**EFFECT OF TRAINING OF VOLUNTEERS ON IDENTIFICATION AND REFERRAL OF NEGLECTED TROPICAL DISEASES PATIENTS IN EASTERN REGION, GHANA**

**BY**

**AHULU BOAZ**

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**DEPARTMENT OF PUBLIC HEALTH**

**UNIVERSITY OF PORT HARCOURT**

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# CHAPTER ONE

# INTRODUCTION

## 1.1 Background to the Study

Neglected tropical diseases (NTDSs) are infectious diseases that typically affect individuals in least-developed countries, especially disadvantaged and sidelined communities (Corley et al., 2016). These diseases have substantial bearings on individuals and communities but receives less attention and are often ignored regarding research, funding, and public awareness (Mitra & Mawson, 2017). As noted by Hunter (2014), NTDs are mostly caused by groups of infectious organisms, including helminths, bacteria, viruses, and fungi (Hunter, 2014). These disease conditions are prevalent in tropical and subtropical areas (WHO, 2024a). Neglected Tropical Diseases devastate individuals and make them poorer (Makau-Barasa et al., 2023).

According to the WHO (2024), about 20 diseases classified as Neglected tropical diseases affect over one billion people, with over 1.6 billion others requiring interventions in different forms. However, each WHO region has specific neglected tropical diseases affecting the vulnerable populations (Ng’etich et al., 2021). These diseases are given less attention regarding financial and political support and are referred to as neglected (International Bank for Reconstruction and Development / The World Bank, 2018).

These diseases, which significantly affect the achievement of Sustainable Development Goal (SDG) 3, indirectly affect the attainment of all other SDGs (International Bank for Reconstruction and Development / The World Bank, 2018). Unlike other WHO regions, Africa alone contributes a very high proportion of the global burden of NTDs (Mitra & Mawson, 2017). This is a major health challenge. Most of the NTDs are prevalent in rural and peri-urban locations where sanitation is very poor (Von Philipsborn et al., 2015). The most common NTD conditions in Africa, especially Sub-Saharan Africa, include human African trypanosomiasis, lymphatic filariasis, schistosomiasis, onchocerciasis, Buruli ulcer, and leprosy (Gyapong et al., 2016).

Neglected Tropical Diseases may not bed considered very urgent to report because their initial pathogenesis do not present much of a problem to the sufferers (Gyapong et al., 2016). Again, health facilities may be located very far from these marginalized communities thereby affecting the promptness in reporting for immediate treatment (Karanja et al., 2018). The affected individuals, therefore, continue to be sicker, affecting their discharge of duties. Even though both men and women are affected, Gyapong et al., (2016) pointed out that women are more impacted by their social and societal duties.

The complex issues surrounding NTDs and their solutions call for strategic interventions that involve all levels of stakeholders, including community-based volunteers (CBV) (Corley et al., 2016). Health sector CBV usually refers to a non-professional selected from the community and given special training to conduct specific activities that support health work (Owusu et al., 2023). They are doing this job not for payroll in the health sector but out of civic responsibility and solidarity. Community-based volunteers play very useful roles in neglected tropical disease control since they often represent the most proximal level of service delivery and are embedded in the local context. These volunteers are resident within the communities and can commit more time, skills, and energies to better the health of members of the community by contributing to the control and prevention of NTDs (Owusu et al., 2023).

The roles of community-based volunteers in neglected tropical disease control are multi-faceted and diverse (Kok et al., 2017). Firstly, community-based volunteers serve as educators and advocates, raising awareness about neglected tropical diseases in their communities (Barogui et al., 2014; Dil et al., 2012; Makau-Barasa et al., 2023). They disseminate information about the causes, symptoms, and prevention methods of these diseases, helping community members understand the importance of early diagnosis and treatment (Owusu et al., 2023). Moreover, community-based volunteers often conduct door-to-door case searches to identify individuals who may be at risk or already infected with any of the neglected tropical diseases (Lar et al., 2023; WHO/AFRO, 2015). These surveys enable early detection and prompt treatment of infected individuals, contributing to the reduction of disease transmission within the community (Karanja et al., 2018).

In Ghana, community-based volunteers have made significant contributions not only to the control of neglected tropical diseases. They have been very instrumental in various national immunization days, such as for Poliomyelitis and measles vaccination. They were much involved in the onchocerciasis control program (OCP) and the Guinea worm eradication (Bodimeade et al., 2019). They have been instrumental in implementing the Ghana NTD Programme, which aimed to eliminate five neglected tropical diseases by 2020 (Ghana Health Service, 2020).

These volunteers, sometimes referred to as NTD Community Drug Distributors (Lar et al., 2023), are trained and supported by the various District Health Directorates under the Ghana NTD Programme to deliver mass drug administration campaigns in their respective communities (Hudu et al., 2024; Macfarlane et al., 2019; WHO/AFRO, 2015). They receive ad-hoc training on the proper administration of medications, and sometimes on the identification of symptoms, and the importance of treatment adherence. The community volunteers are expected to create awareness of diseases like malaria, tuberculosis, and other neglected tropical diseases (Owusu et al., 2023). They are expected to organize community meetings and distribute informational materials to educate their fellow community members about neglected tropical diseases (Awoonor-Williams et al., 2022; Kweku et al., 2020).

To ensure their effectiveness, these volunteers are to undergo planned training programs that are aimed at equipping them with the necessary knowledge and attitude (Barogui et al., 2014; Owusu et al., 2023; Yano et al., 2016). These training programs must typically include disease prevention and control education, basic medical knowledge on disease identification, referral processes, communication and outreach skills, and community mobilization techniques. The training programs for community-based health volunteers vary depending on the community’s specific needs and the diseases prevalent in that area (Gross et al., 2023; Hill et al., 2021; Javanparast et al., 2012; Lar et al., 2023; O’Donovan et al., 2018; Sylla et al., 2007; WHO/AFRO, 2015).

A structured 3 days hands-on training may likely impact the effectiveness of disease management and its prevention by community-based health volunteers. There is evidence that improved knowledge and attitude of volunteers are dependent on training in disease prevention and control measures (George et al., 2023; Hotez et al., 2019; Karanja et al., 2018; Owusu et al., 2023; Pastrana et al., 2020). Training will likely equip the community-based volunteers to educate and raise awareness within their communities, leading to increased adoption of preventive behaviors and earlier detection of diseases (Abass et al., 2015; Corley et al., 2016).This will ultimately lead to improved health outcomes and reduced morbidity and mortality rates. However, not many studies have documented the relationship between community-based volunteer training and the discharge of their work in NTD surveillance. Therefore, this study aims to ascertain the effect of training Community-Based Volunteers for NTD case detection and referral.

## 1.2 Statement of the Problem

Despite the numerous efforts in the fight against Neglected Tropical Diseases, the Eastern Region of Ghana continues to record cases of Buruli ulcer, lymphatic filariasis, Yaws, leprosy, and schistosomiasis (Ghana Health Service, 2023). These cases are mostly detected at the terminal stages, contributing to a significant increase in morbidities and disabilities (Arias Ramos et al., 2020; Duighuisen et al., 2024; Godwin-Akpan et al., 2023; Lar et al., 2023). Due to late detection and treatment, these patients continue to serve as a source of transmission to susceptible individuals in the community (Oyeyemi et al., 2023). The continuous spread of these diseases leads to low productivity and perpetuates the cycle of disability, stigmatization, and low socio-economic standard of living (Alderton et al., 2024; Azubuike et al., 2025; Branda et al., 2024; Lenk et al., 2016).

To address the challenges of delayed detection and continued endemicity, effective interventions at the community level are crucial. It is proven that community-based volunteers play a pivotal role in the early detection and referral of NTD patients (Abass et al., 2015b). They are the focal persons in detecting NTDs at the community level, especially in hard-to-reach settings (Owusu et al., 2023; Woldie et al., 2018). However, studies have shown that their roles are hampered by gaps in their knowledge, attitude towards NTD patients, and other practices about NTD control (Musoke et al., 2021; Tsolekile et al., 2018; Ukwaja et al., 2020). These deficiencies contribute significantly to the late detection and facilitate continued transmission in affected communities (Ahorlu et al., 2018; Godwin-Akpan et al., 2023; Id et al., 2024).

Evidence from some countries suggests that training can enhance the knowledge and attitudes of community-based volunteers in identifying and referring NTD patients (Godwin-Akpan et al., 2023; Id et al., 2024; Lar et al., 2023). However, there is limited empirical evidence that such training can effectively improve knowledge, shape volunteers’ attitudes towards NTD patients, and enhance early detection and referral of NTD patients in the Eastern region. Again, there is insufficient evidence in the literature about an experimental study with a control group that measures the effectiveness of such training in the region, which has distinct characteristics from those of other countries. An earlier study in the Central region of Ghana focused on assessing the availability of community-based volunteers and their knowledge level without providing any intervention (Adjei et al., 2025).

Preliminary information from some district directors of Health Services indicates that ad-hoc training is done for the volunteers. However, there is no evidence from the literature about the effectiveness of such training programs. Additionally, limited data exist about the effect sizes of interventions of such nature in the region. Addressing these gaps is crucial for the region and the entire country to make a significant contribution to the WHO’s call for eliminating NTDs by 2030 (WHO, 2020). This study, therefore, aims to investigate the effectiveness of training community-based volunteers to identify and refer patients with NTDs.

## 1.3 Aim of the Study

The aim of this study is to assess the effect of training on the identification and referral of neglected tropical disease patients by community-based volunteers in the Eastern Region of Ghana.

## 1.4 Specific Objectives

The specific objectives of the study are:

1. To assess the knowledge of Community-based volunteers on NTDs case detection and referral in the control and intervention groups before and after the training in the Eastern Region, Ghana
2. To assess the attitude of Community-based volunteers on NTDs case detection and referral in the control and intervention groups before and after the training in the Eastern Region, Ghana
3. To determine the factors associated with the adoption and implementation of NTD training and the identification and referral of NTD patients among community-based volunteers in the intervention group in the Eastern Region of Ghana
4. To assess the effect of the training on the number of NTD patients identified and referred by the Community-based volunteer before training, at three months, six months, and twelve months post-training in the intervention and control groups in the Eastern Region of Ghana
5. To determine the effect size of the training programme on the knowledge, attitude, and identification, and referral of NTD patients among Community-based volunteers in the Eastern Region, Ghana.

## Research Questions

The questions that will be used to guide the study include the following:

1. What is the knowledge level of Community-based volunteers regarding NTDs case detection and referral in the control and intervention groups before and after the training in the Eastern Region, Ghana?
2. What are the attitudes of Community-based volunteers towards NTD patients’ identification and referral in the control and intervention groups before and after the training in the Eastern region of Ghana?
3. What are the factors associated with NTD training adoption and implementation among the community-based volunteers after the training in the intervention group in the Eastern region of Ghana?
4. What is the effect of training on the number of NTD patients identified and referred by community-based volunteers post-training in the control and intervention groups in the Eastern region of Ghana?
5. What is the effect size of the training intervention on knowledge, attitude, and the identification and referral of NTD patients among the community-based volunteers in the Eastern region of Ghana?

## 1.5 Hypothesis

The research will test the following hypothesis:

**Hypothesis 1:**

H01: There will be no statistically significant difference in the knowledge level of Community-based volunteers on NTDs between the control and intervention groups after the training in the Eastern Region, Ghana.

HA1: There will be a statistically significant difference in the knowledge level of Community-based volunteers on NTDs between the control and intervention groups after the training in the Eastern Region, Ghana.

**Hypothesis 2:**

H02: There will be no statistically significant difference in the attitude of Community-based volunteers towards NTDs between the control and intervention groups after the training in the Eastern Region, Ghana.

HA2: There will be a statistically significant difference in the attitude of Community-based volunteers towards NTD patients between the control and intervention groups after the training in the Eastern Region, Ghana.

**Hypothesis 3**

H03: There will be no statistically significant association between the factors for adopting and implementing NTD training and the identification and referral of NTD cases by community-based volunteers post-training in the intervention group in the Eastern Region of Ghana.

HA3: There will be a statistically significant association between the factors for adopting and implementing NTD training and the identification and referral of NTD cases by community-based volunteers post-training in the intervention group in the Eastern Region of Ghana.

**Hypothesis 4**

H04: Training of community-based volunteers has no statistically significant effect on the number of NTD patients identified and referred in the Eastern region of Ghana

HA4: Training of community-based volunteers has no statistically significant effect on the number of NTD patients identified and referred in the Eastern region of Ghana

**Hypothesis 5**

H05: There will be no statistically significant difference in the effect size of the training programme on the knowledge, attitude, and identification and referral of NTD patients among Community-based volunteers in the Eastern Region, Ghana

HA5: There will be a statistically significant difference in the effect size of the training programme on the knowledge, attitude, and identification and referral of NTD patients among Community-based volunteers in the Eastern Region, Ghana

## 1.6 Significance of the Study

The study on the effectiveness of training on NTD case identification and referral among Community-Based volunteers is designed to offer significant contributions to the field of public health. This training shall enhance the capabilities of community-based volunteers, improve NTD control strategies, and ensure the sustainability of training efforts. The study outcomes are expected to have wide-reaching implications for public health policy and practice, particularly in other resource-limited settings where community-based strategies form the backbone of health interventions.

First, the tailored training for community-based volunteers shall address a crucial need for context-specific health education directly applicable to the NTD challenges prevalent in the Eastern Region of Ghana. The potential benefit shall be to create a more informed volunteer force capable of effectively identifying and referring NTDs within their communities. Customizing training to fit local epidemiological data and cultural contexts will increase the relevance and applicability, thereby enhancing the overall effectiveness of disease control efforts. The training approach shall serve as a model for similar regions facing NTD challenges, illustrating how localized training programs can be developed and implemented.

In addition, assessing the impact of training on the knowledge and attitude of volunteers is vital for understanding the efficacy of educational interventions in enhancing volunteer capabilities. This study shall directly measure the translation of training into practical competencies that are essential for effective NTD activities. Insights gained from this evaluation will help pinpoint the strengths and weaknesses of current training modules and inform the development of more robust training programs that better prepare volunteers for the challenges they face in the discharge of their duties. The results will provide evidence to health education policymakers about the key components of effective training programs, potentially shaping Ghana’s standards for community health volunteer training. In practice, enhanced training shall lead to more competent volunteers, improving the quality and effectiveness of disease surveillance and intervention strategies at the community level.

Again, the ability of volunteers to accurately identify and refer NTD cases is critical for the timely and effective management of these diseases. The study shall give attention to the correct identification and timely referral of any case by the volunteer. Improving identification and referral practices through training can lead to earlier detection and treatment of NTDs, significantly reducing the burden of these diseases. This study shall highlight the practical benefits of training and provide evidence-based recommendations for enhancing surveillance protocols and referral mechanisms, especially for the Ghana Health Service (GHS). Improved training in identification and referral may directly reduce the transmission and impact of NTDs through timely and accurate case management.

Finally, investigating training interventions’ sustainability and long-term influence shall address how the healthcare system can retain community-based volunteers. This study shall examine whether the improvements in volunteer performance are maintained over time, which is essential for the ongoing success of public health initiatives. This is to ensure that training programs are effective in the short term and continue to benefit health outcomes and disease control activities well into the future. Understanding the factors contributing to the sustainability of the trained volunteer can guide future policies by the Ghana Health Service and funding allocations to support continuous improvement in health interventions.

## 1.7 Justification of the Study

Effective NTD case identification and referral at the community level relies heavily on the capabilities of Community-based volunteers (Tchatchouang et al., 2024). This makes training a critical component, and this study seeks to investigate its effectiveness. The training will focus on improving the volunteers’ knowledge of signs and symptoms of prevalent NTDs in the Eastern region of Ghana, community case definitions, mode of transmission, complications associated with late identification and referral, and prevention. Additionally, it will focus on referral processes, developing a positive attitude toward NTD surveillance and patient interaction, and reducing stigmatizing persons with the disease. The study shall identify factors that contribute to volunteer attrition and recommend measures to improve their retention. This aligns with the WHO’s roadmap for ending neglected tropical diseases by 2030.

Previous studies have documented the effectiveness of training volunteers on NTD case detection and referral (Alo et al., 2022; Godwin-Akpan et al., 2023; Lar et al., 2023). These studies, however, had methodological limitations. Across these studies, there was no control group that could allow for a robust comparative analysis of cause and effect. All the studies had relatively small sample sizes, with a range of 50 (Lar et al., 2023) to a maximum of 90 (Alo et al., 2022). Although the study by Alo et al., (2022), which used the before-and-after design, found an increase in volunteers’ knowledge and attitude. However, there was no robust comparative analysis of the changes before and after the intervention. In each of the studies, the volunteers were trained for one day. Alo et al., (2022) identified this as a limitation of the intervention. None of these studies were conducted in Ghana, which has geocultural characteristics different from those of the previously studied areas. The only study in Ghana with some similarity was one conducted by Ahorlu et al., (2018) . In this study, an active community-based surveillance system for Buruli ulcer early case detection was implemented in an endemic sub-district of Ga West Municipal in Greater Accra region. Apart from the fact that this study focuses on only one disease in a different region, it included both volunteers and health workers. Again, only 20 volunteers participated in this study.

The current study will address the above gaps by employing a non-equivalent control group quasi-experimental design and a relatively bigger sample size of 272. This will enable a robust analysis of cause and effect and analyze the effect size for the study. Thus, the study will provide evidence-based recommendations for training volunteers for sustainable public health interventions in other geographical settings. This will ultimately support the WHO’s target of ending NTDs by 2030.

## 1.8 Scope of the Study

The study is geographically delimited to the Eastern Region of Ghana. This region is chosen due to its notable prevalence of NTDs, including leprosy, lymphatic filariasis, scabies, Yaws, schistosomiasis, and Buruli ulcer. The specific focus on this region allows for a concentrated study of the training’s effectiveness in a context where NTDs are a significant public health issue. While NTDs encompass a wide range of diseases, the study will specifically focus on NTDs most prevalent in the Eastern Region. Thus, leprosy, lymphatic filariasis, scabies, Yaws, Schistosomiasis, and Buruli ulcer. This focus enables the training to be tailored to the communities’ primary health challenges, ensuring the research findings’ relevance and applicability.

The primary subjects of this study are community-based volunteers who are directly involved in NTD surveillance and control in the Eastern Region. The study will not include professional healthcare workers or volunteers who are not involved in NTD-related activities, thus focusing on those individuals who directly contribute to community health in the context of NTDs.

The research will cover a defined period spanning one to two years (2025-2026). This includes pre-training, immediate post-training, and follow-up assessments to evaluate long-term influence. The time frame is set to allow for an adequate assessment of training influence over time but is limited to ensure timely completion and relevance of the findings. The study will employ specific methodologies to evaluate the training program using the structured questionnaire. It will not encompass other potential methods, such as biomarker assessments or advanced technological tracking of volunteer activities, which could provide different insights but are beyond the scope of this study.

Data collection will primarily focus on the targeted diseases as well as information on factors associated with the adoption and implementation of training the community volunteers. Surveillance reports from the volunteers both before and after the training shall be collected. The study will not include secondary data sources such as national health databases or records from other regions, which could broaden the context but would complicate the analysis and extend beyond the study’s focus. The study’s design is tailored to what can be realistically achieved within the resources for the study, including funding, personnel, and materials.

The study will frame the investigation using elements of the Health Belief Model (HBM) and Diffusion of Innovations Theory (DIT). It will not cover all possible theoretical frameworks related to training, health education, or volunteerism, which, while potentially relevant, would dilute the focused application of selected theories to the specific context of NTD control in the Eastern Region.

# CHAPTER TWO

# LITERATURE REVIEW

**Overview**

This literature review aims to provide the study’s theoretical underpinning and an overview of the existing information on the effect of training community-based volunteers to detect and refer NTD patients early.

The review shall be organized into two main areas: conceptual and theoretical review; and empirical review. The conceptual review shall consider the main concepts in relation to the study objectives. The theoretical review shall discuss two theories: the Health Belief Model (HBM) and diffusion of innovation theory. The empirical review focus on the importance of community-based volunteers in the control of NTDs, consensus and disagreements about their training and involvement of the CBSV in NTD control, and the gaps in the literature.

