

**SCHOOL OF PUBLIC HEALTH
COLLEGE OF HEALTH SCIENCES
UNIVERSITY OF GHANA, LEGON**



**PROCESS EVALUATION OF THE HOSPITAL BASED COMMUNITY EYE HEALTH
PROGRAMME IN MFANTSEMAN MUNICIPALITY BY OPERATION EYESIGHT
UNIVERSAL**

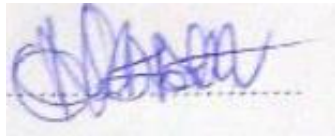
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**THIS DISSERTATION IS SUBMITTED TO THE UNIVERSITY OF GHANA, LEGON
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DEGREE**

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DECLARATION

I Ebenezer Obour, declare that this work is the results of my own investigation under the supervision of Dr. Seth K. Afagbedzi. All secondary sources in the list of references have been duly acknowledged and no part whatsoever has been presented to any other Institution for the award of degree.



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DEDICATION

This piece is dedicated to the Almighty God whose grace has always been sufficient for me in all my weaknesses.

ACKNOWLEDGEMENT

My utmost gratitude goes to the Almighty God whose Infinite Love and Grace has kept me through all these years of studies. It is in Him I live, move and have my being. His grace has indeed been sufficient and His strength has been made perfect all my weaknesses.

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ABSTRACT

Background: Visual impairment can negatively impact every aspect of the life of an individual. Globally, the prevalence of visual impairment is estimated to be 285 million, of which 39 million are blind. Adequate knowledge on eye care by primary health workers is very essential in integrating primary eye care services into public health care practices. This study describes the evaluation features and results of the Hospital Based Community Eye Health Programme (HBCEHP) in Mfantseman Municipality.

Objective: The study aimed at determining whether the HBCEHP was implemented as planned and the moderating factors influencing its implementation in the Mfantseman Municipality.

Method: The study used a cross-sectional study design. Medical Research Council framework was used to examine the Primary Eye Care (PEC) implementation and to identify enablers and barriers to the implementation. The process evaluation used mixed methods research approach to draw results from several sources including a survey on 29 Community Health Workers (CHWs), review of program's documents and in-depth interviews with 12 key stakeholders.

Results: The fidelity of implementation of the HBCEHP is estimated to be 73.12%. Evaluation data of the programme indicates that; since 2017, about 28,306 eye screening and 2,132 surgeries, and other forms treatment has been performed through the HBCEHP. So far, 36 CHWs have been trained on PEC. The barriers to implementation among many other health system challenges were poor sense ownership by the CHWs and occasional delays in the payment of allowances of CHWs.

Conclusion: The fidelity of implementation of the HBCEHP in Mfantseman Municipality is rated above average with a score of 73.12%. However, key lesson from the process evaluation is that; there is the need to strengthen the existing health system practices within the Municipality.

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LIST OF ABBREVIATIONS

CH	Child Health
CHPS	Community-based Health Planning and Services
CHO's	Community Health Officers
CHVs	Community Health Volunteers
CHW's	Community Health workers
DHMT	District Health Management Team
GAP	Global Action Plan
GHS	Ghana Health Service
LMICs	Lower Middle Income Countries
MCH	Maternal and Child Health
HBCEHP	Hospital Based Community Eye Health Program
OEU	Operation Eyesight Universal
PEC	Primary Eye Care
PHC	Primary Health Care
PHFs	Primary Health Facilities
PHWs	Primary Health Workers
MIS	Management Information System
MoH	Ministry of Health
MRC	Medical Research Council
NHIS	National Health Insurance Scheme
SSA	Sub-Saharan Africa
VA	Visual Acuity

CHAPTER 1

1.0 INTRODUCTION

1.1 Background

Visual impairment can negatively impact every aspect of the life of an individual. (Berhane, Y., Worku, Bejiga, Adamu, Alemayehu, Bedri... & Kebede, 2007). Globally, the prevalence of visual impairment is estimated to be 285 million; of which 39 million are blind and about 10-20% can be checked from further deteriorating, provided they are treated on time (Jolley, Mafwiri, Hunter, & Schmidt, 2017). According to Jolley, Mafwiri & Schmidt (2017), an alarming rate of 90% of all these cases of visual impairment are found in lower- middle income countries which include most African countries. In 2010, there were an estimated 4.8 million blind people, and 16.6 million people with moderate and severe visual impairment in sub-Saharan Africa (SSA) (Naidoo, Gichuhi, Basáñez, Flaxman, Jonas, Keeffe ... & Turner, 2014). Strangely, about 80% of these cases are preventable (Blanchet, Gilbert, & De Savigny, 2014).

According to Kumah, Boateng, & Baffoe (2017), the prevalence of blindness and severe visual impairment in Ghana was 0.74% and 1.07% respectively, with cataract, glaucoma and uncorrected refractive error being the major causes. This implies that using an estimated population of 27.4 million, there are 200,000 blind persons and 290,000 severe visually impaired persons in Ghana (Fosu, 2015). In Ghana, the prevalence of blindness increases with age from 0.22 percent of persons in the age group 30-39 to 19.12 percent among those who were 80 years or older (Wiafe & Universal, 2015).

Availability, affordability and accessibility of eye care services has been known to be the primary factors which influences the prevention of visual impairment worldwide (Ntsoane & Oduntan,

2010). Access to eye care services varies from across different countries in the world. The ratio of eye care providers per million population in the developed countries may be nine times more in the under developed countries (Hong et al., 2016). According to Ntsoane and Oduntan (2010), even in areas of accessibility, there are several indirect factors such as demographic, personal and socio-economic factors which may act as obstacles to the use of eye care services. In Ghana, majority of our eye care services are the private ones concentrated in our cities making accessibility extremely difficult for people living in deprived communities (Dussault & Franceschini, 2006).

The concept of primary eye care (PEC) has changed in the last 30 years (Courtright, Murenzi, Mathenge, Munana, & Müller, 2010). The authors recalled that originally, PEC referred to preventive services, primarily vitamin A capsule supplementation and measles immunization for prevention of vitamin A-related corneal disease in children, and promotion of clean faces and good hygiene to prevent transmission of trachoma. Previously, ophthalmic nurses were expected to be the main providers of the diagnostic and therapeutic PEC services in rural Africa. (Courtright et al., 2010). According to Kalua et al., (2014) currently, there have been efforts to include diagnostic and therapeutic eye care services by general practitioners at frontline health facilities in Africa.

At the district levels in Ghana, eye care services are performed by ophthalmic nurses, optometrists and in few instances by visiting ophthalmologists (Ebri & Govender, 2017). According to Ebri & Govender (2017), PHC centres and CHPS compounds have no eye care service delivery apart from outreaches occasionally organized by ophthalmic nurses in districts. One solution put forward to improve the access of eye health services for people in Sub-Saharan Africa (SSA) is to integrate eye health into existing PHC services. This will ensure that the delivery of PEC services is closer to communities, and enhance information flow as well as speed up the referral of eye health

problems or treat them where possible (Rao, 2015). The inclusion of PEC as a strategy in managing the SSA eye disease burden, alongside the well-publicised strengthening of general primary health systems throughout the continent, has led to an increasing number of primary eye care initiatives throughout the continent (Du Toit et al., 2013).

There is therefore the need for all-inclusive PEC approach that targets not just the medical causes but also the socio-economic causes of avoidable blindness. (WHO, 2017). The HBCEHP is a PEC model that has demonstrated to be both practical in eliminating avoidable blindness as well as replicable. (Bhoosnurmath, 2017). Operation Eyesight Universal (OEU) an NGO into eye care after successful implementation the HBCEHP in Southern India introduced the same model in Mfantseman Municipality in 2017 (Eyesight, 2018). The concept of the programme is based on the idea that by empowering people living in the service area of the hospital with knowledge on eye health and improving their eye health-seeking behaviour, while continuing to deliver quality eye care services, hospitals could profoundly contribute to the eradication of preventable blindness on a sustainable basis (Bhoosnurmath, 2017).

The multi-year HBCEHP which started in Mfantseman Municipality in 2017 aimed at increasing the eye health seeking behaviour of the people and thereby reducing the prevalence of avoidable blindness in Mfantseman Municipality (Eyesight, 2018). Just like the model HBCEHP in Southern India, the intervention theory was the improvement in eye care infrastructure at the Saltpond Municipal hospital and to build the capacity of CHWs in PEC. This seeks to trigger improvement in community eye care services by the CHWs and secondary eye care services delivery at the Saltpond Municipal Hospital (Eyesight, 2018 & Bhoosnurmath, 2017). Similar to other PEC interventions, the evidence surrounding the effectiveness of PEC programmes in dealing with eye

diseases remain weak as few PEC initiatives have been well documented, and fewer still have been thoroughly evaluated (Du Toit et al., 2013).

1.2 Problem Statement

Since the introduction of the HBCEHP in the Mfantseman Municipality in 2017, there are no records indicating any form of evaluation of the intervention (Programme's coordinator, personal communication). However, as part of strategies for the implementation of HBCEHP, OEU planned of conducting a concurrent evaluation in the third year of programme implementation besides a post project implementation evaluation. Not only do best practices require that programme implementation are monitored and evaluated for control but also stakeholders require transparency, accountability for resource use, good project performance and organisational learning.

Generally, there are several factors that may inhibit effective evaluation of projects done by NGOs. The challenges may emanate from time limitations, limited financial resources and limited skills and difficulties in incorporating qualitative performance indicators into the assessment (Leroy & Crabb, 2012). Linderman, Schroeder, Zaheer, and Choo (2003) on the other hand have reported on the unavailability of quantitative data, setting of unclear objectives against which it is difficult to measure its degree of attainment are some of the challenges with evaluation among NGOs. Davies (2001) also outlines basic challenges with evaluation, including the tendency of NGOs to set overly ambitious objectives, meaning outcomes seldom meet initial high expectations even if tangible impact has been achieved, inadequate monitoring tools and frameworks for evaluation, lack of information relating to what standard good practice looks like and the complexity of certain projects with variety of activities that must be factored into an assessment.

There are several factors in Mfantseman Municipality that may influence the implementation of the HBCEHP. Without process evaluation, background factors that may impact on the intervention implementation; which is important in considering whether or not the intervention can be translated to other contexts may not be identified.

Process evaluation does not only give idea of how implementation was done but also why and how outcomes were achieved (Carroll et al., 2007). How different structures and resources were used, the role, participation and reasoning of different actors, background factors, and how all these might have impacted the outcomes becomes nearly impossible without process evaluation (Pahl-Wostl, 2009).

With Limbani et al. (2019), reporting of increased importance of process evaluation in recent times and it being the explicit criteria for funding for some NGOs, the need for process evaluation of the HBCEHP is even more crucial. The study therefore sought to assess the implementation of the HBCEHP and the contextual factors that are moderating its implementation in the Municipality.

1.4 Justification

It is very essential that OEU and the MHMT get firsthand information on the implementation status of the programme. A well-functioning, integrated, replicable and a sustainable HBCEHP will therefore play a very key role in ensuring universal eye health coverage in Ghana.

The successful implementation of the programme strategies is key to the achievement of the intended outcomes (Grol, 2001). Programmes with sound theory-based are even likely to fail if the interventions are not implemented as designed (Glasgow & Linnan, 2008). Conducting a process evaluation will therefore inform the implementers of the programme in a timely manner and the implementation fidelity with its design. In the long term, process evaluation will therefore provide

information on why and how the results were achieved. In the absence of outcome evaluation, it will inform implementers whether any outcome can be attributable to the programme. Process evaluation of the programme will therefore add to the knowledge on the best ways of implementing community based eye health interventions in Ghana since the health system issues in the municipality are not much different from the general issues in Ghana health service units.

It is also essential to identify moderators to the implementation of the programme in the municipality. This will inform key stakeholders such as OEU, CHWs and the MHMT for early correction. Lessons on best practices can also be applied to similar projects in the future.

More importantly, it is essential that OEU identifies how well they are progressing towards the achievement of their set goals. The status of implementation fidelity will therefore serve as a guide. With this, the MHMT will also be able to learn from the information and device best practices of implementation for the other PHC interventions in the municipality.

1.5 Research Questions

1. Is the programme implemented as designed?
2. What are the factors facilitating the implementation of the intervention in the Municipality?
3. What are the barriers to the implementation of the program in the municipality?

1.6 General Objective

The aim of the study is to assess the fidelity of implementation of the HBCEHP.

