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HEALTH CARE SEEKING BEHAVIOUR AND UTILISATION OF HEALTH SERVICES IN KALABO DISTRICT, ZAMBIA

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Health care seeking behaviour and utilisation of health services in Kalabo District, Zambia

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door

Jelle Stekelenburg

geboren te Klundert

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	prof.dr. A.J.P. Veerman
	prof.dr. J.I.P. de Vries

“I am, because we are”

Old African proverb, expressing the importance of the community

Contents

List of abbreviations

AIDS	Acquired Immuno Deficiency Syndrome
ANC	Ante Natal Clinic/Care
ARI	Acute Respiratory Infection
ARC	AIDS Related Complex
ARV	Anti Retro Viral (drugs)
BCG	Bacillus Calmette Guérin
CBoH	Central Board of Health
CDE	Classified Daily Employee
CHW	Community Health Worker
CI	Confidence Interval
CMR	Child Mortality Rate
CSO	Central Statistical Office
DALY	Disability Adjusted Life Year
DHB	District Health Board
DHC	District Health Care
DHMT	District Health Management Team
DHS	Demographic and Health Survey
DIC	Diffuse Intravascular Coagulation
DOTS	Directly Observed Therapy Short Course
EDD	Estimated Date of Delivery
EHT	Environmental Health Technician
EOC	Essential Obstetric Care
FAMS	Financial and Administrative Management System
FHH	Female Headed Household
FIGO	International Federation for Obstetrics & Gynaecology
FP	Family Planning
GDP	Gross Domestic Product
GNP	Gross National Product
GRZ	Government of the Republic of Zambia
HFA	Health For All
HIV	Human Immunodeficiency Virus
HMB	Health Management Board
HMIS	Health Management Information System
HosMIS	Hospital Management Information System
HSR	Health System Research or Health Sector Reform
IAG	Inter-Agency Group
ICU	Intensive Care Unit
ILO	International Labour Organization
IMCI	Integrated Management of Childhood Illnesses
IMF	International Monetary Fund
IMR	Infant Mortality Rate
IV	Intra Venous
LCMS	Living Conditions Monitoring Survey
MCH	Mother and Child Health care/clinic
MHH	Male Headed Household
MMD	Movement for Multiparty Democracy
MMR	Maternal Mortality Ratio
MO	Medical Officer

MoH	Ministry of Health
MSL	Medical Stores Limited
MWH	Maternity Waiting Home
NGO	Non Governmental Organization
NHC	Neighbourhood Health Committee
NHSP	National Health Strategy Plan
O & G	Obstetrics & Gynaecology
OPD	Out Patient Department
OR	Odds Ratio
OT	Operation Theatre
PAIDESA	Pan African Institute for the Development of Eastern and Southern Africa
PHC	Primary Health Care
PhD	Philosophers Degree
PMO	Provincial Medical Officer
PMR	Perinatal Mortality Rate
PNC	Post Natal Care
PPH	Post Partum Haemorrhage
RBoH	Regional Board of Health
RHC	Rural Health Centre
STD	Sexually Transmitted Disease
TAZARA	Tanzania Zambia Railways
TAH	Technical Advisor Health
TB	Tuberculosis
TBA	Traditional Birth Attendant
tTBA	trained Traditional Birth Attendant
TFR	Total Fertlity Rate
U5MR	Under-5 Mortality Rate
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
UNIP	United National Independence Party
USD	United States Dollar
UNZA	University of Zambia
VIP	Ventilated Improved Latrine
WB	World Bank
WHO	World Health Organization

1 Introduction

1.1 Justification

Working at district level in the Zambian health system between 1997 and 2001 was a fantastic experience and a great privilege. It not only gave me the opportunity to carry responsibilities I had so long studied and worked for, but it also allowed me to closely follow the developments at district level in the era of the Health Sector Reforms. On the first day of introductions at the Ministry of Health in Lusaka, I was told about the vision of the Health Sector Reforms, which is:

> **"to provide all Zambians with equity of access to cost-effective quality health care as close to the family as possible"**

and I was requested by Mr. Musowe, one of the most prominent founders of the, once famous, Western Province Primary Health Care Programme and later Zambia's Health Sector Reform, to carry out my work in Kalabo in line with this vision. I was impressed, and somehow also touched, and promised to do so. At that time I could not yet know what impact this vision was going to have on my life in the years to come.

Later, I discovered that all health workers, even those in the most remote outposts, knew the vision by heart, but only few could explain to me more into detail what exactly the vision statement meant to them and how they upheld the vision in their daily practice. This puzzled me.

During my contract as the Medical Superintendent of Kalabo District Hospital, I was given the opportunity to become closely involved in the affairs at the District Health Office. There were several reasons for that. First, there was no Technical Advisor Health (TAH), like in other districts, so there was a vacancy, which I was allowed to fill. Secondly, my wife also worked as a Medical Officer in the hospital so that we could share many medical duties and responsibilities. Thirdly, sometimes the hospital was not very busy. Utilisation of the health services we offered was not that high, and I frequently asked myself why.

As a medical student at the 'Vrije Universiteit' in Amsterdam, I came in contact with Ivan Wolffers, who is Professor of Health Care in Developing Countries. He was the one who encouraged my wish to be trained as a tropical doctor. However, he never made a secret of his opinion that medical doctors are about the last people who are needed in developing countries. What should I do? I was already advanced in my study of medicine, and still wished to go to Africa. Fortunately, I knew other doctors and other people who nor did and still not do agree with Wolffers' opinion. One of them is Jos van Roosmalen, a former tropical doctor, who is now an obstetrician and an active member of the Dutch Society for Tropical Medicine and International Health. We first met during my training as a Tropical Doctor. He impressed me with his slides with instructions on symphysiotomy and he encouraged and inspired me. He strongly advised me to think hard about what I wanted to do after my first 3-year contract abroad and to try to prepare for that. I did not know for sure, but I thought that I would probably want to continue my career in international health, but if not, then I would like to become a gynaecologist/obstetrician.
After consulting people who had worked in Kalabo before, and carrying out a literature study about Safe Motherhood, I decided to design a research protocol in a field of health related to Safe Motherhood, Public Health and Obstetrics. The study proposal was to assess the feasibility of a Maternity Waiting Home in Kalabo District, as a contribution to solving the problem of high maternal mortality. The proposal was approved by the Stimuleringsfonds of the Dutch Society for Tropical Medicine and International Health and I received modest funding. Armed with this study proposal, I left for Kalabo.

In Kalabo, after an 'introduction period' of about four months, I felt ready to start drawing preliminary conclusions about what I saw, heard and experienced. The study seemed to be useful, I made some improvements to the protocol, and then went ahead. Many data were collected and even today, I am still fighting with the data-processing.
In my role as a Medical Superintendent and 'acting TAH', I also discovered many more sources of information and data. Firstly, there were patient-related data. I saw so many patients with interesting cases that I felt should be shared with others in case reports. Copies of their files are still on my desk, waiting to be processed to case reports. There were also

very interesting data from maternal mortality audits. Then, I was asked by PAIDESA[1] to supervise students taking a course on 'District Health Management', during their field research. Four members of the Kalabo District Health Management Team (DHMT) completed the course during my stay in Kalabo, and with two of them I published a paper about the findings of their field research.

Back in the Netherlands in 2001, I enjoyed four months of paid study leave and I worked hard on processing my data. It was during this period that both Jos en Ivan talked to me about the possibility of further developing my papers into a PhD thesis, which had never been my plan. At first, the idea did not attract me much. What I wanted was just to continue writing papers and working with my data, because I liked it so much and I had probably not yet reached the necessary psychological state to leave my Kalabo experience completely. So, I continued to do what I was doing, undecided. Papers were published, discussions were repeated, and slowly but steadily the thesis acquired form, first in my head and later on paper.

1.2 Aims

A thesis should answer questions. This thesis does, in fact, answer questions, even though I wrote it 'the other way around'. Papers were already (nearly) published when I started thinking about the general aims of the thesis. However, a crucial issue in my daily work in Kalabo has been what I was actually doing there and whether my work made any sense, or at least enough sense to justify the expenses made by the Dutch government to pay my salary and benefits. Another issue was why people do sometimes not use health services. Why do pregnant women who know that they are at high risk go back home to their village? Why do mothers not bring their little children to see a doctor when they are critically ill with pneumonia? I knew something about these things from literature, but it was not very conclusive. I struggled to understand individual people, to understand how they came to make their decisions. At the same time, I understood that not only people's individual decisions, but also the features of the health care system itself made people stay away from clinics. I became interested in the role the district health system played in people's lives, but I was also curious

[1] Pan African Institute for Development of Eastern and Southern Africa

to see the impact of the Health Sector Reforms. I wanted to understand what it all meant, the mission statement of the Health Reforms: equity, access, quality of care?

I have been extremely lucky to be part of a very active DHMT, with experienced people who knew a lot about the district and who taught me so much about the people in the district and their culture, and also about myself. I believe that I and my collegues, Kyanamina, Kashumba, Mukelabai and Sepiso, to mention just a few, formed a strong team. We were very complementary. Demands and research questions were generated in the DHMT-meetings almost every day, studies were designed and carried out and we had many visits from students from Amsterdam, who also contributed to our studies.

More technically the key questions that are adressed in this thesis are as follows:

- How do providers and consumers within the health system (with emphasis on maternal and child health care) in Kalabo, influenced by key issues of the Primary Health Care (PHC) approach, the District Health Care system and the Health Reforms, interact, and what is the impact of such interaction on the utilisation and quality of health services?
- How do people in Kalabo decide whether, when and where to go for treatment if they are ill, and which factors play a role in such decisions?
- What role can or should both providers and consumers within the health system play to improve health?
- What is demand-driven research, and how can it contribute to development?

1.3 Outline

To ensure that the studies can be firmly positioned within their geographical, social and economical context, Chapter 2 provides general information about Zambia and its health system. It provides the reader with socio-demographic facts and information about the history and political situation of the country. The Health Sector Reforms are introduced and the health system is described, including some of the most important issues: the infrastructure, the distribution of services, the utilisation of services, community programmes, the referral system and the quality of the care provided. Important sociological trends with impact on the

health situation are poverty, the impact of the HIV/AIDS epidemic, gender inequalities and the introduction of user fees. The most important demographic indicators and the most important public health problems in the country are explained. Two important issues in the provision of health care are discussed at the end of the chapter: drugs and medical supplies, and human resources.

Chapter 3 is a summary of the literature study that was performed to understand more about terms such as utilisation, coverage and quality of care. Some important models of health service coverage and utilisation are introduced to the reader. Models from both 'groups', the health belief models and the socio-behavioural models, are described. Based on the different models, the factors that potentially influence the decision-making process in seeking health care are described.

Chapter 4 reports on a study that was carried out to determine factors that contribute to high mortality due to pneumonia among children under five years of age in Kalabo District. It concludes that pneumonia is an important public health problem in the district, where among health workers and mothers knowledge about the disease and its treatment is inadequate. Low birth weight and distance to facilities contribute to high mortality. To reduce the problem of pneumonia in Kalabo District, the DHMT should concentrate on educating the community and the health workers. People should be taught how to recognise the signs and symptoms of pneumonia and to understand the importance of early and adequate treatment. The Mother and Child Health (MCH) clinics can play an important role, and health workers, especially at rural health centre level, should be re-trained in diagnostics, case management and the use of available protocols.
Strategies to fight the impact of pneumonia in the district should be part of an integral care package, focussing on all the other prevalent childhood diseases, which are co-existent in many cases.

Chapter 5 reports on a study that was conducted to determine factors contributing to the poor performance of community health workers in Kalabo District. It shows that the

comprehensive approach to primary health care is no longer functioning in Kalabo. Community health workers are mainly valued because of their curative services. Communities do not adhere to the official criteria for the selection of people to be trained, but have other considerations.

Chapter 6 describes a study that was carried out to identify traditional healers in the catchment area of Kalabo District Hospital. The determinants which play a role in choosing between different health care options were investigated and the possibilities for increasing co-operation between the hospital and traditional healers were explored. In this study it became clear that all respondents are willing to visit the hospital if they fall ill in the future, and 88% of the respondents will visit a traditional healer. More women than men visit traditional healers, but the frequency of the visits made by men is higher. The level of education is not an important determinant, but increasing age is associated with more frequent visits both to the hospital and the traditional healers. Almost half of the respondents (49%) have to walk less than 30 minutes to a traditional healer, but only 34% of the respondents live that close to the hospital. Waiting time turned out to be an important factor: in the hospital, 48% of the respondents are not helped in time, but only 28% who visit the traditional healer are not helped in time. Demon possession, mbaci, kanono and infertility are typical health problems for which people go to a traditional healer and the cost of the treatment is usually one cow, but only if the patient is cured. Satisfaction with hospital treatment was 89%, and 74% with treatment from a traditional healer. After dissatisfaction with treatment from the traditional healer, 86% would consider attending the hospital.

Chapter 7 reports on a cross-sectional descriptive study that was designed to gain insight into the level of utilisation of maternal health services and to identify and assess factors that influence the choice made by women with regard to where to give birth. It showed that although 96% of the respondents would prefer to give birth in a clinic, only 54% actually did. Factors responsible for this discrepancy are long distances and lack of transport, the payment of fees, lack of adequate health education during antenatal clinic attendances, under-staffed and ill-equipped institutions, and poorly trained staff.

Chapter 8 reports experiences with maternal mortality review meetings in Kalabo District Hospital between 1999 and 2001. A maternal mortality review meeting can be an important tool to improve essential obstetric services in a district hospital. It can easily and directly correct some aspects of substandard care, it is of high educational value for the staff, and leads to a better understanding of maternal mortality for all people involved. In 9 cases of maternal death 22 cases of different substandard care were found: 12 were due to organisational weaknesses, 8 were due to substandard clinical care, and in 2 cases the non-availability of drugs (heparine, intravenous fluids) contributed to the substandard care. In 9 cases recommendations had been made; these were completely implemented in 5 cases and partially implemented in 2 cases.

In Chapter 9 data from facility-based maternal mortality reviews from hospitals in Zambia, the Gambia and Namibia are compared with data from the confidential enquiry into maternal deaths in the Netherlands. Differences in maternal mortality, direct and indirect causes, aspects of substandard care and delay factors are identified, analysed and discussed. Knowledge about the history of reducing maternal mortality in countries which are now considered to be high-income countries is discussed. Recognition of the high rate of maternal mortality and a strong political will to tackle the problem have been found to be important factors.

Chapter 10 reviews the feasibility and effectiveness of Maternity Waiting Homes (MWHs). These waiting homes have been reported to be effective in several studies. However, pitfalls are to be anticipated. The accessibility of the MWH itself, the risk identification process, the quality of community education and antenatal care, and the quality of the service provided at the District Hospital are factors to be considered.

Chapter 11 summarizes the studies presented in Chapters 4-7 and highlights the specific features of demand-driven and action-oriented health system research. This concept will be able to play an important role in making the health-care system more user-friendly. The research process turned out to be a learning process as well. It was no longer only a matter of knowledge production by and for researchers. It was a learning process in which both the

providers and the users of the care were involved, leading to empowerment of the inhabitants of Kalabo, and helping them to make better informed decisions. Demand-driven health system research can play a role in this learning process by increasing the knowledge that is needed to create health systems that are meaningful and can make a difference.