## Conceptual Framework

This study is conceptually framed on Kirkpatrick’s four-level training evaluation model, which helps to assess the effectiveness of NTD training for volunteers in the Eastern Region of Ghana (D. L. Kirkpatrick & J. D. Kirkpatrick, 2009). The framework uses each level of Kirkpatrick and still supports the model’s idea that each level impacts the ones that follow. The framework is presented in figure 1.

Pre-intervention

Knowledge

Level

Post-Trg

Knowledge

Levels

Pre-intervention

Attitude

Towards NTD pts

Patients

Training adoption &

Implementa

tion factors

Post

Training

Attitude

Towards NTD

Patients

Effect

size

Training

Effectiveness

Training

Implementa

tion

Post

Training

Number of

NTD patients

Identified &

Referred

Baseline

Number of

NTD patients

Identified &

Referred

**Fig. 1: Conceptual framework adapted from the Kirkpatrick model (2009)**

Baseline Assessment Foundation: The framework comprehensively assesses pre-training measurements across knowledge, attitudes, and performance of the volunteers in NTD patients detection and referral (Heydari et al., 2019). This assessment enables measurement of training-related changes across all four Kirkpatrick levels. This supports study objectives 1 and 2 by providing a means of comparison for both intervention and control groups.

Kirkpatrick Level 1-Reaction: Once baseline data is collected, the next stage is to conduct training on NTDs for community-based volunteers. After training is complete, the framework shall assess how satisfied participants are with the training. This will help confirm whether training for community-based volunteers was acceptable and motivating. Positive behaviour from participants means they are ready to learn new knowledge and skills.

Kirkpatrick Level 2 - Learning: Based on positive reactions, this level assesses how much knowledge has been gained and what attitudes have changed by means of thorough post-training evaluations (Alsalamah & Callinan, 2021). It looks for evidence of correct NTD case detection, knowledge of how to refer patients and positive changes in attitudes toward NTD patients. Favourable results in this stage indicate that reactions have led to changes in thinking and feelings necessary for action.

Training Adoption and Implementation Factors: Operating as critical mediating variables between learning and behavior change, this component systematically identifies facilitators and barriers that influence knowledge-to-practice translation. These factors directly address study objective 3 and determine the strength of the causal relationship between Level 2 learning outcomes and Level 3 behavioral implementation.

Kirkpatrick Level 3 - Behavior: The framework measures sustained behavioral change through longitudinal assessment of actual NTD patient identification and referral performance at 3, 6, and 12 months post-training. This level directly addresses study objective 4 by demonstrating whether Level 2 learning has successfully transferred to consistent on-the-job performance changes in community settings. Behavioral outcomes serve as the primary indicator of training transfer effectiveness.

Kirkpatrick Level 4 - Results: The framework culminates in impact assessment through calculation of effect size and overall program effectiveness (Ulum, 2015). This level synthesizes outcomes across all previous Kirkpatrick levels to determine the training program’s contribution to improved NTD control in the Eastern Region. Results evaluation addresses study objective five and demonstrates whether individual behavioural changes have produced meaningful improvements in NTD patients’ detection and referral capacity.

Kirkpatrick Causal Chain Operationalization: The framework shows how positive participant responses (Level 1) can lead to effective learning (Level 2), which encourages lasting behavioural change (Level 3) and results in organizational benefits (Level 4) (Heydari et al., 2019). The levels serve as both measurement points and predictors for what comes next, allowing for full impact assessment of training from start to finish.

## Theoretical Review

This study draws on two theoretical frameworks to understand the adoption and implementation of community-based volunteer training programs for Neglected Tropical Disease (NTD) control. These include the Health Belief Model (HBM) and the Diffusion of Innovations Theory (DIT). Merging these theories will offer a framework that bridges individual health behavior determinants with innovation adoption processes. This shall enable a multi-level analysis of volunteers’ knowledge, attitudes, and training effectiveness.

**The Health Belief Model (HBM)**

The HBM is traced to Rosenstock’s (1966) and Becker’s (1974) work. It provides a meaningful approach to examining individual-level factors that may influence community-based volunteers’ decisions towards NTD surveillance. It has six main constructs. The constructs include perceived susceptibility, severity, benefits, barriers, cues to action, and self-efficacy. Perceived susceptibility shall assess community-based volunteers’ understanding of how their communities are susceptible to NTDs through answering questions on how they are transmitted. Perceived severity shall focus on the awareness of the community-based volunteer’s health consequences of NTDs. Questions on the clinical features of the various NTDs shall assess this. The perceived benefits and barriers shall focus on intervention efficacy. Cues shall consider what engages the volunteer and motivates them, such as experiences from the training received. Self-efficacy shall assess how confident the volunteer is in undertaking NTD-related activities, which shall be linked to the outcome of the training. The HBM informs the design of the study questionnaire. The questionnaire shall therefore align with knowledge items (transmission patterns) and severity (clinical outcomes or features), and shall be integrated with attitude scales to measure benefits, barriers, and self-efficacy. Data analysis shall include descriptive analysis of HBM components, such as scoring perceived susceptibility across the volunteer demographics.

**The Diffusion of Innovations Theory (DIT)**

The Diffusion of Innovations Theory, developed by E.M. Rogers in 1962 (Rogers, 1983), explains how an idea or product gains momentum and spreads through a population or social system over time. The end result of this diffusion is the adoption of a new idea, behavior or product by people within a social system, meaning they do something differently than what they had previously (Frei-Landau et al., 2022; Rogers, 1983; Zhang et al., 2015). The key to adoption is that the person must perceive the idea, behavior or product as new or innovative.

The DIT offers valuable insights into how community-based volunteer training programs for NTD control can be effectively designed, implemented, and scaled up. By understanding the key concepts of innovation, adopters, diffusion, and implementation, there will be better approach to introduce and promote new ideas and practices that can improve disease control and prevention. By tailoring approaches to the needs and preferences of different audience segments, and by leveraging social and communication networks, there can be an increase in the adoption and diffusion of innovations and ultimately improve the health and well-being of marginalized populations (Dearing & Cox, 2018; James et al., 2017; Levy, 2015; Malecela, 2022). Effective implementation requires a willingness to adapt and adjust approaches based on feedback and lessons learned, as well as strong leadership and support, adequate resources and funding, and ongoing training and capacity building (Otoo et al., 2021).

The complement of the HBMs and the diffusion of innovation theory shall examine systemic factors that affect the adoption of NTD training programs. At the individual level, HBM shall explain how knowledge of NTD transmission (perceived susceptibility) and clinical presentations (perceived severity) shall contribute to positive attitudes toward NTD prevention. The questionnaire for the study shall reflect this integration: Knowledge and attitude. Sections related to HBM shall assess disease understanding and intervention beliefs. Training evaluation shall measure innovation adoption drivers (Diffusion). Demographic characteristics shall serve as moderating variables.

## Empirical Review

NTDs are still a problem for about one billion of the world’s most vulnerable and disadvantaged people (WHO, 2025). Disease elimination efforts around the world depend greatly on community-based volunteers (Asegedew et al., 2019). The World Health Organization’s plan for NTDs highlights that community involvement is very important, because community volunteers connect the community with health care (Ghana Health Service, 2020; Makau-Barasa et al., 2023; Malecela, 2022; Malecela & Ducker, 2021). Studies from around the world have consistently shown that properly trained and supervised CHWs can perform some actions equally as well as facility-based health professionals(Idriss-Wheeler et al., 2024) . The results from a systematic review and meta-analysis suggest that training healthcare workers and volunteers greatly increased tuberculosis case counts and proved that training interventions are effective (Amare et al., 2023).

Volunteer-based NTD programmes in Sub-Saharan Africa face both special challenges and opportunities. Integrated training for community case detection and referral systems in Nigeria has proved to be successful (Lar et al., 2023). Results from the Nigerian study suggest that training raised participants’ knowledge from pre-training scores of 32-54% to post-training scores of 55-69%, and these scores were retained six weeks after the training (Lar et al., 2023).

In Ghana, there have been both good outcomes of volunteer training and challenges as well. The country’s NTD Master Plan suggests that health workers, teachers, environmental health officers and community members should all be trained together, with sessions held at regional, district and community levels (Ghana Health Service, 2012, 2020). However, Ghanaian studies indicate that a shortage of skills, insufficient engagement in the health system, and delays in handling reported cases are the primary reasons for the ineffective provision of services by CBSVs (Owusu et al., 2023). The presence of gender dynamics is especially important, as both males and females prefer to see health workers of the same gender when it comes to case identification (Godwin-Akpan et al., 2023).

There is widespread agreement in the literature that training programmes lead to improved knowledge, skills and an increase in case detections (Amare et al., 2023; Lar et al., 2023). It is generally accepted that community embeddedness is important, allowing CHWs to build trust and help people accept their advice (WHO, 2020b). It is evident that both technical and social skills must be taught in training, along with regular guidance during actual work (WHO, 2020b). Integration is another topic where there is wide agreement, as studies have shown that training for several NTDs at a time is more effective than training for each disease individually (Godwin-Akpan et al., 2023).

In view of the above agreements in the literature, there is still disagreements about the best approach to training and how to make it sustainable. While some study support using cascade training models (Lar et al., 2023), other researchers wonder if their quality can be maintained across all levels. The argument over the factors influencing community-based volunteers training and adoption of practices remains unresolved. Some researchers believe that incentives influence the duration of volunteers’ roles (Owusu et al., 2023). Others, however, argue that effective training without incentives will enhance the volunteers’ desire for case detection (Krentel et al., 2017). Evidence on how long to train community-based volunteers has remained unanswered (Main & Anderson, 2023). Although training has yielded some improved outcomes, the literature lacks findings that directly link these outcomes to the length of time trained.

There is limited evidence on the long-term sustainability of training effects, with most studies focusing on short-term outcomes (Lar et al., 2023; Tobin-West & Briggs, 2015). The cost-effectiveness of different training modalities remains poorly understood, particularly in resource-constrained settings like Ghana’s Eastern Region. The literature also lacks comprehensive evaluation frameworks that assess not only knowledge and attitude changes but also behavioral modifications and their translation into improved case detection and referral rates (Woldie et al., 2018). Also, there is a notable absence of robust quasi-experimental studies specifically examining the effect size of training programs on volunteer performance in NTD identification and referral, particularly within the current study area. This highlights the need for more rigorous evaluation studies to inform evidence-based policy decisions.

# CHAPTER THREE

# METHODOLOGY

## 3.1 The Research Paradigm

This study shall employ positivist philosophical perspectives. The perspective believes that knowledge about a phenomenon can only be ascertained through objective and measurable processes (Wati, 2024). This philosophical paradigm is ideal for this study as it focuses on quantitative methods for testing hypotheses for understanding causal relationships (Maretha, 2023). It is also suitable for interventional studies such as this one, which seeks to practically undertake a real-world study for objective analysis of numerical data for knowledge (Junjie & Yingxin, 2022). The outcome of training (the intervention) shall be rigorously evaluated while accounting for any measurement biases. This will ensure that the findings from the study are evidence-based and can be used to improve public health outcomes in the study area and other similar settings (Crane et al., 2024).

Positivism underscores the existence of reality, but this reality can only be understood through quality experiments and quality data (Park et al., 2020). The objective of this study is to measure whether there is any measurable effect of training on the community-based volunteer’s knowledge, attitude, and ability to correctly and promptly identify and refer NTD cases to the appropriate health facility. It will also identify factors that contribute to volunteer attrition. This study shall, therefore, employ the quasi-experimental non-equivalent control group design to compare the training’s effect on the control and intervention groups (Öskan et al., 2024). From the positivist perspective, the study shall minimize biases as much as possible through the adaptation of validated tools and appropriate statistical analysis (Mandasini, 2022). Data collected from the intervention group shall be used to test the hypothesis and establish the cause and effect (Petousis et al., 2024). The data shall be collected from the two groups before and after the intervention.

## 3.1 Research Design

The study design shall be a quasi-experimental. This design was chosen as opposed to randomized control trial because of the inability to randomly assign participants due to logistical and ethical reasons (Krass, 2016; Miller et al., 2020).

The design will not involve randomization (Miller et al., 2020). However, causal inferences can be established (Reynolds, 2023; Wang et al., 2021). The type of quasi-experimental design for this study will be the pre-test/post-test design with a non-equivalent control group (Singh, 2021). This is because the two groups for the study will not be equivalent in terms of the training intervention (Bulus, 2021; Krass, 2016; Miller et al., 2020; Singh, 2021). The design will allow for measurement of changes over time and shall help provide a good comparison of outcome between the intervention and control group.

The study shall go through three phases. Pre-intervention phase shall involve collection of baseline data from both the control and the experimental groups. The second stage shall involve training of the experimental group. The final phase shall be post-intervention stage which will collect data from both the intervention and control groups.

The study will employ quantitative data collection and analysis methods. The pre-test/post-test design with a control group is a robust research design that allows for the measurement of the dependent variables at two points in time [pre-test and post-test] (Krass, 2016). This design will help assess the effect of the training program on the knowledge, attitude, and early identification and referral of NTDs by community-based volunteers while controlling for confounders.

## 3.2 Study Area

The study will be conducted in the Eastern Region, one of the 16 administrative regions in Ghana. The region is located in the southeastern part of Ghana and has a total population of approximately **2.9** million people (Ghana Statistical Service, 2021). The region lies on latitude 6.5781oN and a longitude of 0.45024502°W. The map of the eastern region is shown in Figure 2.



**Fig. 2: Map of Eastern Region** (Ghana Statistical Service, 2021)

The region is subdivided into districts and municipalities based on population density. There are a total of 33 districts /municipalities. Each district or municipality is headed by the District / Municipal Chief Executive (M/DCE). The M/DCE is supported by other local government officers, such as officers in charge of planning, Finance/Budgeting, and Social Welfare. All other government agencies and departments, such as the Ghana Health Service, Ghana Education Service, Food and Agriculture, Ghana Police Service, and Immigration Services, report to the local District assembly in addition to the usual reporting to the respective Regional Directors.

As evidenced by the Ghana Statistical Service (2021), the region is diverse in terms of demographics, with a mix of urban and rural areas and a population that is predominantly Akan, Damgbe, Ewe, and Guan. It has a land size of 19,323 km². Apart from public sector workers, most people have established their own businesses. The majority are into farming. Cash crops such as cocoa, palm plantations, and orange plantations are the main crops cultivated in the region. There are a number of Fulani herdsmen who support cattle farming in the area. Most youths in the region are into a mixture of legal and illegal gold and diamond mining, popularly known as galamsey. The Afram and Volta rivers provide a major source of income for fishermen in the community.

The regional capital is Koforidua. Large markets in and around this town serves as a major livelihood for traders. The Regional Health Directorate, the Regional Hospital, and the Regional Coordinating Council are all located in this town. There are five health training institutions that train general nurses, midwives, and public health nurses in the region. Healthcare facilities are dotted throughout urban and rural communities in the area. Almost every district has a district hospital, which serves as a referral point for smaller health facilities (CHPS compounds and health centres). Some districts have one or more private hospitals.

Some communities in the region are very difficult to access geographically. The Afram River and the Volta River make it difficult for healthcare workers to access most communities, particularly during rainy seasons. Most communities have access to electricity and telecommunications networks.

The Eastern Region was selected for this study for several reasons. Firstly, the region has a high burden of NTDs, including soil-transmitted helminths, lymphatic filariasis, onchocerciasis, schistosomiasis, leprosy, and scabies. Some districts have prevalence rates as high as 70% for some NTDs (Akosah-Brempong et al., 2021). This may be due to several factors, including poor sanitation, inadequate access to clean water, and limited healthcare resources in the region (WHO, 2023). Secondly, the region has a diverse population, with both urban and rural areas, which will allow for a more representative sample (Ghana Demographic and Health Survey, 2022). Finally, the region has a relatively high number of community-based volunteers who are the target population for this study.

## 3.3 Population for the Study

The population for this study consists of community-based volunteers involved in Disease Surveillance and other health programs, such as immunization, in the Eastern Region of Ghana. These volunteers play a vital role in supporting healthcare services, particularly in rural and hard-to-reach areas (Lar et al., 2023; Owusu et al., 2023). Without these volunteers, trained healthcare workers will have much difficulty in delivering healthcare services to most communities (Awoonor-Williams et al., 2022; Barogui et al., 2014b; Chung et al., 2017; Lar et al., 2023; WHO/AFRO, 2015).

This population will be selected for several reasons. Community-based volunteers are the primary workforce for NTD control in Ghana, and their knowledge and attitude are crucial for effective disease surveillance and control (Awoonor-Williams et al., 2022). The demographics and characteristics of this population, including their limited training and high attrition rates (Ngugi et al., 2018), highlight the need for targeted interventions to support and empower them.

The demographics and characteristics of this population are very important for this study. The majority of the volunteers are male (72%), with females making up the remaining 28% (GHS, 2022). Some female volunteers double up as Traditional Birth Attendants (TBAs) in the region. The age range for most volunteers is often between 35 and 65 years, with a median age of 50 years (Awoonor-Williams et al., 2022; Kok et al., 2017; Lar et al., 2023). Most of these volunteers have not received formal training on NTDs, highlighting a significant knowledge gap.

Almost all volunteers are selected by opinion leaders in their communities, indicating a strong community-based approach(Awoonor-Williams et al., 2022; Owusu et al., 2023). Their selection is a key requirement of Ghana’s Community-Based Health Planning and Services (CHPS) concept. Volunteers support various health activities, including immunization (both routine and National Immunization Days). This demonstrates how versatile and important their contributions are to the healthcare system. However, some of these volunteers stop volunteering after a while. Their reasons for this decision remain unclear. Possibly, it is an indication that they need some form of incentives to sustain their volunteerism(Barogui et al., 2014b; International Bank for Reconstruction and Development / The World Bank, 2018; Kweku et al., 2020; Ng’etich et al., 2021; Philips et al., 2024).

## 3.3.1 Inclusion Criteria

Community-based volunteers to be included in this study must reside in either rural or urban areas of the Eastern region. They must be between 18 and 65 years old, which is a typical age range for community-based volunteers. This age range shall allow a diverse sample. The district of residence of the volunteer must be one of the endemic areas for Neglected tropical diseases in the region. The selected volunteers must agree to be part of the study.

## 3.3.2 Exclusion Criteria

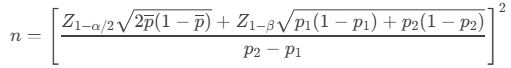
Community-based volunteers who have attended any training on NTDs within one year prior to the study shall be excluded. This ensures that such volunteers would not have a knowledge advantage over the rest. Community-based volunteers who have worked for less than six months shall be excluded from the study. This is because they might have little experience with what it takes to be a volunteer. Volunteers with mental health conditions may be unable to provide accurate data or participate fully in the study and shall, therefore, be excluded. Volunteers with health conditions that will not allow for sitting for at least one hour for training shall be excluded. Volunteers who have been inactive for more than five years or more shall be excluded from the study because they might need to gain current knowledge about disease surveillance.

## 3.4 Sample Size and Sampling Technique

This study shall involve data collection at baseline and after the intervention in both control and intervention groups. This requires a meaningful sample to ensure sufficient power.

***Statistical Parameters for Sample Size Determination***

1. Alpha Level (α): The significance level for the study is set at 0.05 (Qinyu et al., 2024). This is to prevent a type 1 error; the likelihood of saying that there is a difference when in fact there is none. The study adopts the standard value of 0.05 to ensure that the conclusions drawn in this study are 95% conﬁdent.
2. Power (1-β): The study aims at a power of 0.8 where β is the probability of committing the Type II error. This means accepting the null hypothesis when, in fact, it is false. A power of 0.80 in this study means that there is 80% confidence in identifying the true effect in improving volunteers’ knowledge, attitude, and identification and referral of NTDs (Berg et al., 2024).
3. Referral rate and expected proportion of outcome in the Intervention group: From a previous study, the detection rate by Community-based volunteers is 19.8% [p1=0.198] (Tchatchouang et al., 2024). The training intervention is assuming an improvement in the rate of NTDs detection and referral by 20%. Thus, p2 will be 39.8% (0.398)
4. Sample Size Calculation: The formula used to estimate the required sample size *n* per group is derived from the standard formula for comparing two independent proportions (Fleiss et al., 2004):



Where:

* n: the desired minimum sample size
* *Z1−α/2:* the critical value from the standard normal distribution corresponding to the chosen significance level 𝛼 (1.96)
* *Z1−β*: the critical value from the standard normal distribution corresponding to the chosen power . (0.84)
* = 0.198 (baseline case detection rate)
* = 0.398 (assumed improvement in case detection and referral)
* represents the difference in proportions between the two groups.