Specific Objectives

The specific objectives of the study will be:

1. To assess whether the programme is being implemented as designed.

2. To identify factors facilitating the implementation of the programme in the Municipality
3. To identify the barriers to the implementation of the programme in the municipality

CHAPTER 2

2.0 LITERATURE REVIEW

2.1 Introduction

This chapter presents the review of studies that are related to this study topic. This review seeks to throw more light on the concept of primary eye care, its challenges and outcomes of successful implementation in other countries.

2.2 The Concept of Primary Eye Care

Primary eye care is defined as a frontline activity, providing care and identifying disease before it becomes a severe medical issue (Murphy & Rahman, 2009). This can be delivered through eye health education, symptom identification and providing services to redress ocular morbidity. This means that the concept of PEC is promotive, preventive and curative. Eye health education at the community level, identification of signs and symptoms of eye conditions and management and referral of detected conditions forms the core activities of PEC. When well implemented the treatment of simple diseases in primary health facilities (PHFs) will free up the time of specialist staff at referral centres. This will enable specialist to concentrate on more complex cases. Its benefit to patients would include less time and money since most of the facilities are closer to the communities. If PEC is well implemented, there is the expectation that it would play a significant role in reducing visual impairment since most cases will be detected in a timely manner and treatment protocols will be well followed. Another potential benefit is that locally available services for eye care may reduce the use of harmful traditional eye remedies and inappropriate treatment obtained from unqualified informal drug sellers (Murphy & Rahman, 2009).

2.3 Historical Perspective of Primary Eye Care

The Declaration of Alma-Ata in 1978 proposed the concept of PHC more than thirty years ago. This was aimed at improving equality in access to health care and efficiency in the use of resources (WHO, 2018). At the 66th world health assembly of WHO, the GAP for the prevention of avoidable blindness and visual impairment 2014-2019 was unanimously approved (WHO, 2016). This document was considered the most strategic document for eye health and seeks to improve the eye health for everyone in the next 5 years (WHO, 2014). The global eye health action plan is built using the health system approach, which encompasses the integration of eye care programmes into the wider health care system at all levels of health care (WHO, 2010). For this approach to be effective, there should be integration at various levels, effective referral system (Courtright et al., 2010).

2.4 Integrating Primary Eye Care in Primary Health Care

According to Courtright et al., (2010), integrating PEC into PHC will be one of the sure ways of solving the problems of accessibility and availability with respect to eye care in Africa. Eye care service delivery in most developing countries focuses on the provision of curative care at the secondary and tertiary levels of the health system (Du Toit et al, 2013). This approach may lead to inequity in access, greater costs for patients and lack of effective interventions for prevention. Murthy & Raman (2009) recommended that; creating an integrated and comprehensive health services and sharing of resources and infrastructure should be facilitated by incorporating eye health in the broader inter-sectoral development. In WHO's global action plan for the prevention of avoidable blindness, it was reported that in countries where prevention of blindness was integrated into the broader health development plans and socioeconomic development programmes an added value was recorded (WHO, 2010).

However, in most Lower Middle Income Countries (LMICs), PEC is not fully integrated into their PHC systems (Murthy & Raman, 2009; Veillard, Cowling, Bitton, Ratcliffe, Kimball, Barkley, ... & Wang, 2017). In Kenya for instance, PEC is integrated at all levels of health care through the coordinated efforts of the Department of Prevention and Promotion of Health but in Mali and Zimbabwe, the training of PEC workers is done in a cascading manner, while in Zambia, training is done at the national level (Murthy & Raman, 2009; Griffiths, Bozzani, Muleya, & Mumba, 2015). In 2017, a feasibility assessment was done in Ghana to study the country's potential and capacity to integrate PEC into existing PHC (Ebri & Govender, 2017). This was done to utilize the available information on human resources, materials, nurses training, staff development and systems. The team of experts concluded that just as the Rwandan PEC integration was countrywide, a national model may not be replicable in Ghana for its size. Available personnel and NGO activities make the potential for PEC integration in Ghana also feasible (Du Toit et al., 2013; Cicinelli, Marmamula & Khanna, 2020; Ebri & Govender, 2017). They recommended some modifications in strategies with consideration to the political will, manpower management, supplies of PEC workers, budgets, materials to conduct PEC training and monitor impact in communities (Ebri & Govender, 2017).

2.5 Primary Eye Care in Ghana

Eye care services in Ghana is provided by the tertiary, secondary and primary health centres (Ebri & Govender, 2017). Both private and public health facilities are directly involved in the eye care service provision (Ntim-Amponsah, Amoaku & Ofoosu-Amaah, 2005). According to Ebri & Govender (2017), eye care service providers are mostly concentrated in the cities. The district eye units are the backbone of the eye health services in Ghana with full coverage of districts by ophthalmic nurses. (Blanchet & James 2014). Most of the district hospitals have at least one trained

ophthalmic nurse who provides eye care services but are mostly poorly equipped (Du Toit et al., 2013). To reduce barriers to accessing health care, the Ministry of Health (MoH) and the Ghana Health Service (GHS) adopted the Community-based Health Planning and Services (CHPS) system as a national health policy (Nyonator, Awoonor-Williams, Phillips, Jones & Miller, 2005). The CHPS is operated by Community Health Officers (CHOs). The service package for CHOs is focused mainly on maternal and reproductive health (MRH), child health (CH), treatment of minor illnesses, health education and the follow-up of defaulters and discharged patients but not PEC (GHS, 2016).

Gyasi (2006) reported that, avoidable visual impairment due to cataract, glaucoma, refractive errors including presbyopia and increasingly diabetic retinopathy and pterygium is still a national problem. Even though the National Health Insurance Scheme (NHIS) is covering almost all eye care services, at the population level, uptake of eye health services remains low (Odeyemi & Nixon 2013). At the community level, herbalists and chemical sellers have also been reported providing substantive eye care along the regular hospital services (Ntim-Amponsah, Amoaku, & Ofoosu-Amaah, 2006).

2.6 Knowledge on Eye Care among Primary Health Care Professionals

A cross sectional mixed method study was conducted among health workers employed in the public sector in the northern Nigeria. The study was to assess the knowledge and practice of these workers on primary eye care. Out of the 88 workers who participated in the questionnaire, 16 of them were selected for the qualitative survey. At the end of the study, a good score was obtained by 68.7% of the participants with 26.4% of them who could not obtain most features. Participants could undertake 3 out of 5 steps in visual acuity testing. Skills in recognising common eye diseases

were weak; while practice was often reported not to be according to the guidelines. The study concluded that even though the participants showed good knowledge, areas of weakness were recognition and interpretation of eye signs, and practice which rarely follows the guidelines. They therefore recommended that the participants require practical retraining and supervision to achieve integration of primary eye care into primary healthcare services (Abdul Rahman et al, 2015).

A cross sectional study was conducted in Ghana among 273 registered midwives across the country to assess their knowledge, attitude and practices regarding the use of ophthalmic medications among pregnant women. The results indicated that 56.8% of midwives had low knowledge on eye care medication use and 60.4% scored below average on their practice regarding eye care medication use among pregnant women. The study discovered that midwives had low knowledge on eye care medications and for that matter, their practice of ophthalmic medication use in pregnancy was unsatisfactory. This had influenced their indifferent attitude towards the administration of eye care medications despite receiving complaints of ocular symptoms and subsequent diagnosis (Kyei, Otoo, Abu, & Ofori, 2018).

2.7 Training of Primary Health Care Professionals on Primary Eye Care

In 2010, the Rwandan government launched a comprehensive PEC program with the support of the organisation called Vision for a Nation (Binagwaho et al., 2020). According to (Binagwaho et al., (2020), the programme included creating a permanent primary eye care curriculum at all eight nursing schools in Rwanda, educating 1250 existing health centre nurses in primary eye care services and improving referral guidance. Up to date, the programme has administered approximately 200,000 vision assessments nationally and created a sustainable nationwide supply chain for eye glasses. Similarly, in Tanzania, a pilot project was carried on 15 clinical officers and nurses from reproductive and child's health clinics. They were randomly selected and trained on

PEC in 2010. Three weeks after the training, Vitamin A supplementation increased from 83% to 100% and one year after the training the participants could easily describe, diagnose and treat allergic conjunctivitis (Mafwiri, Kisenge, & Gilbert, 2014).

In 2012, Sightsavers, an NGO, supported the implementation of PEC project in six districts in Ghana. The initiative started in two districts; Akwapem North and West Akim districts. After two (2) years of successful piloting, four additional districts were included in 2014; Fanteakwa, Kwahu West, Lower Manya-Krobo and Denkyemba Districts. In all, about 307 CHWs were given training in basic eye care in the six districts. In addition, 172 Community Health Volunteers (CHV's) were also trained to support the nurses in the implementation of the integrated eye care at the community level. Their main role was to identify cases and refer them to the clinics (Ebri & Govender, 2017).

2.8 Community Based Eye Health Programmes

If PHWs are equipped with sufficient training in primary eye care, they can treat basic eye conditions within the community itself, reducing the need for patients to travel to hospitals (Mafwiri, Jolley, Hunter, & Schmidt 2017). This will ensure that more complicated or advanced conditions are referred promptly to the appropriate service provider, ensuring swift treatment and reducing avoidable blindness. Even though historically, Sri Lanka has a well-established PHC system with PHC workers regularly visiting local houses to provide advice and referrals on maternal and child health and immunization, until recently, the capacity of PHC workers to address eye care issues has been limited (Flaherty, 2008). After the PHWs received their training, they were able to organized eye clinics in the premises of existing health and maternity clinics run by the city council via their health management division. According to Bush (2010), the inclusion of

PEC services within these clinics has improved access to eye care for the poorer slum communities that they cover and promoted the sustainable integration of eye care services in the PHC system.

The Gambia had eye care services accessible to about 80 percent of the population, however, despite these achievements some poorer communities do not access services because they are either not aware that they are available or because they cannot afford the cost of treatment (Bush, 2010; Dineen, Foster & Faal, 2006). This prompted the National Eye Care Plan (NECP) to develop a more community-directed approach to the provision of eye care services. This led to the development of the 'nyatero' concept (Dial, Ceesay, Gosling, D'Alessandro, & Baltzel., 2014). With this concept, communities identify members who can be responsible for eye care services within that community. Each nyatero, or friend of the eye, is identified by members of his or her community and trained by the community ophthalmic nurse covering that district. They are then responsible for identifying eye health problems within the community, referring people to the next level, and raising awareness about good eye health practices and the types of services available. According to (Bush, 2010), since the implementation of the nyatero concept, the country has seen a drastic decline in the number of complications due to traditional eye practices and a reduction in patients presenting at the clinics with advanced eye conditions. Awareness of eye health issues within the community has also increased.

Poor eye health-seeking behaviour usually as a result of inadequate knowledge of eye diseases, harmful cultural beliefs and practices, eye problems viewed as low priority, gender discrimination, lack of affordability and poor mobility amongst the elderly (Bhoosnurmath, 2017). Through a pilot project implemented by OEU from 2009 to 2013 in southern India, it was revealed that, by empowering people living in the service area of the hospital and improving their eye health-seeking behaviour, while continuing to deliver quality eye care services, hospitals could

significantly contribute to the elimination of avoidable blindness on a sustainable basis (Eyesight, 2018). This insight from the piloted project led to the development and successful scale up of a model named Hospital-Based Community Eye Health Programme in Ghana.

2.9 Fidelity of Implementation of Interventions

Implementation fidelity is the degree to which programmes are implemented as intended by the implementers (Perez et al., 2015). It acts as a potential moderator of the relationship between interventions and their intended outcomes (Hagger & Luszczynska 2014). Perhaps this is one of the principal reasons why implementation fidelity needs to be measured. It has been demonstrated that the fidelity with which an intervention is implemented affects how well it succeeds (Carroll et al., 2017). Lack of implementation fidelity can weaken outcomes, leading to faulty conclusions about intervention effectiveness. Because they can cause potentially useful interventions to appear ineffective, failures in implementation fidelity have been identified as type III errors (Dobson & Singer, 2005 & Breitenstein et al., 2010).

For these reasons, Carroll et al., (2017) recommend that primary research into interventions and their outcomes should therefore involve an evaluation of implementation fidelity if the true effect of the intervention is to be realised. Fidelity of implementation is therefore not only important because it moderates the relationship between an intervention and its outcomes, but its assessment may also prevent potentially false conclusions from being drawn about an intervention's effectiveness.