The final pages of this thesis include a general discussion, acknowledgements, a summary in Dutch, and a short CV.

2 Zambia and the Health Sector[2]

2.1 Socio-demographic facts

Zambia is a landlocked country in southern Africa, bordering with the Democratic Republic of Congo, Angola, Namibia, Botswana, Zimbabwe, Mozambique, Malawi and Tanzania. The borders of Zambia do not correspond to any tribal or linguistic area. The republic of Zambia covers an area of 752,610 square kilometres (McIntyre 2001).

Central Statistical Office estimates have placed the population at 10,408,266 (1999). Overall, the population of Zambia is young and relatively urban, with 68.5% under the age of 25. An estimated 42% of all Zambians live in or near cities, making Zambia one of the most urbanised sub-Saharan countries. The annual population growth is 3.2%.

The official language is English, but there are about 73 ethnic groups in Zambia (Posthumus 1997) and about 20 distinct languages, many with several dialects. The distribution of the languages roughly coincides with the distribution of the ethnic groups. Main groups and languages include Bemba (north and centre), Tonga (south), Nyanja (east) and Lozi (west) (Else 2002).

As a result of the activities of the first missionaries who arrived in the 19th century, most people in Zambia are Christian. There are also small congregations of Muslims and Hindus in the cities, most of whom are of Asian origin. At the same time, however, the Zambians still adhere to traditional African beliefs (McIntyre 2001).

The official currency in Zambia is the Zambian kwacha (ZK) (ZK 5,300 = € 1; 13 April 2003 exchange rate). The inflation was approximately 25% in 2001 (Else 2002).

Estimates of adult literacy rates in the country range from 54% to 75%. However, almost 60% of women in the reproductive age-group have had only primary education, while 13 percent have no education at all. One in four women (15-49 years old) have some secondary education and 3% have completed higher education. More than half of the men aged 15-19 have had some primary education, while 37% have had some secondary education and 5% have completed higher education. About 7% of the men (15-59 years old) have had no education at all.

[2] The report of the joint identification and formulation mission for Zambia, which, in close co-operation with the Ministry of Health, the Central Board of Health and the Cooperating Partners, conducted an assessment of the state of the Health Sector Reform in the year 2000, was used as the most important source of information. Elsewhere, references are given.

Kalabo District, the area in which the studies described in Chapter 4 – 8 were carried out, is located in the far western part of the country, west of the River Zambezi, and approximately 80 kilometres from the Western Province capital city of Mongu. Additional information about Kalabo District can be found in Chapters 4 to 8.

2.2 History and politics

Before independence Zambia was known as Northern Rhodesia, created in the 1890s by Cecil Rhodes and the British South Africa Company as a place to search for minerals and recruit cheap labour for the mines and plantations in Zimbabwe (at that time called Southern Rhodesia) and South Africa. In the 1920s, large amounts of copper were discovered in the north of the country. Migrant labour was introduced, and became obligatory following the imposition of taxes and commercial farming by European settlers on land appropriated from local people. The colony was put under direct British rule in 1924. In the years after 1924, the settlers pushed for federation with Southern Rhodesia (Zimbabwe) and Nyasaland (Malawi), to make them less dependent on colonial rule from London. Nevertheless, this did not happen until 1953. Meanwhile, African nationalism became stronger. Kenneth Kaunda founded the United National Independence Party (UNIP), which spoke out against the federation because they believed it promoted the rights of white settlers at the expense of the local African population (Posthumus 1997).

Figure 2.1

Map of Zambia and bordering countries

(Kalabo near the western border of the country)

In the late 1950s and early 1960s, many African countries gained independence. The Federation was dissolved in 1963, and northern Rhodesia became independent in 1964. From then on it was called Zambia, after the Zambezi river which formed its southern border. As leader of the majority UNIP, Kaunda was the first president. In 1972 Kaunda declared UNIP the sole legal party with himself as sole presidential candidate, and therefore Kaunda remained in power until 1991. Through the 1970s, Kaunda's rule was based upon

'humanism', his own mix of Marxism and traditional African values. Nearly all private businesses, including the copper mines, were nationalised.

By the end of the 1970s corruption, mismanagement and an extreme fall in world copper prices made Zambia one of the poorest countries in the world. Despite this, Kaunda supported several liberation movements in neighbouring countries, including the ANC in South Africa, Frelimo in Mozambique and Swapo in Namibia (Else 2002; Posthumus 1997). For this reason, Kaunda was regarded as an enemy by the governments of these countries, which severely restricted trade.

By the early 1980s Rhodesia had become Zimbabwe. The TAZARA railway from Dar es Salaam in Tanzania to Kapiri Mposhi in Zambia (the copper belts) was reopened in 1979. This railway provided Zambia access to the sea (Dar es Salaam borders the sea). In the meantime, the economy in Zambia was in a state of collapse: there was almost no food, fuel or other basic needs. Simultaneously, both crime and unemployment rates had risen sharply. In 1986 an attempt was made to diversify the economy and improve the balance of payments. Zambia received economic aid from the International Monetary Fund (IMF), but the conditions were severe: basic food subsidies were withdrawn and the kwacha was floated. Because of the floating national currency, food prices rose sharply, which led to riots throughout the country, in which many people were killed. This forced Kaunda to restore subsidies (Posthumus 1997).

In mid-1990, street protests against increased food prices escalated into a general demand for the return of multiparty politics, and Kaunda was forced to legalise opposition parties. In the elections of October 1991, Chiluba and the Movement for Multiparty Democracy (MMD) beat Kaunda with an overwhelming majority. Chiluba encouraged the return of the IMF and the World Bank. Exchange controls were liberalised to attract investors, particularly from South Africa, but tough austerity measures were also introduced, which did not appeal to the Zambians. Food prices rose again, the kwacha continued to fall and nationalised industries were either privatised or closed, with the result that thousands of people lost their jobs. The lack of visible change in Zambia allowed Kaunda to run again for presidency. Nevertheless, in the elections of November 1996, Chiluba and the MMD were accused of unfair practices, causing Kaunda and UNIP to withdraw in protest. Chiluba took advantage of this and won the elections. Shortly after the elections, Chiluba ordered the arrest of two independent monitors

who claimed that the elections were rigged. The majority of Zambians seemed to accept the result, in the hope that it would at least help to maintain peace in Zambia. Kaunda remained active as leader of the opposition, but in August 1997 he was shot at a meeting. He was not badly hurt, but claimed that it was an assassination attempt.

Despite all this, the international donors seemed satisfied with Zambia's progress and aid money flowed into the country, although debt crisis, high unemployment, high inflation and a rapidly growing population were still causing Zambia a lot of problems (Posthumus 1997).

During preparations for new elections, Chiluba tried to change the constitution so that he could run for a third term, but because of serious societal unrest he eventually gave up this ambition. In October 2001 the new candidate for the MMD won the elections and at present, the political situation is relatively stable. The economy is growing and more money than before is flowing into the health sector.

2.3 The Health Sector Reforms

2.3.1 Background

The "Health For All"(HFA) policy and the "Primary Health Care"(PHC) strategy, formulated by the World Health Organization (WHO) in 1978 during the conference in Alma Ata (WHO 1978), can be considered as the first global attempt to organise health services in low-income countries in such a way that they would provide equity of access to quality care, addressing the basic health needs of all people.

The PHC strategy aimed at replacing the so far mainly hospital-based and cure-oriented health services, as well as disease-specific special programmes, by preventive and promotive services as close as possible to the community, with community participation, inter-sectoral collaboration and implementation of cost-effective interventions using appropriate technology (Muller 1995).

In the process of implementing the HFA policy and the PHC strategy several approaches were developed, depending on different interpretations of the concept and local circumstances. Such approaches were selective PHC (Walsh & Warren 1979) versus integral (or comprehensive) PHC, the District Health Care (DHC)-system, cost-recovery schemes following the Bamako Initiative (Unicef/Bamako Initiative Management Unit 1990) and Community Based Health Care. Even if the approaches differed, they all focussed on

improving the health services at the level of the users, rather than at reorganising the health sector in general.

However, in many low-income countries, in particular in sub-Saharan countries, the strategy was severely hampered by economic recession, debt crisis, structural adjustment programmes (World Bank & UNDP 1989) and shrinking donor support. Community participation, which was originally meant to be the cornerstone of the PHC strategy, was insufficiently implemented. The functioning of the basket funding system, once one of the essential pillars of health reforms, is hindered by an increasing number of bilateral and multilateral donors running vertical health programmes, bypassing the basket funding system. Already in the year 2000 over 50% of all the money to be spent on health programmes at district level did not come from the basket funding (Stekelenburg 2001). The overall health situation in these countries was further affected by epidemiological changes, in particular due to the HIV pandemic, demographic pressure, urbanisation and, in general, continuation of poverty (Visschedijk 1997). As it has become clear that the goal of "Health For All" was not achieved by the year 2000, the WHO is currently formulating a new global policy for "Health for All" in the 21st century (WHO 1997).

In Zambia, falling copper prices and the worldwide energy crisis of the mid-seventies led to a massive decline in government revenues. Due to extensive borrowing, an over-valued exchange rate and subsidies on consumer goods, an external debt of approximately USD 7 billion was created by the end of the eighties. The new government that had been elected in 1991 was faced with a multiplicity of problems in the health sector: a run down physical health infrastructure, epidemics of cholera, tuberculosis, HIV/AIDS and endemic malaria, a chronic shortage of drugs and medical supplies, demoralised health workers, a 'brain drain', uncontrolled population growth and an antiquated health management structure that was unresponsive to the prevailing health needs (Cassels & Janovsky 1996).

The HFA policy and the PHC strategies were defined from a health perspective. Structural adjustment programmes (World Bank 1989; Ministry of Foreign Affairs 1990), designed in the eighties to address the problems of the economic and debt crises in low-income countries, led to the development of strategies for improving the health situation from an economic

perspective. In the World Development Reports "Investing in Health" (World Bank 1993) and "Better Health in Africa" (World Bank 1994), health is defined as an essential factor for economic development. Using the Disability Adjusted Life Year (DALY) method to calculate the cost-effectiveness of health interventions, affordable minimum packages of care addressing the basic health needs should be formulated and provided for the population.

In the agenda for action in the 1993 report and the Health Nutrition and Population Sector Strategy (World Bank Group 1997) the World Bank emphasises the need for a reform of the health sector. The proposed Health Sector Reform (HSR) (Cassels 1993; Cassels 1997) aims at better use of scarce resources and increased efficiency of health services by moving from centralised to decentralised planning systems, redistributing funds from tertiary to peripheral levels, introducing alternative funding mechanisms, implementing integrated services provided by polyvalent health staff and contracting-out services to the private sector and non-governmental organisations. Since the introduction of these concepts, extensive health sector reforms are underway in Africa (Gilson & Mills 1995; Mogendal et al. 1995), South America, parts of Asia, and the former Soviet Union.

2.3.2 Goal, aim, vision and principles

In 1991, the MMD formulated new National Health Policies and Strategies (Kalumba 1997). The Corporate Plan for Implementing National Health Policies and Strategies (Ministry of Health (MoH) 1992a) and the National Health Policies and Strategies (MoH 1992b) provided the blueprint for the Health Sector Reform in Zambia. In the National Strategic Health Plan (Investment plan) 1995-1999, "From Vision to Reality" (MoH 1994) and the Handbook for District Health Board Members (Health Reform Implementation Team 1996) the goal, aim and vision of the HSR were formulated as follows:

" To achieve radical and affordable improvements in health care provision, utilisation and quality aiming at better health for all Zambians and to provide equity of access to cost-effective quality care as close to the family as possible".

The main features of the HSR process are the decentralisation of authority and responsibility from central and regional levels to district level, and strengthening of the planning, budgeting and management capacity at that level. Crucial in this process is the re-direction of funding from central to district level, from tertiary to primary care, from curative to preventive care

and from categorical programmes to integrated care. The process further aimed at increasing community involvement, ownership and cost-sharing through medical fees.

2.3.3 The infrastructure

In September 1995 the Parliament of Zambia enacted the National Health Services Act (GRZ 1995). The act was needed "to establish the Central Board of Health; to provide for the procedures for establishing management boards for hospitals and health services; to define functions and powers of such boards and their relationship....". The main purpose of the act was to create autonomous corporate bodies, which are responsible for developing and implementing annual health plans. In November 1995 the Health Reforms Implementation Team Secretariat issued District Guidelines (Health Reform Implementation Team 1995), which describe the roles, functions and responsibilities of these new bodies, called Health Boards. In June 1997 the Government of Zambia published the National Health Services (Transfer and Secondment of Public Officers) regulations (GRZ 1997). These regulations make it possible to transfer a public officer to a management board. In this way, civil servants employed by the MoH could be "de-linked" from government service and contracted by the Health Boards.

The following bodies were created:

* Health posts: These are to be responsible for a population of 500 households (3,500) in rural areas, and 1,000 households (7,000) in the urban setting, or within a 5km radius for sparsely populated areas.
* Health centres: The two types of health centre in the restructured health care system include the urban health centre, serving a catchment population of 30–50,000 people, and the rural health centre, serving a catchment population area with a radius of 29km, or a population of 10,000.
* First level referral services: (districts hospitals) are intended to provide a population of 80 – 200,000 people with medical, surgical, obstetric and diagnostic services, and with all the necessary clinical services to support health centre (and health post) referrals.

* Second level referral services: (general or provincial hospital) are intended to have a catchment population of 200 – 800,000, with services for internal medicine, general surgery, paediatrics, obstetrics and gynaecology, dentistry, psychiatry and intensive care. These hospitals are also intended to act as a referral hospital for the first level, including technical back-up, capacity building and services.
* Third level referral services: (central hospital) with a catchment population of 800,000 and above, providing sub-specialisation in internal medicine, surgery, paediatrics, obstetrics, gynaecology, intensive care, psychiatry, training and research.
* Ministry of Health/Central Board of Health: The MoH has the main responsibility for policy guidance and strategic planning; the Central Board of Health (CboH) is responsible for the translation and implementation of government health policies.

Essential obstetric care, the term used to describe the elements of obstetric care needed for the management of normal and complicated pregnancy, delivery and the postpartum period, was defined by the WHO for two different levels of the health care system (WHO 2000). **Basic essential obstetric care** at the health centre level should include at least the following: parenteral antibiotics, parenteral oxytocic drugs, parenteral sedatives for eclampsia, manual removal of placenta and manual removal of retained products. **Comprehensive essential obstetric care services** at the district hospital (first level of referral) should include all the above plus surgery, anesthesia, and blood transfusion. For the services to be considered functional, the elements of care must have been provided during the 6 months previous to data-collection.

All the studies described in this thesis were carried out at the level of rural health centres and a first level referral service (Kalabo District Hospital).

Theoretically, the infrastructure is clear. Nevertheless, looking at the definitions of health packages and service delivery, a different picture appears. Basic health care packages have

been defined for the community, health post, health centre and district hospital levels, and have been drafted for the second and third referral hospital levels. The exercise of defining such health care packages has had little bearing on service delivery so far. A quick scan of service delivery in comparison to the health care packages gives the following results. Health posts are not yet functioning; only recently, a pilot programme has started with three health posts. Of the existing 1,000 health centres, about 600 will be transformed into health posts. In reality, quite a number of health centres are not able to provide the services described in the basic health post package, and many of the district hospitals lack the necessary equipment in the laboratory, X-ray department and theatre to provide the services as described in the package (CboH/DANIDA 1997; Zambia Health Accreditation Council 1999).