Substituting the figures into the formula, the sample is 81 per arm.

1. Adjustment for design effect (DEFF): To compensate for the sampling error that might have occurred for using a multistage sampling, instead of a simple random sampling technique.(Hulland et al., 2016; Kaiser et al., 2006; Laaksonen, 2018; Minassian, 1997; Shook-Sa & Hudgens, 2020). From previous studies, a design effect of 1.5 was considered suitable in the determination of the sample size for this study (Ahorlu et al., 2018; Islam et al., 2022).

u*nadjusted* = n x DEFF

= 81 x 1.5 = 122 per arm

1. Adjust for attrition (r): The study adjusted the sample size with an attrition rate of 10%.

Attrition rate, r = n/1-r = 122/1-10

= 122/ 0.9

= 136

Therefore, the study will use a final total of 136 participants as the minimum sample size per arm.

## 3.4.3 Sampling Technique

This study will employ the multi-stage sampling technique (Hankin et al., 2019). This technique is employed to ensure efficient data collection from a population with spatially structured traits (Puerta et al., 2019). This will also help manage logistical constraints. There are 33 districts/municipalities in the Eastern Region. The average size of volunteers per district is 45, which is considered very large (Hayes & Moulton, 2017). This will possibly lead to minimized variability within the districts serving as clusters (Lewycka et al., 2010).

The total number of districts/municipalities that meet the inclusion criteria shall be divided into two, noting rural and urban differences. Eight districts shall be selected using a simple random sampling technique with replacement. The selection of eight districts agrees with earlier studies that suggest that using four clusters per arm is adequate (Lewycka et al., 2010; Morrison et al., 2020; Prost et al., 2013; Tripathy et al., 2010) Thus, four districts shall be selected from the urban list of districts/municipalities and four from the list of districts in rural areas.

Subsequently, using simple random sampling, two districts/municipalities shall be selected from the list of rural areas and two from urban areas. Therefore, out of the eight districts selected, which shall subsequently be grouped into two, each group will comprise two districts from the rural areas and two from the urban areas. Again, using a simple random sampling, one group shall be selected to form the intervention group. The other group automatically becomes the control arm.

In each arm of the study, 34 community-based volunteers shall be selected in each district or municipality. A list of all the volunteers who meet the inclusion criteria shall be obtained from the District or Municipal Health Directorate to select these numbers. A simple random sampling technique will be used to select the study subjects from the total list of volunteers in the district/municipality.

## 3.5 Description of the Intervention

The intervention will purely involve training the community-based surveillance volunteers who meet the inclusion criteria. Only the intervention group shall receive the training. The control group shall continue with the normal practice of community-based surveillance with training withheld. Training materials will be adapted from Lar et al (2023) intervention manual for the integrated management of skin neglected tropical diseases, recognizing Buruli Ulcer in the community, developed by WHO (WHO, 2011), skin-related neglected tropical diseases booklet developed by WHO (WHO, 2018), and a training manual for community-based surveillance (GHS, 2018; WHO/AFRO, 2015) A detailed curriculum is found at Appendix F.

The training shall last for three days in each intervention district. Three different training sessions shall be organized in each intervention district. There shall be a total of 12 training sessions. The sessions shall be held in three subdistricts of each intervention district. This is to ensure that volunteers to be trained at each center shall be at most 12 participants. This will ensure improved discussion and equal attention given to each participant (Tausczik & Huang, 2019). The training sessions will ensure that the principles of adult learning are adhered to (Yusuf, 2021). Therefore, the sessions will last for up to four hours each day with 20-minute breaks every hour. These breaks will also enable discussion of what has been learned among the volunteers. Six diseases shall be discussed: Leprosy, Buruli Ulcer, Yaws, lymphatic filariasis, scabies, and Schistosomiasis.

The method of instruction shall be brainstorming, video discussion, role plays, and PowerPoint presentations (WHO, 2024b). The brainstorming will help bring out what the volunteers know and have been practicing about the disease (Ahmed & Hamda, 2018). The video discussions will help appeal to the minds of the volunteers so they can develop positive attitudes towards individuals with the disease by reducing stigmatization and taking prompt action to provide support (Tergesen et al., 2021). The PowerPoint presentations shall give information about the various diseases, including case definitions, signs and symptoms, modes of transmission, and prevention (Shigli et al., 2016). The PowerPoint presentations shall be full of pictures of the different diseases. The role plays will help the volunteers improve upon their attitude, skills and knowledge in NTDs detection and reporting (Katebi et al., 2015; Vizeshfar et al., 2019).

On the first day of the training, four disease conditions will be discussed. These will include Yaws, Buruli ulcer, Lymphatic filariasis, and Schistosomiasis. The second day will discuss Scabies and Leprosy. Again, on the second day, the reporting forms: the data-collecting tool and the referral forms - will also be discussed. The ethics of approaching a suspected person with any of the diseases and referral processes will be addressed. A role-play on such activities will follow this.

The third day will be devoted to fieldwork and a discussion of field experiences. In previous studies, training sessions were organized for only one day (Lar et al., 2023) and two days (GHS, 2018). None of these trainings had practical field visits with the volunteers to start implementing what have been taught. The field visit will afford the volunteers the opportunity to discuss any immediate challenges with their work.

The training sessions shall be facilitated by eight persons: the researcher, the Eastern regional Health Promotion Officer, the Eastern Regional Disease Surveillance Officer, the Eastern region focal person for NTDs, and the District Disease Surveillance Officers in each of the four intervention districts. These officers were selected due to their in-depth knowledge of disease surveillance. These officers also have an interest in disease surveillance activities at the community level. At each training centre, a previously treated and cured leprosy patient, Buruli ulcer, and Yaws patients shall share their experiences. The language for training shall solely be the predominant Twi language, which every volunteer can speak in the region. The English-language videos shall be translated into Twi language. For each video to be shown, the participants shall be warned of viewer discretion. The sources of videos to use, roles plays, and field visit information are found at annex H.

## 3.5 Source of Data

The data to be collected for this research shall be primary data, collected through questionnaires only. The researcher shall, therefore, have first-hand information from the community-based volunteers.

## 3.6. Methods of Data Collection

Data shall be collected using a questionnaire and monthly reports from the Community Volunteer. Four research assistants shall be employed and trained for the data collection. The questionnaire for objectives 1 and 2 (Knowledge and attitude) shall be adapted from InfoNTD, (2024). The toolkit was purposely designed for leprosy but has been adapted to suit the other NTDs. The adapted questionnaire has three sections: sections A-C. Section A collects information on the background of respondents. The background information includes the name of the district, area of residents, either rural or urban, name of the village/community, distance to the nearest health facility, length of volunteering in years, address, age, sex, occupation, highest level of education, monthly household income, number of dependents, marital status, and religion. In all, there are 14 questions.

Sections B and C shall collect information on respondents’ knowledge and attitudes about leprosy, Buruli ulcer, lymphatic filariasis, Yaws, Scabies, and Schistosomiasis. Each NTD will have separate questions on knowledge and attitude. Leprosy has 11 items measuring knowledge and 14 Likert scale items measuring attitude. In addition, there is a scenario on volunteers’ attitudes towards leprosy patients. This asks seven questions.

Nine items measure the knowledge level of volunteers on Buruli ulcer. Seven Likert scale questions assess the attitude of volunteers on Buruli ulcer case detection and referral. Eight items for lymphatic filariasis will be used to determine volunteers’ knowledge. Seven Likert scale questions shall be used to assess the attitude towards lymphatic filariasis detection and referral. There shall be seven questions when assessing volunteers’ knowledge about Yaws. Eight Likert scale questions will determine their attitude towards Yaws detection and referral. Knowledge of scabies shall be measured using nine questions. Nine questions shall be used to measure the attitude of volunteers toward scabies detection and referral. Knowledge and attitude on Schistosomiasis will be assessed using an adapted tool from (Klinker et al., 2023) and toolkit from InfoNTD, (2024). There are eight questions assessing knowledge and nine Likert -items assessing attitude.

Section D, which measures the third objective, seeks information about the factors associated with adoption and implementation of training and the identification and referral of NTD patients among the intervention group. Areas considered include the training venue, training delivery, training materials, and personal factors of the community-based volunteers. There are 10 Likert-scale questions on the adoption of the lessons learned. These were adapted from Kirkpatrick’s model of evaluating training programs (D. L. Kirkpatrick & J. D. Kirkpatrick, 2009). There are, therefore, a total of 20 items for assessing objective 3.

The fourth objective, section E, which concerns community-based volunteers identifying and referring NTD patients, will be assessed by collecting data on the actual NTDs. Baseline data on the targeted NTDs will be collected from the subdistrict and district health administrations.

The adapted questionnaire will be pre-tested in a district that will not be selected for the study but meets the inclusion criteria. Although the tools have been adapted from validated sources, validity and reliability must be ensured in the context of the Eastern region of Ghana.

**Baseline Data Collection**

The baseline data will be collected using the adapted questionnaire, which shall be administered orally to the volunteers (Nyaga et al., 2018). This will form the first phase of the study. The data shall be collected using the Kobo Collect toolkit (Das, 2024). This tool will be employed because data can be collected offline, as some communities are likely not to have internet connectivity (Das, 2024; Nampa et al., 2020). Data collected can be monitored in real-time (Das, 2024). This web application shall be downloaded and installed on Android phones of all those involved in data collection. Four assistant investigators shall be trained for two days to assist with the data collection. Their training will cover how to use the Kobo Collect toolkit, administering a consent form, keeping safe all information collected, and the art of orally administering the questionnaire. The principal researcher, the Eastern Region Health Promotion Officer, and a data analyst shall facilitate this training.

**Post Intervention Questionnaire**

The same questionnaire used for collecting the baseline data will be used for the post-intervention data collection (Makingi et al., 2023). This will be part of phase three of the study. The post-intervention questionnaire shall be administered three months after the training sessions to prevent immediate post-training halo effects, with the possibility of skewing the assessment of the training effectiveness (Dabaghi et al., 2018). The delay will, therefore, allow for a more accurate assessment of the effectiveness of the training (Gonçalves et al., 2020).

**Data collection on the Targeted NTDs**

Data collection on the specific NTDs shall also form part of the third phase of the study. The volunteers shall submit all reports, including zero reporting, and all referrals made to the nearest health facility monthly. The health facility in-charge will subsequently forward the collected data to the district surveillance officer. The data shall be collated and analyzed for the first three months, followed by six, nine, and twelve months. This data shall be compared with the pre-intervention data for both the control and the intervention groups. A designed data collection and referral form adapted from Ghana Health Service (2018) and Lar et al., (2023) shall be used for the baseline and post-intervention data collection on the specific NTDs.

## 3.7 Validity and Reliability

**Content validity**: This involves obtaining feedback from a group of experts in the subject area of interest, in this case, NTDs. These experts shall determine the coverage of the questions in the areas of knowledge, attitude, and volunteer attrition on NTD case identification and referral. Their input will ensure that all the dimensions of the questionnaire are captured accurately. Any irrelevant or redundant questions shall be removed. The Eastern Region Focal Officer on NTDs, as well as the research supervisors, shall review the content of the questionnaire.

**Construct validity** will be tested through exploratory factor analysis (EFA). The EFA will enable the establishment of a number of factors in the instrument and group reasonably similar items. To ensure that the data collected to perform this study is appropriate for factor analysis, the Kaiser-Meyer-Olkin (KMO) test and Bartlett’s test of sphericity shall be conducted before performing EFA. A result higher than 0.7 in KMO value and significant Bartlett’s test will pave the way for factor analysis. As a second step, after performing EFA, confirmatory factor analysis (CFA) will be performed to confirm whether the extracted factor is consistent with the conceptually defined dimensions of knowledge, attitudes, and factors associated with training community-based surveillance volunteers. A normality check on the goodness-of-fit indices, such as the comparative fit index (CFI), shall be performed to ensure the model fits the data well.

Convergent and discriminant validity will also be assessed to strengthen the instrument’s validity. Evidence for convergent validity will be provided by values of average variance extracted (AVE) showing high correlations between these items while comparing them based on the factor analysis results. The discriminant validity will be supported if the average variance extracted for each variable is superior to the squared cross-variable correlation.

**Reliability**: This is the ability of the instrument to give consistent results over time, over different populations, and under different conditions. Cronbach’s alpha distinct for each knowledge, attitudes, and factors associated with training volunteers subscales, will be computed for internal consistency. If Cronbach’s alpha coefficient is 0.7 or more, this will demonstrate that the items under each subscale are positively correlated with each other and are a good measure of the right construct. In case any subscale drops below this number, there will be an analysis of individual items in search of items whose elimination will enhance the subscale reliability.

## 3.8 Data Analysis Plan

The data will be analyzed using R software. The data will be cleaned before analysis is carried out. Data analysis will be conducted on the demographics of the respondents and each specific objective. A descriptive analysis of the demographic characteristics will be performed. The measures of central tendency, such as mean and median, and measures of variability, including range and standard deviations, shall be computed based on the demographic data variable type. For instance, when data is nominal, the mode shall be calculated. The mean and range, or interquartile range (IQR), shall be calculated for ordinal data. For numeric and normally distributed data, the mean and standard deviation (SD) shall be calculated. Median (IQR) shall be calculated for numeric and skewed data. The demographic characteristics will help identify the relationships and influence on the knowledge, attitude, factors associated with training, and the behavior of the respondents regarding the detection and referral of NTD patients. Again, demographic analysis will help identify potential biases and provide statistical remedies, control for confounders, and facilitate subgroup analysis.

**Objective 1: Analysis of the Knowledge level of Community-based volunteers on NTD cases**

The knowledge level of the volunteers will be classified as low, moderate, and high. Such classification is essential in identifying knowledge gaps among volunteers and taking measures to address it (Ghatasheh, 2015; Ismail et al., 2020; Kamal et al., 2013; Labetubun et al., 2022). For this study, a knowledge percentage score of less than 50% shall be classified as low (Tobin-West & Briggs, 2015); a score of 50% to 79% shall be classified as moderate knowledge, and a score of 80% and above shall be classified as high knowledge (Adjei et al., 2025; Hambury et al., 2021; Kamal et al., 2013) Volunteers with low knowledge will receive more attention during the training. Those who still score low in knowledge percentage post-training will continue to receive more support to improve case detection and referral of NTDs.

For descriptive analysis of the knowledge scores, a separate contingency table will be written for the control and intervention groups for pre-training and post-training results. This will help assess the knowledge level of each group at baseline. There shall also be a combined pre-and post-training contingency table for the control and intervention groups. This is to help assess the change in knowledge, if any, within and between groups. The contingency tables shall be used for chi-square analysis to determine whether there is a statistically significant association between the training and improvement in the knowledge levels of the volunteers. Bar charts will be used to visualize the knowledge level distribution pre- and post-intervention.

For further analysis, the study will deal with ordinal categorical outcomes of low, moderate, and high knowledge. Therefore, the appropriate test to compare the groups shall be a test for proportions. Since the categories are more than two (low, moderate, and high), Bowker’s test of symmetry, an extension of McNemar’s test, shall be used to assess the levels of change at pre- and post-intervention within the three categories of each group. A chi-square test of independence shall be used for between-group analysis. This will compare the proportion of volunteers in the various low, moderate, and high knowledge categories between the intervention and control groups at baseline and post-intervention. Fisher’s exact test shall be used when any of the low, moderate, or high categories has smaller data in the contingency table than expected. Cohen’s h shall be computed to assess the effect size and compare pre- and post-training within each group to measure the effect size. To measure the effect of the training, Cohen’s h will be computed after the training to see the effect of the training between the control and intervention groups. In order to account for other covariates, such as demographics, which are likely to influence knowledge levels, multinomial logistic regression shall be performed. This shall control for other variables and predict the probability of a volunteer being in any of the knowledge categories.

**Objective 2: The attitude of Community-based volunteers on NTD case detection and referral in the control and intervention groups before and after the training in the Eastern Region, Ghana**

An ordinal scale will be used to assess the volunteers’ attitudes towards identifying and referring NTDs. Initially, a 5-point Likert scale consisting of strongly disagree, disagree, neutral, agree, and strongly agree will assess the volunteers’ attitudes. This will be recategorized into Low attitude (poor) (strongly disagree, disagree), moderate attitude (neutral), and high attitude (acceptable) (strongly agree, agree).

Descriptive analysis will be conducted using a separate contingency table for the control and intervention groups during pre-training and post-training results. This will help assess the attitude level of each group at baseline. There shall also be a combined pre-and post-training contingency table for the control and intervention groups. This is to help assess the change in attitude, if any, within and between groups. The contingency tables shall be used for chi-square analysis to determine whether there is a statistically significant association between the training and improvement in attitude levels of the volunteers. Bar charts will be used to visualize the attitude level distribution during pre-and post-intervention.

An inferential statistic test will be conducted. This will establish if there is a statistically significant change in the volunteer's attitude within and between the control and intervention groups. Cross-tabulation of the demographic characteristics with attitude variables shall be computed. This is to find out if demographics correlate with the level of attitude of the volunteer in identifying and referring NTDs. Further analysis within and between the two groups will be conducted. Low, moderate, and high attitude classifications shall be reclassified into binary categorical data: low/moderate versus high. McNemar’s test for paired proportions shall be used. This will assess if there is a statistically significant change in attitude from pre- and post-training within each group.

For between-group analysis, a chi-square test of independence will be computed. This will compare the proportion of volunteers with low and high attitudes between the intervention and control groups at baseline and post-intervention. A chi-square test results will be statistically significant at p < 0.05. The chi-square analysis will help establish if there is a statistically significant association between the intervention and improvement in the attitude of the volunteers in NTD case detection and referral. To understand how multiple factors contribute to either the high or low attitude of the volunteers towards NTD detection, a logistic regression analysis shall be performed. This will ensure that confounding variables are controlled and that any effect in the attitude identified is due to the intervention.

**3. Objective 3: Factors associated with the adoption and implementation of NTD training among community-based volunteers in the intervention group**

Frequencies and percentages will be used for categorical responses and median with interquartile range will be presented for Likert-scale answers. Associations between training environment, delivery, materials and personal factors (the independent variables) and the adoption and implementation of the NTD training will be examined through bivariate analysis. Chi-square will be used for testing associations between categorical variables. Mann-Whitney U or Kruskal-Wallis will be used for ordinal outcomes.

For identifying predictors of adoption and implementation, multivariable logistic regression will be applied to binary outcomes and ordinal logistic regression will be used with ordinal variables. All significant factors will be reported with the adjusted odds ratios and 95% confidence intervals. Tables and figures will be included to show the key results and point out the factors that strongly affect NTD training in communities.

**Objective 4: NTD case detection and referral by CBSVs**

For the fourth objective, data analysis will include baseline and post-training case findings of Neglected Tropical Diseases (NTD) by CBV. This will help evaluate the effectiveness of the training on the number of cases detected and referred, as well as the ability to sustain volunteer involvement in the future.

Simple bar charts will be used to visualize the baseline cases identified by volunteers in the control and intervention groups. Again, the distribution of cases per district will be visualized using bar charts. After the intervention, descriptive analysis will be done on NTD data at months 3, 6, 9, and 12. This will compare cases detected by the intervention group with the controls.

McNemar’s test for paired proportions shall be used to ascertain if there is a significant statistical difference in case detection and referral for the intervention group after the training (within-group). A Chi-square test of independence shall be used to compare the proportion of cases detected and referred by the intervention and control groups at the various months (between groups). A multivariable logistic regression model shall be used to predict the likelihood of CBVS correctly identifying and referring cases of NTD after the training while controlling for other factors, such as demographics.

## 3.10 Ethical Approval

This study will obtain ethical approval from the Ghana Health Service, Dodowa Health Research Centre Institutional Review Board (GHS-DHRCIRB). The GHS-DHRCIRB is responsible for ensuring that the research to be conducted among volunteers meets ethical standards and protects the rights and welfare of respondents. The ethical approval process will involve submitting the research proposal, informed consent forms, and other relevant documents as required to the GHS-DHRCIRB for review.

