

**SOCIO-CULTURAL PERCEPTIONS OF  
COMMUNITIES IN KASSENA-NANKANA  
DISTRICT OF UPPER EAST REGION  
TOWARDS CEREBRO-SPINAL MENINGITIS**

BY



*DR. SAMUEL OSEI-SOMUAH*

**DISSERTATION SUBMITTED TO THE  
SCHOOL OF PUBLIC HEALTH  
IN PARTIAL FULFILMENT OF THE REQUIREMENTS OF  
THE MASTERS DEGREE IN PUBLIC HEALTH IN THE  
UNIVERSITY OF GHANA, LEGON**

**AUGUST 2001**

G365742

RA644. M6 Qs2

bltc, C.1

These Room

## DECLARATION

I, Samuel Osei-Somuah, hereby declare that this dissertation is my own work and that, to the best of my knowledge, it contains no material previously published or written by another person, nor material which to a substantial extent has been accepted for the award of any degree or diploma of a university or other institution of higher learning except where due acknowledgement is made in the text.

Academic Supervisors:

Dr. Fred Binka.....

Dr. (Mrs.) Margaret Gyapong.....

Resident.....

Dr. Samuel Osei-Somuah

## **DEDICATION**

This piece of work is dedicated to my father Kwaku Osei, in appreciation of his efforts to further my education in the face of hard times in seventies. Father, without your vision this could not have been achieved.

## **ACKNOWLEDGEMENTS**

I wish to acknowledge the efforts of all those who in various ways have contributed to this piece of work. Without their encouragement this could not have been possible.

I wish to thank my academic supervisors Dr. Fred Binka and Dr. (Mrs.) Margaret Gyapong for their tremendous patience and invaluable academic advice in the conceptualization conduct and write-up of this work.

I wish to also thank all the staff of the Navorongo Health Research Institute who in diverse ways contributed in the collection of data for this project. My special thanks go to Dr. Abraham Hodgson for his contributions to the setting up of the field work. The thanks also extend to Mrs. Patricia Akweongo and Mr. Philip Adongo for their support and the analysis of data.

I wish also to thank the DHMT of Upper East and my Field Supervisor, Dr. Mensah Afful for the hospitality and support given to me during my stay at Navorongo.

This acknowledgment is incomplete without thanking my dear wife Patricia and the kids, Josephine and Jeffery for their support. To all those who helped I say thank you and may God bless you.

## TABLE OF CONTENT

	<u>Page</u>
DECLARATION .....	i
DEDICATION .....	ii
ACKNOWLEDGEMENT .....	iii
TABLE OF CONTENT .....	iv
LIST OF ABBREVIATIONS.....	vii
LIST OF TABLES AND FIGURES .....	viii
ABSTRACT .....	ix

### CHAPTER ONE:

<b>1.0 INTRODUCTION</b> .....	1
1.1 Global Burden of CSM .....	1
1.2 Efforts of International Co-ordinating Groups (ICG) in Controlling CSM Epidemics .....	2

### CHAPTER TWO:

<b>2.0 BACKGROUND</b> .....	4
2.1 CSM In Africa .....	4
2.2 Cerebro Spinal Meningitis In Ghana .....	5
2.3 CSM In Kassena – Nankana District .....	7
2.4 Comparism of CSM. Yellow Fever And Small Pox: Factors Resulting in Success or Failure Of Control In Sub-Sahara Africa .....	7
2.5 Statement of The Problem .....	9
2.6 General Objectives .....	10
2.7 Specific Objectives .....	10

### **CHAPTER THREE:**

<b>3.0 LITERATURE REVIEW</b>	.....	.....	.....	12
3.1 Ethnicity, Prevailing Local Diseases and Meningitis Epidemic...				12
3.2 Knowledge, Attitudes and Practices in Diseases.			.....	12
3.3 Medical Anthropology and Diseases and Practices			.....	14
3.4 Immunizations and Perceptions		.....	.....	16
3.5 Health Education Models and Behaviour Exploration in Epidemic Diseases.	.....	.....	.....	16

### **CHAPTER FOUR:**

<b>4.0 METHODS/DESIGN</b>	.....	.....	.....	18
4.1 Study Site	.....	.....	.....	18
4.2 Methods	.....	.....	.....	19
4.3 Limitations of the Study	.....	.....	.....	21
4.4 Precautions	.....	.....	.....	21

### **CHAPTER FIVE:**

<b>5.0 ANALYSIS</b>	.....	.....	.....	22
5.1 Community Definition and Labeling of CSM			.....	22
5.2 Recognition of CSM	.....	.....	.....	23
5.3 Labelling of CSM	.....	.....	.....	24
5.4 Symptom Sequence and Logics of Disease Process			.....	25
5.5 Treatment Options	.....	.....	.....	27
5.6 Initial Treatments	.....	.....	.....	27
5.7 Treatment of Complications of CSM			.....	28
5.8 Soothsayer Consultations	.....	.....	.....	28

### **CHAPTER SIX:**

<b>6.0 PERCEPTIONS OF CSM</b>	.....	.....	.....	30
6.1 Perceptions on Causation, Transmission Process and the Risk				

Factors of Transmission.	.....	.....	30
6.2 Perceived Severity and Susceptibility	.....	.....	31
6.3 Communicability and Perceived Preventability	.....	.....	31
<b>CHAPTER SEVEN</b>	.....	.....	33
<b>7.0 EFFECTS OF KNOWLEDGE &amp; BELIEFS ON HEALTH</b>			
<b>SEEKING BEHAVIOUR TOWARDS CSM</b>	.....	.....	33
7.1 Treatments as Options to Immunization	.....	.....	33
7.2 Reasons for Not Immunizing Against CSM		Accrued Evidence	34
<b>CHAPTER EIGHT</b>	.....	.....	38
<b>8.0 DISCUSSION</b>			
8.1 Knowledge About CSM and Health Seeking Attitude	.....	.....	38
8.2 Memory Loss	.....	.....	40
8.3 Health Seeking Behaviour in KND	Vis a Vis	The BASBEF Model	43
<b>CHAPTER NINE</b>	.....	.....	47
<b>9.0 CONCLUSION AND RECOMMENDATION</b>	.....	.....	47
<b>9.1 CONCLUSION</b>	.....	.....	47
<b>9.2 RECOMMENDATIONS</b>	.....	.....	48
<b>REFERENCES</b>	.....	.....	57
<b>ANNEXES</b>	.....	.....	58

## LIST OF ABBREVIATIONS

KND		Kassena-Nankana District
NHI		Non-Hospital Illness
IDI	-	In Depth Interview
FGD		Focus Group Discussion
NHRC	-	Navorongo Health Research Centre
DHMT	-	District Health Management Team
WHO	-	World Health Organization
ICG		International co-ordination Group for Vaccine Provision For the control of CSM
CSM		Cerebro-Spinal Meningitis
EPI		Expanded Programme of Immunization
RTI		Respiratory Tract Infection
IE & C		Information Education and Communication
USA		United States of America
BASNEF		Belief, Attitudes, Subjective Norms, Enabling Factors
HBM		Health Belief Model
UNICEF		United Nations International Cultural and Education Fund.
MOH		Ministry of Health
R <sub>1</sub>		First Respondent
R <sub>2</sub>		Second Respondent
R <sub>3</sub>		Third Respondent

## LIST OF TABLES AND FIGURES

<b>Tables</b>	<b>Page</b>
Table One: Trends of CSM in the Kassena-Nankana District (1996-1997)	7
Table Two: Community Perceptions of Initial Symptoms and Symptoms of CSM that Constitute Severity. ....	37
Table Three: Summary of Community Perceptions on Immunization Against CSM ....	39
<b>Figures:</b>	
Figure One: Illustration of Perceptions on CSM in Kassena-Nankana Dist.	40

## ABSTRACT

Perceptions of the causes of Cerebrospinal Meningitis, its treatment and prevention, as well as reasons for the blatant refusal by some sections of the communities to vaccinate against the disease in the wake of the big epidemic of the meningitis belt (1996-1997) to which the district falls, were investigated. About 150 knowledgeable people of various age groups, Kasena Nankani were interviewed in Key informant, In depth interviews, Focus Group discussion, case interview of surviving victims of the epidemic, using interviews guides formed mainly along health education models. (Health Belief and BASNEF models).

The existence of specific local names – (Yujaweo'), (Kamakegagoglebaa) in Kasin and 'Agweterikesia in Nankan for Cerebrospinal Meningitis depict good knowledge of the symptoms intense headache and stiff neck that characterize the disease however the perceptions that certain complication of the disease like convulsion, unconsciousness, abnormal behaviour termed Non-Hospital illness extend to meningitis as well in the communities. For these conditions herbal treatment and soothsayer consultations are the options. Epidemics are also believed to spare households affected in a particular outbreak from attack on subsequent epidemics. This poses a danger of false security of protection against CSM attacks in subsequent epidemics and therefore may explain their refusal to vaccinate against the disease.

Awareness of Postvaccinal Cerebrospinal Meningitis as well as suppression of the female in a patrilineal society hamper decision making on vaccination.

Causation of the disease by supernatural forces and prevention of epidemics is at their discretion. A memory loss of the big epidemic and the claim to a herbal treatment of the

unconscious child need further investigation. The study underscores the usefulness of permanent education strategies in the communities using health education models.

## CHAPTER ONE

### 1.0 INTRODUCTION

#### 1.1 Global Burden of CSM

Cerebrospinal Meningitis (CSM) also known as meningococcal meningitis is an acute inflammatory disease of the membranes covering the brain and the spinal cord. It is caused by the bacterium *Neisseria meningitidis*. The disease occurs sporadically and in epidemics globally. It occurs more in males than in females and commonly among newly aggregated young adults and children under crowded living conditions such as in the barracks, institutions and schools, refugee camps. (Santaneillo, et al (2002).

Cerebrospinal meningitis is a global public health problem. It continues to take high death tolls in epidemics despite the availability of a vaccine to control it. Even with appropriate treatment 5 – 10% of patients die (Kaplan and Fiegin, 1985) and the same percentage of survivors suffer neurological sequelae (Smith et al, 1988).

But this mortality can be higher especially in Africa where septicaemia patients mostly infants and children die before reaching hospitals (Greenwood, 1999). The unique characteristic of CSM epidemics, is that of sudden onset, in grossly well defined season and period taking communities by surprise, despite experiences of agony and death accumulated from previous epidemics. Death tolls occur before appropriate medical intervention can give any meaningful impact in curtailing the epidemics.

Major epidemics of CSM have occurred in Europe notably; Spain (1995-1997), Canada (1992-1993), the Americas; Chile (1986-1993); Cuba (1982-1984); Asia; China (1979-1980); Middle East, Saudi Arabia (1982). But the greatest burden of CSM lies in the 'meningitis belt' of Sub-Sahara Africa. The belt is a 600km.wide area extending from Gambia in the west to Ethiopia in the east where massive epidemics occur in 5-12 year

period in the dry season of the harmattan and ends abruptly with the onset of the rains (Lapeysonnie,1963).

The strategy of control of epidemics in the belt as applies worldwide is that of rapid response to alerts of epidemics with mass vaccination of populations at risk, treatment of patients, chemoprophylaxis and public education (Greenwood 1999). The threshold level of alert of a CSM epidemic is defined by WHO as 15 cases/100000 population per week. This threshold has been modified to 15 cases/100000 population in two weeks in the meningitis belt: (Wood, et al 2000), with all its attendant shortfalls in the control of epidemics in the belt. Some of the major problems mitigating against successful control of epidemics in the belt are late detection of epidemics, lack of case definitions simple and yet sharp enough to cover prevailing categories of symptoms across all age groups, slow response and lack of logistics to control the disease including the availability of vaccines.

## **1.2 Efforts of International Co-ordinating Groups (ICG) in Controlling CSM Epidemics.**

Following the big epidemic in the belt between 1995-1997, The International Co-ordination Group on Vaccine Provision for Epidemic Meningitis Control (ICG) was formed in January 1997 with the backing of WHO and UNICEF, to deal primarily with the large epidemics of the African Meningitis Belt through:

- A. Vaccine security stock of 7million high quality vaccines yearly.
- B. Better international co-ordination in the epidemic response.
- C. Rapid response to epidemic with high quality vaccines and all necessary logistics.
- D. Yearly review of performance based on lessons learnt the previous year.

This new international initiative seemed determined to deal a big blow to the epidemics but the big outbreak in Burkina Faso in year 2001 has demonstrated that the epidemics seem to

elude all practical measures of control. Taking the cue from how other equally fatal epidemic diseases like yellow fever and smallpox have been controlled in the world and especially in the meningitis belt, approach to the control of meningitis may be blamed because local concepts, beliefs and attitudes that are important in the spread of epidemics have not been taken into account in planning control strategies in various countries (WHO, 1998). This was particularly so with smallpox in which cultural practices like variolation, the inoculation of people with viral material actually sustained the spread of epidemics in the belt. It is appropriate to investigate the dimensions of socio-cultural perceptions in the dynamics of epidemics in the meningitis belt.

## CHAPTER TWO

### 2.0 BACKGROUND INFORMATION

#### 2.1 CSM IN AFRICA

The meningitis belt of Sub Saharan Africa is by definition countries in the geographic region of sahel savanna in Sub-Saharan Africa where massive epidemics of CSM occur periodically between 5 – 12 years and have a seasonality in the dry harmattan season from December to May, against a background of hyperendemic disease (Lapeyssonnic, 1963); (Reido et al, 1995); (Greenwood, 1999). (*Annex 1*).

WHO reported a total of over 700,000 cases in African countries between 1988 – 1997 (10 year period). In the most recent meningococcal pandemic which began in 1996 several countries in the meningitis belt notably Burkina Fasso, Mali, Cameroon and Niger were affected. These 4 countries accounted for 30% of cases reported in 1998, (WHO, 1998); (Harrison, 1995).

Since three decades there have been increasing trends of epidemics in the meningitis belt from 298,850 in 1979 to over 500,000 in 1998 (WHO, 1998).

The outbreak of epidemics in the meningitis belt for the past hundred (100) years has been blamed on pilgrims who brought the epidemic strain on their return from Mecca on Haj. The trends can be traced historically also to routes to Mecca first through Algiers then through shorter routes via Timboktou and later directly through Elfashar and Khartoum. (Greenwood, 1999), (*Annex 2*). Similar strains have been carried to the USA (Moore et al, 1988) and the UK (Jones and Sut Cliffe, 1990) from epidemics in N'jamina in Chad. The effective control of the disease in the sub region lies in co-ordinated international surveillance and response. WHO has recommended surveillance and response following alerts based on weekly threshold levels of 15 cases in a community of 100,000 population averaged over a period of 2 weeks.

