Factors influencing early detection and referral of children with blinding eye diseases and low vision.

An explorative qualitative study in Hai and Mwanga districts in Kilimanjaro Region in Tanzania.

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Tanzania

45th International Course in Health development
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KIT (ROYAL TROPICAL INSTITUTE)
Development Policy &Practice/
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FACTORS INFLUENCING EARLY DETECTION AND REFERRAL OF CHILDREN WITH BLINDING EYE DISEASES AND LOW VISION.

A thesis submission in Partial fulfilment of the requirements for the degree of Master of Public Health (MPH).

By

Elizabeth Andrew Kishiki.
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Declaration:
Where other people's work has been used (either from a printed source, internet or any other source) this has been carefully acknowledged and referenced in accordance with departmental requirements.

The thesis "Factors influencing early detection and referral of children with blinding eye diseases and low vision." is my own work.

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TABLE OF CONTENT.

LIST OF TABLES AND FIGURES.

List of figures

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"Feeling gratitude and not expressing it is like wrapping a present and not giving it".
William Arthur ward.

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DEDICATION

This thesis is entirely dedicated to Elissa and Eileen our loving twin daughters and Edson my beloved husband. The three of you give me reasons to persevere. It is also dedicated to Lidya my mother in law. Yours was a great sacrifice! Your tender love and caring for our girls made it easier for both of us stay firm while away from home.

ABSTRACT

Background: An eye disease in children is a matter of urgency. Once proper treatment is delayed, the chance of restoring sight becomes minimal. We sought to explore the factors that influence early detection and referral of children with blinding eye diseases and low vision by the first level of health care system (Dispensary). The results were to shed light to the government and all eye care providers on how well eye care services for children can be enhanced.

Methods: The study was carried out in July 2009 in 10 government dispensaries based in two districts of Kilimanjaro region in Tanzania. The study recruited only formal trained nurses and clinical officers. 16 people were interviewed using semi structured questionnaires and 11 respondents participated in in-depth interview. Additional information was collected using observation list.

Results: Findings suggest that early detection and referral of children with blinding eye diseases is hindered by number of factors. These, include insufficient knowledge and skills of dispensary health workers on childhood blinding eye diseases which was associated with lack of previous training on childhood blindness and absence of refresher courses on childhood blindness. The content of the manual on primary eye care indicated that the ongoing training is not adequate to prepare health workers for basic eye care services to children. Eye care needs of albino child and other children with low vision are not well known to primary health care workers. Other factors identified were lack of basic tools and information on eye care, sporadic supervision, lack of funding authority among the eye care managers and lack of awareness among the health workers of availability of free services at tertiary facility.

Conclusion: Blindness has a negative impact on the quality of life of the child. The problem can be detected early at primary health care level and proper steps for further case management at higher level can be followed. Under the prevailing condition in Tanzania, eye care services could effectively be implemented onto PHC system by giving additional training to the PHC workers in child eye health service; training manual should be revised to incorporate eye care needs of the child. Provision of basic tools and creation of an efficient referral and supervision system for childhood blindness and low vision would be necessary to enable children get the services without delay.

Key world: Primary health care, primary eye care, childhood blindness, Low vision, vision 2020, Childhood cataract, Tanzania.

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LIST OF ABBREVIATIONS

CCBRT	Community Comprehensive Based Rehabilitation in Tanzania
CEHTF	Child Eye Health Tertiary Facility
CO	Clinical Officer
DEC	District Eye care Coordinator
CHMT	Council Health management Team
DMO	District Medical Officer
DRS	Direct Referral Site
EPI	Extended Programmes for Immunization
ICHD	International master Course in Health Development
IEC	Information Education Communication
KCCO	Kilimanjaro Centre for Community Ophthalmology
KCMC	Kilimanjaro Christian Medical Centre
KIT	Koninklijk Instituut voor de Tropen (Royal Tropical Institute)
MNH	Muhimbili National Hospital
MoHSW	Ministry of Health and Social welfare
OPD	Outpatient Department
PEC	Primary Eye Care
PHCW	Primary Health Care Workers
REC	Regional Eye care Coordinator
RMO	Regional Medical Officer
TEM	Traditional Eye Medicines
UNICEF	United Nations Children's Fund.
WHO	World health Organization

DEFINITION OF TERMS:

Blindness
Presenting visual acuity of less than 3/60 in the better eye or a visual field of less than 10 degrees in the better eye.

Child.
A person between birth and before age of 16 years.

Childhood blinding diseases
A group of diseases and conditions occurring in childhood or early adolescence, (before age of 16 years) which, if left untreated ,result in blindness or severe visual impairment that are likely to be untreatable later in life.

Cataract
It is a clouding or opacity of the normally transparent lens inside the eye

Amblyopia
It is failure of vision to develop properly, frequently due to strabismus or anisometropia; sometimes called lazy eye. This almost always affects only one eye but may manifest with reduction of vision in both eyes. Cataract and cornea scarring in young children may also cause amblyopia as vision cannot develop properly.

Low vision
A person is said to have low vision who has an impairment of visual functioning even after best treatment/operation and/or standard refractive correction and has a visual acuity of less than 6/18 to light perception in the best eye, OR, a visual field of less than 10 degrees from the point of fixation. BUT who uses or is potentially able to use, vision for the planning and/or execution of a task

Squint
A squint is a condition where the eyes do not look in the same direction. That is, when one eye looks straight ahead the other eye is pointing inwards, outwards, up or down.

INTRODUCTION:

Kilimanjaro Centre for Community Ophthalmology (KCCO)

The Kilimanjaro Centre for Community Ophthalmology (KCCO) was established in Moshi in 2001 as a unit within the Good Samaritan Foundation which is the governing body of Kilimanjaro Christian Medical Centre (KCMC) hospital. The focus of the KCCO is to assist relevant partners (Ministry of Health (MoH), Non Governmental organizations (NGOs), academic institutions, service clubs, and others) to achieve the targets set out in the VISION 2020 initiative. The centre is dedicated to the elimination of blindness through programs, training and research focusing on the delivery of sustainable ophthalmology services throughout Eastern Africa (Egypt to South Africa). In 2002 KCCO started a childhood blindness programme by first looking into issues on childhood cataract in Africa.

In Tanzania many children with cataract are brought to hospital either too late or not at all. Few girls compared to boys are brought in for surgery. To address these problems KCCO started some research activities in 2002 to understand better how children are brought to hospital and what are the factors that limits their presentation. Two published results from this research observed that the mean delay in presentation to hospital for surgery was three years (Mwende et al 2004, Bronsard et al 2008). Delay in presentation was related to lack of awareness among the parents, distance to the hospital, parents' socio-economic status (some parents have to travel a great distance to get to the hospital. This involves some indirect and direct cost: some cannot afford) and mother's social and educational status. Some do not believe in hospital services and would rather register their children in schools for the blind than taking them to the hospital (Mwende et al 2004, Bronsard et al 2008).

Since 2003, KCCO, with donor support from a few organizations in Europe and North America, has been providing support for treatment services for all children with cataract and glaucoma at KCMC hospital and during outreaches. The support includes payment for their surgery, glasses, low vision devices, and follow up after surgery and where necessary transport. Furthermore, counseling services has been provided to all parents who bring children with blinding eye diseases. These supports and the ongoing community mobilization have increased the number of children who were brought for surgery and also how the communities perceived the effects of the surgery (KCCO, 2004; Shirima et al., 2009). KCCO also initiated "the bridging strategies" in 2004 that aimed to address the barriers to using the eye care services by the population. In this, eye care managers are trained to have an understanding of activities necessary to increase utilisation of eye care services. Regional

optometrists in northern part of Tanzania have been trained to provide proper low vision assessment to children with focus on those in schools and annexes for the blind. Teachers in schools and annexes for the blind have been trained on how to properly manage children with low vision in class. In 2008 KCCO conducted a refresher course on childhood blindness for all regional and district eye care coordinators from seven regions in the northern part of Tanzania which includes among others Kilimanjaro region. The aim was to make them understand the need for child's eye health and plan better to ensure that children with blinding eye diseases and those with low vision are getting treatment without any delay (KCCO annual report 2008).

I joined KCCO December 2005 as a childhood blindness and low vision coordinator. Since then, I have been coordinating all childhood blindness project activities within the country and I am also involved in training people from different vision 2020 programs in Africa. The choice of this topic (Factors influencing early detection and referral of children with blinding eye diseases and low vision) came from my three year working experience with KCCO and also from the different studies done on childhood blindness in Africa. This study fits well in the KCCO's large study on Childhood blindness and low vision in children in Africa.

CHAPTER ONE

TANZANIA COUNTRY PROFILE

This chapter describes the geographical and demographical profile of the country, its administrative structure and social economic condition. It also includes the health systems organization and eye care services in the country with brief introduction to activities supporting child eye health within the country.

1.1. Demographic Characteristics

The united Republic of Tanzania is the largest country in east Africa. It is located on the eastern part of the African continent covering a total area of 945,090 square kilometres. According to the current estimates; Tanzania has a population of 41.05 Million people with a growth rate of 2.04% (NBS, 2002). As in many low-income settings, the population pyramid of Tanzania has a wide base with 17,659,339 children under 15 years which is 43% of the total population (NBS, 2002).

1.2. Administration

The country is made up of the island part called Zanzibar and the Tanzania mainland part, which before the union in 1964 was called Tanganyika. The country is divided into 26 administrative regions (appendix 1), 21 regions being on the mainland and 5 regions on Zanzibar. Each region is subdivided into districts/municipalities (URT, 2002). Kilimanjaro region is in Northern part of Tanzania, it comprises of seven districts namely Moshi rural, Moshi urban, Rombo, Hai, Siha, Mwanga and Same (appendix 2).

1.3. Social economic condition.

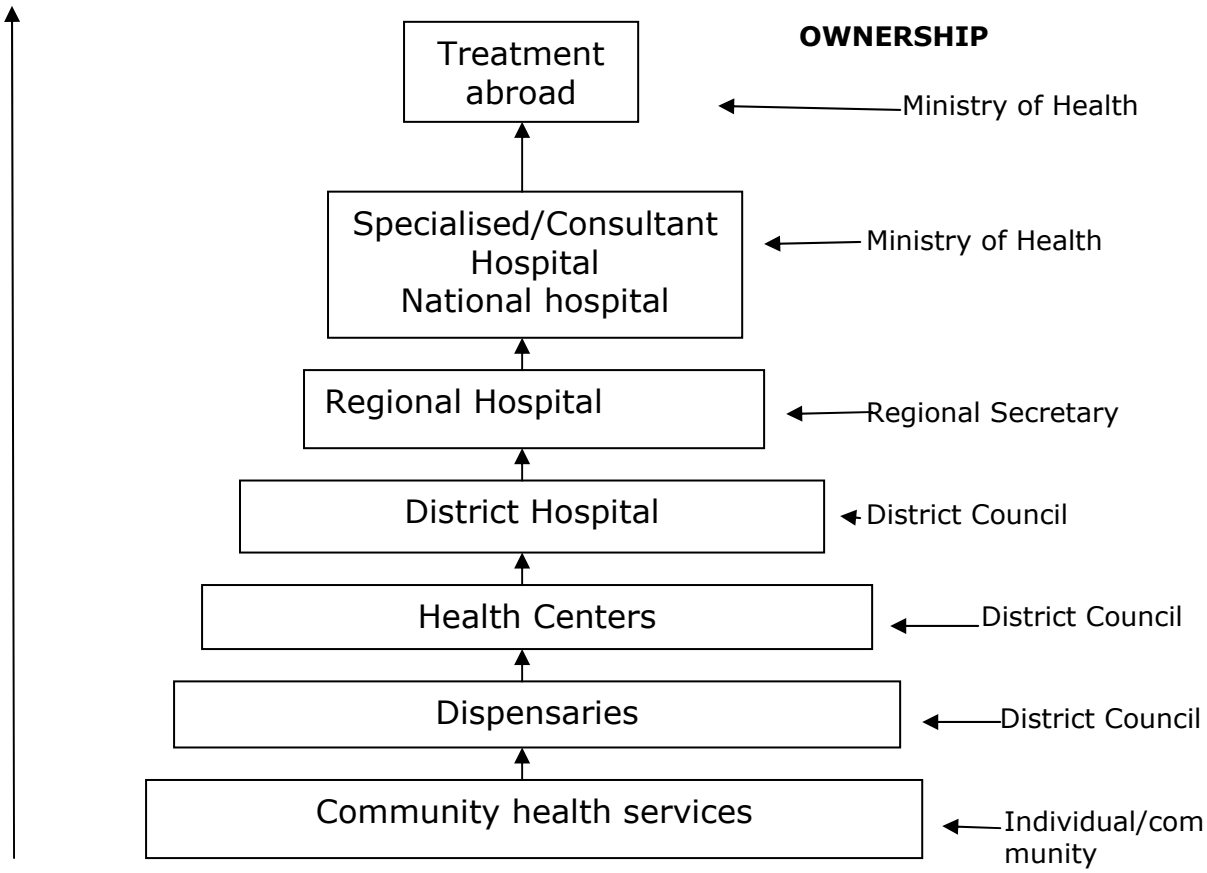
Tanzania is underdeveloped country depending largely on agriculture as its major economic activity. Agriculture accounts for 45% of the total exports, other sectors that support the economy are mining, tourism and services such as banking and telecommunications. The country's GDP per capital income is $ 340 which makes the country to be one among the poorest countries in the world (IMF, 2007).Seventy four percent of its people live in the rural area with small scale farming being their major economic activities. About 35.7% of the Tanzanians live below poverty line (spending less than $ 1.08 per day) (WB, 2008).

