community-based organization (CBOs), social and behavioral change professionals and frontline workers, researchers, and program planners. It is intended for anyone interested in understanding the key behavioral determinants that affect uptake of behaviors that help in the prevention, early treatment and management of EVD, other communicable diseases similar to EVD (e.g., Marburg Virus Disease), and diseases that are transmitted by some of the behaviors studied (e.g., hand washing with soap).

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ACRONYMS AND ABBREVIATIONS

BA	Barrier Analysis
CBO	Community-based organization
CDC	Centers for Disease Control and Prevention
CL	Community Leaders
CRS	Catholic Relief Services - United States Conference of Catholic Bishops
DBC	Designing for Behavior Change
DHMT	District Health Management Teams
ECAP	Ebola Community Action Platform
ETU	Ebola Treatment Unit
EVD	Ebola Virus Disease
FBO	Faith-based organization
MC	Mercy Corps
MoH	Ministry of Health
NBI	NestBuilders International
NGO	Non-governmental Organization
NERC	National Ebola Response Centre
TOPS	Technical and Operational Support Project
WHO	World Health Organization

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PREFACE

The Ebola outbreak of 2014-2016 in West Africa was so devastating that affected communities have had to rethink and rebuild from first, basic amenities such as health care services and hand washing facilities, to strengthen the country and prevent reoccurrence of the disease. Now that Liberia has been declared Ebola free, and with minimal Ebola incidences in Sierra Leone and Guinea, it is a good time to take stock of lessons learned in the promotion of life-saving behaviors during an Ebola epidemic. This compendium was put together to add to the growing body of Ebola-related research and to understand ways in which improvements can be made in the promotion of behaviors and activities (e.g., hand washing with soap, referral of cases) that help reduce transmission of Ebola and other serious diseases. These lessons learned can be used to ensure that individuals in affected communities and globally are reached with effective, contextualized health behavior promotion that can save lives during future epidemics. They can also be helpful in improving the uptake of behaviors now that can make the spread of future epidemics less likely in the future.

Ebola Virus Disease (EVD) is an acute viral disease caused by viruses that belong to the family Filoviridae. Fruit bats (Pteropodidae family) are thought to be natural hosts for these viruses, which are transmitted to human beings through direct contact with bodily fluids of infected humans and animals, and indirectly through contact with contaminated surfaces and materials. Initial signs and symptoms include sudden onset of fever, headache, sore throat and muscle pain. These signs and symptoms are followed by vomiting, rashes and impaired kidney and liver functions. In some cases, bleeding may occur internally and/or externally. The

average EVD case fatality rate is around 50%. Case fatality rates have varied from 25% to 90% in past outbreaks depending on the virus strain.[1]

This paper summarizes gaps in knowledge concerning uptake of preventive measures for EVD, findings from Barrier Analysis studies that have been conducted on the behavioral aspects of treatment and management of EVD, and the lessons learned from these studies.

This paper is primarily addressed to governments, NGOs, FBOs, and CBOs, social and behavioral change professionals and frontline workers, researchers, and program planners. It is also addressed to anyone interested in understanding the key behavioral determinants that affect uptake of behaviors that help in the prevention, early treatment and management of EVD, other communicable diseases similar to EVD (e.g., Marburg Virus Disease), and diseases whose transmission can be prevented by some of the behaviors studied (e.g., proper burial methods, hand washing with soap).

INTRODUCTION

In1976, the first outbreak of EVD occurred simultaneously in Nzara, South Sudan and in Yambuku, Democratic republic of Congo. Until December 2013, most Ebola outbreaks occurred only in parts of Central and East Africa (the largest outbreak being in Uganda in 2000/01) and were limited in size and geographical spread, affecting just a few hundred people.[2] The recent West African Ebola epidemic began in December 2013 in Guinea, with official notification being made to the World health Organization (WHO) on 23rd March 2014. It was to become the largest Ebola outbreak in history, and on 8th August 2014, the WHO declared it as, "a public health emergency of International concern".[1,2] As of 30th March 2016, there had been an estimated 28,610 cases with 11,308 reported deaths in Guinea, Liberia and Sierra Leone. Though Guinea was declared Ebola free on 29th December 2015, 4 new

[1] WHO, Ebola Virus disease, fact sheet updated August 2015, http://www.who.int/mediacentre/factsheets/fs103/en/

[2] Team, WHO Ebola Response. "Ebola virus disease in West Africa—the first 9 months of the epidemic and forward projections." *N Eng J Med* 371.16 (2014): 1481-95.

confirmed cases and 3 probable cases were reported at Guinea by March 27th and none at Sierra Leone and Liberia.[3]

Ebola virus can survive for hours at room temperature and for weeks at low temperature on contaminated surfaces and in bodily fluids. Since no specific medication is available, healthy practices such as changing traditional burial practices and avoiding physical contacts with symptomatic individuals are considered as some of the best methods for disease control and to avoid spread of infection.[4][5] Hand washing with soap and avoiding public gatherings during outbreaks may also help in stopping transmission. Another precaution recommended by the CDC and WHO is to avoid unprotected sexual contact with survivors.[6] There have been documented cases of transmission from sexual contact with survivors, and since the virus may be found in semen and vaginal discharge, taking precaution has been advocated.[7] William Bazeyo et al. conducted a study in Uganda, in which 210 health workers and 120 other multidisciplinary members were trained on Ebola preparedness and response. They concluded that sensitization of the community through mass media and infection control and prevention improved countries' preparedness and response to Ebola.[8]

Even though information on Ebola has been widely communicated in many Ebola-affected areas, misunderstanding, false conflicting information (rumors), conflicts with traditional practices, and other barriers hinder the uptake of effective EVD preventive measures.

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[3] World Health Organization. "WHO: Ebola response roadmap situation report 30 March 2016." (2016). http://apps.who.int/ebola/current-situation/ebola-situation-report-30-march-2016

[4] Liu, Wen Bin, et al. "Ebola virus disease: from epidemiology to prophylaxis." *Military Medical Research* 2.1 (2015): 7.

[5] Alexander, K. A., et al. "What factors might have led to the emergence of Ebola in West Africa." *PLOS Neglected Tropical Diseases* (2014).

[6] Christie, A., et al. "Possible sexual transmission of ebola virus-liberia, 2015." *MMWR. Morbidity and mortality weekly report* 64.17 (2015): 479-481.

[7] Rogstad, Karen E., and Anne Tunbridge. "Ebola virus as a sexually transmitted infection." *Current opinion in infectious diseases* 28.1 (2015): 83-85.

[8] Bazeyo, William, et al. "Ebola a reality of modern Public Health; need for Surveillance, Preparedness and Response Training for Health Workers and other multidisciplinary teams: a case for Uganda." *Pan African Medical Journal* 20.404 (2015). Available from: http://www.panafrican-med-journal.com/content/article/20/404/pdf/404.pdf

A literature review was undertaken to identify articles that reported Ebola-related behaviors such as safe burial practices and hand washing with soap. Two databases (Web of Science, PubMed) were used with the following search terms and Boolean connectors: (Ebola*) AND ((hand wash*) OR (timely reporting*) OR (physical contact*) OR (human behavior*)). The search was limited to studies available in English and conducted on humans from 2012-2015. Duplicate publications were eliminated by using the more recent publication. Inclusion criteria consisted of studies that were related to transmission and management of Ebola, and behaviors related to Ebola transmission. Titles and abstracts were reviewed to exclude articles that did not satisfy the inclusion criteria. After exclusion/inclusion criteria were applied, a total of 16 papers were identified. (Table 1)

Table 1 Process of papers excluded/included in Literature Review.

Literature Search		
Level of inclusion/exclusion	**Web of Science**	**PubMed**
From title	22	14
After reading abstract	19	10
After reading entire paper	9	7

Human behaviors, cultural systems, and cultural beliefs affect the transmission and spread of Ebola. For example, concerns of people and the beliefs held in some communities can play a vital role in the uptake – or rejection – of behaviors that help prevent the transmission of Ebola.[9] WHO recommends regular monitoring during the 21 days after exposure to EVD. In the event of a positive case, follow up,

[9] Bayntun, Claire, Catherine Houlihan, and John Edmunds. "Ebola crisis: beliefs and behaviours warrant urgent attention." *The Lancet* 9952.384 (2014): 1424. Available here: http://www.lancet.com/pdfs/journals/lancet/PIIS0140-6736(14)61856-0.pdf

isolation, treatment, decontamination and (if there's a death) uptake of safe burial practices are considered important measures to prevent the spread of the virus. The following is a summary of the findings from the literature review on Ebola-related knowledge, perception, practice, treatment and management.

Hajj pilgrims from Australia took part in a survey to evaluate the level of knowledge, perception and practice including risk reduction behaviors related to Ebola. The findings of this survey suggest that adherence to hand washing was high (i.e., the pilgrims washed their hands several times during the day). However they did not always comply to wash hands using soap especially after touching ill patients.[10] A similar study by Gidado et al (2014) in Nigeria suggests that participants with prior knowledge of Ebola and those with a higher level of education (secondary) were more likely to adopt appropriate preventive measures. The most common sources of information were television and radio. They were aware that the spread of the disease was through animal contact but felt that this was not as important as bodily contact during burial of a person who died of Ebola. Sixty one percent of respondents believed that they would not contract the disease; 62% did not shake hands with successfully treated patients; 64% did not hug patients who were successfully treated; and only 2.2% followed good hand washing practice. [11]

The findings of another similar study, which was believed to be the first study conducted to assess the effectiveness of the initial Ebola messages communicated in several parts of Liberia at a community level, showed that Ebola awareness was high. However, knowledge and understanding were incomplete and respondents were not *confident* about their ability to identify Ebola symptoms. Also, more than 40% responded that they feared survivors[12]. There is therefore a need to understand social stigma associated with EVD.

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[10] Alqahtani, A. S., et al. "Australian Hajj pilgrims' knowledge, attitude and perception about Ebola, November 2014 to February 2015." *Euro Surveill* 20.12 (2015): 21072. Available here: http://www.eurosurveillance.org/images/dynamic/EE/V20N12/art21072.pdf

[11] Cherry, D. V. M., et al. "Community Knowledge, Attitudes, and Practices Regarding Ebola Virus Disease—Five Counties, Liberia, September–October, 2014." Available here: http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6426a2.htm

[12] ibid

Mariam et al (2014) conducted a study to compare the social stigma associated with EVD and Human Immunodeficiency Virus (HIV). Their results showed that many of the attitudes and behaviors towards Ebola were very similar to the stigmas associated with HIV. Despite global efforts, communities have suffered from isolation, destruction of houses, physical violence, reduced quality of life and fear of infection because of stigma.[13] This stigma will most likely be a continuing problem in communities affected by Ebola, especially for individuals and families considered to be the ones that "brought" EVD to their communities.

Education on prevention is very important in addressing Ebola-related stigma. An ethnographic study was conducted in Liberia in which community leaders shared their opinions about best practices during the Ebola epidemic including preventive measures such as community-based training, improved hygiene and sanitation, safe transportation of the infected individuals, removal of the dead and community-based infrastructure like community organizations, health care facilities, etc., to care for the sick. **Leaders believed that the people in their community knew enough about Ebola, but did not respond effectively.** Further, most people feared Ebola but did not know how to practice the preventive measures. The study also identified **three critical long-lasting effects of Ebola including the response to caregiving for children who lost one/both parents to Ebola, burial of the dead and memorialization and reintegration of the survivors in the local community.**[14]

One of the high risk factors for Ebola transmission in West Africa was through unsafe burial practices, mainly due to traditional cultural practices requiring touching the deceased during the burial process, thereby risking acquisition of the virus.[8,15] However, given that funeral practices are a social obligation, it important

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[13] Davtyan, Mariam, Brandon Brown, and Morenike Oluwatoyin Folayan. "Addressing Ebola-related stigma: lessons learned from HIV/AIDS." *Global health action* 7 (2014). Available here: http://www.globalhealthaction.net/index.php/gha/article/download/26058/pdf_1

[14] Abramowitz SA, McLean KE, McKune SL, Bardosh KL, Fallah M, Monger J, et al. (2015) Community-Centered Responses to Ebola in Urban Liberia: The View from Below. PLoS Negl Trop Dis 9(4): e0003706. doi:10.1371/journal.pntd.0003706. Available here: http://journals.plos.org/plosntds/article?id=10.1371/journal.pntd.0003706

[15] Richards, Paul, et al. "Social pathways for Ebola virus disease in rural Sierra Leone, and some implications for containment." (2015): e0003567. Avaialble here: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4401769/pdf/pntd.0003567.pdf

to understand this Ebola risk-related behavior from the perspective of the family members. A study by Carrie et al (2015) found that safe burial practices were not well accepted by community members, that there were inadequate burial teams, and that the Ebola burial team was not well-coordinated. Systematic testing of the deceased for Ebola was lacking. There was often improper management of cemeteries with problems such as not being fenced, having high pedestrian traffic through the cemetery, having unmarked and hand-dug graves, having graves that were not dug to the recommended depth, and having more than one body buried in a single grave.[16] Some infected people isolated themselves and hid away from friends and family rather than seeking care, and feared that health workers were spreading the disease.[17] Studies have also found that stigma may extend to those who are charged with carrying out mass cremations.

Given these findings, there is a need to consider the local context that people are operating in, including social and political circumstances, which can affect their reactions to public health messages.[18] Uptake of a behavior does not depend only on clinical and epidemiological knowledge of a disease. Behavior and decisions about behavior are complex. To maximize the behavior change potential, there is a need to understand the different determinants of each behavior being promoted to the greatest degree possible and in each context where the behavior is being promoted. This requires local formative research. There is also a need to address the enablers of the behavior (i.e., things that make it easier and more socially-acceptable for people to adopt the behavior) and to connect the behavior to people's underlying key values and priorities in life. Barrier Analysis is one such formative research tool that can be used for the identification of key determinants (barriers and enablers) of Ebola-related behaviors.

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[16] Nielsen, Carrie F., et al. "Improving burial practices and cemetery management during an ebola virus disease epidemic-Sierra Leone, 2014." *MMWR Surveill Summ* 64 (2015): 1-8. Available here: http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6401a6.htm

[17] Green, Andrew. "WHO and partners launch Ebola response plan." *The Lancet* 9942.384 (2014): 481. Available here: http://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736(14)61322-2.pdf

[18] Chandler, Clare, et al. "Ebola: limitations of correcting misinformation." *The Lancet* 385.9975 (2015): 1275-1277. Available here: http://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736(14)62382-5.pdf

BARRIER ANALYSIS STUDIES ON BEHAVIORS RELATED TO EBOLA

Barrier Analysis[19] (BA) is a rapid formative research tool used in community development projects to identify behavioral determinants associated with a particular behavior so that improved behavior change messages and support activities can be used to facilitate behavior change. BA helps to identify the barriers and enablers to adoption of healthy behaviors. It is a survey tool that uses both open-ended and closed-ended questions to produce evidence-based recommendations to better inform public health messaging and behavior change strategies. A key feature of BA is that it compares responses of people doing a behavior (the "Doers") with those who are not ("Non-doers"). Barrier Analysis was developed in 1990 by Tom Davis MPH (formerly with Food for the Hungry) based on the Health Belief Model and the Theory of Reasoned Action, and revised subsequently based on the work of the Academy of Educational Development's Doer-Non-doer Analysis approach. Since then, it has been used in 33 countries around the world to study determinants of behaviors related to child survival, food security, sexual and reproductive health, city planning, and other areas. It is a recommended tool by the Food Security and Nutrition Network Social & Behavioral Change Task Force. Several hundred Barrier Analysis studies have been conducted by more than 33 international and national NGOs around the world. The results of 137 studies were posted online at www.fsnnetwork.org/behavior-bank as of 22 June 2016, and some are in the published peer-reviewed literature,[20] but many of the studies have not been posted publicly or published.

While a Barrier Analysis study can be conducted at the start of a behavior change program to determine activities and messaging for an intervention, it can also be used in an ongoing program for behaviors that have been poorly adopted, despite

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[19] For a full description of this method, see the original Barrier Analysis Facilitator's Guide (http://www.fsnnetwork.org/barrier-analysis-facilitators-guide), the preface to the second printing (http://bit.ly/BAPreface2ndPrint), and the latest guide, A Practical Guide to Conducting a Barrier Analysis (http://www.fsnnetwork.org/practical-guide-conducting-barrier-analysis).

[20] See for example Koyaté et al (2015): http://www.sciencedirect.com/science/article/pii/S014971891400130X.

health promotion efforts, to better understand the factors that may be preventing people from making adopting a behavior, and those factors that support adoption of the behavior.

The rationale for the use of such a technique is outlined in the first four of the five tenets of behavior change as set out by the by the CORE Group Social and Behavioral Change Working Group and the Food Security and Nutrition Network Social & Behavioral Change Task Force in the Designing for Behavior Curriculum, namely that:

1. **Just because a person knows what he/she should do does NOT mean that he/she will do it.**

2. **Just because a person wants to do a behavior does NOT mean that he/she will do it.**

3. **Just because a person fears a given outcome does not mean they will take action to prevent it.**

4. **Many of the actions that people engage in to improve their lives are NOT necessarily done for the reasons that we promote.**

The comparison of "Doers" and "Non-Doers" in BA is very useful in the identification of the most important behavioral determinants. Cross-sectional surveys (that do not compare Doers and Non-doers) are less useful in identifying potential behavioral determinants. It is not uncommon to find a high proportion of respondents in a given population reporting a given barrier to a behavior, yet Doers and Non-doers of the behavior may report the barrier in *equal* proportions. For example, if almost everyone mentions a particular difficulty with doing a given preventive behavior such as hand washing with soap (e.g., "it takes a lot of time"), but half of the respondents have adopted the behavior and half have not, you can be reasonably certain that the barrier of time is *not* driving the behavior. (Otherwise, why have half of the people adopted it, despite time being a nearly universal perceived difficulty?) Barrier Analysis overcomes this problem by directly comparing Doers and Non-doers and looking for statistically-significant differences to their responses to questions about a behavior.

BA uses a questionnaire to identify twelve potential determinants including perceived self-efficacy/skills; perceived social norms; perceived positive consequences; perceived negative consequences; access; cues for action/reminders;

perceived susceptibility/risk; perceived severity; perceived divine will; perceived action efficacy; policy; and culture. Table 2 provides the definitions of the behavioral determinants assessed in Barrier Analysis.