The GHS-DHRCIRB’s ethical approval shall ensure that this study complies with national and international ethical guidelines, including the Declaration of Helsinki and the International Conference on Harmonization-Good Clinical Practice (ICH-GCP) (WHO, 2005; World Medical Association, 2025). The approval will also confirm that the study’s benefits outweigh the risks and that the rights and welfare of respondents are protected.

Prior to the approval for the study by the GHS-DHRCIRB, approval will be obtained from the Institutional Review Board of the University of Port Harcourt, Nigeria. By obtaining ethical approval from both the GHS-DHRCIRB and the University of Port Harcourt, this study shall demonstrate its commitment to upholding ethical standards and ensuring the integrity of the research.

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**APPENDICES**

**APPENDIX A: SAMPLE INFORMED CONSENT FOR**

**PARTICIPATION IN A RESEARCH STUDY**

I wish to inform you of your rights and responsibilities as a participant in a research study titled “Effect of Training of Volunteers on Identification and Referral of Neglected Tropical Diseases Patients in Eastern Region, Ghana.” My name is Boaz Ahulu. I am a PhD candidate in Epidemiology at the University of Port Harcourt, Nigeria, under the supervision of Prof. Yeetey Enuameh. This research study is solely for academic purposes. The study shall last for one year.

The rationale for this study is to assess the effect of the training program on volunteers’ ability to conduct NTD surveillance in the community. The study aims to assess the knowledge and attitude of community-based volunteers who perform NTD surveillance activities before and after the training program. Thus, you can be rest assured that your participation in this study is strictly voluntary, and you have every right to withdraw whenever you feel like it, without any consequences whatsoever. Your decision to participate or withdraw will not affect your relationship with any health facility, staff, or any opinion leader in your community.

The study involves responding to a questionnaire, participating in a training program, or taking part in all of these. The survey questionnaire will ask questions about your knowledge and attitude toward performing NTD surveillance activities. The training program will provide you with the information and skills necessary for NTD surveillance activities.

All your responses will remain anonymous, and your name and other identifying information will not be connected to your answers. All data collected will be kept and used solely by the researcher and members assisting him in the research process. No harm or other risks are expected while being involved in this research. However, you may experience some fatigue during the training program. Be assured that this training will adapt to the adult learning style.

Your participation in this study may contribute to evaluating the work of community-based volunteers in controlling NTD in the Eastern Region. It will also help assess a training program aimed at improving the ability of community-based volunteers to perform NTD surveillance activities. The findings of this study may inform future training programs and improve the overall quality of NTD surveillance activities.

If you have any questions or concerns about this study, please contact Mr.Boaz Ahulu on 0205214000 or Prof. Yeetey Enuameh on 0244366662. Thank you.

I have read the above information or it has been read to me, and I understand it very well. All my questions have been answered to my satisfaction. By signing or thumb printing below, I agree to consent to be part of this research voluntarily but can withdraw from the study without it affecting me when seeking medical care.

Sign /RTP ……………………  
Date: ……………………………………………

# APPENDIX B: QUESTIONNAIRE ON NTDs FOR VOLUNTEERS

# (KNOWLEDGE, ATTITUDE, TRAINING ASSOCIATED FACTORS)

The questionnaire comprises questions on knowledge and attitude on Leprosy, Buruli ulcer, lymphatic filariasis, yaws, and scabies. It also include factors associated with training the community-based volunteer on NTDs.

|  |  |  |
| --- | --- | --- |
| **Date of the interview:** | **Name of Researcher/Assistant:** | |
| **Consent Given:** | **Yes:** Continue with questionnaire  No: Don’t administer questionnaire. Skip to the end of questionnaire and thank respondent | |
|  |  | |
| **Section A: Background information** | | |
| **District name:** | **Area of residence:** Rural / Urban | |
| **Village name:** | Distance to the nearest health facility:  a. <5 km b. 6-10 km c.11-20 km d. >20 km | |
| **Respondent Code No.:** | Length of Time (years) Volunteering in NTD Detection:  a. 1  b. 2  c. 3  d. 4  e. 5  f. 6  g. 7  h. 8 years and above | |
| **Address:** | **Age:** | **Sex:**   1. Male 2. Female |
| **Occupation:** □ Paid work  □ Self-employed (e.g. own business/farming)  □ Non-paid work or student  □ Retired  □ Unemployed  □ Other......................................... | **Highest education completed:** □ Illiterate  □ Can read and write but no formal education  □ Primary school completed  □ Secondary school completed  □ Higher education completed | |
| **Monthly household income in GHc**   * Up to 100 * Up to 200 * Up to 500 * Up to 1000 * Up to 2000 * Above 2000 | **Number of Dependents:**   * **1** * **2** * 3 * **4** * **5** * **6** * **7** * **8 +** | |
| **Marital status:** □ Never married  □ Married  □ Separated  □ Divorced  □ Widowed  □ Co-habiting | **Religion:** □Pagan  □ Buddhism  □ Christianity  □ Islam  □ Other, please specify: | |

Section B: Questions measuring the knowledge and attitude of volunteers

Knowledge about Leprosy

**note:**

* Please tick or circle the preferred answer option(s)**.**
* The correct answers are indicated by a \*. If the correct answer is given, indicate this by circling the ‘1’ in the ‘points’ column. The total number of \* corresponds to the number of points (either 1, 2, 3, 4, 5 ….) under the points column.

|  |  |  |
| --- | --- | --- |
| This section of questionnaire is about the disease leprosy. | | Points |
|  | **What are the early symptoms of leprosy ?**  (Multiple answers possible. Do not suggest answers, just tick the answers given by the interviewee spontaneously)   * Itchiness * Skin patches\* * Wounds on the skin * Loss of sensation\* * Disabilities * Different, namely: ………. * Don’t know | 0 / 1 / 2 |
|  | **What causes leprosy?**  (Multiple answers possible. Do not suggest answers, just tick the answers given by the interviewee spontaneously)   * + Leprosy is caused by an unclean environment   + Leprosy is a divine punishment for sins   + Leprosy is God’s will   + Leprosy is a result of karma   + Leprosy is due to impure blood   + Leprosy is caused by witchcraft   + Leprosy is hereditary   + Leprosy is caused by immoral conduct   + Leprosy is caused by germs/bacteria\*   + Different, namely: ……….   + Don’t know | 0 / 1 |
|  | **How is leprosy transmitted?**  (Multiple answers possible. Do not suggest answers, just tick the answers given by the interviewee spontaneously). Leprosy is transmitted by   * Air\* * Contaminated soil * Insects and mosquitoes * Sexual contact with a leprosy patient * Skin contact with a leprosy patient * Eating together with a leprosy patient * Shaking hands with a leprosy patient * Sharing personal items (towel, toothbrush etc.) with a leprosy patient * Different, namely: ………. * Don’t know | 0 / 1 |
|  | **Can leprosy be prevented?**   * 1. Yes\*   2. No   3. Don’t know | 0 / 1 |
|  | **If Yes, How Can leprosy be prevented?**  (Multiple answers possible. Do not suggest answers, just tick the answers given by the interviewee spontaneously)   * with (preventive) medicines\* * by preventing contact with a patient * with medicinal herbs * through religious rituals * by isolating persons affected by leprosy * Different, namely: ……….   Don’t know | 0 / 1 |
|  | **Do you think leprosy can be cured completely?**   * 1. Yes\*   2. No   3. Don’t know | 0 / 1 |
|  | **If yes, how can leprosy be cured?**  (Multiple answers possible. Do not suggest answers, just tick the answers given by the interviewee spontaneously)   * with medicines\* * by avoiding taboo food * with medicinal herbs * through religious rituals * Different, namely: ………. * Don’t know | 0 / 1 |
|  | **How long does it take to cure someone with leprosy?**   1. 1 month 2. 6 months 3. 1 year 4. It will never be cured 5. Different, namely: ………. 6. Don’t know | **0 / 1** |
|  | **Is leprosy still contagious after a patient has started treatment?**   * 1. Yes   2. No\*   3. Don’t know | 0 / 1 |
|  | **Can the disability that some patients have be prevented?**   * 1. Yes\*   2. No   3. Don’t know | 0 / 1 |
|  | **Do your neighbours, colleagues or others in your community have less respect for you because of your illness?**   1. Yes 2. Not sure 3. No | **0 / 1** |
|  | **Total:** |  |

**Attitude scale A: for Leprosy disease**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Item | | Yes | No | Not Sure | Score |
| 2 | 0 | 0 |  |
| **1** | Would you try to keep others from knowing you have leprosy? |  |  |  |  |
| **2** | If a member of your family had leprosy, would you think less of yourself, because of this person’s problem? |  |  |  |  |
| **3** | In your community, does leprosy cause shame or embarrassment? |  |  |  |  |
| **4** | Would you think less of a person with leprosy? |  |  |  |  |
| **5** | Would you avoid someone with leprosy in your community? |  |  |  |  |
| **6** | Would you visit the home of a person affected by leprosy? |  |  |  |  |
| **7** | Would you think less of the family of a leprosy patient in your community? |  |  |  |  |
| **8** | Would leprosy cause problems for the family? |  |  |  |  |
| **9** | Would a family have concern about disclosure if one of their members had leprosy? |  |  |  |  |
| **10** | Would you marry someone cured from leprosy? |  |  |  |  |
| **11** | Would you divorce your partner who is diagnosed of leprosy during marriage? |  |  |  |  |
| **12** | Would you allow your son/daughter marry someone with leprosy? |  |  |  |  |
| **13** | Would you employ a cured leprosy patient? |  |  |  |  |
| **14** | Would you buy food from a cured leprosy food vendor? |  |  |  |  |
|  | Total Score |  |  |  |  |

**Attitude scale B: towards leprosy patients**Please read out the following (gender-specific) statement:

|  |  |
| --- | --- |
| **For men** | **For women** |
| Atta is a 23-year-old man. He has been treated for leprosy during the past year. The doctor has declared him cured, even though some of the fingers on his right hand are still bent and his skin is still dark, because of the treatment. Atta has a job in the local small business that belongs to his uncle. He earns GHc1,000 per month and is doing well in his job. He is a little bit slower than before, because of the effects of leprosy on his hand, but the employer never complained about that. At his job, Atta gets along well with his colleagues. Atta would like to get married. He is considering joining a local youth organization, so he can meet people of the same age. He also hopes to get a better job to be able to earn more than in his present job. | Akosua is a 27-year-old woman. She has been treated for leprosy during the past year. The doctor has declared her cured even though some of the fingers on her right hand are still bent and her skin is still dark because of treatment. Akosua has a job in the local small business that belongs to her uncle. She earns GHc1200 per month and is doing well in her job. She is a little bit slower than before, because of the effects of leprosy on her hand, but the employer never complained about that. At her job, Akosua gets along well with her colleagues. Akosua would like to get married. She is considering joining a local youth organization, so she can meet people of the same age. She also hopes to get a better job to be able to earn more than her present job. |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Item | | Definitely willing | Probably willing | Definitely not willing |  |
| 0 | 1 | 3 | Score |
| **1** | How would you feel about renting a room in your home to someone like <name>? |  |  |  |  |
| **2** | How about being a worker on the same job with someone like <name?? |  |  |  |  |
| **3** | How would you feel having someone like <name> as a neighbour? |  |  |  |  |
| **4** | How about having someone like <name> as caretaker of your children for a couple of hours? |  |  |  |  |
| **5** | How about having one of your children marry someone like <name>? |  |  |  |  |
| **6** | How would you feel about introducing <name> to a young woman you are friendly with? |  |  |  |  |
| **7** | How would you feel about recommending someone like <name> for a job working for a friend of yours? |  |  |  |  |
|  | Total Score |  |  |  |  |

**Buruli Ulcer : Knowledge assessment**

|  |  |  |
| --- | --- | --- |
| No. | Item | Points |
| 1 | Identify the disease using the picture   * Buruli ulcer\* * Yaws * Leprosy * Don’t know | 0 / 1 |
| 2 | The disease is caused by witches, angry gods, curse   * Yes * No\* * Don’t know | 0 / 1 |
| 3 | Use the picture to identify which of the stages of buruli ulcer comes first:   * Nodule\* * Plague * Oedema * Ulcer * Don’t know | 0 / 1 |
| 4 | Which of the stages in the picture should be reported by the volunteer?   * Nodule * Plague * Oedema * Ulcer * All stages\* * Don’t know | 0 / 1 |
| 5 | Buruli ulcer is not painful   * Yes\* * No * Don’t know | 0 / 1 |
| 6 | Who can get Buruli ulcer?   * Children * Males * Females * Anybody\* * Don’t know * Others……….. | 0 / 1 |
| 7 | I am very confident Buruli ulcer can be transmitted to others directly   * Yes * No\* * Don’t know | 0 / 1 |
| 8 | Buruli ulcer can be prevented?   * Yes\* * No * Not sure * Don’t know | 0 / 1 |
| 9 | Buruli ulcer can be treated   * Yes\* * No * Not sure * Don’t know | 0 / 1 |
|  | Total |  |

**Buruli Ulcer: Attitude Questions**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| No | Item | Strongly  agree | agree | Neutral/  Don’t Know | Disagree | Strongly  disagree | Score |
| 1 | Do not get closer to Buruli ulcer patient because you will get it |  |  |  |  |  | (SA,A, N=0; D,SD=1) |
| 2 | I will report Buruli ulcer cases to the nearest clinic |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 3 | Buruli ulcer is best managed using herbs |  |  |  |  |  | (SA,A, N=0; D,SD=1) |
| 4 | All Buruli ulcer cases should be treated at hospital |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 5 | I am confident I can identify Buruli ulcer case |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 6 | Start treating Buruli ulcer at home before reporting to the nearest clinic |  |  |  |  |  | (SA,A, N=0; D,SD=1) |
| 7 | I will be uncomfortable referring the case to the nearest clinic for fear of being wrong. |  |  |  |  |  | (SA,A, N=0; D,SD=1) |
|  | Total | | | | | |  |

**Knowledge questions on Lymphatic filariasis**

|  |  |  |
| --- | --- | --- |
| No. | Item | Points |
| 1 | Identify the disease using the picture (leg)   * Elephantiasis\* * Boil * Don’t know * Other ……………….. | 0 / 1 |
| 2 | Identify the disease using the picture (scrotum)   * Hydrocoele\* * Cancer * Don’t know * Other……………….. | 0 / 1 |
| 3 | How does one get this disease?   * Curse * Angry gods * Witches * Germs\* * Dirt * Don’t know * Others (specify)................. | 0 / 1 |
| 4 | Can this disease be transmitted?   * Yes\* * No * Direct body contact * Sex intercourse * Don’t know | 0 / 1 |
| 5 | If yes, how is this disease transmitted?   * Mosquito bite\* * Dirty hands * Contaminated food * Other……………………. | 0 / 1 |
| 6 | The best way to prevent this disease is   * Use mosquito net\* * Reduce number of stagnant water in community\* * Drink clean water * Eat clean and warm food * Do not get closer to the one with the disease * Don’t know * Other……………………. | 0 / 1 / 2 |
| 7 | Can this disease be cured?   * Yes\* * No * Don’t know | 0 / 1 |
| 8 | Can someone with the swollen leg recover fully?   * Yes * No\* * Maybe * Don’t know | 0 / 1 |
|  | Total |  |

**Lymphatic Filariasis: Attitude**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| No | Item | Strongly  agree | agree | Neutral/  Don’t Know | Disagree | Strongly  disagree | Score |
| 1 | Do not get closer to elephantiasis patient because you will get it |  |  |  |  |  | (SA,A, N=0; D,SD=1) |
| 2 | I will report elephantiasis cases to the nearest clinic |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 3 | Elephantiasis is best managed using herbs |  |  |  |  |  | (SA,A, N=0; D,SD=1) |
| 4 | I will educate my community on elephantiasis |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 5 | I am confident I can identify elephantiasis case |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 6 | I have to search and refer elephantiasis cases to the nearest clinic |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 7 | Elephantiasis can best be managed using mass drug administration |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
|  | Total | | | | | |  |

**Knowledge questions on Yaws**

|  |  |  |
| --- | --- | --- |
| No. | Item | Points |
| 1 | Identify the disease using the picture (Picture of Yaws here)   * Yaws\* * Leprosy * Don’ know * Other ……………….. | 0 / 1 |
| 2 | Can this disease be transmitted?   * Yes\* * No * Don’t know | 0 / 1 |
| 3 | How does one get this disease?   * Curse * Punishment from gods * Witches * Contact with the yaws ulcer\* * Sharing contaminated cloth\* * Houseflies\* * Germs\* * Mosquito bite * Contaminated food * Washing with dirty water * Punishment from God * Don’t know | 0 /1/2/3/4 |
| 4 | Adults (above 15 years) and children (15 years and below), in which of these groups can we find this disease more?   * Adults * Children\* * Don’t know |  |
| 5 | The best way to prevent this disease is   * Regular bathing\* * Reduce number of stagnant water in community * Drink clean water * Clean environment\* * Dress all ulcers\* * Eat clean and warm food * Do not get closer to the one with the disease * Don’t know * Other……………………. | 0 / 1 / 2 / 3 |
| 6 | Can yaws be cured completely?   * Yes\* * No * Don’t know | 0 / 1 |
| 7 | Yaws can be transmitted through sex   * Yes * No\* * Don’t know | 0 / 1 |
|  | Total |  |

**Yaws: Questions on Attitude**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| No | Item | Strongly  agree | agree | Neutral/  Don’t Know | Disagree | Strongly  disagree | Score |
| 1 | I am willing to look for Yaws cases even if I am not paid |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 2 | I will report yaws cases to the nearest clinic even if I am not paid |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 3 | Yaws can be managed using herbs so there is no need to report to hospital |  |  |  |  |  | (SA,A, N=0; D,SD=1) |
| 4 | Prayer can cure yaws |  |  |  |  |  | (SA,A, N=0; D,SD=1) |
| 5 | I will educate my community on yaws without being paid |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 6 | I am confident I can identify yaws case |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 7 | Persons with yaws should be allowed attend social gathering |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 8 | I will visit the home of yaws patient without any fear |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
|  | Total | | | | | |  |

**Scabies: Knowledge questions on Scabies**

|  |  |  |
| --- | --- | --- |
| No. | Item | Points |
| 1 | Identify the disease using the picture   * Scabies\* Patient education: Scabies (Beyond the Basics) - UpToDate * Leprosy * Eczema * Don’t know * Other ……………….. | 0 / 1 |
| 2 | What is the main symptom of this disease?   * Intense itching\* * Fever * Coughing * Don’t know * Other……………… | 0 / 1 |
| 3 | Can this disease be transmitted?   * Yes\* * No * Don’t know | 0 / 1 |
| 4 | How does one get this disease?   * Curse * Angry gods * Witches * Germs\* * Physical body Contact with affected person \* * Sharing contaminated cloth\* * Houseflies * Mosquito bite * Contaminated food * Don’t know * Other ……………………….. | 0 / 1 /2 /3 |
| 5 | Adults (above 15 years) and children (15 years and below), in which of these groups can we find this disease more?   * Adults\* * Children\* * Don’t know | 0 / 1 / 2 |
| 6 | The best way(s) to prevent this disease is   * Regular bathing\* * Regular hand washing\* * Reduce number of stagnant water in community * Drink clean water * Don’t share cloth\* * Don’t share same bed / beddings * Clean environment * Dress all ulcers\* * Eat clean and warm food * Pray to God * Avoid handshakes\* * Do not get closer to the one with the disease\* * Don’t know * Other………………………………………………. | 0 / 1 / 2 / 3 /4 / 5 / 6 |
| 7 | Can scabies be cured completely?   * Yes\* * No * Don’t know | 0 / 1 |
| 8 | Scabies can be transmitted through sexual activity   * Yes\* * No * Don’t know | 0 / 1 |
| 9 | I can confidently identify scabies disease   * Yes\* * No * Not sure | 0 / 1 |
|  | Total |  |