Within the conceptualization of implementation fidelity, adherence is defined as whether "an intervention is being delivered as it was designed or written" (Breitenstein et al., 2010; Mihalic 2004). Dosage refers to "the amount of an intervention received by participants" (Mihalic, 2004).

Reach refers to “whether all the people who should be participating in or receiving the benefits of an intervention actually do so” (Carroll et al., 2017). Quality of delivery is defined as "the manner in which a teacher, volunteer, or staff member delivers a program" (Mihalic, 2004).

According Carroll et al., 2010, adherence is essentially the bottom-line measurement of implementation fidelity and as such if implemented intervention adheres completely to the content, frequency, duration, and coverage prescribed by its designers, then fidelity can be said to be high. However, Breitenstein et al., (2010) stated that the measure of fidelity of implementation should assess not only adherence to these core components but also the competence with which the practitioner delivers these core components

2.10 Factors Facilitating Implementation of Eye Health Interventions

Context provides a snapshot of the larger physical, social, and political environment that may directly or indirectly influence the implementation a programme (Matias & Dewey, 2017). As explained by Matias and Dewey (2017), these factors can be facilitating factors or impediments to optimal delivery and uptake of the intervention. There are at least 23 contextual factors that can influence program implementation (Durlak & DuPre, 2008). As explained by Durlak & Dupre (2008), the implementation process is affected by variables related to communities, providers and innovations, and aspects of the prevention delivery system. Comprehensiveness of policy description, strategies to facilitate implementation, quality of delivery and participant’s responsiveness have been identified as key moderators to implementation fidelity (Carroll et al., 2007). Process evaluation of PEC implementation in Rwanda identified WHO health system building blocks as the key contextual factors that affect access to PEC health services (Yip et al., 2018). According to Yip et al., (2018), contextual factors which influence implementation of PEC are leadership and governance, service delivery, health information, finance, human resource and

medical products and technologies. Bragstad et al., (2019) also identified participant's responsiveness, context, quality of delivery, recruitment, strategies to facilitate implementation and comprehensiveness of policy description as the key moderators to the programme implementations of complex health interventions.

2.11 Barriers to Hospital Based Community Eye Health Interventions

One of the ways to improve eye health at the community level is to understand the potential barriers to uptake of services (Hublely & Gilbert, 2006; Mactaggart, 2014). There are many reasons why communities may not use eye health services, even when they are available. The barriers will vary from community to community and will require different solutions, depending on circumstances and what resources you have available (Saraceno, van Ommeren, Batniji, Cohen, Gureje, Mahoney & Underhill 2007). The ways of overcoming these barriers, and improving the community's eye health, should be found in partnership with the local community (Shortell, Zukoski, Alexander, Bazzoli, Conrad... & Margolin, 2002; Mactaggart, 2014). Showing respect for the community and involving them in both the design and the implementation of services is crucial to any programme's success (Tontisirin & Gillepsie (1999). Evidence also suggests that underutilization of eye health services is aggravated by both poverty (Jaggernath, Øverland, Ramson, Kovai, Chan & Naidoo, 2014). Barriers identified by Mactaggart (2014) included; poor promotion of eye care services, poor uptake of eye care services due to insufficient counselling of patients and information gaps about causes and/or treatment options which can lead to poor uptake of treatment. The other barriers he identified included; traditional beliefs and stigma about the causes of and treatments for particular eye conditions, unfavorable decision making by household head, people not seeing the need to seek eye care services, inaccessibility of eye care services and unfavorable previous experiences.

CHAPTER 3

3.0 METHODS

3.1 Introduction

In this section the procedure that was used in carrying out this research is documented. Information on the study setting, the study population, sampling method, how data was collected and analysed was outlined.

3.2 Study Design

The study was a cross-sectional descriptive design which employed quantitative approach to determine the fidelity of implementation of the HBCEHP and qualitative approach to determine the enablers and barriers to the implementation of the programme. Techniques that were employed included reviewing of the progress reports, assessment reports, and project documents. A survey using structured questionnaires was used for the CHWs while semi-structured questionnaires were used to interview key stakeholders involved in the implementation of the programme. While the review of the documents was used to assess the adherence to the content of the programme, the survey was used to assess the competence of the CHWs on PEC. The interview was used to elicit information on the barriers and enablers to the implementation of the HBCEHP.

3.3 Study Setting

Mfantseman is one of the 20 districts in the Central Region of Ghana with a population of nearly 156,162 (GSS, 2014). It is divided into five sub-districts namely Saltpond, Mankessim, Biriwa, Dominase and Anomabo. These have been indicated in figure 1 below as the Implementation Sub-Districts of the HBCEHP. The Municipal stretches for about 49 kilometers along the coastline and for about 19 kilometers inland and covers an area of 612 square kilometers. Nearly 52% of the total population live below the poverty line which is nearly double the national average of 28.5%

(GSS 2014). According to GSS (2014), the Municipality has a total population of 144,332 which constitute 6.6 percent of the total population of Central Region. Females consist of 55 percent while males formed 45 percent. Approximately 65 percent of the population is in urban localities with the remaining living in rural communities. The total population of people 11 years and above is 101,757. Of this population, literates are 77.4 percent and non- literates are 22.6 percent. The major occupation of the inhabitants in the Municipality are fishing (51percent), farming (30 percent) and Commerce (19 percent) (GSS, 2014). As of the year 2013, the number of health facilities in the Municipality were 25 of which 12 were CHPS, 1 government hospital, 2 private hospitals and other health facilities (GSS, 2014). The human resource for health in the Municipality are 10 doctors, 163 nurses of all categories out of which 47 are CHWs and 2 ophthalmic nurses, 5 medical assistance and 20 midwives (GSS, 2014).

The main hospital of the Municipality is the Saltpond Hospital which is the only government hospital within the Municipality (Eyesight, 2018). According to Eyesight (2018), majority of the people in the district depend on this hospital for their eye care services. The eye unit of the Saltpond Government Hospital is staffed with 1 Optometrist, 2 ophthalmic nurses, 1 optical technician and 1 health care assistant with support from a visiting ophthalmologist (Eyesight, 2018).

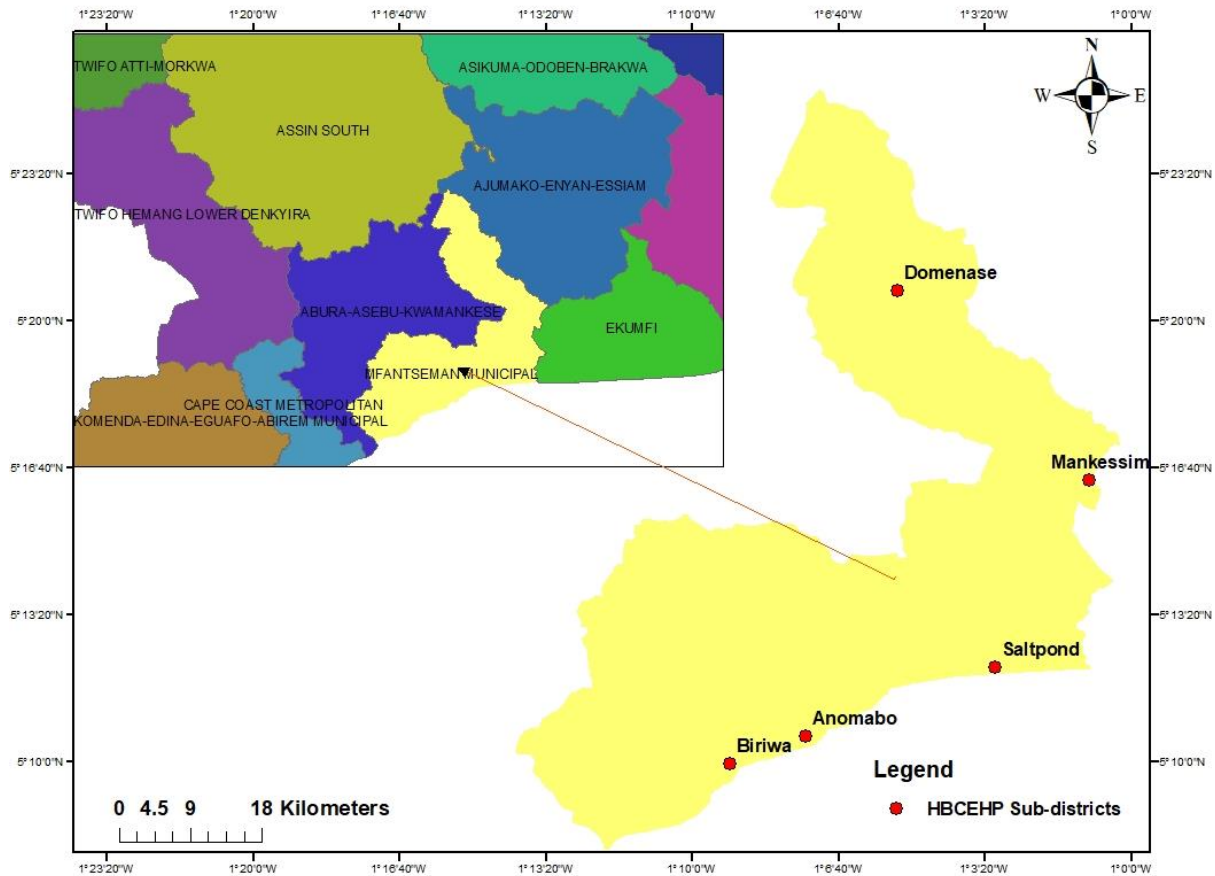


Figure 1: Map of Mfantseman Municipality Showing the Implementation Sub-Districts of the HBCEHP

3.5 Inclusion Criteria

The criteria for inclusion were;

1. CHWs, Ophthalmic nurses, the Optometrist, MHMT, MIS officer, and the project coordinator of the HBCEHP who were involve in the implementation of the HBCEHP
2. Willingness to offer written informed consent

3.6 Exclusion Criteria

The criteria for exclusion were;

1. CHWs, CHVs, Ophthalmic nurses who were not involved in the implementation of the HBCEHP
2. Inability to provide written informed consent

3.8 Sampling Procedure

All the 36 CHWs trained were purposively selected for the survey. The coordinators of the HBCEHP at the MHMT, the Optometrist and the ophthalmic nurse at the Saltpond government hospital, the programme's coordinator from OEU were purposively selected for the interview. Additionally, using simple random technique, 2 of the CHWs from each of the Sub-districts were also selected for the interview.

3.9 Data collection tools

The study adopted a mixed method data collection approach. The quantitative data used were from both primary and secondary data sources. The primary data were obtained through an online survey using structured questionnaires to all the CHWs implementing the HBCEHP and the secondary data were obtained from the review of the programme's documents. These were used to determine the fidelity of implementation of the programme.

To determine the moderators of the programme's implementation in the Municipality, qualitative data were obtained. Semi-structured interview guides on health system functions which can affect the implementation of the HBCEHP were discussed (see appendix). This aided in arriving at varied responses and also encouraged flexibility. The recorded information was repeatedly played to ensure that the information transcribed is exactly as the stakeholders said them. In the long run, a

comprehensive assessment of the views of the stakeholders interviewed was achieved. Table 1 below gives details of the stakeholders selected for the interview.

Table 1: Key Stakeholders Interviewed

Stakeholder	Numbers interviewed.
Programme’s Coordinator OEU	1
Cordinators from the MHMT	2
Health Information Officer	1
CHWs trained by OEU	6
Ophthalmic Nurse at Saltpond government hospital	1
Optometrist at the Saltpond government hospital	1
Total	12

3.10 Data Quality Control and Assurance

These included training of field staff, pre-testing of data collection tools and revision of data collection tools. To ensure the understanding of the questionnaires and to maintain data quality, data collectors were trained in the use of the data collection tools. The study team was trained prior to the data collection on all aspects of the study. They were trained on how to administer the questionnaire and also on the protection of human participants, confidentiality and the process of obtaining informed consent. The questionnaires and the checklist for data review were pre-tested among purposively selected CHWs in selected districts within the Central Region who were not part of the study sample. Responses from participants and results from the analysis of the pre-test were used to revise and finalise the data collection tools to ensure that they elicited the right response that answered the objectives of the study.

3.11 Data Collection

Trained research assistance using the pre-tested semi-structured questionnaires interviewed all consenting participants. All interviews for the participants were done in English within a time period of 20 to 30 minutes. While all the information were recorded electronically the important was were written.