In summary, almost all levels of care provide services one level lower than is required according to the package. The necessary investments for bringing the health institutions up to the standard at which they are supposed to function have not been quantified, but would be considerable and beyond immediate means of achievement.

2.3.4 Main elements of the reformed health services

The Health Sector Reform aims at providing cost-effective packages of care to address the most common diseases that contribute to the high burden of disease. All districts need to address six health thrusts: i.e. maternal health and family planning, child health, water and sanitation, malaria, HIV/AIDS and sexually transmitted diseases (STDs) and tuberculosis. The key staff member of the district health service is the polyvalent public health practitioner, who has the ability to provide all components of the minimum package of care at health post, health centre and hospital out-patient department level. Autonomous District Health Boards (DHBs) are responsible for the planning, management and finances of annual district health plans through contracts with the CBoH, financed from one central basket funded by the government and the donor community. The ordering of drugs and other materials is decentralised. It is the responsibility of the districts to calculate there requirements and order supplies of medication and other materials in accordance with the "Pull" instead of "Push" approach, i.e. drugs are no longer distributed routinely at national level, but the districts have to take the necessary action to order them. The districts use a Health Management and

Information System (HMIS), which is action-oriented and geared to the needs of the health staff, i.e. only information which can be used for decision-making at district level is collected. It is the duty of the four Regional Boards of Health (RBoHs) to assure the quality of the district health service and to audit the performance of the district health staff. Teams from the RBoHs and District Health Management Teams (DHMTs) are expected to support the polyvalent public health practitioners through integrated supervisory visits.

Some of these main elements have been introduced quite satisfactorily. DHBs have been established; planning, financial management and the ordering of medication have been decentralised; the HMIS and the Financial Administration Management System (FAMS) are also in place. However, no effects on the improvement of health services have been noticed. In other words, heavy investments in 'systems development' have clearly not led to improvements in 'service delivery'.

2.3.5 Distribution of services

Historically, the different types of health care services have been concentrated in different parts of urban and rural Zambia. MoH/CBoH facilities are to be found throughout the country, but with heavy concentration along the 'line of rail'. Mine hospitals and clinics are almost exclusively located in the Copperbelt, and missions are commonly located in the rural areas of the more peripheral and poor districts of the country. Profit-making hospitals are urban based, as indeed are private practitioners, with pharmacies only moderately more equally dispersed. Such pluralism in the ownership and delivery of health care is important to note, since it influences the treatment options for the people.

There are two main groups of traditional healers in the country (represented by the Traditional Healers Association of Zambia and the National Council of Ng'angas), and there is an official register of practitioners, with estimates of the numbers ranging between 20–30,000. The general consensus is that traditional healers are widely available in rural areas, and may still be the most accessible source of health care for rural populations (Chapter 6).

2.3.6 Utilisation

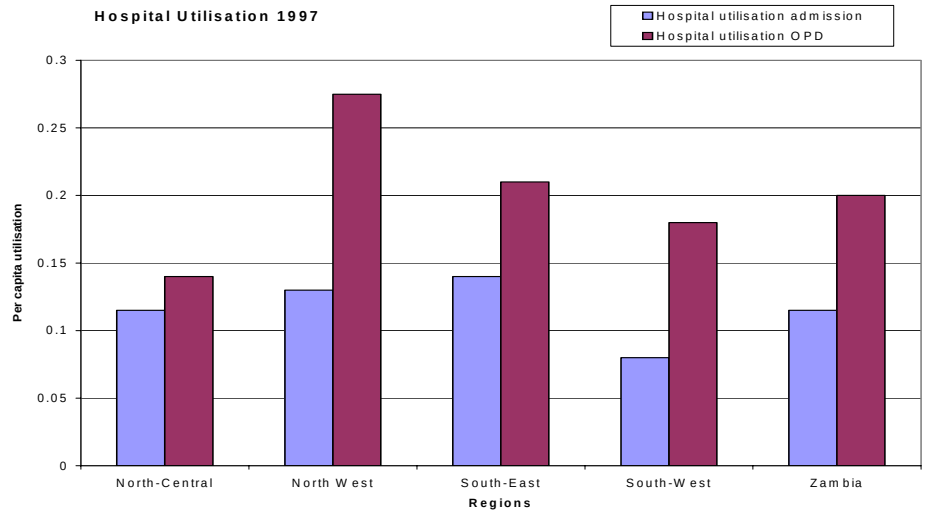
The utilisation of health services is influenced by a very large number of factors. The meaningfulness and quality of the services, or, in other words, how meaningful health services are considered to be by the potential users, mainly determines the level of utilisation. Theories about utilisation, meaningfulness and quality of care will be presented in Chapter 3.

Improvement in the utilisation of health care services is an important indicator for measuring the quality of health services and the success of the Health Sector Reforms. Surprisingly, however, data about the utilisation of health institutions are very scarce. At national level there is an absolute data-gap between 1993 and 1998. Although the district HMIS was introduced in 1998, the Hospital Management Information System (HosMIS) has not yet been introduced nationwide. Nonetheless, some data on the utilisation can be extracted from the Hospital Assessment Study that was carried out in 1997 (CBoH-Danida 1997).

Hospital admissions do not differ much throughout the country, with all regions scoring an average of 1 admission per 10 capita per year. Utilisation of the out-patient department (OPD) shows more variation; from 0.14 in the North-Central region to 0.27 consultations per capita per year in the North-West region (Figure 2.2).

Figure 2.2

Hospital utilisation (regional data) 1997



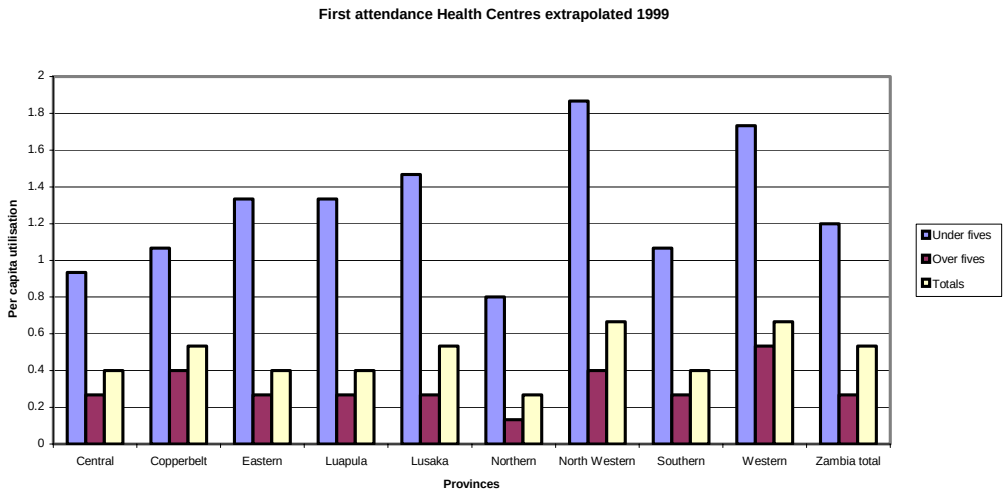
Source: CBoH/Danida, Hospital Assessment Study 1997

Unfortunately, no health centre data are available for 1997. For 1999, the health centre utilisation can be calculated by extrapolation of data on the basis of three quarters of the HMIS information that is available annually. Children under five years of age attended a health centre on average 1.2 times per year for a curative OPD consultation (new episode of disease). People of five years of age and older came on average 0.3 times per year. In total, the average number of consultations was 0.5 per inhabitant per year.

The most recent bulletin of health statistics that is available provides data in comparison with 1992. In this bulletin, however, no disaggregated utilisation data for children under five years of age and people of five years of age and older are available. Consequently, in order to get a rough impression of the trend in the service utilisation of OPDs, the total hospital OPD utilisation figures for 1997 are added to the total health centre OPD utilisation for 1999 (first attendance). This figure is compared with the total utilisation of OPDs in 1992.

Figure 2.3

First attendances at Health Centres (1999)



Source: HMIS data 1999

*(*Note: data from Southern Province 3rd quarter 1999 incomplete)*

Table 2.1

OPD utilisation in Zambia

Hospital OPD 1997 Utilisation per capita Zambia	Health Centre OPD 1999 Utilisation per capita Zambia	Hospital OPD 1997 and Health Centre OPD 1999 Utilisation per capita Zambia	Hospital and Health Centre OPD 1992 Utilisation per capita Zambia
0.2	0.5	0.7	1.7

Source: CBoH/Danida, Hospital Assessment Study 1997
HMIS, Health Centre OPD data Southern Province, 1999

Although serious statistical objections can be made against this method of calculation, it confirms existing impressions of a reduction in the utilisation of curative OPD services. The health workers who were interviewed indicated that especially adults are now using the services much less often than in the past.

Table 2.2

Hospital and health centre admissions

Hospital admissions 1997 Utilisation per capita Zambia	Health Centre admissions 1999 Utilisation per capita Zambia	Hospital admissions 1997 and Health Centre admissions 1999 Utilisation per capita Zambia	Hospital and Health Centre admissions 1992 Utilisation per capita Zambia
0.11	0.03	0.14	0.15

Source: CBoH/Danida, Hospital Assessment Study 1997
HMIS, Health Centre OPD data Southern Province, 1999

In contrast, the combined figures for hospital inpatient data 1997 and health centre data 1999, compared to 1992, suggest that the decline in utilisation has been less dramatic than the decline in the utilisation of OPD facilities. This finding is consistent with findings reported immediately after the introduction of patient fees in 1994–1995 (Source: Provincial Medical Officer Western Province).

Regrettably, the lack of national data on the utilisation of health services over the period 1993–1999 makes it extremely difficult to analyse trends in service utilisation. Some studies (Daura et al. 1998) indicate that, after an initial reduction in utilisation between 1995 and 1997, there is some increase again, but whether the volumes have returned to their previous levels is very much to be doubted. The alleged reduction in the utilisation of curative care can possibly be attributed to the introduction of patient fees and to the increase in the number of private sector health providers in the urban areas. Probably, more people turn to self-medication for minor complaints.

Numerous studies have investigated the effects of the introduction of cost-sharing schemes on the utilisation of health services. Surprisingly, very few studies report actual utilisation figures. One study carried out in Madagascar reports an increase in utilisation rates from 0.17 to 0.33 visits per capita per annum after the introduction of user fees in 1997 (Kerouedan 2000). The figures are comparable with the above-mentioned figures for Zambia.

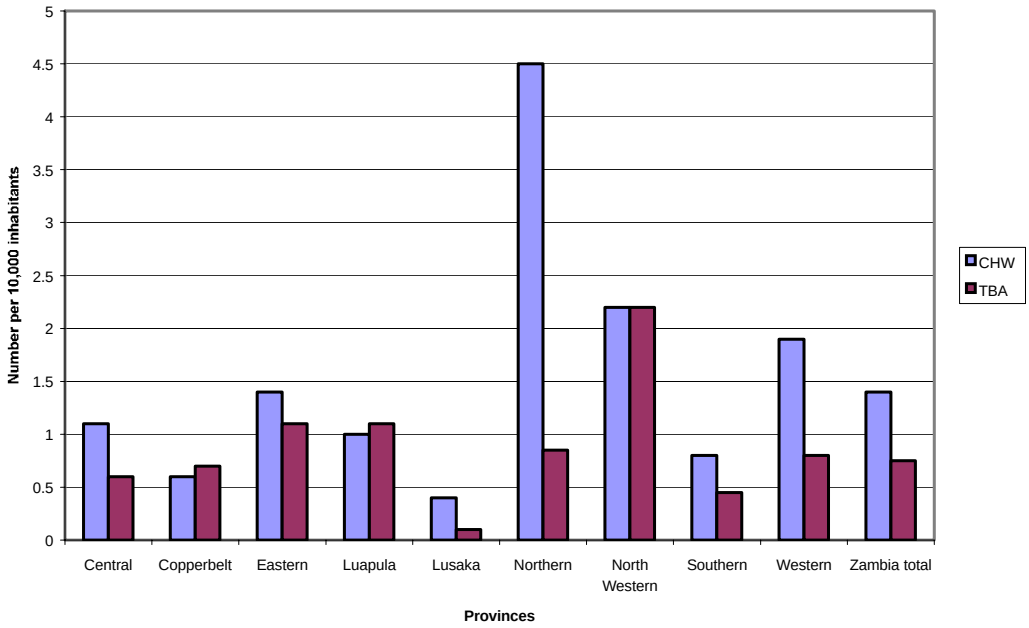
2.3.7 Community-based health care

Community-based health care programmes were intended to be the cornerstone of the reformed health system. Improving health services at user level, rather than reorganising the health sector in general, was a cornerstone of the HFA policy, the PHC strategy and, indeed, also the Zambian health reforms. When considering the effects of community health programmes on utilisation, two opposite effects are thinkable. First, as a result of appropriate screening, increasing confidence in health workers in general, and increasing knowledge about the health of people, utilisation could increase. Secondly, community-based health care could theoretically also contribute to a reduction in the use of other sources of formal health care. However, as can also be concluded from Chapter 5, the community programmes are not running well in the country. In 1999 there was 0.75 trained Traditional Birth Attendant (tTBA) (reporting to the health centre) per 10,000 inhabitants. tTBAs assisted in 5% of

expected deliveries. In the same year, there were 1.4 Community Health Workers (CHWs) (reporting to the health centre) per 10,000 people. On average, one CHW attended to 500 patients in a year. The CHWs operate in rural areas. However, the following graph shows clear regional differences.

Figure 2.4

Distribution of Community Health Workers and trained TBAs (1999)



Source: HMIS, 1999

The number of CHWs is still far below the policy target of 20 per 10,000 people, and the number of tTBAs is also still far below the policy target of 10 per 10,000 people. Very little information is available about the actual performance of the CHWs and tTBAs. The functioning of the community programmes in Kalabo is discussed in Chapter 5.

2.3.8 The referral system

For better utilisation of the health services, a well-functioning referral system is a prerequisite. However, data on the actual functioning of the referral system are not available. According to the health workers, the referral system is not working well. There are remarkable differences between "peri-hospital" and remote areas.

In remote areas the referral system is not working well for two reasons. In the first place, poverty and transport problems make it difficult for people who are referred to reach a hospital. Often there are no ambulances or radios available. Secondly, patients sometimes have no confidence in the higher level services (no doctor in the district hospitals, no functioning theatre in the provincial hospitals), and therefore refuse referral to higher levels.

In "peri-hospital" areas a different picture appears. Health centres refer many cases unnecessarily to hospitals because of drug shortages, personnel problems (no Clinical Officer available), or because of patient demands. These "unnecessary" referrals put a heavy burden on the hospitals. The hospitals have to use their scarce resources for health centre services and cannot concentrate on their "core activities", i.e. first or second level referral services. This, in turn, undermines the confidence that patients have in the ability of doctors in hospitals to treat serious cases. The University Teaching Hospital estimated that it still provides 70% district level care, while there is still under-utilisation of beds in upgraded health centres in Lusaka.