**Scabies: Attitude questions**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| No | Item | Strongly  agree | agree | Neutral/  Don’t Know | Disagree | Strongly  disagree | Score |
| 1 | I am willing to look for Scabies cases even if I am not paid |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 2 | I will report Scabies cases to the nearest clinic even if I am not paid |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 3 | Scabies can be managed using herbs so there is no need to report to hospital |  |  |  |  |  | (SA,A, N=0; D,SD=1) |
| 4 | I will educate my community on Scabies without being paid |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 5 | Prayer can cure scabies |  |  |  |  |  | (SA,A, N=0; D,SD=1) |
| 6 | I am confident I can identify Scabies case |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 7 | Persons with Scabies should not be allowed to attend social gathering |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 8 | I will visit the home of Scabies patient without any fear |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
|  | Total | | | | | |  |

**Knowledge questions on Schistosomiasis**

|  |  |  |
| --- | --- | --- |
| No. | Item | Points |
| 1 | Who can get schistosomiasis?   * Males only * Females only * Don’t know * Both males and females\* ……………….. | 0 / 1 |
| 2 | How does one get schistosomiasis disease?   * Any contact with stream\* * Swimming in the river / stream\* * Drinking the water * Cooking with the water * Witches * Houseflies * Eating red sugar cane * Eating almond nut * Curse * Mosquito bite * Contaminated food * Punishment from God * Punishment from the gods * Eating snail in the river * Don’t know * Through sex * Others: ………………………………………….. | 0 / 1 / 2 |
| 4 | Can schistosomiasis be treated?   * Yes\* * No * Don’t know | 0 / 1 |
| 5 | The best way to prevent this disease is   * Regular bathing * Reduce number of stagnant water in the community * Drink clean water * Don’t eat almond nut * Don’t eat red sugar cane * Clean environment * Do not swim in the stream / river\* * Do not have sex * Eat clean and warm food * Do not get closer to the one with the disease * Wear wellington boots when working in water-logged area\* * Don’t know * Other……………………. | 0 / 1 / 2 |
| 7 | Schistosomiasis can be transmitted through sex   * Yes * No\* * Don’t know | 0 / 1 |
| 8 | Herbs can cure schistosomiasis better than hospital medication   * Yes * No\* * Don’t know | 0 / 1 |
|  | Total |  |

**Schistosomiasis: Attitude questions**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| No | Item | Strongly  Agree (SA) | Agree (A) | Neutral/  Don’t Know (N) | Disagree  (D) | Strongly  Disagree  (SD) | Score |
| 1 | I am willing to look for Schistosomiasis cases even if I am not paid |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 2 | I will report Schistosomiasis cases to the nearest clinic even if I am not paid |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 3 | Schistosomiasis can be managed using herbs so there is no need to report to hospital |  |  |  |  |  | (SA,A, N=0; D,SD=1) |
| 4 | I will educate my community on Schistosomiasis without being paid |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 5 | Prayer can cure schistosomiasis |  |  |  |  |  | (SA,A, N=0; D,SD=1) |
| 6 | I am confident I can identify Schistosomiasis case |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 7 | Persons with Schistosomiasis should not be allowed to attend social gathering |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 8 | I will visit the home of Schistosomiasis patient without any fear |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 9 | I will buy food from a schistosomiasis patient who sells food. |  |  |  |  |  | (SA,A=1; N,D,SD=0) |

**Section C: Factors Associated with Adoption and Implementation of training Community-based volunteers in identification and referral of NTD patients among the intervention Group**

This section seeks information about the factors associated with adoption and implementation of training community-based volunteers on NTD cases and referrals. Areas considered include the training venue, training delivery, training materials, and personal factors of the community-based volunteers.

**Training Venue or Environment**

1. Were you comfortable at the venue where you were trained on the NTDs?
   1. Yes
   2. No
2. Was the time for training convenient for you?
   1. Yes
   2. No
3. Was the duration of training you on the various NTDs enough for you?
   1. Yes, it was perfect for me
   2. No, it was too short
   3. No, it was too long

**The Training Delivery**

1. Were you comfortable with the language (Akuapem/Asante) used to train you on the NTDs?
   1. Yes
   2. No
2. Did the trainers explain the information about the NTDs and how to detect and refer them, to your understanding?
   1. Yes
   2. No
3. Were the practical sessions on the NTDs detection, referral, and completing of the forms helpful for you?
   1. Yes, it was perfect for me
   2. Yes, but he rushed through
   3. No, it was not helpful

**Training Materials**

1. Which of the following helped you most to understand the information on the NTDs? (You may select all that apply)
   1. Pictures
   2. Videos
   3. Demonstrations
   4. Role play
   5. Discussion
2. Was the information in the training manual easy to understand?
   1. Yes
   2. No

**Personal Factors**

1. Can you read the information in the training manual?
   1. Yes, I can read and understand
   2. Yes, I can read, but I do not understand
   3. No, I cannot read
   4. No, I want it to be in the local language
2. What do you think will help you learn better?
   1. I need more practical sessions
   2. I need more pictures
   3. I need to watch more videos
   4. I need more time to practice
   5. Others (specify)

**Adoption of training information**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **No.** | **Construct** | **Response scale (Circle the right option)** | | | | |
| 11 | How is the training on NTD you have received better than the previous ones you have had? | Much worse | Somehow worse | same | Somehow better | Much better |
| 12 | How well does the NTD training content fit with your already existng knowledge and skills on NTDs as a community volunteer? | Very poor | Poor fit | Moderate fit | Good fit | Very good fit |
| 13 | How often are you able to practice the NTD detection skills you learned in training? | Never | Rarely | Sometimes | Often | Very Often |
| 14 | How visible are the benefits of your NTD training to other community members? | Not visible | Slightly visible | Moderately visible | Clearly visible | Very visible |
| 15 | How often does your peers support you in applying what you learned in NTD training? | Never | Rarely | Sometimes | Often | Very Often |
| 16 | What barriers prevent you from fully applying your NTD training in your community work? | Time constraints | Resources limitation | Lack of support | Community resistance | No transport |
| 17 | What factors help you successfully apply your NTD training in your community work? | Adequate resources | Strong community support | Support from the trained nurses / officers | Clear procedures | Regular practice |
| 18 | How relevant is the NTD training content to your actual community volunteer duties? | Not relevant | Slightly relevant | Moderately relevant | Very relevant | Extremely relevant |
| 19 | How much has the NTD training improved your performance as a community volunteer? | Much worse | Somewhat worse | No change | Somewhat better | Much better |
| 20 | How much support do you receive from supervisors for applying your NTD training? | No support | Little support | Some support | Good support | Excellent support |

# APPENDIX C: QUESTIONNAIRE ON NTDs FOR VOLUNTEERS (KNOWLEDGE, ATTITUDE, TRAINING ASSOCIATED FACTORS) TRANSLATED INTO THE TWI LANGUAGE

Nsɛmmisa ahorow a ɛwɔ krataa yi so no fa nimdeɛ ne suban a yɛda no adi wɔn a wɔwɔ Kwata, Buruli ulcer, gyepim, gyatɔ, dwonsɔ mogya, ne Nkoronsankoransa ho. Ɛsan nso bisa nsɛm a ɛfa sɛnea wɔtetee volunteers ho.

|  |  |  |
| --- | --- | --- |
| Date of the interview: | Name of Researcher/Assistant: | |
| Wogye tom sɛ wo be bua nsɛmisa a edidi so yi anaa: | Yiw: Toa so bisa no nsɛm no  Dabi: Mmisa no hwee bio | |
|  |  | |
| Ɔfa **A:** Woho Nsɛm | | |
| **District name:** | **Area of residence:** Akuraase / Kurow kɛse mu | |
| **Village name:** | Distance to the nearest health facility:  a. <5 km b. 6-10 km c.11-20 km d. >20 km | |
| **Respondent Code No.:** | Bere tenten a wode atu ho wo ama: Afe:  a. 1  b. 2  c. 3  d. 4  e. 5  f. 6  g. 7  h. mfe 8 ne akyiri | |
| **Address:** | **Age:** | **Sex:**   1. Male 2. Female |
| **Adwuma a woy**ɛ  **(Occupation):** □ Meyɛ obi adwuma gye akatua  □ Meyɛ m’ankasa adwuma (e.g. own business/farming)  □ Mennyɛ adwuama biara anaa meyɛ sukuuni  □ Mapɔn adwuma (makɔ retae)  □ Minni adwuma  □ Biribi foforo.................................... | **Mp**ɛnpɛnso **a wok**ɔɔ **sukuu kodui**  **(Highest education completed):** □ Mintumi nkan ade biara  □ Mitumi kan nanso mankɔ sukuu  □ Mekɔ mfiase sukuu  □ Miwiee ntoaso sukuu  □ Mekɔɔ asuapɔn | |
| **Anyɛ yiyie koraa, sika dodow ahe na wunya wɔ bosome baako mu**? **GHc**   * Up to 100 * Up to 200 * Up to 500 * Up to 1000 * Up to 2000 * Above 2000 | **Nnipa dodow a wohwɛ wɔn wɔ wo fie:**   * **1** * **2** * 3 * **4** * **5** * **6** * **7** * **8 +** | |
| **Aware ho nsɛm:** □ Menwaree da  □ M’aware  □ Matetew mu  □ Magyae aware  □ Mey**ɛ** okunafo  □ Me ne obi te nso yɛn waree | **Wowɔ ɔsom bɛn mu?:** □Menkɔ asɔre  □ Budasom  □ Kristoni  □ Kramoni  □ Other, please specify: | |

**Ɔfa B: Nsɛmmisa a ɛsusu volunteers nimdeɛ ne wɔn suban anaa sɛnea wɔyɛ wɔn ade fa wɔn a wɔwɔ Kwata yare ho**

**note:**

* Please tick or circle the preferred answer option(s)**.**
* The correct answers are indicated by a \*. If the correct answer is given, indicate this by circling the ‘1’ in the ‘points’ column. The total number of \* corresponds to the number of points (either 1, 2, 3, 4, 5 ….) under the points column.

|  |  |  |
| --- | --- | --- |
| Ɔfa yi bisa nsɛm fa Kwata yare ho nkutoo. | | Points |
|  | **Dɛn ne kwata yareɛ no mfiaseɛ nsɛnkyerɛne**?  (Multiple answers possible. Do not suggest answers, just tick the answers given by the interviewee spontaneously)   * Itchiness * Skin patches\* * Wounds on the skin * Loss of sensation\* * Disabilities * Different, namely: ………. * Don’t know | 0 / 1 / 2 |
|  | **D**ɛn na ɛde kwata ba**?**  (Multiple answers possible. Do not suggest answers, just tick the answers given by the interviewee spontaneously)   * + Leprosy is caused by an unclean environment   + Leprosy is a divine punishment for sins   + Leprosy is God’s will   + Leprosy is a result of karma   + Leprosy is due to impure blood   + Leprosy is caused by witchcraft   + Leprosy is hereditary   + Leprosy is caused by immoral conduct   + Leprosy is caused by germs/bacteria\*   + Different, namely: ……….   + Don’t know | 0 / 1 |
|  | **Ɔkwan bɛn so na obi nya Kwata yareɛ?**  (Multiple answers possible. Do not suggest answers, just tick the answers given by the interviewee spontaneously). Leprosy is transmitted by   * Air\* * Contaminated soil * Insects and mosquitoes * Sexual contact with a leprosy patient * Skin contact with a leprosy patient * Eating together with a leprosy patient * Shaking hands with a leprosy patient * Sharing personal items (towel, toothbrush etc.) with a leprosy patient * Different, namely: ………. * Don’t know | 0 / 1 |
|  | **So yebetumi abɔ yɛn ho ban afi Kwata yare ho anaa?**   * 1. Yes\*   2. No   3. Don’t know | 0 / 1 |
|  | **Sɛ wogye tom sɛ yebetumi abɔ yɛn ho ban afi kwata yare ho a, ɛnde ɔkwan bɛn so na yebetumi ayɛ saa?**  (Multiple answers possible. Do not suggest answers, just tick the answers given by the interviewee spontaneously)   * with (preventive) medicines\* * by preventing contact with a patient * with medicinal herbs * through religious rituals * by isolating persons affected by leprosy * Different, namely: ………. * Don’t know | 0 / 1 |
|  | **So yebetumi asa Kwata yare ama akɔ koraa?**   * 1. Yes\*   2. No   3. Don’t know | 0 / 1 |
|  | **Yɛbɛyɛ dɛn asa Kwata yare?**  (Multiple answers possible. Do not suggest answers, just tick the answers given by the interviewee spontaneously)   * with medicines\* * by avoiding taboo food * with medicinal herbs * through religious rituals * Different, namely: ………. * Don’t know | 0 / 1 |
|  | **Bere tenten ahe na obi a ɔwɔ kwata bɛnom aduru ansa na ne ho atɔ no koraa?**   1. 1 month 2. 6 months 3. 1 year\* 4. It will never be cured 5. Different, namely: ………. 6. Don’t know | **0 / 1** |
|  | **Sɛ obi nom aduru no wie koraa a, so obetumi de kwata yare no asane obi anaa?**   * 1. Yes   2. No\*   3. Don’t know | 0 / 1 |
|  | **So nnipa dua mu dɛm a kwata de ba obi so no, yebetumi asi ano anaa?**   * 1. Yes\*   2. No   3. Don’t know | 0 / 1 |
|  | **So wafipamfo, wo namfonom, ne afoforo a wɔte wo mpɔtam no, wɔwɔ obu ma obi a ɔwɔ Kwata yare anaa?**   1. Yes\* 2. Not sure 3. No | **0 / 1** |
|  | **Total:** |  |

**Suban a Wɔda no adi kyerɛ wɔn a Wɔwɔ Kwata yare**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Item | | Aane  (Yes) | Dabi  (No) | Mentumi nkyerɛ  (Not Sure) | Score |
| 2 | 0 | 0 |  |
| **1** | So wobɛbɔ mmɔden sɛ worenmma obi nhu sɛ wowɔ kwata yare anaa? |  |  |  |  |
| **2** | Sɛ wobusuani bi nya Kwata a, wobebu no sɛ ɔnnyɛ onipa biara anaa onipa hunu? |  |  |  |  |
| **3** | Wɔ beae a wote no, sɛ obi nya kwata a, so ɛyɛ animguase ma no anaa? |  |  |  |  |
| **4** | Wo ankasa no, sɛ obi nya kwata a, wobebu no sɛ ɔyɛ onipa hunu anaa? |  |  |  |  |
| **5** | So wobɛtwe wo ho afi obi a ɔwɔ kwata ho wɔ kurow a wote mu no anaa? |  |  |  |  |
| **6** | So wobɛkɔ obi a ɔwɔ kwata fie anaa? |  |  |  |  |
| **7** | Nea ɔwɔ kwata yare no, wubu n’abusuafo sɛ wɔba fam anaa wɔn ho nhia anaa? |  |  |  |  |
| **8** | So kwata betumi de nsunsuanso bɔne biara aba abusua no mu anaa? |  |  |  |  |
| **9** | So ɛbɛhaw so sɛ wobɛma afoforo ahu sɛ w’abusuani wɔ kwata yare anaa? |  |  |  |  |
| **10** | Wobɛware obi a bere bi na ɔwɔ kwata a wasa no yare ama ne ho atɔ no anaa? |  |  |  |  |
| **11** | Sɛ wo hokafo nya kwata a, wobegyaa no anaa? |  |  |  |  |
| **12** | Wobɛma kwan ma woba baa anaa woba barima aware obi a Wanya kwata anaa? |  |  |  |  |
| **13** | So wobɛfa obi a Wanya kwata pɛn a ne ho atɔ no wɔ w’adwuma mu anaa? |  |  |  |  |
| **14** | Wobɛtɔ aduan wɔ obi a ɔtɔn aduan a w’anya kwata pɛn hɔ anaa? |  |  |  |  |
|  | Total Score |  |  |  |  |

**Attitude scale B: towards leprosy patients**Please read out the following (gender-specific) statement:

|  |  |
| --- | --- |
| **Mmarima Nkutoo (For men)** | **Mmaa Nkutoo (For women)** |
| Ata adi mfe 23. Afe a etwaa mu no, wɔsaa ne kwata yare no ma ne ho tɔɔ no. Ewom sɛ ne nnipa dua akwaa bi te sɛ ne nsa atwitwa esiane kwata no nti de, nanso Dɔkota sɛ ne ho atɔ no. Ata ne ne wɔfa na ɛyɛ adwuma. Adwuma no kɔ yiye na bosome biara wotua no GHc1,000. Ɛwom sɛ ne ho nnyɛ hare esiane ne kwata a onyae no nti, nanso ɛnhaw ne wɔfa no koraa. Ata ne afoforo a wɔwɔ adwuma mu nyinaa bom yɛ biribiara bom na wɔn anigye. Ata pɛ sɛ ɔware. Ata resusuw ho sɛ ɔde ne ho bɛdɔm mmabun kuw bi sɛnea ɛbɛyɛ a obehyia n’atipɛnfo. Afei nso ɔpɛ sɛ onya adwuma a n’akatua ye sen nea ɔreyɛ no mprenpren yi. | Akosua adi mfe 27. Afe a etwaa mu no, wɔsaa ne kwata yare no ma ne ho tɔɔ no. Ɛwom sɛ ne nnipa dua akwaa bi te sɛ ne nsa atwitwa esiane kwata no nti de, nanso Dɔkota sɛ ne ho atɔ no. Akosua ne ne wɔfa na ɛyɛ adwuma. Adwuma no kɔ yiye na bosome biara wotua no GHc1,000. Ɛwom sɛ ne ho nnyɛ hare esiane ne kwata a onyae no nti, nanso ɛnhaw ne wɔfa no koraa. Akosua ne afoforo a wɔwɔ adwuma mu nyinaa bom yɛ biribiara bom na wɔn anigye. Akosua pɛ sɛ ɔware. Akosua resusuw ho sɛ ɔde ne ho bɛdɔm mmabun kuw bi sɛnea ɛbɛyɛ a obehyia n’atipɛnfo. Afei nso ɔpɛ sɛ onya adwuma a n’akatua ye sen nea ɔreyɛ no mprenpren yi. |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Item | | ɔkwan biara so mɛyɛ (Definitely willing) | Ebia mɛyɛ (Probably willing) | Merenyɛ biribi saa da (Definitely not willing) |  |
| 0 | 1 | 3 | Score |
| **1** | Sɛn na wobɛte nka, sɛ wode wodan bɛ haee obi te sɛ....... (Edin) |  |  |  |  |
| **2** | Sɛn na wobɛte nka, sɛ wone obi te sɛ......... bɛyɛ adwuma abom? |  |  |  |  |
| **3** | Sɛn na wobɛte nka, sɛ wone obi te sɛ......bɛtena sɛ wo fipamfo? |  |  |  |  |
| **4** | Sɛn na wobɛte nka, sɛ wobɛma obi te sɛ......... bɛhwɛ wo mma ama wo bere tenten bi? |  |  |  |  |
| **5** | Sɛn na wobɛte nka, sɛ wobɛma obi te sɛ......... bɛware wo ba barima anaa woba bea? |  |  |  |  |
| **6** | Sɛn na wobɛte nka, sɛ wode obi te sɛ......... bekyia w’adamfo bere a woahyia no ..........? |  |  |  |  |
| **7** | Sɛn na wobɛte nka, sɛ wobɛ kamfo obi te sɛ......ama w’adamfo bi na wayɛ adwuma ama no? |  |  |  |  |
|  | Total Score |  |  |  |  |

**Buruli Ulcer : Knowledge assessment**

|  |  |  |
| --- | --- | --- |
| No. | Item | Points |
| 1 | Yare bɛn ho mfoni na wuhu yi?   * Buruli ulcer\* * Yaws * Leprosy * Don’t know | 0 / 1 |
| 2 | Saa yare a ɛwɔ mfoni yi mu no, abayifo, duabɔ, anaa nananom abosomfo abufuw na ɛde ba   * Yes * No\* * Don’t know | 0 / 1 |
| 3 | Buruli ulcer mpɛnpɛnso bɛn na wohu no wɔ mfoni no yi?   * Nodule\* * Plague * Oedema * Ulcer * Don’t know | 0 / 1 |
| 4 | Buruli ulcer mpɛnpɛnso bɛn na ɛsɛ s**ɛ** Volunteer ka ho asɛm kyerɛ hospital adwuma yɛfo?   * Nodule * Plague * Oedema * Ulcer * All stages\* * Don’t know | 0 / 1 |
| 5 | Buruli ulcer nnyɛ ya koraa   * Yes\* * No * Don’t know | 0 / 1 |
| 6 | Hena na obetumi anya Buruli ulcer?   * Children * Males * Females * Anybody\* * Don’t know * Others……….. | 0 / 1 |
| 7 | Megyedi paa sɛ obi a ɔwɔ Buruli ulcer betumi de asae afoforo bere a wɔde wɔn ho aka no no   * Yes * No\* * Don’t know | 0 / 1 |
| 8 | Yebetumi abɔ yɛn ho ban afi Buruli ulcer ho anaa?   * Yes\* * No * Not sure | 0 / 1 |
| 9 | Yebetumi asa Buruli ulcer ama akɔ anaa?   * Yes\* * No * Not sure | 0 / 1 |
|  | Total |  |