Table 2 Definitions of Behavioral Determinants

BEHAVIORAL DETERMINANT	DEFINITION
Perceived severity	Belief that the problem (which the behavior can prevent) is serious (e.g., a mother may be more likely to take her child for immunizations if she believes that measles is a serious disease)
Perceived action efficacy	The belief that by practicing the behavior one will avoid the problem; that the behavior is effective in avoiding the problem (e.g., if I sleep under a mosquito net, I won't get malaria) Sometimes talked about as part of perceived positive consequences
Perceived social norms	The perception that people important to an individual think that he/she should do the behavior Norms have two parts: who matters most to the person on a particular issue and what the person perceives those people think he/she should do
Perceived self-efficacy/ skills	An individual's belief that he/she can do a particular behavior given his/her current knowledge and skills The set of knowledge, skills, or abilities necessary to perform a particular behavior
Cues of action/reminders	The presence of reminders that help a person remember to do a particular behavior The presence of reminders that help a person remember the steps involved in doing the behavior (such as memory aids) Key powerful events that triggered a behavior change in a person (e.g., "my brother-in law died of EVD so I decided to not attend funerals this year")
Perception of divine will	A person's belief that it is God's will (or the gods' will) for her/him to have the problem and /or to overcome it. Includes the priority group's perception of what their religion accepts or rejects and perceptions about the spirit world or magic (e.g., spells, curses)

BEHAVIORAL DETERMINANT	DEFINITION
	Numerous unpublished Barrier Analysis studies have found this determinant to be important for many behaviors (particularly for health and nutrition behaviors)
Access	Has many different facets Includes the degree of availability (to a particular audience) of the needed products (e.g., soap, water) or services/ facilities (e.g., immunizations, ETUs) required to adopt a given behavior Includes barriers related to cost, geography, distance, linguistics, cultural issues, and gender
Perceived susceptibility/ risk	A person's perception of how vulnerable or at risk he/she feels to the problem/disease (e.g., is it possible for him/her to get EVD?)
Perceived Positive and negative consequences	What positive things a person thinks will happen as a result of performing a behavior Responses to questions related to positive consequences may reveal advantages (benefits) of the behavior, attitudes about the behavior, and perceived positive attributes of the action The negative things a person thinks will happen as a result of performing a behavior Responses to questions related to negative consequences may reveal disadvantages of the behavior, attitudes about the behavior, and perceived negative attributes of the action
Policy	Laws and regulations (local, regional, or national) that affect behaviors and access to products and services (e.g., the Baby-Friendly Hospital policy that forbids the sale of formula helps to promote breastfeeding)
Culture	The set of history, customs, lifestyles, values, and practices within a self-defined group May be associated with ethnicity or lifestyle, such as gay or youth culture Often influences perceived social norms

Source Kittle, Bonnie. 2013. A Practical Guide to Conducting a Barrier Analysis. New York, NY: Helen Keller International, http://www.fsnnetwork.org/practical-guide-conducting-barrier-analysis.

By comparing the proportion of Doers and Non-Doers for whom the determinant is important (e.g., 40% of Doers say the majority of their friends approve of their doing the behavior under study vs. 20% of Non-Doers [perceived social norms]), one can identify which determinants are more likely to be driving a given behavior. (A spreadsheet is used in BA which shows the likelihood that a given difference between Doers and Non-doers is due to chance (based on a p-value) and the degree of association between each behavioral determinant and the behavior (based on the Estimated Relative Risk [or the Odds Ratio in previous versions of the form].) Practitioners than only focus on those determinants with a low p-value, and generally focus more on those determinants that have the highest associations with the behavior. A presentation of how Barrier Analysis was used in a country to improve behavior change (in this case, in agriculture) can be viewed online: http://www.caregroupinfo.org/vids/BAEvid/story.html

Identification of the key behavioral determinants through a Barrier Analysis study therefore enables the development of more effective behavior change communication messages, strategies and supporting activities by ensuring that they address the barriers and enablers which affect a given behavior in a given geographical setting.

The INGOs Mercy Corps (MC) and Catholic Relief Services (CRS) conducted Barrier Analysis studies as a part of research to better understand Ebola-related behaviors while Samaritans Purse conducted Barrier Analysis on hand washing with soap as part of a planned Care Group project. The behaviors studied included:

- **early (timely) reporting of suspected Ebola cases;**
- **stigma associated with providing livelihoods to (rehiring/reinstating) EVD survivors;**
- **timely calling of the burial team to report the death of a family member;**
- **not touching the deceased body while waiting for the burial team;**
- **care seeking for a person with fever; and**
- **hand washing with soap.**

Each of these studies are summarized in the sections below. Some edits were made to each of these reports by the editors of this compendium (and later reviewed by the original authors), but the reports are the work of the organizations that conducted the studies.

BARRIER ANALYSIS BY MERCY CORPS, LIBERIA ON (1) EARLY REPORTING OF SUSPECTED EBOLA VIRUS DISEASE CASES AND (2) STIGMA AND LIVELIHOOD OF EVD SURVIVORS

Mercy Corp's Ebola Community Action Platform (E-CAP) program focused on social mobilization as the key to stemming the spread of the Ebola epidemic in Liberia. In the first phase of the program, community mobilizers and communicators were trained in basic data collection and thousands of surveys were conducted throughout the country to gauge the current knowledge, attitudes and practices around promoted behaviors in the government-led Ebola response. The results indicated significant gaps between knowledge and behavior for a number of key program indicators, including early reporting of suspected cases to proper authorities as recommended by the government. Therefore, a rapid research team was encouraged to conduct a Barrier Analysis study to understand the key determinants affecting **uptake of early (timely) reporting of suspected cases**. A follow-up study was also conducted to understand the **stigma around providing livelihoods to EVD survivors**. These studies have been discussed in the sections below, "Early reporting of suspected EVD cases" and "Stigma and livelihood of EVD survivors" respectively.

EARLY REPORTING OF SUSPECTED EBOLA VIRUS DISEASE CASES

INTRODUCTION

This Mercy Corps report documents the findings from a Barrier Analysis study on obstacles to early reporting of suspected EVD cases which was conducted in Monrovia and surrounding areas of Montserrado County, Liberia. This included six communities, namely New Kru Town, Iron factory, West Point, Gardenerville, Mount Barclay and Brewerville. Data collection was carried out between 16 and 18 February 2015 (which was fairly late in the epidemic). These areas were chosen for the study since they constituted the area of Liberia in which there were still active case reporting and contact tracing at the time of the study.

METHODS

A rapid research team, consisting of seven members including six research assistants and one supervisor, was trained in the TOPS (Technical and Operational Support) Designing for Behavior Change (DBC) methodology, including the practical application of Barrier Analysis. The training consisted of a weeklong workshop during which participants received an orientation to the different determinants of behavior, the classification of individuals as Doers or Non-Doers of the behavior, instruction and practice in sample selection, confidentiality and use of data, conducting interviews, data collection, data tabulation and analysis for Barrier Analysis studies.

For the purpose of this study, the Doers of the Ebola-related behavior were *the heads of households who reported suspected Ebola cases to hotline number #4455 or their community leader within 48 hours of noticing symptoms*. Non-Doers were heads of households who were aware of suspected Ebola cases, but did not call the hotline number #4455 or notify their community leader within 48 hours of noticing symptoms. Originally Doers were to be defined as those who notified officials within the first 24 hours of noticing symptoms. However, after field testing the survey questionnaire, it was determined that the behavior should be "relaxed" to 48 hours to enable the research team to find enough Doers of the behavior to conduct the study. (Initial field testing of the survey tool indicated that very few individuals contacted officials within 24 hours.)

"Heads of households" were individuals who self-identified as being responsible for decision-making regarding the health and wellbeing of the people living in their home. The "reporting" behavior included either calling #4455 (national Ebola hotline managed by government) and/or reporting the suspected case to their community leader, with both options being in line with the recommendations promoted by the Liberian government and international response community. The symptoms that required reporting included persistent high fever, headache, excessive vomiting/diarrhea, and extreme fatigue.

A standardized Barrier Analysis questionnaire (Annex 1) was developed based upon the established definition of early (timely) reporting of suspected Ebola cases. The questionnaire was reviewed by technical experts and E-CAP program staff. The rapid research team practiced interview techniques using the English and Liberian English questionnaires. The instrument was field tested for accuracy and comprehension, which resulted in the relaxing of the ideal behavior from reporting within 24 hours to within 48 hours. Each team member carried out practice interviews in the field using the questionnaire and received focus group feedback from peers and the facilitator.

Data collection was restricted to Monrovia and surrounding areas of Montserrado County. Five communities were selected based on accessibility, case-reporting history, and availability of appropriate community entry support. A total of 99 interviews were conducted (44 Doers, 55 Non-Doers).[21] The results were coded during a participatory session by the rapid research team and the training facilitator reviewed for accuracy. An MS Excel spreadsheet specifically developed for the Barrier Analysis methodology (by Tom Davis)[22] was used for data entry and analysis. The key determinants were identified as being ones for which the difference in Doers' and Non-Doers' responses were statistically significant ($p < 0.05$). We have also listed in the table (in red font) those results that were significant at the $p<0.10$ level (and thus have up to a 10% odds of Doers' and Non-Doers' responses being different purely by chance).

RESULTS

The key determinants in this compendium are those identified as being ones for which the difference in Doers' and Non-Doers' responses are statistically significant ($p < 0.05$). We have also listed in the table (in red font) those results which are significant at the $p \leq 0.10$ level (and thus have up to a 10% odds of Doers and Non-Doers' responses being different purely by chance).

Four of the 12 behavioral determinants studied (see Table 3) were found to have a significant association with the early (timely) reporting of suspected Ebola cases within their homes. (Note that only responses where there was a statistically-significant difference between Doers and Non-doers [at the $p<0.05$ or $p<0.1$ levels] are shown in the tables below.)

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[21] A minimum sample size of approximately 45 individual Doers and 45 individual Non-Doers is recommended for BA studies, as this usually gives the best results, identifying determinants that are statistically-significant (at the $p<0.05$ level), but without identifying determinants where the estimated relative risk is quite small and the determinant is less important. This sample size is based the results of using a sample size calculator for case-control type studies with a p-value of 0.05, a Relative Risk of 3.0, an alpha error of 5%, and a power of 80%.

[22] The Barrier Analysis Tabulation Table can be downloaded here: http://caregroups.info/docs/BA_Tab_Table_Latest.xlsx. Directions on the table are here: http://caregroups.info/docs/BA_Analysis_Excel_Sheet_Tab_Sheet_Explanation_Sept_2010.doc.

Table 3 Important determinants and responses

Significant determinants/responses	# Doers	% Doers	# Non-Doers	% Non-Doers	Perc. pt. diff.	E.R.R.[23]	p-value
Perceived self-efficacy: *What made it easier/would have made it easier to report?*							
"*Help from community leader*"	18	41%	11	20%	+21%	2.44	0.02
"*Access to the community leader*"	2	5%	14	25%	-20%	0.16	0.004
"*Access to a functional phone/network*"	31	70%	49	89%	-29%	0.35	0.02
Perceived positive consequences: *What good things happen when/if you report?*							
"Avoid spread of Ebola"	9	20%	3	5%	+15%	3.44	0.03
"Protect others/help family and community"	19	43%	15	27%	+16%	1.87	0.08
Perceived social norms: *Who does not/would not approve of you reporting?*							
"Friends and neighbors"	2	5%	15	27%	-22%	0.14	0.002
Access: How difficult is it/would it be to report?							
"Not difficult"	28	64%	26	47%	+17%	1.83	0.077
"Very difficult" or *"somewhat difficult"*	16	36%	29	53%	-16%	0.55	0.077
Cues to action/ how difficult was it to remember							
"Not difficult"	36	82%	33	60%	+22%	2.74	0.02

Several themes were identified that could be used to improve case reporting in Liberia and to help control future outbreaks of the disease.

[23] ERR = *Estimated Relative Risk.* The higher the ERR, the greater the degree of association between a given determinant and the studied behavior.

Community Leaders play a critical role in facilitating timely responses in emergency situations. This is a community-selected, often informal but authoritative post that gives the individual power to represent the community and coordinate on their behalf. Receiving the support of the community Leader (CL) was an important facilitator of the behavior reported by Doers: Doers were 2.4 times more likely (note E.R.R.=2.44 in the table) to say that "help from community leaders" made it easier for them to report cases in a timely manner. Also, Non-Doers were six times more likely to say that having access to CLs would have made it easier for them to report suspected cases in a timely manner.

Access issues, particularly cell phone communication, were identified as important barriers to timely case reporting. More Non-Doers reported experiencing some difficulty in obtaining the things necessary to report suspected cases. Many more Non-Doers indicated that having a working phone (or access to a working phone), having reception, or having a place to charge a phone were impediments to timely reporting: Non-Doers were about 3 times more likely (than Doers) to say that having a functional and charged phone would have made it easier for them to report suspected cases in a timely manner. 82% of the Doers said that remembering the action was not difficult in comparison to only 60% of the Non-Doers. (The difference was statistically significant [$p=0.02$].)

Positive consequences of reporting, specifically the safety and wellbeing of the family and community, was another important theme. While a high percentage of both Doers and Non-Doers associated early reporting with improved chances of individual survival, there was not a statistically significant difference in answer frequency between the two groups. However, significantly more Doers cited stopping the spread of Ebola as a motivation to report cases: Doers were three times more likely to give this response than Non-Doers. Doers were also about 1.9 times more likely to mention the welfare of those around them ("protecting others," "helping family/community") as a positive consequence of reporting (but this was only significant at the $p<0.1$ level) which suggests that Doers may be further motivated by a degree of preventive altruism, placing potential benefits to those around them above self-protective measures, including bearing criticism from other family members for their reporting of cases in the family.

Social stigmatization was another important barrier that may have influenced individual decisions regarding suspected case reporting. Non-Doers were about 7

times[24] more likely (than Doers) to report that their friends and neighbors would disapprove of their reporting of sick family members to #4455 or the local Community Leader. Building a positive social norm around early reporting of suspected cases may help increase this behavior. This should be easier to do when messaging is combined with messages on the benefits of early case reporting *to the infected person*, as well as the benefits to the overall community.

DISCUSSION AND RECOMMENDATIONS

This study has allowed project staff and others to take a more in-depth look at some of the key enablers and barriers that influence early (timely) reporting of suspected EVD cases in communities in Montserrado County. ***Perceived self-efficacy*** emerged as a defining barrier amongst Non-Doers. Further responses indicated that many of these self-efficacy issues were tied to a perceived (or real) difficulty in accessing community leaders and/or a lack of access to a functioning cell phone and network. This is an important area to focus on moving forward, both in the context of this particular epidemic as well as in strengthening the capacity of communities to gather and disseminate important information in the face of future emergencies. It is recommended that community leaders be supported by a small communications committee comprised of local volunteers geographically dispersed within communities that could provide intermediary conduits for information flow between CLs and community members. This could also help strengthen social connections (especially "bridging" and "linking" social capital).[25] Another recommendation would be to conduct community-mapping exercises to identify homes with functioning phones that could be relied on by neighbors to assist with reporting in emergency situations (after obtaining their consent).

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[24] This is not readily apparent in the table. To calculate these associations where more Non-doers than Doers gave a response, one takes the reciprocal of the E.R.R. (e.g., 1/0.14=7.14).

[25] This role could be taken on by Care Group Volunteers in areas using Care Groups, CLTS organizers where that model is in use, or other community volunteers that are already in place. We now have evidence that the most important factor in the ***speed*** and ***level*** of recovery of communities and households after a disaster is not family wealth, level of damage, or population density – it's level of social capital. Daniel Aldrich's work in this area is instructive. See his book, Building Resilience, or this presentation on his work, beginning at the 6 min mark: http://www.youtube.com/watch?v=tx4Ii5tueDo).

Another key determinant that was identified by this study which could be targeted in planning messaging on EVD is ***perceived positive consequences*** of early reporting of EVD cases. The fact that Doers were more likely to cite "protection of family/community" as positive consequences of early reporting suggests that preventive altruism may be a valuable theme to emphasize in national messaging campaigns. Also, since Doers were more likely to cite "avoiding the spread of Ebola" as a positive consequence, this motivation could be used in messaging as well. While there still exists a lack of clarity around individual survival rates, there is a mountain of evidence that indicates that early reporting and treatment seeking leads to faster case isolation and ultimately safer households and communities. Promotion of protective altruism has been studied in other public health awareness campaigns (e.g., avian flu, HIV) as a way to prevent disease transmission, and has been found to exert influence on decision-making. It is recommended that future messaging and community mobilization campaigns focus on early reporting as a way to protect family members, the community, and the infected person.

Responses from Non-Doers indicate that the ***perceived social norms*** – especially perceived disapproval of reporting by non-related friends and neighbors in their communities – may have been a significant deterrent to early reporting of suspected EVD cases. This finding suggests that social stigma plays a key role in the decision-making process confronting heads of households in Montserrado County. Many separate qualitative anecdotes from the interviews support this finding, with interviewed heads of households citing fear of community discrimination, subsequent isolation, and potential reprisal as negative consequences or reporting. Of course, not all friends and neighbors were opposed to early case reporting, but there are many whom the positive messaging had not yet reached, or who remained too fearful to believe the messages. Survivors offered compelling stories of hope and triumph over the virus, as well as direct evidence that Ebola is not a death sentence for everyone. In the future, it is recommended that communities host *Palava* hut discussions as part of community engagement, including survivor stories and testimonials, to begin to dissolve false perceptions of the disease and to provide positive alternative narratives to counter social stigma. These testimonials should include narratives on how early reporting by others (e.g., family members) helped save the lives of some of those who were infected by EVD.

Summary of recommendations

a. Expand access of community members to services provided by community leaders by appointing (or using existing) community volunteers as zone leaders to provide intermediary services that bridge the access gaps to community leaders.

b. Create community maps of households with functional phones (and access to cell networks) that can be accessed in emergency situations.

c. Incorporate preventive altruism (placing the safety of family and communities first) in awareness messages. Consider looking for "positive deviants" who are already doing this and use them to promote the practice.

d. Address social disapproval of reporting within communities through *Palava* hut discussions (as part of larger community engagement) to reduce stigma and introduce or reinforce positive protective behavior. Use testimonials by survivors on how early reporting by others (e.g., family members) helped save their lives.

STIGMA AND LIVELIHOOD OF EBOLA VIRUS DISEASE SURVIVORS

INTRODUCTION

This Mercy Corps report documents the findings from a Barrier Analysis study into stigma and livelihood of EVD survivors conducted in four of the most Ebola-affected counties of Liberia: Montserrado, Margibi, Cape Mount and Nimba County. Data collection for this study was carried out between 2 and 6 March 2015.

METHODS

For the purpose of this study, the behavior was defined as follows: **Employers / business union leaders/School Administrators reinstate/rehire Ebola survivors or affected persons back to work/business point (location) within 14 days to 1 month of being declared "Ebola free**." A total of 98 employers and union leaders were interviewed (46 "Doers" and 48 "Non-Doers" of the behavior) using a standardized questionnaire template. Responses were subsequently coded, tabulated and compared.