3.12 Data Safety, Storage and Ownership

All consent forms were kept in the custody of the Principal Investigator (PI). All electronic data have been backed up online in a designed drop box. Only the PI has access to the study data. Ownership of the data is by the PI and the Mfantseman Municipal Health Directorate.

3.13 Data Processing and Management

Data collected was checked for completeness and consistency and accuracy. The data cleaning and processing were mainly done using Microsoft Excel.

3.14 Data Analysis

The data collected were analysed at two different stages because the quantitative data were analyzed separately from the qualitative. This was done basically to understand the difference in each set of data and responses and also interpret them accordingly. Both data were then combined to provide an all-inclusive and comprehensive explanation of the study.

All quantitative data were analysed using Stata version 16 and Microsoft excel version 16. Descriptive statistics using tables and frequencies was used to describe the sample demographic and professional characteristics of the CHWs. Reach and dose as well as the fidelity of implementation was also analysed using descriptive tables. On the other hand, qualitative data were analyzed manually by identifying themes, patterns and group similar ideas together. The

transcribed information went through two cycles of coding. In the first cycle of coding, the transcribed information were grouped into similar ideas (similarities and differences). With the WHO health system functions in mind, the second cycle coding was used to group the similar ideas from the first coding into themes. For instance, the barriers and factors facilitating the implementation of the HBCEHP were grouped in into; leadership and governance, health care financing, health workforce, medical products and technology, health information and service delivery.

3.14.1 Determining Whether the HBCEHP is Implemented as Intended.

Objective 1 was analysed quantitatively using descriptive statistics. A percentage score from the list of activities the CHWs reported of implementing was expressed as a percentage to all the activities that they were expected to implement to determine the score for the adherence to content. The competence of the CHWs was analysed using the percentage score of correct diagnosis and correct course of management from clinical vignette presented to the CHWs. Reach which is a measure of the coverage of the HBCEHP was analysed using the number of communities covered by the programme as a percentage of the total number of targeted communities in the Municipality. Using table, frequencies and percentages, the outputs of the HBCEHP were determined as the dose of the program by comparing them to the programme targets. The number of CHWs educated on PEC, those screened, referred, and treated were expressed as a percentage of the programme's target. Fidelity of implementation was therefore determined using the composite score of dose, reach, adherence to content and the competence of the CHWs in PEC. Fidelity scores below 50%, 50% to 75% and 76 % to 100% were considered below average, above average and excellent respectively.

3.14.2 Identifying Factors Facilitating the Implementation of the HBCEHP

Facilitating factors to the implementation of HBCEHP were determined by the number of various enablers enumerated by the stakeholders interviewed. Acknowledging the health system strengthening agenda, WHO has formulated a health system framework that describes health systems in terms of six building blocks which include service delivery, health workforce, information, medical products, vaccines and technologies, financing, and leadership/governance (WHO, 2007). Response from the interviews were used to form themes using the WHO health system framework. The contextual factors considered in this study included governance and leadership, finance, human resource, medicines and equipment, service delivery and health information system.

3.14.3 Barriers to the Implementation of the HBCHEP

Barriers to the implementation of HBCEHP were also determined by the number of various barriers enumerated by stakeholders interviewed. Response from the interviews were used to form themes using the WHO health system frameworks. Just like objective 2, the contextual factors considered in this study included governance and leadership, finance, human resource, medicines and equipment, service delivery and health information system.

3.15 Ethics Consideration /Issues

The study received ethical approval from Ghana Health Service Ethics Review Committee (i.e. GHS-ERC- 029/06/20) of the Research and Development Division, Accra. In addition, permission was given from the Mfantseman Municipal Health Directorate and facilities where the study was conducted.

3.16 Consenting Process

Participants consented to the study by filling written consent form bearing their names, the signature and that of the researcher after the objectives of the study were explained to them. Only participants who agreed to participate and provided a written consent were interviewed.

3.17 Privacy and anonymity

During the interviews, the moderator asked for the consent of the participants to record and take notes on all discussions and assured respondents of confidentiality and anonymity. Survey questionnaires, all questions were identified with unique identification numbers. No data was identified with respondent's personal information. All interviews took place at a location with much privacy and comfort agreed upon by the researcher and the respondents. Information collected are held very confidential and are used for only the intended purpose. Only group but not individual results are available for scientific and public health purposes.

3.18 Risk

The study did not cause any harm to the participants. However, participants spent 20 to 30 minutes of their precious time for the interviews and in less than 5 minutes for the survey.

3.19 Benefits

Participants of the study did not have any direct benefit. However, the results of the study will help in the improvement of the implementation process of the HBCHP in the Municipality which in the long run may help in the reduction of the prevalence of visual impairment in the Municipality.

3.20 Compensation

Participants did not receive any form of compensation for participating in the study.

Voluntariness and the Right to Participate

Participation in this study was completely voluntary. Participants had the right to decline participation in this study, or withdraw their consent at any time, or decline to answer any question they did not feel comfortable about. Refusal to participate in this study did not affect the participant in any way.

3.21 Conflict of Interest

The Principal Investigator declare no conflict of interest in the conduct of this study.

CHAPTER FOUR

4.0 MONITORING AND EVALUATION ISSUES OF THE HBCEHP

4.1 Introduction

This chapter gives a concise description of the HBCEHP, the type of evaluation employed for this study, the conceptual framework of the study objectives, the logic model of the HBCEHP and the measurement of the verifiable indicators of the programme.

4.2 Description of the HBCEHP

The HBCEHP is a multi-year intervention by OEU which started in 2017 and aims at reducing the prevalence of avoidable blindness in Mfantseman Municipality by 90% by the year 2020. The intervention theory of the programme was the improvement in eye care infrastructure at the Saltpond Municipal hospital and capacity building of CHWs and Primary Eye Care Workers (PECW) in the municipality in Primary Eye Care (PEC). This seeks to trigger improvement in community eye care services by the CHWs and secondary eye care services delivery at the Saltpond Municipal Hospital. The theory if well implemented, aims at improving the eye care seeking behaviour of people in the Municipality and thereby reducing the prevalence of avoidable blindness in the Municipality (Eyesight, 2018).

The capacity building of CHWs aims at strengthening the referral system by building the capacity of the PHC staff at sub district levels. The project seeks to train CHWs in the sub-districts to be able to identify a normal eye from one that is abnormal and to conduct door to door surveys. Based on the results of the door to door survey, the project team together with the health staff will formulate micro plans to include the following: 1) Outreach screening activities, 2) Health centre and CHPS screening and referral to the base hospital for surgeries/treatment, 3) Post-operation

follow up and follow up of referred patients, 4) Implementation of health promotion activities to increase eye care awareness 5) improve eye health and general health care seeking behaviour of the people.

The hospital improvement involves building the capacities of district hospital through infrastructure development and health personnel capacity building to deliver quality eye care services at the secondary level. The entire project revolves around the preventive and curative activities and the district hospital which is the only secondary hospital will need to be equipped to provide comprehensive secondary eye care services. Therefore, it is envisaged to assess the hospital with respect to present and future needs of the community eye health care and equip them with necessary equipment and trainings to the eye care professionals. This will include i) Hospital assessment – clinical and management ii) Based on the results of the assessment, gaps identified will be bridged in the following areas of infrastructure and equipment, human resource development and system development.

4.3 The Implementation of the HBCEHP in Mfantseman Municipality

The implementation of the HBCEHP has been categorised into three different phases as: 1) Pre implementation, 2) Implementation phase and 3) post implementation phase. The Pre implementation phase involved discussion with the MHMT and the Saltpond government hospital to agree on the project modalities, develop clarity on the roles and responsibilities, agree to and sign memorandum of understanding of partnership towards execution of this project, assessment of district hospital and other pertinent requirements prior to implementation. Implementation phase was to include procuring quotations, finalising the vendor to supply the equipment, order equipment, receive, install and commission equipment, training of CHWs, health workers of primary health care, door to door survey including awareness creation, micro level planning,

identify, refer, operate and follow up of patients suffering from various eye conditions. The post implementation phase was to be the end of the project evaluation, impact assessment, review and dissemination of impact assessment including felicitations.

The proposed programme was to be implemented over four year's duration. In year one, the programme was to be implemented in only Dominase sub-district and activities included; 1) Planning meetings with the district health and CHPS representatives. 2) Hospital improvement – assessment and equipping the district hospital with quality equipment. 3) Development and dissemination of IEC materials 4) Selection of CHWs and capacity building 5) Selection Primary Eye Care Workers (PECWs) and their training 6) Awareness creation, screening, referrals and treatment 7) Monitoring and reporting including quarterly reviews.

In the year two, the project was to be expanded to include the remaining four sub-districts namely Saltpond, Mankessim, Anomabo and Biriwa. Similar set of activities was to be carried out in these four sub-districts and while the screening and treatment activities in the first sub-district which was intervened in the first year continues. In year three, the entire project activities was to be consolidated and expedite the process of declaring avoidable blindness free communities consequently, in year four, the phasing out of the project will be initiated. Table 3 below shows key indicators to determine the success of the HBCEHP by the end of December, 2020, which is the end of the period of the programme's implementation.

Table 2: Key Indicators to Determine Success of the HBCEHP

Indicator	Target
1. The number of people screened	156,162
2. Number of treatments and surgeries conducted	3,275
3. Number of ophthalmic personnel and MIS officers trained	Three frontline ophthalmic personnel and 1 MIS officer trained
4. The status of the eye unit of Saltpond government hospital	A functional secondary eye health care hospital fully equipped to provide secondary level of eye care services with the help of trained ophthalmic persons.
5. Number of CHWs trained	54
6. Number of communities declared avoidable blindness free	60
7. Number of PHC staff trained to counsel, motivate, refer and coordinate with secondary hospital services to provide PEC services at CHPS/Health Centres.	27

4.3 Process Evaluation

To assess the implementation of the HBCEHP, the study employed the use of process evaluation. Process evaluation is a method of assessing how a programme is being implemented (Saunders, Evans, & Joshi 2005). It focuses on the programme's operations, implementation, and service delivery (Saunders et al., 2005). Process evaluation therefore involves the use of indicators to reflect how well interventions are delivered and received by targeted beneficiary groups (Matias & Dewey, 2017; Khandker, Koolwal, & Samad, 2009). It thus documents and analyses the implementation of the interventions by assessing whether activities were implemented as planned and whether expected outputs were produced. Process evaluations allow evaluators to make the important distinction between implementation failure and theory failure.

In the last decade, the literature on process evaluation related to public health interventions has grown considerably (Linnan & Steckler, 2002). According Linnan & Stecker (2002), possible reasons are that interventions have become increasingly complex, making it important for researchers to know the extent to which all intervention components are actually implemented. Researchers are also looking for ways to explain why certain results were achieved. Specifically, when interventions lead to significant outcomes, it is important to understand which components of the intervention contributed to the success (Griffin, Kinmonth, Veltman, Gillard, Stewart (2004). Assessing the quality and accuracy of the intervention delivered to programme participants can also be achieved with process evaluation. These are among the several reasons why process evaluation has proliferated (Pronovost, Berenholtz, Goeschel, Needham, Sexton, Thompson... & Hunt (2006).

4.4 Conceptual Framework of the Study Objectives

The conceptual framework of the study objective was adopted from the Medical Research Council (MRC) process evaluation framework (Moore, Audrey, Barker, Bond, Bonell... & Baird, 2015).

The conceptual framework in figure 1 below, identifies the processes of the HBCEHP as hospital improvement, community eye care service as well as training and capacity building. Complete adherence in terms of content, coverage, dosage and frequency of these processes will lead to the desired implementation outcome. Poor implementation is likely to lead to poor programme outcome and impact (Carrol et al., 2007).

According to Carrol et al (2007), moderators such as context, responsiveness of participants, quality of delivery and recruitment of participants influences adherence to intervention theories. The CHWs responsiveness, quality of the delivery of the training programme as well as the PEC activities by the participants together with contextual issues such as financing, health information leadership and governance , medical products and technology will be assessed. Participants in this study will be the CHW's who were trained by the programme to deliver the community eye care services in the municipality.

According to Linnan & Steckler (2002), implementation status is the results of the product of the average scores of content, dose and reach. In this study, the average scores of fidelity , dose and reach was used to determine the status of implementation as below average, above average and excellent based on the score obtain. Using the WHO health system framework, the barriers and facilitating factors to the implementation of the programme were also analysed.