**Buruli Ulcer: Attitude Questions**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| No | Item | Megye tom papaapa (Strongly  Agree) | Megye tom (agree) | Mennim (Neutral/  Don’t Know) | Me ne wo nnyɛ adwene (Disagree) | Me ne wo nnyɛ adwene koraa (Strongly  Disagree) | Score |
| 1 | ɛnsɛ wobɛn obi a wanya Buruli ulcer anyɛ saa a wobenya bi |  |  |  |  |  | (SA,A, N=0; D,SD=1) |
| 2 | Sɛ mehu obi a wanya Buruli ulcer a, mɛka ho asɛm akyerɛ klinik a ɛbɛn me no |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 3 | ɔkwan papa paa a wɔfa so sa Buruli ulcer yare no ne sɛ wode abibiduro bɛma yarefo no |  |  |  |  |  | (SA,A, N=0; D,SD=1) |
| 4 | ɛsɛ Buruli ulcer yare biara wɔde kɔ ayaresabea |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 5 | Megye di paa sɛ sɛ mihu obi a ɔwɔ Buruli ulcer a, metumi ahu aka no ntɛm sɛ ampa sɛ ɛyɛ bi a |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 6 | Buruli ulcer de, ɛsɛ sɛ wofi ase sa wɔ fie na sɛ annyɛ yiye a, ansa na wode no akɔ hospital |  |  |  |  |  | (SA,A, N=0; D,SD=1) |
| 7 | Me ho rentene me sɛ mɛka akyerɛ obi sɛ ɔnkɔ ayaresabea bere a misusuw sɛ ɔwɔ Buruli ulcer. Ebia na ɛnnyɛ nokware sɛ ɛyɛ Buruli ulcer. |  |  |  |  |  | (SA,A, N=0; D,SD=1) |
|  | Total | | | | | |  |

**Knowledge questions on Lymphatic filariasis**

|  |  |  |
| --- | --- | --- |
| No. | Item | Points |
| 1 | Yare bɛn na wohu no wɔ mfoni no mu yi?   * Elephantiasis\* * Boil * Other ……………….. | 0 / 1 |
| 2 | Yare bɛn na wohu no wɔ mfoni no mu no?   * Hydrocoele\* * Cancer * Don’t know * Other……………….. | 0 / 1 |
| 3 | Ɛyɛ dɛn na obi anya saa yare yi mu biara?   * Curse * Angry gods * Witches * Germs\* * Dirt * Don’t know | 0 / 1 |
| 4 | So yare yi betumi asae afoforo anaa?   * Yes\* * No * Don’t know | 0 / 1 |
| 5 | Sɛ obi betumi de asae afoforo a, ɔkwan bɛn so na ɛfa ba saa?   * Mosquito bite\* * Dirty hands * Sexual intercourse * Direct body contact * Contaminated food * Don’t know * Other……………………. | 0 / 1 |
| 6 | Ɔkwan anaa akwan papa paa a yɛde bɔ yɛn ho ban fi yare no ho no bi ne sɛn?....   * Use mosquito net\* * Reduce number of stagnant water in community\* * Drink clean water * Eat clean and warm food * Do not get closer to the one with the disease * Don’t know * Other……………………. | 0 / 1 / 2 |
| 7 | Saa yare yi, yebetumi ama ɛho aduru ma onipa no ho atɔ no anaa?   * Yes\* * No * Don’t know | 0 / 1 |
| 8 | Obi a ne nan no apegyaw kɛse esiane yare no nti no, sɛ ɔnom aduru a, ne nan no bɛtwetwe koraa anaa entumi nnyɛ yiye?   * Yes * No\* * Maybe * Don’t know | 0 / 1 |
|  | Total |  |

**Gyepim (Lymphatic Filariasis): Attitude**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| No | Item | Megye tom papaapa (Strongly  Agree) | Megye tom (agree) | Mennim (Neutral/  Don’t Know) | Me ne wo nnyɛ adwene (Disagree) | Me ne wo nnyɛ adwene koraa (Strongly  Disagree) | Score |
| 1 | ɛnsɛ wobɛn obi a wanya gyepim anyɛ saa a wobenya bi |  |  |  |  |  | (SA,A, N=0; D,SD=1) |
| 2 | Sɛ mehu obia a wanya gyepim a, mɛka ho asɛm akyerɛ klinik a ɛbɛn me no |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 3 | ɔkwan pa paa wɔfa so sa gyepim yare no ne sɛ wode abibiduro bɛma yarefo no |  |  |  |  |  | (SA,A, N=0; D,SD=1) |
| 4 | Mayɛ krado sɛ mɛyɛ nkyerɛkyerɛ afa gyepim yare ho ama me kurow mu fo |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 5 | Megye di paa sɛ sɛ mihu obi a ɔwɔ gyepim a, metumi ahu aka no ntɛm sɛ ampa sɛ ɛyɛ bi a |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 6 | ɛsɛ sɛ mehwehwɛ me kurom sɛ mehu obi a ɔwɔ gyepim yare no bi a, na mama wakɔ ayaresabea ntɛm |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 7 | ɔkwan a eye paa a ɛbɛma tew gyepim yare no so ne sɛ yɛbɛma ɔmanfo nyinaa ɛho aduro wɔ bere koro mu |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
|  | Total | | | | | |  |

**Knowledge questions on Yaws**

|  |  |  |
| --- | --- | --- |
| No. | Item | Points |
| 1 | Yare bɛn na wohu no wɔ mfoni no mu yi?   * Yaws\* * Leprosy * Don’t know * Other ……………….. | 0 / 1 |
| 2 | So yare yi betumi asae afoforo anaa?   * Yes\* * No * Don’t know | 0 / 1 |
| 3 | Ɔkwan anaa akwan bɛn so na obi nya saa yare yi?   * Curse * Punishment from gods * Witches * Contact with the yaws ulcer\* * Sharing contaminated cloth\* * Houseflies\* * Germs\* * Mosquito bite * Contaminated food * Washing with dirty water * Punishment from God * Don’t know * Others (specify)...... | 0 /1/2/3/4 |
| 4 | Mmofra ne mpanyinfo, hefo na ɛtaa nya yare yi paa?   * Adults * Children\* * Don’t know |  |
| 5 | Ɔkwan anaa akwan papapaa a yɛde bɛbɔ yɛn ho ban afi yare yi ho ne, ebi ne sɛn?:   * Regular bathing\* * Reduce number of stagnant water in community * Drink clean water * Clean environment\* * Dress all ulcers\* * Eat clean and warm food * Do not get closer to the one with the disease * Don’t know * Other……………………. | 0 / 1 / 2 / 3 |
| 6 | Wobetumi asa gyatɔ ma akɔ koraa anaa?   * Yes\* * No * Don’t know | 0 / 1 |
| 7 | Obi betumi anya gyatɔɔ afi ɔbaa ne ɔbarima nna mu anaa?   * Yes * No\* * Don’t know | 0 / 1 |
|  | Total |  |

**Yaws: Questions on Attitude**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| No | Item | Megye tom papaapa (Strongly  Agree) | Megye tom (agree) | Mennim (Neutral/  Don’t Know) | Me ne wo nnyɛ adwene (Disagree) | Me ne wo nnyɛ adwene koraa (Strongly  Disagree) | Score |
| 1 | Mayɛ krado sɛ mɛhwehwɛ wɔn a wɔwɔ gyatɔ no wɔ bere mpo a wontua me ka wɔ saa adwuma no ho |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 2 | Sɛ wantua me ka mpo a, gyatɔ biara a mehu no, mɛbɔ hospital anaa klinik a ɛbɛn me no amanneɛ |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 3 | Yebetumi de abibiduro asa gyatɔ enti ɛho nhia sɛ wode bɛkɔ ayaresabea |  |  |  |  |  | (SA,A, N=0; D,SD=1) |
| 4 | Mpaebɔ betumi ama obi a wanya gyatɔ ho atɔ no |  |  |  |  |  | (SA,A, N=0; D,SD=1) |
| 5 | Mayɛ krado sɛ mɛyɛ nkyerɛkyerɛ afa gyatɔ yare ho ama me kurow mu fo |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 6 | Megye di paa sɛ sɛ mihu obi a ɔwɔ gyatɔ a, metumi ahu aka no ntɛm sɛ ampa sɛ ɛyɛ bi a |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 7 | Wɔn a wɔwɔ gyatɔ no, ɛnsɛ sɛ wɔma kwan ma wɔkɔ nnipa dɔm mu |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 8 | Mensuro sɛ mɛkɔ obi a ɔwɔ gyatɔ fie |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
|  | Total | | | | | |  |

**Scabies: Knowledge questions on Scabies (Nkorosankorosa/zongo lakyikyi/Korodoso/Dwibaadwibaa)**

|  |  |  |
| --- | --- | --- |
| No. | Item | Points |
| 1 | Yare bɛn na wohu no wɔ mfoni no mu yi?   * Scabies\* Patient education: Scabies (Beyond the Basics) - UpToDate * Leprosy * Eczema * Don’t know * Other ……………….. | 0 / 1 |
| 2 | Sɛnkyerɛne bɛn paa na ɛda adi bere a obi anya saa yare yi?   * Intense itching\* * Fever * Coughing * Don’t know * Other……………… | 0 / 1 |
| 3 | So yare yi betumi asae afoforo anaa?   * Yes\* * No * Don’t know | 0 / 1 |
| 4 | Ɛyɛ dɛn na obi anya saa yare yi bi? (Ka dodow biara a wonim)   * Curse * Angry gods * Witches * Germs\* * Physical body Contact with affected person \* * Sharing contaminated cloth\* * Houseflies * Mosquito bite * Contaminated food * Don’t know * Other ……………………….. | 0 / 1 /2 /3 |
| 5 | Mpanyinfo, kyerɛ sɛ, wɔn a wɔadi mfe 15 ne akyi, ne mmofra, kyerɛ sɛ, wɔn a wonnya nii mfe 15 no, wɔn mu hena na wɔtaa nya saa yare yi bi paa?   * Adults\* * Children\* * Don’t know | 0 / 1 / 2 |
| 6 | Ɔkwan anaa akwan papapaa a yɛde bɛbɔ yɛn ho ban afi yare yi ho ne, ebi ne sɛn?:   * Regular bathing\* * Regular hand washing\* * Reduce number of stagnant water in community * Drink clean water * Don’t share cloth\* * Don’t share same bed / beddings * Clean environment * Dress all ulcers\* * Eat clean and warm food * Pray to God * Avoid handshakes\* * Do not get closer to the one with the disease\* * Don’t know * Other………………………………………………. | 0 / 1 / 2 / 3 /4 / 5 / 6 |
| 7 | Wobetumi asa saa yare yi ma akɔ koraa anaa?   * Yes\* * No * Don’t know | 0 / 1 |
| 8 | Saa yare yi, wobetumi anya afi ɔbea ne ɔbarima nna mu ma ayɛ yiye anaa?   * Yes\* * No * Don’t know | 0 / 1 |
| 9 | Megye me ho di paa sɛ, bere biara a mehu yare yi wɔ obi ho no, metumi akyerɛ yare ko   * Yes\* * No * Not sure | 0 / 1 |
|  | Total |  |

**Scabies: Attitude questions**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| No | Item | Megye tom papaapa (Strongly  Agree) | Megye tom (agree) | Mennim (Neutral/  Don’t Know) | Me ne wo nnyɛ adwene (Disagree) | Me ne wo nnyɛ adwene koraa (Strongly  Disagree) | Score |
| 1 | Mayɛ krado sɛ mɛhwehwɛ wɔn a wɔwɔ **Nkorosankorosa** no wɔ bere mpo a wontua me ka wɔ saa adwuma no ho |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 2 | Sɛ wantua me ka mpo a, **Nkorosankorosa** biara a mehu no, mɛbɔ hospital anaa klinik a ɛbɛn me no amanneɛ |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 3 | Yebetumi de abibiduro asa **Nkorosankorosa** enti ɛho nhia sɛ wode bɛkɔ ayaresabea |  |  |  |  |  | (SA,A, N=0; D,SD=1) |
| 4 | Mayɛ krado sɛ mɛyɛ nkyerɛkyerɛ afa **Nkorosankorosa** yare ho ama me kurow mu fo |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 5 | Mpaebɔ betumi ama obi a wanya **Nkorosankorosa** ho atɔ no |  |  |  |  |  | (SA,A, N=0; D,SD=1) |
| 6 | Megye di paa sɛ sɛ mihu obi a ɔwɔ **Nkorosankorosa** a, metumi ahu aka no ntɛm sɛ ampa sɛ ɛyɛ bi a |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 7 | Wɔn a wɔwɔ **Nkorosankorosa** no, ɛnsɛ sɛ wɔma kwan ma wɔkɔ nnipa dɔm mu |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 8 | Mensuro sɛ mɛkɔ obi a ɔwɔ **Nkorosankorosa** fie |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
|  | Total | | | | | |  |

**Nsɛmmisa a ɛfa Dwonsɔ Mogya ho Nimdeɛ** (Knowledge questions on Schistosomiasis**)**

|  |  |  |
| --- | --- | --- |
| No. | Item | Points |
| 1 | Hena na obetumi anya **Dwonsɔ Mogya** yare no bi? Mmaa anaa Mmarima?   * Males only * Females only * Both males and females\* ……………….. * Don’t know | 0 / 1 |
| 2 | Ɛyɛ dɛn na obi nya **Dwonsɔ Mogya** yare no bi? (ka dodow biara a wonim)   * Any contact with stream\* * Swimming in the river / stream\* * Drinking the water * Cooking with the water * Witches * Houseflies * Eating red sugar cane * Eating almond nut * Curse * Mosquito bite * Contaminated food * Punishment from God * Punishment from the gods * Eating snail in the river * Don’t know * Through sex * Others: ………………………………………….. | 0 / 1 / 2 |
| 4 | Wotumi sa **Dwonsɔ Mogya** yare no ma ɛyɛ yiye anaa?   * Yes\* * No * Don’t know | 0 / 1 |
| 5 | Ɔkwan anaa akwan papapaa a yɛde bɛbɔ yɛn ho ban afi **Dwonsɔ Mogya** yare ho ne, ebi ne sɛn? (Ka dodow biara a wonim)   * Regular bathing * Reduce number of stagnant water in the community * Drink clean water * Don’t eat almond nut * Don’t eat red sugar cane * Clean environment * Do not swim in the stream / river\* * Do not have sex * Eat clean and warm food * Do not get closer to the one with the disease * Wear wellington boots when working in water-logged area\* * Don’t know * Other……………………. | 0 / 1 / 2 |
|  |  |  |
| 7 | **Dwonsɔ Mogya** yare yi, wobetumi anya afi ɔbea ne ɔbarima nna mu ma ayɛ yiye anaa?   * Yes * No\* * Don’t know | 0 / 1 |
| 8 | Abibiduro tumi sa **Dwonsɔ Mogya** yare paa sen nnuru a wɔde ma wɔ ayaresabea no anaa?   * Yes * No\* * Don’t know | 0 / 1 |
|  | Total |  |

**Schistosomiasis: Attitude questions**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| No | Item | Megye tom papaapa (Strongly  Agree) | Megye tom (agree) | Mennim (Neutral/  Don’t Know) | Me ne wo nnyɛ adwene (Disagree) | Me ne wo nnyɛ adwene koraa (Strongly  Disagree) | Score |
| 1 | Mayɛ krado sɛ mɛhwehwɛ wɔn a wɔwɔ **Dwonsɔ Mogya**  no wɔ bere mpo a wontua me ka wɔ saa adwuma no ho |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 2 | Sɛ wantua me ka mpo a, **Dwonsɔ Mogya**  biara a mehu no, mɛbɔ hospital anaa klinik a ɛbɛn me no amanneɛ |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 3 | Yebetumi de abibiduro asa **Dwonsɔ Mogya**  enti ɛho nhia sɛ wode bɛkɔ ayaresabea |  |  |  |  |  | (SA,A, N=0; D,SD=1) |
| 4 | Mayɛ krado sɛ mɛyɛ nkyerɛkyerɛ afa **Dwonsɔ Mogya**  yare ho ama me kurow mu fo |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 5 | Mpaebɔ betumi ama obi a wanya **Dwonsɔ Mogya** ho atɔ no |  |  |  |  |  | (SA,A, N=0; D,SD=1) |
| 6 | Megye di paa sɛ sɛ mihu obi a ɔwɔ **Dwonsɔ Mogya** a, metumi ahu aka no ntɛm sɛ ampa sɛ ɛyɛ bi a |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 7 | Wɔn a wɔwɔ **Dwonsɔ Mogya** no, ɛnsɛ sɛ wɔma kwan ma wɔkɔ nnipa dɔm mu |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 8 | Mensuro sɛ mɛkɔ obi a ɔwɔ **Dwonsɔ Mogya** fie |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 9 | Mɛtɔ aduan afi obi a ɔyare **Dwonsɔ Mogya** ɔtɔn aduan hɔ. |  |  |  |  |  | (SA,A=1; N,D,SD=0) |

**Section C: Nea ɛboa ma Volunteers gye nkyerɛkyerɛ tom na wɔde yɛ Adwuma**

**(** **Factors Associated with Adoption and Implementation of training Community-based volunteers in identification and referral of NTD patients among the intervention Group)**

This section seeks information about the factors associated with adoption and implementation of training community-based volunteers on NTD cases and referrals. Areas considered include the training venue, training delivery, training materials, and personal factors of the community-based volunteers.