## 2.2 CEREBRO SPINAL MENINGITIS IN GHANA

In Ghana, since the first outbreak among a group of labourers brought from East Africa by the British in the Ashanti war in 1900, there have been marked epidemics. Between 1939 and 1960, especially CSM occurred as internal epidemics spanning the whole country (Scott, 1965).

Currently, epidemics occur particularly in the Northern, Upper East and Upper West regions starting from November, reaching a peak in March, and dying off with the onset of rains in May. Two major outbreaks occurred in 1994 and 1996 – 1997.

In 1994 there were 4,024 cases with 254 deaths. In 1996-1997 there were 18,703 cases with 1356 deaths (Arthur et al, 1997).

The figure shows that Upper East recorded the highest in the 1996-1997 epidemic, followed by the Northern and the Upper West regions, all of which lie in the 'meningitis belt.'

Among the problems affecting the control of the CSM epidemic in Ghana and indeed in the meningitis belt is the late response to epidemics. Critics have argued that this is partly due to the WHO stipulated epidemic alert threshold of 15 cases/2 week in a population of 100,000 which is not sharp enough to warrant early response (Wood et al. 2000). Indeed several countries, notably Niger, (de Chabalier 2000), Mali (Lewis, 2001), and Togo (Kaninda, 2000) have devised and successfully tested their own alert systems.

During the big epidemic in Ghana 1997, intervention did not begin until the 1<sup>st</sup> week in February, 1997, when attack rates reached WHO stipulated alert threshold. Meanwhile this threshold was reached in North Western Togo from where the epidemic spread to Ghana between December and January and in East Mamprusi an adjacent Ghanaian

community crossed 5 cases/100,000 in subsequent weeks. The effective vaccine coverage during the 1997 epidemic of 72% was less than the ideal 85% required at the start of an epidemic to stop further spread.

The achievements in 1997 vaccination campaign were:

(1) Cases Prevented	Deaths Prevented
5438 (23%)	304 (18 %)

If vaccination had started 1 week with knowledge of epidemic in an adjacent country (eg. Togo, Burkina Faso). The results would have been.

Cases Prevented	Deaths Prevented
At 85% 17442 (72%)	1199 (72%)
At 72% 14774 (61%)	1016 (61%)

*Source: (Woods, et al 2000)*

The figures illustrate our shortfall in the approach to responding early enough to epidemics. But early response was not the only problem in the 1997 epidemics. Anecdotal reports indicate that communities were either unable to vaccinate or blatantly refused vaccination. Not even the demonstration by the then President of Ghana, with two jabs of the vaccine to show how harmless the vaccine was, in communities in Navrongo was convincing enough to some communities.

The scenario was that of panic, people rushing to overcrowded camps with the slightest headache, contrasting with other communities holding to stance of 'No to vaccination' a situation overwhelming the capabilities of medical Services (F. Binka's personal experience, 1997).

### 2.3 CSM IN KASSENA-NANKANA DISTRICT

The table below shows the trends in the Kassena Nankana District from 1996 – 2001

Table 1: Trends of CSM in KND 1996-2001

YEAR	CASES	DEATHS
1996	104	10
1997	2,499	51
1998	65	not available
1999	50	13
2000	69	17
2001	28	40 (a)

(a) Week ending in March 10/03/2001

The table shows that there are high cases in the district during epidemics. This is despite the efficient demographic surveillance by the NDSS, disease surveillance by the DHMT and research work on CSM by the NHRC.

### 2.4 **COMPARISON OF CSM, YELLOW FEVER AND SMALL POX: FACTORS RESULTING IN SUCCESS OR FAILURE OF CONTROL IN SUB-SAHARAN AFRICA**

A comparison of CSM to two viral epidemics Yellow Fever and Small Pox equally devastating in the region of the 'meningitis belt shows that Yellow fever has been kept under control since 1994 (after a big epidemic spanning 1986-1993) by the incorporation of a life long vaccine (10 years and over) into routine infant

immunization (EPI) in the sub region since 1994, while Small Pox has been eradicated from the earth since 1977.

Small Pox in particular shared similar patterns of seasonality and occurred in some 20 countries of the belt with an estimated annual incidence of over 200000 to 400000 cases (Foege, et al., 1975). Added to the menace was the cult practice of variolation, that is the inoculation of community members with viral material. The cult practice variously known as '*Sakpata*' and '*Sopanna*' in Nigeria, Benin and Togo actually helped in the spread of epidemics. With the introduction of a life-long vaccine in 1969 and the banning of the cult practice Small Pox has been eradicated since 1977.

### **Health Education Models in the Explanation and Solution to Behavioural Problems. The Health Belief Model and the BASNEF Model**

The Health Belief Model, a Health Education model in psychology by (Rosenstock et al, 1994), attempts to explain and predict health behaviours by focusing on belief and attitudes of people. It was originally developed in the 1950s in the US Public Service to explain the lack of public participation in health screening and prevention programmes (eg a free and conveniently located TB screening programme). In recent times it has successfully been adopted to explore a variety of short and long term health behaviours, including sexual risk behaviours and the transmission of HIV/AIDS.

The main variables of the model are:

**PERCEIVED THREATS**: Made up of **Perceived Severity** i.e. feelings concerning the seriousness of contracting an illness or leaving it untreated (in both the physical and social sense) and **Perceived Susceptibility**: i.e. One's subjective perception of the risk of contracting a health condition.

**PERCEIVED PREVENTABILITY**: Peoples' behaviour in risk taking towards disease of which they could be afflicted depends on whether such diseases are preventable.

The essential features of the model is that people will behave and act in a particular way in health-seeking depending on their perception on the degree of severity of a disease, their perception on how susceptible they are to the disease or calamity and how preventable it is.

The model has been tested successfully among Thai males about views of risky sexual behaviour (Van Landingham et al 1995), behaviour of homosexuals in USA (Rosenstock et al 1994). Other publishers on the model include: (Kirst et al (1989); (Jantz, et al (1994)

**Limitations of the HBM Model and the Emergence of other Models eg. The BASNEF Model.**

The HBM model did not take into consideration environmental or socio-economic factors that may influence health behaviours, nor does it incorporate the effects of social norms and peer pressure. The Belief Attitude Social Norms Enabling Factors (BASNEF) theory took account of these limitations.

## 2.5 STATEMENT OF THE PROBLEM

In Ghana, many studies have been conducted on the infective strains of CSM, epidemiology, vaccination and therapeutic approaches to CSM epidemics. (Belcher et al 1977); (Acheampong et al 1988); (Wood et al 2000). However relatively few work have been done on the cultural aspects, notably beliefs, causation, treatment seeking behaviour and attitude towards vaccination during epidemics in the country. Notable among the few studies is the one on the perceptions of communities in the Wa district towards CSM (Charway, 1998). This study seeks to investigate the influence of beliefs, attitudes and health seeking behaviour in the spread of the epidemics in the Kassena-Nankana District.

Vaccination against CSM is a promising method of control against the disease, but reports of the 1997 epidemic show that coverage of vaccination of 72% was below the average required to stop the spread of epidemic (85%). Anecdotal reports indicated communities refusing/unable to vaccinate. The DHMT in collaboration with the NHRC carry out Surveillance on the disease and alert the MOH on epidemic threshold levels based on WHO approved guidelines, yet cases and death tolls in epidemics in the KND are high. There are high case fatalities of CSM in outbreaks at the KND. But despite the availability of vaccines, in the government's programme of vaccination during outbreaks, the communities fail to vaccinate against the disease. The communities of KND fail to seek medical treatment for CSM in outbreaks and even if they do so it is done at a time that little can be done by biomedical services to save lives.

The study seeks to investigate the dimension of perceptions of the communities to the problem.

## **2.6 GENERAL OBJECTIVES**

To assess the knowledge, health seeking behaviour, and practices of communities towards CSM including their perceptions about immunization against the disease.

## **2.7 SPECIFIC OBJECTIVES**

1. To identify the local term for CSM, its associated signs and symptoms and use them to describe the disease process from the perspective of communities.
2. To determine the perceptions of the communities about the risk factors for the spread of epidemics and methods of prevention of the disease.

3. To identify the reasons for failure to vaccinate against the disease, despite the availability of vaccines during epidemics.
4. To establish the health-seeking behaviour for both adults and children with respect to CSM and the main influences of when and where to seek what help.
5. To identify local terms, phrases and statements that can be used in the development of pro-immunization IE & C in anti-CSM campaigns.

## **CHAPTER THREE**

### **3.0 LITERATURE REVIEW**

#### **3.1 Ethnicity, Prevailing Local Diseases and Meningitis Epidemics.**

There is probably little work done on the cultural perceptions, attitudes and health seeking behaviour worldwide with respect to meningococcal disease. A study conducted among the Jews and Bedouins (Bullen, 2000) showed that differences in the epidemiology of childhood community-acquired immunity of meningitis was dependent on prevalent local disease. While the Jews were more susceptible to *Haemophilus influenzae* meningitis, the Bedouins were mainly prone to *Streptococcus pneumoniae*. This variation in disease pattern was due to the prevalent Respiratory Tract Infections (RTI) among Jews in the fall and winter, but with diarrhoea among the Bedouins in summer and fall. The findings suggested that the community-acquired bacterial meningitis is associated with the type of the most prevalent morbidity in the community rather than a specific type of meningococcal infection. Ethnicity and morbidity patterns have however not been studied in the KND district.

#### **3.2 Perceptions, Attitudes and Practices in Diseases.**

With respect to meningitis and attitudes of local people, the work of Aponso and Bullen (2001) is worth mentioning. They found out that the public health messages gave appropriate explanation and expression of the key features of meningitis while newspapers and advertisements omitted them. The term meningitis was used more frequently in newspapers; 65% than in public health messages 30%. The article stresses the need for public health specialists dealing with the media to ensure that appropriate messages of meningococcal disease are incorporated into media reports .It underlines the fact that

greater use of the term meningococcal disease by both public health media agencies would convey to the public the message that the disease has a spectrum of presenting features.

Bullen also found in a survey in Auckland (1998) that health messages on early clinical features of CSM at risk communities in Auckland, New Zealand, was more effective if lay indigenous Maori educators were used instead of routine health workers. This method has potential in KND in approaching CSM vaccination problems.

On the perceptions of communities on causation and treatment of an epidemic disease, the work of (Una M-+aclean, 1976) on Ogori people of Yoruba's perceptions on Small Pox is worth mentioning. The Ogori perceived of Small Pox as brought upon the communities by the god Shopanna, who is also the god of madness. The subject of Shopanna was dangerous to discuss for fear of attracting his attention. Until British legislation banned them, priests of the associated cult practiced a form of variolation which was the inoculation of material from dried scabs. The correct traditional treatment of small pox was the prerogative of men. The argument was that whilst inoculation helped spread the disease, specific nursing and preventive measures like a ban on public gathering by the cult helped to contain the disease.

Charway (1999) studied the knowledge, attitudes, and health seeking behaviour and other practices relating to CSM in the Wa district of Upper West, Ghana. Her study showed high awareness about CSM disease its risk factors, methods of prevention and where to seek appropriate treatment. But her study was just at the aftermath of a big epidemic in the district and in fact the whole of northern Ghana. Her results did not reflect the high case fatalities in the epidemics nor did she discuss sources of bias and limitations for the above-mentioned discrepancy. The study seeks to investigate the perceptions of a community in a similar geographic area, 5 years after the epidemics using a qualitative study.

Ahorlu et al (1997) found that there was medical pluralism among the Ga-Adangbes of southern Ghana (ie. the combination of western drugs and local herbs in the home management of uncomplicated malaria). That malaria was attributed to the sun, gods etc. (Senah, 1997) found out that patients sought medical help in traditional healers because this was cheaper, easily accessible and payments negotiable and more convenient than hospital treatments.

### **3.3 Medical Anthropology in Diseases and Practices**

(Manderson, 1998) indicates that anthropology with respect to infectious diseases deals with identifying and describing concerns and understanding of disease including local knowledge of cause and treatment relevant to the control of diseases. It involves translating these local concerns into appropriate health interventions, for example IE&C communication strategies for disease control. However, in the process, problems arise as control programmes begin to compete with local knowledge and value systems. This is clearly the situation in most CSM endemic areas as people panic for vaccination or refuse to take vaccination during epidemics because most information received from programme managers conflict with what exists in the community (Adongo, 2000; Personal communication).

Gender issues in the control of infectious diseases have been highlighted in the works of (Vlassof and Manderson, 1996). Based on a definition of gender as opposed to sex in approach to infectious disease problems, the paper illustrates that with the help of a gender framework, the control of tropical infectious diseases could be enhanced and emphasizes the importance of gender sensitivity in understanding the nature of disease prevalence, determinants and control. But does gender play a role in the spread of epidemic diseases

and for that matter epidemic meningococcal disease in the KND district of the meningitis belt?

In the United States some work has been done on the cognitive synthesis of some common infectious diseases by Americans (McCombie, 1999). McCombie looks at the cognitive aspects of the lay American patient in the diagnosis of the common cold-flu. It emerges that the lumping together of respiratory and gastrointestinal symptoms in terms like 'stomach flu' is not uncommon in the literate American society. Malaria, encephalitis and AIDS are all termed flu like in the lay person's perspective.

Medical practitioners also lump together many infectious syndromes as the viral syndrome as an initial diagnosis. These include bacterial infections notably typhoid fever, shigellosis, campylobacter enteritis, and that the 'viral syndrome' is to the practitioner what is 'flu' to the lay person. This variability in the extent to which flu and viral syndrome are diagnosed affect the spread of many communicable diseases. Transmission of such diseases may be facilitated or limited, depending not only on the mode of transmission of the disease but also on subsequent individual behaviours by the physician, the patient, and his or her contacts. Delayed reporting on the part of the patient, missed diagnosis and mis-prescription on the part of the practitioner have led to many mishaps. Treatment with antibiotics in the absence of a specific diagnosis is extremely common. (Hamm et al., 1996); (Mainous et al., 1996); (Nicole et al 1996). A similar finding has been established for colds and fever in suburban communities in England. (McCombie (1985) discusses the politics of immunization in public health in his article in *Social Science and Medicine* journal.

Other work include that done (Gyapong et al., 1994) on the local perceptions towards lymphatic filarasis in the KND district of Northern Ghana. Elephantiasis and hydrocele were both attributed to spirits. Senah et al (1994) have also worked on local concepts

regarding some common disease like diarrhoea, cough fever and the health-seeking behaviour in the KND district. (Senah and Binka, 1994) mention gender partiality in decision-making towards health seeking in these diseases. They found that women are politically and socio-economically marginalized in the KND and this has affected their independence in health-seeking decision-making.