RESULTS

The key determinants which were considered statistically significant have been summarized in Table 4. (Note that only responses where there was a statistically-significant difference between Doers and Non-doers [at the $p<0.05$ or $p\leq 0.1$ levels] are shown in the tables below.)

Table 4 Summary of important determinants and responses on Stigma and livelihood

Significant determinants/responses	# Doers	% Doers	# Non Doers	% Non Doers	Perc. pt. diff.	E.R.R.	p-value
Perceived self-efficacy: *What made it easier [Doers]/would have made it easier [Non-Doers] to reinstate the EVD survivor?*							
Proof of being Ebola-free (certificate/medical record)	43	93%	33	69%	25%	5.79	0.002
Empathy for survivor (love/reduce stress/help/God/humanitarian)	8	17%	1	2%	15%	5.61	0.01
Perceived positive consequences: *What good things happen when/if you reinstate a survivor?*							
Reduce/Get rid of stigma	12	26%	6	13%	14%	2.19	0.08
Acceptance/integration; Survivor feels accepted/useful/integrated	18	39%	11	23%	16%	1.98	0.07
Perceived negative consequences: *What bad things happen when/if you reinstate?*							
Customers afraid to come/reduced income (for some time – fearing contact)	20	43%	30	63%	-19%	0.50	0.05
Stigma/Disapproval (community, customers, colleagues, friends) – survivor, business, co-worker, owners	30	65%	39	81%	-16%	0.48	0.06
Perceived Social Norms: *Who does not/would not approve of you reinstating a survivor?*							
Friends/some friends	10	22%	3	6%	15%	3.28	0.03
Colleagues/co-workers/co-sellers	26	57%	17	35%	21%	2.16	0.03
Administrators/boss/leader/ supervisor	16	35%	24	50%	-15%	0.57	0.10
Access: *How difficult is it/would it be to reinstate a survivor?*							
Somewhat difficult	17	37%	27	56%	-19%	0.49	0.047
Not difficult	21	46%	12	25%	21%	2.26	0.03
Cues for Action / Reminders: *How difficult is it/would it be to remember to reinstate a survivor?*							
Not difficult	35	76%	26	54%	22%	2.46	0.02

Proof of Ebola free status/certificate is very important for survivor reintegration: Medical report and certificates declaring survivors free of Ebola was the most reported element that made it easier for both Doers and Non-Doers (who were all employers, business union leaders or school administrators) to reinstate an EVD survivor into the workplace or school. Significantly more Doers than Non-Doers ($p = 0.02$) cited seeing a certificate from the Ebola Treatment Unit (ETU) or a medical report presented by the survivor as something that made it easier for them to accept the survivor returning to work or school. This finding raises the question of what happens to those survivors who did not go to the ETU, and subsequently were not certificated.

Empathy is a key motivation for Doers to reinstate/re-hire survivors: Doers were about 5.6 times more likely than Non-Doers to say that empathy for survivors was something that made it easier for them to reinstate survivors, especially after the survivor told his/her story.

Employers and school administrators who reinstate/re-hire survivors are more likely to value reintegration of survivors: When investigating the question, "What good things would come out of reinstating a survivor?" significantly more Doers perceived that the behavior would support the reintegration of survivors (having a positive effect on them), making them feel accepted, loved and useful. Related to this response – but with statistical significance only at the $p<0.1$ level – was the perception that the behavior would 'get rid' of stigma or reduce stigma of survivors.

Perceived stigmatization by community members, customers, friends and colleagues hinders reintegration: More Non-Doers than Doers reported fear of customers refusing to transact with them, disapproval and rejection/exclusion from friends, community members, customers and colleagues as a negative consequence of reinstating EVD survivors. This could adversely affect business and subsequently negatively impact their own income, and small business owners (51% of those interviewed identified this way) indicated that they could not afford to risk this drop in sales/income.

Colleagues' approval/disapproval appeared to have high levels of influence on the decision to reinstate survivors – Doers were more than twice as likely (ERR=2.16) as Non-Doers to mention colleagues, co-workers and friends as people who did not approve (or would not approve) of their decision to reinstate/re-hire survivors. This counter-intuitive finding may indicate that those who reinstated/re-enrolled survivors only learned about their co-workers' and friends' opposition to reinstatement after they had already reinstated them, or that they reinstated them in

spite of the fact that others disapproved. Non-Doers were about 1.8 times more likely to say that their bosses, administrators, leaders, or supervisors would disapprove of their decision to reinstate or reenroll EVD survivors, so this appears to be a group who can have more impact on the decision to reinstate or re-enroll EVD survivors.

Doers found the behavior easier to remember – Doers were about 2.5 times more likely to say that it was "not difficult" to remember to reinstate/reenroll EVD survivors. This finding should be followed-up with qualitative methods (e.g., focus groups) to better understand what "remembering" the behavior looks like. It could be that employers and school administrators would not reach out to survivors to offer them a return to work or school. Since one would think that this aspect of the behavior would be initiated by the survivor – that is, the survivor would need to request reinstatement or re-enrolment – it is not clear what this finding means.

Summary of Recommendations

a. Develop (with the Ministry of Health (MoH) and communities) structures that ensure all EVD survivors receive a medical clearance certificate to facilitate return to workplace or school. Since not all survivors are managed in medical facilities, this certificate may need to be issued by clinical staff who see EVD survivors in outpatient settings or by trained home visitors.

b. Create conducive spaces (opportunities) at the place of work and at school for EVD survivors to have the opportunity to share their stories with employers and colleagues while other knowledgeable people share facts about the safety of their returning to the workplace or school.

c. Organize forums for others (especially reputable persons in the community and country) to testify on their interactions with EVD survivors and the safety of this.

d. Brand survivor acceptance as good behavior (e.g., using billboards/radio drama, community discussions), and provide small incentives to businesses/ institutions for hiring EVD survivors.

e. Provide targeted information to employers and colleagues about EVD survivors, their inability to transmit EVD through routine (non-sexual)

contact, and special considerations for assuring their comfort within the workplace.

f. Establish an EVD survivor trust fund to cater to the immediate financial needs of survivors, especially those who are self-employed (e.g. business start-up trust cash/recommendation; scholarship process).

g. Advocate with government workers and leaders to establish workplace policies that respond to the special needs of EVD survivors in employment.

h. Facilitate meeting with community leaders and members to establish laws/design actions plans against stigma, and that encourage acceptance of EVD survivors at the community level.

BARRIER ANALYSIS BY CATHOLIC RELIEF SERVICES, SIERRA LEONE, ON (1) CALLING THE BURIAL TEAM TO REPORT THE DEATH OF A FAMILY MEMBER, (2) NOT TOUCHING THE BODY WHILE WAITING ON THE BURIAL TEAM, AND (3) CARE SEEKING FOR FEVER

The core problem in Sierra Leone during the EVD epidemic was that many communities engaged in risky practices that contributed to the spread of EVD. At the time of this study (February 2015),), the levels of social mobilization activities were high, but the focus was primarily on raising awareness rather than on behavior change. (This misplaced focus has been a problem in other epidemics.) Furthermore, there was little focus on interpersonal approaches which could form a platform to address important questions and explore answers that people had. This could have contributed to positive behavior practices that could have led to the reduction of transmission of EVD in their communities.

INTRODUCTION

This report documents the findings from three Barrier Analysis studies conducted in Port Loko, Bombali and Western Area Rural districts on three specific Ebola-related behaviors related to burials and care seeking. Data collection was undertaken across five days on 25th February 2015 to 1st March 2015. CRS contracted NestBuilders International (NBI) to carry out the field research for these Barrier Analysis studies. The report outlines the background to the study, methodology, results, discussion and recommendations for future programmatic interventions.

The behaviors that were studied using Barrier Analysis are summarized in Table 5.

Table 5 Ebola related behaviors studied by CRS

BEHAVIOR 1: CALLING THE BURIAL TEAM TO REPORT THE DEATH OF A FAMILY MEMBER
Behavior statement: The head of household contacts the burial team within 30 minutes of a family member dying.
Priority group: Household head / Primary caregiver aged 18-65 years
BEHAVIOR 2: NOT TOUCHING THE DECEASED BODY WHILE WAITING FOR THE BURIAL TEAM
Behavior statement: The head of the household/primary caregiver instructs family and everyone else to refrain from touching the body of a deceased family member while waiting for the burial team to arrive.
Priority group: Household head/ Primary caregiver aged 18-65 years
BEHAVIOR 3: CARE SEEKING FOR A PERSON WITH A FEVER
Behavior statement: Primary Care Giver/Head of Household seeks medical attention at a private or government-run health facility within 24 hours of noticing a fever in anyone living in their household.
Priority group: Household head/ Primary caregiver aged 18-65 years

METHODS

The survey teams attended a two-day training prior to data collection, including a day to field test the Barrier Analysis questionnaires (see Annex 2). The training covered an overview of BA rationale and principles; a review of each questionnaire including the categorization of respondents into Doers and Non-Doers; translation of questions to *Krio* and *Temne*; effective interviewing and data-recording techniques; sampling procedures; confidentiality and use of data; potential problems that may arise in the field; and coding and tabulation of data. The second day of the training workshop involved a pilot of the study. This step was critical for checking the translation of questions, for ensuring that enumerators were well practiced and to judge how easy/difficult it would be to find the target number of Doers and Non-Doers during data collection. The questionnaire and sampling approach was piloted in Western Freetown in a spontaneous settlement which had experienced a significant number of cases of Ebola (and was thus reflective of field conditions in Port Loko, Bombali and Western Rural districts). Each enumerator completed a minimum of two full surveys to ensure their confidence with key

translations and questions. On return from the field test, difficulties encountered were discussed, and changes were made as necessary to the questionnaires (to make them more locally applicable).

Sampling Procedure, Sample Size and Household Selection

Barrier Analysis studies were conducted on each of the three aforementioned behaviors across three districts: Port Loko, Bombali and Western Area Rural. A total of 90 questionnaires (45 Doers and 45 Non-Doers) were completed for each Barrier Analysis study (a total of 270 questionnaires for the three surveys). The sample size for Doers and Non-Doers were evenly split between the three targeted districts as shown in Table 6.

Table 6 Sample locations and number of Doers and Non- Doer interviews in each location

Sample location	Behavior #1		Behavior #2		Behavior #3		Total surveys
	Doers	Non-Doers	Doers	Non-Doers	Doers	Non-Doers	
Port Loko	15	15	15	15	15	15	**90**
Bombali	15	15	15	15	15	15	**90**
Western Rural	15	15	15	15	15	15	**90**
Total interviews	**90**		**90**		**90**		**270**

CRS provided NBI with a list of all CRS project operational chiefdoms/communities in each targeted district. Since the BA targeted individuals who had specific experiences related to burial practices and care seeking during the current EVD outbreak, it was important to pre-select communities before data collection, according to their experience during the outbreak. This approach helped to support data collection with the targeted respondent group and helped to avoid unnecessary logistical and respondent sampling constraints in the field.

As such, a purposive sampling approach was followed to ensure that data was collected from CRS operational areas which experienced high Ebola caseloads. NBI worked with the National Ebola Response Centre (NERC) and District Health Management Teams (DHMT) in Port Loko, Bombali and Western Rural Area in order to purposively sample communities according to official statistics on the geographic spread of the EVD outbreak. Relying on data from the NERC and DHMT, the two CRS operational chiefdoms with the highest Ebola caseloads from each of the districts were selected for the study. Within these chiefdoms, two communities/villages with the highest Ebola caseloads were sampled.

Each field team began data collection in the community with the highest Ebola caseload and moved to the next community until the total required sample size was met. Upon arrival into a research site, NBI enumerators sought the headman/chief in the community to introduce themselves and the study. The field teams ensured that they did not pre-screen houses, but rather used the guidance and advice of community leaders about their sampling of households.

In the end, a total of 12 communities with the highest Ebola caseloads across six CRS operational chiefdoms in the three targeted districts were sampled.

Categorization of Doers and Non-Doers

The heads of households or primary caregivers' respondents were asked the screening questions for the behavior they were being interviewed about, and categorized as a Doer or Non-Doer according to the categorization flow chart for the respective behavior (shown in Annex 3).

Data Collection

Data collection was undertaken across five days on 25 February 2015 to 1 March 2015. Enumerators introduced themselves and the purpose of their visit to each household on their arrival, and respondents were clearly informed that the survey was purely for information gathering purposes. Respondents were encouraged to speak honestly. In total, the target sample of 45 Doers and 45 Non-Doers for each behavior studied was reached. Interviews for the three different behaviors were conducted at different research sites, as listed in Table 7.

Table 7 List of different research sites and the behavior studied

District	Behavior studied	Chiefdom/Area	Sampled Communities
Port Loko	Calling the burial team	Kaffu Bullom	Mayayah
	Care seeking for a fever	Buya Romende	Komrabai
	Not touching the dead body	Buya Romende	Petifu Brun
Bombali	Care seeking for a fever	Bombali Sebora	Pate Bana
	Not touching the dead body	Bombali Sebora	Masuba
	Calling the burial team	Makarie Gbinti	Kolisokoh
Western Area Rural	Calling the burial team	Waterloo Jui	Banga farm Old site
	Care seeking for a fever	Waterloo Jui	Monkey bush Old site
	Not touching the dead body	Jui	New Site

Coding and Data Entry

Coding of the answers was undertaken as a team once the enumerators returned to Freetown upon the completion of data collection. (See Annex 4 for the step-by-step process.)

Data Analysis and Interpretation

The Barrier Analysis Tabulation Sheet template contains the pre-programmed formulae for the automatic analysis of data upon entry using Estimated Relative Risk. The responses for which there was a significant difference ($p<0.05$) between the Doers and the Non-Doers of each of the three behaviors are outlined in Table 8.

Table 8A: Calling the burial team (Kafu Bullom, Makarie Gbinti, Waterloo and Jui)

Behavior 1: Calling the burial team to report the death of a family member. Significant determinants/responses	# Doers	% Doers	# Non-Doers	% Non-Doers	Perc. pt. diff.	E.R.R.	p-value	Interpretation
Perceived self-efficacy: *What made it difficult [Non-Doers] / would have made it difficult [Doers] to call the burial team to report death of a family member?*								
Stigma from the community	3	7%	14	31%	-24%	0.18	0.003	Non-doers were 5.6 times more likely than Doers to say that stigma from the community made it difficult to call the burial team to report the death.
Perceived positive consequences and negative consequences: *What good and bad things happen when/if the death of the family member was reported?*								
Prevents transmission of Ebola	26	58%	43	96%	38%	0.12	<0.001	Doers were 8.2 times more likely than Non-doers to say that preventing transmission of Ebola was an *advantage* of the behavior.
House quarantined - movement restricted	10	22%	2	4%	18%	4.31	0.01	Doers were 4.3 times more likely than Non-doers to say that having one's house quarantined and one's movement restricted was a *disadvantage* of the behavior.
Cannot pay respect to the deceased	16	36%	7	16%	20%	2.59	0.03	*Doers* were 2.6 times more likely to say that not being able to pay respect to the deceased was a disadvantage of the behavior.

Behavior 1: Calling the burial team to report the death of a family member. Significant determinants/responses	# Doers	% Doers	# Non-Doers	% Non-Doers	Perc. pt. diff.	E.R.R.	p-value	Interpretation
Perceived social norms: *Do most people approve/disapprove of calling the burial team to report the death of a family member? Who does not/would not approve?*								
Yes, most people approved	42	93%	34	75%	18%	4.10	0.02	Doers were 4.1 times more likely than Non-doers to say that most people that they know approve of the behavior.
Nobody disapproved	38	84%	26	58%	26%	3.55	0.005	Doers were 3.6 times more likely than Non-doers to say that nobody disapproves of the behavior.
Access: *How difficult is it [Doers] /would it be [Non-Doers] to get what they needed to call a burial team to report death of a family member?*								
Very difficult	5	11%	14	31%	-20%	0.30	0.02	Non-doers were 3.3 times more likely than Doers to say that it was "very difficult" to get what they needed to call the burial team. (Conversely, Doers were 4.2 times more likely to say that it was "not difficult at all.")
Somewhat difficult	8	18%	16	36%	-18%	0.42	0.047	Non-doers were also 2.4 times more likely than Doers to say that it was "somewhat difficult" to get what they needed to call the burial team.

Table 8B: Not touching the body (Buya Romende, Bombali Sebora and Jui)

Behavior 2: Not touching the body while waiting for the burial team Significant determinants/responses	# Doers	% Doers	# Non-Doers	% Non-Doers	Perc. pt. diff.	E.R.R.	p-value	Interpretation
Perceived self-efficacy: *What made it easier/difficult [Non-Doers] / would have made it easier/difficult [Doers] to not touch the dead body while waiting for the burial team?*								
Family members not aware of Ebola transmission or believe it is not real	10	22%	25	55%	-33%	0.26	0.001	Non-doers were 3.8 times more likely than Doers to say that family members not being aware of Ebola transmission from touching the body, or believing that Ebola was not real, made it more difficult to do the behavior.
Nothing makes it difficult	21	47%	9	20%	27%	2.99	0.007	Doers were 3 times more likely than Non-doers to say that nothing makes the behavior difficult.
Fines/ Community bylaws	15	33%	6	13%	20%	2.76	0.02	Doers were 2.8 times more likely than Non-doers to say that fines and bylaws made it easier for them to not touch the body while waiting for the burial team.
Unable to pay respects to the dead/show love or sympathy	17	38%	8	18%	20%	0.18	0.03	*Doers* were 2.5 times more likely than Non-doers to say that not being able to pay respects to the dead or show love or sympathy made it difficult to not touch the body.

Behavior 2: Not touching the body while waiting for the burial team Significant determinants/responses	# Doers	% Doers	# Non-Doers	% Non-Doers	Perc. pt. diff.	E.R.R.	p-value	Interpretation
Perceived positive consequences and negative consequences: *What were the advantages and disadvantages of not touching the body while waiting for the burial team?*								
Community might think respondent might be part of the Ebola response – profiting from the emergency	11	24%	2	4%	20%	4.69	0.007	*Doers* were 4.7 times more likely than Non-doers to say that people in the community may believe that they are profiting from the emergency and part of the Ebola response if they do the behavior.
Perceived social norm: *Do most people you know approve of not touching the body while waiting for the burial team? Who approved /disapproved of the behavior?*								
Yes, most people approved	44	98%	27	60%	38%	24.99	<0.0001	Doers were 25 times more likely than Non-doers to say that most of the people they know *approved* of the behavior.
Sisters/Brothers	1	2.2%	8	17.8%	16%	0.12	0.02	Non-doers were 8.5 times more likely than Doers to say that their sisters or brothers *disapproved* of the behavior.
Aunt/Uncle	22	49%	3	7%	42%	7.83	<0.0001	Doers were 7.8 times more likely than Non-doers to say that their aunts or uncles approved of the behavior.