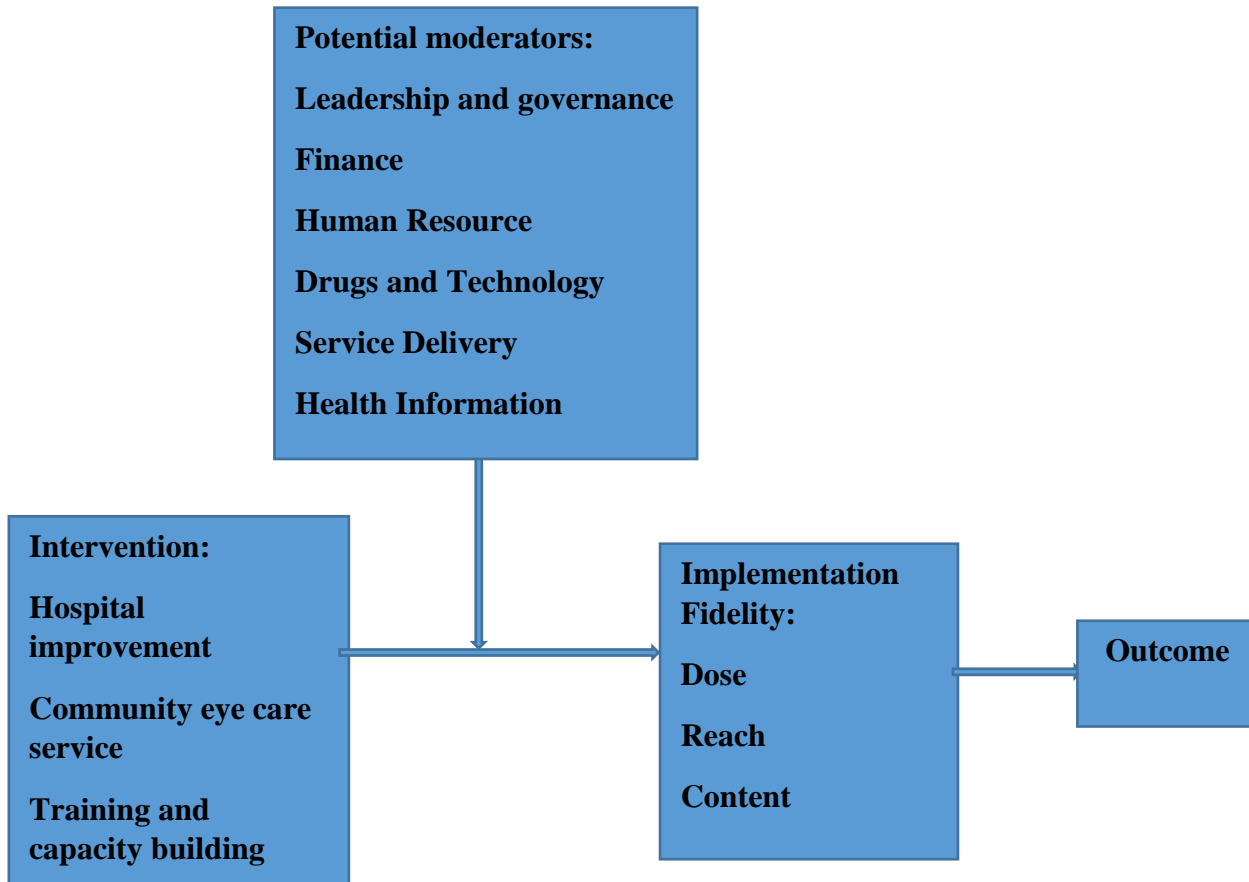


Figure 2: Conceptual Framework of the Study Using a model of the Medical Research Council Framework

4.5 Logic Model of the HBCEHP

The proposed logic implementation model of the HBCEHP is described in figure 2 below. The figure shows the different components of the HBCEHP assessed as part of the process evaluation. The processes of the HBCEHP assessed were categorised into hospital improvement, training and capacity building and community eye care services. The ideal pathway begins with resources needed for the implementation of the HBCEHP, the processes of implementation and the outputs that is needed to be obtained by the programme, which will then generate the expected outcome of declaring communities free from avoidable blindness. Completion of the pathway would allow the final desired impact of reducing the prevalence of avoidable blindness in the Municipality. The

process evaluation considered the implementation pathway from the inputs through to the outputs of implementation of the HBCEHP. With regards to the time of evaluation, the HBCEHP started in April 2017, but the evaluation was done from July to September, 2010 with 3 months to the end of the implementation period of the HBCEHP.

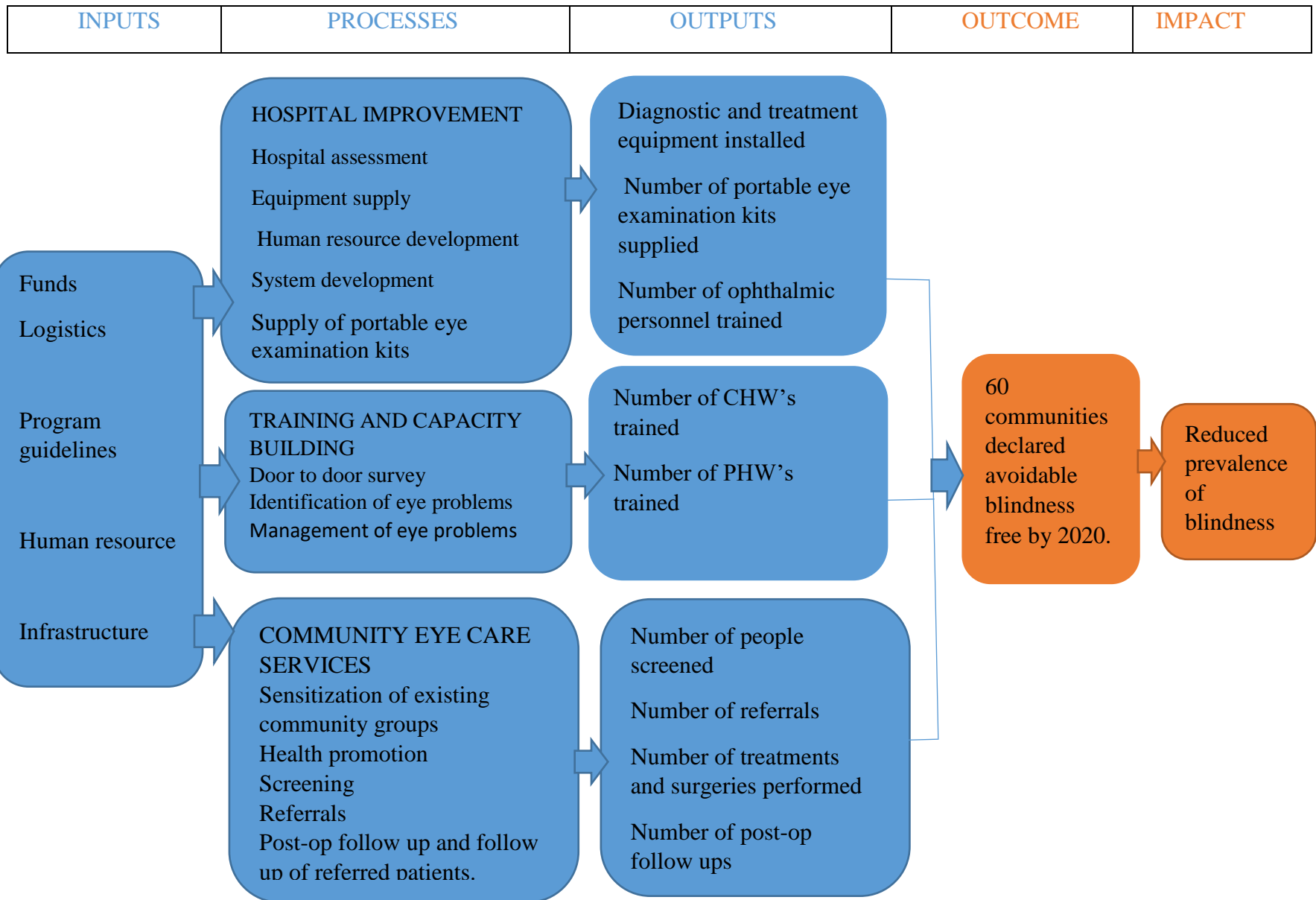


Figure 1: Logic Model of the HBCEHP

4.6 Measurement of Indicators

Table 3 below identifies the project indicators, defines them and provides information on how the indicators are measured and sources of data for each one of them.

Table 3: Measurement of Indicators

STRATEGY	HOSPITAL IMPROVEMENT
1. Indicator title	Proportion of ophthalmic nurses trained in the first year
Definition	The Ophthalmic nurses at the eye unit of the Saltpond government hospital who were trained in 2017 to enhance their duties as frontline primary eye health workers.
Measurement	Numerator: Number of ophthalmic personnel at the facility trained Denominator: Total number of ophthalmic personnel at the facility.
Data collection method	Review of quarterly, semi-annual and annual reports.
Indicator title	Proportion of clinical infrastructure and equipment installed
Definition	Primary and secondary eye care equipment supplied to the eye unit of Saltpond government hospital by OEU after the hospital assessment in 2017.
Measurement	Numerator: Number of primary and secondary eye care equipment supplied to the eye unit Denominator: Total number of primary and secondary eye care equipment the eye unit is lacking.

Data collection method	Review of quarterly, semi-annual and annual reports.
STRATEGY	TRAINING AND CAPACITY BUILDING OF PROJECT TEAM
2. Indicator title	Proportion of CHWs trained on PEC
Definition	CHWs in the various sub-districts were to be selected and trained on PEC. These were the main implementers of the HBCHP at the community level.
Measurement	Numerator: Total number CHWs in the various sub-districts who were selected and trained on PEC Denominator: Total number of targeted CHWs in the various sub-districts.
Data collection method	Review of quarterly, semi-annual and annual reports.
3. Indicator title	Proportion of PHWs trained on basic eye screening and counselling
Definition	PHWs in the various sub-districts were to be selected and trained on how to screen and counsel people with all forms of eye conditions in the various health facilities.
Measurement	Numerator: Total number PHWs in the various sub-districts who were selected and trained by OEU Denominator: Total number of targeted PHWs in the various health facilities
Data collection method	Review of quarterly, semi-annual and annual reports.

4. Indicator title	Number of MIS officers trained
Definition	MIS officers were to be trained on the collection and reporting of data from the CHWs and the base hospital to the program's coordinator of OEU.
Measurement	Numerator: Number of MIS officers trained by OEU
Data collection method	Review of quarterly, semi-annual and annual reports.
STRATEGY	COMMUNITY EYE CARE SERVICES
5. Indicator title	Proportion of visually impaired persons within a given community.
Definition	The CHWs trained on PEC were to do community survey to identify all persons with decreased ability to see due to all forms of eye conditions.
Measurement	Numerator: Number of persons visually impaired within a community Denominator: Total number of persons within the given community.
Data collection method	Review of survey reports, quarterly, semi-annual and annual reports.
Indicator title	Number of health promotion and education activities on eye care organized.
Definition	CHWs were to mobilize and educate the people on all forms of eye conditions and where to seek eye care when one has such conditions.
Measurement	Numerator: The number of times CHWs mobilize people in a given community for eye health education.
Data collection method	Review of quarterly, semi-annual and annual reports.

6. Indicator title	Number of outreach screening activities performed
Definition	CHWs were to screen all persons within a given community for all forms of eye conditions
Measurement	Numerator: Number of times CHWs reports of doing eye screening in a given community.
Data collection method	Review of quarterly, semi-annual and annual reports.
7. Indicator title	Proportion of persons screened
Definition	All persons within a given community were to be screened by the CHWs for any eye condition
Measurement	Numerator: Number of persons within a given community who is screened for any eye condition Denominator: The total number of people within a given community.
Data collection method	Review of quarterly, semi-annual and annual reports.
8. Indicator title	Proportion of referrals made
Definition	Persons who were detected to have any form of eye condition were to be referred to Saltpond government hospital for all forms of treatment
Measurement	Numerator: Number of persons referred Denominator: Total number of persons with all forms of eye conditions within a given community
Data collection method	Review of quarterly, semi-annual and annual reports.