The work done on perception, attitudes and health-seeking behaviour on malaria has been the most extensive. Most cultural studies on malaria centre on knowledge about the disease in the communities and treatment practices associated with this knowledge. Complications of malaria like convulsion are treated as different and non-hospital illnesses. (Brieger, et al. 1984-1985); (McCombie, 1996); (Mwensi, 1993); (Ramakrishra et al. 1988-1989); (Winch et al. 1996); (Kendal et al, 1997)

#### **3.4 Vaccination and Perceptions about CSM**

(Bovier et al, 1999) found out that routine vaccination against CSM at an early age, with or without mass vaccinations in epidemics, is more effective, with a cost-effective ratio within the range of other vaccination strategies in Africa .Therefore routine vaccinations should be reconsidered. (Spiegel et al, 1993) found out in N'Djamena, Chad, that selective vaccination only to at-risk groups failed to halt an epidemic but rather mass vaccinations was the answer. (Veeken et al, 1998) on the contrary found that it was more cost-effective to treat cases than do a mass vaccination, especially in Sub Sahara Africa where surveillance is poor. (Brush et al, 1998) found in Ghana that vaccine coverage could be maximized through home visits using national service personnel.

#### **3.5 Health Education Models and Behaviour Exploration in Epidemic Diseases**

(Bertrand et al, 1992) revealed through the Aids Risk Reduction Model (ARRM) a modification of the HBM in Zaire, how difficult it was for HIV/AIDS positive Zairian

women to label as problematic their sexual behaviours that put them at risk of HIV infection. (McGrath, 1993) used the model to investigate the cultural context of risk behaviour among urban Baganda women Kampala, Uganda.

## CHAPTER FOUR

### 4.0 METHODS/DESIGN

#### 4.1 Study Site:

This study was carried out in the Kassena-Nankana District (KND) of the Upper East Region. The district is one of the 6 districts in the region. It is bounded to the east by Bolgatanga district, to the west by Upper West region, to the south by Northern region and to the north by Burkina Faso. The district is located at latitude 10°30 and 11°00 North of the equator and longitude 1°00 and 1°30 west of the zero meridian.

The area of the district is 1658 sq km. It has a population of 150,949 with a growth rate of 3.0%. The Density of population is 91 per sq km (Ghana Statistical Service, 2000). There are 2 main ethnic groups in the district, namely Kasem – 49% and Nankani – 46% and a minority 5% Builsa .

There are 2 seasons, the rainy season (between June to September) and the dry season (October to May). There is an international migration pattern in and out of Burkina Faso which the district shares its northern border with. This pattern of migration is significant in the spread of CSM epidemics. Other movements that are significant in the spread of epidemics are the market day arrangements in the district. Markets are organized on a cyclical manner on every third day. There is movement by traders to attend markets in the districts close by, by the same traders. Therefore there is a constant convergence and dispersion of crowds to and from the villages, the districts and across the border with Burkina Faso.

Agriculture is mainly for subsistence. The main cereal crops grown include millet, sorghum, rice and corn to a lesser extent. The Tono irrigation project with 3,860 hectares

of irrigated land and 42 kilometers canals offers good prospects for commercial farming during the dry season.

In terms of health, the district is divided into 5 sub-districts, These are central (Navrongo); North (Paga); West (Chiana); East (Kandiga); South (Biu). Each sub district has a health centre to serve as the focal point for Sub District of Health Administration. Each Health Centre provides outpatient services, maternal and child health and family planning services. The district has one hospital (War Memorial Hospital) also located in Navrongo. It serves as a referral point for the health centres. The Sub District Health Centres are manned by Medical Assistants who are in turn under the administration of the District Health Management Team (DHMT) headed by the District Director of Health Services.

The Kassenas and the Nankanis are patrilineal in inheritance. Compound structures are typically traditional circular and rectangular houses built together enclosed by walls and yards. The houses are built and roofed with mud and thatch. The flat roofs serve as places for drying cereals and for sleeping places during the hot season. This housing structure may have implications for the spread of epidemics of CSM. A surviving oldest male heads each compound.

The Feo Festival is celebrated in November with a lot of intra and inter-district mixing. This may have implications in CSM Epidemics in the district.

## **4.2 Methods**

This descriptive study was carried out using mainly qualitative research techniques. The techniques used included Focus Group Discussions (FGD) and In-depth Key Informant Interviews.

*In-depth Key Informant Interview*:- In depth interview were held with 10 Key informants who are knowledgeable in the community. The informants were selected purposively

because of time constraints and scarcity resources. Five interviews each were held with key informants who are Kassenas and Nankanis. Out of these, three were males and 2 were females. The key informants were lineage heads, grandmothers and religious leaders. The aim of the key informant interviews were to have an idea of a broad range of issues that center around local perceptions about CSM, the practices and health-seeking behaviour especially during epidemics of CSM. A total of six Case Interviews were conducted, three in each ethnic setting. These enabled us to follow the disease process as recounted by victims of CSM in the 1997 epidemic. The in-depth interviews were conducted by experts trained by social scientists and physicians at the NHRC and DHMT with interview guides. Types of supportive behaviour change analysis and interventions that could be implemented in I E & C were explored.

#### Focus Group Discussions (FGD)

FGD's were held among Kassina and Nakani ethnic groups. Originally the plan was to conduct 20 FGD's but upon discussion social scientists at the NHRC, this was scaled down to 10. Six FGD's were held with the Kassena groups and 4 with Nankana groups. Out of these, 4 were done in peri-urban areas while the remaining 6 were done in rural areas. The discussion groups were formed based on sex and age. Males were separated from females and grouped into the following age categories: 15-24; 25-34; 35-49 and 50+. This provided the opportunity to obtain information from both the youth and adults. The FGD's also captured information on perception and beliefs about CSM, health-seeking behaviour and generalized patterns of dealing the disease. The interviews were conducted in mainly periurban communities up to about 15km radius from central Navrongo, and rural areas above 15km.

### Analysis

It was impossible to transcribe and code all the information gathered on the same day due to the volume of work. Procedures were reviewed daily and changes in strategies of data collection and analysis were made if necessary. Transcriptions and reverse transcription was done to ensure the quality of work. The analysis was done based on major themes with special interest in generalized information pattern and out-liers.

#### **4.3 Limitations of The Study**

- The time frame was too short for a comprehensive qualitative study on perception. A participant observation study for a longer period would have been better.
- Unwillingness to share information about deaths, especially in epidemics.
- The number of interviews limited by lack of adequate financing.
- Information loss due to translations to the local language as well as the transcription.

#### **4.4 Precautions**

- (1) Special precautions were taken not to harm the pride of the local people while seeking information about their behaviour, or open old wound about tragedies in CSM epidemics.
- (2) Special precaution was taken on community entry procedures peculiar to the district eg the offering of kola nuts and strong alcohol drink to chiefs to seek permission for interviewing their subjects.
- (3) Precautions were taken to avoid the intrusion of husbands, and landlords in the interviews with females.

## CHAPTER FIVE

### 5.0 HEALTH-SEEKING BEHAVIOUR

#### 5.1 Community Definition Recognition and Labelling of CSM

##### Community Definition of CSM

The definition of Cerebrospinal Meningitis as perceived by communities in the Kassena Nankana District is a disease characterized by severe headache and waist as perceived by the Nankani ethnic group with the local name 'Agweterikesia' literally meaning 'hits you and stiffens your waist'. The Kasem define the disease with the name 'Yuujaweo' literally meaning 'the disease of the head' in predominantly urban and periurban areas around the north of the District and central Navrongo. Among the Kasem in more rural dwellings in the western part of KND notably Kayero, the name 'Kabagegam or Kabaegekagogle baa' literally meaning 'attacks and stiffens your neck' is used to define CSM. The terms are given both in IDI settings and in FGDS. There are varying degrees of additional symptoms to these basic symptoms eg. *high body temperature that is not cooling*. Some of these symptoms overlap with general symptoms of malaria and gastrointestinal infections e.g. diarrhoea. This undoubtedly presents difficulty in diagnosis of CSM especially in nursing mothers as recounts this woman in an FGD with young mothers at Pungu Talenia.

*'You imagine someone from this place finally realizing that it is CSM, after vomiting and running diarrhoea.'*

The English name CSM appears to replace the above mentioned local names mainly in peri-urban communities without changing the meaning or recognition of the disease. The phenomenon is independent of educational background of and it fades from definite horizons into pockets as one moves further hinterland. The phenomenon is very common in periurban areas like Pungu where prompting is needed for local names to be

mentioned. However, in the hinterland like Apia Gomongo (Nankani) and Kayoro Baliu (Kasem) the local names are more common. Unconsciousness appeared in the symptomatology of CSM among old men in Kayoro.

## 5.2 Recognition of CSM

Through the symptoms severe headache, neck stiffness and waist stiffness the communities are able to recognize CSM. The pattern of recognition is uniform in all FGDS and IDIS conducted in the study. Although CSM is recognized as a serious disease it does not appear to be mentioned among the most common or most disturbing diseases in the District unless prompted. The exception of this phenomenon comes from the response of a member of middle aged men at Dimbasnia and older men at Pinyoro Manyoro. These are both periurban communities. With prompting however, the cardinal symptoms are mentioned. An illustration of this phenomenon is given by this IDI with a 67 year old compound head, Azinam Azore, who answered after prompting with a summary of cardinal symptoms of CSM as defined in the communities in Mirigu.

*'We hear them call it 'Agweterikesia' But we do not know 'agweterikesia'. It is now that we are knowing it. It killed two of my children and I witnessed their funeral.*

It follows that once the memories of communities are activated the recognition and subsequent definitions are mentioned. The pattern is the same in both rural and peri-urban communities and in all age groups.

The seasonality and periodicity of the disease is also recognized universally in the District as occurring in the dry/hot season. Educated ones among them mention March, while religious ones identify them with a festivity. Christians among them recount that disease occurs three months after Christmas. No mention is made of November,

December or January as epidemic months. Endemicity of CSM is mentioned in focus group discussions in Dimbasnia with middle-aged men.

*'Before the treatment began it occurred even in the rainy season'.*

Periodicity ranges from every year to between three and five years.

The epidemics are also recognized on individual household basis by people seeing other members carry their sick from different household at particular time. Widespread wailing of people during epidemics is another way of recognizing epidemics as illustrated in the responses below;

*There is no need going round asking people because everybody is carrying a patient and you see it – Pinyoro Manyoro.*

*There is widespread wailing – Dimbasenia.*

In addition communities recognize CSM at the point of the herbalist treatment.

### **5.3 Labelling of CSM**

CSM is labelled as a serious disease but does not appear in epidemic disease taxonomy as recounts a compound head at Mirigu. There is also the disease *Kasoa (measles)*. That disease maimed and killed a lot of people. After that was convulsion and tetanus. It is noteworthy how convulsion is treated as separate entity. The phenomenon is universal in the District. The disease is serious because it kills if not treated early enough and also maims. Neurologic sequelae are mentioned as reasons for seriousness.

CSM is also labelled as a disease that *sparcs* a household in subsequent epidemics once it has attacked the inmates of that house in a particular epidemic. The evidence to this effect comes from teenage mothers at an FGD at Apia Gomongo – Mirigu.

*When it happens like that it has to attack a particular house so that next time it will attack another house.*

*Because it attacked a particular house and they died, so it cannot attack them again.*

CSM is also labelled as a 'modern disease' about which the ancestors did not know any method of herbal treatment locally. The evidence of this claim is seen both in Kasem and Nankani communities as depicted in responses among young nursing mothers in periurban community in Pungu Talenia.

*The way this disease is, it is not colonial but a modern day one. When our ancestors existed this disease was nowhere to be found, but now that the white man has taken over the land from our forefathers, that we are now experiencing it. In the olden days we knew nothing about 'kamagekegogole baa' but now we know it. It is only death that it results.*

#### 5.4 Symptom Sequence and Logics of Disease Process

Communities are able to make a logical linking of the recognizable symptoms and signs of CSM. The sequence of symptoms is that of severe headache followed by stiff neck or stiff waist. Additional symptoms like fever, bodily pains, weakness are general symptoms which may overlap with other infectious diseases like malaria or gastrointestinal disease. Diarrhoea is recounted particularly in the case of children but vomiting is not associated with CSM. Whether such additional symptoms precede, accompany or follow the cardinal symptom identified with the local definition, the symptoms represent 'confirmatory symptoms' which are needed in order to make a local diagnosis. The confirmatory symptoms coincidentally also represent signs of severity. Even educated persons would wait for this confirmation symptom in times of epidemics. Examples of this phenomenon is seen both in rural and urban areas.

Young mothers in Pungu Talenia recount:

*'It starts with headache and whole body pains when it is immediately followed by neck stiffness then you know it is CSM and when you have only headache you can't say it is CSM.'*

*'It starts with cold. We have different types of cold. This one, you have severe headache accompanying it. After sometime you feel dizzy and your body pains you before your neck becomes stiff – Kayoro oldmen.'*

The table below shows what constitutes initial symptoms and latter/ severe symptoms of CSM in the communities.

**Table 2: Community Perception of the Initial Symptoms of CSM and Symptoms that Constitute Severity**

COMMUNITY	AGE GROUP/SEX	INITIAL SYMPTOMS	SYMPTOM/S JUDGED AS SEVERE
Pungu Talenia	25 – 35(female)	Headache	Stiff neck, head turning to the back
Pinyoro Manyoro	36 –45(male)	Headache and warm body	Stiff neck
Apia Gomongo	15 – 24 (female)	Not mentioned	Stiff waist
Apia chulugu	50+(female)	Headache	Stiff neck, stiff waist, cannot sit or stand
Kayoro Baliu	25 – 35 (female)	Cold accompanied by head ache	Stiff neck,
Kayoyo (Nutritional Centre)	50+ (male)	High body temperature in children In adults, vague body pains, loss of appetite dizziness	In children--- yellow eyes, stiff neck, then head goes back Stiff neck, then unconscious

According to local people the duration of these symptoms lasts 3 days – Pinyoro Manyoro and one (1) week – Kayoro.

## 5.5 Treatment Options

Treatment options to CSM are in accordance with the condition of the patient. These include: home treatment, consultation with the herbalist or soothsayer, prayers and sacrifices and biomedical treatment. Treatments can also be subdivided into palliative and definitive.

## 5.6 Initial Treatments

With a good knowledge of the initial symptoms and signs of CSM, the majority of communities in the KND claim that initial home treatments for CSM are only palliative. The definitive treatment for CSM is hospital treatment. The aim of the home management is to relieve the agony of intense headache.