Behavior 2: Not touching the body while waiting for the burial team Significant determinants/responses	# Doers	% Doers	# Non-Doers	% Non-Doers	Perc. pt. diff.	E.R.R.	p-value	Interpretation
Nobody disapproves	34	76%	22	49%	27%	2.90	0.008	Doers were 2.9 times more likely than Non-doers to say that nobody that they know disapproves of the behavior.
Neighbors	13	29%	5	11%	18%	2.75	0.03	Doers are 2.8 times more likely than Non-doers to say that their neighbors approve of the behavior.
Cues for action/reminder: *How difficult is it [Doers] / would it be [Non-Doers] to remember to not touch the body while waiting for the burial team?*								
Not difficult at all	30	67%	18	40%	27%	4.17	0.01	Doers are 4.2 times more likely than Non-doers to say that the behavior is not difficult at all to remember.
Somewhat difficult	5	11%	13	29%	-18%	0.34	0.03	Non-doers are 3 times more likely than Non-doers to say that the behavior is somewhat difficult to remember.
Culture: *Are there any cultural rules/taboos against not touching the body while waiting for the burial team?*								
No	44	98%	38	84%	14%	7.29	0.03	Doers are 7.3 times more likely to say that there are not any cultural rules/taboos against the behavior

Table 8C: Care seeking for fever (Buya Romende, Bombali Sebora, Waterloo and Jui)

Behavior 3: Care seeking for a person with fever Significant determinants/responses	# Doers	% Doers	# Non-Doers	% Non-Doers	Perc. pt. diff.	E.R.R.	p-value	Interpretation
Perceived self-efficacy: *What made it difficult/easier [Non-Doers] / would have made it difficult/easier [Doers] to seek care for a person who had fever?*								
Makes it easier: Encouragement to seek treatment (by doctors and nurses)	12	27%	2	44%	23%	5.09	0.004	Doers are 5.1 times more likely than Non-doers to say that encouragement by doctors and nurses makes it easier to seek care for a person with fever.
Makes it difficult: Stigma against going to the hospital; fear of catching Ebola at the hospital	8	18%	2	4%	14%	3.53	0.045	Doers are 3.5 times more likely than Non-doers to say that fear of catching Ebola at the hospital or stigma against going to the hospital makes it more difficult to seek care for fever.
Makes it easier: Free treatment	8	18%	2	4%	14%	3.53	0.045	Doers are 3.5 times more likely than Non-doers to say that free treatment makes it easier to seek care for a person who has a fever.
Perceived positive consequences and negative consequences: *What good and bad things happen when seeking care for fever*								
Advantage: Comfort of receiving the right treatment if seeking treatment from a hospital	8	18%	25	56%	-38%	0.20	<0.001	*Non-doers* were 5 times more likely than Doers to mention having the comfort that they are receiving the right treatment if they

Behavior 3: Care seeking for a person with fever Significant determinants/responses	# Doers	% Doers	# Non-Doers	% Non-Doers	Perc. pt. diff.	E.R.R.	p-value	Interpretation
								seek treatment at a hospital as an advantage of care seeking for fever.
Perceived social norm: *Do most people approve/disapproved seeking care for fever?*								
Yes, most people approved	43	96%	32	71%	25%	7.70	0.002	Doers were 7.7 times more likely than Non-doers to say that most people that they know approve of their seeking care for fever.
Husband/wife	1	2%	7	16%	13%	0.137	0.029	Non-doers were 7.3 times more likely than Doers to say that their wife/ husband *disapproved* of the behavior.
Cues for action/reminder: *How difficult is it/would it be to remember to seek care for fever*								
Somewhat difficult to remember	5	11%	17	38%	-27%	0.23	0.003	Non-doers were 4.3 times more likely than Doers to say that remembering the behavior was "somewhat difficult."
Not difficult at all to remember	30	67%	19	42%	25%	2.48	0.02	Doers were 2.5 times more likely than Non-doers to say that the behavior was "not difficult at all" to remember.

DISCUSSION AND RECOMMENDATIONS

The Barrier Analysis results highlighted several key thematic areas that were common across the three studied behaviors.

Social stigmatization **(through its influence on *perceived self-efficacy*)** was an important barrier that influenced decision making around calling the burial team to report the death of a family member, not touching the body while waiting for the burial team to arrive, and care seeking if someone in the household has a fever**.** More specifically;

- Non-Doers were 5.6 times more likely (than Doers) to say that **stigma from their community would make it difficult** for them to call the burial team to report the death of a family member.

- Doers were 4.7 times more likely (than Non-doers) to report that their **community might see them as someone who was profiting from the Ebola response** if they promoted the positive behavior of not touching the body while waiting for the burial team. This highlights existing community misperceptions and attitudes towards Ebola response workers.

- Non-Doers were 3.5 times more likely (than Doers) to report that their **community might stigmatize them for going to the hospital/health center** if someone in their household decided to seek care if they had a fever, or that they themselves avoided going to the hospital with a fever for fear of catching Ebola.

Perceived social norms were a probable determinant for behaviors related to calling the burial teams and not touching the body while waiting for the burial team.

- Doers were 4.1 times more likely than Non-doers to report that most people in their family and community **approve of them calling the burial team to report the death of a family member**, and 3.6 times more likely to report that nobody disapproved.

- Doers were also 25 times more likely than Non-doers to report that most people in their family and community **approve of them not touching the body while waiting for the burial team**, and 2.9 times more likely to say

that nobody *disapproved* of the behavior. In terms of specific individuals who approved or disapproved, Doers cited Aunts/Uncles and Neighbors as people who approved of them performing the desired behavior, and Non-doers were more likely to report that sisters or brothers *disapproved*.

- Doers were also 7.7 times more likely than Non-doers to say that the **majority of people they know approve of their seeking care for fever**. Non-doers were 7.3 times more likely than Doers to say that their wife or husband disapproved of the behavior.

- Doers were also 7.3 times more likely than Non-doers to say that there were **not any cultural rules/taboos against not touching the body** while waiting for the burial team.

Several ***negative consequences*** **of calling the burial team, and one reason that made calling the burial team *difficult*** were found to be probable determinants of that behavior:

- Doers were 2.6 times more likely (than Non-doers) to say that **not being able to pay their respects** to the deceased was a negative consequence of calling the burial team to report the death of a family member.

- Doers were also 4.3 times more likely to mention **having one's house quarantined and one's movement restricted** as a disadvantage of calling the burial team.

- Non-doers were also 3.8 times likely than Doers to say that **family members not being aware of Ebola transmission from touching the body, or believing that Ebola was not real, made it more difficult** for them to call the burial team. Some respondents mentioned specific comments on this lack of awareness:

    - There were (older) family members in the household who still did not believe that Ebola is real, and respondents stated that it was difficult to convince these family members that they should adopt Ebola prevention measures in the household, including not touching the body of a deceased family member.

- While family members had heard the information about Ebola, they do not necessarily *believe* the information and therefore it was difficult for them to perform the promoted behaviors.

While it did not hinder them from taking the proper action, and counter-intuitively, Doers were 2.5 times more likely than Non-doers to report that not being able to pay respects to the dead or show love or sympathy for the deceased made it *difficult* for them to not touch the body. (This indicates that those who have not done the behavior – the Non-doers – may underestimate the difficulty of actually doing it.)

Perception of *positive consequences, advantages and the presence of certain facilitators* of the behaviors (things that make it easier) also appear to have influenced adoption:

- Doers were 8.2 times more likely than Non-doers to say that **preventing transmission of Ebola was an advantage** of calling the burial team to report a death of a family member.

- Doers were 2.8 times more likely than Non-doers to say that **fines and bylaws** made it easier for them to not touch the body while waiting for the burial team. At least one respondent mentioned that it was the law not to touch dead bodies and that most people were aware of it (including children).

- Doers were 3.5 times more likely than Non-doers to say that **free treatment** was something that **makes it easier** for them to seek care for a person who has a fever. Doers were also 5.1 times more likely to say that **encouragement by doctors and nurses makes it easier** to do seek care for a person with fever.

Non-Doers were 5 times more likely than Doers to say that they would be receiving the *right* treatment if they sought treatment for a fever from a hospital. This belief, however, did not lead to more of them seeking care for fever – remember, they were Non-doers. While the high proportion of Non-doers who gave this response (56%) may indicate that there is high knowledge in the community regarding this advantage of seeking care at hospital, knowledge of this positive consequence did <u>not</u> seem to be driving the behavior.

Lack of cues for action and reminders **may have hindered the adoption of some of the behaviors**:

- Non-doers were 3 times more likely than Doers to say that **it was "somewhat difficult"** for them to **remember to not touch the body** while waiting for the burial team, while Doers were 4.2 times more likely to say it was "not difficult at all" to remember to do that behavior. At least one respondent said that their state of mind at the time of the death may have made it difficult to remind others not to touch the body of their loved one. (It is not uncommon for people to forgot new, recently-learned health information when faced with a personal tragedy, and to revert to past patterns of behavior.)

- Non-doers were also 4.3 times more likely (than Doers) to say that remembering to seek care for fever was "somewhat difficult." Doers were 2.5 times more likely to say that it was "not difficult at all" to remember to do that behavior.

Access – having what one needed to perform the behavior – also appeared to be important in adoption of these behaviors:

- Non-doers were 3.3 times more likely than Doers to say that it was "**very difficult"** for them to **get what they needed** to call the burial team, and 2.4 times more likely than Doers to say that it was "somewhat difficult" to get what they needed. Some respondents also mentioned specific things and situations that made the decision difficult for them:

    - 'It was a difficult and/or confusing time for the family to make such a decision to call 117 to report the death of a family member.'

    - 'Families are not used to having to call a number to report the death of a family member.'

- ‘It takes time for the family to make the decision to call 117, and families face resistance from family members to make the call to report the death.’

- ‘We had to contact mosque members to alert them of the death of our family member before we could make the decision to call 117.’

- ‘Community members might speculate that the household has an Ebola case if the family reports the death of the family member to 117.’

- Conversely, Doers were 4.2 times more likely than Non-doers to say that it was “**not difficult at all”** for them to **get what they needed** to call the burial team to report the death of a family member. Some respondents mentioned specific ways in which this decision was made easier for them:
  - ‘It is the law (in my community) to call 117 to report any death.’
  - ‘It is common knowledge that everyone should call 117 to report a death.’
  - ‘Everyone in my community is afraid of the Ebola sickness.’
  - ‘My community is a hot spot; therefore it is important for us to call 117.’
  - ‘I had phone credit to be able to make the call to 117 from my mobile phone.’

Summary of recommendations

a. It is important to address common myths and misperceptions that are percolating within communities and reinforce positive protective behavior through trusted community sources of information/ influential community stakeholders (e.g., religious leaders, community leaders, traditional leaders, societal heads, and women’s group leaders). Given that some people distrusted people who are paid to do Ebola work, and others did not believe that Ebola was real, it may help to engage more neighbors serving as volunteers (e.g., Care Group Volunteers, CHWs, or other volunteers) in getting reliable information out about Ebola. Having

people choose or elect the neighbor that they would like to have trained could lead to having more people promoting behaviors who are trusted in their neighborhoods.

b. There is a need to work on building supportive social norms that create an enabling environment for these behaviors. Influential community stakeholders should be targeted and trained as community-level behavior change agents to communicate with and influence different target groups within communities to adopt the desired behavior(s) (e.g., women, men, older people, and younger people). When educating families, it should be kept in mind that there are many influencers in these decisions – including husbands, wives, sisters, brothers, aunts, uncles, and neighbors. The focus should not only be on the person who should make the decision (e.g., head of household), but on how these different influencers can support community members in doing the right thing in a caring way. These influencers appear to have been highly influential for some of these behaviors (e.g., not touching the body, care seeking for fever). Also, sometimes it only takes one person in a group to stand up for taking the right action to turn the tide of support towards the promoted behavior. Community members should be taught ways that they can effectively talk to and deal with family members and neighbors who discourage them from doing the right thing during an outbreak, and bring people together for mutual support in their health promotion work.

c. Practitioners and communities need to address issues of accessibility (to call the Ebola hotline, 117) by creating community maps which identify households/individuals with functioning cell phones. They should work with the community leaders to identify 'emergency contact persons' within the community who will be able to call 117. (This was found to be an issue in both the CRS and Mercy Corps studies.)

d. There is a need to continue to work with communities to work out ways that they can pay respects to the deceased without touching the body. This could be done by identifying new no-touch rituals that were used during the epidemic that people felt were more honoring to the deceased, and promoting these more widely.

e. Since Non-doers were more likely to say that the house quarantine was a disadvantage of reporting a death, it may be useful to identify ways in which communities could be further mobilized to safely provide for those who have been quarantined so that it has less impact on their wellbeing.

f. Policy tools such as fines, bylaws, and offering free treatment appear to have made it easier for Doers to adopt some of the behaviors, such as not touching the body while waiting for the burial team, and care seeking for fever. Expansion of the use of policy tools that help promote healthy behaviors should be explored (as long as they do not drive the unwanted behaviors underground).

g. Given that Non-doers were more likely to say that it was somewhat difficult to remember to do two of the behaviors (i.e., not touching the body and care seeking for fever) — especially in a time of crisis — encouraging neighbors to talk to neighbors and more distant family members to talk to closer family members about these behaviors during the crisis may help people to take the proper actions. This could also be a role for local pastors, volunteers, and health workers. Doers were more likely to say that the encouragement that doctors and nurses gave them (e.g., to seek care for fever) made it easier for them to take action. During times of crisis (e.g., after a family member death), it is sometimes difficult to remember what one has been taught in calmer times. Others who are less affected by the family crisis may be in the best position to remind their neighbors of what needs to be done and why.

h. The understanding of cultural rules and taboos on these behaviors is not universal. For example, Doers were much more likely to say that there were not any cultural rules/taboos against touching the body while waiting for the burial team. It may help to avoid talking about some of the traditional practices (e.g., touching the body) as set-in-stone cultural rules, and instead point out that while some people do these practices, they are not necessarily universally "cultural." Naming something as a cultural norm (when it is not held by the entire group) can sometimes reinforce the practice.

While this was not a lesson learned from the BA study, CRS staff members gave two additional recommendations regarding the promotion on these behaviors:

- Information Education Communications (IEC) materials should be low-literacy friendly, and key messages should be depicted through relevant and culturally appropriate images only, to facilitate better understanding and uptake of the targeted message.

- Community-level experience sharing and dialogue platforms would allow members from communities to be able to talk about the issues around stigma, fear, (mis)information sharing, etc., and learn from each other through this grassroots level exchange of information. Participants should include survivors, people working as Ebola response service providers, heads of households, primary care givers, other influencers, religious leaders, youth groups, etc. A trained community-level behavior change agent should facilitate these sessions to ensure that the sessions are productive and meaningful for all participants.

BARRIER ANALYSIS BY SAMARITAN'S PURSE INTERNATIONAL RELIEF, LIBERIA

Samaritan's Purse (SP) was engaged in many facets of the Ebola response including:

- managing Ebola Treatment Units (ETUs) and Community Care Centers (CCCs);
- engaging in national RITE (rapid isolation and treatment of Ebola) responses, both as an implementer of RITE responses and training county level RITE teams;
- promoting mass public awareness and infection prevention and control (IPC) campaigns and distribution of IPC supplies to households; and
- overseeing active case finders and contact tracers.

Beyond the activities which were specific to the Ebola outbreak, SP also worked to incorporate EVD response elements into ongoing programming. Since late 2013, SP has implemented a Care Group program in the southeastern county of River Gee, Liberia. Throughout the project, Barrier Analysis has been used to inform curriculum design. When the EVD outbreak occurred, this approach was also used to understand behaviors relevant to the prevention and control of the virus which could then be incorporated in to the program curriculum.

HANDWASHING WITH SOAP/ASH

INTRODUCTION

In late May 2014, during the brief lull experienced between the first and second wave of the Ebola outbreak in Liberia, the SP Care Group staff conducted a Barrier Analysis on handwashing with soap/ash in communities in River Gee. As the program operates in all communities in River Gee, interviews were conducted throughout the county.

METHODS

SP Care Group program staff members were trained in the Barrier Analysis technique by an SP health manager with extensive experience in the methodology. As the staff had received ongoing training focusing on the central concepts of behavior change communication, this specific training offered a chance for the staff to review and solidify their knowledge of behavioral determinants and to be trained on how these determinants could be identified and understood through Barrier Analysis. To conclude the training, the staff field tested a draft Barrier Analysis questionnaire on handwashing with soap. Out of this field testing, the questionnaire (Annex 5) was refined and the staff members were able to actively participate in translating the tool in to Liberian English.

For the purposes of this study, the Doers of appropriate handwashing were *female caregivers of a child 0-23 months of age who were able to show the interviewer that they had a place to wash hands, and that soap or ash was present at this station.* Non-Doers were female caregivers of a child 0-23 months of age who were unable to show the interviewer a handwashing station, or who said that they had a handwashing station, but did not have soap or ash present at the handwashing station.

Data collection was done throughout the county of River Gee, with a standard sample size of 45 Doers and 45 Non-Doers interviewed. Program staff worked together to analyze and agree upon the coding and classification of the responses, and used the MS Excel spreadsheet developed for the Barrier Analysis methodology. The behavioral determinants/responses where there were statistically-significant differences between Doers and Non-Doers are detailed below.

Table 9 Important determinants and responses

Behavior: Handwashing with soap/ash. Significant determinants/responses	# Doers	% Doers	# Non-Doers	% Non-Doers	Perc. pt. diff.	E.R.R.	p-value
Perceived severity: *Can running stomach (diarrhea) kill children?*							
Yes	43	96%	35	78%	+18%	5.40	0.013
Possibly	0	0%	5	11%	-11%	0.00	0.028
Many people can have running stomach (diarrhea) here? [26]							
No	15	33%	24	53%	-20%	0.48	0.044
Perceived action efficacy: *Can <u>you</u> get running stomach (diarrhea) if you don't wash your hands?*							
Yes	37	82%	28	62%	20%	2.53	0.029
Perceived action efficacy: *Can <u>your child</u> get running stomach (diarrhea) if your hands are not washed?*							
Yes	40	89%	30	67%	22%	3.54	0.010
Perceived barriers: *What do you think will make it hard or stop you from washing your hands all the time?*							
Don't know how [self-efficacy]	0	0%	7	16%	-16%	0.000	0.006
Perception of divine will: *Do you think that it is God's will that our children can get sick with running stomach?*							
Yes	4	9%	12	27%	-18%	0.30	0.026

[26] *Note*: The question on perceived susceptibility in BA ask about the person's perception that they or their child can get a disease (or problem). This was asked differently by SP and reflects the respondent's perception of how common diarrhea is in the area.