9. Indicator title	Proportion of treatment and surgeries performed
Definition	Persons who were referred to the Saltpond government hospital were to have cataract surgeries, refractions and other forms of treatment depending on their eye conditions
Measurement	Numerator: Total number of treatment and surgeries performed Denominator: Total number of persons referred
Data collection method	Review of quarterly, semi-annual and annual reports.
10. Indicator title	Number of post-op follow ups and follow up of referred patients
Definition	CHWs were to follow up on all persons within their respective communities who undergo cataract surgery and all other forms of referrals to the Saltpond government Hospital.
Measurement	Numerator: Number of times a CHWs reports following up on such persons.
Data collection method	Review of quarterly, semi-annual and annual reports.
11. Indicator title	Barriers of the implementation of the program
Definition	Barriers included all health system functions enumerated for being a hindrance to the implementation of the HBCEHP.
Data collection method	Stakeholder interviews
12. Indicator title	Enabling factors to the implementation identified

Definition	Enabling factors includes all health system functions enumerated for facilitating the implementation of the HBCEHP.
Data collection method	Stakeholder interviews
13. Indicator title	Fidelity of implementation
Definition	The measure of whether the HBCEHP was implemented as intended.
Measurement	Composite score of dose, reach and adherence to the content of the programme.
Data collection method	Review of quarterly, semi-annual and annual reports
14. Indicator title	Status of Implementation
Definition	Assessment of how well the HBCEHP has been implemented based on the fidelity score.
Measurement	Fidelity scores 0-50% is below average, 51-75% is above average, 76-100% is excellent.
Data collection method	Not applicable.

CHAPTER FIVE

5.0 RESULTS

5.1 Introduction

This chapter presents the outcome of the analysis of the findings of the study. The results are presented to provide information on the background characteristics and the study objectives.

5.2 Socio Demographics and Professional Characteristics of Respondents

The socio-demographic and professional characteristics of the CHWs are described in table 4. Among the respondents, 17 out of the 30; representing 56.6% were females. The remaining 43.4% were males. The age categories of these respondents were grouped as follows 20-25, 26-30, 31-40, 41 and above. Majority of the respondents (65.5%) were in 26-30. Those within the 31-40 were 24.2 % and the least (3.4%) was 45 years and above. The highest level of education attained by these respondents were tertiary and the least was secondary school. Majority of the respondents (62.1%) had had tertiary education, 27.6% had had diploma, and 6.9% had had certificate and 3.4% of them with secondary school certificate. Years of professional service of respondents ranged from 1-5, 6-10 and 11 years more. Of these, most of them (55.2%) were within 6-10, (34.5%) were within 1-5 and (3.4%) were those within 11 years and above.

Table 4: Demographic and Professional Characteristics of the CHWs

Characteristics		Frequency (N=29) %
Gender	Male	12 (43.4)
	Female	17(56.6)
Age group	20-25	2 (6.9)
	26-30	19 (65.5)
	31-40	7 (24.2)
	45-50	1 (3.4)
Marital status	Single	18 (62)
	Married	11(38)
Level of education attained	Secondary	1 (3.4)
	Certificate	2 (6.9)
	Diploma	8 (27.6)
	Tertiary	18 (62.1)
Profession	Community health Volunteer	1(3.4)
	Community health nurse	27(93.2)
	Public health worker	1 (3.4)
Working station	Biriwa	10 (34.5)
	Anomabo	10 (34.5)
	Dominase	9(31)
Years of professional service	1-5	12 (41.4)
	6-10	16 (55.2)
	11-15	1(3.4)
Type of health facility stationed	CHPS compounds	15 (51.7)
	Health Centre	10 (34.5)
	Polyclinic	4(13.8)

5.3 Implementation of the HBCEHP

5.3.1 Dose

Outputs of the HBCEHP since April 2017 to July 2020 is shown in table 5 below. The number of people in the Biriwa, Dominase and Anomabo sub-districts educated on eye health and subsequently screened were 28,306. This was approximately 44 percent of the 64,168 programme target. Even though the project has covered only 3 sub-district so far, the number of treatments and surgeries conducted at the Saltpond Municipal hospital was 2, 132 which is about 65 percent of the targeted number of 3, 275 treatments. Thirty-six out of the targeted number of 54 CHWs

have been trained on PEC. Two (2) out of the three (3) targeted frontline ophthalmic personnel have been trained whilst a Health Information Officer has been trained. In all, the overall output is approximately 68.50 percent of program target.

Table 5: Outputs of the HBCEHP from April 2017 to July 2020

Activity	April 2017 to July 2020	Program Target	Percentage of the Target reached (%)
Number of people screened by the CHWs	28,306	64,168	44.11
Number of surgeries and treatments conducted at the Saltpond Hospital	2,132	3,275	65.1
Number of CHWs trained	36	54	66.66
Number of frontline ophthalmic nurses trained	2	3	66.66
Number of Health Information Officers	1	1	100
Average score (%)			68.50%

5.3.2 Reach

Eighty-six communities out of the 124 communities within the Municipality, representing 69.44% have been covered by the programme. Screening and eye health education has taken place in all these communities. All the communities covered are with three sub-districts, namely; Biriwa, Anomabo and Dominase sub-districts. None of the communities in the Saltpond and Mankessim sub-districts have been reached.

5.3.3 Competence of the CHWs in PEC

Table 6 below shows responses of clinical vignette presented to the CHWs. The vignette was designed considering the content of the OEU training manual. The CHWs who participated in the vignette had 82 % of their diagnosis correct and 97.3% of their course of action was also correct. Their overall performance which is the composite score for both correct diagnosis and course of action was 89.7%.

Table 6: Responses of the Clinical Vignette Presented to the CHWs

Vignettes:	Correct diagnosis	Correct course of action
A 15 year old boy who comes to your facility with a sticky red eyes.	27/29 (93.1%)	26/29 (89.7%)
A woman who complains of a painful loss of vision in one of her eyes	26/29 (89.7%)	29/29 (100%)
A mother 60 years who comes to your facility complaining of a white spot in her baby’s eye	26/29 (89.7%)	28/29 (96.6%)
A 50 year old teacher who complains of a painless diminishing near vision when reading	13/29 (44.8%)	29/29 (100%)
A man 70 years old who complains painless gradual loss of vision	27/29 (93.1%)	29/29 (100%)
Average score (%)	82.1 %	97.3%
Composite score (%)		89.7%

5.3.4 PEC Activities Being Implemented by CHWs

PEC activity which was reported to be mostly implemented by the CHWs was community eye health education. About 86 % of CHWs responded to that effect. Approximately 76% of them also responded doing door to door survey. The least reported activity was school screening of which approximately 52.0 % of the CHWs gave a positive responds. Details is shown in Table 7 below.

Table 7: PEC Activities CHWs Reported Implementing

Activities	Score (%)
Door to door survey	22/29 (75.9)
School screening	15/29 (51.7)
Community eye health education	25/29 (86.2)
Referral	16/29 (55.2)
Community eye health screening	16 /29 (55.2)
Average score (%)	64.84

5.3.5 Status of Implementation

Table 8 below shows the fidelity of implementation of the programme. The overall score for dose was 68.50% and that of reach was 69.44%. Proxy indicator for competence using the clinical

vignette score was 89.7% and adherence to the content of the training using the activities the CHWs reported of implementing currently was 64.84%. The fidelity of implementation using the composite score of dose, reach, adherence to content and competence was estimated as 73.12%. The implementation of the programme based on the fidelity score is above average.

Table 8: Fidelity of Implementation of the HBCEHP

Domain	Score (%)
Dose	68.5
Reach	69.44
Adherence to content	64.84
Competence in PEC	89.7
Composite score	73.12

5.4 Factors Facilitating the Implementation of the HBCEHP in the Municipality.

The factors facilitating the implementation of the HBCEHP in the Municipality are shown in table 9 below. The health system in the municipality is planned around CHPS compounds, health centres and clinics in each of the sub-districts serving populations between 13,910 and 55,199 people. The Saltpond Municipal hospital was the main referral centre.

Table 9: Factors Facilitating the Implementation of the HBCEHP in Mfantseman Municipality.

Health system domain	Enabling factors
Leadership and governance	Commitment and support from the MHMT, MOU between OEU and the MHMT were all in place for delivery of the HBCEHP.
Health care financing	The HBCEHP was fully funded by OEU. Less privileged people received financial support from OEU for their transportation to the referral centre. The NHIS ensures that the subscribers had free access to medicines and cataract surgeries.

Health workforce	Integration of PEC into the PHC practices by the CHWs trained.
Medical products and technology	Most eye drops and medications are covered by the NHIS. Almost all equipment needed for secondary eye care at the Saltpond government hospital has been provided by OEU.
Health Information	Integration of PEC indicators on health management information systems data, coordinated by the Municipal Health Information Officer.
Service delivery	High treatment success rates among people who participated in the program and effective community engagement and mobilization.

The Saltpond Municipal Health Directorate provided the needed leadership and governance for effective implementation of the HBCEHP in the Municipality. Through a memorandum of understanding between OEU and the Municipal health directorate, the HBCEP received the needed support in terms of governance and effective coordination in the Municipality. One stakeholder describes this:

“When it comes to OEU, when they came here initially, they came to see director and other staff available and they made us know what they wanted to do in the Municipality concerning eye PEC. We then had a memorandum of understanding. The Municipal also supported them in several ways. It wasn’t something new that OEU really wanted to do but they were actually helping us to do the things we use to do already. They realised that,

mostly when we say we are going for outreaches, PEC issues were mostly neglected. So with their support, it will make it possible for the nurses to integrate PEC into their PHC activities. So when they came we assisted by mobilizing our nurses for the training on PEC and also we had community engagement with the communities they will be working in. As you know, every community has gate keepers and for that matter if your community entry is not effective, irrespective of how good your intervention is, the community may not accept them. These were some of the assistance the Municipal Health Directorate offered”.

(Key stakeholder 1).

The HBCEHP was fully financed by OEU. Implementers who were trained freely by OEU also received monthly allowances to support their community outreaches and mobilisation. Sometimes, OEU had to support the transportation of extremely poor people who were referred to the Saltpond government hospital for surgery. With National Health Insurance Scheme (NHIS) available, the cost of medication after the surgeries were also taken care of.

“With the financing, I can say that everything was coming from OEU. At the end of every month, the nurses we have recruited for the eye program were given something for their community activities. That is why I said earlier on that the work is actually that of GHS’ but we were receiving support from OEU so that if for instance we were unable to reach our communities because of financial constraints, we are now given the necessary push”.

(Key stakeholder 1)

“There are even some times that the people they screen are so much poor that they couldn’t afford the cost of transportation to Saltpond. OEU even took it upon themselves to transport such people to Saltpond government hospital. Just that it wasn’t something they encouraged, if not people who could afford will still be abusing such offers. I

personally saw people from Wakrom in the Biriwa sub-district who were bused to Saltpond to do their surgeries and after that they were bused to their various destinations” (Key stakeholder 2).

The integration of PEC into PHC activities does not just improve eye health in the Municipality but also enhanced PHC activities. Through the allowances received for PEC education and mobilization, the implementers do not just focus on eye care but their routine PHC activities as well. The training programme has generally enhanced the knowledge of these implementers on PEC. A stakeholder describe it this way:

“It has really helped me because through the programme I have gotten to know some common eye conditions that can be prevented or even when you get them can be corrected. Typical example is let’s say pterygium and then cataract. Gone were the days we thought when you get anything whitish at all on the eye means your eye is damaged forever, but through the programme you realize that we have cataract, we have cornea scar and we have pterygium. So some of these things are really reversible”. (Stakeholder 4)

After the hospital assessment was conducted in 2017, OEU supplied eye care equipment which the eye unit of the Saltpond government hospital were lacking. This initiative targeted making the eye unit fit the status as the only secondary eye care centre in the Municipality. All other operational cost for surgeries which NHIS does not cover are taking care of by the HBCEHP. Because the eye unit only has a visiting ophthalmologist, not all eye equipment for surgical procedures are installed. The equipment needed for surgeries which are not available are brought in by the visiting Ophthalmologist on days scheduled for surgeries. This is how some stakeholders described the situation:

“The eye unit of the Saltpond hospital wasn’t like this initially. I can say on authority that almost all the equipment here were provided by OEU. I’m only saying some because the unit was in existence before OEU came. (Stakeholder 1)

Apart from NHIS supporting the people with their medications I personally went to some schools with the Coordinator of the programme and other workers from OEU where refraction was done for some students who needed them and spectacles were given to them. I didn’t see them taking any money from these students” (Stakeholder 2).