1.4. Health care services.

Health care services within the country are being provided by government facilities, private for profit facility and non-profit health facilities which are mainly faith based–owned. The provision of health care services including

eye care services is divided into three levels: national, regional and district. The ministry of health administers and supervises all consultant referral and special hospitals, the national hospitals and training institutions. At regional level, the provision of health services is under the regional administrative secretary with technical guidance from regional health management team and at the district level, the healthcare administration starts at grassroots with dispensaries and health centres, which are under District medical officer (DMO) with technical guidance from district management team (MoH 2002). As results of decentralization, healthcare is funded through the basket fund. At district level, the health care resources are being allocated through Council Health Management Team (CHMT). Eye care is also financed by this funding. The referral system in Tanzania (figure 1) follows the pyramid structure starting from the community level (village) up to the treatment abroad. Since majority of the population is in rural areas, the distribution of health facilities has rural emphasis. According to TDHS (2004-5) infant mortality rate in Tanzania is 68 deaths/1000 live births, under 5 mortality rate is 112 deaths/1000 and maternal mortality ratio is 578 maternal deaths per 100,000 live births (TDHS, 2004-5)

Figure 1: The referral system in Tanzania.



Source: Ministry of Health

1.4.1. Eye care status and services in Tanzania.

Vision 2020 in Tanzania

Vision 2020 is a global initiative launched jointly in 1999 by the World Health Organization (WHO) together with International Agencies for the Prevention of Blindness (IAPB). The vision of the initiative is to work together to eliminate avoidable blindness by the year 2020,and to ensure that all people of the world have the right to sight (WHO 1999).Blindness has a significant contribution not only to the burden of disease but also to poverty due to productivity loss. In joining global efforts of eliminating blindness, Tanzania Ministry of Health (MoH) officially endorsed the initiative in 2002 which was followed by the development of the five year strategic plan in 2004. The strategy calls all individuals and institutions involved in combating blindness to work together in a focused and coordinated way to achieve the common goal of eliminating preventable and treatable blindness.

Eye care status and services

Tanzania, like most sub-Saharan countries is greatly affected by a number of communicable diseases such as HIV/AIDS and malaria that together with economic limitations lack adequate control or prevention programs. Eye diseases are among the top ten diseases in the country; it is estimated that about 410,000 (which is one percent of the total population) Tanzanians are blind due to various eye problems mainly with cataract, corneal scars and glaucoma. More than 75% of these cases are preventable or treatable (MoH 2004). In Tanzania there is no exclusive eye hospital. Basic eye care services have been intergraded and are being provided at all levels of health care services. Primary eye care is provided within the existing government and non government primary health care structure, for examples dispensaries and health canters. Eye surgery particularly cataract and some minor surgeries for adults are provided by the eye departments of some regional hospitals. All major paediatric ophthalmology services are provided by the specialized Tertiary facility in Kilimanjaro region and in Dar es Salaam region (appendix 1).
The coordination of eye care services at all level is under the supervision of the National Eye care Programme. Support to eye services is contributed jointly by the Government, faith based institutions and Non Government Organizations (NGOs). The role of the NGOs are mainly training different medical/health cadres, conducting research, support different eye care programmes, for example cataract and trachoma activities, running outreaches and support water supply and sanitation. Currently there are about 26 ophthalmologists and 28 cataract surgeons

to cater for the whole Tanzanian population (~1 per 760,000 people). The ophthalmic nursing officers are 158 and working in different districts in the Country (MoH, 2004). Dar es Salaam and Kilimanjaro region where the CEHTF are located have got more of these ophthalmologists (15 and 5) and ophthalmic nursing officers (20, 13).

Childhood blindness services in Tanzania

The WHO advocates one Child Eye Health Tertiary Facility (CEHTF) for every 10 million population (Gilbert 2007). Tanzania, with a population of about 41 million people has two fully functioning CEHTFs. One in the north, Kilimanjaro Christian Medical Centre (KCMC) and one in Dar es Salaam city, Comprehensive Community Based Rehabilitation of Tanzania (CCBRT). Both centres offer cataract and glaucoma services free of charge to patients and also in special cases, reimburse for transport costs (Courtright, 2008). Recently, a new CEHTF has been established at Muhimbili national hospital eye unit in Dar es Salaam (in the same city with CCBRT). KCMC, one of the big tertiary referral hospitals in the country, serves more than 14 million people in northern part of the country and some areas of southern Kenya. Its eye department is working in close collaboration with Kilimanjaro Centre for Community Ophthalmology (KCCO) in providing eye services. The collaborative activities include research, training and programmes that aim at bringing eye services closer to people.

Paediatric surgical outreach.

The paediatric cataract surgical camp is a partnership between Tanzania Ministry of Health and social welfare (MoHSW), KCCO, CCBRT and Muhimbili National Hospital (MNH). The decision to have joint camps came from the fact that the few CEHTF Tanzania has, are still not adequate for 41 million populations. Evidence from studies on utilization of services throughout the country revealed that utilization in the Lake Zone and the Southern Zone was one tenth that of regions near Kilimanjaro and Dar es Salaam where these CEHTF are situated (Courtright, 2007). Previous research shows long distance to a health facility is a significant barrier to accessing eye care for children of most of the families coming from Lake Zone, even when the costs of transport were covered (Mwende et al, 2005).
Paediatric surgery camp model was established in June 2007 in the Lake Zone (population 9 million in 5 regions) of Tanzania and in 2008 another camp was established in Southern highlands covering 4 regions (appendix 1). The aim was to assess the possibility of.

- Addressing the backlog of childhood cataract in these regions
- To sensitize the community about the possibility of medical intervention for children with vision loss

- To develop a team approach for the provision of services by the CEHTF and local health care providers

Prior to the camping days promotion is done to encourage the parents to take their visually impaired children for screening at their nearby health facility. Health facilities in these zones are instructed to refer only those children with severe visual problems to the surgical camps. Surgical services are offered free of charge to parents while one way transport costs are reimbursed to parents who provide a waiver from their local leaders.

CHAPTER TWO

2.0. INTRODUCTION

This Chapter gives the background information to the problem, defines the research problem, gives the relevance of the problem and a review of available literature and lastly the chapter gives the general aim of the study and its specific objectives.

2.1. Childhood blindness worldwide

Childhood blindness and low vision is considered a high priority by the WHO and is also one of the five major priority areas of VISION 2020.It is estimated that by the year 2020, there would be 75million blind people if the present trends will not be controlled (Lewallen Courtright 2001).The Vision 2020 initiative targets were chosen not only because of the magnitude of the problem but also because these causes of blindness are either preventable or curable. Moreover many of the interventions to control blindness are simple and can be provided at a low cost. Globally, there are 40 million blind people, of whom 1.4 million are children (WHO, 2007). It is estimated that a child goes blind every 5 minutes and that there are 500,000 new cases of child blindness every year (Gilbert & Foster, 2001). The magnitude of childhood blindness is often underestimated, because most of the blind children die within two years after becoming blind and are never detected. The prevalence of blindness in low income countries with high under 5 mortality rates can reach 1.5 per 1000 children whereas in high income countries with low under 5 mortality rates the prevalence is around 0.3 per 1000 (Gilbert & Foster, 2001). Blindness in children occurs mostly before the child reaches five years, the time when most of the learning is done through sight. Without immediate treatment the surviving child is therefore bound to have delayed mental, motor or physical development. According to Gilbert and Foster (2001), Control of childhood blindness should be a priority because:-

- Children have large number of blind years: - Children who are born blind or who become blind and survive have a lifetime of blindness ahead of them, with associated psychosocial emotions and social economic costs to the child, family, and the society.
- The causes of childhood blindness are different from adults and many are preventable at community level. In the poorest countries, it is estimated that 40% of blindness in children is by avoidable causes like cornea scarring from measles, vitamin A deficiency, and the use of harmful traditional eye medicines.
- Some of the blinding conditions related with childhood blindness are also causes of child mortality (e.g. premature birth, measles, congenital rubella syndrome, vitamin A deficiency and meningitis).

- The visual pathways (connections in the brain) necessary for good vision in children, are partly controlled by genes and partly by external visual stimuli. If the child is unable to see, insufficient connection will develop.
- Irreversible amblyopia (lazy eye) occurs if treatment is delayed.

In Tanzania, children with blinding eye diseases are being brought late for proper treatment. The factors leading to delay from the community level have been well established and there are programmes in place addressing some of the barriers at this level. However, the factors which lead to late detection and untimely referral of children with blinding diseases at the front line health care services are so far not researched. This study aims at exploring barriers and enabling factors that influence early detection and referral of children with blinding eye diseases at the level of primary health care services. During a literature search, no study could be identified that have explored the barriers at the level of primary health care services. From the group of blinding eye diseases in children, the study will make reference to most common blinding eye diseases namely cataract, cornea scarring, squint and low vision due to albinism. This study will broaden our understanding on why there is delay in detection and referral.

2.2. Problem statement.

Poor vision in children is a matter of urgency. Once treatment is delayed, the chance of restoring sight becomes minimal. Although different eye diseases need different intervention, they all need to be treated as soon as possible. Over 90% of blind children are thought to come from middle-income and low-income countries (Bowman R, 2005). The major cause of blindness in children differ from high income countries to low income countries. This variation is mainly due to socioeconomic development and availability of primary health care and primary eye care (Gilbert &Foster 2001). In high income countries the main problems are lesion of the optic nerve and higher visual pathways. In middle income countries Retinopathy of Prematurity is an important cause and in low income countries the major causes are cataract, corneal scarring from measles, vitamin A deficiency and the use of harmful traditional eye remedies. Others are ophthalmia neonatorum, congenital abnormalities and hereditary retinal dystrophies (Gilbert & Foster 2001). Most of the underlying cause of blindness in children today could have been prevented or have been treated to protect vision or restore sight (Gilbert & Foster 2001).

Cataract is a major cause of visual disability throughout the African continent and it is also the leading cause of blindness in children in East Africa (WHO, 2007; Courtright et al., 2008). It has been estimated that worldwide there are 200,000 children who are blind from cataract and 20,000-40,000 children are born with cataract every year (Yorston,

2004). Although the magnitude of childhood cataract in Tanzania is not well established due to limited data, the estimates are likely that the backlog of children needing surgery is around 100 children per million population and the annual incidence is probably around 20 children per million populations per year (Courtright et al., 2008). In Tanzania the total number of children receiving surgery for congenital/ developmental cataract ranges from 400-450/per year. For a population of 41 million, the total number of children receiving eye cataract surgery is too far to clear the backlog. Cataract in children is a rare disease, due to this fact, there is a small chance that a primary health care worker will encounter in his/her professional life a child with cataract. This may lead to less attention to the problem which may jeopardize vision status of a child.

Corneal scarring is the next major cause affecting children after cataract (Whitcher et al, 2001). The incidence of childhood cornea-related visual loss in low income countries is 20-times higher than in high income countries (Whitcher et al, 2001) .Many factors are involved and interrelate in producing corneal ulceration in children in Africa. These include measles infection, the use of traditional eye medicines (TEM), herpes simplex infection, and vitamin A deficiency. TEM have been identified as a major risk factor of corneal scarring in developing countries in particular Africa (Yorston & Foster 1994). The use of TEM is likely to vary from one place to another and is difficult to define because of its interaction with other eye diseases. Although corneal related blindness due to measles and vitamin A deficiency is decreasing as a results of good international initiatives like EPI (1974) and global school health initiative in 1995 (Gilbert & Muhit 2008), measles and vitamin A deficiency remain to be important cause that put the African child at risk of developing corneal ulceration and becoming blind.