- ***Perceived Severity***: Doers were 5.4 times more likely (than Non-doers) to say that diarrhea can kill children.
- Non-doers were 2.1 times more likely (than Doers) to perceive that diarrhea (running stomach) was not common in the area.
- ***Perceived Action Efficacy***: Doers were 2.5 times more likely to say that *they* can have diarrhea if they do not wash their hands, and 3.5 times more likely to say that *their child* could get diarrhea if she (the respondent) does not wash her hands.
- ***Perceived Self-efficacy***: Non-doers were more likely to say that "not knowing how" to wash hands was something that made the behavior difficult). (16% of Non-doers gave this response vs. 0% of Doers.)
- ***Perceived Divine Will***: Non-doers were 3.3 times more likely (than Doers) to say that it is God's will that children get diarrhea.

DISCUSSION AND RECOMMENDATIONS

The findings of this Barrier Analysis suggests that those practicing adequate handwashing have a significantly more accurate understanding of the connection between good hand hygiene and the prevention of diarrhea. Non-Doers, when compared with Doers, reported that a lack of knowledge about hand washing kept them from doing it, and were less informed about the potential severity of diarrhea, and believed it was not that common in their area. They also perceived that childhood diarrhea was something outside of their control (due to God's will). Doers appeared to have a better understanding of the seriousness of diarrhea, the prevalence of it, their control over the disease, and understood the connection between hand washing with soap/ash and diarrhea. These things are likely to be among those factors driving their adoption of the behavior.

With these findings in mind, it was important to ensure that the Care Group curriculum developed by SP included instruction on the seriousness of diarrhea in children, but also highlighted the ability of caregivers to successfully reduce the instances of childhood diarrhea through practicing good hand hygiene.

Some of these results are similar to the findings from Barrier Analysis studies on hand washing conducted by other organizations and in other countries, which are summarized in the following section.

SUMMARY OF BARRIER ANALYSIS STUDIES ON HAND WASHING

Safe drinking water, sanitation, and hygiene are essential in treating and preventing the transmission of Ebola (and other infectious diseases) in health care facilities, treatment centers, households, and communities.[27] For any infection that is transmitted through human-to-human contact involving bodily fluids, hand washing with soap after any contact (or potential contact) with body fluids is one method to help protect oneself and others from infection. In the example of Ebola, hand washing with soap is an important method for protecting oneself and the community from the spread of the Ebola virus.[28] However in many parts of the world, the practice of hand washing is seldom incorporated as a part of daily activities. Compliance rates for hand washing in healthcare settings in both developed and developing countries are generally low, often ranging from 16% to 81% with an average of only 40%.[29] An eleven country review of (observed) hand washing behavior shows that on average only 17% of the mothers wash their hands with soap after having used the toilet, and 45% wash their hands without soap (water only). Other hand washing rates for

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[27] http://www.washadvocates.org/learn/wash-and-ebola/

[28] http://globalhandwashing.org/resources/handwashing-ebola/

[29] Boyce, J. M., and D. Pittet. 2002. Guideline for hand hygiene in health-care settings. Recommendations of the healthcare infection control practices advisory committee and the HICPAC/SHEA/APIC/IDSA hand hygiene task force. Morb. Mortal. Wkly. Rep. **51**:1-45.

different occasions are very low, as well: after cleaning up child stools (19%); before feeding a child (5%); and before handling food (13%).[30]

Identifying the behavioral determinants that more commonly act as barriers or enablers for the practice of hand washing with soap can help to more effectively promote the behavior. Barrier Analysis is one tool that can be used for the identification of these behavioral determinants.

Behavior Bank

The Behavior Bank website is a database that provides results from Barrier Analysis studies conducted by different food security and other community health and development practitioners globally, and includes details of the studies by country, region, and behavior that can be used to inform the promotion of healthier behaviors. This Behavior Bank database can also help identify patterns within and across countries of behavioral determinants that act as barriers or enablers of the behaviors studied.[31]

Data Collection

Seventeen hand-washing Barrier Analysis studies from 11 countries found on the Behavior Bank website are included in this report. The countries are the Democratic Republic of Congo, Ethiopia, Haiti, Kenya, Malawi, Philippines, Sierra Leone, Sudan, Uganda, and Zimbabwe. These studies were conducted by several NGOs including Food for the Hungry (FH), GOAL, Catholic Relief Services (CRS), Freetown Wash Consortium, and Concern Worldwide. The questionnaires used for these studies were similar or identical to the questionnaire found in Annex 6. In these studies, Doers' and non-Doers' responses to questions linked to behavioral determinants used during Barrier Analysis were compared (as described in the introduction to this

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[30] Curtis VA, Danquah LO, Aunger RV: **Planned, motivated and habitual hygiene behaviour: an eleven country review.** *Health Educ Res* 2009, **24**(4):655-673. See: http://her.oxfordjournals.org/content/24/4/655.long

[31] The Behavior Bank website can be accessed here: http://www.fsnnetwork.org/behavior-bank

compendium). The BA studies were used to generate a list of determinants that were found to be associated with the behavior (based on statistically-significant differences between Doers' and Non-doers' responses).

Data from the Behavior Bank was extracted into MS Excel 2010 to summarize the key determinants affecting the practice of hand washing with soap in different countries. Table 9 shows the probable determinants ($p<0.05$) found for each BA study on hand washing with soap and the proportion of studies where each behavioral determinant was associated with the behavior.

Country of Study	Perceived Self-efficacy	Perceived Social Norms	+/- Consequences of the Behavior	Access	Perceived Divine Will	Perceived Barriers	Perceived Enablers	Perceived Susceptibility	Perceived Severity	Perceived Action Efficacy
Ethiopia	No	Yes	Yes	No	No	Yes	No	No	Yes	No
Ethiopia	No	Yes	Yes	Yes	No	Yes	No	No	Yes	No
Ethiopia	No	Yes	No	Yes	No	Yes	Yes	No	No	No
Sierra Leone	Yes	No	Yes	No	No	No	No	No	No	No
Haiti	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes
Haiti	Yes	Yes	Yes	Yes	Yes	No	No	Yes	No	Yes
Kenya	No	Yes	No	Yes	No	No	No	No	No	No
Malawi	Yes	Yes	No	Yes	No	No	No	No	No	No
Uganda	Yes	No	Yes	Yes	No	No	No	Yes	No	Yes
Uganda	Yes	Yes	Yes	Yes	Yes	No	No	Yes	No	Yes
Zimbabwe	No	Yes	No	No	No	No	No	Yes	Yes	No
Zimbabwe	Yes	Yes	No	No	No	Yes	No	No	Yes	No
Democratic Republic of Congo	Yes	Yes	Yes	No	No	No	No	No	No	No
Democratic Republic of Congo	Yes	Yes	Yes	No	Yes	No	No	Yes	Yes	Yes
Sudan	Yes	No	No	No	No	No	No	Yes	No	No
Philippines	Yes	No	No	No	No	No	No	No	No	No
Significant key determinants	69%	75%	56%	50%	25%	25%	6%	50%	38%	31%

Table 10 Summary of Barrier Analysis studies on hand washing with soap (including proportion of studies where each determinant is associated with hand washing behavior)

"Yes" indicates that the behavioral determinant was associated with hand washing with soap in a statistically-significant way ($p<0.05$). "No" indicates that it was not.

The behavior determinants that were found to be associated with hand washing with soap more commonly were perceived self-efficacy (75%), perceived social norms (69% of studies), and perceived positive and negative consequences of hand washing (56%). Additional details on the findings from these studies (e.g., the specific things that made it easier to do the behavior) are summarized in Annex 6.

LESSONS LEARNED FROM EBOLA-RELATED BARRIER ANALYSIS STUDIES

Barrier Analysis is useful in finding *local* barriers and enablers to health (and other) behaviors, and in identifying behavioral determinants that are associated with a given behavior which can be addressed in a project. As such, the findings of these studies will not necessarily be applicable to other areas of the countries in which the studies were conducted or to other countries affected by Ebola. They do, however, provide a better understanding of those barriers and enablers in the project areas studied, and should remind practitioners of the importance of seeking out important barriers and enablers of the behaviors that need to be adopted to limit the spread of Ebola and other epidemics that are spread in similar ways.

The main lessons learned based on the studies presented in this compendium include the following:

a. The key determinants that are significant in almost all the studies noted here are **perceived self-efficacy**, **perceived social norms**, **perceived positive and negative consequences** of the behavior, **cues for action** and **access**.

b. For some of the behaviors related to Ebola, community leaders played an important role in bringing about a positive difference. Being a key stakeholder and a role model in their community, they can play a key role in the rapid uptake of preventive behaviors. However, not all leaders are trusted. There is a need to educate community leaders on communicable disease prevention and ensure that these leaders can be *easily* contacted by locals during a crisis. People are also highly influenced by the opinions and recommendations of their peers and family members, so moving life-saving information out to a higher proportion of community members (not just leaders) through trusted individuals is important in halting an epidemic. Volunteer peer educators (e.g., Care Group Volunteers) can be useful for this purpose.

c. One of the key determinants that can aid in uptake of preventive behaviors is the community's access to basic amenities. Some of these include access to a means to communicate (e.g., a cell phone); access to television/radio which are the sources through which preventive messages are delivered; easy access to key stakeholders such as community leaders; and water,

soap/ash and hand washing facilities in important places like homes and health care centers. Further, there is a need for putting in means (e.g., posters, stickers) for *reminding* people of the behaviors that help halt epidemics, especially when new behaviors are being promoted (e.g., calling a number to report an illness or death).

d. Perceived social norms and the degree of social stigma associated with some of the behaviors are also important. Amongst the Non-Doers of the behaviors, many perceived that people who were important to them (e.g., family and friends) disapproved of adoption of certain preventive behaviors, such as reporting of Ebola symptoms and hand washing, despite what was being recommended by leaders. Preventive measures such as calling the burial team, care seeking for fever and not touching the dead sometimes clashed with some people's (but not everyone's) cultural beliefs. In some cases, rumors started that a person may be profiting from doing a behavior. Some believed that just going to the hospital for testing would result in them being labeled and stigmatized by the community as infected even if they were not. Changing perceived social norms and reducing stigma deserve more attention than they usually receive in many communicable disease outbreaks.

e. Even after successfully treatment of Ebola cases, some of the survivors were also subjected to social stigmatization, similar to what happened during the HIV epidemic. Certifying people as "Ebola free" was found to be important in helping people to return to work or school, including those who were never seen in a health facility. This is a very important area for further research. Community messages regarding survivors should also be included during delivery of messages on Ebola prevention so that the survivor can retain a positive relationship with community members.

f. The reports above are specific to certain regions of West Africa and findings cannot be generalized throughout the world. Further Barrier Analysis studies need to be conducted on these and other behaviors in order to see if the same or different behavioral determinants are associated with the behaviors in other parts of the world.

g. Even though the findings from these studies cannot be generalized, other communicable diseases that could reach the levels of an epidemic (e.g.,

Marburg Virus Disease) will require similar behavior changes within these countries, and similar social and cultural factors should be targeted to avoid transmission of other diseases. This compendium may provide useful ideas and lessons learned when designing other prevention approaches.

CONCLUSIONS

Within a few months, the Ebola outbreak resulted in a disturbing number of deaths and psychological and financial burdens in several countries in West Africa. The horrifying statistics and rapid increase in deaths in this epidemic remind us that prevention is better than cure. Despite this, our first focus in such outbreaks is often "finding the cure" and setting up treatment facilities despite the fact that most epidemics of this type cannot be brought under control without a major focus on community mobilization for primary prevention of transmission.

The key determinants that would need to be addressed in future outbreaks in Liberia and Sierra Leone include perceived self-efficacy, perceived social norms, access, cues for action, and perceived positive and negative consequences of the behavior (including social stigmatization). We can see from the results of these studies that several factors can affect uptake of a behavior including presence of trusted community leaders, access to communication, and cultural, social and political factors.

Barrier Analysis has been an important tool for better understanding the reasons why behaviors are poorly adopted, and it gives practitioners a better idea as to which messages and activities should be used to increase adoption of behaviors. It is also clear that several of the determinants found to be important in these studies were not prioritized by program designers and leaders when developing a social and behavioral change strategy for Ebola.

To prevent similar epidemics in the future, results from these BA studies (and future ones) can be used to design behavior promotion messages and activities which are persuasive and that fit the lives, circumstances and worldview of community members. By comparing those who have *already* adopted a given behavior (the Doers) to those who have not (Non-doers), Barrier Analysis has become another tool in our toolkit of "assets-based" methods that draw on the local wisdom of communities, allowing program planners to use that wisdom to help communities adopt behaviors that increase their resilience and response to crises such as Ebola.

ANNEXES

Annex 1: Mercy Corps, Liberia

Group: ❑ Doer ❑ Non-Doer

Barrier Analysis Questionnaire: Early Reporting of Suspected Ebola Virus Disease Cases

Behavior Statement

Heads of households report to #4455 OR contact a community leader within 48 hours of suspecting an Ebola case in anyone living in their household.

Demographic Data

Interviewer's Name: _____ Questionnaire No.: _____

Date: ____/____/____ Community: _____

Section A - Doer/Non-doer Screening Questions

1. Are you the head of the household?/May I please speak to the head of the household?

   ❒ A. Yes

   ❒ B. No→ *end interview and find another respondent*

   ❒ C. Can't remember/No reply→ *end interview and find another respondent*

2. In the past 3 months did you or any of these people experience any of these symptoms: persistent fever, severe headaches, vomiting, or diarrhea?

   ❒ A. Yes

- ❒ B. No→ end interview and find another respondent
- ❒ C. Can't remember/No reply→ end interview and find another respondent

3. Did you call #4455 and/or report to your community leader when this person became ill?
   - ❒ A. Yes
   - ❒ B. No → mark as Non-doer and continue with Section B
   - ❒ C. Can't recall → end interview and look for another respondent

4. From the time you noticed the symptoms, how long did it take for you to call #4455 and/or report to your community leader?
   - ❒ A. Within the first 48 hours (less than 2 days)
   - ❒ B. Longer than 48 hours (more than 2 days) → mark as Non-doer
   - ❒ C. Don't remember → end interview and look for another respondent

Section B – Research Questions

(Perceived Self Efficacy / Skills)

1. Doer and Non-doer: With your present knowledge and skills, do you think that you could report to #4455 OR contact community leader within 48 hours of suspecting an Ebola case in anyone living in your household?

- ❑ a. Yes
- ❑ b. Possibly
- ❑ c. No
- ❑ d. Don't Know

(Perceived Self-efficacy)

2a. ***Doers***: What makes it ***easy*** for you to report to #4455 OR contact community leader within 48 hours of suspecting an Ebola case in anyone living in your household?

2b. ***Non-Doers***: What would make it ***easy*** for you to report to #4455 OR contact community leader within 48 hours of suspecting an Ebola case in anyone living in your household?

(Write all responses below. Probe with "What else?")

(Perceived Self-efficacy)

3a. ***Doers***: What makes it ***difficult*** for you to report to #4455 OR contact community leader within 48 hours of suspecting an Ebola case in anyone living in your household?

3b. ***Non-Doers***: What would make it ***difficult*** for you to report to #4455 OR contact community leader within 48 hours of suspecting an Ebola case in anyone living in your household?

(Write all responses below. Probe with "What else?")

(Perceived Positive Consequences)

4a. ***Doers:*** What are the ***advantages*** of reporting to #4455 OR contact community leader within 48 hours of suspecting an Ebola case in anyone living in your household?

4b. ***Non-Doers:*** What would be the ***advantages*** of reporting to #4455 OR contact community leader within 48 hours of suspecting an Ebola case in anyone living in your household? ***(Write all responses below. Probe with "What else?")***

(Perceived Negative Consequences)

5a. ***Doers:*** What are the ***disadvantages*** of reporting to #4455 OR contact community leader within 48 hours of suspecting an Ebola case in anyone living in your household?

5b. ***Non-Doers:*** What would be the ***disadvantages*** of reporting to #4455 OR contact community leader within 48 hours of suspecting an Ebola case in anyone living in your household?

(***Write all responses below. Probe with "What else?")***

(Perceived Social Norms)

6a. ***Doers:*** Do most of the people you know approve of you reporting to #4455 OR contact community leader within 48 hours of suspecting an Ebola case in anyone living in your household?

6b. ***Non-Doers***: Would most of the people you know approve of your reporting to #4455 OR contact community leader within 48 hours of suspecting an Ebola case in anyone living in your household?

- ❑ a. Yes
- ❑ b. Possibly
- ❑ c. No
- ❑ d. Don't Know / Won't say

(Perceived Social Norms)

7a. ***Doers:*** Who are the people that ***approve*** of you reporting to #4455 OR contact community leader within 48 hours of suspecting an Ebola case in anyone living in your household?

7b. ***Non-Doers:*** Who are the people that ***would approve*** of you reporting to #4455 OR contact community leader within 48 hours of suspecting an Ebola case in anyone living in your household?

(Write all responses below. Probe with "Who else?")

(Perceived Social Norms)

8a. ***Doers:*** Who are the people that ***disapprove*** of you reporting to #4455 OR contact community leader within 48 hours of suspecting an Ebola case in anyone living in your household?

8b. ***Non-Doers:*** Who are the people that ***would disapprove*** of you reporting to #4455 OR contact community leader within 48 hours of suspecting an Ebola case in anyone living in your household?

(***Write all responses below. Probe with "Who else?")***

(Perceived Access)

9a. ***Doers:*** How difficult is it to report to #4455 OR contact community leader within 48 hours of noticing the symptoms?

9b. ***Non-Doers:*** How difficult would it be to report to #4455 OR contact community leader within 48 hours of noticing the symptoms?

- ❑ a. Very difficult

❑ b. Somewhat difficult

❑ c. Not difficult at all.

(Perceived Cues for Action / Reminders)

10a. ***Doers:*** How difficult is it to remember to report to #4455 OR contact community leader within 48 hours of noticing symptoms? Very difficult, somewhat difficult, or not difficult at all?

10b. ***Non-Doers:*** How difficult do you think it would be to remember to report to #4455 OR contact community leader within 48 hr. of noticing symptoms? Very difficult, somewhat difficult, or not difficult at all?

❑ a. Very difficult

❑ b. Somewhat difficult

❑ c. Not difficult at all.

(Perceived Susceptibility / Perceived Risk)

11. ***Doers*** **& Non-Doers:** How likely is it that someone in your family will get Ebola in the next 3 months? Very likely, somewhat likely, or not likely at all

❑ a. Very likely

❑ b. Somewhat likely

❑ c. Not likely at all.

(Perceived Severity)

12. **Doers and Non-Doers:** How serious would it be if someone in your family got Ebola? Very serious, somewhat serious, or not serious at all?

❑ a. Very serious

❑ b. Somewhat serious

❑ c. Not serious at all

(Action Efficacy)

13. Doers and Non-Doers How likely is it that the Ebola situation would improve if people report to #4455 OR contact community leader within 48 hours of noticing symptoms? Very likely, somewhat likely, or not likely at all?