A 1997/1998 survey (CBoH/Danida 2000) revealed that approximately 90% of government health centres and 55% of church health centres faced problems in referring patients, as far as transport is concerned. The same survey showed that referral from a first level hospital to a provincial hospital was very much constrained because the higher level hospital could, in fact, not provide better or a higher level of care than the first level hospital.

In some areas, like Kalabo District and a few other districts in the Western Province, efforts have been made to improve the referral system through the introduction of radio communication and ambulances. Little is known about the effects of such efforts, but first experiences showed twofold results. First, more critical cases were seen and treated in hospitals, leading not only to better survival, but also, for example, to increasing hospital-based maternal mortality. Secondly, responsible officers had serious problems in deciding when ambulance services were needed, indicating a problem of triage. Since ambulance transport is extremely expensive, only critical cases with any chance of survival should be

collected from the rural health centres and communities. One can already conclude that the mere availability of an ambulance and a radio communication system on its own, in order to meet a professional standard of quality, is not enough to improve the referral system. Awareness of the needs of the people is also important.

2.3.9 Quality of care

'Quality of care' is a very important indicator in utilisation studies. It will be extensively discussed in Chapter 3. However, it is important to realise that the users and the providers of health care usually assess quality of care differently. In Zambia, several surveys show that the general public's perception of the quality of health services is mainly related to the availability of medication and a positive attitude of the staff. The performance survey (CBoH/Danida 2000) does not show any difference in public perception between 1995/1996 and 1997/1998. In contrast, professional quality standards concentrate more on the quality of diagnosis and treatment. The 1997/1998 performance survey showed that in health centres often no physical examination takes place (in 60% of malaria cases) and even in hospitals it does not always take place (in 20% of malaria cases there is no physical examination). There has been very little improvement since the baseline survey two years earlier.

The CBoH has made efforts to produce technical guidelines in the field of diagnosis, treatment and the prescription of medication (CBoH 1999a, CBoH 1999b). Various programmes have also concentrated on the improvement of technical capacities, such as reproductive health and integrated management of childhood illnesses, and more technical guidelines for diagnosis and treatment have become available during recent years. As one can see, all these measures concentrate on improving professional quality standards, which makes it doubtful whether successful implementation, if at all, will lead to greater satisfaction for the patients, whose assessment depends on the availability of medicines and the attitude of the health workers.

Even according to the health workers themselves (National Workshop, 11th February, 2000), the existence of guidelines and manuals does not, in itself, really have an impact on service delivery. Too many of these guidelines are still in draft form, and are not communicated to service providers. If they are communicated, it is mainly through the distribution of documents or books, but not through in-service training, on-the-job training or supervision.

With the present turnover of staff, too many health workers remain unaware of new developments and policies.

Theoretical backgrounds and concepts of quality of care are discussed in Chapter 3.

2.4 The socio-political context

Two significant changes have taken place within the past ten years, which have had a major impact on Zambia's society. The high number of deaths within households and the increasing number of orphans due to the HIV/AIDS epidemic have changed the structure of families and their support networks. These two factors have also led to changes in the relationships between individuals and communities and the health sector.

The Living Conditions Monitoring Surveys (LCMS) show a high and rising percentage of households in which a death occured in the previous twelve months.

Data indicate that, in 1996, a death occured in 8% of all Zambian households in the previous twelve months. By 1998 this figure had increased to 15%. The corresponding trends for rural households were 9% and 17%, and for urban households 7% and 12%. The provinces with the highest percentage of deaths were Luapula (22%) and the Western Province (20%), and the lowest was Lusaka (12%).

The data do not identify cause of death, but indicate that, in the country as a whole, 51% of all deaths were children aged 0-5 years, and the majority of the rest were people in the 25-40 age-range. The percentages are similar in urban and rural households, and throughout the provinces. These statistics are suggestive of two factors: HIV-positive adults returning to rural homes to die and HIV/AIDS-related deaths for under-5s, and a high number of deaths from childhood illnesses, despite increasing vaccination coverages.

HIV/AIDS has brought disruption and change in social networks and support systems, significant movements of people from urban to rural areas (though this is also a function of retrenchments in the government and parastatal sectors), and a vastly increased burden of care on the health sector, communities and households.

The prevailing patterns of HIV infection were never envisaged in the early stages of health sector reform. However, they have now become an dominent issue within the health sector. Other issues setting the agenda for a discussion of the social context of health are poverty,

equity issues and gender inequalities. Each of these is discussed in more detail below (see 2.4.1, 2.4.2, 2.4.3, and 2.4.4).

2.4.1 Patterns and trends in poverty

Economic measures of poverty were generally positive in the early 1990s, but more recently the situation has changed. Poverty data from the LCMS show a worsening situation for Zambians between 1996 and 1998 (CSO 1996). Overall, the incidence of poverty rose during that period from 69.2% to 72.9%, with increases in extreme poverty from 53.2% to 57.9%. The incidence of poverty is higher in rural areas (and within rural areas of predominantly urban provinces) than in urban areas.

Zambia, like many low-income countries, also exhibits an increasing trend towards feminisation of poverty: the 1996 LCMS showed that 82% of female-headed households (FHHs) are poor and 75% were extremely poor, whilst the corresponding figures for male-headed households (MHHs) were 73% and 64%.

FHHs are more likely to face food shortages and for longer periods than MHHs; this also has a consequence for the nutritional status of children within such households. As identified in the 1994 Participatory Poverty Assessment, however, female headship alone is not necessarily the factor determining poverty. Households without support are the most deprived, with widows being in a particularly vulnerable position, since their access to assets is through men, whether they are their late husbands, other family members or other males.

In terms of access to basic services, the LCMS data show that access to safe drinking water is low in rural areas (35% of households in the wet season, 37% in dry season). Surprisingly, access to sanitation is higher - 66% of rural households use pit latrines (own or shared), whereas 29% have no sanitation. In urban areas there are no households without sanitation, with the majority (45%) using flush toilets. In 1998, 99% of urban households and 50% of rural households were reported to be within 5km of a health facility.

Household expenditure patterns have also changed in recent years. In both rural and urban households the highest percentage of household expenditure is on food (72% and 48% respectively). This percentage was the same for urban households in 1996 and 1998, but rose significantly in rural areas during the same period, from 59% to 72%. LCMS data indicated that, in 1998, only 1% of the income in rural households was spent on medical care; in urban

households this figure was slightly higher at 2% (CSO 1997). Other more detailed studies of household health expenditure suggest that in 1997 including in-kind payments rural households spent approximately 10% of their income on health care - approximately K 7,000 per episode of illness, of which approximately K 2,500 was for medication and user fees (UNZA/IHE 1997). The corresponding figure for urban low-income residential areas was 6%, and for urban high-income areas it was 7%. The latest available data suggest that household health expenditure was increasing annually from 1994-1997, then it dropped in 1998 (UNZA 1999), which would correspond with the poverty trends.

The health sector is thus functioning in a context of increasing poverty and increasing inequality, the most obvious axes being geographic and gender-based inequalities.

2.4.2 The impact of HIV/AIDS

In 1999, an estimated 1,009,000 people in Zambia were infected with HIV (MoH/CBoH 1999). The national prevalence of 19.7% disguises a significant urban/rural difference, with a much higher prevalence in urban areas (28.7%) than in rural areas (13.6%). The overall prevalence has remained relatively stable since 1994. There have been some positive trends in the past four years towards a decline in prevalence in the 15-49 age-group, particularly in urban areas. In Lusaka, the prevalence in this age-group dropped from 28% in 1994, to 23% in 1996, and to 15% in 1999. Age and gender distributions of HIV still show that women are infected at an earlier age than men, and that more women than men become infected.

Men and women who die a at young age frequently leave young children behind. The LCMS reported 961,000 orphans in 1998. The majority of these orphans are concentrated in rural areas, with approximately equal percentages of girls and boys. The percentage of orphaned children in Zambia rose from 13% in 1996 to 15% in 1998. The number of child-headed households is thought to be limited, but it is estimated that there are 75,000 street children in Zambia, 7% of whom have no home to go to, and 40% of whom have lost both parents. Although there is lack of agreement on the actual number of orphans in Zambia, and whether children from 15-18 years of age should be included, there is agreement that orphanhood is an enormous and increasing problem in Zambia and neighbouring countries (GRZ 1999).

Studies suggest that Zambians have a high level of knowledge about HIV, but that misconceptions also exist. Despite this knowledge, there is, as yet, little evidence of

significant levels of behaviour change (e.g. increased condom use, reduced number of partners, later sexual debut). The impact of HIV is now widely recognised - large numbers of orphaned children, increased child and adult mortality rates, increased cases of tuberculosis (TB), increased stress in the health sector, increased burden of care on households (especially women), and economic impacts. Also widely accepted is the disproportionate effect of HIV on girls and women - not only in terms of the burden of care, but also the higher infection rates for both physiological and social reasons, and the more acute economic effects.

There is a close link between poverty and HIV. Poorer people are more likely to find themselves vulnerable to infection, and this, combined with gender inequalities, creates a serious problem for poor women. They are more likely to resort to sex as an economic activity, less likely to be able to access and understand information, more likely to be forced into early marriage and pregnancy, and less likely to be able to access health care. The impact of HIV is also more significant for poorer households. Sickness reduces the capacity to work or produce food, children are more likely to be taken out of school and to be orphaned, and widowed women are more likely to be forced into sex as a coping strategy.

HIV is absorbing a large share of health sector budgets and human resources. It may also be the case that it is distorting some of the objectives of the Health Sector Reforms - people with HIV/AIDS are more likely to go to hospitals than clinics because they think they will get better services.

Section 2.6.3 provides further insight into HIV/AIDS issues in relation to staff recruitment and retention within the health sector.

2.4.3 Gender inequalities

The position of women, especially in the context of education and participation in political and economic decision-making, is poor. Yet, Zambia does not show some of the major gender disparities in health outcomes that are found in other nations, particularly countries in the Indian sub-continent. Data on children under 5 years of age do not show major differences in morbidity, mortality, nutrition or food-intake (CBoH 1997b). Infant- and underfive mortality rates do not differ significantly between boys and girls. Utilisation figures are unreliable, and not disaggregated by gender, but women and children together constitute the bulk of health sector users, the women mainly because of their role as the care-takers of children. However,

women are more constrained in their use of services than men - financially (cost, transport), educationally (low education correlates with lower levels of institutional births, child immunisation, or taking children to clinics) and socially.

The MoH (1998) states that 'MMR provides the most revealing measure of the status of women, their access to health care, and the ability of the health care system to respond to their needs' (MoH et al. 1998). Estimates of MMR in Zambia range from 649 to 1,400 per 100,000 live births based on hospital surveys (MoH et al. 1998), and hide disparities between urban and rural areas, and poorer and less poor provinces. Such figures suggest that the status of women is low, and that the health sector has failed to adequately ensure their access to health care or to respond to their health needs.

The specific factors leading to the low utilisation of maternal health services and high maternal mortality are discussed in Chapters 7, 8 and 9 of this thesis.

Another indicator in the field of reproductive health in which gender inequalities can be observed is the prevalence of STD/HIV. The rates are higher among women, and women are less likely to seek medical treatment (partly because of the asymptomatic nature of many STDs) and yet require greater access to services.

Gender inequality can also be observed in the way women are represented in managerial boards. There are few women in management positions in the CBoH, the hospital management boards and the DHMTs, and there is a skewed gender distribution of staff within the professional cadres - nurses are generally women, and health inspectors are generally men. On average the DHBs had fewer than 30% women members in 1996 (CBoH 1997b), and women are not well represented in the bodies participating in the decision-making for health facilities.

Overall, the issue of gender differences in access to health care, and their impact on health outcomes, does not yet appear to have received the attention that is required to bring about changes.

2.4.4 User fees and access to health care

For most Zambians the immediate visible impact of health reforms was the introduction of user fees in 1993, which was intended to encourage people to feel ownership of, and responsibility for, health services. They were introduced to supplement government resources, in order to provide an improved service for clients at the point of collection. It is not clear whether fees have become a necessity in order to provide basic services, but this would not appear to be the case, since the overall contribution of fees to district budgets is relatively small. A recent report, based on a small sample of clinics, showed a range of between 2% and 10% of clinic revenues accrued from fees (World Bank 2000).

The principle of user fees is supported by most observers. By 1997 the users believed that they were closer to the health services than before, and felt a sense of ownership (MoH 1997). However, to maintain the goal of equitable access to services, appropriate exemptions and safety-net mechanisms need to be in place. Additionally, greater control over the use of fees at the point of collection can lead to a greater sense of ownership by communities, and provides the possibility to promote an equitable use of resources within communities (Daura et al. 1998).

The introduction of user fees in 1993 coincided with a significant decrease in the utilisation of health services. Several studies in the mid-1990s concluded that there was a direct relationship, i.e. that the introduction of fees had reduced hospital and clinic attendance (Booth et al. 1995). These studies were conducted at a time when there were no clear policies for the collection of fees, and no safety-nets for those who could not afford to pay them. In 1994, exemptions were introduced. More recent studies have suggested a gradual increase in the utilisation of health clinics, possibly even to pre-1994 levels (Daura et al. 1998). Other data suggest significantly lower utilisation figures in 1999 than in 1992, particularly for curative care. The key question is whether there are poor or vulnerable people today who are sick and not accessing health care because of fees or any other barrier to access and, if so, what can be done to improve access for such individuals and groups?

Fees, in themselves, may be less of a barrier than distance to a health facility, but access to health care will not be improved without a corresponding improvement in the quality of

service, as perceived by patients and potential patients. Quality of service is still, on the whole, perceived to be poor. This is manifested in complaints that fees are paid, but no medication is available, that fees are paid more than once (i.e. for an initial consultation and also at referral centres), and that staff do not recognise that they have a responsibility to provide good services to people because they have paid fees (Daura et al. 1998). Gilson concluded from a study in various African countries that the impact of fees is highly dependent on the setting and the existing fee policies. Benin showed the most positive impact of user fees, and Zambia the most negative impact of all the countries studied (Gilson 1997). From all the literature that is available, one can carefully conclude that the introduction of user fees tends to dissuade the poor more than the rich from using health services, and also tends to delay care because people resort to self-medication and informal forms of care (Leighton 1995; Hutton 2002).

Attempts to make the user fee system more equitable have focused on two mechanisms: exemptions and a social safety-net provided through the Public Welfare Assistance Scheme. The exemption system works in two ways. There are demographic exemptions for children under 6 and adults over 65 years of age. There are also disease-based exemptions. Treatment of chronic illnesses such as TB, hypertension, diabetes and HIV/AIDS, treatment of STDs, treatment during epidemics such as cholera, and services such as antenatal clinic (ANC) and family planning are all exempted from fee payments under the guidelines issued by the CBoH (CBoH 1999c).

The demographic-based exemptions are considered to be performing relatively well, although an analysis of 1996 LCMS data indicated that 24% of patients were wrongly denied exemptions and a significant number of patients were wrongly given exemptions (Diop et al. 1998). The study also concluded that when people were wrongly given exemptions, it was the better-off households who had the most benefit. There is less evidence regarding disease-based exemptions. However, for both types of exemptions there is criticism that, whilst they contribute to the equity of services for all people, they do not address inequalities in use of the services that are related to income or to distance to the nearest facility (Diop et al. 1998).
The safety-net, the Health Care Cost Scheme which is implemented through the Public

Welfare Assistance Scheme, was introduced in 1995 as a mechanism to address inequities in access, based on socio-economic status. Clinic clients who cannot pay can be referred to the District Social Welfare Officer for assessment and, if approved, the fees are paid to the hospital or clinic. However, resources for the scheme are limited.