Home treatments include western drugs like paracetamol. There is a wide variation of herbs used for example cow dung smeared on the forehead or ‘*sasunga deto*’ as recounted by teenage mothers in Apia Gomongo, a Nankam community or herbs like ‘*Bogusaa*’, ‘*Yoyunga*’ ‘*Yoheyoga*’ herbs ground and taken orally as recounted by older women in the same area. Pungu Talenia nursing mothers on the other hand mash the herb ‘*gaebore*’ and apply it orally. This response was amidst general laughing in the FGD as though the herb has a funny stigma. It appears that there is trial and retrial of herbs before any other decision is taken, sometimes with no definite herb in mind, as recounted by Kayoro oldmen in an FGD:

*‘You go for some herbs, if they don’t help you try another .Somebody might make a mistake or you might have incurred the displeasure of the tree.’*

Initial symptoms of CSM especially if accompanied by vomiting, may be mistaken for malaria as recounts Janet Aweyiga, a CSM victim in a case interview:

*'It started with headache and vomiting I was falling sleepy. Later I took paracetamol and chloroquine.'*

### 5.7 Treatment of Complications of CSM

Complications like Convulsions (*Nila*) *Nankam*; (*Weuzuga*) *Kasem*; *abnormal behaviour (Tihe) Nankam*; unconsciousness that go with CSM are termed Non Hospital Illnesses (NHI) and therefore not meant for the hospital. The treatment for such ailments is at the herbalist, sometimes via the soothsayer for verification, as to the cause of the condition. Generally, in most of the FGD and IDI conducted, the opinion was that convulsions are not meant for the hospital. However, Dimbasnia middle-aged men who were in doubt said they would attempt to seek confirmation at the hospital.

*'We can't always confirm unless we take the case to the hospital. We have known stiffening of the neck is CSM, but convulsions are only among children'*

### 5.8 Soothsayer Consultations

In the mind of the soothsayer there are two types of CSM: CSM caused by natural means and therefore meant for hospital, and CSM caused by sorcery, jealousy of family, children and property. These are not meant for the hospital but for magico-herbal treatment. It is a must for every citizen of KND with symptoms and signs of CSM, to make this clarification at a soothsayer's abode.

The method of differentiation of the two types of CSM is elaborate and involves the use of a consultation stick "*vuru nachaga*" which is held simultaneously by both client and soothsayer. With incantations by the soothsayer, the stick begins to move, landing

sequentially on a neck bone of a sheep, thorny skin of a hedgehog and an empty cartridge. This signifies that someone has fired a gun at the patient's neck resulting in a pinching pain, and therefore he should seek magico-herbal treatment, otherwise he is free to go to the hospital.

Gender inequality with suppression of the female does not enable the female to hear what transpires between men and the soothsayers Mirigu old ladies recount their experiences with compound heads and husbands thus:

*'It is men who consult the soothsayer. Only they know what happens. They never tell their wives. They drive them away and say they only went to pour libation'*

## CHAPTER SIX

### 6.0 PERCEPTIONS ON CSM

#### 6.1 Perceptions on Causation, Transmission Process and The Risk Factors of Transmission

In communities in the KND, CSM is believed to have six main causes: God, staying long hours in the sun, eating dirty food and drinking dirty water, eating modern foods like maggie cubes, eating left overs of CSM patient's food. The transmission process is not discernable as separate entities. The two processes seem to be fused and identified by an object that happens to be associated with the disease (ie. God wind, water, food etc.). The risk factors of transmission are seen as person to person contact rather than overcrowding. However, there are instances of clear-cut identification of overcrowding as a risk factor or transmission and air as the medium of transmission. Such instances occur both in periurban areas like Pinyoro Manyoro as well as in remote areas like Kayoro

*'When we are sitting and breathing on each other, that is how the disease spreads'. The wind carries it from place to place'* Pinyoro Manyoro FGD.

*'When we are overcrowded at a place and someone with the disease breathes on us.'*

#### 6.2 Perceived Severity And Susceptibility

Throughout the communities in the KND, CSM is known to be a serious and severe disease. The evidence comes from all sections of the communities and across all age groups. Reasons given for severity include; rapid progression of the disease and mass deaths, neurologic complications like deafness and dumbness, as given in an FGD with middle-aged women at Kayoro. Psychiatric complications like madness was given in a

similar FGD with middle-aged men at Dimbasnia-Navoro. A young CSM victim at Pungu recounted having weakness and transient blackouts after being attacked by CSM. Family and community emotional setback, with people wailing everywhere having lost dear ones. Other reasons given included the absence of a definite local treatment. Mention is not made of economic burden on household or community in direct answers to questions on seriousness. Such answers came from questions on decision-making and care for a CSM patient. Seriousness appears concentrated on physical and emotional losses.

All age groups are perceived to be susceptible to CSM. These were the findings in mainly periurban communities of Pinyoro Manyoro.

*‘As for me, I will say that it is no respecter of person. I say this because it ever attacked my child, and when the mother sent him food at the hospital it attacked her in addition’*

Among those with different opinion on susceptibility on CSM many said CSM was for adults but convulsions are for children. This was heard in FGDs in Kayoro. The weaker in spirit as well as those destined to die are also susceptible as older men in Kayoro said in FGDS.

### 6.3 Communicability and Perceived Preventability

The concept of communicability of CSM ‘*Kulosena*’ in Kasem language is correctly perceived as person-to-person attack by the disease. Variations however occur in perceptions on communicability. These variations occur even within the same age groups in a particular FGD setting and irrespective of the ‘epicentre’ of the epidemic as depicted by some members in an FGD at Baliu Kayoro where the 1997 epidemic did not

reach, who said that the disease is communicable if one went near the patient, amidst laughing by her colleagues.

Among mostly teenage mothers in Apia Gomongo, the responses were varied among the same FGD setting.

*'I just see that it attacks one person and then another. If it weren't communicable how could that be explained.'*

Others in the group responded negatively or said they did not know.

Communicability is also deduced from the type of biomedical preventive management given to contacts at the hospital like this response in an FGD setting at Dimbasnia:

*'It attacks someone and when you take him to the hospital, he is isolated from those that are ill but not from CSM. You are advised not to share property with the person; not to take turns to take care of the patient, but rather just one person should take care of him.'*

Although communities are aware that the disease is preventable by vaccination, the effect of CSM vaccination is extended to cover protection against all diseases. Communities said they themselves did not have a way of preventing the disease except God. This is exemplified both in young and older groups in distant Apiachuligu and Apia Gomongo

*R<sub>1</sub> 'We can't prevent the disease unless the hospital comes to vaccinate us'*

*R<sub>2</sub> 'Man can't boast of his capability to prevent a disease. God brought it and He is the only one who can prevent it'*

## CHAPTER SEVEN

### 7.0 EFFECTS OF KNOWLEDGE AND BELIEFS ON HEALTH-SEEKING BEHAVIOUR TOWARDS CSM.

#### 7.1 Treatments As Options To Immunization

In periurban Pungu Talenia, young nursing mothers thought that the supply of chemoprophylactic/treatment drugs only at a time of sick CSM is incomprehensible

*R<sub>1</sub>. 'It is like when one is attacked and gets well at the hospital and returns home, it attacks the others, so if we had the drugs we will just take them to prevent the CSM rather than getting attacked and rushing again to the hospital for treatment. You have to get us the drugs but you don't give the drugs and you say unless it attacks you.'*

*R<sub>2</sub>. You imagine someone from this far away place finally realising that it is CSM after vomiting and running diarrhoea and there is no means like transport. By the time you arrive at the hospital they say this drug is not here go to Bolga .By the time you return from Bolga your patient is already dead. Do you wish that your child dies? I think this is your fault so if you sit here to ask us all this law then you are lying. (The whole group is quite tensed and some were laughing).*

Clearly there is lack of understanding of the mechanisms of infection and the management patterns, and this is a duty of health workers. Treatment as an option to immunization in times of epidemic, especially in Sub-Saharan Africa where surveillance is weak has been suggested by some authors (Veeken, et al 1998).

## 7.2 Reasons For Not Vaccinating Against CSM – Accrued Evidence

Communities in the KND are generally aware of post-vaccinal CSM. There is fear of contracting the CSM disease or any other disease soon after vaccination. This knowledge is widespread and covers the two ethnic groups.

To the question of the benefits of vaccination some of the responses were:-

*R1. It has advantages for the lucky but not for the unlucky. Because the unlucky is not well or gets sick after the vaccination. But those who are lucky are those who are healthy after that. A different sickness, not "Agweterikesia" attacks them after the vaccine. And that makes them unlucky. --- Teenage mothers at Apia Gomongo.*

A post-vaccinal CSM patient at Baliu community commented:-

*I was attacked 3 days after the vaccination. I think it is because I was injected that it attacked me. I didn't even inject sometime ago and nothing happened to me, but when I injected this time, I was attacked.*

Her compound head intervened to comment on the answer of the lady thus:

*'When you are going to be infected with a disease and they inject you, it will attack you through that. It is beneficial' It is not the injection that saved her at the hospital?*

The old man like many others believe that the effect of the vaccine and antibiotic treatment are the same.

Other reasons for not being able to vaccinate include:-

*Q. Frankly, people do not vaccinate because they are busy. It is not a deliberate refusal. Everybody likes good health --- Teenagers at Apia Gomongo.*

Nurses would say it is time for us to leave

*R<sub>1</sub> It is normal that not all of us can be immunized. The nurses would say it is time for them to leave. The people are not stable, people go to Navrongo, Bolga and some to Tamale. Before they come it would have been time for the nurses to go. They have done that several times. (Teenage mothers at Apia Gomongo)*

Inappropriate timing of vaccinations was mentioned as another reason for not being able to vaccinate against the disease.

*We wanted that immediately after harvesting our crops that is in the 11<sup>th</sup> month, they should come and vaccinate. Because when they come early, they will help prevent the disease early enough ..... IDI with compound head at Kayoro*

The various responses are summarized in the table below.

**Table 3: Summary Of Perceptions On Vaccinations Against CSM in KND**

COMMUNITY	ADVANTAGES OF VACCINATION AGAINST CSM	DISADVANTAGES/ REFUSAL/UNABLE TO HAVE VACCINATION	REMARKS (Suggestion)
(1) Pungu Talenia Young mothers (Perurban)	So that when CSM strikes it won't be that serious again even with our babies  Don't we want to live	They are busy  It makes their hand painful  It makes your hand numb: something like stroke  They don't come to the communities but ask them to meet at central hospital for the injection	Two days should be set aside for vaccination. Why do they wait till when people start dying before they come to inject us?  Extend immunization so that all can get injected.
(2) Soothsayer	At first we were having things like rabies of children, malaria, now they are all gone. It is good. It prevents a lot of things.		
(3) Kayoro old men.	They come every year to vaccinate us against CSM.  They come after hearing of a case of CSM to vaccinate us so that it does not enter our community.	(1) Some say they would not benefit from it so they won't leave their work.  (2) Some miss the vaccination due to funeral or other travel.  (3) They come after Christmas or the last month before Christmas. If they come earlier it will help prevent the disease early enough.	Bring enough vaccines.  (2) Since you know our population, keep coming till the whole community gets vaccination.
(4) Post-vaccinal CSM victim		There were times I did not even vaccinate against the disease and I did not get it. This time I vaccinated and had the disease.	They say if you vaccinate and you are going to have the disease it makes it less severe.
(5) Mostly Teenage mothers (Apia)	After the injection all diseases disappear	(1) As long as you are not sick after the injection it is advantageous.	

		<p>(2) Sometimes they use one syringe and needle to inject everybody. When I see that I refuse to let them vaccinate me.</p> <p>(3) They tell us the injections have finished.</p> <p>(4) We receive orders from the landlord whether to vaccinate or not.</p>	
Dimbasnia Men above 50+ yrs.	<p>(1) Since last 5 years we don't experience rampant epidemics.</p> <p>(2) They do not discriminate except for medical reasons.</p>	<p>Soothsayers tell them not to accept any vaccination.</p> <p>(2) They should try and substitute tablets for those who fear the vaccine.</p> <p>(3) They just tell us there is a disease coming so we should vaccinate.</p>	
(7) Traditional Healer	The vaccines are good. They do not interfere with our work.		Every body has got their fields in which they are good at.
(8) Elderly compound head		Some complain that the vaccines are not good. There is nothing given to reduce the negative effects of the vaccine.	We number about 100 in different compounds. They should know the appropriate time to give us the vaccines.
(9) Kayoro Ladies		<p>(1) The landlord decides on vaccination.</p> <p>(2) They come only at the time of the epidemic.</p> <p>(3) With me nothing happened. I don't know about the others.</p>	They should arrange to come back in two days to vaccinate those who were not around.

## CHAPTER EIGHT

### 8.0 ANTHROPOLOGICAL PERSPECTIVE OF LOCAL PERCEPTIONS ON CSM.

The presentations of findings are related to the research objectives on health education models, notably Health Belief Model and the BASNEF model (Belief, Attitude, Subjective Norms, Enabling Factors)

#### 8.1 Knowledge about CSM and Health-Seeking Attitude

Most Cultural studies on diseases and illness centre on community knowledge and treatment practices associated with the knowledge (Brieger et al; 1985); (McCombie 1996). This local understanding permits the use of vernacular terms, which correspond to the disease. These terms enable prompt recognition in the context of folk conceptions, with their own cause symptoms and treatment. This understanding may or may not correspond to biomedical nosology (Helman, 1990); (Rubel, 1984). A good comprehension of symptoms and signs, which overlap with biomedical message, does not necessarily mean that interpretations of causal processes or symptoms correspond with interpretations of biomedicine (Downie et al, 1998).

In the Kassena-Nankana District, the local terms and symptoms mentioned, ‘*Yuugyaweo*’ ‘*Kamakegagogelbaa*’ ‘*agweterikesia*’ appear to be related to symptoms and signs at CSM. Among the 3 terms “*Kamakegagogolebaa*” appears to overlap best with the sign – stiff neck of CSM, and the resulting health-seeking behaviours are related to this knowledge. The Nankanis might be the most unfortunate if they have to wait for stiff waist alone as a cardinal sign.