❑ a. Very likely

❑ b. Somewhat likely

❑ c. Not likely at all.

(Perception of Divine Will)

14. Doers and Non-Doers*:* Do you think that God causes people to get seriously ill?

❑ a. Yes

❑ b. Maybe

❑ c. No

(Policy)

15a. *Doers*: Are there any community laws or rules in place that make it easier for you report to #4455 OR contact community leader for a family member suspected of having Ebola within 48 hours?

15b. *Non-Doers*: Are there any community laws or rules in place that would make it easier for you to report to #4455 OR contact community leader for a family member suspected of having Ebola within 48 hours?

❑ a. Yes

❑ b. Maybe

❑ c. No

(Culture)

16. Doers and Non-Doers: Are there any cultural rules or taboos against reporting to #4455 OR contact community leader for a family member suspected of having Ebola within 48 hours?

❑ a. Yes

❑ b. Maybe

❑ c. No

THANK THE RESPONDENT FOR HIS or HER TIME!

Annex 2: CRS, Sierra leone

Barrier Analysis Questionnaire for Behavior 1:

Burial Protocols - Calling the burial team to report the death of a family member

For use with HEADS OF HOUSEHOLDS

Behavior Statement: The head of the household contacts the burial team within 30 minutes of a family member dying.

Demographic Data

Interviewer's Name: _____Questionnaire No.: _____Date: ___/___/___

District: _____ Chiefdom: _____

Community: _____

Scripted Introduction:

Hi, my name is_____; and I am part of a study team looking into what people do when a family member dies. The study includes a discussion of this issue and will take about 15 – 20 minutes. You have been randomly selected to participate in this survey and I would like to hear your views on this topic. We are doing this survey because we want to find out how best to help prevent the spread of Ebola. You are not obliged to participate in the study and no services will be withheld if you decide not to. Likewise, if you chose to be interviewed you will not receive any gifts, special services or remuneration. I can assure you that there will not be any risk associated with your participation in this survey. Everything we discuss will be kept strictly private, confidential, and anonymous and will not be shared with anyone else. Your name will not be attached to your survey responses in any way.

Would you like to participate in the study? Y / N [If not, thank them for their time.]

Section A - Doer/Non-doer Screening Questions

1**.** Has anyone living in your household passed away in the last six months?

- ❑ a. Yes
- ❑ b. No → *End interview and look for another respondent*
- ❑ c. Don't Know / won't say → *End interview and look for another respondent*

Please accept my condolences on the death of your _____ [Record relationship to respondent]

2. May I please speak to that person?

- ❑ a. Yes
- ❑ b. No → *End interview and look for another respondent*
- ❑ c. Don't Know / won't say → *End interview and look for another respondent*

NOW SPEAK TO THE PERSON RESPONSIBLE FOR CALLING THE BURIAL TEAM

3. When the family member died, who buried the deceased person?

- ❑ a. The burial team
- ❑ b. Any other person(s) → *Mark as **non-doer** and continue to Section B.*
- ❑ c. Don't Know / won't say → *End interview and look for another respondent*

4. About how long after your family member passed away did you wait to call the burial team?

- ❑ a. Immediately/within 60 minutes/1 hour
- ❑ b. More than 1 hour → *Mark as **non-doer** and continue to Section B.*
- ❑ c. Don't Know / won't say → *End interview and look for another respondent*

DOER /NON-DOER Classification Table DOER (all of the following)	**Non-Doer** (any ONE of the following)	**Do Not Interview** (any ONE of the following)
Question 1 = A		Question 1 = B or C
Question 2 = A		Question 2 = B or C
Question 3 = A	Question 3 = B	Question 3 = C
Question 4 = A	Question 4 = B	Question 4 = C

Section B – Research Questions

(Perceived Self-efficacy)

1a. Doers: What made it ***easy*** for you to contact the burial team within 1 hour after the family member died?

1b. **Non-Doers:** What **would** make it ***easy*** for you to contact the burial team within 1 hour after a family member died?

(Write all responses below. Probe with "What else?")

(Perceived Self-efficacy)

2a. Doers: What made it ***difficult*** for you to contact the burial team within 1 hour after the family member died?

2b. Non-Doers: What **would** make it ***difficult*** for you to contact the burial team within 1 hour after a family member died?

(Write all responses below. Probe with "What else?")

(Perceived Positive Consequences)

3a. Doers: What are the ***advantages/good thing***s of contacting the burial team within 1 hour after the family member died?

3b. Non-Doers: What **would** be the ***advantages/good thing*** of contacting the burial team within 1 hour after a family member died?

(Write all responses below. Probe with "What else?")

(Perceived Negative Consequences)

4a. Doers: What are the ***advantages/bad things*** of contacting the burial team within 1 hour after the family member died?

4b. Non-Doers: What **would** be the ***advantages/bad thing*** of contacting the burial team within 1 hour after a family member died?

(Write all responses below. Probe with "What else?")

(Perceived Social Norms)

5a. Doers: Do most of the people you know **approve/agree** of you contacting the burial team within 1 hour after the family member died?

- ❑ a. Yes
- ❑ b. Maybe
- ❑ c. No

5b. Non-Doers: **Would** most of the people you know **approve/agree** of you contacting the burial team within 1 hour after a family member died?

- ❑ a. Yes
- ❑ b. Maybe

❑ c. No

(Perceived Social Norms – Approve)

6a. Doers: Who are the people that ***approved/agree*** of you contacting the burial team within 1 hour after the family member died?

6b. Non-Doers: Who are the people that **would *approve/agree*** of you contacting the burial team within 1 hour after a family member died?

(Write all responses below. Probe with "Whom else?")

(Perceived Social Norms - Disapprove)

7a. Doers: Who are the people that ***disapproved/not agree*** of you contacting the burial team within 1 hour after the family member died?

7b. Non-Doers: Who are the people that **would *disapprove/ not agree*** of you contacting the burial team within 1 hour after a family member died?

(Write all responses below. Probe with "Whom else?")

(Perceived Access)

8a. Doers: How difficult was it to reach/contact the burial team within 1 hour after the family member died?

❑ a. Very difficult

❑ b. Somewhat difficult

❑ c. Not difficult at all.

8b. Non-Doers: How difficult **would** it be to reach/contact the burial team get the materials within 1 hour after a family member died?

❑ a. Very difficult

❑ b. Somewhat difficult

❑ c. Not difficult at all.

(Perceived Cues for Action / Reminders)

9a. Doers: How difficult was it to remember to call the burial team within 1 hour of the death?

- ❑ a. Very difficult
- ❑ b. Somewhat difficult
- ❑ c. Not difficult at all.

9b. Non-Doers: How difficult **would** it be to remember to call the burial team within 1 hour of the death?

- ❑ a. Very difficult
- ❑ b. Somewhat difficult
- ❑ c. Not difficult at all.

(Perceived Susceptibility / Perceived Risk)

10. Doers and Non-Doers: How possible is it that you or a family member will get Ebola in the next three months?

- ❑ a. Very possible
- ❑ b. Somewhat possible
- ❑ c. Not possible at all

(Perceived Severity)

11. Doers and Non-Doers: How serious would it be if you or a family member got Ebola?

- ❑ a. Very serious
- ❑ b. Somewhat serious
- ❑ c. Not serious at all

(Action Efficacy)

12. Doers and Non-Doers How possible is it that you or a family member will get Ebola if you call the burial team to bury your deceased family member?

- ❑ a. Very possible

- ❑ b. Somewhat possible
- ❑ c. Not possible at all

(Perception of Divine Will)

13a. Doers: Do you think that God approves of/agrees with your asking the burial team to bury a deceased family member?

- ❑ a. Yes
- ❑ b. Maybe
- ❑ c. No

13b. Non-Doers: Do you think that God **would** approve of /agrees with your asking the burial team to bury a deceased family member?

- ❑ a. Yes
- ❑ b. Maybe
- ❑ c. No

(Policy)

14. Doers and Non-Doers: Are there any laws or rules in place that make it more likely that you contact the burial team within 1 hour after the family member died?

- ❑ a. Yes
- ❑ b. Maybe
- ❑ c. No

(Culture)

15. Doers and Non-Doers: Are there any cultural rules or taboos against allowing a burial team to bury a family member who died?

- ❑ a. Yes
- ❑ b. Maybe

- ❑ c. No

THANK THE RESPONDENT FOR HIS OR HER TIM

Barrier Analysis Questionnaire for Behavior 2

Burial Protocols - No touching bodies of the deceased

For use with HEADS OF HOUSEHOLDS and PRIMARY CAREGIVERS

Behavior Statement: The head of the household/primary care giver instructs family members and everyone else to refrain from touching the body of a deceased family member while waiting for the burial team to arrive.

Demographic Data

Interviewer's Name: _____Questionnaire No.: _____Date: ___/___/___

District: _____ Chiefdom: _____

Community: _____

Scripted Introduction:

Hi, my name is_____; and I am part of a study team looking into what people do when a family member dies. The study includes a discussion of this issue and will take about 15 – 20 minutes. You have been randomly selected to participate in this survey and I would like to hear your views on this topic. We are doing this survey because we want to find out how best to help prevent the spread of Ebola. You are not obliged to participate in the study and no services will be withheld if you decide not to. Likewise, if you chose to be interviewed you will not receive any gifts, special services or remuneration. I can assure you that there will not be any risk associated with your participation in this survey. Everything we discuss will be kept strictly private, confidential, and anonymous and will not be shared with anyone else. Your name will not be attached to your survey responses in any way.

Would you like to participate in the study? Y / N [If not, thank them for their time.]

Section A – Doer/Non Doer Screening Questions

1**.** Has anyone **living** in your household passed away in the last six months?

- ❑ a. Yes
- ❑ b. No → *End interview and look for another respondent*
- ❑ c. Don't Know / won't say → *End interview and look for another respondent*

Please accept my condolences on the death of your _____ [Record relationship to respondent]

When that person died, who was responsible for giving instructions about what to do with the dead body? [Record relationship]

2. May I please speak to that person?

- ❑ a. Yes
- ❑ b. No/not available → *End interview and look for another respondent*
- ❑ c. Don't Know / won't say → *End interview and look for another respondent*

NOW SPEAK TO THE PERSON RESPONSIBLE FOR GIVING INSTUCTIONS ABOUT WHAT TO DO WITH THE BODY

3. While waiting for the deceased to be buried did you give any particular instructions to your family members and visitors?

- ❑ a. Yes: Do not touch the body/stay away from the body
- ❑ b. No instructions or no instructions related to not touching the body → *Mark as **non-doer** and continue to Section B.*
- ❑ c. Don't Know / won't say → *End interview and look for another respondent*

4. While waiting to bury the deceased did you or anyone else touch the body?

- ❑ a. No → *Mark as **Doer** and continue to Section B.*
- ❑ b. Yes I/someone touched the body → *Mark as **non-doer** and continue to Section B.*
- ❑ c. Don't Know / won't say → *End interview and look for another respondent*

DOER /NON-DOER Classification Table **DOER** (all of the following)	**Non-Doer** (any ONE of the following)	**Do Not Interview** (any ONE of the following)
Question 1 = A		**Question 1 = B or C**
Question 2 = A		**Question 2 = B or C**
Question 3 = A	**Question 3 = B**	**Question 3 = C**
Question 4 = A	**Question 4 = B**	**Question 4 = C**

Group: ❑Doer ❑Non-doer

Section B – Research Questions

(Perceived Self-efficacy - Easy)

1a. Doers: What made it ***easy*** for you to instruct your family members and everyone else to refrain from touching the body of the deceased family member?

1b. **Non-Doers:** What **would** make it ***easy*** for you to instruct your family members and everyone else to refrain from touching the body of the deceased family member?

(Write all responses below. Probe with "What else?")

(Perceived Self-efficacy - Difficult)

2a. Doers: What made it ***difficult*** for you to instruct your family members and everyone else to refrain from touching the body of a deceased family member?

2b. Non-Doers: What **would** make it ***difficult*** for you to instruct your family members and everyone else to refrain from touching the body of a deceased family member?

(Write all responses below. Probe with "What else?")

(Perceived Positive Consequences)

3a. Doers: What were the ***advantages/good ting*** of instructing your family members and everyone else to refrain from touching the body of a deceased family member?

3b. Non-Doers: What **would** be the ***advantages/good ting*** of instructing your family members and everyone else to refrain from touching the body of a deceased family member?

(Write all responses below. Probe with "What else?")

(Perceived Negative Consequences)

4a. Doers: What were the ***disadvantages/bad ting*** of instructing your family members and everyone else to refrain from touching the body of a deceased family member?

4b. Non-Doers: What **would** be the ***disadvantages/bad thing*** of instructing your family members and everyone else to refrain from touching the body of a deceased family member?

(Write all responses below. Probe with "What else?")

(Perceived Social Norms - Approve)

5a. Doers: Did most of the people you know ***approve/ agree*** of you instructing your family members and everyone else to refrain from touching the body of a deceased family member?

- ❑ a. Yes
- ❑ b. Maybe
- ❑ c. No

5b. Non-Doers: **Would** most of the people you know ***approve/ agree*** of you instructing your family members and everyone else to refrain from touching the body of a deceased family member?

- ❑ a. Yes
- ❑ b. Maybe
- ❑ c. No

(Perceived Social Norms)

6a. Doers: Who are the people that ***approved*/agree** of you instructing your family members and everyone else to refrain from touching the body of a deceased family member?

6b. Non-Doers: Who are the people that **would *approve/ agree*** of you instructing your family members and everyone else to refrain from touching the body of a deceased family member?

(Write all responses below. Probe with "Who else?")

(Perceived Social Norms - Disapprove)

7a. Doers: Who are the people that ***disapproved/not agree*** of you instructing your family members and everyone else to refrain from touching the body of a deceased family member?

7b. Non-Doers: Who are the people that **would *disapprove/ not agree*** of you instructing your family members and everyone else to refrain from touching the body of a deceased family member?

(Write all responses below. Probe with "Who else?")

(Perceived Cues for Action / Reminders)

8a. Doers: How difficult was it to remember to instruct your family members and everyone else to refrain from touching the body?

- ❑ a. Very difficult
- ❑ b. Somewhat difficult
- ❑ c. Not difficult at all

8b. Non-Doers: How difficult do you think it **would** be to remember to instruct your family and everyone else to refrain from touching the body?

- ❑ a. Very difficult
- ❑ b. Somewhat difficult
- ❑ c. Not difficult at all.

(Perceived Susceptibility / Perceived Risk)

9. Doers and Non-Doers: How possible is it that you or a family member will get Ebola in the next three months?

- ❑ a. Very possible
- ❑ b. Somewhat possible
- ❑ c. Not possible at all

(Perceived Severity)

10. Doers and Non-Doers: How serious would it be if you or a family member got Ebola?

- ❑ a. Very serious
- ❑ b. Somewhat serious
- ❑ c. Not serious at all

(Action Efficacy)

11. Doers and Non-Doers: How possible is it that you or a family member will get Ebola if you instruct your family to refrain from touching the body?

- ❑ a. Very possible
- ❑ b. Somewhat possible

- ❑ c. Not possible at all

(Perception of Divine Will)

12a. Doers: Do you think that God approves/agree of you asking people to refrain from touching the body of a family member who died of Ebola?

- ❑ a. Yes
- ❑ b. Maybe
- ❑ c. No

12b. Non-Doers: Do you think that God **would** approve/ agree of you asking people to refrain from touching the body of a family member who died of Ebola?

- ❑ a. Yes
- ❑ b. Maybe
- ❑ c. No

(Policy)

13. Doers and Non-Doers: Are there any laws or rules in place that make it more likely that you instruct your family members and everyone else to refrain from touching the body of a deceased family member?

- ❑ a. Yes
- ❑ b. Maybe
- ❑ c. No

(Culture)

14. Doers and Non-Doers: Are there any cultural norms/rituals that call for you/someone to touch the body of someone who just died?

- ❑ a. Yes
- ❑ b. Maybe
- ❑ c. No

THANK THE RESPONDENT FOR HIS OR HER TIME!

Barrier Analysis Questionnaire for Behavior 3

Care Seeking for a Person with a Fever

For use among Adults

(HOUSEHOLD HEAD OR PRIMARY CAREGIVER)

Behavior Statement: Primary Care Giver/Head of Household seek medical attention at a private or government-run health facility within 24 hours of noticing a fever in anyone living in their household.

Demographic Data

Interviewer's Name: _____Questionnaire No.: _____Date: ___/___/___

District: _____ Chiefdom: _____

Community: _____

Scripted Introduction:

Hi, my name is_____; and I am part of a study team looking into what people do when a family member dies. The study includes a discussion of this issue and will take about 15 – 20 minutes. You have been randomly selected to participate in this survey and I would like to hear your views on this topic. We are doing this survey because we want to find out how best to help prevent the spread of Ebola. You are not obliged to participate in the study and no services will be withheld if you decide not to. Likewise, if you chose to be interviewed you will not receive any gifts, special services or remuneration. I can assure you that there will not be any risk associated with your participation in this survey. Everything we discuss will be kept strictly private, confidential, and anonymous and will not be shared with anyone else. Your name will not be attached to your survey responses in any way.

Would you like to participate in the study? Y / N [If not, thank them for their time.]

Section A - Doer/Non-doer Screening Questions

1. Are you the head of the household or primary caregiver? /May I please speak to the head of the household or primary caregiver?

- ❒ A. Yes
- ❒ B. No→ *End interview and find another respondent*

- ❒ C. Don't know/No reply→ *End interview and find another respondent*

SPEAKING TO THE HOUSEHOLD HEAD OR PRIMARY CAREGIVER

2. In the past 6 months did anyone in this household have a fever?

- ❒ A. Yes
- ❒ B. No→ *End interview and find another respondent*
- ❒ C. Can't remember/No reply→ *End interview and find another respondent*

3. Did you or the primary care giver/household head seek health care/treatment when this person became ill?

- ❒ A. Yes
- ❒ B. No → *Mark as **Non-doer** and continue with Section B*
- ❒ C. Can't recall → *End interview and look for another respondent*

4. Where did you seek health care/treatment?

- ❒ A. Government health facility or a private health facility
- ❒ B. A traditional healer / a spiritual healer / bought medicines personally / pharmacy /drug peddler→ *Mark as **Non-doer** and continue with Section B*
- ❒ C. Can't recall/won't say → *End interview and look for another respondent*

5. From the time you noticed the symptoms, how long did it take for you to see a health care provider at a health facility?