**Training Venue or Environment**

1. Beae a muhyia mu gyee nkyerɛkyerɛ no, na w’ani gye ho anaa?
   1. Yes
   2. No
2. Bere a na mode hyiam a wɔde kyerɛkyerɛe no, na eye ma wo anaa?
   1. Yes
   2. No
3. Bere tenten a wɔde kyerɛkyerɛe no, na eye ma wo anaa?
   1. Yes, it was perfect for me
   2. No, it was too short
   3. No, it was too long

**The Training Delivery**

1. Kasa a wɔde kyerɛkyerɛ mo no, na eye ma wo anaa?
   1. Yes
   2. No
2. Akyerɛkyerɛfo no, wotumi kyerɛɛ neama mu yiye maa wotee ase yiye wɔ sɛnea wobetumi ahu obi a ɔyare na w’atumi ama wakɔ ayaresabea anaa?
   1. Yes
   2. No
3. ɔyɛkyerɛ ahorow ne nea akyerɛkyerɛfo no ma woyɛe bere a na woresua ade no, mfaso bi baa so maa wo anaa?
   1. Yes, it was perfect for me
   2. Yes, but he rushed through
   3. No, it was not helpful

**Training Materials**

1. Nneama bɛn na ɛboaa wo wo ma wotee nkyerɛkyerɛ ahorow no ase? (Ka dodow a wopɛ biara)
   1. Mfoni ahorow (Pictures)
   2. Videos
   3. ɔyɛkyerɛ ahorow (Demonstrations)
   4. Role play
   5. Nkyerɛkyerɛmu ahorow (Discussion)
2. Nhoma a mode suaa ade no, ɛmaa ɛyɛ mmerɛw maa wo sɛ wobɛte nea na wɔrekyerɛkyerɛ wo no ase anaa?
   1. Yes
   2. No

**Personal Factors**

1. Nhoma a mode suaa ade no, so wobetumi akan nsɛm a ɛwom no ate ase anaa? (Can you read the information in the training manual?)
   1. Yiw, mitumi kan te ase (Yes, I can read and understand)
   2. Yiw, mitumi kan naso mente ase papa (Yes, I can read, but I do not understand)
   3. Dabi, mintumi nkan (No, I cannot read)
   4. Dabi, mepɛ sɛ wɔkyerɛ ase kɔ Twi kasa mu (No, I want it to be in the local language)
2. Wusuw sɛ dɛn na ɛbɛboa wo ama watumi asua nea wɔkyerɛkyerɛɛ no yiye? (What do you think will help you learn better??
   1. I need more practical sessions
   2. I need more pictures
   3. I need to watch more videos
   4. I need more time to practice
   5. Others (specify)

**Nea w**ɔkyerɛkyerɛɛ wo a Wode bɛyɛ Adwuma (**Adoption of training information)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **No.** | **Construct** | **Response scale (Circle the right option)** | | | | |
| 11 | Sɛ wode nkyerɛkyerɛ a wanya seisei no toto nea wakɔ atwam no ho a, emu nea ɔwɔ he na aboa wo paa? | Much worse | Somehow worse | same | Somehow better | Much better |
| 12 | Sɛn na nkyerɛkyerɛ foforo yi bɛboa wo ama watumi ayɛ wadwuma yiye sɛ volunteer wɔ kuro a wote mu no mu? | Very poor | Poor fit | Moderate fit | Good fit | Very good fit |
| 13 | Neama foforo a w’asua no, mpɛn ahe na woatumi de adi dwuma? | Never | Rarely | Sometimes | Often | Very Often |
| 14 | Wususuw sɛ afoforo hu sɛ w’asua neama foforo a ɛreboa wo ne wo kuromfo no anaa? | Not visible | Slightly visible | Moderately visible | Clearly visible | Very visible |
| 15 | Mpɛn sɛn na wo namfonom ne afoforo a wone wɔn bom yɛ volunteer adwuma yi de mmoa ma wo na ama watumi de nea wasua no ayɛ adwuma? | Never | Rarely | Sometimes | Often | Very Often |
| 16 | Nneama bɛn na ayɛ osiakwan a enti wontumi mfa nea w’asua no nnyɛ adwuma wɔ beae a wote no? | Time constraints | Resources limitation | Lack of support | Community resistance | No transport |
| 17 | Nneama bɛn na aboa wo ama watumi de nea w’asua no atumi ayɛ adwuma wɔ beae a wote no? | Adequate resources | Strong community support | Support from the trained nurses / officers | Clear procedures | Regular practice |
| 18 | Wususuw sɛ nea woasua no, ɛso bɛba wo mfaso wɔ volunteer adwuma no mu? | Not relevant | Slightly relevant | Moderately relevant | Very relevant | Extremely relevant |
| 19 | Sɛn na ntetee a wunyae no ato wo nimdeɛ a wowɔ sɛ volunteer no mu? | Much worse | Somewhat worse | No change | Somewhat better | Much better |
| 20 | Hospital ne officers no, so wɔde mmoa ma wo ma wutumi yɛ woadwuma sɛ volunteer anaa? | No support | Little support | Some support | Good support | Excellent support |

**APPENDIX D** : NTD baseline data extraction form for Year 2024

District:---------------------------Subdistrict----------------------Community--------------------------

Name of Volunteer-------------------------------------------------Volunteer ID------------------------

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Disease** | **Jan** | **Feb** | **Mar** | **April** | **May** | **June** | **Jul** | **Aug** | **Sept** | **Oct** | **Nov** | **Dec** | **Total** |
| Leprosy |  |  |  |  |  |  |  |  |  |  |  |  |  |
| BU |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Yaws |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Hydrocele |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Lymph-  Edema |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Schisto. |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Scabies |  |  |  |  |  |  |  |  |  |  |  |  |  |

# APPENDIX E: Community-Based Volunteer NTD Referral Form

For Suspected Neglected Tropical Diseases

**1. Volunteer Information**

Name of Volunteer--------------------------------------------Community------------------------------

Contact No.------------------------------------Volunteer ID---------------------------------------------

District-----------------------------------------Sub-district-----------------------------------------------

1. **Disease Information**

**Select Suspected Disease being Referred (Underline the suspected case)**

Leprosy Buruli Ulcer Lymphedema 

Yaws  Hydrocele  Scabies 

Schistosomiasis

1. **Patient Information**

Name of Patient:-------------------------------Community--------------------------------Sex--------------

Age---------Contact No.----------------------------------------Date Seen------------------------------------

Date Referred----------------------------------Did Patient Accept Referral? Yes---- No -----

1. **Referral Information**

Name of Health Facility------------------------------------------------

Contact No. of Health Facility-----------------------------------------

1. **For Health Facility Use Only**

Date Patient Seen at Health Facility---------------------------------------------------------------------

Action taken-------------------------------------------------------------------------------------------------

Health Care Provider’s name-----------------------------------------------------------------------------

Date Volunteer given feedback---------------------------------------------------------------------------

Please complete this form in duplicate. Give one copy to the patient and keep one for your records

# APPENDIX F: Sample Monthly NTD Reporting Form by Community Volunteer

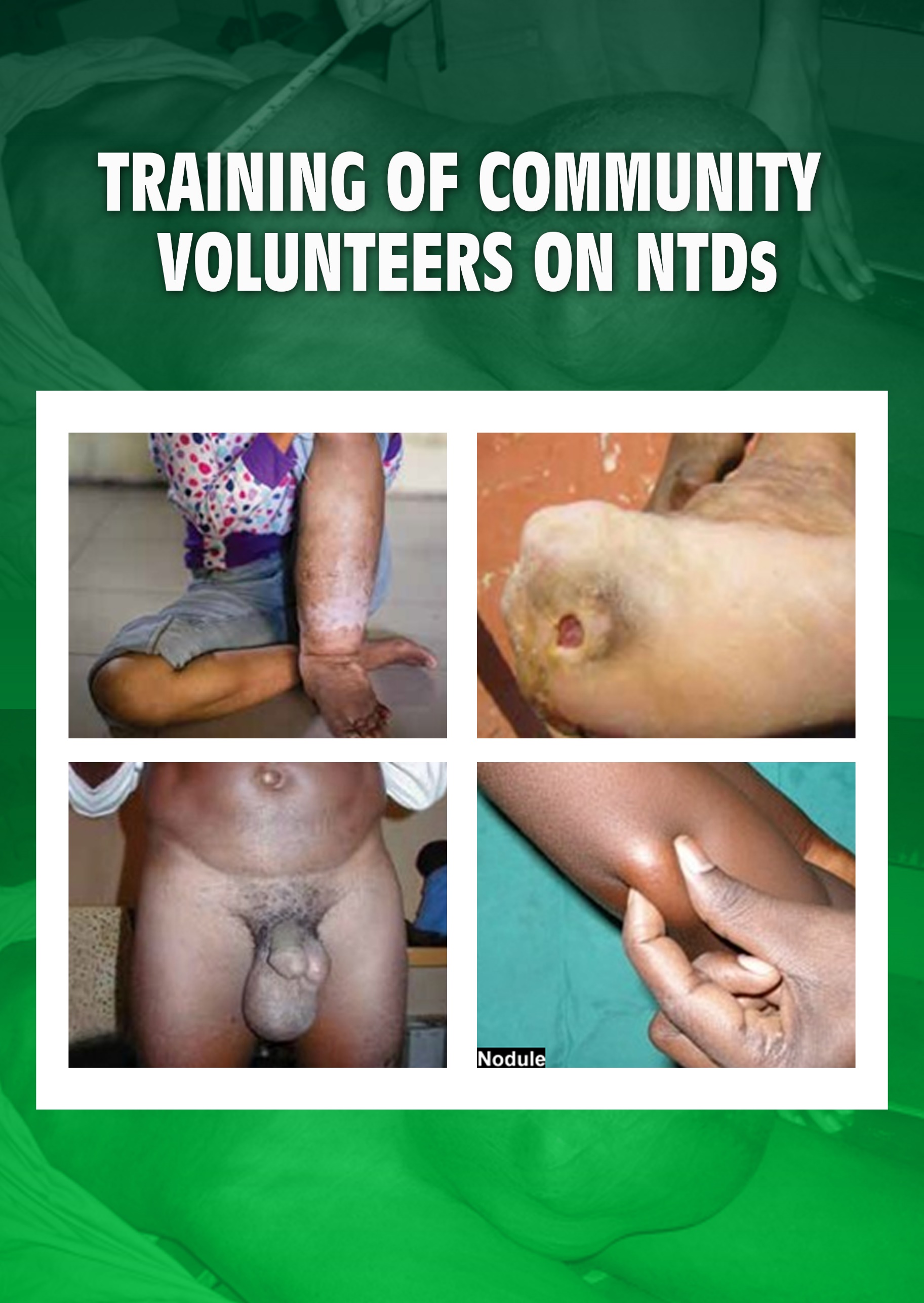
Name of volunteer: nearest health facility Sub-district District

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| DATE | Name of community where case identified | Sex  (male =m,  Female=f) | Age (years) | Condition / disease | Ever reported to health facility (yes = 1, no= 2) | Is person currently on treatment  (yes =, no=2) | Action (referred to hf 1st time = 1; encouraged to report again to hf = 2 | Date client referred to health facility | Feedback from health facility |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
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|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |

Challenges encountered during the month:

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

# APPENDIX G: TRAINING MANUAL



1

**FOR THE CONTROL OF NEGLECTED**

**TROPICAL DISEASES IN EASTERN REGION - GHANA**

**CASE DEFINITIONS, SIGNS AND SYMPTOMS**

2

**CASE DEFINITION:**

* Leprosy is a chronic infectious disease that mainly affects the skin, peripheral nerves and mucous membrane of the upper respiratory tract. It is caused by bacteria, *Mycobacterium leprae*.
* The skin is affected early in the time of the infection. The first signs are usually skin patches of different sizes that are often dry and the colour may be a little bit paler than the rest of the skin.
* Leprosy can also manifest in the form of multiple lumps of varied sizes.
* Affected person(s) become insensitive to hot objects or rubbing shoes and ulcers may form around these areas.
* If leprosy is left untreated, these ulcers (usually on the hands or on the feet), which are known as neuropathic ulcers, may lead to the destruction of other structures in the area including bone. If the nerves are affected and damaged, loss of sensation on skin, weakness or paralysis of muscles or loss of sweating may occur. Damage to nerves can cause disabilities and physical impairments in Leprosy affected persons (WHO, 2018; ILEP 2007).



**1. LEPROSY (KWATA)**

****

**SIGNS AND SYMPTOMS:**

* Painless skin lesions, ulcers or patches, with definite

loss of sensation.

* Spots on the skin that may be slightly red, darker

 or lighter than other normal parts of the skin.

* Patches can be flat or raised.
* Do not itch.
* Usually do not hurt.
* Painless ulcers on the soles of feet.
* Painless swelling or lumps on the face or earlobes,

loss of eye brows or eyelashes.  *Patches on skin (Source: ILEP, 2019)*

* Touch sensation reduced.
* Pins and needles sensations.
* Numbness in a finger or toe.
* Clawing of fingers and toes.
* Nerve injury.
* Eye damage such as dryness and reduced blinking.
* Loss of extremities (ends of fingers or nose) due to

repetitive injuries, wounds or infections.



**HOW IS TRANSMITTED?**

* The disease is transmitted through droplets, from the

nose and mouth, during close and frequent contact with

untreated cases. Infection can occur at any age.

* Patients under treatment do not spread the disease.

Disease does not spread by touch.

3

**WE SHOULD KNOW THAT:**

* Leprosy is a disease caused by a germ.
* Leprosy **IS NOT** caused by witchcraft, a curse, or a punishment.
* Leprosy can spread from droplets of the nose and mouth, during close contact with untreated patients for a long period.
* Infection can occur at any age.
* Patients under treatment do not spread the disease. Leprosy is curable with multidrug therapy (MDT).
* Untreated, leprosy can cause progressive and permanent damage to the skin, nerves, limbs, and eyes and long-term disability.
* **Long term disability can be prevented through early diagnosis and treatment.**

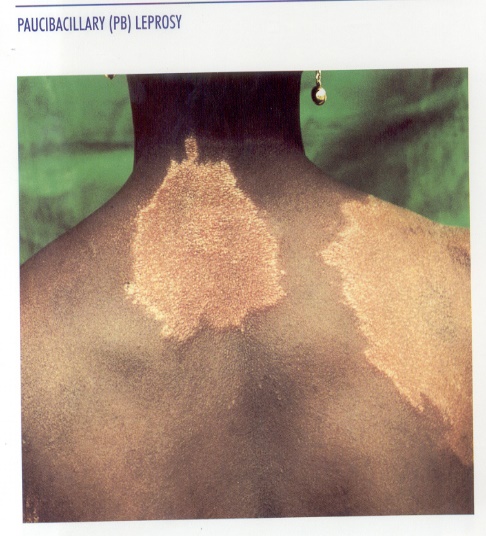
**REFER SUSPECTED CASES TO THE NEAREST HEALTH CARE CENTRE FOR FURTHER DIAGNOSIS AND TREATMENT**

**WHAT TO DO WHEN YOU REFER:**

* **Complete the Community Referral Slip and give this to the patient to take to the health centre.**
* **Complete the Community Register.**

**Explain to the affected person what to expect during diagnosis of leprosy at the health centre:**

* The patient will be checked for skin patches by the health worker.
* The health worker will complete a test using a pen, feather or cotton wool to check how much you can feel.
* The health worker will provide instructions for treatment or refer the patient to another health facility for further diagnosis and treatment.



**2. BURULI ULCER**

4



**CASE DEFINITION:**

* Buruli Ulcer (BU) is a disease caused by a germ (bacteria: *Mycobacterium ulcerans*) which affects mainly the skin. BU can also affect the bones, which can cause lifelong disability.
* It starts as a painless nodule (swelling / lump) at the beginning which develops into hardened skin (plaque) and then swelling (oedema).
* Sores (ulcers) with undermined edges develop, with infections of the bone at the later stage of the disease. However, this can be managed and early diagnosis is important to prevent disability (WHO, 2015).

**SIGNS AND SYMPTOMS:**

The different stages of BU are as follows:

*(Credit: WHO)*

**NODULE**

* Painless nodule (swelling / lump) at the beginning.
* Raised lumps on the skin that subsequently ulcerate.



**PLAQUE**

* A plaque is a large painless swelling of more than 3

centimetres in diameter with clearly marked borders.

*(Credit: WHO)*

* The skin feels hard like cardboard.

**OEDEMA (SWELLING)**

* Oedema is a large painless swelling.

*(Credit: WHO)*

* It often involves the arms and the legs.

**ULCER (SORE)**

*(Credit: Rebuild Ghana, WHO)*

* Typical ulcers are not very painful.
* Have undermined edges and
* Whitish-yellowish appearance.
* Underlying red moist base.

**OSTEOMYELITIS (INFECTION OF BONE)**

Infection can affect bones and joints at later, more severe

stage of illness.

*(Credit: WHO)*

**4. Ulcer (Sore)**

**HOW IS IT TRANSMITTED?**

5

* The means of transmission is not known, however, in many cases it is attributed to exposure to rivers, streams or wetlands.
* BU occurs most frequently among people who live or work close to rivers and slow-moving bodies of water.
* The incubation period is 1-9 months (average 4.5 months).
* Children under 15 years are most at risk.
* BU is not transmissible from one person to another.

**WHAT TO DO WHEN YOU REFER:**

* Complete the Community Referral Slip and give this to the patient to take to the health centre.
* Complete the Community Register.

**Explain to the affected person what to expect during Buruli ulcer diagnosis at the health centre:**

* The skin will be examined by a health worker.
* The health worker will provide instructions for any treatment or refer the patient to another health facility.
* Sometimes they might n do a laboratory test or take a sample to check for a certain disease.

**WE SHOULD KNOW THAT:**

* Buruli ulcer is a disease caused by a germ.
* The exact mode of transmission is still unknown.
* Buruli ulcer **IS NOT** caused by witchcraft, a curse or punishment.
* You **CANNOT** get Buruli ulcer through contact with an affected person.
* People that live or work close to rivers and slow-moving water bodies are more likely to be affected. Children under 15 are more likely to be affected.
* Buruli ulcer can lead to lifelong disabilities but **early diagnosis and treatment can prevent disability**. Surgery and physiotherapy are treatment options for Stage 5 symptoms.

**REFER SUSPECTED CASES TO THE NEAREST HEALTH CARE CENTRE FOR FURTHER DIAGNOSIS AND TREATMENT**

**3. LYMPHEDEMA / ELEPHANTIASIS (GYAPIM)**

6

**CASE DEFINITION:**

* Lymphedema usually presents in the legs, but may occur in the arms or breasts.
* Lymphedema causes swelling and enlargement of body tissues.
* Lymphedema may be caused by lymphatic filariasis, which is a disease transmitted by mosquitoes.
* Hygiene and skin care are important to prevent secondary bacterial infections which cause “acute attacks” which are an acute inflammation of the skin, lymph vessels and lymph glands accompanied by debilitating pain, fever and swelling.
* Lymphedema can sometimes be reversed in early stages. In later stages, improvements can be made if well managed.
* Long term disability can be prevented through early diagnosis and treatment



**SIGNS AND SYMPTOMS:**

* Swelling of the leg.
* Unilateral swelling of limb (e.g. one leg enlarged).
* The affected area is often warm, reddish and painful.
* Gradually, the skin may become thickened, covered in small lumps

giving a cobbled appearance and the possibility of recurrent infections.

* Extreme pain of the affected areas.
* Hardening and thickening of the skin.
* Fever, chills, headache and weakness.
* Acute attacks (swelling, warmth, redness, and extreme

pain of the affected area).

**HOW IS IT TRANSMITTED?**

* Lymphedema caused by lymphatic filariasis occurs when

filarial parasites (worms) are transmitted to humans

through mosquito bites.

* The mosquito takes up the microfilariae and can

spread lymphatic filariasis to other people.

* The adult worms live in human lymph vessels.

They release millions of very small worms (microfilariae),

which live in the blood and can only be seen with a microscope





*Swollen leg, cobbled oedema (WHO, 2001)*



*Lymph obstruction (WHO, 2018)*

**HYDROCELE (ETWO)**

**CASE DEFINITION:**

* Hydrocele presents as a swelling of the scrotum. It is commonly caused by lymphatic filariasis which is transmitted by mosquitoes.



**SIGNS AND SYMPTOMS:**

* Swelling of the scrotum.
* The fluid can collect on only one side (or on both sides).
* Accumulation of fluid in the sac covering the testes.

**HOW IS IT TRANSMITTED?**

* Hydrocele caused by lymphatic filariasis occurs when filarial

parasites (worms) are transmitted to humans through mosquito bites.

* When a mosquito bites a person with microfilariae in his blood,

the mosquito takes up the microfilariae and can spread

lymphatic filariasis to other people.

* The adult worms live in human lymph vessels. They release

millions of very small worms (microfilariae), which live in the

blood and can only be seen with a microscope.

*Swollen scrotum (Source: WHO, 2018)*



**HYDROCELE SURGERY RESULTS:**

**BEFORE**

**AFTERR**

*(WHO, 2008)*

7

**WE SHOULD KNOW THAT:**

* Infection through lymphatic filariasis is caused by worms which are spread from person to person through mosquitoes.
* The adult worms live in human lymph vessels. They release many small worms (microfilariae), which live in the blood and can only be seen with a microscope.
* Hydrocele **IS NOT** caused by witchcraft, a curse or punishment.
* You **CANNOT** get hydrocele through contact with an affected person.

**REFER SUSPECTED CASES TO THE NEAREST HEALTH CARE CENTRE FOR FURTHER DIAGNOSIS AND TREATMENT.**

**WHAT TO DO WHEN YOU REFER:**

* **Complete the Community Referral Slip and give this to the patient to take to the health centre.**
* **Complete the Community Register.**

**Explain to the affected person what to expect during diagnosis at the health centre:**

* The patient will be checked for scrotal swelling.
* They will be asked to explain other symptoms experienced.
* The health worker will provide instructions for treatment or refer the patient to another health facility for further diagnosis and treatment.
* Treatment options include a quick simple surgery or painkillers to relieve pain.