These local terms do not conflict with biomedical knowledge. Therefore, given that the communities identify the symptoms and signs, – biomedical treatment is a definitive option. This finding agrees well with other studies done on epidemic and endemic

diseases like malaria. (Makemba, et al 1996); (Mwensi, 1993); ( Hausman Muela, 2000). The cardinal symptoms of CSM do not seem to overlap with any other locally known febrile disease. The community knowledge of the symptom sequence is that of intense headache followed by stiff neck. Additional symptoms are fever and diarrhoea (in children) which enable the communities to identify the disease. However, it appears vomiting goes with malaria and not CSM. An illusion may be created if such additional symptoms precede a cardinal symptom of CSM in which case communities would wait for the cardinal or confirmatory symptoms or treat it as malaria. The finding is not strange as biomedical misdiagnosis of CSM by health professionals also occur (Gould et al, 1991); In New Zealand (John et al 1998), found out that initial symptoms of CSM could be vague and simulate any infectious disease. Death can be within 12-24 hrs. (Olesch et al 1999) found that stiff neck ranked 8<sup>th</sup> of nine clinical features of CSM of ages between 9 days and 13 years in a paediatric hospital in Australia. Health Education therefore should be able to cover all range of symptoms vis-a-vis the season in educating communities about CSM.

Complications that might accompany cardinal symptoms of CSM, like convulsions, abnormal behaviour, incoherent speech and unconsciousness are variously classified as separate diseases. Convulsion – is called *Weuzuga* or *Kinkerisa*, in Kasem language and *Nila* in (Nankam). Abnormal behaviour in a febrile patient is interpreted as high fever among communities; It is called *Pardia* or *Pasinga* in Kasem and *tihe* in Nankam.

Unconsciousness is called *Kurigam* in Kasem. For these conditions biomedical treatment is not the option - the herbalist is the choice.

*Q. When you behave abnormally it means 'Tihe' (trees) are disturbing you. So we go to the herbalist for some herbs 'tihe bono' and rub it on the person. If it is the tihe the patient will be cured (Apia Gomongo)*

Much of the work done in respect of this dichotomy in folk perception between initial symptoms and complications of febrile illnesses in Africa, fall into what is termed: Non hospital illness (NHI) (Kendal, et al 1997, Ghana); (Muela et al 2000, Tanzania). In their work on malaria it stands out deductively that there exists a perception gap between initial symptoms of malaria and complications like convulsions (*Eso* in Ghana); (*Degedege* in Tanzania). It appears that there is a similar perception gap between the initial (cardinal or additional) symptoms and the complications of CSM in KND. This is despite the clarity in perception about the cardinal symptoms of CSM. To the communities a convulsing patient after stiff neck ceases to be a CSM patient. There are no logical sequences between the two.

*Quote : 'What I have to say is that the Kasem call CSM Kamagekagolibaa' but convulsion attacks children only, in my opinion, and it is called weuzuga. So they are two different diseases, which probably attack almost the same time, and CSM is for adults' - Kayoro*

*'I will let the herbalist treat the convulsion, then I will take the CSM patient to hospital - Dimbasnia.*

The difference in concept between the biomedical model of interaction between initial symptoms of febrile illness like malaria and CSM, and their complication as compared to community perceptions on the same issue in KND is illustrated in figures 1 and 2 (**Annex 9**).

## 8.2 Memory Loss

There appears to be memory loss of the catastrophe of CSM in the district five years, since 1997. CSM is not mentioned among the common or disturbing diseases in the district

unless prompted, with clues to the epidemic; nor among epidemic diseases like measles cholera yellow fever, which were mentioned without prompting. The cyclical nature of the epidemic and the belief that the disease is supernatural may explain this phenomenon. (Twumasi and Bonsi, 1975) assert that the diagnosis of illness is viewed as a diagnosis of social offence and the curing of illness requires the writing of some social wrong. But in the KND, CSM is not the result of wrong doings to ancestral spirits, but is more or less a 'will' from God from which *'some are destined to die'*.

*'How can your ancestors bring a disease to kill you'* – Mirigu.

*'Your ancestors can make a crop fail to punish you but not with CSM'*.

'Kayoro'

Therefore, religio-moral ideology of guilt and anxiety may not come into play (Twumasi and Bonsi, 1975) and therefore memory may be short-lived. It looks like the epidemic sweeps people away in a flash and memory decays with time until the next epidemic reawakens it

### **CSM as 'A Modern Disease'**

Communities label CSM as 'a modern disease' unrelated to the ancestors and therefore no definitive herbal cure exists. Only biomedical treatment exists--Mirugu, Pungu-Talenia. On the contrary soothsayers claim that there are 2 types of CSM, witchcraft CSM and natural CSM; the former a NHI is not meant for hospital, while the latter is meant for hospital. This conflicting claim can be explained partly by the 'eye opener' of modern successful biomedical treatment as against the persistence of soothsayers to maintain their trade against all odds.

Another explanation could come from comparison of CSM with HIV/AIDS that is also 'modern', claiming so many lives because it has no cure. The older in the community

appear to be distancing themselves from disease. The disease is over 100 years old in Africa Greenwood (1999), and any claim that it is modern is untrue and must be discouraged as the reason for inability of communities to diagnose it in the past. Health education and health promotion should be directed towards clearing the minds of communities on this issue.

### **CSM the Disease that ‘Spare’ a Household in Subsequent Epidemics.**

This local perception in communities at household level poses the danger of members of some households not pursuing any immunization programme in and out of epidemic times. This would encourage transmission at the household level by non-immune and carriers, Greenwood (1999) mentions, sparing at the community level but that is no basis for a false security.

### **Perceptions of CSM vis-a-vis Health Education Models.**

Although CSM is considered a very serious disease and susceptibility to cardinal symptoms cuts across all age groups, any accompanying, complication is unrelated to CSM. Convulsion are for children, abnormal behaviour is high fever, unconsciousness are unrelated to CSM. This gap in susceptibility to CSM undermines the credit won with respect to knowledge of severity in CSM.

Perception on communicability shows variation even in the same FGD setting. Argument for communicability is well supported with evidence of personal contact. However, claims of non communicability, which has weaker voice, is attributed to God. Communities mostly claim that the disease is not preventable.

***It is not preventable you just prepare for it (Dimbasnia)***

Causation, transmission, and preventability are lumped together with the divination God and objects that they can touch and see.

(Quick et al, 1998) report that although cholera prevention campaign successfully educated rural and periurban communities at risk in Peru. This did not cause many to adopt preventive measures. Seventy-five percent (75%) of communities still drank untreated water. Ninety-one percent (91%) ate unwashed food both of which are cholera risk factors. In my opinion in such situations, there is a cherished property like the taste of the water, or a feared taboo. Communities in KND however would not go for vaccination due to post vaccinal CSM as the study found.

(Rosenstock, 1994) argues in his Health Belief Model of health education that the degree of perception on severity susceptibility and preventability will direct people to behave in one way or the other towards a disease. Health Education should be directed towards the gaps and conflicts in perception in the KND. The focus should be on the communicability susceptibility and preventability of CSM.

### **8.3 Health Seeking Behaviour In Knd Vis A Vis The Basnef Model.**

Knowledge, recognition and labelling as components of perception shape health-seeking behaviour Subjective norm or the significant others in the communities in KND who significantly influence CSM health-seeking behaviour, appear to be the family and the compound heads. The inheritance system in KND is patrilineal and the compounds heads are responsible for the payment of health care bills of subjects. Therefore, permission is sought from them in any activity leading to payment; for example, immunization etc. The only condition for bypassing a compound head is physical weakness or poverty. In such instances, decision-making shift to husbands.

Gender pressure appears to be a significant factor. Older women in Mirigu tried to suppress younger ones in their age group about talking about expeditions to soothsayers by their husbands. This suppression appears to be in a chain (Husbands in turn do not communicate with their wives on soothsayers).

Strong family bonds lead to relatives contacting patients despite knowledge about communicability. The influence of family and individuals in seeking appropriate treatment, giving social and financial support cannot be overemphasised, (Liefoghe et al, 1997).

*Whether your husband or brother is attacked by the disease you cannot leave him (Mirigu). You don't leave CSM patient, whether the disease is communicable or not. A CSM patient ever died in my hands. I wasn't attacked. Others just go to take care of the patient and get attacked (Dimbasnia).*

Treatment is free during epidemics. However, transportation cost, logistical cost and drug other than crystalline penicillin and chloramphenicol prevent people from seeking early treatment. It costs between ₦80,000.00 and ₦100,000.00 to transport a patient to the hospital from the communities.

*You pay your hospital bills by selling some of your possessions, else the hospital will not have mercy on you – imagine that someone from this place with a child, finally realizing that it is CSM after vomiting and running diarrhoea and there is no lorry.*

*They will also say go and buy this drug – the time you return from Bolga your patient is dead –Pungu*

### **Perceptions about Immunization and reasons for failure to vaccinate against CSM**

Benefits of immunization against CSM is universally expressed in the communities as

protection against all diseases including CSM, protection against epidemics, general well being of all including children.

However there are important reasons for failure to vaccinate in and out of epidemic situation. These include; post vaccinal CSM, repetitive use of one and the same syringe and needle for many clients, absence of a clear-cut programme or vaccination schedule, under coverage of the population, attitude of health care providers in delays and unfulfilled promises, the safety of vaccinations in out- of – epidemics periods (see summary of perceptions on vaccinations).

In KND statistics on the burden of Post Vaccinal CSM or the cost effectiveness of routine vaccinations as against mass vaccinations in epidemics are not available. Routine vaccination against CSM at an early age with or without mass vaccination during epidemics is more effective. Cost effective ratios (CE) fall within the range of other vaccination strategies currently in place in Africa (Bovier et al, 1999). Selective vaccination restricted to only at-risk groups fail to halt epidemics. Mass vaccination campaign aimed at the whole population does the trick. (Spiegel, et al, 1993). There is therefore the need to boost up routine vaccination against CSM in the district.

Other authors have the contrary view. (Veeken et al, 1998) found in Katsina State, Nigeria, that case management and mass vaccination in CSM epidemics are efficient: U.S \$35 per case treated and U.S \$0.64 per vaccination respectively. However, there was a remarkable difference in cost-effectiveness between the two strategies. The cost per death averted by improved case management was estimated to be U.S \$396, while the cost per death averted by vaccination was estimated to be U.S \$6000. This large difference in cost analysis is attributed to large part to late start in vaccination. Therefore during epidemics in countries where surveillance systems are inadequate such as most of Sub-Sahara Africa, curative programme should be a priority.

The object of health education is to firstly throw more light on the fact that Post Vaccinal CSM is real but that curative readiness as a safeguard should not prevent anyone from seeking vaccination. On the problem of multiple syringes communities are at risk of other infections like H.I.V/AIDS. The trouble of unsafe injections is not restricted to the district alone or in Ghana (Chan et. al, 2001) have found out that the transmission of Hepatitis B & C in Pakistan has been due to unsafe or repetitive injection with one syringe and needle. Health delivery personnel are the culprits in this unfortunate situation. Further investigation is needed of the real burden of repetitive same syringe usage in the district.

## CHAPTER NINE

### 9.0 CONCLUSION AND RECOMMENDATIONS

#### 9.1 CONCLUSION

In KND, CSM is seen as a serious and devastating disease. It is curable biomedically, if initial symptoms are recognised. However, the fact that complications like convulsion unconsciousness and abnormal behaviour fall into the category of NHI even given clear initial CSM symptoms is a source of worry. Health Education should be directed toward unifying initial symptoms with complications.

Home treatment both for initial and complicated CSM although palliative may be a source of delay. The particular instance of using herbs in treating unconscious and convulsing children need further investigation. If the herb is a diuretic or other drug, which tests renal shut down in unconscious patients, the treatment could be further developed.

Educational efforts should be directed not at completely stopping palliative treatments but in shortening the time spent at home in all palliative treatments. Risk factors of transmission of CSM is generally unknown in the district. The causative agent transmission process and communicability are lumped together as supernatural.

Communities admit generally that there is no herbal treatment for CSM (modern disease) yet given initial symptoms that are well known, any complications are considered as NHI and therefore not meant for the hospital.

Vaccinations are universal whether in or out of epidemic situation. Post Vaccinal illness is not related to CSM alone but with other immunizable diseases, Post Vaccinal illness and even deaths have been reported with Yellow Fever (Chan, 2001); Brazil (Vasconcelos, 2001). For each instance the actual cause of post vaccinal deaths has been properly investigated. Therefore proper investigations and studies should be conducted on the

burden and causes of post vaccinal deaths in CSM in KND and appropriate solutions instituted.

There is some memory loss of the big epidemic in the district in 1997. There is no single explanation to this memory loss. Traditions of death as the natural consequence of disease whether individual or en mass would encourage people to forget it more so when there is the consolation that it comes from God.

## 9.2 RECOMMENDATIONS

### NATIONAL LEVEL

It is recommended that a study be conducted in the Northern districts of the country so as to revise the WHO threshold level of epidemics to enable timely response to the epidemics in Ghana. Ghana should follow the examples of countries like Niger and Togo.

It is recommended that the Ministry of Health liaise with ICG on the issues like CSM vaccine security in the country, and to also conduct a survey on the efficacy of routine house to house vaccination as against fixed mass vaccination as has been done with Polio.

The success of this approach in Egypt is an example.

To conduct a survey on the best time of vaccination in and out of epidemic situation in the KND of Northern Ghana, vis-a-vis cultural perceptions of the people. The communities preferred vaccinations soon after harvest (i.e. around October) and not in periods just before or after Christmas.

### RHMT

The use of lay educators in the campaigns against CSM has been successful among Maori communities in Auckland in New Zealand. This is a laudable example for the RHMT in collaboration with the DHMT to fashion out a lay educator campaign program in the KND

district against CSM. RHMT is recommended is encourage more refresher programs to correct attitudinal problems of health workers at the district level especially with vaccination programs against CSM.

### DHMT

The crux of the solution to the problem of delay in health-seeking behaviour as well as refusal/inability to vaccinate lies in the following approach.

1. Clarifying the point on susceptibility, communicability and preventability with messages like “CSM is communicable” using local phrase like “kulosena” meaning communicable. CSM is thought not to be preventable; therefore health messages should also carry local words depicting the fact that the disease is preventable by avoiding overcrowding and also by vaccination. Although CSM is curable, communities engage in home palliative treatments before going to hospital. It is recommended that health education authorities devise methods of shortening duration of home palliative treatment by encouraging that hospital treatment is the definitive one Messages like *Latare tibka*—Curable in Nankam - can be incorporated into health messages. On vaccinations against CSM, it is recommended that a survey be conducted to determine the best time and the schedule for effective and complete vaccination programs in and out of epidemic periods. Messages like duration of immunogenicity of the polysaccharide vaccine should be clearly spelt (i.e. between 2 and 3 years) and therefore no need for repetitive vaccinations as some communities are claiming. The repetitive use of syringes and needles should be addressed at the district level as well as reassurance that post vaccinal CSM is curable and should not be a barrier to vaccination. Messages that vaccination is not for the lucky one but the group at

risk could be used; the key word lucky—*zusongo*; unlucky *Katara zusongo-Nankam*.