2.5 Public health priorities

Zambia's most important public health priorities are listed below. The government of Zambia (MoH and CBoH) defined these priorities, because 90% of the major health threats can be overcome by focussing on the delivery of cost-effective interventions in these 6 main areas (CBoH 1997a). They are mentioned here, not to give a complete overview, but to allow readers to place the topics adressed in Chapters 4 to 8 (mainly reproductive and child health issues) in this context and to justify the choice of those topics.

- Malaria
- Reproductive health and family planning
- HIV/AIDS and sexually transmitted diseases
- Child health and nutrition
- Tuberculosis
- Water and sanitation

2.5.1 Malaria

Malaria remains one of the most significant health problems in Zambia, accounting for over 30% of hospital admissions nationwide, 10% of deaths in hospitals, and for an estimated 33% of child outpatient attendances. The incidence rate is estimated at 354 per 1,000 people (HMIS 1992). Although malaria is endemic throughout Zambia, it particularly affects those without adequate immunity: young children, pregnant women and "non-immunised", e.g. residents of urban areas, where transmission is low.

Malaria control is mainly based on the dissemination of knowledge through information, education and communication materials. Information must flow both ways between communities and health workers. Communities, households and at-risk patients must be provided with information about early signs of malaria, methods of personal protection, identification of high-risk groups, sources of malaria vector breeding, and environmental

measures for control. Impregnated bednet projects, preventive use of antimalarials in pregnant women, and correct diagnosis and treatment at all levels are the other accents of the national policy against malaria.

2.5.2 Reproductive health and family planning

Reproductive and sexual health services form an important public health priority, and in this section maternal care, family planning and adolescent health services will be discussed. More information about reproductive health matters and safe motherhood can be found in Chapters 7-10 and in the Annexes.

Over the past three years the health situation of women has not improved. The MMR is widely acknowledged to be extremely high. The Demographic and Health Survey (DHS) in 1996 estimated it to be 649/100,000 births (CSO 1997). Other surveys mention higher figures, in the range of 800–1,000 per 100,000 live births. Underlying factors include: a persisting high percentage of home deliveries (assisted by untrained people); insufficient screening of high-risk pregnancies; a deficient referral system; teenage pregnancies (34% of women in the age-group of 15-19 years begin child-bearing (CSO 1997); low level of education; lack of midwives in health centres; unsafe abortions, despite the 1972 Abortion Law (SIDA 1993); low use of post-natal care services; other cultural factors (traditional beliefs and harmful practices) (MoH/UNFPA/CBoH/UNZA 1998).

Fertility levels are decreasing, but remain high. In 1980, 1990, 1992 and 1996, the total fertility rates were 7.2, 6.7, 6.5 and 6.1 respectively (CSO 1997).

Other reproductive health problems are infertility and violence against women. Many of the reproductive health problems occur among adolescents.

A large majority of pregnant women do attend antenatal services (over 90% according to the latest DHS report, and somewhat lower according to the 1999 figures reported by the national HMIS). According to routine HMIS data, the average number of visits per woman has increased over the years, and reached 3.5 visits per pregnant woman during 1999. The DHS 1996 mentions an even higher figure of 5.2 visits. This indicator can be considered as a ‘proxy’ for quality improvement. However, other reports give different (lower) figures (GRZ/UNICEF 1999), without indicating their sources. On a pilot basis, various initiatives

and projects are improving the quality of these services. Through these experiences, increasing attention is being paid to Essential Obstetric Care (EOC), HIV and syphilis-screening, and other aspects of quality.

Notwithstanding these improvements, the quality of ANC is still sub-optimal. Among pregnant women, knowledge of the danger signs is limited. Although some districts have worked out adequate systems for the monitoring and referral of high-risk pregnancies, this is not the case in other districts. In general, systematic STD-screening is limited. Antimalarial medication (chloroquine) is not systematically given, nor is iron/folic acid. Even tetanus toxoid coverages for pregnant women are below 50% in many cases.

More than half of all births take place at home, and are assisted by non-trained family members (DHS 1996). It appears that the role of the trained TBA in assisting deliveries (and also in identifying high-risk pregnancies) is limited. A study on the utilisation of maternal health services in Kalabo District showed that 46% of all births take place without the assistance of a skilled attendant (see Chapter 7).

It appears that very few of the expected number of caesarean sections is actually carried out. This indicates that the referral system is largely inadequate (from community to health centre; from health centre to district hospital). Lack of communication (radio) and transport seem to seriously undermine the appropriate referral of emergencies and, hence, the use of health services in the first place.

The quality of maternal services is also affected by a lack of appropriate equipment at all levels, and in particular in hospitals. For example, in many of the operating theatres basic surgical and sterilisation equipment is obsolete and/or lacking.

Furthermore, at hospital level there has been a consistent lack of emergency medication in recent years. In fact, within this difficult environment, the health workers are still making a commendable effort to provide the best services they can.

Knowledge of contraception among women is high. In 1992, 9 out of 10 women (15-49 years) knew about at least one family planning (FP) method (DHS 1992). Knowledge of sources was also widespread, with no important provincial variations. Yet, disapproval of FP by husbands still appears to be widespread. Most of the FP services are provided by the public service. Oral contraceptives are by far the most frequently used method of (modern) contraception (in

almost 50% of the users), followed by sterilisation and condoms. A limited number of districts have had some experience with the promotion of Depo-Provera. These experiences show that this method may become much more popular in the near future (as it already is in other countries). The DHS 1996 reported that there was an important and increasingly unmet need for FP services. However, after 1996, several initiatives were taken to address this issue, such as social marketing of contraceptives (through community-based distribution centres and through other outlets, such as shops).

Adolescents are an important target group in reproductive and sexual health, for several reasons. This group is at high-risk for HIV/AIDS, for STDs, and also for (unwanted) pregnancies (SIDA 1993). Increasing attention is now being paid to adolescent health, especially in the urban areas. A number of interesting small-scale trials are being carried out to find alternative, innovative and attractive services for this important target group. An Adolescent/Youth Health Policy for Zambia has recently been drafted. However, this has not yet materialised in clear national (or district) plans of action, or in the introduction of appropriate services for adolescents. Numerous studies have shown that young people only use the existing clinics for illnesses that are not sexually related, and formal health services are typically not 'user-friendly' for young people. Cited reasons are: fees are too high; poor staff attitudes; lack of privacy; being embarrassed or reprimanded by nurses who know them; fear of injections.

2.5.3 HIV/AIDS and STDs

Data-collection on AIDS and AIDS-related complexes (ARC) began in 1986 with the introduction of a confidential notification system. The current overall seroprevalence rate among the adult population (over 15 years of age) is rampant, and is estimated to be as high as 20%, with much higher rates in urban areas than in rural areas (MoH/NASTBLP 1998). Peak HIV prevalence rates have been estimated at 50% among women aged 20-29 years, and 42% among urban men aged 30-39 years. Although there is no gender difference in the overall seroprevalence, the prevalence is higher among females in the younger age-groups. It is expected that the current seroprevalence level will stabilise during the coming years, and will decrease to approximately 16% by 2010. Recent data (MoH/NASTBLP 1999a) suggest a

drop in HIV seroprevalence in urban adolescent women (15-19 years) from 28% in 1993 to 17% in 1996. This may indicate that younger girls are taking more protective measures. More vigorous interventions may help to accelerate this presumed decrease.

A variety of factors play a role in the transmission of HIV/AIDS:

- high incidence of STDs
- multiple sexual relationships, especially among men
- low use of condoms
- certain cultural factors and beliefs
- poverty and malnutrition, leading to 'exchange of sex for money'
- low status of women
- migration patterns of workers.

The cumulative number of reported AIDS cases is approximately 44,000 (MoH/NASTBLP 1999b), and the social impact of HIV/AIDS is enormous. This is described in paragraph 2.4.2.

STD's are another important public health problem. Some surveys have shown that up to 10% of OPD visits are related to STDs. In 1996, 3% of women and 7% of men were reported to have contracted an STD during the preceding year (DHS 1996). Gonorrhoea, syphilis and chancroid are the most common bacterial infections, followed by chlamydia trachomatis, and the highest incidences are found in the urban areas. Syphilis-screening during ANC in urban areas showed that a large percentage (13% in 1998) of women were positive (GRZ/UNICEF 1999).

It appears that the relationship between STDs and HIV/AIDS is not well understood by 30% of the community. Many people seek traditional treatment, or do not seek treatment at all (DHS 1996). In general, there is less knowledge about STDs than about AIDS. Furthermore, knowledge is higher among men than among women, and there is a strong correlation between knowledge about STDs and educational status. Women are slightly more likely to seek treatment than men (99% vs. 91%; DHS 1996), and women inform their partner more often than men (91% vs. 66%).

2.5.4 Child health and nutrition

Over the past three years, the health situation of young children has not improved (GRZ/UNICEF 1999). In the late 1980s, infant mortality rates (IMR) and child mortality rates (CMR) began to rise, while life expectancy declined. Table 2.3 shows the trends in IMR and under-five mortality rate (U5MR) (based on the 5 years preceding the survey):

Table 2.3

National Mortality Trends

Period	IMR	U5MR	Source
1969	141	…	Census
1982-86	92	174	Census
1987-91	107	187	DHS, 1992
1992-96	109	197	DHS, 1996

Source: DHS, 1996

Five leading "killers", all of which are preventable, account for more than 75% of deaths: malaria, diarrhoea, pneumonia, malnutrition and anaemia. The increasing HIV seroprevalence in children is an important determinant.

Immunisation is one of the most important public health activities. Childhood immunisation schedules for BCG, DPT (diphteria, pertussis, tetanus), polio and measles are available in all health institutions, as well as the schedule for the immunisation of women with tetanus toxoid. Great efforts are needed to achieve adequate distribution of vaccines throughout the country and to improve the quality of the cold chain. Record-keeping, health education, sterilisation of equipment and planning of outreach activities are other spearheads of the health services.

Growth monitoring and promotion is another very important public health priority. Information from the DHS 1992 shows that 4% of children aged 4 months and 45% of children aged 18 months have low weight for their age. The growth of over half of all children under 5 years of age is stunted, signifying chronic malnutrition. Regular weighing and

systematic monitoring of growth would help to identify these children at an early age, before they become severely malnourished and very difficult to treat. Further assessment of health and feeding can be followed by counselling about feeding, medical care when needed, referral to other services when indicated, and promotion of health-enhancing behaviour. Exclusive breastfeeding and vitamine A supplementation are being promoted.

Integrated management of childhood illnesses (IMCI) has been introduced in 17 selected districts (Basics 1999). Health workers have been given specific training, case definitions have been developed, manuals and guidelines have been introduced, and several health facility surveys have been conducted to assess the impact of this approach. In general, these surveys have shown that the quality of case-management has improved significantly (physical examinations; counting respiratory rates in cases of pneumonia; use of antibiotics; etc.) (Basics 1999). However, surveys have also revealed that these improvements can only be sustained if frequent and continuous supportive supervision by DHMT staff is guaranteed. It remains to be seen whether these experiences can be 'scaled-up' nationwide, given the high initial costs (duration of training; frequent supervision), the nature of the approach (time-consuming child examination) and the limited resources in the districts.

2.5.5 Tuberculosis

Due to the AIDS epidemic, the incidence of TB has increased greatly over the years. It now accounts for about one out of every six adult deaths in Zambian hospitals, and about 68% of all TB cases are HIV positive (MoH/NASTBLP 1999a). In 1995, two thirds of the 35,160 new cases of TB were sputum-negative. Since 1992 the proportion of smear-positive cases has declined steadily. When untreated, about half of the people who have TB will die from the disease within two years. However, the treatment regimes that are available in the country can cure the vast majority of patients, provided that treatment is started at an early stage and the patients take all the prescribed medication regularly.

The key to preventing TB is to control its spread from infected people. The prevalence of TB can also be reduced by improvements in nutrition and housing, and efforts to fight the spread of HIV/AIDS. Treatment is the only effective means of stopping the spread of TB germs.

Community partnership and the appropriate treatment of people with TB are essential. Anyone with a chronic cough should be encouraged to visit a health facility to be tested.

Considerable co-operation is required from a TB patient and his or her family and community to assure compliance with the prolonged therapy and to screen close contacts of the patient.
One certain way to ensure patient adherence to treatment is the short course regimen (DOTS), in which a supervisor directly observes the patient swallowing the tablets. DOTS succeeds for one important reason: it makes the health system and not the patient responsible for achieving a cure. This is critical, because most TB patients start to feel better after just a few weeks of medication and are then often tempted to stop taking their pills.
Defaulting and poor compliance are the major reasons for the low success rate of TB treatment. Patients need to attend a clinic daily during the intensive phase of treatment, and monthly during the continuation phase. Failure to attend a clinic may lead to treatment failure and the development of resistance to medication. Consequently, follow-up is as important as the selection and supply of medication. General health staff, home-based care teams, community health workers, and/or neighbourhood health teams should be involved in the care of TB patients, and can help in tracing defaulters.

2.5.6 Water and sanitation

Safe drinking water and proper sanitation are essential in life. Scarcity of water, compounded by inadequate sanitation and poor hygienic practices, causes common diseases that become risks to public health. Safe drinking water coverage in rural Zambia is as low as 18%, and less than 40% of households in some areas have access to latrines, clean water, and adequate sanitation. Diarrhoeal diseases are major causes of admission and deaths in health centres and hospitals in Zambia. Diarrhoea has been ranked as the second major cause of hospital deaths, the third most common cause of out-patient attendance for all age groups, the fifth major cause of hospital admissions for infants, and the sixth major cause of death in children 1-14 years of age (CBoH 1997a). Some common health problems related to poor water and sanitation include bacterial and viral infections (diarrhoea, cholera, dysentery, typhoid, poliomyelitis and hepatitis A), parasitic infections (amoeba and giardia, roundworms, whipworms, hookworms and schistosomiasis), and other infections such as trachoma and scabies.
Health workers in Zambia are trained to assist the population to make use of cost-effective interventions. They concentrate on building safe, closed wells, traditional and sometimes

ventilated improved pit (VIP) latrines, improving refuse disposal, vector control and food hygiene.

2.6 Human resources

Many reports that have described the health situation in Zambia to date, including the studies presented in this thesis, mention a shortage of health care staff as one of the factors that play a negative role in development. This section intended to shed more light on the human resources situation. It includes a description of the health care staff (numbers, distribution, skills, etc.), and also a description of the factors which (negatively) influence their effective utilisation.

The CBoH conducted a survey (CBoH 2000) between June and December 1999, which provided valuable data. All data in this section originate from this draft report, unless otherwise stated. The number of staff employed in the health sector by the MoH/CBoH and the various district/hospital health boards in 1999 was 13,755 qualified staff and 6,220 Casual Staff/ Classified Daily Employees (CDEs). These are supported by a substantial, but undetermined, number of trained TBAs and various Community Health Workers (CHWs) who are either volunteers or are paid from local funds.

“Shortage of staff” is often too easily used as an answer or an excuse to explain why things are not going well. The question of whether or not there is a shortage of staff depends on the criteria that are applied. The following statements are clear examples.