8

1. **YAWS (GYATƆ)**

9

**CASE DEFINITION:**

* Yaws is a chronic disfiguring and debilitating infectious disease caused by a germ called Treponema pertenue
* The disease affects skin, bone and cartilage.
* Only humans are currently believed to suffer from yaws
* Yaws primarily affects children aged under 15 years
* It is transmitted from person to person. Houseflies can also transmit it from the sick person to the cut on your body
* Yaws is cured with a single oral dose of an inexpensive antibiotic called azithromycin.
* Without treatment, yaws may disappear but can reappear with more problems to the brain, bones, cartilage, and the heart.
* Yaws can destroy your bones and nose

**PREVENTION**

* Properly dispose discharges and soiled articles from the sick person.
* Report early to the health facility near you for treatment
* Dress the cut or ulcer on your body so that the houseflies will not transmit the germs to you
* Clean your environment to reduce breeding of houseflies



Yaws papules Yaws macules



Yaws in the feet Yaws in the palm

10

**WE SHOULD KNOW THAT:**

* Yaws is caused by germs which are spread from person to person through contact with open sore.
* Houseflies can also transmit Yaws
* Yaws will not kill you but can disfigure you.
* Yaws **IS NOT** caused by witchcraft, a curse or punishment.
* You **CANNOT** get Yaws through food or water.

**REFER SUSPECTED CASES TO THE NEAREST HEALTH CARE CENTRE FOR FURTHER DIAGNOSIS AND TREATMENT.**

**WHAT TO DO WHEN YOU REFER:**

* **Complete the Community Referral Slip and give this to the patient to take to the health centre.**
* **Complete the Community Register.**

**Explain to the affected person what to expect during diagnosis at the health centre:**

* The patient will be checked for Yaws.
* The health worker will provide instructions for treatment
* Treatment options include an oral medication or injection

**SCABIES (NKOROSANKOROSA / KRODOSO /SANTWORE)**

11

* Scabies Scabies is an infestation of the skin by a human itch mite.
* Scabies causes intense itching and a pimple-like skin rash
* Intense itching occurs in the area where the mite burrows. The need to scratch may be stronger at night. Human scabies is most commonly spread by direct, prolonged skin-to-skin contact with a person who has scabies. Less commonly, sharing clothing, towels, or bedding used by an infected person
* Can spread within family, school class, boarding houses, prisons, and other places where people congregate

**SIGNS AND SYMPTOMS**

The most common symptoms of scabies are intense itching, especially at night, and a pimple-like skin rash. Common areas on body where symptoms occur include:

* between fingers,
* in the skin folds of the wrist, elbow, knee, or armpit, and
* on the penis, nipples, waist, buttocks, and shoulder blades.
* Infants and very young children often experience a rash on the head, face, neck, palms, and soles of the feet.



**WE SHOULD KNOW THAT:**

* Scabies is easy to treat.
* Medicated skin creams or pills kill the mites that cause scabies and their eggs. But itching may not stop for many weeks after treatment.
* Because scabies spread so easily, it is recommended to treat the entire family or any close contacts.
* Scabies is not transmitted through food, water, or by houseflies
* Scabies is not caused by Witchcraft
* Anyone can get scabies

**REFER SUSPECTED CASES TO THE NEAREST HEALTH CARE CENTRE FOR FURTHER DIAGNOSIS AND TREATMENT**

12

**WHAT TO DO WHEN YOU REFER:**

* **Complete the Community Referral Slip and give this to the patient to take to the nearest health centre.**
* **Complete the Community Register.**

**Explain to the affected person what to expect during diagnosis at the health centre:**

* The patient will be examined for scabies.
* The health worker will provide instructions for treatment
* Treatment options include an oral medication or cream to be applied on the skin

**SCHISTOSOMIASIS / BILHARZIA (ADWONSƆ MOGYAA)**

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* Schistosomiasis is a disease caused by parasitic worms. Parasites are creatures who live in or on another organism (host) and get their food from the host
* The parasites that cause schistosomiasis live in certain types of freshwater snails (Abebew).



* Schistosomiasis spreads when you come into contact with unsafe water that contains these snails and can stay in your body for years.
* The parasite can stay in urogenital areas or in your intestines.
* Anyone who swim or bath in the infected stream can get the disease

**SIGNS AND SYMPTOMS**

* Some people may have no symptoms for longer years
* Some may have skin rashes
* Others may have signs which look like malaria such as chills, body aches, abdominal pains, cough, fever.
* After sometime, there may be:
* Blood in urine
* Blood in feaces / stool

**WE SHOULD KNOW THAT:**

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* Anyone can get Bilharzia
* In areas known to have snails and parasites responsible for Bilharzia, certain activities in freshwater bodies such as pools, lakes, and rivers should be avoided.
* Do not think the water is harmless merely because others claim it is safe. It is wiser to take caution in areas where the parasite is known to exist.
* Refrain from consuming water from these sources. Whilst drinking the water itself may not directly transmit the parasites, they can penetrate the skin around your mouth.
* Abstain from bathing or swimming in these waters.
* Avoid washing clothes in these water bodies.
* Do not engage in fishing activities in these fresh water bodies.
* If you have the disease and not treated, you will suffer the consequences
* Bilharzia is not caused by witchcraft, curse, eating almond nut, or red sugar cane

1. **REFER SUSPECTED CASES TO THE NEAREST HEALTH CARE CENTRE FOR FURTHER DIAGNOSIS AND TREATMENT.**

**WHAT TO DO WHEN YOU REFER:**

* **Complete the Community Referral Slip and give this to the patient to take to the nearest health centre.**
* **Complete the Community Register.**

**Explain to the affected person what to expect during diagnosis at the health centre:**

* The patient’s urine will be examined for Bilharzia.
* The health worker will provide instructions for treatment
* You will be given an oral medication based on your height

**REFERENCES:**

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*The content of these job aids have been adapted from the WHO Manuals on Recognising neglected tropical diseases through changes on the skin: a training guide for frontline health workers, Buruli Ulcer: Pocket Book, LF Morbidity Management and Disability Prevention (MMDP) and the ILEP (International Federation of Anti-Leprosy Associations) Guide on How to Diagnose and Treat Leprosy.*

*The full guides are available here:* [**https://www**](http://www.who.int/neglected_diseases/resources/9789241513531/en/)**.who**[**.int/neglected\_diseases/resources/9**](http://www.who.int/neglected_diseases/resources/9789241513531/en/)**7892**[**41513531/en/**](http://www.who.int/neglected_diseases/resources/9789241513531/en/) **https://ilepfederation.org/wp-content/uploads/2020/02/LG1\_V2-.pdf** [**https://www**](http://www.who.int/buruli/resources/CDcommunity-EN.pdf)**.who.int/buruli/resources/CDcommunity-EN**[**.pdf**](http://www.who.int/buruli/resources/CDcommunity-EN.pdf)[**https://www**](http://www.who.int/neglected_diseases/training/Session_2.3.pdf)**.who**[**.int/neglected\_diseases/training/Session\_2.3.pdf**](http://www.who.int/neglected_diseases/training/Session_2.3.pdf)

**APPENDIX H: LINKS TO VIDEOS, VARIOUS ROLE PLAYS, AND FIELD VISIT**

**Leprosy**: https://www.youtube.com/watch?v=qGXx\_RiK6XA . This video is about volunteers examining families for signs and symptoms of leprosy. <https://www.youtube.com/watch?v=r6XESrsbtAY>. This video link focuses on the ‘;basic diagnosis of leprosy. https://www.youtube.com/watch?v=zLBZXA4L1qw. This video link is about the complications of leprosy. The fourth video link, <https://www.youtube.com/watch?v=nJH8I4VYQaE> shows the lived experiences of a cured leprosy patient in Ghana

**Buruli ulcer** videos shall include https://www.youtube.com/watch?v=W0Gu3kNE\_9c. This video link is about the lived experiences of a cured Buruli ulcer patient. The second shall be a documentary on the WHO Division for Communicable Disease Control, Prevention, and Eradication Global Buruli Ulcer Initiative.

**Schistosomiasis and lymphatic filariasis**: The main video will be a documentary on neglected tropical diseases by the Ghana Health Service. This video presents information on five NTDs: soil-transmitted helminths, lymphatic filariasis, trachoma, onchocerciasis, and schistosomiasis. The focus shall be more on lymphatic filariasis and schistosomiasis. The second video will be about the animation life cycle of schistosomiasis. Video source: https://www.youtube.com/watch?v=Qoo9T3emHIQ

**Yaws**: Only one video on yaws shall be shown. Source: https://www.youtube.com/watch?v=5jabooIVUgg. This video is in the Twi language and gives information about the clinical presentation of yaws and its treatment.

Scabies: https://www.youtube.com/watch?v=DSl3kJht69k. This video explains how scabies can be transmitted and how it cannot be transmitted, the signs and symptoms of scabies, prevention of scabies, and treatment.

**Discussion for Brainstorming**

The following points shall be used for brainstorming on the selected NTDs.

**Leprosy**

1. Myths about leprosy
2. Early signs and symptoms
3. Importance of early detection and treatment
4. Stigma reduction and community support
5. Referral pathways for suspected cases

**Yaws**

1. Symptoms
2. Transmission and prevention strategies
3. Community awareness and reporting

**Lymphedema / hydrocele**

1. Myths about the disease
2. Causes and symptoms
3. Access to health care and support

**Buruli ulcer**

1. Myths about Buruli ulcer
2. Early signs
3. Importance of early detection and prevention
4. Community awareness

**Scabies and Schistosomiasis**

1. Signs and symptoms
2. Transmission
3. Importance of early diagnosis and treatment
4. Preventive strategies

**Role Plays**

Roles plays shall be enacted to improve positive attitude of the volunteers towards NTDs detection and referral (Brzykcy et al., 2009). The role plays shall enhance the volunteers understanding of what is expected from them (Krentel et al., 2017). It will also motivate them, enhance empathy, enhance their internalization of what they have learned (Owusu et al., 2023). The following shall be the suggested role plays on the NTDs to be discussed:

**Leprosy**: A community member, Mr. T, with three skin patches on his face approaches a community volunteer, Mr Atta. He tells the volunteer myths about his condition. The volunteer listened attentively. The volunteer asked few questions about how the skin lesion appeared and how long it has been on his face. He inquired about skin patches on other parts of his body. He finds out if he has been to any health facility with his condition. He again found out if he has used any medication or taken the condition to any traditional healer or herbalist. He then educates Mr. T about leprosy, early signs, possible transmission, the need for early treatment. He assures Mr.T that his condition is treatable and addresses his fear of stigma. Mr. Atta later involved a family member, upon permission from Mr. T.

**Yaws awareness and case reporting**: A community member complains about an ulcer on the right leg of his 10-year old boy. Upon questioning, you realized that there are others in the home who have similar clinical features. You decided to visit the home of the boy with suspected yaws. You educated the household about yaws, the transmission, prevention, and importance of early reporting. You encourage them to report cases to you as early as possible. You went through the referral processes.

**Lymphedema**: A volunteer kindly approached a community member who has suspected lymphedema. He discusses with him the possibility of lymphedema. He allays his fears and stigma. He educated him on the importance of early reporting. He referred him to the nearest health facility, the Oyinka CHPS compound.

**Buruli ulcer:** A volunteer identifies Mr. Q with a painless nodule on the right hand. The volunteer gently approached him. He educated Mr.Q about the painless nodule and referred him to the Onipa Nua CHPS compound.

**Scabies**: A volunteer visits a home and realize the whole family has itchy body rashes. He suspected scabies. He educated them on signs and symptoms and importance of early reporting. He referred the entire family to the Sikapa Health Center.

**Schistosomiasis:** The chief of Oboba community mentioned that, once you turn 13, you must have bloody urine as a sign of maturity. You explained to the chief the signs and symptoms of schistosomiasis, importance of early reporting, and addressed all myths about schistosomiasis.

**Field Work**

Field work practice in volunteer training is very important in bridging the theoretical and practical knowledge gap (Brzykcy et al., 2009; Hirsch & Paczyńska, 2024). The volunteers will be assigned to teams comprising two members for the fieldwork. Each team shall be assigned territories in the subdistrict where the training is being held. To promote the recognition of NTDs in various communities, each member shall wear a T-shirt with pictures of lymphedema and Buruli ulcer on the back and Yaws and leprosy on the front. Additionally, photos of these diseases shall be printed on both the front and back pages of an A3 sheet, laminated, and used as tags. The inscription to be written on the paper shall be: “Have you seen it? Report to me”. In addition to the resources, each trainee shall be given a prepared complimentary card. These cards, which bear the mobile phone numbers of the volunteers, will be given out to household heads in their respective communities so they can call and alert the volunteer of any suspected NTD. In addition, each volunteer shall be given copies of a leaflet containing information about the NTDs. This leaflet will be distributed to households they will visit (Bonney, 2016). This will facilitate early notification of any of the NTDs to the community volunteer (Moore & Barnett, 2019). The volunteers shall have their data-capturing and referral forms. Each volunteer shall be given rubber envelop bag containing pen, pencils, and erasers and all forms required. The fieldwork will last for not more than 1-hour. Field experiences and recommendations will be discussed after the visit.

**APPENDIX I: CBSV DATA FOR EASTERN REGION, 2022**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| S/N |  | | | |
| Reporting District | Female | Male | Total |
| 1 | Abuakwa North | 4 | 13 | 17 |
| 2 | Abuakwa South | 22 | 39 | 61 |
| 3 | Achiase | 15 | 39 | 54 |
| 4 | Akwapim North | 33 | 40 | 20 |
| 5 | Akwapim South | 18 | 13 | 31 |
| 6 | Akyemansa | 8 | 73 | 81 |
| 7 | Asene Manso Akroso | 14 | 52 | 66 |
| 8 | Asuogyaman | 13 | 33 | 46 |
| 9 | Atiwa East | 17 | 33 | 50 |
| 10 | Atiwa West | 12 | 17 | 29 |
| 11 | Ayensuano | 22 | 81 | 103 |
| 12 | Birim Central | 16 | 21 | 37 |
| 13 | Birim North | 42 | 57 | 99 |
| 14 | Birim South | 11 | 44 | 55 |
| 15 | Denkyembour | 20 | 29 | 31 |
| 16 | Fanteakwa North | 15 | 78 | 93 |
| 17 | Fanteakwa South | 22 | 29 | 51 |
| 18 | Kwaebibirem | 12 | 31 | 43 |
| 19 | Kwahu Afram Plains South | 17 | 98 | 115 |
| 20 | Kwahu East | 28 | 67 | 95 |
| 21 | Kwahu North Afram Plains North | 59 | 108 | 167 |
| 22 | kwahu south | 10 | 42 | 32 |
| 23 | Kwahu West | 25 | 32 | 57 |
| 24 | Lower Manya Krobo | 49 | 48 | 97 |
| 25 | New Juaben North | 10 | 13 | 24 |
| 26 | New Juaben South | 23 | 27 | 50 |
| 27 | Nsawam Adoagyiri | 27 | 27 | 54 |
| 28 | Okere | 21 | 33 | 54 |
| 29 | Suhum | 17 | 147 | 164 |
| 30 | Upper Manya Krobo | 39 | 140 | 179 |
| 31 | Upper West Akim | 13 | 46 | 59 |
| 32 | West Akim | 13 | 49 | 62 |
| 33 | Yilo Krobo | 8 | 95 | 103 |
| **34** | **Eastern** | **675** | **1,696** | **2,371** |
|  |  |  |  |  |

# APPENDIX J : PROPOSED BUDGET

**Budget**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Category** | **Item** | **Quantity** | **Unit\_Cost (GHc)** | **Total\_Cost (GHc)** | **Justification** |
| Personnel | Lead Researcher (monthly activities) | 12 | 200 | 2400 | Overall project supervision, coordination, and quality assurance of research activities |
| Personnel | Regional Health Promotion Officer (6 days/month) | 6 | 200 | 1,200 | Leads health promotion training and community engagement activities |
| Personnel | Regional Disease Surveillance Officer (6 days/month) | 6 | 200 | 1,200 | Coordinates disease surveillance and reporting systems across the region |
| Personnel | Regional Focal Person for NTDs (6 days/month) | 6 | 200 | 1,200 | Ensures integration with existing NTD programs and protocols |
| Personnel | District Disease Surveillance Officers (4 from the intervention districts) | 12 | 200 | 2,400 | Conduct surveillance activities and data collection at district level. Each will support training activities |
| Personnel | Research Assistants (4) | 8 | 200 | 1,600 | Primary data collectors and field implementation team |
| TOTAL FOR PERSONNEL | | | | **10,000** |  |
| Training Materials | Notebooks (50 pages) | 153 | 10 | 1,530 | Essential for participants to take notes during training sessions |
| Training Materials | Pens (Blue) | 153 | 1 | 153 | Required for completing forms and taking notes |
| Training Materials | Folders | 153 | 10 | 1,530 | Organization and storage of training materials and handouts |
| Training Materials | Flip Charts | 4 | 100 | 400 | Visual aid for effective training delivery |
| Training Materials | Markers (Pack of 12) | 10 | 20 | 200 | Required for writing on flip charts during presentations |
| Training Materials | Handouts/Printouts | 153 | 30 | 4,590 | Reference materials for participants during and after training |
| Training Materials | Name Tags | 153 | 20 | 3,060 | Identification and security during training sessions |
| Training Materials | Venue Rental | 12 | 200 | 2,400 | Space for conducting training sessions |
| Training Materials | Water (500ml) | 672 | 3 | 2,016 | Hydration for participants during training sessions |
| Training Materials | Snacks/Refreshments | 153 | 15 | 2,295 | Maintain participant engagement during long sessions |
| Training Materials | Document Translation from English to Twi language | 1 | 2000 | 2,000 | Ensure materials are accessible in local languages |
| TRAINING MATERIALS TOTAL | | | | **20,174** |  |
| Data Collection | Questionnaire design for Kobo Collect | 1 | 1000 | 1,000 | Enable electronic data collection |
| Data Collection | Health Facility Forms | 50 | 3 | 150 | Specific forms for health facility data collection |
| Data Collection | Consent Forms | 153 | 1 | 153 | Ethical requirement for research participation |
| Data Collection | Rain Coats | 8 | 100 | 800 | Protection during adverse weather conditions |
| Data Collection | Field ID Cards | 8 | 30 | 240 | Official identification for field staff |
| DATA COLLECTION TOTAL | | | | **2,343** |  |
| Field Work | T-shirts with NTD images | 153 | 50 | 7,650 | Team identification and project visibility |
| Field Work | Caps with Project Logo | 153 | 20 | 3,060 | Field team identification and sun protection |
| Field Work | Field Notebooks | 153 | 15 | 2,295 | Recording field observations and notes |
| Field Work | Pens and Pencils | 306 | 5 | 1,530 | Essential tools for field documentation |
| Field Work | Community Entry Protocols | 8 | 400 | 3,200 | Standardized procedures for community engagement |
| Field Work | Information Leaflets | 500 | 20 | 10,000 | Community education and awareness materials |
| Field Work | Educational Posters | 200 | 20 | 4,000 | Visual aids for community education |
| Field Work | Community Announcements | 12 | 100 | 1,200 | Community mobilization and engagement |
| Field Work | Community Volunteer Allowance | 153 | 200 | 30,600 | Support for community-based activities |
| FIELD WORK TOTAL | | | | **63,535** |  |
| Miscellaneous | Field Team Transport (4 teams) | 56 | 20 | 1,120 | Transportation to field sites for data collection |
| Miscellaneous | Supervisor Monitoring Visits | 12 | 300 | 3,600 | Quality assurance and supervision |
| Miscellaneous | Community Entry Visits | 12 | 100 | 1,200 | Initial community engagement and permissions |
| Miscellaneous | Emergency Transport Fund | 3 | 300 | 900 | Handle unexpected transportation needs |
| Miscellaneous | Airtime for Field Teams | 8 | 100 | 800 | Communication between field teams |
| Miscellaneous | Internet Data for Tablets | 8 | 300 | 2,400 | Data upload and communication |
| Miscellaneous | Office Supplies | 4 | 300 | 1,200 | Administrative support materials |
| Miscellaneous | Printing and Photocopying | 100 | 1 | 100 | Documentation and reporting |
| Miscellaneous | Report Production | 2 | 1000 | 2,000 | Final project documentation |
| MISCILLANEOUS TOTAL | | | | **13,320** |  |
| **GRAND TOTAL** | | | | **109,372** |  |

# APPENDIX K : TIMELINES OF ACTIVITIES