“See we even have fundus camera. You will hardly find this from any district hospital in Ghana. We don’t have surgical microscope here and even with that since we only have a visiting Ophthalmologist, getting it sitting here idle to me will be a waste. The Ophthalmologist therefore brings his own microscope for the surgery during days for surgery. As for the medications, they are covered by NHIS, apart from that, all other items needed for the surgery are provided by Dr. Baffoe -the program’s Coordinator Of the HBCEHP and his people”(Stakeholder 6).

Training of the Health Information Officer enhanced data collection and reporting. CHW’s report on community eye health education, screening and referrals made to Saltpond government hospital on a monthly basis to the Municipal Health Information Officer. All treatments and surgeries at the eye unit of the Saltpond government hospital were also reported to the Municipal Health Information Officer on a monthly bases. Aggregated data are then sent to the programme’s coordinator every month. Constant follow up on data and monthly reporting by the CHWs ensured that data is complete and accurate. This is how a stakeholder described it:

“They will call you for feedback, they will call you for report, and they will call you for any challenges. We even have periodic meetings”. (Stakeholder 8).

In terms of service delivery, the allowances from OEU serves as motivation for the CHWs not just for PEC activities but for PHC because it has increased their access to the communities. Getting allowances for transportation for duties which hitherto were done all by themselves as their normal work duty has really brought relief to the CHWs. Most of the stakeholders reported that, through the continuous education and mobilization of people on eye health, communities are increasingly aware of their eye health conditions and have adequate knowledge on places they can seek eye care if the need arises. This is how some stakeholders asserted to it:

“I will say that our people at the community level are giving very good testimonies about the HBCEHP as I am doing right now. At first, there were high prevalence of eye problems but for the project now people are aware of their eye conditions through the continuous eye health education in the communities. Secondly, they are now aware of where they can seek for eye care intervention when they identify a problem”. (Stakeholder 2).

“I can also say that the CHWs are highly motivated and now they ride on the back of OEU to do other PHC activities and this has enhanced their access in the communities”(Stakeholder 1).

5.5 Barriers to the Implementation of the HBCEHP in the Mfantseman Municipality

Factors inhibiting the smooth implementation of the programme in municipality were financial attitudinal and governance related. These factors are grouped under health system domains in table 10 below. Even though the Municipal health directorate show high sense of leadership, failure of the direct involvement of the Ministry of Health and the national office of Ghana health service leads to less priority to the PEC activities as compared to other PHC activities.

Table 10: Barriers to the Implementation of the HBCEHP in the Mfantseman Municipality

Health system domain	Barriers to Successful Implementation
Governance	Lack of direct involvement of the national office of Ghana health service and Ministry of Health lead to partners giving less priority to the project with respect to other PHC activities.
Health workforce	Turnover of some CHWs in communities where they are working affects implementation.
Finance	Financial support to cover the transportation and meals of CHWs become a source of disincentive when there were minor delays in the disbursement of the funds
Service delivery	Poor sense of ownership by some CHWs and changes in the schedules for surgery affects the participation of the people.
Health information	Delays in reporting by some CHWs
Medical products and technology	Because the cost of spectacles is not covered by NHIS, it makes it difficult for people who need them to access them.

Financial issues such as delays in the payment of allowances to CHWs and in some instances the inability of some of the people uptake eye care services at Saltpond hospital due the cost of transportation continues to be a major challenge. There are instances whereby OEU had had to pay for such people. Because spectacles is not covered by NHIS, not all people who need them are able to afford. This is how some stakeholders describe the situation:

“There were challenges, you see we were given some bit of commission or something to keep us for lorry fare and that kind of thing and with that, as the month ends and we are waiting sometimes it keeps long and people will complain. (Stakeholder 10).

“For Mobilization sometimes we need money for that, though sometimes it comes, at other times too it delays”. (Stakeholder 8).

“I made it to them that when they have NHIS they can go to the hospital, the only thing that they will pay is petty petty things that NHIS cannot afford but when they go they complain that they take them money from whatever they do. That is also one of the things that was not helping them” (Stakeholder 9).

Changes in the schedules for surgery appointments for referred people also barriers affecting the programme’s implementation. People with eye conditions are giving dates for their eye surgeries. Because the Ophthalmologist is not resident at Saltpond hospital, there are times that appointment for referred people had to be rescheduled. Some stakeholders reported that failure for the programme to stick to the scheduled dates for surgeries at times demotivate them. This is how a stakeholder describes it:

“You see these our people, the way their kind of lifestyle and living, when you promise them something and then you are not able to fulfill, the next time they won’t give in to you. For example if you go and tell them that today there is going to be outreach or surgery at the Saltpond hospital and they go there and it doesn’t come off, the next time when you go they don’t believe it.”(Stakeholder 6).

CHWs, after their education, screening and referral of people to the base hospital have to submit a monthly report to the Municipal health directorate who intend also submit these reports to the programme’s coordinator in Accra. There are instances whereby the CHWs delayed in the submission of these reports. This is how a stakeholder makes his assertion:

“...there are times after they have finish doing their work, for them to submit the report, you will have to call them several times before they submit them so that we too can submit them to OEU in Accra”. (Stakeholder 2).

PEC activities ideally should be part of the integrated PHC practices by CHWs. The HBCEHP should have been seen as a catalyst to PHC duties of the CHWs. Unfortunately, some of the CHWs have wrong sense of ownership and at times some consider PEC as belonging to OEU. A key stakeholder puts it this way:

“The fact is that, some people think that the project is OEU’s but they don’t know that the sustainability should be their concern. It is the work we have been mandated to do in the first place, so why do some CHWs say if they don’t give me money or if there is a delay in payment of allowance I won’t go?” (Stakeholder 2)

CHAPTER SIX

6.0 DISCUSSIONS

The study presents a process evaluation of the HBCEHP in the Mfantseman Municipality aimed at reducing avoidable blindness in the Municipality. The three main objectives of the study are; firstly, to assess whether the programme is being implemented as designed; secondly, to identify the barriers to the implementation of the programme in the municipality; and thirdly, to assess the factors facilitating the implementation of the intervention in the Municipality. The findings of the study have been discussed according to these objectives.

Using the Medical Council Research (MRC) framework, the evaluation of the implementation of the HBCEP was done considering dose, reach, adherence to content and competence to determine fidelity of implementation of the HBCEHP (Moore, Audrey, Barker, Bond, Bonell... & Baird, 2015). These factors used to determine the implementation of the programme are discussed accordingly.

Dose; which is the total amount of programme outputs received from April 2017 to July 2010 to be 68.5% of the programme target. The outputs of the study were the number of people screened by the CHWs, number of treatments and surgeries conducted at the base hospital, number of frontline ophthalmic personnel trained and the number of Health Information Officers trained by the programme. With three months for the programme period to end, 28,306 people which is 44.1% of the set target of 64,168 people have been screened. The process evaluation of the PEC programme in Rwanda reported relatively higher output with about 2,707 nurses trained and PEC provided in all health centres in the country. Yip et al., (2018) reported that, between 2012 until 2015, over 350,000 eye examinations had been conducted in PEC, with over 50,000 refractive errors diagnosed and over 38,000 referrals made to secondary care. The contextual differences in

terms of number of CHWs trained, high level of supervision and level integration of PEC into the PHC can be factors contributing to the factor to relative differences.

Eighty-six communities out of the 124 communities within the Mfantseman Municipality, representing 69.44% have been covered by the HBCEHP. With 3 months for the programme to come to completion, only the communities in Biriwa, Dominase and Anomabo sub-districts in the Municipality have received the programme. None of the communities in the Mankessim and Saltpond sub-districts had received the programme. The communities who have received the programme were educated, screened and if any eye condition was detected, were referred to the base hospital at Saltpond for treatment. It is therefore clear that if the remaining communities are covered the output of the programme will increase significantly.

Using a composite score for dose, reach, adherence to content and competence of implementation the fidelity of implementation was quantified to be 73.12%. Several studies have reported on using this formula in calculating the status of implementation. (Craig et al., 2008; Breitenstein et al., 2010; Carroll et al., 2007). Implementation score of 73.12% in this study is classified as above average however, the gaps in dose, reach and adherence to content can limit the potential impact of the programme. In contrast, the process evaluation of PEC in Rwanda however indicated that PEC is well established and integrated into local health-centres (Yip et al 2018). Yip et al., (2018) indicated that PEC can be delivered consistently at primary care level, with large number of eye examinations undertaken as demonstrated by the programme monitoring metrics. Similarly, the PEC training programme in Morogoro in Tanzania was considered by PHWs as largely successful and satisfying in terms of content, methods and duration of training (Mafwiri et al., 2016).

Facilitating and barriers to the implementation of the HBCEHP has influence on the implementation fidelity (Carroll et al., 2007). According to Courtright et al., (2010), integrating PEC into PHC will be one of the sure ways solving the problems of accessibility and availability with respect to eye care in Africa. The study findings indicates that PEC has been successfully integrated by the CHWs into their routine PHC practices. Most of the CHWs reported that they were highly motivated through the allowances they received from the programme. The transportation allowances which the CHWs received from OEU had actually improved the accessibility into the communities since they were doing their PEC and routine PHC activities together. To effectively integrate PEC into PHC, a functional PHC system is crucial, as PEC can only be as strong as the primary-health structure into which it is integrated. (Aghaji et al., 2018). Morone et al., (2014) also found that despite several challenges that confronts PHC in Nigeria, some states have also integrated PEC into PHC, but these have been largely donor driven. This findings are similar to the situation in Mfantseman Municipality where the integration of PEC into PHC is also driven by OEU.

OEU took the lead in the implementation of the HBCEHP in partnership with the Mfantseman Municipal Health Management Team (Municipal Health Directorate and Saltpond Municipal Hospital) since April 2007. In Ghana as in many LMICs, non-governmental organisations (NGOs) provide a significant proportion of eye-care services. It is thought that NGOs fill the gap because of the relative invisibility of eye-care by governments (Morone et al., 2014). According to most of the stakeholders, funding by OEU and NHIS has made access to PEC possible in the Municipality. Similarly, factors facilitating the implementation of PEC in Rwanda is the nationwide community health insurance coverage and the raising of external funding to support PEC and outreach activities (Yip et al., 2018). Since over 95% of the most common disease conditions are included

in the benefits package, eye care benefits including cataract and eyelid surgery, biometry, visual fields, refraction, and basic ophthalmic preparations, but not optical devices are readily available. (Du Toit et al., 2013). Implementation of the NHIS is reported to have increased access to public health care services and raised public expectations. (Witter & Garshong, 2009).

Commitment and support from the Municipal health directorate, memorandum of understanding between OEU and health directorate in place for delivery of the HBCEHP. Similarly, Yip et al (2018) reported that the PEC programme in Rwanda included a formal engagement with the MOH, making the PEC a nationwide programme.

However, acceptability of cataract surgeries has been identified as one of the barriers to the uptake of cataract surgeries (Dandona & Dandona, 2001). Fear of failure of cataract surgeries has been identified as a major barrier to the uptake of cataract surgeries (Fletcher et al., 1999). High treatment success rates among people who participated in the programme is also facilitating the PEC implementation in the Municipality. Some stakeholders reported that; successful cataract surgeries have made their engagement and mobilisation of the people easier since reports of the programme is heard from those who have already had successful cataract surgeries and other treatment successes. This confirms studies which suggest that a good surgical results are likely to encourage acceptance of surgery and are effective means of promoting eye care services (Breisen et al., 2010).

One of the major challenges that districts hospitals in Ghana are confronted with when it comes to PEC is the inadequate supply of eye care equipment (Ofosu et al., 2018). This has affected the uptake of PEC in many districts in Ghana (Nkrumah & Abekah Nkrumah). Before the introduction of the HBCEHP in the Mfantseman Municipality, the eye clinic was poorly equipped. Study findings indicate that almost all eye equipment needed for needed at Saltpond government hospital

was supplied by OEU. This has helped in the carrying out of both primary and secondary eye care services at the facility.

NGO-led PEC programmes are not without challenges and have over the years produced mixed results (Aghaji et al., 2018). A major limitation of the NGO-led PEC initiatives is that activities largely cease when funding for in-service training stops (Misra et al., 2015). This is evident in this study where majority of the stakeholders interviewed asserted that, the CHWs were demotivated in instances whereby the payment of their allowances by OEU were delayed. This also suggest that there is lack of ownership on the part of some CHWs and this raises questions about the sustainability of the PEC activities within the Municipality should the funding of the programme cease by the end of 2020. Financial constraints limit people's access to routine eye care (Blanchet, Gilbert, & de Savigny, 2014)). In this study, even though almost all the cost of eye care has been fully taken care of by OEU, the cost of transportation became a major issue for some people. The cost of spectacles is neither covered by NHIS nor OEU. This made it difficult for some people who needed to access them due to the cost involve. This is a contrast to the PEC programme in Rwanda where reading and adjustable corrective spectacles were fully covered by the state with the help of some N.G.Os (Yip et al., 2018).