There are shortages of staff in some facilities, which are so severe that the provision of basic health care can not be guaranteed. For example, there are rural health centres with only casual/CDE staff (who may be tTBAs), but no qualified staff.

In contrast: there is sufficient staff to provide at least basic care in most parts of the country.

There is more staff employed in some facilities than can be justified on the basis of the workload. For example, in the Western Province, the Lewanika General Hospital employs 31 registered or enrolled midwives, whilst in the neighbouring Senanga District Hospital there are only 7. Yet, the workload is remarkably similar.

The direct costs of employing staff in some hospitals is just over 80% of the current expenditure, excluding the costs of centrally provided medication (Source: Lewanika Hospital Management).

This leaves only 20% for medication and all other resources, with the consequence that the amount and quality of services provided is lower than if there were fewer staff and more non-staff resources.

In relation to the "establishment" (which is not necessarily a good basis for making judgements - see below) there is a major excess of health care staff; 13,755 qualified staff are employed, compared to the "establishment" of 9,976 - an excess of 38%. The main categories in which the excess occurs are registered midwives, enrolled nurses and enrolled midwives.

2.6.1 Categories and numbers of health care staff

In 1999, 50 categories of qualified health care staff were employed in the GRZ health sector. In addition, there are CDEs and casual staff (together referred to as CDEs in the rest of this analysis), who carry out duties such as cleaning, cooking, driving, security and some administrative tasks. However, in rural districts, like Kalabo, they also carry out duties which are actually supposed to be carried out by trained staff. CDEs running dental departments without supervision, assisting with major procedures in the operating theatre or assisting with complicated deliveries in rural health centres, are more the rule than the exception in rural areas.

Patterns of staffing are familiar throughout Southern and Eastern Africa. However, they contrast strongly with patterns found in countries of similar economic status in Asia and South America. The principal features of the Zambian pattern are:

- the very small proportion of doctors
- the very high proportion of nurses and midwives (the Zambian ratio of doctors to nurses is 1:12; in some Asian countries the ratio is in the region of 1:1)
- the reliance on Clinical Officers for providing much of the medical treatment in health centres and district hospitals
- the high number of Environmental Health Technologists (EHTs)
- the small number of dental, pharmacy, laboratory and physiotherapy staff
- the absence of health educators.

Although the pattern is different from that in other parts of the world, it does not necessarily mean that this pattern is wrong for Zambia. The generally very low population density in

most parts of Zambia, and difficult communication in many rural areas, cause specific constraints. Bearing these constraints in mind, the national pattern of staffing seems to be appropriate with the following exceptions:

- there are too few doctors
- there are insufficient Clinical Officers to staff the existing health centres and district hospitals
- there are insufficient pharmacists and dentists for the MoH/CBoH facilities and for the private sector
- there is a shortage of support staff with skills in financial management, computing, data analysis and information systems
- career structures offer few opportunities for promotion, especially for Clinical Officers and EHTs.

2.6.2 Distribution of staff

The available staff is unequally distributed over the country. The geographical distribution, as well as the distribution according to level of health facility is inappropriate. For some categories, such as nurses and clinical officers, the staff/population ratios are reasonably similar in all provinces, but there are also some striking inequalities. For example, Lusaka has almost 16 times as many midwives per capita as the Eastern Province, and almost 7 times as many doctors per capita as the Northern Province. Copperbelt is almost as abundantly staffed.
One would not expect an absolutely equal staff/population ratio in all provinces for all categories of health care staff, but for some categories of staff there is a clear mis-distribution. This means that people living away from the line of rail are seriously disadvantaged, which is clearly contrary to the objective of equity expressed in the Health Sector Reform documents. The reform process has not yet succeeded in achieving a more equitable distribution of human resources.
A second aspect of the geographical distribution is the distribution within the provinces. Here a similar pattern occurs, with the highest staff/population ratios in urban areas. For example, in the Western Province, Mongu district and Senanga district have a population that is very similar in size. Yet, there are more than twice as many health care staff (and five times as many doctors) in Mongu district. This difference cannot be justified by saying that the

Lewanika hospital in Mongu district provides a service for the whole of the Western Province, since evidence suggests that there are very few patients who come from outside the Mongu district.

A high percentage of health care staff, and especially the more highly paid staff, is employed at central hospital level. For example, 58% of doctors, 38% of registered nurses, and even 25% of CDEs, are employed in the 3 central hospitals. In contrast, the rural health centres, which are the only realistically accessible health facilities for a high percentage of the people of Zambia, employ only 19% of qualified staff and 19% of CDEs.

Some of the apparent discrepancies, however, can be justified. For example, it is understandable that almost all of the few doctors in Zambia should work in hospitals (or in management). It is less clear why 58% of them should work in just the 3 central level hospitals which, in practice, serve only the populations of Lusaka and Copperbelt (who also have access to other general and district hospitals) where only 37% of the population live. More optimistically, it can be said that the situation is not as unbalanced as it was in the past; there has been progress towards a greater degree of equity. However, equity is still far from being achieved.

It is only natural, not only in the Zambian context but in general, that many health care staff prefer to work in urban areas and in the higher level facilities. Therefore, one must look for mechanisms which would counteract this natural tendency. Prior to the introduction of the Health Sector Reform, the distribution of health care staff was controlled, in principle, by the "establishment". Each health facility was allocated a theoretical number of staff in each category; these numbers formed the "establishment". The MoH then posted staff to the health facilities according to this "establishment". This system worked to some extent, but was flawed because some staff refused to accept their posting or used influence to achieve preferential postings. Hence, the number of nurses/midwives who were employed in Lusaka, for example, was far greater than the number of established posts. The "establishment" and posting by MoH/CBoH is still the predominant influence on the current distribution, because recent changes have not yet had a major impact.

In summary, there is no existing effective mechanism, which counteracts the natural tendency of health care staff to seek employment in urban areas.

2.6.3 Impact of HIV/AIDS

There is very little data on the impact of HIV/AIDS on health care staff. There is widespread opinion, however, that the impact is extremely severe. Some sparse information comes from other countries in the region. In Botswana, for example, increased mortality among health care workers is reducing the capacity to meet higher care demands for people with HIV and AIDS (ILO 2002). Health care systems in many countries are overburdened, as they have to deal with a growing number of AIDS patients in addition to the loss of health care personnel. In some countries the health care systems are losing up to a quarter of their personnel to the epidemic. In Malawi and Zambia, for example, five-to-six fold increases in health worker illness and death rates have reduced the number of personnel, increasing stress levels and workload for the remaining employees (United Nations 2001).

A pilot study in two hospitals in Zambia showed mortality rates among nurses of approximately 1 in 40, but this was between 1989 and 1991 (Buve et al. 1994). In 1996, a cross-sectional study among nurses, midwives, office workers and teachers in Zambia reported positive HIV-tests in 44% of general nurses, 39% of midwives and 42% of office workers and teachers (Siziya & Hakim 1996). Another remarkable finding was the surprisingly high number of non-condom users among female nurses (Siziya et al. 1996). The percentage of health workers with AIDS in Botswana was estimated to be 35–40% in 2003, and expected to increase to over 60% in 2009. The number of deaths among health workers as a percentage of the health workforce in Botswana was estimated to be 10-12% in 2003, and to increase to 38-43% in 2010 (Tawfik & Kinoti 2000).

Long-term disability seriously reduces the size of the workforce that is available for carrying out normal duties. For example, during a field visit to Lewanika Hospital, 13 of the 124 nurses/midwives in post were unable to work, due to chronic illness (Source: Senior Nursing Officer, Lewanika Hospital). In none of these cases was HIV/AIDS recorded as the prime cause, because data on HIV tests of the staff concerned was not available, but it is highly probable that HIV/AIDS was the underlying cause in most cases.

2.6.4 The role of expatriate doctors

It has been estimated (Source: CBoH) that approximately 400 of the 694 doctors employed by the MoH/CBoH and the hospital boards are expatriates, with a wide range of nationalities. The most numerous group are the Cuban doctors. They are paid a much higher salary than other non-donor funded expatriates, who are employed under the same conditions of service as Zambian doctors, and mainly originate from other African countries, such as Ruanda, Burundi and the Democratic Republic of Congo. This situation causes serious problems. For example:

- some of the expatriate doctors are not fluent in English, leading to difficulties in communication between doctor and patient
- the cost of the Cuban doctors is high, reducing the resources that are available for other purposes
- the prior training of many of the expatriates, mainly those from neighbouring African countries, is not appropriate for the Zambian situation.

The underlying cause of this situation (i.e. recruitment from overseas) is that many of the doctors trained at the UNZA School of Medicine prefer to work in the private/NGO sector, or in other countries where the conditions of service are more attractive. A contributory factor is that the Zambian training of doctors in the past was oriented towards third level hospital care, with the consequence that graduates were reluctant to work at district or general hospital level. The training has been made more community-oriented in recent years, but the impact of this change will not be felt for some time, as the first doctors trained under the revised curriculum only graduated in 1999.

The technical assistance programme initiated by the Netherlands has been a topic of discussion for many years, and much has been said and written about it. The main problem is that the provision of additional expatriates does not improve the difficult working conditions for local experts. Thus, rather than systematically recruiting expatriate personnel, other methods should be developed, which aim at building and strengthening institutional co-operation and linkages between the Personnel Assistance Agencies and other related agencies on the one hand and the host country health authorities on the other hand.

In recommendation 9 of the Acapulco International Health Manpower Conference, held in Mexico in 1986, it was stated as follows: “Many developed countries have considered sending their surplus doctors to developing countries. This form of co-operation must be examined very critically. It can be seriously jeopardizing or distorting the implementation of national manpower and health system development plans. Governments should also be cautious in accepting that their own doctors, who they cannot afford to employ, leave the country only to be replaced by externally paid foreign doctors.”
This observation about governments who cannot afford to employ their own doctors, was made as long ago as 1986, but still holds true for Zambia today.

Money and salary are not the only problems. There are many factors that make Zambian doctors decide not to work in rural areas in their own country, some of which are:

- poor accommodation
- no possibility of having a personal vehicle in a rural area
- limited possibilities for promotion, specialisation or other career potentials
- no school facilities for the children
- no possibilities of work for the partners.

These factors have already been known since the seventies, and have been reconfirmed over and over again, but low-income countries as well as rich countries have failed to develop the appropriate strategies to deal with this situation. African doctors mention the same priorities as doctors from anywhere else in the world and solving these problems is not at all easy. Working conditions for local staff are worsening, and the national economy is deteriorating under the prevailing international debt crisis. However, the employment of additional expatriates does not improve the difficult working conditions for local experts (Stekelenburg & Sikanda 1998).
Simply putting an end to technical assistance programmes, which is what some high-placed people in international development co-operation organisations want, or even trying to phase out such programmes too quickly, as in Zambia today, can lead to unacceptable risks. Leaving district hospitals with no adequately skilled personnel who know how to solve essential obstetrical and surgical emergencies, will lead to an increase in morbidity and mortality, and could well have unethical consequences. Countries that are already in a state of permanent

crisis, currently aggravated by the devastating effects of the HIV/AIDS epidemic, should not be left alone to solve their medical problems (Stekelenburg 2000).

2.7 Medical supplies

Medication and medical supplies are key elements in the provision of efficient and effective health services. The relevant vision, policy and strategies are laid down in the Zambian National Drug Policy, officially launched in February 1999, and in the National Health Strategy Plan (NHSP) 1998–2000. More than half of the NHSP strategy decisions have already been realised, and new legislation has been drafted to meet the modern criteria for good quality medication. Unfortunately, with regard to 'medication and supplies' the same shortcomings can be found as in the Health Sector Reforms in general: there is much emphasis on 'system development', whilst 'service delivery' has not been improved, and the availability of essential drugs at primary health care level has not always increased.

With regard to the procurement, storage and distribution, and selection of medication many developments have taken place in recent years. In 1995, procurement units were being set up at the ministries, one of the first being the MoH.

In October 1998 the management of Medical Stores Limited (MSL), now responsible for storage and distribution, was contracted out to a private company for a period of five years.

In 1996 the MoH together with the co-operating partners, made a policy decision to integrate all logistics previously related to nineteen vertical programmes into one comprehensive Public Health Logistic System. The integration of medication and medical supply systems is aimed at improving the storage and distribution of vital health supplies to health facilities. Since the process of integration began, district and hospital management boards have been ordering from one central store, MSL, from which deliveries are made regularly following a well-developed transport schedule. This has resulted in the cost-effective use of resources, especially by the DHBs and the HMBs, that has reduced transport costs that would otherwise have been incurred through the collection of essential supplies. In order to strengthen the process, 2,400 health workers have been trained in procedures for the storage of medical supplies; this activity was initiated in 1997 and completed in 1999. There is also training in the selection and quantification of medical supplies at the DHBs and the HMBs.

The National Drug Policy was launched in February 1999. It includes the steps of selection, procurement and distribution as precursors to the rational use and good management of essential drugs and medical supplies. Since the implementation of the policy, the CBoH has identified the provision of essential drugs to the population as part of an integral strategy to improve the health status of the nation.

With regard to use and selection, the revision of the Essential Drugs List and the production of the Zambian National Formulary in 1999 can be mentioned as important achievements. They form part of the work on the basic health care package. However, these and other activities which are intended to lead to the rational use of medication, are negatively affected by the current shortages of essential medical supplies.

Most district and hospital management boards have established Pharmacy and Therapeutic Committees that regularly meet to address drug use issues concerning medication and promotion of the rational use of medication. Guidelines have been developed by the Zambia National Formulary Committee.

It is evident that most rural health centres have a regular supply of medication through the provision of rural health centre kits. The kit contents were reviewed before the 1999 procurement cycle to ensure that specific items reflected the current needs in health institutions. Most health centres have expressed the need to continue with the kit system as a means of distributing essential drugs to health centres. However, many rural districts have problems in procuring essential drugs that are not available at the MSL. Some of the reasons may be that the suppliers are not based in their own locality, the distance that has to be travelled to purchase medical supplies is long (for example Kalabo–Lusaka is 700 kilometres) and resources are limited (FAMS allows 4% for districts and 10% for hospitals to be used for the procurement of medical supplies), and the costs of medical supplies are high.

There is a critical shortage of medical supplies in many hospitals and urban health centres. Although the procurement of TB drugs took place under a bilateral agreement with the Netherlands, which ended in 1995, this partner continued to procure TB drugs for the health institutions until 1998. Since then, the government’s input has been insufficient to meet the ever-increasing need for these vital supplies in health facilities. At the end of 1999 the British

came to the aid of the MoH and procured sufficient medication for TB to cover a period of nine months.

The estimated annual budget that is needed for medication and other medical supplies is approximately USD 20 million, but the 2000 GRZ budget is ZK 22.4 billion or USD 8.3 million, however. There is therefore a gap of USD 11.7 million. A per capita expenditure of approximately USD 1.00 is insufficient, and drugs shortages can be expected to persist.

The difficulty the Zambian government has in spending more money on public health can not be separated from the broader, international, political-economic context. High dependency on international donor funding and strict conditions imposed on the government by international donors such as the IMF leave only very little room for adjustments. In this context, the institution of debt-relief programmes is the only logical answer for donor countries.

2.8. Conclusion

The aim of this chapter was to provide an overview of the context of Zambian health policies, to ensure that the data from the studies in the following chapters can be firmly positioned within this context.