- ❒ A. Within 48 hours (less than 2 days)
- ❒ B. Longer than 48 hours (more than 2 days) ☾ Mark as Non-doer
- ❒ C. Don't remember ☾ End interview and look for another respondent

Doers/Non Doers	**Non Doer**	**Don't Interview**

Classification Table Doer (all of the following)	(any of the following)	(any of the following)
Question 1=A		**Question 1 = B or C**
Question 2=A	**Question 2 = B**	**Question 2 = C**
Question 3=A	**Question 3 = B**	**Question 3 = C**
Question 4= A	**Question 4 = B**	**Question 4 = C**
Question 5 = A	**Question 5 = B**	**Question 5= C**

(Perceived Self-efficacy)

2a. Doers: What makes it ***difficult*** for you to seek treatment for a household member who has a fever within 24 hours of noticing the symptoms?

2b. Non-Doers: What **would** make it ***difficult*** for you to seek treatment for a household member who has a fever within 24 hours of noticing the symptoms?

(Write all responses below. Probe with "What else?")

(Perceived Positive Consequences)

3a. Doers: What are the ***advantages/good tings*** of seeking treatment for a household member who has a fever within 24 hours of noticing the symptoms?

3b. Non-Doers: What **would** be the ***advantages/good tings*** of seeking treatment for a household member who has a fever within 24 hours of noticing the symptoms? *(Write all responses below. Probe with "What else?")*

(Perceived Negative Consequences)

4a. Doers: What are the ***disadvantages/bad things*** of seeking treatment for a household member who has a fever within 24 hours of noticing the symptoms?

4b. Non-Doers: What **would** be the ***disadvantages/bad thing*** of seeking treatment for a household member who has a fever within 24 hours of noticing the symptoms?

(*Write all responses below. Probe with "What else?")*

(Perceived Social Norms - Approve)

5a. Doers: Do most of the people you know ***approve/agree*** of you seeking treatment for a household member who has a fever within 24 hours of noticing the symptoms?

- ❑ a. Yes
- ❑ b. Possibly
- ❑ c. No

5b. Non-Doers: **Would** most of the people you know ***approve/agree*** of your seeking treatment for a household member who has a fever within 24 hours of noticing the symptoms?

- ❑ a. Yes
- ❑ b. Possibly
- ❑ c. No

(Perceived Social Norms - Approve)

6a. Doers: Who are the people that ***approve/agree*** of you seeking treatment for a household member who has a fever within 24 hours of noticing the symptoms?

6b. Non-Doers: Who are the people that **would *approve/agree*** of you seeking treatment for a household member who has a fever within 24 hours of noticing the symptoms?

(Write all responses below. Probe with "Who else?")

(Perceived Social Norms - Disapprove)

7a. Doers: Who are the people that ***disapprove/not agree*** of you seeking treatment for a household member who has a fever within 24 hours of noticing the symptoms?

7b. Non-Doers: Who are the people that **would *disapprove/not agree*** of you seeking treatment for a household member who has a fever within 24 hours of noticing the symptoms?

(Write all responses below. Probe with "Who else?")

(Perceived Access)

8a. Doers: How difficult is it to get to the health center within 24 hours of noticing the symptoms?

- ❑ a. Very difficult
- ❑ b. Somewhat difficult
- ❑ c. Not difficult at all

8b. Non-Doers: How difficult **would** it be to get to the health center within 24 hours of noticing the symptoms?

- ❑ a. Very difficult
- ❑ b. Somewhat difficult
- ❑ c. Not difficult at all

(Perceived Cues for Action / Reminders)

9a. Doers: How difficult is it to remember to seek treatment from a health center within 24 hours of noticing symptoms?

- ❑ a. Very difficult
- ❑ b. Somewhat difficult
- ❑ c. Not difficult at all

9b. Non-Doers: How difficult do you think it would be to remember to seek treatment from a health center within 24 hours of noticing symptoms?

- ❑ a. Very difficult
- ❑ b. Somewhat difficult
- ❑ c. Not difficult at all

(Perceived Susceptibility / Perceived Risk)

10. Doers and Non-Doers: How possible is it that someone in your family will get seriously ill in the next 3 months?

- ❑ a. Very possible
- ❑ b. Somewhat possible
- ❑ c. Not possible at all

(Perceived Severity)

11. Doers and Non-Doers: How serious would it be if someone in your family got critically ill?

- ❑ a. Very serious
- ❑ b. Somewhat serious
- ❑ c. Not serious at all
- ❑ d. Don't know / won't say

(Action Efficacy)

12. Doers and Non-Doers: How possible is it that a family member with a fever would recover quickly if you sought treatment from a health center within 24 hours of noticing symptoms?

- ❑ a. Very possible
- ❑ b. Somewhat possible

- ❑ c. Not possible at all.
- ❑ d. Don't know / won't say

(Perception of Divine Will)

13. Doers and Non-Doers: Do you think that God causes people to get seriously ill?

- ❑ a. Yes
- ❑ b. Maybe
- ❑ c. No

(Policy)

14a. Doers: Are there any laws or rules in place that makes it easier for you to seek treatment for a feverish family member from a health center within 24 hours?

- ❑ a. Yes
- ❑ b. Maybe
- ❑ c. No

14b. Non-Doers: Are there any laws or rules in place that **would** make it easier for you to seek treatment for a feverish family member from a health center within 24 hours?

- ❑ a. Yes
- ❑ b. Maybe
- ❑ c. No

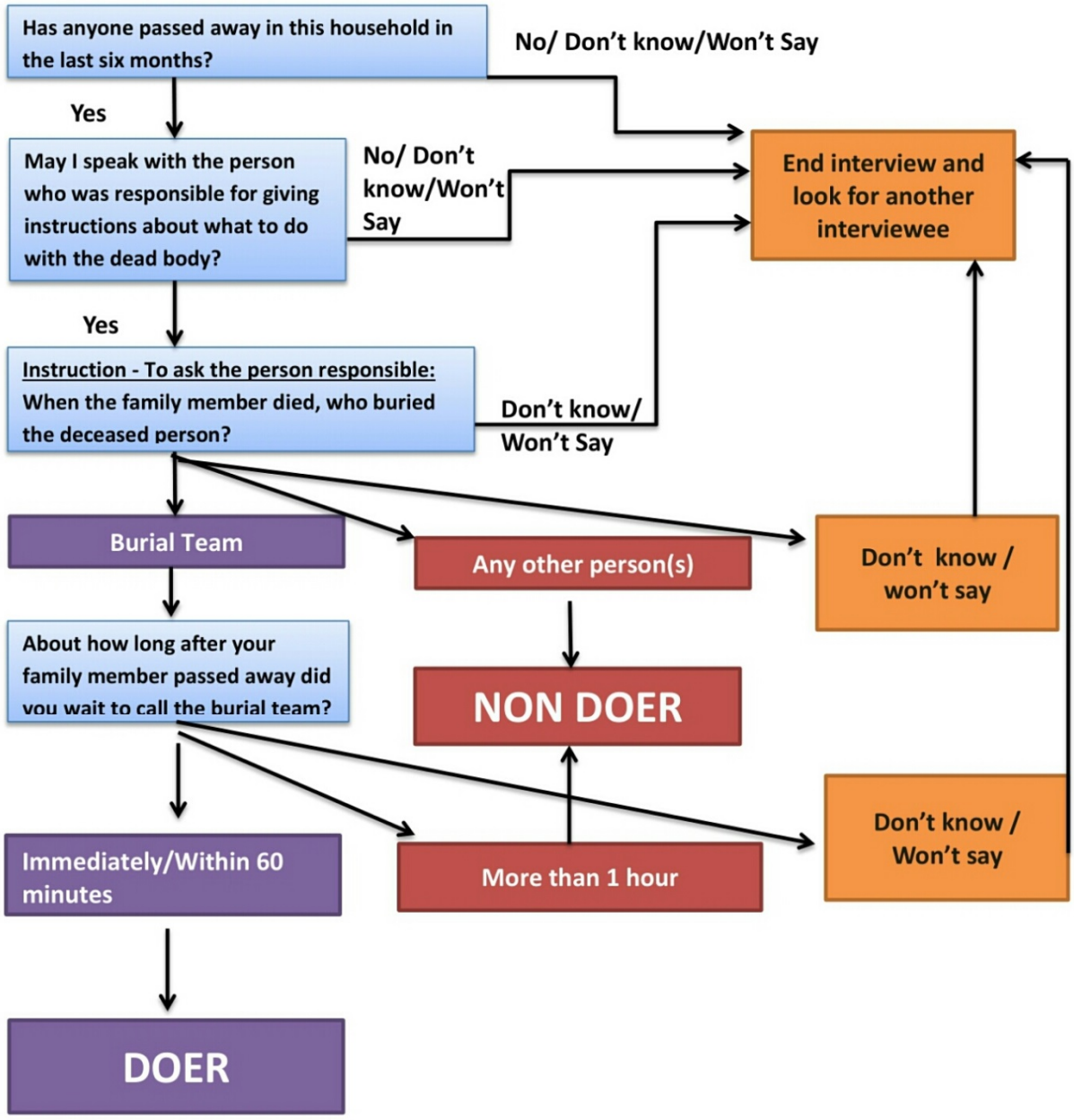
(Culture)

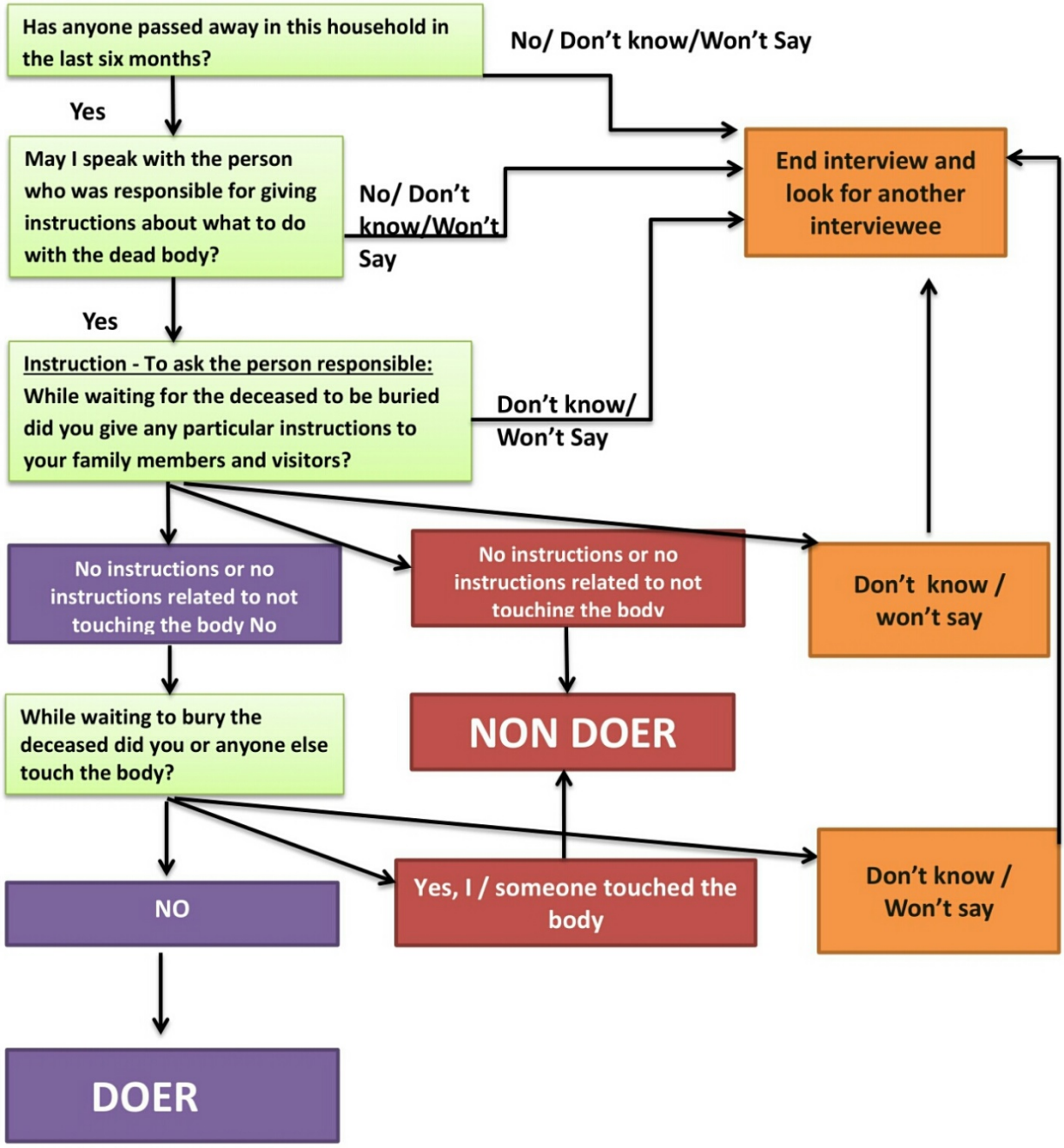
15. Doers and Non-Doers: Are there any cultural rules or taboos against seeking treatment for a feverish family member from a health center within 24 hours?

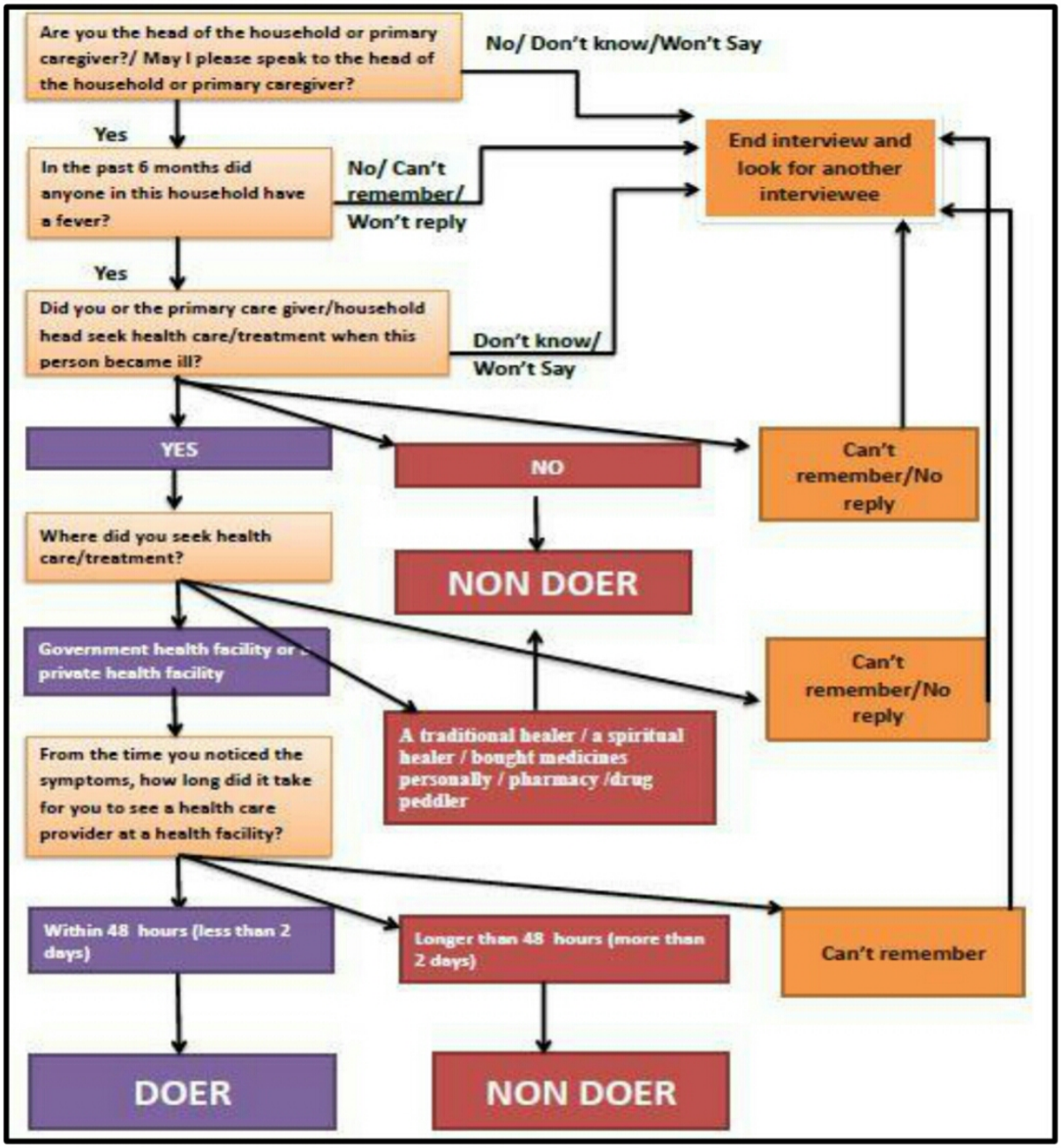
- ❑ a. Yes
- ❑ b. Maybe
- ❑ c. No

THANK THE RESPONDENT FOR HER TIME!

Annex 3: Doers and Non-doers Categorization Charts, CRS Sierra Leone




Has anyone passed away in this household in the last six months?
No/ Don't know/Won't Say
Yes
May I speak with the person who was responsible for giving instructions about what to do with the dead body?
No/ Don't know/Won't Say
End interview and look for another interviewee
Yes
Instruction - To ask the person responsible:
While waiting for the deceased to be buried did you give any particular instructions to your family members and visitors?
Don't know/ Won't Say
No instructions or no instructions related to not touching the body No
No instructions or no instructions related to not touching the body
Don't know / won't say
While waiting to bury the deceased did you or anyone else touch the body?
NON DOER
NO
Yes, I / someone touched the body
Don't know / Won't say
DOER


Are you the head of the household or primary caregiver?/ May I please speak to the head of the household or primary caregiver?
No/ Don't know/Won't Say
Yes
In the past 6 months did anyone in this household have a fever?
No/ Can't remember/ Won't reply
End interview and look for another interviewee
Yes
Did you or the primary care giver/household head seek health care/treatment when this person became ill?
Don't know/ Won't Say
YES
NO
Can't remember/No reply
Where did you seek health care/treatment?
NON DOER
Government health facility or private health facility
Can't remember/No reply
A traditional healer / a spiritual healer / bought medicines personally / pharmacy /drug peddler
From the time you noticed the symptoms, how long did it take for you to see a health care provider at a health facility?
Within 48 hours (less than 2 days)
Longer than 48 hours (more than 2 days)
Can't remember
DOER
NON DOER

Annex 4: Data Collection process step-by-step, CRS Serra Leone

1. All enumerators sat in a "U" shape.

2. Survey forms were organized by Doer and Non-doer, behavior and enumerator.

3. Beginning with Doers, the survey forms were counted to find the denominator for all calculations, and to ensure that there were 45 in total for both Doers and Non-doers.

4. Starting with the first question in Section B of the questionnaire, enumerators were asked to look at the questionnaires in front of them and read (silently) the responses, looking for responses with similar meaning among the different respondents.