Lay education at the district level should not only dwell on cardinal symptoms on CSM but any other symptom related to the cardinal symptoms such as abnormal speech, convulsions and unconsciousness especially in epidemic situations. A survey should be conducted in the District on the efficacy of mass fix point vaccination as against home visit vaccination and the use of non MOH Staff and National Service Personnel during such programmes. The lay educator concept can also be tested at the community level. The burden of repetitive use of same syringe in the district is one that should be investigated by the DHMT.

#### NHRC

The NHRC in collaboration with DHMT should as a matter of priority investigate the burden and causes of post vaccinal CSM in and out of epidemic situations in the KND and advise in appropriate strategies to minimize them.

#### DISTRICT ASSEMBLY

1. Support for the DHMT in terms of logistics and finance should be encouraged both in and out of epidemic situations. This will enable the DHMT to carry out all forms of vaccination programmes and also compile data on problems concerned with CSM management in the district. The District Assembly in conjunction with the local office of the Country and Town Planning Department should initiate the design of better houses with improved ventilation for the communities.

## REFERENCES

1. Acheampong, J. W., Ohene Adjei, K., Bawuah, P. (1990): Pyogenic Meningitis in the Tropical Rainforest of Kumasi, Ghana: In *Ghana Medical Journal* 24; (4) 218-222. Ghana Universities Press.
2. Ahorlu, C. K, Dunyo S. K, Afari E. A, Koram K. A, Mkrumah. F. K. (1997): Malarial-Related Beliefs and Baviour in Southern Ghana: Implications for Treatment, Prevention, and Control. *Tropical Medicine and International Health*. 2 (5): 488-499.
3. Aponso, D, Bullen, C. (2001): Taking Public Health to Street; The 1998 Auckland Meningococcal Disease Awareness Programme. *New Zealand Medical Journal*; 114 (1127): 83-5
4. Arthur, P. et al. (1997): An Evaluation of the Preparedness for CSM Epidemic in Ghana. London School of Hygiene and Tropical Medicine, Ministry of Health, Ghana, and Navrongo Health Research Centre.
5. Auer. C. and Tanner, M. (1990): Childhood Vaccination in a squatter area of Manila. Coverage and Providers, *Social Science and Medicine* 31 (5). 1265 – 1270.
6. Bandura, A. (1989): Perceived Self-Efficacy in the Exercise of Control Over AIDS Infection. In Mayes, V.M; Albee G.W; Scheider, S.F. (Eds.), *Primary Prevention of AIDS Psychological Approaches*. (pp. 128-141) London Sage Publications.
7. Belcher, D. W. et al (1977): Meningococcal Meningitis in the Northern Ghana. Epidemiology and Control Measures. *American Journal of Tropical Medicine and Hygiene*, 26: 748-755.
8. Bertrand, J. T., Brown, L.F, Kinzonzi, M., Mansily, M., Djungbu, B (1992): AIDS Knowledge in Three Sites in Bas-Zaire. *AIDS Education and Prevention*, 4(3), 251-266.
9. Birks, J. S. (1978). Across the Savannah to Mecca. *The Overland Pilgrimage Route from West Africa*, London: Hurst and Co.
10. Blakebrough, I. S. (1970) Epidemiological and Laboratory Studies of Meningococcal Infections in Nigeria. PhD Thesis. University of Liverpool, UK.
11. Bovier, P.A, Wyss, K, Au, H. J. (1999) : A Cost-Effectiveness Analysis of Vaccination Strategies Against N. Meningitidis Meningitis in Sub-Saharan African Countries. *Social Science and Medicine*. 48 (9): 1205-1220.
12. Brieger, W. R., Ramakrishna, J., Demissie, P. (1984-1985): Issues in Collaborative Research Between Health Educators and Medical Scientists: A Case Study. *International Quarterly of Community Health Education* 5(3), 229-237.
13. Brush, R.F. and Kevany, P. (1998): Maximizing Coverage Through Home Visits. A controlled trial in an urban area in Ghana. *Bulletin Of WHO*; 74(5):453-552.

14. Bullen, C. (2000): Differences in the Epidemiology of Childhood Acquired Immunity of Meningitis. *New Zealand Medical Journal*. 27 (3) 363-370
15. Campagner G., Schuchart A, Djibo S., Ousseini A, Cisse L, Chippaux J. (1999): Epidemiology of Bacterial Meningitis in Niamey, Niger 1981-1986. *Bulletin of World Health Organization*. 77, 499-508.
16. Ceasay, S. (1993): Decline in Meningococcal Antibody Levels in Africa Children 5 years after vaccination and lack of an effect of booster Immunizations. *Journal of Infectious Diseases*. 167, 1212-1216.
17. Chan R. C. et al (2001): Hepatitis and Death following vaccination with 17D – 204. Yellow Fever Vaccine: *Lancet* 358 (9276) 121 – 122.
18. Charway, J. D. (1998): A Community-Based Study on Knowledge, Attitudes, Health-Seeking Behavior and Other Practices Relating to Cerebro-Spinal Meningitis in the Wa District, Upper West Region, Pg 19-23, Unpublished Dissertation, School of Public Health, Ghana.
19. de Chabaliere, F., Djingarey, M. H., Hassane, A., Chippaux, J. P. (2000) : Meningitis Seasonal Pattern in Africa, and Detection of Epidemics: A Retrospective Study in Niger, 1990-1998. *Transactions of Royal Society of Tropical Medicine and Hygiene*. 94(6); 664-8.
20. Downie, R. S, Tannabill, C., Tannabil, A. (1998): Health Promotion: Models and Values. Second Edition. Oxford, Oxford University Press.
21. Foege, W. H., Millar, J. D., Henderson, D. A. (1975): Small Pox Eradication in West and Central Africa *Bulletin of W. H. O*. 52: 209 – 222.
22. Gould, W, Osei, L., Commey, J. O, Bia, F. J. (1991): Paediatric Cerebral Malaria in Ghana. *Journal of Tropical Pediatrics*. 38(6) 290-294.
23. Granof D. M., et al (1998): Induction of Immunological Tolerance in Adults by Meningococcal Polysaccharide Vaccination. *Journal of Infectious Disease*. 178, 870-874.
24. Greenwood, B. (1973): Allergic Complications of Meningococcal Disease. Immunological Investigations. *British Medical Journal*. li 937 – 740.
25. Greenwood, B. (1981): Enhancement of the Immune Response to Meningococcal Polysaccharide Vaccine in Malaria Endemic Area by Administration of Chloroquine *Annals of Tropical Medicine and Parasitology*. 75, 261 – 263.
26. Greenwood, B. (1987): Factors Influencing Susceptibility to Meningococcal Disease During an Epidemic in the Gambia, West Africa. *Journal of Infectious Disease*. 14, 167 – 184.

27. Greenwood, B. (1999): Meningococcal Meningitis in Africa. *Transactions of the Royal Society of Tropical Medicine and Hygiene*. 93, 341 – 353.
28. Gyapong, J. O., Magnussen, P. and Binka F. N. (1994): Parasitological and Clinical Aspects of Bancroftian Filariasis in Kassena Nankana District, Upper East Region, Ghana. *Trans. R. Soc. Trop. Med. Hygiene* 88, 555.
29. Hamm, R. M, Hicks, R. J, Bemben, D. A., (1996): Antibiotics and Respiratory Infections: Are Patients More Satisfied When Expectations are Met? *Journal of Family Practice*. 43: 56-62.
30. Hanson L. H. (1995): The Worldwide Prevention of Meningococcal Infections Still an Elusive Goal. *American Journal of Medicine*. 273 (5), 419 – 434.
31. Harrison L. H. (1995): The Worldwide Prevention of Meningococcal Infection. Still an Elusive Goal. *American Journal of Medicine* 273 (5) 419 – 421.
32. Helman, C. G. (1990): Culture, Health and Illness: An Introduction for Health Professionals. Oxford: Butterworth-Heinemann Ltd.
33. Igun V. A. (1979) Stages in Health Seeking, A Descriptive Model. *Social Science and Medicine*. 20: 1281 – 443- 456.
34. Janz, N. K, Becker, M. H. (1984): The Health Belief Model. A Decade Later. *Health Education Quarterly*. 11(1) 1-47.
35. John, S. M, Koelmeyer, J. D. (1999): Meningococcal Disease and Meningitis: A Review of Deaths Proceeding to Coroner Directed Autopsy in Auckland New Zealand. *Medical Journal*. 23; 112 (1086). 134-6.
36. Jones, D. M., Sutcliffe, E. M. (1990): Group A Meningococcal Disease in England Associated with Haj. *Journal of Infection*, 21 (1) 21 – 25.
37. Kaninda, A. V., Belanger, F., Lewis, R , Batchass, E., Aplogan, A., Yakoua, Y., Paquet, C. (2000): Effectiveness of Incidence Thresholds for Detection and Control of Meningococcal Meningitis Epidemics in Northern Togo. *International Journal of Epidemiology*: 29 (5) 933-940.
38. Kaplan, S. L, Feigin, R. D, (1985): Clinical Presentations, Prognostic Factors and Diagnosis of Bacterial Meningitis. In: Sande, M. A; Smith, A. L, Root, R. K, Eds. *Bacterial Meningitis*. New York: Churchill Livingstone, pg. 83-94
39. Kendal, C. Arthur, P. Hill, 2., Kirkwood, B. Adjei, E., Entwi K. (1997) Ghana Health Seeking Behaviour Project. London School of Hygiene and Tropical Medicine, Ministry of Health, Ghana, Kintampo Health Research Centre.
40. Kilpi. T., et al (1995) Oral Glycerol and Intravenous Dexamethasone in Preventing Neurologic and Audiologic Sequelae of Childhood Bacterial Meningitis. *Pediatric Infectious Diseases Journal*, 270 – 278

41. Kirscht, J. P; Joseph, J. G. (1989): The Health Belief Model: Some Implications for Behaviour Change with Reference to Homosexual Mates. In Mayes, V. M; Albee, G. W; Schneider, S. F. (Eds), *Primary Prevention of AIDS: Psychological Approaches* (pp. 111-127). London, Sage Publications.
42. Lapeyssonnie, L. (1963): La Méningite Cérébrospinale en Afrique. *Bulletin of the World Health Organisation*, 28 (Supplement) 3-114.
43. Leach, A., Twumasi, P. A., Kumah, S., Banga, W. S., Jaffer, S., Forrest, B. D. Granoff, D. M., Libutti, D. E. Carlone, G. M. Pais, L. B. Broome, C. V. and Greenwood, B. M. (1997). Induction of Immunological Memory in Gambia Children. By Vaccination in Infancy with a Group A Plus Group C Meningococcal Polysaccharide – protein conjugate vaccine. *Journal of Infectious Disease*, 175, 200 – 206.
44. Leuvitt F., (1979). The Belief Model and Utilisation of Ambulatory Care Service: *Social Science and Medicine*. 13A: 105 – 112
45. Lewis, R; Nathan, N, Diarra, L; Belanger, F., Paquet, C. (2001): Timely Detection of Meningococcal Meningitis Epidemics in Africa. *Lancet* 358 (9278): 287-93.
46. Liefoghe, R, et. Al (1997) : From their Own Perspective. A Kenyan Community's Perception of Tuberculosis. *Kenyan Quarterly Journal*.
47. Maclean, U. (1976): Yoruba Sickness Behaviour. In: London, J. B; ed. *Social Anthropology and Medicine*. New York: Academic Press. Pg. 301-317.
48. Mainous, A. G ; Henstion, W.J., Clark, J. R. (1996) : Antibiotics and Upper Respiratory Infection : Do Some Folks Think There is a Cure for the Common Cold ? *Journal of Family Practice* 42: 357-361.
49. Makemba, A. M., Winch, P. J., Makame, V. M., Mehl, G. L., Premji, Z., Minjas, J. N., Shiff, C. J. (1996): Treatment Practices for “*Degegege*”, A Locally Recognised Febrile Illness and Implications for Strategies to Decrease Mortality from Severe Malaria in Bagamoyo District, Tanzania. *Tropical Medicine & International Health*, 1 (3), 305-313.
50. Manderson, L. (1998): Applying Medical Anthropology in the Control of Infectious Disease. *Tropical Medicine and International Health*. 3(12) 1020-1027.
51. McCombie, S. C. (1989) : The Politics of Immunization in Public Health. *Social Science and Medicine*. 28:843-849.
52. McCombie, S. C. (1996) : Treatment Seeking for Malaria. A Review of Recent Research. *Social Science and Medicine*. 43 (6), 933-945.
53. McCombie, S. C. (1999) : Folk Flu and Ural Syndrome. In: Hahn, R. A. (ed.). *Anthropology in Public Health: Bringing Differences in Culture and Society*. Oxford: Oxford University Press. Pp. 27-42.

54. McGrath, J. W., Rwabukwali, C. B., Schumann, D. A., Person-Marks, J, Nakayiwa, S; Namande, B., Nakyobe, L., Mukasa, R. (1993): Anthropology and AIDS: The Cultural Context of Sexual Risk Behaviour Among Baganda Women in Kampala, Uganda. *Social Science and Medicine*. 36, 429-439.
55. Mohammed I, and Zaruba O. (1981) Control of Epidemic Meningitis by Mass Vaccination. *Lancet* ii 80 – 83.
56. Moore, P. S., Harrison, L. H., Telzak, E. E., Ajello, G. W., Broome, C. V. (1988): Group A Meningococcal Carriage in Travellers Returning from Saudi Arabia. *Journal of the American Medical Association*. 260, 2686-2689.
57. Muela, S. J. (2000): Community Understanding of Malaria and Treatment Seeking Behaviour in a Holoendemic Area of Southeastern, Tanzania. Thesis Ph.D.
58. Mwabu G. M. (1980). Health Care Decision at Household Level. Results of a rural health survey in Kenya: *Social Science and Medicine*. 22 (3) 315 – 319.
59. Mwensi, H. A. (1993): Mothers' Definition and Treatment of Childhood Malaria on the Kenyan Coast. Department of Public Health and Policy, London School of Hygiene and Tropical Medicine, London. Ph.D Thesis.
60. Nicole, L. E., Bentley, D., Garibaldi, R., Neuhaus, E., Smith, P. (1996): Antibiotics Use in Long Term-Care Facilities. *Infection Control and Hospital Epidemiology*. 17: 119-128.
61. Olango, P., Aboud, F., (1990) Determinants of Treatment of Diarrhoea in Rural Ethiopia. *Social Science and Medicine*. 31 (11) 1245 – 1249.
62. Olesch, C. A.; Knight, G. J. (1999): Invasive Meningitis Infection in Western Australia. *Journal Pediatric Child Health*. 35 (1): 42-48.
63. Quick R. E., et al. (1998). Using Knowledge, Attitudes and Practices Survey to Supplement Findings of an Outbreak Investigation. Cholera Prevention Measures During the 1991. Epidemic in Peru. *International Journal of Epidemiology*: 25 (4) 872 – 878 Gould, W. Osei, L. Commey, J. O., Bia, F. J. (1991) Paediatric Cerebral Malaria in Ghana. *Journal of Tropical Pediatric* 38 (6) 290 – 294.
64. Reido, F., Plikaytis, B., Broome, C. (1995): Epidemiology and Prevention of Meningococcal Disease. *Pediatric Infectious Disease Journal*, 14, 643-657.
65. Robinson, J. M., Doughty I., Marshall, R. Benson, J, (2000). Meningococcal Disease Among Children of Indian Sub-Continent Ethnic Origin. *Lancet* 335 (9220) 20 – 52.
66. Robbins, J. B. Towne, D. W; Gotschlich, E. C; Schneerson, R. (1997): 'Love's Labours lost', Failure to Implement Mass Vaccination Against Group A Meningococcal Meningitis in Sub-Saharan Africa. *Lancet*; 350: 880-82.
67. Rosenstock, I., Strecher, V., and Becker, M. (1994): The Health Belief Model and HIV Risk Behaviour Change: In Di Clemente R. J., Peterson, J. L., (eds.). Preventing AIDS: Theories and Methods of Behavioural Intentions (pp. 5-24). New York: Plenum Press.