Sustained government support is crucial to the integration of PEC into PHC (Qureshi et al., 2012). In Rwanda and Gambia for instance, PEC is included as part of a national comprehensive eye care strategy, so the contribution of PEC is not difficult to quantify (Faal et.al, 2000 & Yip et al., 2018). Lack of direct involvement of the national office of GHS and MoH by OEU lead to partners giving less priority to the project with respect to other activities.

PEC cannot be considered as a separate activity but should be integrated into existing PHC system (Murthy et al., 2009). A functional PHC system is therefore crucial, as PEC can only be as strong

as the primary-health structure into which it is integrated (Kalua et al., 2012). However, the PHC system in Ghana is beset with several challenges which include, but are not limited to, inadequate infrastructure, shortage of health workers and poor attitude towards work (Alhassan et al., 2013). In many African countries, there is a shortage of eye care personnel, a lack of standardised training, inadequate coordination among eye care stakeholders and challenges with data collection (Palmer et al., 2014). Similar findings such as poor attitude of some of the CHWs towards work, challenges with data collection, and lack of ownership were reported by some of the stakeholders during the interview. These findings are consistent with what Aghaji et al (2018) reported concerning the evaluation of PEC in Nigeria where absenteeism of the health workers was reported.

Most of the stakeholders reported on the cost of transportation to the base hospital as a major challenge to the utilisation of the eye care services at the base hospital. Utilisation of the eye care services at the base hospital was also affected by other cost such as spectacles which was not covered by NHIS. Several studies have reported on financial barriers as a well-established barrier to the utilisation of eye care and health care in general (Palagyi et al., 2004; Kovai et al., 2007 & Senyonjo et al., 2014). Merepa et al., (2017) reported on the cost of eye care services and transportation to eye care facilities as one of the barriers to the utilisation of eye care services in the Upper East Region of Ghana. Studies have established positive correlation between reduction in cost of service and uptake of eye care services (Ellwein et al., 1991). Cost of eye care service as a barrier to utilisation is also demonstrated by the individuals with insurance coverage generally having better eye care seeking behaviour than those without insurance coverage (Palagyi et al., 2008). Other studies have also reported on having no insurance coverage and the cost of service as major barriers to utilization of eye care services (Zhang et al., 2008).

6.1 Limitation of the Study

1. Due to time and financial constraints, the study was limited to only the CHWs and the facilities where the HBCEHP was implemented. Involving the patients and community members who took part in the services of the programme would have given a broader perspective about the moderating factors in the Municipality.
2. Since most of the data were from self-reports, they were not void of biases. These were reduced by data triangulation.

CHAPTER SEVEN

7.0 SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

7.1 SUMMARY

The main objective of the study was to assess whether the HBCEHP in Mfantseman Municipality was implemented as intended. A mixed method approach was used in this study. A purposive sampling technique was used to select the stakeholders for the interview while all the CHWs implementing the programme were selected for the survey. In all, 29 CHWs participated in the survey while 12 key stakeholders participated in the interview. Data was collected using online administered questionnaires, in- depth interviews and review of the programme's documents. Stata version 16 and Microsoft Excel version 16 was used to analyse the quantitative data by the use of tables, frequencies and percentages. The interview were manually coded into themes and patterns deductively using WHO health system framework.

7.1.1 KEY FINDINGS

1. The fidelity of implementation using the composite score of dose, reach, adherence to content and competence was estimated as 73.12%.
2. The score for the dose of the program is estimated as 68.5% of which 28,306 of the people in Municipality have been screened while, while 2,132 of them have had cataract and other forms of eye treatments.
3. Since 2017 about 124 communities in the Biriwa, Domainase and Anomabo sub-districts representing 69.44% of the total number of communities in the Mfantseman Municipality have been covered by the programme.

4. Through the clinical vignette presented to the CHWs, their competence score in PEC which was estimated as the composite score of correct diagnosis and correct course of action was 89.7%. From the eye conditions presented, the CHWs had most (97.3%) of the course of action correct and 82.1%. of the diagnosis correct.
5. The factors facilitating the implementation of the programme were the commitment and support from the MHMT as well MOU that was put in place between OEU and the MHMT before the commencement of the programme. Integration of PEC into the PHC practices by the CHWs and high treatment success rates at the Saltpond Municipal hospital were other facilitators identified.
6. The barriers to the implementation of the programme were identified to be lack of direct involvement of the national office GHS and MoH, leading to partners giving less priority to the programme. Turnover of some CHWs, poor sense of ownership by some of CHWs and changes in the dates scheduled for surgery were also identified as factors inhibiting the program's implementation.

7.2 CONCLUSIONS

With evidence gathered in this study, the fidelity of implementation of the HBCEHP can be considered as above average. However, the gaps in dose reach and adherence to the content can limit the potential impact of the programme especially with the programme scheduled for completion by the end of the year 2020. It is evident that the dose of the programme is above average however the number of people screened were below average. These contradicts studies done by Yip et al., (2018). It can also be established that the reach of the programme is high. This was in line with studies done by Yip et al., (2018). The study results also indicate that most of the trained CHW's generally understood what PEC was and what role they could play in improving

the eye health of the population. The role of the CHWs was largely seen in community eye health education, door to door survey, making referrals to the base hospital, community eye health screening, and school screening. This was consistent with the study done by Mafwiri et al., (2016) and Kalua et al., (2014).

It is evidenced from the study findings that the factors facilitating the programme's implementation in the Municipality are mainly the commitment and leadership support from the MHMT, the integration of PEC into the PHC practices by the CHWs, high treatment success rates at the Saltpond government and effective community engagement and mobilisation. This is consistent with the study done by Yip et al., (2018) and Aghaji et al., (2018).

The study also establishes that, the main barriers to the implementation of the programme were the failure of OEU to involve the national office of GHS and MoH leading to partners giving less priority to the programme with respect to other PHC activities. It is also evident that, occasional delays in the disbursement of allowances to CHWs, lack of ownership by some CHWs, turn out rate of some CHWs. These are consistent with studies done by Misra et al., (2015), Cross et al., (2007) and Aghaji et al (2018).

7.3 RECOMMENDATIONS

Based on the conclusions of this study, it is recommended that;

1. For OEU to achieve its target in the entire Municipality, they should consider means of covering Saltpond and Mankessim sub-districts since the Programme period ends by 2020. OEU should consider the possibility of extending the programme period since it may not be feasible for them to cover all the targeted communities considering the days left for the program period to come to an end.

2. Aggregated data on cataract surgeries, refractions and other forms of treatment's performed at the Saltpond government hospital, and reported monthly to OEU could capture the communities the patients were referred from, to give a fair idea of which CHWs are really committed to the program's implementation.
3. OEU should strengthen the level and frequency of supervision of the activities of the CHWs in the various communities to ensure that their targets are realised.
4. For the programme to achieve its targeted outcome and impact, the general health system functions in the Municipality will need to be strengthened since PEC is directly influenced by the existing PHC system.
5. OEU could go beyond the MHMT and engage the MoH, eye care secretariat of Ghana and other health sector stakeholders to ensure that the HBCEHP is given priority just like the other PHC interventions in the communities.
6. To reduce visual impairment, spectacle prescriptions play a vital role. With the general difficulty in people accessing them because of their high cost and since these cost are not covered by NHIS, OEU can possibly consider ways of securing funding for spectacles to especially the very poor in the communities.
7. To ensure that CHWs reach their targets and install high sense of ownership among them, the CHWs could be assisted to develop their own cluster based annual action plan based on the outcomes of the door to door survey and tailored to meet the specific needs of the target community.
8. With the turnover of CHWs trained on PEC leaving gaps in the provision of PEC in communities where they were stationed, OEU through a MOU could engage the MoH, GHS

and the MHMT so that trained CHWs will commit to staying at their post for a minimum number of years after their training on PEC

9. The implementation period of the HBCEHP will definitely come to a close. What is not clear in the evidence gathered so far is how PEC activities will be sustained after OEU leaves the scene. The MHMT and OEU can meet to consider a clear policy on the sustainability of the PEC activities when the programme comes to an end.
10. The next important step should be the evaluation of the outcomes of the programme in the Municipality with consideration to eye health outcomes, equity in access and outcomes on the individual's socio economic life and the communities at large.

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**APPENDIX A: QUESTIONNAIRES TO CHWs
UNIVERSITY OF GHANA**

DEPARTMENT OF HEALTH POLICY, PLANNING AND MANAGEMENT

This survey is conducted by a student of the above institution as partial fulfillment of MSC. Public Health, Monitoring and Evaluation. The goal of this study is to assess the implementation process of OEU programme in the Mfantseman municipality. This is to aid improvement and also transfer good practices in similar programmes. This research is mainly for academic purpose. Therefore, answers given will be treated as highly confidential and an honest answer will contribute to the success of the study.

Thank you for your time and cooperation.

Instruction: Tick where suitable and provide where required the correct answers to the following questions.

Date of interview:

Questionnaire Number:

Personal Information

1. Sex
a) Male b) Female
2. Age
a) 20 – 30years b) 31 – 40 years c) 41 – 50 years d) 51 – 60 years
3. Place of residence
4. Marital Status
a) Married b) Single c) Divorced
5. What is your highest level of Education?
a) Basic b) Secondary c) Diploma c) Tertiary

Professional Information

6. What category of healthcare workers do you belong to?
a) PH nurse b) general nurse c) Community health nurse d) Other
7. Which community are you stationed?

8. Which sub-district are you stationed?
 a) Dominase b) Saltpond c) Mankessim d) Biriwa e) Anomabo
9. What has been your years of service?
 a) 0-2 years b) 3-5 years c) 6- 10years d) 11years and above
10. What is the type of health facility you are currently working at?
 a) Clinic b) Health centre c) CHIPS compound d) Hospital
11. Apart from OEU have you had any training in primary eye care?
 a) Yes b) No
12. How do you rate the relevance the programme?
 a) Very good b) good c) bad d) very bad

Clinical Vignette

11. How will you manage the following common eye conditions presented to you at your facility?

Condition	Referral	Antibiotic eye drop	Ant-allergic eye drop
A 15 year old boy who comes to your facility with sticky red eyes			
A mother who comes to your facility complaining of a white spot in her baby's eye			
A woman 60 years who complains of a painful diminishing of vision in one eye			

A 50 years old teacher who complains painless diminishing near vision when reading			
A man 70 years old who complains of painless gradual loss vision			

13. What may be the possible diagnosis of the following conditions presented to your facility?

Condition	Conjunctivitis	Cataract	Presbyopia	Pterygium	Corneal ulcer or cancer
A 15 year old boy who comes to your facility with sticky red eyes					
A mother who comes to your facility complaining of a white spot in her baby's eye					
A woman 60 years who complains of a painful diminishing of vision in one eye					
A 50 years old teacher who complains painless					

diminishing near vision when reading					
A man 70 years old who complains of painless gradual loss vision					

14. How do you comparatively rate the following visual acuity presented at your facility?

VA	Worse	Bad	good	Very good
HM				
6/60				
6/9				
6/6				

Responsiveness of to the program

15. Which primary eye care activities are you currently implementing in your community?

- a) School screening b)Community eye health education c)Community eye Screening d) treatment f) Referrals to base hospital g) Door to door survey

16. What is your level of satisfaction with the entire programme?

- a) Very satisfied b) Satisfied c) Indifferent d) Not Satisfied

17. How do you perceive the relevance of the programme in the community where you are working?

- a) Very relevant b) Indifferent c) Not relevant

APPENDIX B: IN-DEPTH INTERVIEW FOR KEY STAKEHOLDERS

1. Profession of respondent
2. Role in the HBCEHP implementation in the Municipality
3. How do you perceive the relevance of the HBCEHP?
4. What are the observed changes if any in PEC due to the HBCEHP in the Municipality?
5. What are the observed barriers to the implementation of the HBCEHP in the Municipality?
6. What are the observed factors facilitating the implementation of the HBCEHP in the Municipality?
7. What are your recommendations for improvement of the HBCEHP?
8. What are the success stories in eye care in the municipality so far?
9. How best do you think this should be replicated in other districts in Ghana?