Squint, which is usually associated with amblyopia, receives less attention in African context as in developed countries. It can be one of the earliest stages of Retinoblastoma. Retinoblastoma is fatal; its examination is frequently carried out under general anaesthesia. Delay in the referral of children with squint to an ophthalmologist may have a fatal result (Taylor, 1997).

In most cases eye diseases in children can be prevented and /or treated even during the first few months of their life. Without early detection and intervention, a child with an untreated eye disease may suffer from serious vision loss or even blindness. In the basic package of primary eye care services, one of the important activities is eye health promotional and preventive activities which focus on education and community participation. If this role could be well implemented avoidable and preventable blindness in children could be averted. According to Courtright et al (2008), few children with blinding eye diseases like cataract in Tanzania are brought in for surgery, and they are brought in

late. Evidence from Africa, Tanzania is not an exception, shows that half of the children' operated eyes end up with a vision less that 6/60: much of this is due to amblyopia as a result of late presentation (Courtright et al., 2008).

In Tanzania, children especially the under five, have contact with primary health care workers in dispensaries at different points especially during their monthly growth monitoring clinics. All of these contacts offer the chance for children with blinding eye diseases to be identified. Conversely the evidence shows that the chance is either not taken or, when taken, do not lead to proper referral for appropriate treatment (Courtright et al 2008).

Further, children with low vision which includes many with albinism have been unnecessarily enrolled in schools for the blind without being referred for proper eye assessment. Some are even blindfolded in order to read Braille (Kooij, 2008). The main challenge of blinding eye diseases in children in Tanzania is early detection and timely referral which will lead to provision of interventions to the children before it is too late and to provide the follow up care with refractive correction and low vision services.

Studies done in Bangladesh and Tanzania have mentioned lack of knowledge amongst primary level health care providers to detect eye diseases in children as one of the barrier to early detection and proper referral (Muhit, 2004; Courtright 2008). This can be compounded by inadequate resources to properly train and equip them with the basic tools for diagnosis. Detection of eye diseases in children is challenging, it requires a special skill, time, patience and understanding. It requires interesting fixation devices as young children may not able to describe their vision and may as well not be willing to participate in the process. The fact that the primary health care workers rarely see children with eye diseases like cataract means that the chances to practice their acquired knowledge and skills are limited. Furthermore inadequate policies and guidance on management of childhood blindness, lack of supervision and low motivation among the primary health care workers at the primary health services may also contribute to the delay.
The community related factors are well documented but not that of the first level health care system. This study explored more of the barriers and enabling factors that influence early detection and referral of children with blinding eye diseases at the level of primary health care services.

2.3. Study framework and the literature review.

Published evidence were searched for in electronic data based (Pub med, WHO, Science direct and VU) KIT library references such as previous thesis were also consulted. Unpublished reports (grey literatures) were

obtained from Kilimanjaro centre for community ophthalmology where the researcher is employed.

It is remarkable that there are several studies identifying the effects of late presentation for surgical interventions for childhood blinding eye diseases. (Bowman 2005) However studies on contributing factors for the delay in treatment are few. Further, the contributing factors from the demand side (the community) often receive more attention than those of supply side (health care providers). This study explored the delaying factors from supply side. The study adapted the nine elements of systemic capacity building by Potter and Brough (2004) as an exploratory guide and in summarizing the findings. In their study, potter and Brough (2004) commented that although there may be lack of skills among the health workers, training alone is not enough for good performance. There is a need to look into system capacity to address the real problem. Although the model is useful for capacity building, its systemic way of diagnosing the organizational shortfalls provided key elements to be looked at for better understanding of health workers performance, appendix 3 (Potter & Brough 2004). Following the elements in the model, the study was able to assess the key elements that can collectively influence the performance of the dispensary health care workers. Further the model offered an opportunity to provide recommendations regarding where action is needed most.

2.3.1. Performance capacity.

WHO recommended integration of eye care services with general health services at all levels (WHO, 1999). The integration should be based on available resources and appropriate technology suitable for the setting. Activities and tools at primary level have been listed in the basic primary eye care package (appendix 1). Equipping the health care centres with basic eye care diagnostic tools is vital for the effective provision of eye care services for children. Diagnosis of a low vision child for example, needs devices which might not be available in the health facility. Absence of interesting fixation devices which help in attracting the child to cooperate in the detection process may as well contribute to ineffective detection (Kooij, 2008). Non availability of essentials tools and education materials in health canters may contribute to wrong diagnosis and delay the proper treatment. In this regard, we have little information about the diagnostic tools, and educational material that assist the dispensary workers deal with eye conditions in children.

2.3.2. Personal capacity

Quite a number of studies on childhood blindness and low vision in Africa appreciate the fact that involvement of primary health care workers in the control of blindness in children would help in early diagnoses and referral. However insufficient knowledge and skills among the health workers have

been identified among the existing barriers to provision of such service (WHO, 2000; Gilbert & Foster 2001; Muhit, 2004; Mwende et al., 2005; Courtright, 2008).
Research from Tanzania revealed that although the major delay in presentation for blinding eye diseases is associated with social cultural factors existing within the community, conversely, the presentation to treatment delay is also still too long (Mwende et al. 2005). When analysing socio-organizational barriers within the health care system, Bronsard et al (2008) revealed that there is a problem of incorrect diagnosis or inadequate information given to parents of children with cataract by the health workers. The study showed that the health care workers have inadequate knowledge and skills to detect cataract in children and properly refer them to CEHTF (Bronsard et al 2008). The findings however have been drawn from the sample of parents of children with cataract and not from the health workers themselves. Data from an unpublished survey of health workers in Tanzania interested in prevention of blindness demonstrated that majority of them felt that cataract surgery on a child should only be done when the child is old enough and the cataract more mature. Consequently, the messages that health workers are likely to give parents of children may also delay their presentation to CEHTF.

2.3.3. Workload capacity with supervisory capacity

Most eye conditions in children are either preventable or curable, this entails most of the activities should be done at community level. Primary health facilities have task in providing primary health care to the community. The health workers at this level are strongly involved in screening, prevention activities and health promotion services. All these are responsible for dispensary health workers' increased workload. Variable workloads are commonly reported problems in most of African settings due to shortage of staff (Manongi et al, .2006; Phiri, 2007; Nyamtema et al., 2008). Tanzania, like other African settings, has shortage of human resource for health mainly at grassroots level. There are no enough health workers to provide services within the country especially in rural areas. In their study, Manongi et al (2006) and Nyamtema et al (2008) noted that serious understaffing in Tanzania led to the available health workers perform duties beyond their limits. There is insufficient evidence on how much does the workload affect the provision of eye care services.
Manongi et al (2006) considered supportive supervision, performance appraisal, and trainings among the effective ways to empower health workers to perform better. Supervision includes reviewing records, observing clinical practices, providing skills up-grading, and supporting good patient-worker interaction. In Africa, supervision ranks among the major problems to be solved (Moreira, 2006). There is no information to assess if supervisory visits, by the district eye coordinators are supportive enough to facilitate provision of primary eye care services to children.

2.3.4. Facility capacity with support services capacity

The health workers need to know the procedures in examining the eyes of the children. They need to know which eye diseases they can adequately treat themselves, and which ones they should immediately refer and where to refer for further treatment (Gilbert, 1998). It is not clear whether health workers have any written guideline to assist them in providing eye care services to children. It is recognized that having guidelines is a step, but supervision, monitoring and retraining are needed to ensure that health workers observe those guidelines. Further eye care programmes and policies at the CEHTF in Tanzania, like those relating to the direct and indirect cost of medicine and procedures are not well known among the PHC Workers (Bronsard et al., 2008). This might lead to dispensary health workers to give unclear information to the parents of children with eye conditions that need referral to CEHTF. Gilson et al (1993) concluded that technical and interpersonal skills in Tanzanian primary health care were generally poor and that was traced to the training curricula. Although the national Primary Eye Care (PEC) curriculum is in place, there are no data on whether it has incorporate childhood blindness and that health workers know different eye conditions that may cause blindness in children and know how to diagnose and how to manage them.

2.3.5. System capacity, structural and role capacity

District Eye Coordinators (DEC), who are in some cases, the only eye care trained personnel (ophthalmic nurses) in their districts have a role to play in promoting eye care services. They are among the co-opted members of the Council health management team (CHMT). The CHMT is responsible for health budget allocations in the district (Kell and Eliah, 2007).The involvement of DECs in the council support the hypothesis that eye care activities can be easily financed. DECs need financial power to be able to implement their planned eye care activities within their districts. It is not clear how often do they fulfil this role and what challenges they do face in fulfilling their tasks.

At the dispensary level, it is anticipated that health workers have some time to meet and discuss different issues including clinical and staff matters .Clinical meetings provide room for sharing knowledge and solution to problems can be brainstormed. In this regard it is easier to identify difficult clinical cases related to eye care and be presented whenever there is supervisory visit by an eye specialist. There is no information on whether health workers do meet and how useful these meetings are.

2.4. Rationale for the study.

- Little is known on the contributing factors of late detection, referral, and follow up from the front line health care services provider's perspective. So this study aims at exploring these factors in order to give recommendations for eye care services improvement.
- Practically the study will benefit the people working in the field and the children who are affected by the current situation.

2.5. OBJECTIVES.

2.5.1. General objective

To explore factors that influence early detection and referral of children with blinding eye diseases at the level of primary health care services in Hai and Mwanga districts in order to give recommendations. on improving provision of eye care services to children.

2.5.2. Specific objectives:

1. To assess the knowledge and practices of primary health care workers on management of the most common blinding eye diseases in children.
2. To assess knowledge and skills of primary health workers on appropriate educational placement of children who are severely visually impaired

3. To assess availability of the basic tools and supplies for primary eye care and the organization of service delivery activities.

4. To identify factors within the existing system (the facility, structure, supervision and role) influencing early detection and referral of children with treatable blinding eye diseases in Hai and Mwanga districts.

5. To use the findings to make recommendations on improving provision of eye care services to children.

CHAPTER THREE

METHODOLOGY

This chapter describes the research design and methods which were employed in gathering information relevant to meet the set objectives. The chapter briefly explains the study design, study areas, study population sampling procedures and the instruments used. It also explains how data were collected, ethical consideration and data processing.

3.1. Study design.

As factors contributing to poor performance on eye care at dispensary level are rarely documented, an explorative study was used to achieve the set objectives.

3.2. Study area

This study was conducted in Hai and Mwanga Districts in Kilimanjaro region. Mwanga has got 36 dispensaries and Hai district 25 dispensaries. The study involved government dispensaries only. Table 1 shows the list of these dispensaries and their catchment area.

Table 1: Dispensaries and their catchment area

District	Name of dispensary	Catchment population
Mwanga	Kileo	5609
	Kifaru	6484
	Kiruru	1921
	Mgagao	2332
	Pangaro	X
Hai	KIA	3559
	Sanya station	4742
	Bomang'ombe	3924
	Lambo	5300
	Kwale	4065

3.3. Study population and sampling

The sample included two groups of respondents. The first one had a total of 11 respondents these respondents included two district eye coordinators (DECs) and nine Primary health care workers (Clinical officers and nurses) who were recruited for in-depth interviews. Another group involved 16 respondents; this group included the clinical officers and the nurses only. They were recruited for the semi structured questionnaires. The clinical officers are the in charge of the dispensaries

and are responsible for providing health care services. The nurses also have primary responsibilities for health services.

The study included only formally trained nurses and clinical officers working in the selected government dispensaries in Hai and Mwanga districts. The study excluded the nongovernmental dispensaries, auxiliary nurses (they have no formal health training) and all the health workers who did not consent to participate in the study. With the exceptions on the DECs, all the respondents were based at selected 10 Ministry of health and social welfare dispensaries.

Hai and Mwanga districts were purposeful chosen for this study because they are in Kilimanjaro region which is known to have a well established eye care services within the country. The two districts have been chosen because they already have a well establish eye care outreach programme run by Kilimanjaro Centre for community ophthalmology in collaboration with other eye care partners in Kilimanjaro region. Hai and Mwanga do not differ much with other districts in the region in terms of distribution of health services. Hai district has a primary school for the blind which recruits most of the children from within and outside the district. This represented the other two districts which have schools for the blind. Mwanga district does not have a primary school/annex for the blind, which again represented the other two districts with no such a service. Due to time and resource constrains only those dispensaries which are less that 20 kilometres from the main road were included in the study

3.6. Study issues/variables

Please refer to appendix 5

3.7. Data collection

3.7.1. Method (s)

Review of available information

Visitors' book in each of the dispensaries was reviewed to examine the trend of supervisory visits and the OPD registers book was checked for the calendar year 2008 to see how eye cases are documented and the number of children under 15 years, with eye cases seen in the year 2008. Policy, guidelines and training manual regarding eye care services were also reviewed.