68. Rosenthal, J. Dagan. R., Press, J., Soter, S., (1988) Difference in the Epidemiology of childhood acquired bacteria Meningitis in two ethnic populations cohabiting in one geographic area Israel. *Pediatric Journal*, 7 (9): 630 – 633.
69. Rubel, A. J., O'Neil, C. W., Collado-Ardon, R. (1984): Susto a Folk Illness. Berkeley: University of California Press.
70. Santaneillo – Newton A., Hunter, P. R., (2000) Management of An Outbreak of Meningococcal Meningitis in a Sudanese Refugee Camp *J. Epidemiol infect.* 24 (1) 75 – 81.
71. Scott, D. (1965): Epidemic Disease in Ghana. 1901-1960. London, Oxford University Press.
72. Senah. K. A. and Binka, F. N. (1994) Child Survival and Health in Guinea Savannah. Department of Sociology, University of Ghana, Legon.
73. Smith I. (1994): Tuberculosis; The Role of Culture and Sensitivity. *Bulletin of Tropical Medicine and International Health* 13:5.
74. Smith, A. W., Bradley, A. K., Wall, R. A., McPherson, B., Secka, A., Dunne, D. T., Greenwood, B. M. (1988): Sequelae of Epidemic Meningococcal Meningitis in Africa. *Transactions of the Royal Society of Tropical Medicine and Hygiene*, 82, 312-320.
75. Spiegel, A. et al (1993): Effect of 2 Vaccination Strategies on Developments During the Epidemic of Meningococcal A Meningitis in N'Djamena Chad. *Bulletin of WHO*; 71(3-4):311-5.
76. Spiegel, A., Greindl, Y., Lippeveld, T., Decam, C., Granga, D., Nahor, N., Bordonado, J. L., Sperber, G., Yankalbe, M., Baudor, D. (1993): Effect of 2 Vaccination Strategies on Developments During the Epidemic of Meningococcal A Meningitis in N'Djamena. (Chad) in 1988. *Bulletin of WHO*: 71 (3-4): 11-15.
77. Twumasi, P. A., Bonsi, S. K., (1975): Towards Convergence of Medical System in Ghana. Department of Sociology, University of Ghana, Legon.
78. Twumasi, P. A., (1975): Medical Systems in Ghana. Ghana Publisher Co-operation. Pg. 34-41.
79. Van Landingham, M. J., Suprasert, S., Gradjean, N. and Sittitrai, W. (1995): Two Views of Risky Sexual Practices Among Northern Thai Mates: The Health Belief Model and the Theory of Reasoned Action. *Journal of health and Social Behaviour*, 36, 195-212.
80. Varaine, F., Caugant, D. A., Rioa, J. Y, et al (1997) : Meningitis Outbreak and Vaccination Strategy. *Transactions of the Royal Society of Tropical Medicine and Hygiene.* 51: 3-7.
81. Vasconcelos, P. F. et al (2001). Serious adverse effects associated with 4F 17D Vaccine in Brazil. *Bulletin of WHO*; 5 (3) 175-193.
82. Veeken, H., Ritmeijer, Hausman, B. (1998). Priority during a Meningitis Epidemic Vaccination or Treatment? *Bulletin of W H O.*, 76 (2): 135 – 141.

83. Winch, P. I., Makemba, A. M., Kamazima, S. R.; Lurie, M., Lwihula, G. K., Prenji, Z., Minijias, J. N; Shiff, C. J. (1996): Local Terminology for Febrile Illnesses in Bagamoyo District, Tanzania and Its Impact on the Design of A Community Based Control Programme. *Social Science Medicine* 42 (7) 1057-1067.
84. WHO: Control of Meningococcal Disease – (1995). *WHO Practical Guidelines*. Geneva: WHO.
85. Woods, C. W., Armstrong, G., Sackey, S. O., Tetteh, C., Bugri, S., Perkins, B. A. (2000). Emergency Vaccination against Epidemic Meningitis in Ghana. Implications for the control of Meningococcal disease in West Africa. *Lancet*: 355 (9197): 30-3.

ANNEX 1  
MAP OF MENINGITIS BELT

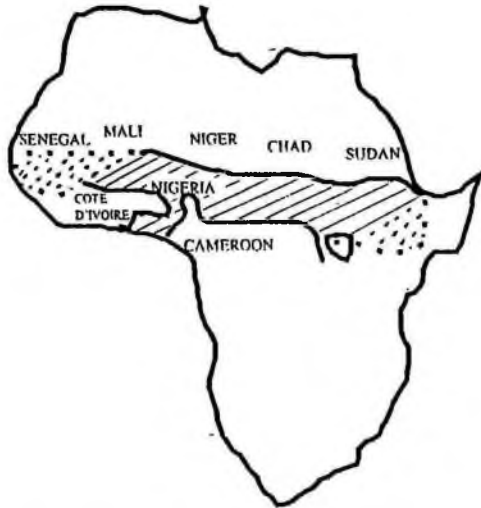


Fig. 3. The African meningitis belt. The hatched area indicates the extent of the belt as defined by LAPEYSSONNIE in 1963, the dotted area the regions where the epidemiology of cerebrospinal meningitis is now known to be similar to that in the central part of the belt.

Source: Transaction of Royal Society of Tropical Medicine and Hygiene 1999. 93: 341-353.

## ANNEX 2

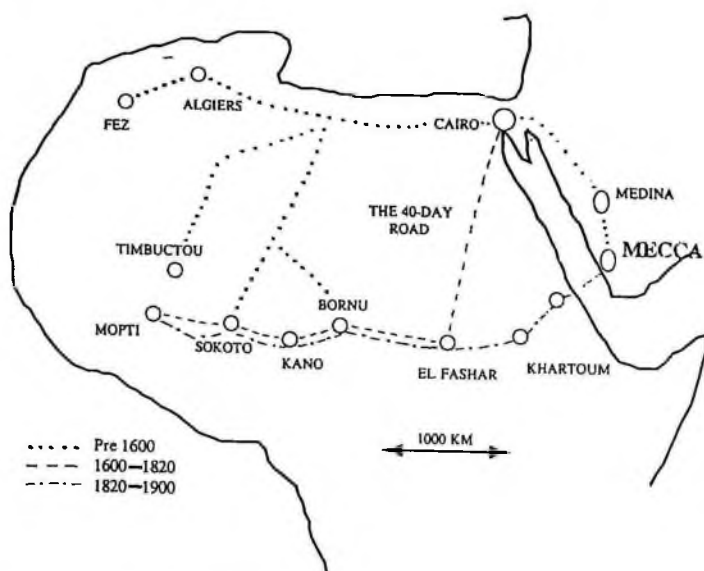


Fig. 2. Pilgrim routes across the Sahara (from BIRKS, 1978).

Source : Transactions of Royal Society of Tropical Medicine and Hygiene. 1999, 93, 341-353

### ANNEX 3

#### CEREBRO-SPINAL MENINGITIS FROM 1996-2000 BY REGION

YEAR	ASHANTI		B/AHAFO		CENTRAL		EASTERN		VOLTA		WESTERN		G/ACCRA		NORTHER		U/EAST		U/WEST	
	C	D	C	D	C	D	C	D	C	D	C	D	C	D	C	D	C	D	C	D
1996	46	2	152	23	83	7	18	3	31	5	18	1	30	1	282	0	367	46	81	1
1997	252	48	352	42	54	16	43	13	54	0	49	11	59	2	3481	333	4941	623	651	67
1998	124	32	232	61	54	13	32	14	68	0	296	15	326	67	103	21	55	14	55	15
1999	9	1	153	39	35	9	11	0	19	5	45	6	38	0	77	16	228	46	58	18
2000																				

Source: CSM Control National. MOH

**ANNEX 4 (a)**



**Fig. 1. Regional smallpox eradication/measles control programme, 20 African countries**

*Source:* Bulletin of WHO (1975) 52: 209-222

ANNEX 4 (b)

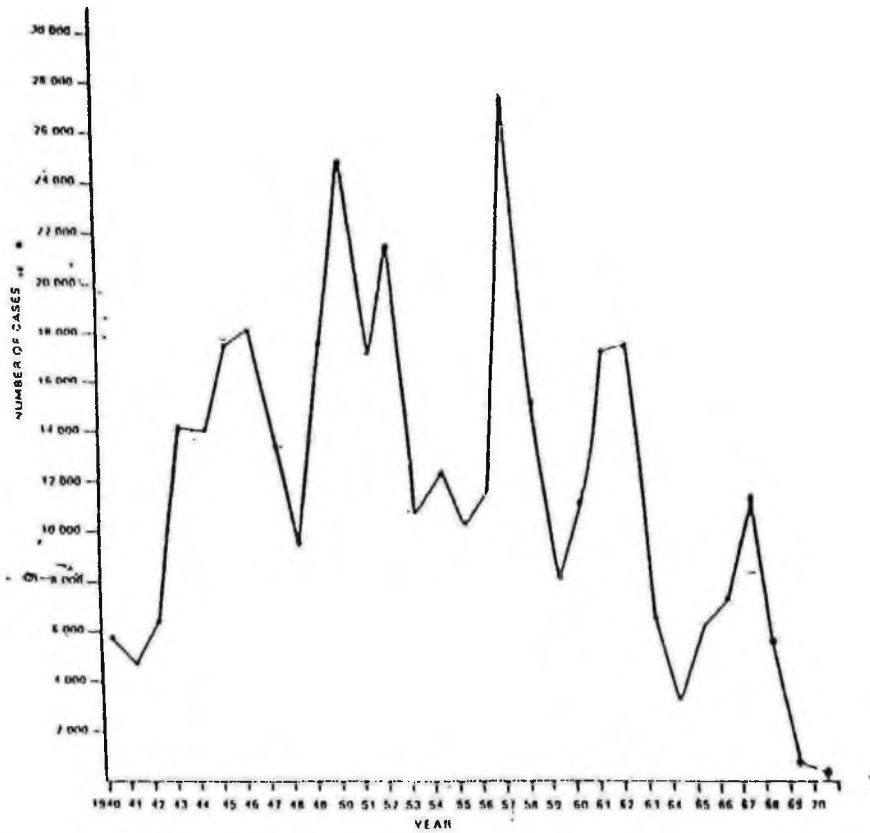


Fig 2. Reported smallpox cases in West and Central Africa, 1940-67. Source: World Health Organization.

Source: Bulletin of WHO (1995) 52: 203-222

## ANNEX 5

TABLE OF SOME SIMILARITIES AND DIFFERENCES IN EPIDEMIOLOGY CSM, YELLOW FEVER AND SMALL POX IN THE AREA OF THE MENINGITIS BELT OF SUB-SAHARA AFRICA

Characteristics	C S M	Small Pox	Yellow fever
Agent	Bacteria	Virus	Virus
Mode of transmission	Air droplet	Direct contact innoculation	Through vector mosquito
Incubation period	2 – 10 days	25 – 36 days	7 days
Risk factor	1. Over crowding 2. In poor ventilation 3. nasopharyngeal carriage	Over crowding contact	Forest / urban movements
Risk age group	Children and young adults M:F ratio 1.6-1	All age group	Young adults MF ratio 10:1
Season dates	Dry season Nov – April	Dry season Nov – April	Wet season recrudescence and amplification
Periodic	5 – 12 years	Not established	Not established
Control	Capsular Poly-Saccharide vaccine which has no immunogenicity and children < 2years Vaccine wanes in 2-3yrs -Does not prevent transmission from carriers	Life long vaccine for use in all age groups	Life long vaccine (10years or more) for all above 4 months
Status of control in the meningitis belt	Poorly controlled as at 2001. (Alert response strategy)	Eradication in 1977. Crash programme 1968 – 1972 (delineation and vaccination)	Serious assort at control since 1994 inclusive EPI programme
Role of perception attitudes and practical in epidemic	Socialization in the dry season funerals, festival And others	Socialization in the dry season, funerals festival - innoculation cult - vaccination	

## ANNEX 6

### **INDEPTH INTERVIEW ON CSM./ KEY INFORMANT INTERVIEW Perceptions on Severity Susceptibility, and Preventability**

1/What are the common illnesses in this community?

Probe for CSM thus:

**Alternative A:** If they mention CSM among the common illnesses try to confirm by asking:

What symptoms come with this disease CSM?

Probe for the initial symptom complex: sudden intense/severe headache, stiff neck/ fever.

a/What name do you give to a person with sudden intense headache and stiff neck?

b. Are there other symptoms apart from the above ?

c/If yes , ask what are they?

d/If no, probe further by asking : What about if a person with severe headache and stiff neck **SUDDENLY** becomes unconscious/convulses/ vomits/behaves and talks abnormally? What do you call such a person

**Alternative B.** If they do not mention CSM to question 1, then ask:

A disease, which occurs with the symptoms: Sudden intense/severe headache, stiff neck/and fever. What name do you give to the disease?

Are there other symptoms apart from the above?

Repeat subsection (c) and (d) of question 1

2/What causes sudden intense/severe headache and stiff neck?