Coming from a situation of general satisfaction in the population with free health care for everybody in the sixties and seventies under the Kaunda government, slowly by slowly the system has deteriorated, as a result of economic crisis. Structural adjustment programmes designed in the eighties by the World Bank to address the economic and debt crises in low-income countries, and IMF preconditions to borrow money, have led to the development of strategies for improving health from an economic perspective. The health sector reforms were introduced in Zambia to meet the expectations of the World Bank and the IMF, but still with awareness for the HFA policy in the late seventies and early eighties that was designed to improve health from a health perspective.

Nevertheless, after an initial period of hopeful introduction and implementation of the Health Sector Reforms, even resulting in Zambia being mentioned worldwide as one of the leaders of the health sector reform movement in the early and mid-nineties, more recent years have brought disquiet both inside and outside the country. There is general agreement that too much attention has been paid to system development, without devoting enough attention to effecting early and much needed improvements in service delivery.

What we see is a poor country, with reasonable literacy rates and a reasonably stable political climate (especially compared to most neighbouring countries). Social cohesion is over-burdened, however, by the disastrous impact of the HIV/AIDS epidemic. The health sector is reasonably well organised, but the distribution and utilisation of services leave much to be desired, partially due to critical shortages of some cadres of health care personnel and, at times, critical shortages of certain medication and medical supplies. Community programmes have almost collapsed, the referral system does not work well, and the quality of care that is delivered in most institutions is not according to the desired standards.

The health of many Zambians is poor, with high infant mortality, high maternal mortality, high fertility rates and a decreasing life-expectancy, among other things. In addition to the relatively new disease HIV/AIDS, the well known ‘diseases’, which have been taking their toll among the populations of many (tropical) low-income countries, still kill children and adults in Zambia: malaria, respiratory tract infections, STDs, TB, and maternal health complications.

In terms of public health, the challenge is to provide good quality services at affordable cost, so that Zambians will see the benefit of better utilisation of these services. Therefore, meaningful and appropriate services need to be developed and offered. In the next chapter, the theory of improved utilisation will be presented.

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Annexes

Table 2.3

Selected recent data from different countries

	Life-expectancy M/F	Maternal mortality ratio	% Births with skilled attendance	% Antenatal care	Births/1000 women aged 15-19 years	Contraceptive prevalence method any/modern	
Zambia	**42.6/41.7**	**870**	**47**	**92**	**92**	**25**	**14**
Botswana	35.5/35.6	480	99	92	63	40	39
Kenya	48.7/49.9	1300	44	95	90	39	32
Bangladesh	60.6/60.8	600	12	23	125	54	43
Thailand	67.9/73.8	44	85	77	51	72	70
Brazil	64.7/72.6	260	88	74	71	77	70
USA	74.6/80.4	12	99	100	49	76	71
Netherlands	75.6/81.0	10	100	100	4	79	76

	Population (millions)	Expected population 2050	Population growth 2000-2005	Total fertility rate	GNP (2000) in USD	Access to safe water (%) 1999	Under-five mortality rate
Zambia	**10.9**	**29.3**	**2.1**	**5.7**	**750**	**64**	**143**
Botswana	1.6	2.1	0.5	3.9	7170	?	141
Kenya	31.9	55.4	1.9	4.2	1010	49	103
Bangladesh	143.4	265.4	2.1	3.6	1590	97	93
Thailand	64.3	82.5	1.1	2.0	6320	80	25
Brazil	174.7	247.2	1.2	2.2	7300	87	44
USA	288.5	397.1	0.9	1.9	34100	100	8
Netherlands	16.0	15.8	0.3	1.5	25850	100	6

	Doctors/100,000 population	**Nurses/100,000 population**	**% >15 years illiterate M/F**	**HIV prevalence >15 years M/F**
Zambia	**6.9**	**113.1**	**14/26**	**8.1/21.0**
Botswana	24	219	24/18	16.1/37.5
Kenya	13	90	10/21	6.0/15.6
Bangladesh	20	11	47/69	0.01/0.01
Thailand	24	87	3/6	1.1/1.7
Brazil	127	41	14/14	0.6/0.5
USA	279	972		0.5/0.2
Netherlands	251	902		0.2/0.1

Sources: World Development Indicators database, August 2003
WHO estimates of health personnel
UNFPA State of the World Population 2002

Table 2.4

Selected statistics Zambia

Total population	10,648,000
GDP per capita (USD)	866
Life expectancy at birth m/f (years)	36,7/37,0
Healthy life expectancy at birth m/f (years)	30,5/31,4
Child mortality m/f (per 1,000)	203/186
Adult mortality m/f (per 1,000)	752/713
Total health expenditure per capita (USD)	49
Total health expenditure as % of GDP	5.6

Source: WHO 2002 (http://www.who.int/country/zmb/en/)

3 Utilisation of health care services

3.1 Introduction

Assessment of the utilisation and coverage of health services and its determining factors can assist health managers to identify bottlenecks in the provision of services. It can help to analyse the constraining factors and to select effective measures to improve the services (Tanahashi 1978). The challenge is to learn and to understand how services can be organised in such a way that the needs of the clients can be met effectively. Perception can differ between the (potential) clients, or consumers of health care, and the providers of health care. Few health care providers realise this, although they themselves are also potential consumers. In this chapter, the reality of the different perceptions will become clear in discussing important aspects, such as capacity, need, quality and disease.

Utilisation is a measure of the relationship between service capacity and service output. It is expressed as the ratio between output and capacity, assuming that the capacity of the service is known. The service capacity is usually defined as the need of the total population in the catchment area.

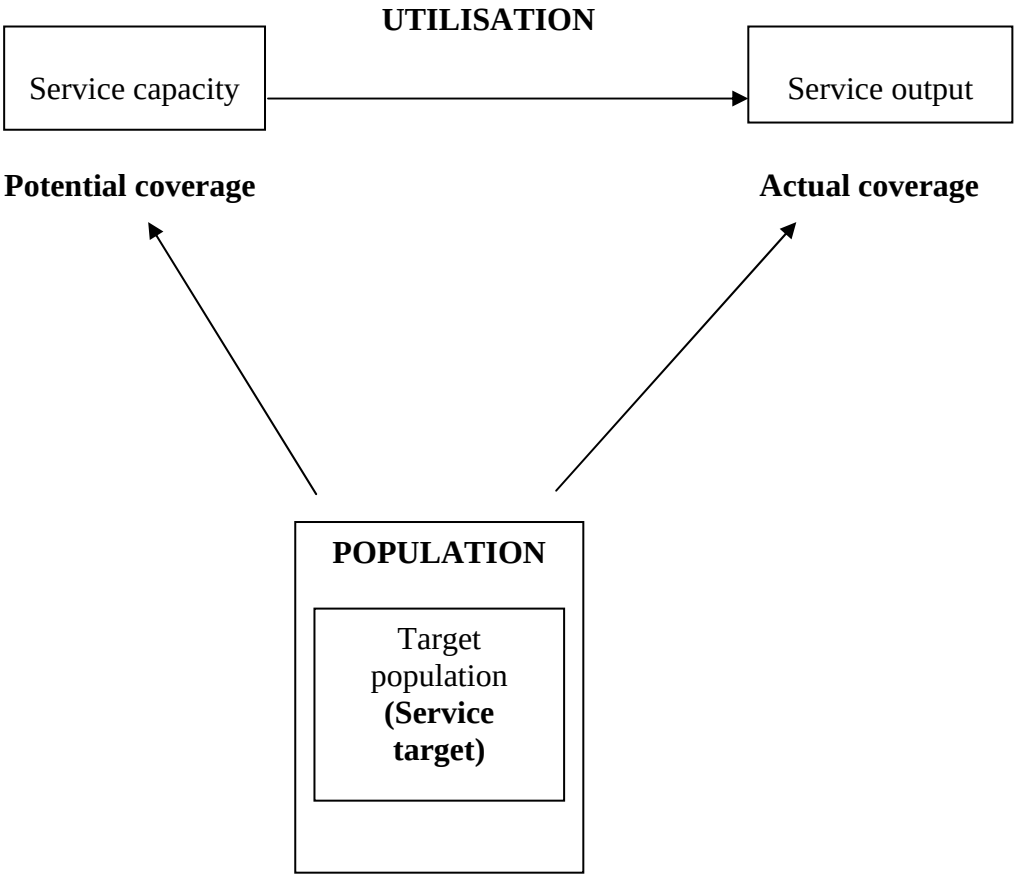
Health service **coverage** can be defined as a concept expressing the extent of interaction between the service and the people for whom it is intended (Tanahashi 1978). Coverage is normally expressed as the proportion of the target population who can receive, or has received the service. The number of people for whom the service can be provided expresses the service capacity and indicates the **potential coverage** of the service. The number of people who have actually used the service expresses the service output and indicates the actual performance of the service (**actual coverage**).

A schematic model of health service coverage and utilisation was proposed by Tanahashi (Tanahashi 1978). Figure 3.1 shows the relationship between coverage and utilisation.

A shortcoming of the approach in which service capacity is defined as the need of the total population in the catchment area is that the staffing position of health institutions is not taken into account. Service capacity could also be defined as a certain number of consultations, which can be calculated per member of staff per day or year.

Figure 3.1

Schematic model of health service coverage and utilisation



Utilisation of health care services has been studied widely all over the world. Many scientists, in both low and high-income countries have been investigating which determinants influence the decision about when and where to go for help in case of disease.

Van Enk, in his thesis on determinants of the use of health care services in childhood in the Netherlands (Van Enk 2002), gave a comprehensive overview of different authors who have contributed to research on the use or utilisation of health care services.

McKinlay described the different points of view from which explanations for variance in the use of services are investigated (McKinlay 1972). The use of services can be studied from an **economical** point of view, focussing on factors such as income, insurance, cost and availability of medical care. From a **socio-demographic** point of view, primarily age, gender,

education, religion, ethnicity and socio-economic status can be studied. From a **geographical** point of view the distance to services can be studied. A **socio-psychological** point of view often focuses on the patient's decision-making process when symptoms occur. Factors such as knowledge of diseases, the perceived threat of illness, and also the support of social networks play a role during the decision-making process. Differences in the use of health care services can also be studied from a **socio-cultural** point of view. Illness behaviour is influenced by values and norms of the culture in the patient's country of origin. Zola studied this aspect extensively (Zola 1973). Family structures and social networks are important factors in this field.

Kleinman reported on differences in professional and lay perceptions of disease, or 'disease' and 'illness' (Kleinman 1973; Kleinman 1978). The way in which patients experience problems is often different from the doctor's perspective. Doctors, or other health workers, as exponents of the medical system try to explain the patients' complaints in such a way that they fit into a diagnosis, which can be treated. The difference between 'curing' and 'healing' should also be clearly understood[3]. This can cause differences in perception of the disease and differences in expectations of health care services.

Finally, differences in the use of health care services can also be studied from an **organisational** point of view. The use of services is not only closely related to the quantity and quality of the services that are offered, but also to their accessibility for the different people needing care. In this area, research is focused on communication, bureaucracy, the relationship between patient and care-giver, and the possibilities for patients to obtain the services they expect to need.

In summary, many different points of view can be chosen to study the factors which influence the utilisation of health care. As a result, so many determinants have been described that difficulties arise when an attempt is made to unravel the exact reasons for the low utilisation of health services. An attempt to unravel, for example, the different determinants, which

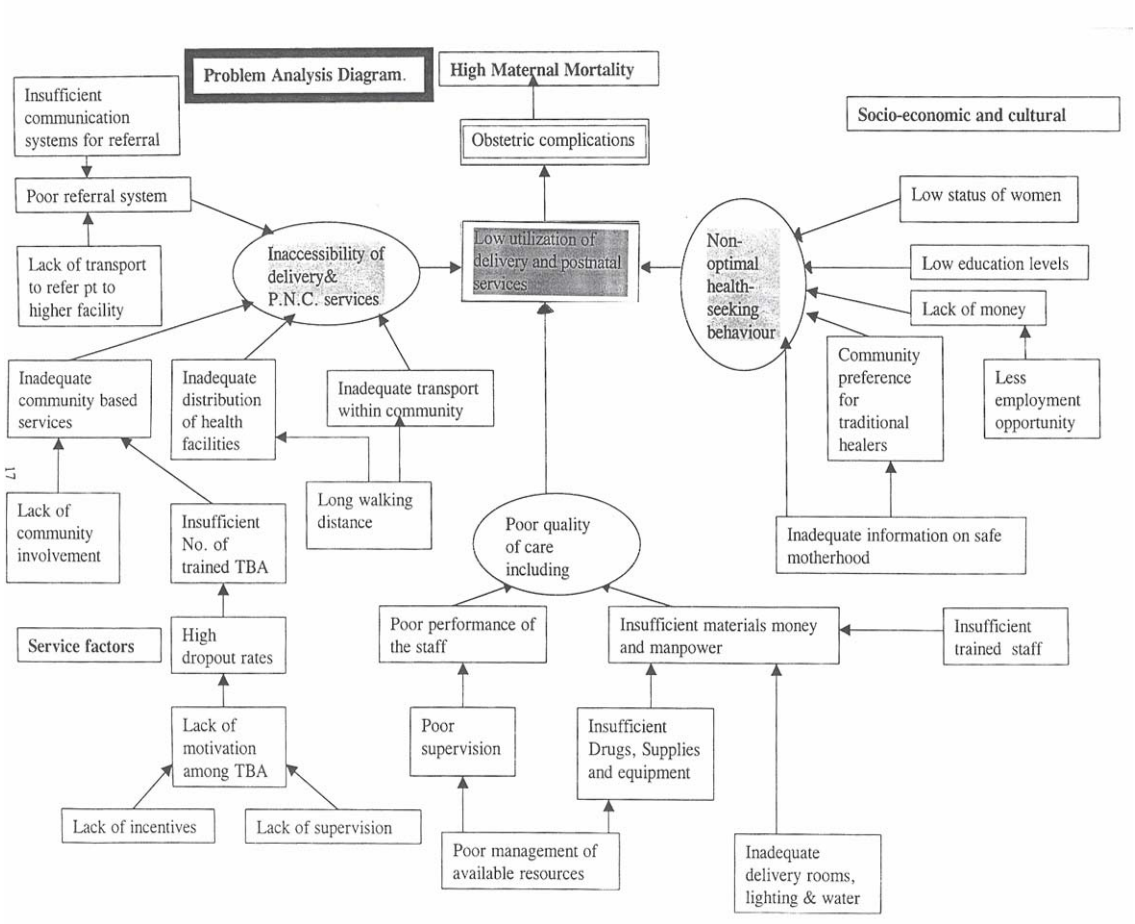
[3] The problem of compliance with treatment for tuberculosis, which was discussed in chapter 2 (section 2.5), can also be considered as a problem of different perceptions of disease. For the health worker, tuberculosis is a disease which is cured after the course is completed (9 months), whilst for the patient the illness that is characterised by loss of weight, coughing, etc. has healed after taking tablets for three weeks. Only clear communication can help to bridge the gap between the two.

together are responsible for the low utilisation of maternal health services and the high maternal mortality in Zambia, can lead to 'bubble charts' as shown in Figure 3.2. This is a perfect example of the complexity of inter-relationships between factors which all play a certain role.