Interviews

To insure high response rate, semi structured questionnaires (appendix 11) were administered by principal investigator assisted by a research assistant. 16 primary health workers were interviewed. Semi-structured interviews also included presentation of 4 photographs of eyes of children with specific eye conditions (cataract, squint, albino, vitamin A deficiency related corneal disease) and a series of questions related to their ability to identify the condition, treatment guidelines, referral guidelines, follow up guidelines, and educational opportunities. Further there were eleven respondents recruited for in-depth interview (Appendix 12). The in-depth interview included questions on enabling environment.

Observations.

There was a check list for observation (appendix 13) which helped in collecting additional information on the availability and use of some basic equipment for eye diagnosis, availability of eye medicines, availability of treatment guideline and whether there were any materials or pictures on the wall explaining any eye diseases on children.

3.7.2. Tool (s)

Questionnaire, interview guide and checklist were used to collect data from the field (appendix 11, 12, 13). A pre-test of the methods was done amongst first year students at KCMC School of nursing and tools were adjusted based on the findings from the pre-test.

3.8. Ethical Considerations/clearance

The necessary ethical approvals were requested and obtained from KIT Research Ethical Committee and the KCMC/Tumaini University Research Ethics committee in Tanzania (Please refer to appendices 6 and 7).
Permission to conduct the study was obtained from both the regional authority and districts authorities (appendices 8 and 9). Written consent was sought from the study respondent's (appendix 10).

Confidentiality

Confidentiality was adhered to throughout the study. Respondents were provided with code identifiers in order not to disclose their identity. All the interviews and discussions were conducted in a private area. During the interview, the research assistant recorded the proceedings and a tape recorder was only used for in-depth interviews with permission by the respondents. The recording was done in password protection. Every day after every interview, there was discussion, transcribing and interpretation of data. The voice records were destroyed at the end of study.

3.9. Quality assurance.

To safeguard the quality of data the research team included a principal investigator who is an ICHD course participants and a research assistant who has some experience in research. There was a one day training of the research assistant on the study background, tools and the methods.

All research tools were back translated from English to Kiswahili language and vice versa by another person. The two versions were compared and terminologies that retain the original meaning and are clear to respondents were agreed. The transcript of the interviews was also directly translated after finalizing the interpretation and discussions by the principal investigator.

To reduce bias research tools were developed very careful and pre-tested. The same questions in the in-depth interview guide were used for both primary health care workers and the district eye coordinators. The data collected from the two groups and from the record review and observation were triangulated to confirm the findings**.**

3.10. Data processing and analysis

The Data processing and analysis was structured around five stages described by Pope et al (2000) as follows:

1) **Familiarization**: Audio taped data were listened and transcribed directly by the principal investigator on the same day so that data could be checked for any interpretation problem and assessed for any incompleteness.
2) **Identifying a thematic framework**: The sorting of data was done manually at the end of each day of data collection to distinguish the responses. As an interim process, this allowed concepts and themes to be identified and arranged according to the study framework. Data from observation were arranged according to the checklist used during the observation. A separate check list prepared prior to data processing was used for completeness of data from all the tools and for internal consistency.
3) **Indexing**: Using the thematic framework, sections of the text were numbered and coded according to relevant issues.
4) **Charting**: Data from participants were categorized according to issues and entered into the computer using excel spreadsheets for analysis.
5) **Mapping and interpretation**: Findings from in-depth interviews with the primary health care workers were triangulated with that of

the district eye coordinators to find associations, providing explanations and developing recommendations.

3.11. Plan for utilisation and dissemination of information

The results are expected to be used by the Ministry of Health and social Well Fare (MoHSW) and its partners to revise the current national Primary Eye Care (PEC) manual and to strengthen programmes that aimed at reaching these children. They are also aim at providing information necessary for policy decision and training programmes for the primary health workers on childhood blindness and low vision services.

CHAPTER FOUR

STUDY FINDINGS

The study aimed at getting an impression of the reality of the primary health care system (at dispensary level) in relation to child eye health. It included 10 Ministry of health dispensaries, 5 in Hai district and 5 in Mwanga districts. This chapter presents what has been leant from the field.

The plan was to have 20 respondents (clinical officers and nurses) from dispensaries recruited for semi structured interview (questionnaires) and 12 respondents (two DECs and clinical officers and nurses) for in-depth interview. At the end of the data collection process, we managed to get respondents from 9 instead of dispensaries. 17 health workers were interviewed using the semi structured questionnaire and another 9 health workers and 2 DECs participated in in-depth interviews. Data could not be collected from health workers at one dispensary in Mwanga district as it was closed on our two visits. Of the 17 filled in questionnaires, one had to be removed from the study as it was realized that the respondent could not meet the inclusion criteria. The available data from questionnaires are from 16 respondents and from in-depth interviews 11 respondents respectively as illustrated in table 2 and 3 below

Table 2: Characteristics of the respondents who filled inn the questionnaires.

	Male N=5	Female N=11	Total N=16
Median age	52	51	52
Cadre			
Clinical office	5	2	7
Trained Nurse midwife	-	3	3
Trained nurse midwife grade B	-	3	3
Trained nurse general	-	3	3
Duration of training			
2years	1	3	4
3-4 years	4	8	12
Childhood blindness part of training	0	0	0
Received refresher course on childhood blindness	0	1	1
Median number of working years since qualifications	20	23	23

Table 3.Demographic characteristics of the respondents of the in-depth interview.

	Male N=5	Female N=6	Total N=11
Median age	51	45	49
Cadre			
Clinical officer	3	2	5
Trained nurse (MCHA)		2	2
Trained nurse general		2	2
Ophthalmic nurse	2	-	2
Work experience			
Median number working experience	17.5	9	15

4.1. Knowledge and practices of primary health care workers on management of the most common blinding eye diseases in children (personal capacity).

Table 4: Summary: respondents by cadre and by their knowledge and practices in recognizing the 4 eye conditions in children

	Clinical officers N=7	Nurses N=9	Total N=16
Common eye condition:			
Cataract			
Recognized	6	8	14
Know the treatment	5	5	10
Know the treatment age for the child born with the condition.	0	1	1
Know the risk of treatment delay	4	4	8
Squint			
Recognise it as a clinical problem	4	2	6
Know suitable treatment age	4	1	5
Cornea scar			
Recognised	3	3	6
Know possible cause	4	3	7
Give proper educational advise	3	1	4
Albinism			
Know the effect of albinism on child's eyes	4	4	8
Feels albino child Shouldn't use Braille as learning medium in school	3	4	7

Knowledge of blinding eye diseases.

The study findings as it has been summarized in table 4 suggest that majority of health care workers could recognize cataract in children, and fifty percent of the respondents knew the risk of delay in treatment. Only one health worker was able to tell the suitable treatment age for the child born with cataract. A relatively lower number of health workers considered squint on children as a clinical problem that needs referral.

The rest of the respondents felt that squint is something very normal. Not many respondents recognised corneal scar. 4 out of 5 clinical officers compared to 3 out of 11 nurses knew the possible causes of corneal scar. 7 out of 9 respondents in the in-depth interviews mentioned the lack of knowledge and skills as the main challenge they face in providing eye care services to children. The following quote illustrate more

We are lacking so much in eye care, myself, I would say I know very little about eye diseases in both children and their parents! We are not familiar in eye care profession. (Health worker 3)

The knowledge gap of childhood blinding eye diseases among the dispensary health workers was also felt by the two district eye care managers during the in-depth interview as illustrated by this quote:-

They have very minimal knowledge.... they can't differentiate eye diseases; to them everything is eye infections! Some time they refer very minor cases which they can manage themselves and sometimes difficult cases they would keep on trying to treat when they are supposed to refer immediately... (DEC 1).

Although majority of respondents had difficulties in recognising eye diseases in children, the clinical officers showed a better understanding of eye diseases compared to the nurses.

Knowledge of visual impairment of albino children.

An average of fifty percent of the respondents knew the effect of albinism on child's eyes (table 4). This was explained as having problems in light accommodation (photophobia) and lack of melanin pigments in the eyes which affect their vision. From the in-depth interviews respondents explained that albino children are having nonstop shaking eyes which is considered abnormal as illustrated in the following quote:

I know they have to cover and protect their skin from the sun. I have observed that their eyes are shaking most of the time, they are actually not normal....'(Health worker 1)

Though it was not anticipated that health workers at dispensary level should know all possible effects of albinism in a child, fifty percent is a relatively low score considering eye problems among people with albinism is common.

Causes of childhood blindness, considered emergency conditions and PHC workers practices when encountered with unfamiliar conditions

Table 5: Summary: Causes of childhood blindness, considered emergency conditions and PHC workers practices when encountered with unfamiliar condition

		Clinical officers N=7	**Trained Nurses N=9**	**Total N=16**
causes of blindness in children	**Commonly mentioned conditions (n)**			
Mentioned at least 1-2 causes	Injury(10),cataract(10), measles(2), Vit, deficiency (2), glaucoma(2)	2	6	8
Mentioned at most 3-4 causes		3	1	4
Eye diseases that PHCW think they can treat				
Could treat red eyes & allergy	Red eyes(16), allergy (16),pain in the eye (1),trachoma (2)	6	8	14
Could treat red eyes, allergy and others		1	1	2
considered emergency eye diseases in children				
Mentioned 1-2 diseases	Injury(13),cataract(8),for eign body (7),glaucoma (2)	3	5	8
Mentioned 3-4 diseases		4	1	5
where to refer				
District Hospital		2	6	8
Regional Hospital		-	2	2
KCMC		5	1	6
Protocol present.				
Available		Not	Not	Not
Know the cost of cataract surgery at KCMC		1	-	1

Fifty percent of the respondents mentioned two conditions that may cause blindness in children (table 5) and 4 respondents mentioned more than two conditions. Most of these respondents mentioned cataract and injury as the main cause of blindness in children. Only 2 respondents could associate lack of Vitamin A and measles with blindness in children. Cataract and injury were also considered by majority of respondents as emergency cases that need immediate referral. The few respondents who could not give proper name of the diseases said they normally refer any cases which look unfamiliar to them. As elaborated by this quote:

I don't know the names of most of the eye diseases but we normally refer the ones we think there's nothing more we can do (Health worker 6).

For the most part, respondents mentioned that they would refer all the emergency cases to the district hospital while 6 respondents said that they would refer cataract to KCMC hospital. It was also noted during the

in-depth interview that in most instances the referral was provided after treatment failure as illustrated below;

We normally treat them and after some time we tell them to come back, if no improvement we refer.... (Health worker 9).

Overall the respondents felt that they are able to treat allergy and red eyes using tetracycline ointment. None of the respondents reported to have any eye care protocol (table 6) and this was affirmed during the observation process.

The respondents consider eye condition in children an emergency after treatment failure at their level of service.

Eye care documentation and record keeping

From the registry it was noted that all eye conditions were registered as "conjunctivitis" .The eye care information from the registry were entered again in MTUHA- (Swahili acronyms for health management Information system) report under one category "eye problems". It was not possible to obtain more information on what eye conditions were commonly seen and what eye conditions in children were treated at dispensary and how many were referred.

Table 6: Number of eye patients (children) seen in 2008

Name of dispensary	**Number of children seen in 2008**		
	Boys	**Girls**	**Total**
Kileo	8	5	13
Kifaru	19	14	33
Kiruru	22	15	37
Pangaro	X	X	X
Mgagao	23	21	44
KIA	8	6	14
Sanya station	45	62	107
Bomang'ombe	3	12	15
Lambo	29	27	56
Kware	20	12	32

All health workers reported to provide eye care services to children at most once a week (table 6). In 2008 few children presented with eye problems were seen and there was slight difference between boys and girls. Sanya station dispensary reported high number of children compared to other dispensaries as it falls within the trachoma area.

4.2. Appropriate educational options for children with low vision and blindness

Understanding eye care needs of the albino children and Educational services available for them

Although a reasonable number of respondents showed an understanding of the effect of albinism on eyes (table 5), this was not reflected in their understanding of the eye care needs of an albino child. During the in-depth interview the respondents felt that the only important need for albino children is lotion for their skin, none mentioned the need for regular eye check, or protection from bright light.