3/. When was the last time this disease occurred in your community?

When does the disease usually occur in your community?

4/. How does the disease begin/ start?

Probe for which of the three symptoms mentioned above is/are identified as initial symptom/s.

Probe if they can link the 3 symptoms together as an initial symptom complex for CSM?

5/. For alternative B , ask for what follows the initial symptoms complex.

Probe for whether abnormal speech/behaviour/ sleepiness and loss of consciousness / convulsions following the above three symptoms are also related to CSM or constitute a different disease/illness entity?

6/. When do you consider the disease to be serious/

Probe for whether vomiting, abnormal speech/and behaviour, drowsiness/sleepy state, convulsions THAT follow the initial symptoms are considered serious complications of CSM (which of them? some/all or none.) if Yes Why?

Probe: If no probe for what constitutes vomiting, abnormal speech/behaviour sleepiness or convulsions THAT follow 'CSM'

6. Why do you consider CSM a serious disease?

Probe for what is considered serious about CSM .If death is mentioned, proceed to question 7

7/Why is it that so many people die when the disease strikes yet some people are not affected?

Probe for taboos and norms

Probe for many people sleeping in one room. Other crowded gatherings.thus;

What will be your reaction to a comment by your next household neighbour that he thought the disease is spread by a lot of people sleeping/ gathering/overcrowding in his household/ at a funeral/ at a festival / during the epidemic

Probe for age groups: children/adult Whom does the disease affect (Only adults or children too).

8/If your child initially complaining of intense headache and stiff neck suddenly convulses/cannot talk or his talk is abnormal .What will you call this condition /associate this development with?

9/. How do you know that the disease is spreading?

Who/what tells you that the disease is spreading

Household head; lineage head; soothsayer; yourself other (internal/external alert systems

10/. Is the disease communicable? If yes how do you know

If no then how does the disease affect others in the household/other compounds once it has attacked one person in one household/compound ?

10. What is the behaviour of the community towards a CSM patient?

## HEALTH SEEKING BEHAVIOUR

1. When someone has intense head ache stiff neck/ waist and fever, how do you treat the that person ?

Probe Where do you usually send a CSM patient?

Probe for what makes one choose one form of treatment and not the other form?

What do you give initially at home to a 'CSM' patient

What about when a person with stiff neck /waist and intense head ache starts:

- a. convulsing ?
- b. talking/behaving abnormally (give examples if necessary) ?
- c. vomiting?
- d. becomes sleepy?
- e. loses consciousness?

2. When do you decide on which form of treatment

3 How is the treatment pattern ? Together, one at a time or alternatively?

4/ Can the disease be prevented ? In what ways can the disease be prevented ?

## DECISION MAKING

1/Who takes care of a patient with stiff neck and severe headache in the household ?

2/Where is such a patient kept in the household and why there ?

3. With whom do you discuss the patient's condition. Why do you discuss it with such a person or group of persons? How long does it take to discuss this?

4/. Who is permitted to have contact with a patient with intense headache and stiff neck Why is such a person/s allowed/refused permission to have contact with the patient ?

5/. Who decides when and where to seek health care?

Probe for time in relation to the condition of the patient .Probe for factors in relation to the severity and perceived outcome of the condition of the patient.

Probe for who pays for the cost and the payment arrangements.

## **IMMUNIZATIONS**

1. What do the health workers do for you when the disease strikes?

Probe for immunizations and why the health people give it?

2. Are there any benefits you get from the immunizations against CSM?

3. Why do some people refuse to take the immunizations against CSM?

4. Who in the family decides that you take the immunizations. Why?

5. Has it ever happened that you tried to get the injection for CSM but you could not have it? When ? Where and why?

6. When do they bring the immunizations? Is it beneficial at the time you are given, if not why?

7. Are there some particular people who are given the immunisations? Why?

Probe for who qualifies for the immunizations?

Probe Are there some people who are not permitted to take the vaccine.

8. Tell us what happens after the immunizations?

Probe for benefits, disadvantages, side effects, and their perceptions about post vaccinal illness and deaths.

9. What do you think about the injections in general.

10. Suggestions for improvement in immunization exercises.

## ANNEX 7

### FOCUS GROUP DISCUSSIONS ON CSM

What are the common diseases in this community?

Probe for CSM thus: Sudden intense headache and neck stiffness

Probe if fever is associated with CSM?

2/Are there other symptoms and signs that come with CSM?

What about if a patient who initially complains of severe headache and stiff neck suddenly cannot talk or is unconscious or convulses; would you still say he has CSM or otherwise

3/Ask what special name do you give to the disease and why?

4/When was the last time the disease struck here?

When do you expect the disease again?

5/How do you know that the disease is spreading?

Probe How can you tell that not only your household/compound is affected by the disease?  
Who/What tells you?

6/Is the disease a serious one? What do you think makes it serious ? If death is mentioned, go to question 7

7/Why is that so many people die of the disease yet others do not even fall sick when the disease strikes?

8/Is the disease communicable ? How do you know ?

9/What do the community think of a person with the disease

### HEALTH SEEKING BEHAVIOUR

1/When someone has intense headache stiff neck/ stiff waist where do you take the patient?

Probe for treatment for CSM

Probe for why one form of treatment and not the other /why a combination of treatments if they exist.

2/What about when a patient with stiff neck /waist starts :

1/ convulsing ?

2/Talking or behaving abnormally ?

3/Vomiting ?

4/Becomes unconscious ?

5/When do you decide on which form of treatment?

3/ Can the disease be prevented? In what ways can the disease be prevented ?

## DECISION MAKING

1/Who cares for a CSM patient?

2/With whom do you discuss a CSM patient? Why with such a person/group of persons

3/ Who is permitted to have contact with a CSM patient?

4/Who decides when and where to seek health care?

Probe for time in relation to the condition of the patient.

Probe for factors in relation to the severity and perceived outcome of the condition of the patient.

Probe for who pays for the cost and the payment arrangements.

## IMMUNIZATIONS

1 What do the health workers do for you when the disease strikes?

2/Are there any benefits that you get from the immunizations against CSM?

3/Why is it that some people refuse to take the immunizations Is there any one you do not permit to take the immunizations?

4/Who in the family decides that you take the immunizations? Why?

5/Has it ever happened that you tried to get the injection for CSM but you could not have it / When, Where, Why?

6/When do they bring the immunizations? Is it beneficial to you at that time? Why? When do you think it is best to take the immunizations? Why?

7/Has someone ever regretted after taking the injection?

Probe for

Pain in the arm

Disability in the arm

Post vaccinal CSM illness/and death

8/What do you think in general about the immunizations?

9/Suggestions for improvement in the immunization exercise?

## ANNEX 8

### CASE HISTORY INTERVIEW FOR CSM

1/What happened to you / your son/daughter?/your child ?How did the disease begin ?  
Probe for the initial symptoms and signs for CSM thus: sudden severe headache neck pains /stiff neck. Ask if there was fever as well

2/What is the local name for the condition severe headache and stiff neck?

3/Apart from the above symptoms, did you notice any other symptoms? When did they occur (Few hours, same day, 2,3days later, 1 week later?)

Probe, if convulsions, vomiting, abnormal behaviour/speech occurred after the stiff neck/severe headache. Ask if these additional symptoms were/were not part of CSM  
If not what are they?

4/If the patient admits that he/she did not see anything again after the stiff neck and severe headache, invite a relative to continue the story

For children probe for refusing to eat/feed, restlessness in addition to severe headache and stiff neck

5/Is CSM a serious disease? What makes it serious?

If death is mentioned, What did you do/do to your child to avoid the death. When did you begin that?

Probe for initial response and when it was effected. Probe for what was done at the initial 3 symptoms 1/at home. Any special herb generally applied for intense headache and stiff neck and how it is applied (oral, scarification enema etc). Any ritual / prayer generally or locally (ieat home) done for a CSM patient.)

Probe for herbal man, soothsayer etc). Was there any improvement/worsening when you applied this treatment? . How did you know?

6/Is that the only treatment for stiff neck and intense headache?

Probe for what other treatments exist. And when did he /she deem them appropriate/helpful/worth trying/ last hope

7/When did you decide on each option of treatment? What made you decide so?/With whom? (yourself, together with the family, the lineage head, soothsayer). Who was most important in deciding when and where to take a patient with stiff neck and severe headache?

8/Had the child/patient been already vaccinated against CSM? When? (previous days previous week/s previous years.) If not, why?

Probe for taboos/norms

Probe for access to vaccination.

Probe for costs

What are the benefits/disadvantages of immunizations.

9/If patient had been vaccinated.

Probe for information if any as to the benefits/ disadvantages of vaccination

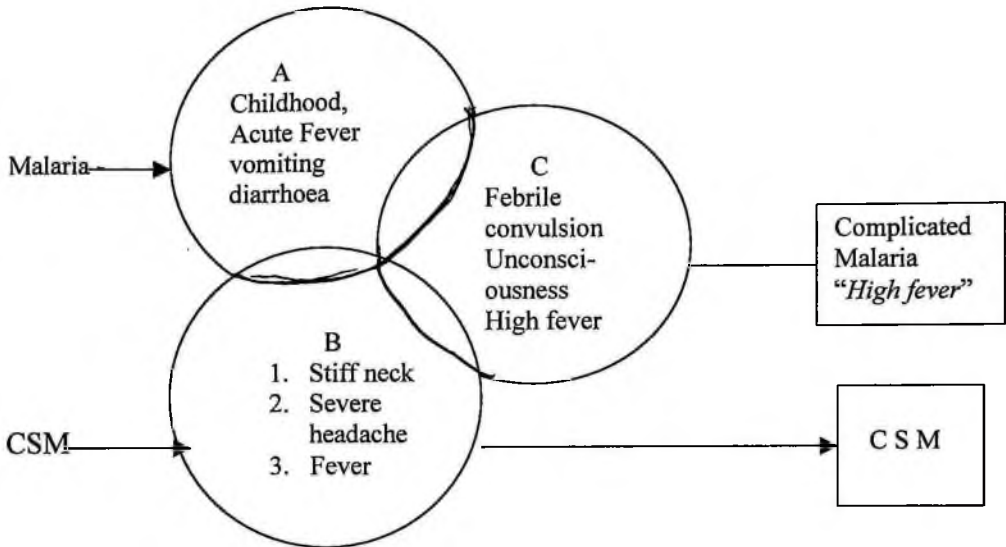
10/When did you finally decide to go to hospital. Why did you decide so?  
Who was the most influential in that decision making.

11/How was the patient transported to the hospital

12/Who bore the cost of transportation and how was he able to pay for the bills.

## ANNEX 9:

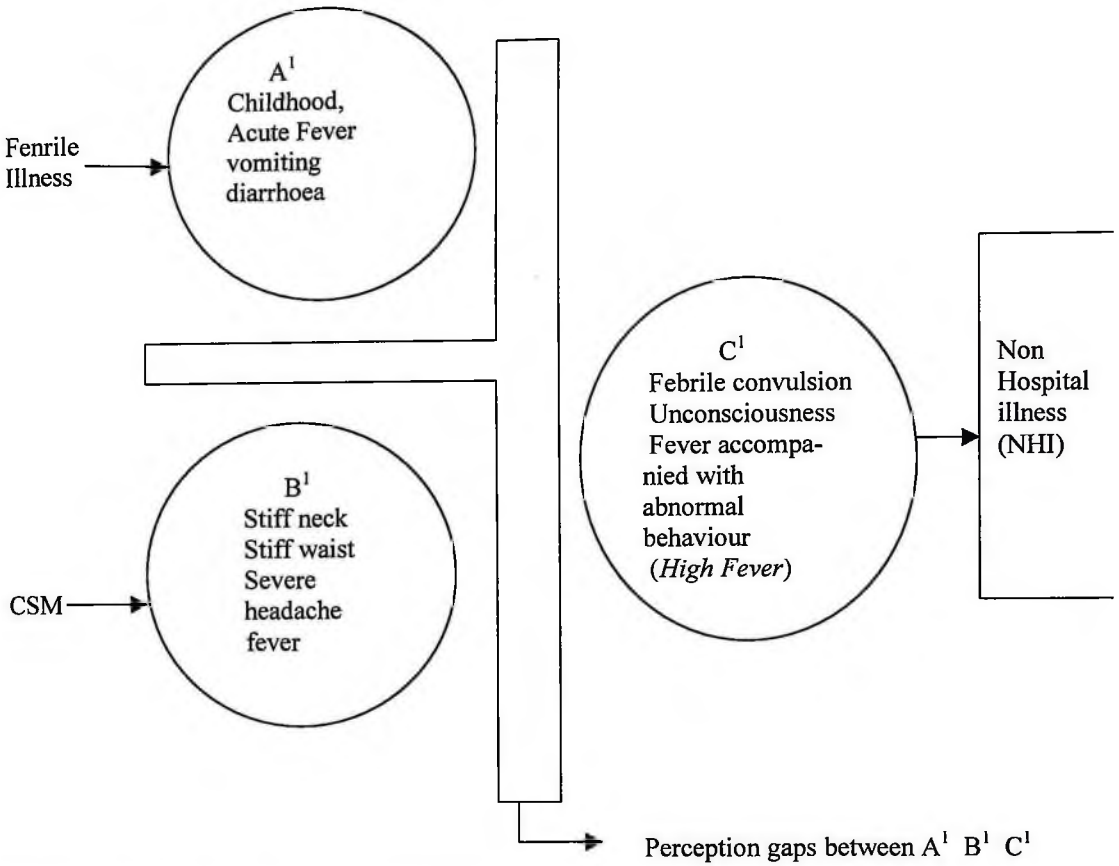
### COMPARISON BETWEEN BIOMEDICAL AND KND COMMUNITY PERCEPTION OF FEBRILE ILLNESSES INCLUDING CSM.



**Figure 1:** Illustration of Biomedical Model Malaria and CSM

In the figure above childhood fever, vomiting and diarrhoea (Circle A), may precede stiff neck and severe headache as symptoms of CSM (Circle B) or may simply represent the symptoms of malaria. If such a patient convulses, the logic is that it is a complication of the initial diseases and management is directed towards malaria or CSM or both if they occur concurrently, as well as alleviating the convulsion.

However, in the mind of communities in KND as soon as a patient having the same symptoms as in A<sup>1</sup> or B<sup>1</sup> begins to convulse, lose consciousness or behaves abnormally as in C<sup>1</sup> (figure 2 below) they are classified as separate disease entities that are not meant for the hospital. The herbalist, a soothsayer and spiritualist treatment is the option.



**Figure 2:** Illustration of Community Model of Febrile Illnesses including Malaria and CSM in the Kassena-Nankana District.