5. Starting with the first person in the "U", enumerators were asked to say out loud all of the different responses that respondents mentioned for that question, making sure to group responses with similar meaning.

6. The facilitator wrote down a few words that represent the meaning of the response on a Tabulation Sheet (flip chart) – i.e. the code.

7. The second enumerator was then asked to mention any different responses on their surveys that were not already on the list. Codes were then also created for these responses.

8. This process was repeated until all responses were listed for that particular question.

9. As the enumerators were mentioning responses, the facilitator recorded the codes on the Tabulation Sheet (flip chart) and identified each code with a letter (a, b, c, d, etc.).

10. As codes were recorded on the Tabulation Sheet, coders classified their responses on their surveys by putting the letter of the code next to the response to which it corresponds.

11. Following this, the frequency of responses (codes) was tabulated – by asking each enumerator to count how many responses were recorded for each code.

12. This process was repeated for each open-ended question.

13. Finally, closed-ended questions were tallied and also counted.

14. For Non-Doers, the procedure was repeated, using the same coding guide/tally sheets created for the Doers. Any responses not originally listed from coding the Doer survey forms were added.

15. Following the completion of coding the first Doer and Non-doer survey forms, coding was also completed for the two additional tools.

Annex 5 : Samaritan's Purse, Liberia

Barrier Analysis Questionnaire
Hand washing: Female caregivers of children 0-23m

River Gee, Liberia
Samaritan's Purse International Relief

Age of **female caregiver** interviewed: ____ years
Age of **female caregiver's** youngest child: ____ months

First NAME of youngest child between 0-23 months of age: _____

REFER TO THIS CHILD THROUGHOUT THE INTERVIEW

Discuss CONFIDENTIALITY:

1. **Purpose of study:** ***We are conducting this study to learn about hand washing in River Gee.***
2. **They can choose to participate or not participate in the study. No services will be withheld nor will they be discriminated against if they choose not to participate.**
3. **Everything they say will be held in strict confidence and will not be shared with anyone else.**
4. **Ask the person if they wish to participate. If not, thank them for their time.**

Interviewer's Name: _____ Questionnaire No.: _____

Date: ____/____/____ Village: _____ Supervision Area: ____

GROUP: ❑ Doer ❑ NonDoer

Screening Questions

1. Are you the real person that is taking care of (NAME)?
   - ❑ a. Yes
   - ❑ b. No → **end questionnaire**
   - ❑ c. Don't know/will not answer → **end questionnaire**

2. How many years the child (NAME) get?
   - ❑ a. 0-23 months
   - ❑ b. 24 months or older → **end questionnaire**
   - ❑ c. Don't know/No Response → **end questionnaire**
3. What place you can wash your hands? What thing you can use to wash your hands? Please show me.
   - ❑ a. YES - Has a place to wash hands and shows you soap or ash quickly (1 minute)
   - ❑ b. NO – Does NOT have a place to wash hands OR can't show you soap or ash quickly

- **If #1 is "a. Yes" AND #2 is "a. 0-23 months" AND #3 is "a. Yes" and they can show you their hand washing station and cleaning agent quickly, then mark the respondent as a DOER at the top of page one.**
- **If #1 is "a. Yes" AND #2 is "a. 0-23 months" AND #3 is "a. No" OR they cannot show you their hand washing station and cleaning agent quickly, then mark the respondent as a NONDOER at the top of page one.**

(Perceived Severity)

4. Do you think running stomach can kill children?
   - ❑ a. Yes
   - ❑ b. Maybe
   - ❑ c. No
   - ❑ d. Don't know

(Perceived Susceptibility)

5. Plenty people stomach can run in this town quick quick?
   - ❑ a. Yes
   - ❑ b. Maybe
   - ❑ c. No

❑ d. Don't know

(Perceived action efficacy)

6. Do you think people can get running stomach when they don't wash their hands?
   ❑ a. Yes
   ❑ b. Maybe
   ❑ c. No
   ❑ d. Don't know

7. Do you think that you can get running stomach if you do not wash your hands?
   ❑ a. Yes
   ❑ b. Maybe
   ❑ c. No
   ❑ d. Don't know

8. Do you think (NAME) could get running stomach if your hands are not washed?
   ❑ a. Yes
   ❑ b. Maybe
   ❑ c. No
   ❑ d. Don't know

(Perceived Self Efficacy)

9. With the idea you have, do you think you will be able to wash your hands all the time?
   ❑ a. Yes
   ❑ b. Maybe
   ❑ c. No
   ❑ c. Don't Know

(Perceived Enablers)

10. What do you think will make it **easy** for you to wash your hands all the time? (THIS IS NOT A KNOWLEDGE QUESTION. *Probe for more details. Ask "Anything else?" Write down all responses*).

(Perceived Barriers)

11. What do you think will make it hard or stop you from washing your hands all the time? *(Probe for more details. Ask, "Anything else?" Write down all responses)*

(Perceived Social Norms)

12. A. Who are the people around you that can make you to wash your hands all the time? *(Ask, "Anyone else?" Write down all responses)*

B. Out of the people you just talked about, who is the main person you can really listen to? *(Ask, "Anyone else?" Write down all responses)*

13. A. Who are the people around you that can stop you from washing your hands all the time? *(Ask, "Anyone else?" Write down all responses)*

B. Out of the people you just talked about, who is the main person you can really listen to? *(Ask, "Anyone else?" Write down all responses)*

(Cue to action/Reminder)

14. What will make you to remember to wash your hands all the time? *(Ask, "Anything else?" Write down all responses)*

(Perception of Divine Will)

15. Do you think that it is God's will that our children can get sick with running stomach?
    - ❑ a. Yes
    - ❑ b. Maybe
    - ❑ c. No
    - ❑ d. Don't know

16. Do you think that gods, our old people that died can make our children get sick with running stomach? *(If yes, please ask "How"?)*
    - ❑ a. Yes
    - ❑ b. Maybe
    - ❑ c. No
    - ❑ d. Don't know

17. Do you think that witchcraft can make our children get sick with running stomach? *(If yes, please ask "How"?)*
    - ❑ a. Yes
    - ❑ b. Maybe
    - ❑ c. No

❑ d. Don't know

(Positive and Negative Attributes of Action)

18. What **good things** do you think will happen to you and your family if you **DO** wash your hands all the time? *(Ask, "Anything else?" Write all responses below)*

19. What **bad things** do you think will happen to you and your family if you **DO** wash your hands all the time? *(Ask, "Anything else?" Write all responses below)*

(Access)

20. How is it like to have a special hand washing place in your home? *(Probe for more details and ask, "Anything else?" Write all responses below)*

THANK THE RESPONDENT FOR HER TIME

Annex 6: General Format of BA for Hand washing amongst Mothers

Group: ❑ Doer ❑ Non-Doer

Barrier Analysis Questionnaire:

Hand Washing among Mothers

Behavior Statement

Mothers of children 0 – 59 months wash their hands with soap

at the five critical times each day.

Demographic Data

Interviewer's Name: _____Questionnaire No.: _____ Date____/____/____

Community: _____

Scripted Introduction:

Hi, my name is_____; and I am part of a study team looking into personal hygiene habits. The study includes a discussion of this issue and will take about 20 minutes. I would like to hear your views on this topic. You are not obliged to participate in the study and no services will be withheld if you decide not to. If you decide to talk with me you will not be remunerated or receive any gifts or services. Everything we discuss will be held in strict confidence and will not be shared with anyone else.

Would you like to participate in the study? [If not, thank them for their time.]

Section A. Behavior Screening Questions

1. How old is your youngest child? _____ months ← *write the age in months*

   ☐ a. 0-59 months

   ☐ b. >59 months → *End interview and look for another respondent*

   ☐ c. Don't know→ *End interview and look for another respondent*

2. Yesterday, did you wash your hands?
   - □ a. Yes
   - □ b. No → *Mark as Non-doer and continue to Section B*
   - □ c. Don't remember → *End interview and look for another respondent*

3. I would like you to think about yesterday and tell me how many times you washed your hands yesterday. _____ *(this is just to help with memory)*

4. Yesterday, what are all the moments that you washed your hands? (DO NOT READ THE LIST – Mark all that are mentioned)
   - □ a. after defecation
   - □ b. after cleaning a child's diaper/nappy
   - □ c. before cooking / preparing food
   - □ d. before eating
   - □ e. before feeding a child
   - □ f. Don't know or won't say→ *End interview and look for another respondent*

5. In addition to water, did you use anything else to wash your hands yesterday?
   - □ a. Yes
   - □ b. No → *Mark as Non-doer and continue to Section B*
   - □ c. Don't remember → *End interview and look for another respondent*

6. In addition to water, what else did you use to wash your hands?
   - □ a. Soap
   - □ b. Anything else → *Mark as Non-doer and continue to Section B*
   - □ c. Don't know/refused to answer → *End interview and look for another respondent*

7. May I see the soap that you use?
   - □ a. Soap available and looks used
   - □ b. Soap available but does not look used → *Mark as Non-doer and continue to Section B*
   - □ c. No soap available→ *Mark as Non-doer and continue to Section B*

Doer (all of the following)	**Non Doer** (any one of the following)	**Do not Interview** (any one of the following)
Question 1 – A		Question 1 -C
Question 2 - A	Question 2 – B	Question 2 – C
Question 4 - **A plus** any **two** from B, C, D, E[32]	Question 4 – No A; or A and **only one** other response between B, C, D, E	Question 4 -C
Question 5 – A	Question 5 – B	Question 5 - C
Question 6 – A	Question 6 - B	Question 6 - C
Question 7-A	Question 7- B or C	

GROUP: □ DOER □ NON-DOER

Behavior Explanation: In the following questions I am going to be talking about hand washing *at five critical times*. By this I mean 1. after defecation, 2. after changing a baby's diaper/nappy, 3. before cooking, 4. before eating and 5. before feeding a child.

Section B – Research Questions

(Perceived Self-efficacy)

1. With your current knowledge, skills and resources do you think you can wash your hands with soap at the five critical times?

- ❑ a. Yes
- ❑ b. No
- ❑ c. Maybe
- ❑ d. Don't know/ Won't say

2a. ***Doers****: What makes it* ***easier*** *for you to wash your hands with soap at the five critical times each day.*

2b. ***Non-doers****: What would make it* ***easier*** *for you to wash your hands with soap at the five critical times each day.*

[32] This is an example of how to relax a behavior when you don't think you'll be able to find enough 'Doers'.

(Write all responses below. Probe with "What else?")

(Perceived Self-efficacy)

3a. ***Doers****: What makes it* ***difficult*** *for you to washing your hands with soap at the five critical times each day.*

3b. ***Non-doers****: What would make it* ***difficult*** *for you to washing your hands with soap at the five critical times each day.*

(Write all responses below. Probe with "What else?")

(Perceived Positive Consequences)

4a. ***Doers:*** What are the ***advantages*** of washing your hands with soap at the five critical times each day?

4b. ***Non-doers:*** What would be the ***advantages*** of washing your hands with soap at the five critical times each day?

(Write all responses below. Probe with "What else?")

(Perceived Negative Consequences)

5a. ***Doers:*** What are the ***disadvantages*** of washing your hands with soap at the five critical times each day?

5b. ***Non-doers:*** What would be the ***disadvantages*** of washing your hands with soap at the five critical times each day?

(Write all responses below. Probe with "What else?")

(Perceived Social Norms)

5a. ***Doers:*** Who are the people that ***approve*** of you washing your hands with soap at the five critical times each day.

5b. ***Non-doers:*** Who are the people that ***would approve*** of you washing your hands with soap at the five critical times each day.

(Write all responses below. Probe with "Who else?")

(Perceived Social Norms)

6a. ***Doers:*** Do most of the people that you know approve of you washing your hands with soap at the five critical times each day?

6b. ***Non-doers***: Would most of the people that you know approve of you washing your hands with soap at the five critical times each day?

- ❑ a. Yes
- ❑ b. Possibly
- ❑ c. No
- ❑ d. Don't Know / Won't say

(Perceived Social Norms)

7a. ***Doers:*** Who are the people that ***disapprove*** of you washing your hands with soap at the five critical times each day.

7b. ***Non-doers:*** Who are the people that ***would disapprove*** of washing your hands with soap at the five critical times each day.

(Write all responses below. Probe with "Who else?")

(Perceived Access)

8a. ***Doers:*** How difficult is it to get the soap you need to wash your hands at the five critical times each day? Would you say it is very difficult, somewhat difficult or not difficult at all?

8b. ***Non-doers:*** How difficult would it be to the water soap needed to wash your hands at the five critical times each day? Would you say it is: Very difficult, somewhat difficult, not difficult at all?

- ❑ a. Very difficult
- ❑ b. Somewhat difficult
- ❑ c. Not difficult at all.

(Perceived Cues for Action / Reminders)

9a. ***Doers:*** How difficult is it to remember to wash your hands with soap at the five critical times each day? Very difficult, somewhat difficult, or not difficult at all?

9b. ***Non-doers:*** How difficult do you think it would be to remember to wash your hands with soap at the five critical times each day? Very difficult, somewhat difficult, or not difficult at all?

- ❑ a. Very difficult
- ❑ b. Somewhat difficult
- ❑ c. Not difficult at all.
- ❑ d. Don't Know / Won't say

(Perceived Susceptibility / Perceived Risk)

10. ***Doers*** **and Non-doers:** How likely is it that your child will get diarrhea in the coming 3 months ? Very likely, somewhat likely, or not likely at all?

- ❑ a. Very likely
- ❑ b. Somewhat likely
- ❑ c. Not likely at all

(Perceived Severity)

11. Doers and Non-doers: How serious would it be if your child got diarrhea? A very serious problem, somewhat serious problem, or not serious at all?

- ❑ a. Very serious problem
- ❑ b. Somewhat serious problem
- ❑ c. Not serious at all

(Action Efficacy)

12. Doers and Non-doers How likely is it that your child will suffer from diarrhea if you wash your hands with soap at the five critical times each day? Very likely, somewhat likely, not very likely?

- ❑ a. Very likely

❑ b. Somewhat likely
❑ c. Not likely at all

(Perception of Divine Will)

13a. ***Doers and Non-doers:*** Do you think that it's **God will** that children get diarrhea?
❑ a. Yes
❑ b. No
❑ c. Don't Know / Won't say

(Culture)

14. Doers and Non-doers: Are there any cultural rules or taboos against washing your hands with soap at the five critical times each day. ?
❑ a. Yes
❑ b. No
❑ c. Don't Know / Won't say

(Policy)

15. **Doers and Non-doers** : Are there any community laws or rules in place that make it more likely that you wash your hands with soap at the five critical times each day.
❑ a. Yes
❑ b. No
❑ c. Don't Know / Won't say

[Now I am going to ask you a question unrelated to hand washing.]

(Universal Motivators)

16. Doers and Non-doers: What is the <u>one</u> thing that you desire most in life?

THANK THE RESPONDENT FOR HIS OR HER TIME!

Annex 6: Details for each determinant from the 17 Barrier Analysis studies on hand washing with soap found on the Behavior Bank database website (www.fsnnetwork.org/behavior-bank)

Behavioral determinant	Barriers mentioned by Doers	Barriers mentioned by Non-Doers
Perceived barriers	• None	• Shortage/ Lack of water and soap made it difficult to hand wash • Lack of awareness • Being busy • Somewhat difficult to remember

Behavioral determinant	What made it difficult for Non-Doers
Perceived self-efficacy: What made it difficult	• Being sick • No time to wash hands/time consumption/ Traveling makes it difficult • May be possible/not possible to do the behavior with present knowledge, skills, time, and resources • Having soap makes it easier/ not having soap/ash makes doing the behavior harder • Having many handwashing facilities makes doing the behavior easier/access to facilities/ no handwashing facility makes it difficult to do the behavior/ lack of water • Before preparing food was the most difficult time to wash their hands • Lack of practice/money/ • Information/ Knowledge • Forgetfulness/ignorance

Behavioral determinants	Doers	Non-Doers
Perceived divine will	• God approves of them doing the behavior • Not God's will that they or their family gets diarrheal disease	• It was God's will for them or their family to get diarrheal disease • God does not approve of people doing the behavior

Behavioral determinants	Doers	Non-Doers
Perceived social norms	• Neighbors/ Family members / friends/classmates / people who regularly value hygiene approve behavior • Health workers/ health agent / Mother leader approve of them doing the behavior • Most people approve/ approve of them washing their hands with soap and water after visiting the toilet and before eating (every time) • No one disapproves of them doing the Behavior • Certain people disapprove of them doing the behavior	• Possible that most people support handwashing – most of the people they know approve of them washing their hands with water and soap or ash at the five critical times each day • Not everyone approves of them washing their hands with soap and water after visiting the toilet and before eating (every time) • Most people do not approve/ members of their family disapprove of them doing the behavior

Behavioral determinants	Doers	Non-Doers
Perceived enablers	• Availability of water • Awareness of hand washing	

Behavioral determinants	Doers	Non-Doers
Access	• Not difficult at all to get ash to wash their hands at the five critical times each day /to get soap	• Shortage of water and soap made it difficult to hand wash • Very difficult to get soap to wash their hands at the five critical times each day than Doers

Behavioral determinants	Doers	Non-Doers
Perceived positive consequences	• Handwashing improves child's health • Preventing diarrhea /killing germs/ staying healthy an advantage	• Advantage of handwashing is living healthy and clean/ avoiding dirt was an advantage • No disadvantage to handwashing • Don't know the advantage

Behavioral determinants	Doers	Non-Doers
Perceived negative consequences	• Practice expensive/ money to buy water and soap makes handwashing difficult • Don't know what makes it more difficult to hand wash • No disadvantages	• No disadvantage to handwashing • Don't know the advantage • Water and soap availability makes it easier

Behavioral determinants	Doers	Non-Doers
Perceived severity	• Diarrhea was a very bad problem/serious problem • Getting the problem would be very serious • Not likely at all that they would get the disease	• It would be very serious if their child got diarrhea/cholera • Do not know if diarrhea is serious

Behavioral determinants	Doers	Non-Doers
Perceived susceptibility	• Not likely at all that their child would get diarrhea/cholera in the next three months /family • Yes, children under 5 years of age can get diarrhea if their mothers do not always wash their hands with soap or ash.	• Very/somewhat likely that their child would get diarrhea/cholera in the next 3 months/ Family • No, children under five years of age will not get diarrhea if their mothers do not always wash their hands with soap or ash.

Behavioral determinants	Doers	Non-Doers
Perceived action efficacy	• Participants from 7 studies say that if they do the behavior they will not have the problem	• Participants from 3 studies say that it was very likely that their child would get cholera or diarrhea if they washed their hands with water and soup or

	• Yes, doing the preventive action will avoid the disease	ash at the five critical times each day • No, doing the preventive action will not avoid getting the disease. • if they washed at the 5 critical moments that they and their family would be less likely to get DD.