For education needs, out of the 16 interviewees, 9 participants had the feeling that albino child should be enrolled in school for the blind because that's the only place where they will be able to learn using Braille as they can't see properly. The same feeling was also noted during the in-depth interview

I know they can't see and for them to get education they should be in those schools where they teach Braille.... (Health worker 6)

On their side the managers felt that albino child can do better even in ordinary schools, but they felt that it is better for the albino children be enrolled in schools/annexes for the blind for two reasons; one convenience purpose and two for security reasons as illustrated by this quote:

First of all the albino children are not common in this community, for the few cases I have seen I referred them to Mwereni primary school, (has an annex for the blind). With the ongoing threat of albino killing it is safer for them to be in boarding school, it is also easier for them to be assisted by the specialist teachers due to their eye problems. (DEC 2)

On the availability of services for children with visually impairment and who is eligible for the access, 6 respondents knew the presence of school for the blind in their district, while 5 were not sure whether there is such a service within their district. Of the 11 respondents 8 felt that the right candidates to access services in schools and annexes for the blind are children with total blindness, with albinism, with low vision and children with cataract. Only 3 respondents excluded children with cataract.

.....I only know the one in Tanga region where we used to send the blind and the albino children. I think those with cataract can also join those schools (health worker 3).

The belief that albino children should be enrolled in schools/ annexes for the blind could be compounded by the social stigma that exists within the community.

Cooperation with education department

The findings from the in-depth interview showed that there is good collaboration between the dispensaries and their nearby primary schools. Health workers normally provide health education in primary schools once in three months.4 respondents asserted to include trachoma in their talk while 5 respondents said they do not include anything on eye care in their health talk in schools.

One of the managers said the collaboration on eye care is mainly on trachoma prevention as the district has eleven dispensaries which fall under the trachoma zone. Both managers confirmed that their collaboration with education department has never included educational placement of the visually impaired children.

4.3. Enabling Environment

This section highlights issues that may facilitate or hinder the provision of eye care services.

Availability of tools, protocol and supplies for primary eye care (Performance capacity)

In all the nine dispensaries visited, no vision chart or torch for clinical use was observed. With the exemption of an antibiotic eye ointment (tetracycline), there was no any other type of eye care supplies in the dispensaries. Fixation devices like colours or toys were not observed. There was no any protocol, reading information and/or educative materials like posters or pictures on the wall that were observed. The in-depth interviews showed the absence of basic tools and protocols in dispensaries as one of the main challenges health workers face in provision of eye care services. The situation has even made the health workers less curious when encountered with patients with eye conditions; the following quote illustrate the situation:

We don't have any tools even a poster on the wall as you can see, we have for others but not for eye care. No protocol no what! So when you have an eye patient ah! So easy! Just eye drops or referral! We even don't know what exactly we are supposed to have!!!! In short we have nothing on eye care!' (Health worker 4).

Another respondents added *"You know sometime I do smile when I receive somebody with eye complains because I know I don't need to stretch myself that much! and for the children it is even worse....(health worker 7)*

The two district eye coordinators affirmed the absence of basic tools in most of their dispensaries. However, they were of the opinion that even though dispensaries do not have basic eye care diagnostic tools, eye care has been neglected by the health workers and hence they put less effort in the diagnosis process.

Workload capacity and motivation to work.

Many health workers considered that they are not overwhelmed by the workload. They felt that workload was fairly distributed; only when one of the workers was not available they felt to be overworked. 7 out of 9 health workers responded that the workload was acceptable and 5 stated as reasons that good team work helps them work under no stress as illustrated by this quote:

Workload not bad, sometimes yes but generally it is ok...we are 3 people here and the good thing is, we are working as a team.. (Health worker 2)

Interestingly one of the respondents felt that the current workload has been reduced to the extent that he feels so bored.

Previously the workload was so heavy because there was no district hospital .Now we are so relaxed to the extent that we feel underutilized and de-motivated.(health worker 1)

The eye coordinators also were of the opinion that the workload was not too high especially in most of the dispensaries not very far from the main road. They have reasonable number of staff (minimum3 and maximum 7) compared to those in very remote areas.

None of the health workers reported to have a written job description from their employer. They have created weekly/monthly schedule which they have agreed among themselves. The following quote illustrate:

Job description from where?.. No we don't have any written one but we normally have plan for the months so everybody know their monthly schedule... (Health worker 8)

When asked about motivation to work, different respondents had different opinion. Majority of respondents expressed their dissatisfaction for not being promoted or not having additional training for so long. Others mentioned difficult working environments as demotivating factor as illustrated in the following quote:

'Well…..we are trying to work hard though our working environment is not very motivating, there is no electricity and this place is so windy, working

during night sometimes is challenging as you may find the wind blow off the lamp in the middle of the work. We also have water problems; every day before starting the work all of the workers have to go fetch water first, clean the environment then we starts the clinical work. These discourage most of us. We are aware of the government situation but sometime it is very challenging to tolerate some of these difficulties.' (.Health worker 6).

Although health workers reported to be comfortable with their workload, this is not conclusive as the information on how many people health workers see each day was not collected.

Supervision system.

From the in-depth interviews the health workers reported that there was very minimal or no on site supervision from the district eye care personnel. 2 out of 9 respondents reported to have been visited once in 2008.The review of visitor's book in dispensaries did not show any visit for the year 2008. Seven respondents felt support supervision was important as it give an opportunity to learn on the job and improve their skills. Missing it is like jeopardizing their opportunity to learn as illustrated by this quote:

And in most instances we refer eye cases because we don't know how to go about them and we don't get any advice or supervision from high levels, subsequently, when we get similar case ours is just refer. We don't have any opportunity to learn from these cases..... (Health worker4)

Another respondent felt that the given supervisions do not provide them with enough time to gain some new insight as explained by the following quote:

Not regularly, since I came at this centre I have seen him once and you know they come here as a group so with a pile of different cases you don't really have enough time to explore all what you intended to" (health worker 1)

On their side, the two managers felt support supervision would have meaning if they would be able to visit each centre at least twice a year, but due to financial constraints and other responsibilities given to them sometimes they failed to do so even once.

Honestly no, not unless I join the CHMT visits. But it sometimes gets hard to attend to those too, because by the time I get to know the team is going, I may be doing the outreach visits or might be in one of the DRS at the time I'm supposed to see patients at the clinic.(DEC)

Structural capacity (Staff meetings)

Ideally each dispensary is supposed to have staff meetings where by clinical and non clinical issues may be discussed and corporate decisions made. It was learned during the in-depth interviews that absence of staff meeting was not uncommon in dispensaries. Only 3 out of 9 respondents reported to have regular staff meetings while others reported some irregularities. Clinical meeting that was mentioned is when the clinical work was left in the hands of an auxiliary nurse as illustrated in the following quote:

We do have those meetings but very rarely. For clinical cases we normally discuss whenever we come across any difficulties especially when there is only nurse attendants in the clinic, they do inform us of the difficulties they faced in our absence. (Health worker)

Facility capacity with support Services.

It was observed that most of the dispensaries had enough space within the facilities to provide eye care services to children. Eye cases can be detected and be referred to KCMC hospital for further management. KCMC is one of the two teaching hospitals providing Ophthalmology courses in Tanzania. It is in Kilimanjaro region. Its eye department is well established and has a special unit for paediatric ophthalmology. The department is equipped with most of the necessary surgical facilities and human resources. With funding support from donor agencies, the centre in collaboration with KCCO provides cataract surgical services on children free of charge. During the interviews only one out of sixteen respondents knew cataract surgery on children at KCMC was free of charge. From the in-depth interviews it was learned from the two DECs that they have good working collaboration with the two institutions especially during the Direct Referral Sites (DRS) outreaches and other eye care related activities and are well informed of available eye care services for children.

Respondents felt the need for them to be involved in DRS activities for skill sharing.

Training curriculum

In Tanzania all the government and private institutes that provide formal training for primary health care workers are supposed to follow the guidelines and curriculum provided by the MoHSW. For the past ten years, eye care has been included in the primary health care curriculum. The review of the Primary Eye Care (PEC) training manual has shown the general presentation of eye conditions. There is no dedicated chapter on childhood blindness; however, there are some parts that can be picked as presenting childhood blindness. Under the section acute red eyes there is

specific mention on neonatal conjunctivitis/ophthalmia neonatorum (page 4), vitamin A. deficiency related corneal conditions (page8) and (squint page 15).There is no specific mention of childhood cataract or low vision in children. Further the pictorial presentations of the eye conditions in the manual depict eye conditions affecting mainly adults rather than both adults and children. This was also raised by one of the managers during the in-depth interview as illustrated by the following quote:

In their training they learn general eye care, you may think eye problems is for adults only and it is very shallow!! I don't think that's enough for somebody to confidently provide eye care services to children also.(DEC 2)

System and role capacity

It was learned from the in-depth interview with two managers that being co- opted member of District health management team (DHMT) or full/voting DHMT member, does not make any difference when it comes to eye care budgets. Both managers had the feeling that eye care receives less priority within the team. The DECs have got less influence and cannot make managerial decisions when it comes to priority settings. This in most cases affects the implementation of their (DECs) planned activities as illustrated by the following quote:

I am fully involved in the DHMT. However, sometimes they do not agree with some of the expenses that I put. And sometimes the money does not come on time to make the visits as planned. (DEC 1)

District Eye Coordinators, in some cases, are the only trained personnel in eye care (ophthalmic nurses) in their districts. One of their responsibilities is to train other health care workers about eye disease so that they may also treat simple cases or give them referrals. Often they fail to travel and train others within their districts due to limited funding authority as illustrated with the quote below;

To get the indicated money for transport is pretty hard, and sometimes I have to stay all day without getting any meal at all" (DEC 2)

The DECs affirmed that eye problems although rank among the top ten diseases, is considered less threatening disease within the CHMT's priority, it receive less attention during budgeting due to high competing demand from other diseases like malaria and HIV Aids. It appears the DECs are not convincing enough to the CHMT. They lack evidence to back up their plans hence receive less priority.

CHAPTER FIVE

This chapter aim at presenting the discussion on the study findings; give the strength and limitations of the study.

5.1. DISCUSSION

This study has attempted to explore factors associated with early detection and proper referral of blinding eye diseases in children by the first level of health services. Although a limited study in terms of size, the findings help make sense out of what has already been observed in the previous studies (Mwende et al,2004 & Bronsard et al 2008).The following is a discussion of the findings.

The study findings suggest that the level of knowledge and skills of dispensary health workers in recognising common blinding eye diseases in children is not sufficient. Eye care needs of albino child and other children with low vision are not well known to primary health care workers. Most of the respondents had no previous training on childhood blindness and refresher course was reported by only one respondent. The manual on primary eye care indicated that the ongoing training is not adequate to prepare health workers for provision of basic eye care services to children. Lack of basic tools, guidelines and information on eye care, sporadic supervision and lack of funding authority among the eye care managers are considered among the contributing factors.

The reported lack of knowledge and skills among the health workers has been discussed by Mwende et al, (2004); Bronsard et al (2008); and Muhit, (2004) as considered barrier to early detection and referral of children with cataract. Bronsard et al (2008) pointed that a long search for diagnosis among health professions creates unnecessary delay of referral for cases that need immediate actions. They also pointed that parents who had children with cataract reported to be sent back home (by health workers) with eye drops or with professional advice (e.g. give fruits and vegetable).All these downplayed the importance of the problem (Bronsard et al, 2008). In this study the health workers admitted to have been treating children with any eye conditions until they show no improvement. Only then would they refer children. Health workers consider themselves able to manage any eye conditions without any fear of urgency and hence create delay. Late referral is a significant factor that could be reduced if dispensary health workers are well informed of the urgency of the eye care conditions in children.

It is anticipated that health workers gained their eye care knowledge through Pre-service education, in-service training, and experience from work. The gained knowledge was expected to contribute to early detection and proper referral of eye diseases. Training health workers has been one of the WHO recommendations that "prevention of childhood

blindness" should be included in the curriculum for training of all primary health care workers in eye care"(WHO, 2000. In Tanzania, eye care has been included as part of primary health care curriculum since ten years ago. In this study, none of respondents reported training in childhood blindness; only one respondent reported to have refresher course on childhood blindness two years ago. 11 respondents (mostly female nurses) graduated over ten years ago, which means that primary eye care was introduced in the primary health care curriculum when they were already graduated and did not benefit from the PEC training. The review of PEC training manual showed that there are some elements of childhood blindness, however, this was not acknowledged by the 5 respondents (mostly clinical officers) whose graduation was less than 10 years ago.

Respondents suggested children with albinism be enrolled in schools/ annexes for the blind and use Braille as the learning medium. Children with albinism have vision and are able to read print. They need vision assessment before education placement. [1]Optical and non optical measures are needed to help them continue to perform most of their visual tasks to maintain their individual lifestyle. Very few albino children seem to need Braille after vision assessment. Results from a pilot project in schools and annexes for the blind in Tanzania show that majority of them are using their vision instead of their hand to read Braille. They have good vision and can actually read print. (KCCO report 2007). Little is understood about eye care needs of children with albinism; further research in this area would widen our understanding and help lessen some of the phenomenon which seems to be surrounded by stigma from the community. It should be noted that health workers are also part of the community.

The respondents included children with cataract as possible candidates in schools for the blind. The inclusion of cataract in this category has been evidenced in other studies in Africa. In their studies in schools for the blind in Malawi, Kenya and Uganda, Gilbert et al (1995) found that 13.1%, 9.1% and 27.6% of children surveyed (n=491) had an unoperated cataract. These results tend to support our findings that there is likelihood of health workers to be referring children with cataract to schools or annexes for the blind instead of tertiary hospital for further management.

Eye diseases like cataract in children are rare, this entail that health workers will have limited opportunity to gain on the job experience through different cases. In this situation health workers will need printed guidelines or protocols on eye care to remind them on which eye conditions in children require urgent referrals, when and where. The

[1] Optical measures are like reading glasses, magnifiers and Non-optical measures include use of closer working distance, reading stands, and window light

guidelines will also help the health workers identify their limits whenever they receive a child with eye disease complain. None of the respondents reported to have clear guidance on management of childhood blindness at primary health care level. Or eye care referral protocols. The situation has made the health workers to providing the eye services using their general understanding of eye care. Absence of referral protocol has made the health workers to follow the general routine and refer most of childhood eye problems to district hospitals. Referral to the district hospital does not only contribute to the delay but also add more expenses to parents who are already overburdened with other life expenses. This situation is comparable to that described by Manongi et al, (2006) where unskilled and ill-equipped primary health care workers gamble with client's lives.

One of the activities identified in the basic package for primary eye care is eye health promotion and preventive care. All health workers reported providing eye care services to children at most once a week, however, none of the dispensaries was observed to have information materials for references and any eye care education materials like posters on the wall. Absence of educational information on childhood blindness limits the ability of the health workers to gain additional knowledge and do child eye health promotion to the community.

Detection of eye diseases in children is challenging and it is time consuming. It requires interesting fixation devices as young children may not able to describe their vision and may as well not be willing to participate in the process. The fact that health workers in dispensaries are missing the basic diagnostic tools even if they will be skilled enough to provide eye care services, it would be difficult for them to do better in absence of these fixation devices.

Workload paired with shortage of staff was noted by Manongi and colleagues (2006) as among the demotivating factors between the health care workers. Although in our case the respondents did not consider themselves being overworked, it was not very clear how much work do they have per day. In absence of this information it not practical to interpret that dispensary health workers have got enough time to effectively provide eye care services to children.

In decentralised system supervision is regarded as the link between the district and peripheral health care providers and consequently valuable for performance improvement and staff motivation (Bosch-Capblanch & Garner, 2008). It appears, in our case, that such supervision from the district level was irregularly done and respondents felt it was not very useful. Multifaceted interventions e.g. supportive supervision, appraisal and feedback are needed to achieve and maintain quality performance of health workers in low-resource settings. DECs need find ways to be more effective and consistence in providing supervision. They need to have

plans based on evidence in order to convince the CHMT members and in trying to seek support from interested partners within their areas. They should insist that eye care is a quality of life issue that need not neglected. Improving ways of sharing eye care data with CHMTs would help the DEC be more persuasive when presenting their budgets to the CHMT (Kelly & Eliah 2007).The DECs need to be well equipped with supervisory skills and need to find proper ways of gaining financial support from the CHMT.

We noted during the study that the district eye care coordinators have good link with NGO which provides support to some eye care activities within the districts, for example the DEC collaborate with KCCO and KCMC on Direct Referral sites (DRS) activities. Health workers pointed out that DRS activity do not provide room for them (health workers) as host to learn eye care from the DRS team. Skill sharing is vital in limited resource settings. KCMC provides free cataract surgery and follow up to children with cataract, the eye care managers at district level affirmed to be aware of the services, however in our case, the services are not known to health workers despite being offered for five years now. Bronsard and colleague (2008) highlighted the same at community level. Lacks of awareness of these important services are likely to hinder those too poor to pay from accessing the services due to fear of cost.

5.2. Strengths of this study

This study has been a first step to explore the barriers and enabling factors on child's eye health at the provider's perspective. Apart from providing useful information on the challenges that primary health care system at dispensary level is facing in proving eye care services, it has begun to shed some light on the reality of current trust that eye care has been integrated into PHC. The study has also shown where smaller improvement can be made to make the process more effective.

5.3. Limitation of the study

Due to time and financial constrains the study could not avoid the selection bias by excluding dispensaries in remote area. Further, health workers working in dispensary from remote areas could have different opinion on the issue of work load and motivation to work.

The study looked at technical side of health workers skills, interview with demand side would have given us an insight on how good health workers are in communication skills. The use of simulated clients would have given us good idea of the health workers performance

The investigator's previous knowledge of the situation on childhood blindness eye care services at the study area could result into possible bias in the interpretation of study findings.

Auxiliary nurses were not included in this study. There is great possibility of children with blinding eye diseases to be seen by the auxiliary nurses. Any future enhancement should consider including this category.

The data from the registry and MTUHA at dispensary level on eye care could not provide us with enough information we needed due to the fact that MTUHA does not adequately cover information on the eye diseases.

CHAPTER SIX

6.1. Conclusion

Dealing with the challenges to restoring sight to children with blinding eye diseases needs a holistic approach. This means pulling together the parents/community, eye care providers, both ministry of health and ministry of education, donors and other stakeholders. Though expensive (not as expensive as blindness itself) due to monetary investment needed, eye care needs of children need to be taken seriously.

In a scarce resource setting such as Tanzania, equipping primary health facility with basic tools and provide proper training of the health workers to be more effective in preventive measures, case detection and proper referral could give good opportunity to the children to access quality eye care. This will have a great impact on their life and will save a lot of money that would otherwise be used in special education and rehabilitation of blind children.

The available CEHTF are well resourced and have the ability to handle more childhood blindness cases in order to clear the backlog in the community.

6.2. Recommendations

a) Short term

1. Primary health care workers are key people to the success of the early detection of children with blinding eye diseases, but in the interviews it has been observed that they have limited knowledge on eye diseases affecting children. There is therefore a need for on the job training of health workers at dispensary level about childhood blindness and services available for these children so that they can identify and immediate refer children with abnormal eyes to CEHTF for further management. The on the job training can be organised in collaboration between the MoHSW and other partners working in eye care. It is important that primary health workers know that a white spot in the pupil is an emergency situation which may cost child's life as the white spot in eye may be cataract as well be retinoblastoma (fatal eye disease) and that children should be referred to paediatric ophthalmologist as soon as possible

2. KCCO together with other eye care partners in collaboration with ministry of health should consider preparing simple eye care (Childhood blindness) education and communication materials to be distributed in dispensaries.

3. KCCO should improve its promotion activities to make the health workers and the community more aware of the free childhood cataract surgery at KCMC hospital

4. The CHMT at district level should provide financial support to DECs for them to be able to provide support supervision to health workers in dispensaries and implement their planned eye care activities within their areas. Supportive supervision should be considered as strategies to skill sharing, increase awareness and early identification and referral of blinding eye diseases in children.

b) **Long term**

5. The training for PHC workers in eye care at curriculum level is too general and not adequate enough to give them required competences in recognising children' eye problem in the community. The Ministry of Health is requested to revise the training curriculum for the nurses and the clinical officers to put a specific section on childhood blindness especially in the development of more practical and well-adapted skills.

6. Dispensaries need to be equipped with basic facilities as stated in the basic package for primary eye care (table 1) for the health workers to be able to detect and refer blindness in children.

7. The existing referral system (if any) is not ideal for child's eye health. There is a great need to create an efficient referral system for childhood blindness and low vision and its prioritization of its treatment at the tertiary levels. (Clear guideline where the health workers refer emergency cases directly to CEHTF should be developed and be in place in all health facilities).

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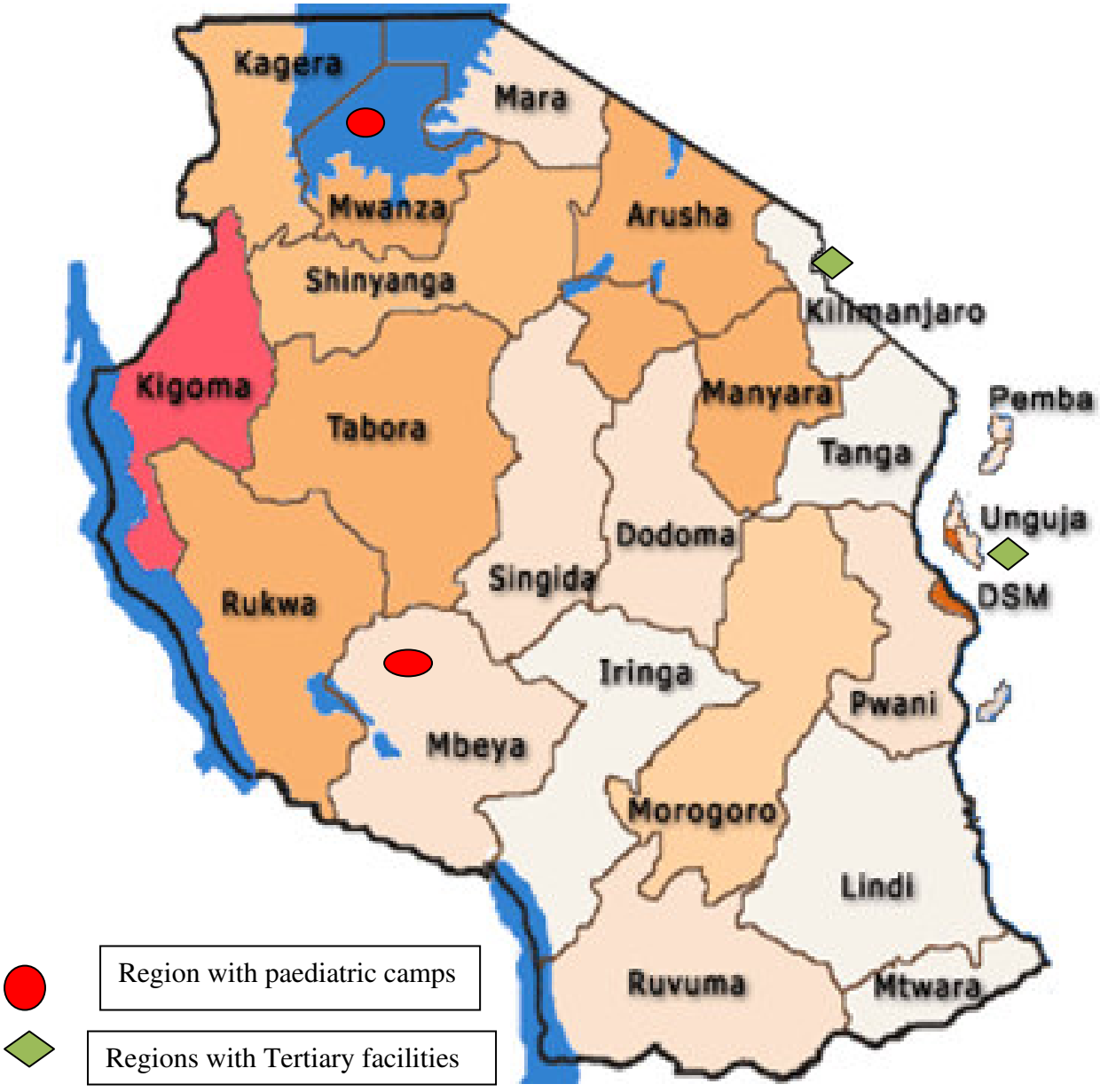
APPENDICES

Appendix: 1: Basic package required to deliver eye care services at primary health care facility.

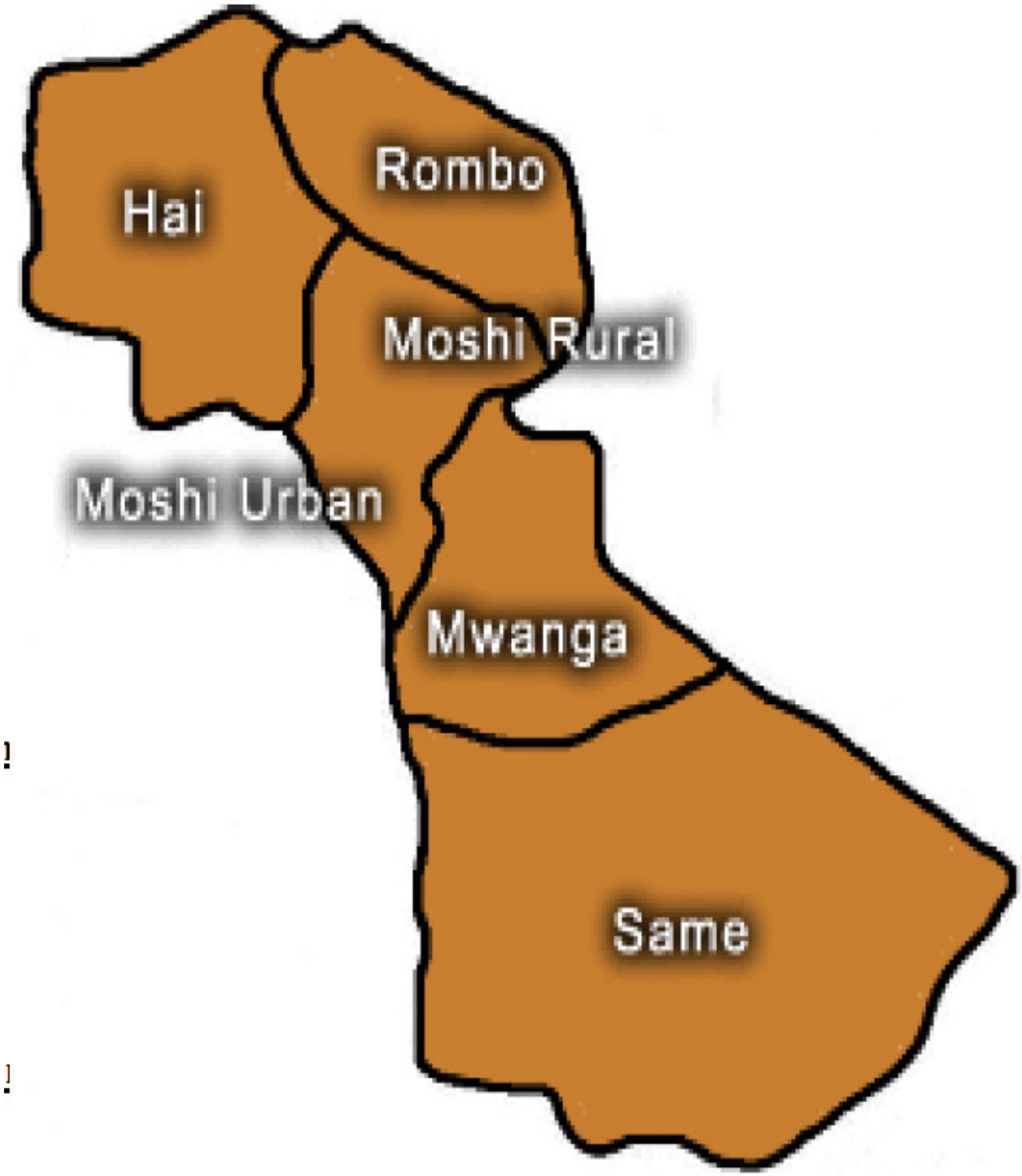
Activities	Supplies	Equipment
Eye health promotional and preventive activities focusing on education and community participation.	Antibiotic eye ointment (tetracycline) Vitamin A capsules.* Second antibiotic ointment.* Zinc sulphate drops.* Bandages. Sticking plaster. Eye shield. Torch batteries. *Optional	Ordinary chair A torch Visual acuity chart Others suitable for children Fixation devices like colours or toys LEA symbols* Tumbling E-card.*
Early diagnosis of eye problems.		
Management of simple eye symptoms in the health facility e.g. inflamed eyes		
Referral of patients to secondary or tertiary level for further management		

Adopted from WHO,1999

Appendix 2: Map of Tanzania



Appendix 3: Map of Kilimanjaro region.



Appendix 4: Nine components elements of systemic capacity building.

1. **Performance capacity**:
   - the front line health services have basic tools,
   - Consumable and
   - Education materials, as stated in the basic package of primary eye care.

2. **Personal capacity**:
   - Health care workers at the frontline health care facility should have sufficient knowledge and technical skills to detect and properly refer children with blinding eye diseases.

3. **Workload capacity:**
   - Sufficient number of staff.
   - With clear job description.

4. **Supervisory capacity:**
   - The reporting and monitoring systems are in place.
   - Physical support supervision

5. **Facility capacity:**
   - Availability of space to provide services.

6. **Support service capacity:**
   - Support services available in the districts/region eg training institution.
   - Kind of services provided
   - The Content of PEC curriculum.

7. **Systems capacity**:
   - The DECs have managerial decisions over resources.
   - Good link with NGO
   - Cooperation with education department

8. **Structural capacity:**
   - Presence of clinical and staff meetings
   - Individual can be hold on accountable for non performance.

9. **Role capacity**:
   - District Eye Coordinators play their role as the focal personnel in their districts.

Adopted from Potter & Brough, (2004)

Appendix 5: Research table.

Specific Objectives	Research variables/issues	Data collection Technique	Respondents.
1. To assess the knowledge and practices of primary health care workers on management of blinding eye diseases in children	▪ Knowledge on symptoms of cataract ▪ Knowledge of symptoms of other blinding diseases ▪ Knowledge of visual impairment of albino children ▪ Known causes of childhood blindness ▪ Primary health care workers' practices when encountered with patients with specific blinding eye diseases ▪ Knowledge of where to refer and urgency of referral ▪ Eye care documentation/record keeping	Semi structured interview (using photographs and stories of children) Review register to determine the number of children seen with eye.	Primary health care workers
2. To assess the knowledge of appropriate educational options for children with low vision and blindness	▪ Availability of Information on educational services for children with low vision or blindness ▪ Understanding of eye care needs of albino children ▪ Understanding of eye care needs of albino children ▪ Perceptions of their approaches to providing educational services to albino children	In-depth interview	Primary health care workers & district eye coordinators

	▪ Opinions for improved placement strategies		
3. To assess the availability of basic package for primary eye care and organization of service delivery activities	▪ Stocks of eye medicines ▪ Availability of equipments to detect eye diseases. ▪ Availability of supplies ▪ Educational materials eg. Posters/picture on the wall	Observation	
4. To identify factors within the existing system (facility, structure system and role) influencing early detection and referral of children with treatable blinding eye diseases in Hai and Mwanga districts	▪ Eye care guidelines understood ▪ Priority of eye services in health service delivery ▪ Referral protocols available ▪ Knowledge of when and where to refer ▪ Availability of support services ▪ Cooperation with education department ▪ Supervision system ▪ Availability of space ▪ Staff meetings ▪ Motivation to provide services. ▪ Funding authority ▪ The content of the training curriculum.	. structured interviews In-depth interview Observation Documentary review	Primary health care workers Primary health care workers & district eye coordinators
5. To develop recommendations on improving provision of primary eye care services.	Validation	Discussion	MoHSW, KCCO, other eye care providers eg. Lions club and CCBRT.

Appendix 6: Approval letter –KIT research Ethical Committee.

Contact
Linda de Groot
Tel: 020 568 8237
l.d.groot@kit.nl

Ms. E.A. Kishiki

Date Amsterdam, May 7, 2009

Subject: Decision Research Ethics Committee

Dear Ms. Kishiki,

The Research Ethics Committee of the Royal Tropical Institute has reviewed your revised proposal titled "Barriers and enabling factors that influence early detection and referral of children with blinding eye diseases and low vision by Primary health care workers", an explorative qualitative study in Hai and Mwanga districts in the Kilimanjaro Region in Tanzania, as submitted at April 27, 2009.

The committee is of the opinion that the proposal meets the required ethical standards for research and herewith grants you ethical approval to implement the study as planned in the afore mentioned protocol.

Yours sincerely,

p/o
L. Blok, MD. Mph
Acting Chair Research Ethics Committee, KIT

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P.O. Box 95001
1090 HA Amsterdam
The Netherlands
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ABN AMRO 40 50 05 970
ABN AMRO USD 62 62 48 183

Appendix 7: Approval certificate –Tumaini research ethics committee.

KEC/08

TUMAINI UNIVERSITY

KILIMANJARO CHRISTIAN MEDICAL COLLEGE

P. O. Box 2240, MOSHI, Tanzania

ETHICAL CLEARANCE CERTIFICATE

No. 279

For Research Proposal No. 303.

Title: BARRIERS AND ENABLING FACTORS THAT INFLUENCE EARLY DETECTION AND REFERRAL OF CHILDREN WITH BLINDING EYE DISEASES AND LOW VISION BY PRIMARY HEALTH CARE WORKERS.

Proposed study area: HAI AND MWANGA DISTRICTS.

KCMC P. 1/ Counterpart: ELIZABETH A.KISHIKI.

Duration of Study: 6 MONTHS.

Approved period: 23RD JUNE, 2009 - 23RD NOVEMBER, 2009.

Approved by KCMC Research Ethics Committee *on* 22ND JUNE, 2009.

BEATRICE TEMBA
SECRETARY

PROF. F.MOSHA
CHAIRMAN.

Appendix 8: Confirmation letter -Kilimanjaro Regional Medical office

THE UNITED REPUBLIC OF TANZANIA
PRIME MINISTER'S OFFICE
REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT

Fax: 52184 "AFYA"
Tel: 52321 Direct Line
(All letters should be addressed to
The Regional Medical Officer)

Regional Commissioner's Office,
HEALTH DIVISION,
P.O. Box 3054,
MOSHI.

Ref. No. M.1/1/vol.ll/23

30th June, 2009

The District Medical Officer,
P.O.Box 27
HAI
BOMANG'OMBE

The District Medical Officer,
P.O.Box 18
MWANGA

Seen and She will be assiste by the DEC. R Msuya
DISTRICT MEDICAL OFFICER
MWANGA

RE: INTRODUCING MISS ELIZABETH A. KISHIKI TO DO A RESEARCH IN YOUR DISTRICT

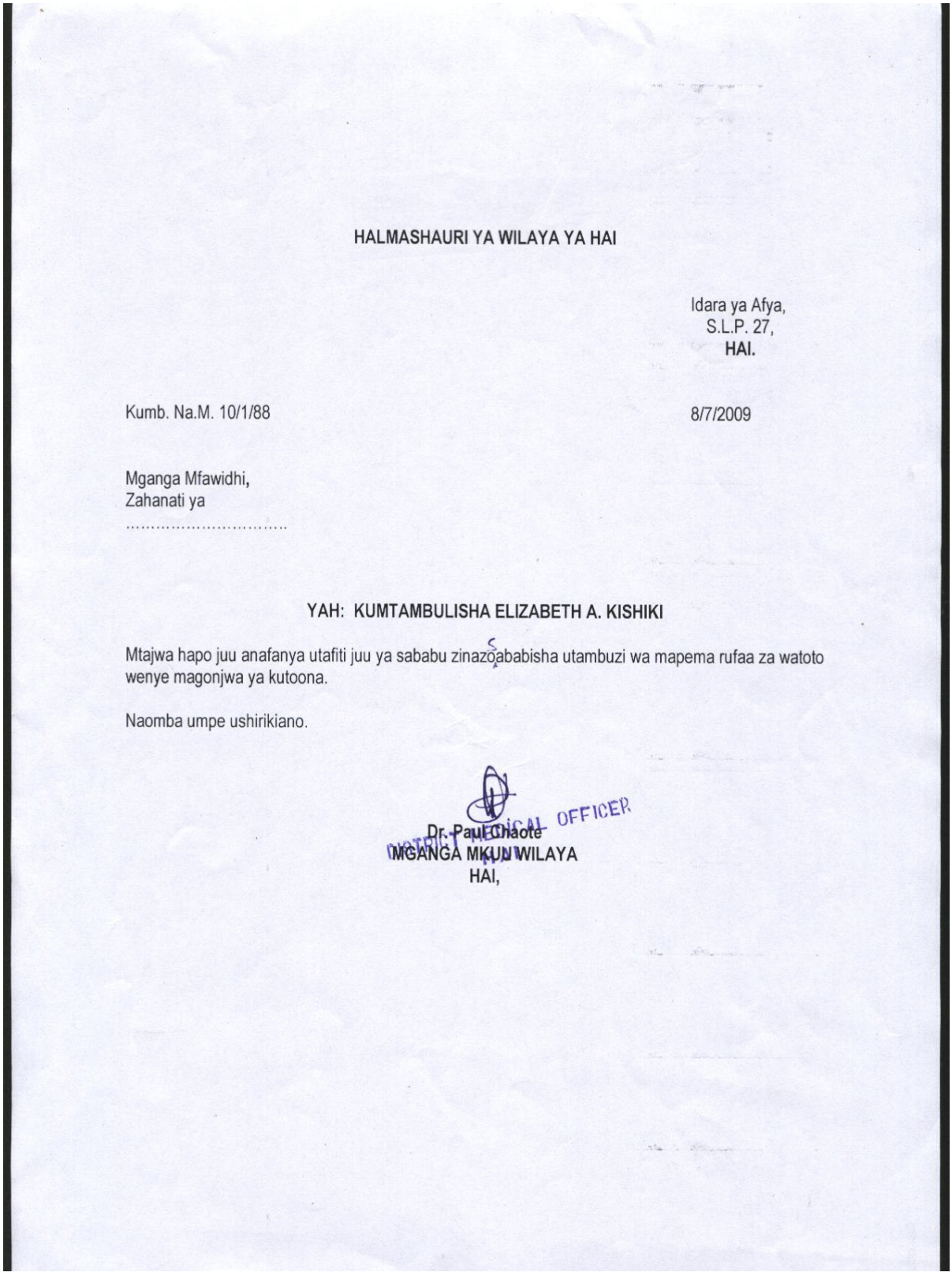
The bearer above have been granted permission to do a Research proposal titled 'BARRIERS AND ENABLING FACTORS THAT INFLUENCE EARLY DETECTION AND REFERRAL OF CHILDREN WITH BLINGING EYE DISEASES AND LOW VISION BY PRIMARY HEALTH CARE WORKERS'

She needs to interview some Health Workers working in the rural areas within a short period. I am therefore requesting you to assist her. She will explain to you all the protocols needed.

Thank you for your cooperation.

L.R. Msami
For: **REGIONAL MEDICAL OFFICER**
KILIMANJARO
REGIONAL MEDICAL OFFICER
KILIMANJARO REGION
MOSHI

Appendix 9: Introductory letter- Hai District Medical officer.



HALMASHAURI YA WILAYA YA HAI

Idara ya Afya,
S.L.P. 27,
HAI.

Kumb. Na.M. 10/1/88 8/7/2009

Mganga Mfawidhi,
Zahanati ya
.....

YAH: KUMTAMBULISHA ELIZABETH A. KISHIKI

Mtajwa hapo juu anafanya utafiti juu ya sababu zinazosababisha utambuzi wa mapema rufaa za watoto wenye magonjwa ya kutoona.

Naomba umpe ushirikiano.

DISTRICT MEDICAL OFFICER

Dr. Paul Chaote
MGANGA MKUU WILAYA
HAI,

Appendix 10: Consent forms.

Informed consent for in depth interview

Greetings, my name is _____

I am a student at Royal tropical Institute; I am undertaking a study on **the Barriers and enabling factors that influence early detection and referral of children with blinding eye diseases and low vision at the level of primary health care services**. The study is for partial fulfilment of the requirement for the International Master Course in Health development.(ICHD-MPH). I would like to invite you to participate in the study and share your experience with me.

The purpose of the study is to explore barriers and enabling factors that influence early detection and referral of children with blinding eye diseases among the primary health care workers. In general the questions you will be asked will base on your knowledge and practices of blinding eye diseases on children and your knowledge on eye care and educational needs of albino children, and your opinions for improvement. The study results are expected to be used by the Ministry of health and social welfare and its partners to revise the current national PEC manual and strengthen programmes aimed at reaching these children as well as providing information necessary for policy decision and training programmes for the primary health workers on childhood blindness and low vision services. This interview will take about 45minutes to complete and will be done in private place where you can talk freely.

Be assured that all the information you give will remain confidential and anonymous and cannot be traced back to you in any way. **Be assured also that the information you will provide will not in any way have an effect on your job appraisal or work conditions**. It is entirely up to you to decide to take part. Please be aware that you are not obliged to answer questions that you feel you do not want to answer. You are also free to withdraw at any point in time and without giving a reason.

The interview will be audio-taped with your permission to provide an accurate record of information you shared with us. Following transcription of the tapes, the interview will be erased and the tapes destroyed.

If you have any question please feel free to ask.

If you are willing to participate, please sign below after having read the form and that all your potential questions have been answered satisfactory.

Participant: _____ _____

Date Signature

_____ _____ _____

Interviewer Date Signature

Informed consent for semi structured interview

Greetings, my name is _____

I am a student at Royal tropical Institute; I am undertaking a study on **the barriers and enabling factors that influence early detection and referral of children with blinding eye diseases and low vision at the level of primary health care services**. The study is for partial fulfilment of the requirement for the International Master Course in Health development.(ICHD-MPH). I would like to invite you to participate in the study and share your experience with me.

The purpose of the study is to explore barriers and enabling factors that influence early detection and referral of children with blinding eye diseases among the primary health care workers. **In general the questions you will be asked will base on your knowledge and practices on diagnosis and management of childhood blinding eye disease.** The study results are expected to be used by the Ministry of health and social welfare and its partners to revise the current national PEC manual and strengthen programmes aimed at reaching these children as well as providing information necessary for policy decision and training programmes for the primary health workers on childhood blindness and low vision services. This interview will take about 30 minutes to complete and would be done in private place where you can talk freely.

Be assured that all the information you give will remain confidential and anonymous and cannot be traced back to you in any way. **Be assured also that the information you will provide will not in any way have an effect on your job appraisal or work conditions**. It is entirely up to you to decide to take part. Please be aware that you are not obliged to answer questions that you feel you do not want to answer. You are also free to withdraw at any point in time and without giving a reason.

The interview will be audio-taped with your permission to provide an accurate record of information you shared with us. Following transcription of the tapes, the interview will be erased and the tapes destroyed.

If you have any question please feel free to ask.

If you are willing to participate, please sign below after having read the form and that all your potential questions have been answered satisfactory.

Participant: _____ _____

Date Signature

_____ _____ _____

Interviewer Date Signature

Appendix 11 Questionnaire.

TO HEALTH WORKERS AT DISPENSARY .

Date code number

Interviewer_____

	N:B. (**Please tick the correct answer where there is choices**)
Q1	Name of district
Q2	Name of dispensary
Q3	Age (number of years)
Q4	Sex Male Female
Q5	Qualification. General nurse Ophthalmic nurse Assistant Medical Officer(AMO) Clinical officer Others
Q6	Questions related to the attended course : A) When did you finish you course? B) How long was the course/how many years C) Did attended course covered childhood eye care?
Q7	If yes in C above, what areas in childhood blindness did you learn? (Only tick if mentioned) Anatomy of the eye Testing child's vision Diagnosis of red eye of cataract of squint of refractive errors others (list) Treatment of red eye of cataract of squint refractive errors

	of others Referral Other skills (list)
Q8	Have you received any refresher course on childhood eye care? YES NO If YES when
Q9	Do you provide eye care services to children in your dispensary? YES NO
Q10	How often do you see children with eye diseases in this dispensary? Not at all everyday Once a week Once a month Only few in a year
Q11	Show picture of a child with cataract.(For questions. 13-16) My 3 years son does not see well, he can follow some lights but nothing more. He does not move around so much neither does he play like other children of his age. He bumps into objects quite often which needs me to carry him most of the time. Question: What is the condition does my child has?
Q12	What is the proper management of this condition?
Q13	Do you know at what age a child born with this condition need to be operated on? YES I DO. NO I DON'T If YES when
Q14	What are the risks if proper management of the above condition is delayed? _____
Q15	Show a picture of child with squint (For questions 18 & 15) My 2 years child's eyes are not looking in the same direction; I do not see any problem with this as he sees well. Do you think this condition is a problem?

Q16	Can it be treated? YES (If yes at what age?) NO DON'T KNOW
Q17	Show a picture of an albino child.(For questions 19-21) My name is Elizabeth, I am 12 years old, and I am in class 4 in the annex school for the blind .I have eye problems, my teacher has introduced me to Braille I am no longer using print.
Q18	What kind of problems do you think an albino child has in relation to eyes?
Q19	Would you recommend her to continue with Braille as her learning medium? YES (Please give reasons for your answer) NO (Please give reasons for your answer)
Q20	Show picture of cornea scar (for questions 22-24) I am 10 years old, not in school, both of my eyes cannot see at all, my mother told me this problem started when I was 3years old. What eye condition do I have?
Q21	What could be the possible cause of this condition?
Q22	What advice would you give this boy's mother?
Q23	If a child is presented to you with the following condition, which among these would you be able to treat? (tick among the given answers) Allergy Red eye Cataract Glaucoma Squint Refractive errors Cornea Scar Nystagmus Trauma(perforating injury)
Q24	List eye diseases in children you would consider emergency and need immediate referral.
Q25	What do you do if you don't know what treatment to provide to a child with eye disease?

Q26	Where would you refer them?
Q27	A) Do you have any referral protocol to guide you? B) Could you show me? B) How do you know when to use it?
Q28	Do you Know what causes blindness in children? YES NO If yes Mention 4 causes.
Q29	Do you how much does it cost for cataract surgery for children at KCMC hospital?
Q30	What service do you give to children with low vision?

Appendix 12: In-depth interview- guide.

Establish rapport

- Greetings
- Self introduction, purpose of the study and what you expect to do
- Assure confidentiality
- Explain the process of the interview and its duration
- Ask for concerns and clarify if possible
- Read consent form.

Background information

Date:

A) Name of district
B) Name of dispensary
C) Age
D) Sex
- Male
- Female

E) Qualification

- General nurse

- Ophthalmic nurse
- Assistant Medical Officer(AMO)
- Clinical officer

F) For how long have you been working at this centre?

Q1. How is the workload in this facility?
Probe for: Job description? Demotivating/ Motivating factors,?

Q2: Have you ever encountered a blind / Severe Visually Impaired (SVI) child in your clinical practices?

Q3: How did you know that the child was blind/SVI?

Q4: What information/materials do you have to support your eye care services?
Probe for: available referral protocol

Q5: What challenges do you face in providing eye care services to children with blinding diseases?
Probe for: medication, tools, and skills

Q6: Do you have staff meeting to discuss different issues?
Probe for eye care services
Q7: Do you receive any supervision on eye care?
Probe for: Benefit, kind of support, advice

Q8: What are the eye care needs of albino children?
Probe for different types of needs e.g. need for regular eye check, learning media, sitting positions

Q9: What educational service recommendations in relation to their eyes do you normally provide to albino children?
Probe: advice given in relation to their learning needs
- Advice to children themselves
- Advice given to their teachers
- Advice given to parents

Q10: Do you know whether there are educational services available for visually impaired children?
Probe: Who is eligible to join those services e.g schools/annex for the blind?

Q11: In what ways do you think the encountered shortcomings above can be strengthened?
Probe for:
- Supervision

- Availability of time for eye care services
- Training
- Referral system

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DECs-Key Informants:

Q12**:** What do you think of the knowledge and skills of the health care workers in providing eye care services to children in this district?

Q13: What challenges do they face?

Q14: Do you think they are able to perform their task well?
Probe: Are there gaps?

Q15: How often do you provide support supervision to health care workers in your district?

Q16: What difficulties do you face in providing eye care supportive supervision to PHC workers?
Probe: Availability and authority over resources

- Clear lines of accountability
- Availability of support services
- Supervision system

Q17: How do you collaborate with education department in your district in providing eye care services
to children in schools?

Q18: In your opinion what actions are needed to make the eye care services for children with
blinding eye diseases more effective?

Probe for

- Opinions for improved early detection
- Opinion for improved educational placement strategies

Q19: Is there anything else that you think has not been addressed in this interview and you would like to share?

Appendix 13: Observations list.

Make the following observation during visit to the health facility.
(Tick the appropriate boxes)

Item to be observed	***Available***	***Not available***
Torch with batteries used for clinical work		
Presence of VA chart		
Hand held VA chart present		
Fixation devices e.g. Coloured toys		
Posters/picture on the wall		
Availability of eye medicine • Antibiotic eye ointment (tetracycline**)**		
LEA symbols		
Tumbling E card.		

Appendix 14: Problem tree.