Better understanding of this issue might result from realising the differences in the perception of needs, disease and quality between the consumers and the providers of health care. For consumers the meaningfulness of the services is the most important factor, and services are meaningful when quality services are offered, at a reasonable price, to meet the needs of the consumers.

Figure 3.2

Analysis diagram for the high rate of maternal mortality in Zambia



Source: Kalwani 1998

3.2 The health belief model and the socio-behavioural model

In recent decades, the use of models in research on the utilisation of health care services has been increasing. By using models, attempts have been made to organise the many different determining factors into one explanatory concept. The main areas of interest in the field of health care utilisation are the volume of use, the type of use and the outcome of the use of health care services. Two influential models were developed in this field: **the health belief model** (Rosenstock 1966; Harrison et al. 1992) and **the socio-behavioural model** (Andersen 1968; Andersen & Newman 1973). Comparison of the variables in fourteen different models used in research on the utilisation of health care services revealed that there is a large overlap in the variables included in the models (Cummings et al. 1980).

According to the health belief model, an individual's state of readiness to take action for a health condition is determined by four dimensions (Figure 3.3). First, there is the perceived susceptibility to the condition and the probable severity of the condition, defined either in terms of physical harm or interference with social functioning. Secondly, there is the perception of benefits associated with actions to reduce the level of threat or vulnerability. Thirdly, there is the assessment of potential barriers, including physical, psychological and financial barriers, and finally the general health motivations triggering appropriate health behaviour, including internal cues such as symptoms and external cues like interpersonal interaction and mass media communication (Harrison et al. 1992; Leavitt 1979; Bates et al. 1994). The health belief model can be characterised as a process model. The purpose of this type of model is assessment of the decision-making process involved in the use of professional health care. It is a client-centred model, because the clients' perceptions of disease, barriers and quality of care are the relevant determinants.

Figure 3.3

Four dimensions determining readiness to take action for a health condition

- The perceived susceptibility and the probable severity of the condition
- The perception of benefits associated with actions to reduce the level of threat or vulnerability
- The assessment of potential barriers
- General health motivations

The theoretical framework of the Three Delays, as described by Thaddeus and Maine (Thaddeus & Maine 1994) is an example of a health belief model. It is based on the assumption that delay is the key factor attributing to maternal death and that prompt and adequate treatment following the onset of an obstetric complication will lead to a satisfactory outcome in most cases[4].

Andersen's socio-behavioural model is a prediction model. Prediction models provide insight by predicting levels of utilisation and by describing patterns. They do not, however, explain why the process occurs. In Andersen's model three different categories of variables that influence the use of health care services are distinguished: need, enabling and predisposing factors (Figure 3.4).

Kroeger designed another model, which can also be described as a socio-behavioural model. He combined most of Andersen's need, enabling and predisposing factors, which he called independent variables, with so-called dependent variables reflecting the availability of different resources of health care, to predict individual choice of health care resource[5].

Figure 3.4 shows one of the first versions of Andersen's model, published in 1973. In the following years several studies were based on this model, often also criticizing and modifying it (Wolfe 1980; Riley et al. 1993; Aday et al. 1993; Cunningham & Freiman 1996). The model was criticised for lack of attention to social relationships and cultural aspects, and also because it did not include aspects that are important in the health belief models, such as attitude, values and knowledge of health and illness. Some authors criticised the model because it lacked dynamics and under-estimated the inter-relationships between factors other than the straight relationships that can be evaluated by using linear regression models (Mechanic 1979; Rundall 1981).

Andersen summarised the development of the model and the criticism it received (Andersen 1995). He presented a new version of his model, still based on the concept of the three groups of need, enabling and predisposing factors. Demographic factors, social structure and health

[4] Thaddeus and Maine's framework was used in the study focusing on the low utilisation of maternal health services in Kalabo District (Chapter 7).

[5] Kroeger's model was used as a guide in a study of health care seeking behaviour, which mainly concentrated on the decision to consult a traditional healer or to go to the hospital in the Kalabo District of Zambia (Figure 6.1)

beliefs are included in predisposing factors. Demographic factors are age, sex, marital status and past illness. Included in social structure are education, ethnicity, occupation, family size, religion and residential mobility. Social networks and cultural aspects would probably also fit in here, according to Andersen. Health belief, as a group of factors, was already named in the first model. Values concerning health and illness, attitudes towards health services and knowledge of disease were determinants to be measured. The enabling factors consist of family and community factors. Family factors are income, health insurance, type of service regularly used and access to regular source (e.g. hours of availability, distance to source, waiting lists). Andersen suggests that quality of social networks, or social support, probably fit in as enabling factors when adequate instruments for measuring this quality are available. Community factors are the ratios of health personnel and facilities to the population, differences in the price of health services, region of the country, and the rural or urban character of the region. This group of factors is of great importance, especially for health care utilisation studies that are carried out in low-income countries. In all the studies described in this thesis the community factors were found to be of paramount importance.

Need can be differentiated in perceived need, i.e. the personally experienced need, and evaluated need, i.e. the professionally established need. In fact, the personally experienced need can also be assessed, but the most important issue is to assess the extent to which professionally established needs meet the personally experienced needs. The evaluated need is representative of the biologically determined disease, and is necessary for standardised evaluation of the services used. In research on help-seeking behaviour and the use of services the perceived need is a better indicator for the patients' acts, and is therefore expected to provide better insight into help-seeking behaviour than the evaluated need. The perceived need is an interaction of probable biologically active disease and the perception of the patient influenced by health beliefs, experience, etc. This also relates to Kleinman's work, which was mentioned before.

The latest version of Anderson's model has been criticised for its lack of dynamic character. Feedback has been incorporated and outcome (patient's satisfaction) is an important factor that has been added.

However, the main importance of the model still lies in the structuring of ideas about the use of health care services. It indicates how the multitude of factors can be organised. Nevertheless, the inter-relationships between factors are so complicated that a model like this is still inadequate for a more exact and more mathematical approach to unravel the differences in the use of health care services.

Figure 3.4

The Andersen model

PREDISPOSING FACTORS	ENABLING FACTORS	ILLNESS LEVEL FACTORS
Demographic Age Sex Marital status Past illness	**Family** Income Health insurance Type of and access to regular source of health care	**Perceived need** Disability Symptoms Diagnoses General state
Social structure factors Education Race Occupation Family size Ethnicity Religion Residential mobility	**Community factors** Ratios of health personnel and facilities to population Price of health services Region of country Urban/rural	**Evaluated need** Symptoms Diagnoses
Beliefs Values concerning health and illness Attitudes toward health services Knowledge about disease		

Source: Andersen 1973

3.3 Quality of care

Quality of care is a high priority of the Zambian Ministry of Health, as can be concluded from the mission statement (Chapter 2). However, there is no precise definition of quality; either in the Zambian documents, or in health care literature in general. Terms such as quality assurance, standards of care and quality control are often used interchangeably.

It was Donabedian who developed a framework for defining quality of care and differentiated between observed and perceived quality of care. The observed quality of care focuses merely on the structure, the process and the outcome of care. Structure refers to facilities, personnel and organisation, process refers to interaction between provider and consumer, and outcome measures the extent to which the service interaction meets the consumers expectations. The observed quality of care relates to professionally defined standards of care, and the perceived quality of care reflects the views of the users of the care (Donabedian 1979).

Donabedian's paradigm leads to two important issues. Firstly, the patients perception of the quality of care is important in understanding the relationship between quality of care and the utilisation of health services. It is important to be aware of factors that consumers consider to be important indicators of quality. Donabedian stated that prerequisites for improving the quality of care are careful definition of priorities, taking the interests of all stakeholders into account, and examination of the extent to which organisations concerned with quality improvement have focussed their efforts on the key strategic plan of the Ministry of Health (Donabedian 1980). Secondly, barriers that impede the quality of health care are not included in Donabedian's paradigm. Cultural factors, associated with beliefs, expectations and values with regard to health, can be important in understanding the failures and successes of the Zambian Health Reforms. Research on quality of care should not only be directed at the specific aspects of structure, process and outcome, but should also investigate underlying beliefs, values, norms and behaviours.

The secret of providing high quality care lies in the ability to match the services offered to to the needs of the consumers. The services should be meaningful for the consumers, which means that they should be directed at their needs and should be readily accessible and affordable, so their expectations will be met and they will be satisfied with the services provided.

If the consumers' and the professionals' perceptions of problems ('illness' and 'disease'), needs, treatment ('curing' and 'healing') and quality match (and services can be accessed), the services will be meaningful.

3.4 Determinants of utilisation in the socio-behavioural model

In this section various determining factors for the use of health services in maternal and child health care are discussed. At first, the structure of Andersen's model will be followed closely. Subsequently, those factors from the health belief model which do not overlap will be discussed.

Many authors describe age, gender and socio-economic status as factors that influence the use of child health care services. In European and American studies the use of services is reported to be higher in children under five years of age, after which it decreases and then increases again in puberty. Boys are reported to make more use of services than girls, but in multivariate analyses gender is not a significant factor. In Asian studies (Bangladesh, India), however, boys are more highly valued than girls, and therefore make more use of the health care services. Other factors, such as the difference in morbidity between boys and girls, are more significant determinants of use (Bosch 1992). In families with a lower socio-economic status the children were found to have a higher prevalence and increased severity and burden of illness (Egbuonu & Starfield 1982; Bor et al. 1993). American studies investigating access to health services found that less use was made of services by the lower socio-economic classes (Newachek 1992; Wolfe 1980; Aday et al. 1993). Other studies showed a relationship between low family income, or low socio-economic status, and higher use of child health care services (Bor et al. 1993; Bruijnzeels et al. 1995).

In many studies family factors were investigated. The frequency of visits of mother and child are strongly related (IJzermans & Oskam 1990). Some studies found that young mothers and single mothers initiated more use of health care in their children (McCue et al. 1985; Vuorinen 1990), although others found less use of the services by children in one-parent families (Aday et al. 1993), or no clear relationship (IJzermans & Oskam 1990). First-born children make more use of health services, compared to later-born children (Fosarelli et al.

1987; IJzermans & Oskam 1990; McCue et al. 1985), which could be explained by experience of the parents. The more experienced mother is less likely to seek health care for her child's problems. The propensity to seek care seems to be an independent factor related to the use of health services (Kirscht et al. 1976). Parental level of education, especially that of the mother, was reported to be an influential factor in the use of health services. Better educated parents make more visits for their child (Newacheck 1992; Aday et al. 1993; Newacheck & Halfon 1986), but a relationship between a lower educational level of the mother and higher use of services by the child has also been reported (Tessler 1978; Bruijnzeels 1996).
Many more authors have reported the influence of different family factors on the use of health services (education of the father, occupation of the father, occupation of the mother). In the Netherlands, many family factors seem to influence health care seeking behaviour, but the direction of these factors is often unclear, and the importance of this group of factors in multivariate studies is relatively low (IJzermans & Oskam 1990).

Educated women more frequently give birth in health facilities, compared to those with a lower level of education (Kwast et al. 1984). The Kisii study in Kenya reached the same conclusion (Raikes 1990). Already in 1986 Caldwell suggested that the best way to decrease morbidity and mortality in children was to educate their mothers (Caldwell 1986).

Race or ethnicity was found to be an important indicator for the use of services in American studies (Tessler & Mechanic 1978; Riley et al. 1993; McCue et al. 1985; Newacheck & Halfon 1986). It is not unrealistic to assume that ethnicity could also be an important factor in many African countries, but no relevant information could be found on this. Compared to the results of most American studies, the frequency of visits made by immigrant children in the Netherlands is higher, indicating good accessibility of the health care services (Bruijnzeels et al. 1995).

Schiller and Levin reviewed decades of studies on religion and health care utilisation and found no relationship at all (Schiller & Levin 1988).

Transport and distance to the nearest health care facility are factors that have been reported to influence the use of services. They are often investigated in relation to rural or urban location, which is an additional enabling factor in the Andersen model. The direction of the influence varies in the different studies (Newacheck 1992; Woodward et al. 1988; Bruijnzeels et al. 1995; Petersson & Hakanson 1996; Goodman et al. 1994; Van Sonsbeek 1984).

Beliefs, values concerning health and illness, attitudes towards health services and knowledge about disease are dimensions which are often not included in studies on the use of health services. A lack of reliable measurement instruments is one important reason for this. Structured questionnaires and scales have been developed to measure parents' values concerning health and illness, but very little information is available in the literature with regard to their association with help-seeking behaviour (Wallston et al. 1978; Raja et al. 1994).

Many authors believe that socio-cultural beliefs influence maternal mortality in Africa. The influence of gender differences, power relationships, and differences in roles and status between men and women have been described (Mukhopadhyay & Higgins 1988; Caldwell & Caldwell 1990; Koblinsky et al. 1993; Vlassoff & Bonilla 1994).

The Kisii study conducted in Kenya, revealed that traditional birth attendants are only called in to assist deliveries when there is already a crisis. This attitude towards the services which can be offered by traditional birth attendants can lead to unnecessary delay in obtaining adequate medical care (Raikes 1990).

In a study carried out by Becker et al. it was found that mothers with an active, controlling orientation towards their own and their children's health, were more likely to visit preventive services, generated less visits for acute illness and accidents, and perceived their children to be in better health (Becker et al. 1977).

Health care interactions are social interactions, and the social relationship of the patient with the health worker can influence the utilisation of services. Individual beliefs about health care professionals and reactions to the health care that is received (e.g compliance to therapy) affect the likelihood of seeking care (Ditto et al. 1995). Several studies indicate that patient satisfaction may be an important factor in the (level of) use of health services (Krol 1985; Boink 1996). Satisfaction is partly related to meaningfulness.

In Benin, a group of 24 women who all gave birth in the hospital, half by caesarean section, said that they were unable to ask questions and were often humiliated and mistreated by midwives during their stay. Moreover, in their testimonies they explained their dependence on their husbands. They had to negotiate with their husbands for the money to pay for the visit, which often led to quarrels and anger over their financial dependency (Grossmann-Kendall et al. 2001). Chapters 7 and 8 give more examples of the low status of women, their dependency, and even cases of violence against women.

In some Southern-Asian societies 90% of the deliveries take place at home. One of the reasons why the mothers give birth at home is that many health institutions are staffed by male professionals and in some cultures it is not acceptable for men to be involved in childbirth (Starrs & Measham 1990).

Chintu & Susu described other factors that play a role in women's decisions to give birth at home in Africa. They mentioned fear of taboos, fear of being assisted by a young, unmarried girl with no experience of childbirth, fear that breaking protective rituals will lead to stillbirth, fear because of stories about operations, IV-lines and tubes inserted in various places and strange, medical language used by the health workers (Chintu & Susu 1994).

In Botswana, 41% of the women who preferred to give birth at home said that they did so because of the use of traditional medicine and abdominal massage, and also because they were reluctant to entrust the disposal of their placenta to strangers like nurses (Chipfakacha 1994).

In Uganda, adherence to traditional birthing practices, beliefs that pregnancy is a test of endurance and that maternal death is a sad but normal event, are reasons for women to give birth at home. Complaints about abuse, neglect and poor treatment in hospitals, and poorly understood reasons for certain procedures, plus the health care workers' views that women were ignorant, also explain the unwillingness of women to give birth in health facilities or to seek care for complications (Kyomuhendo 2003).

The conceptualisation of childbirth as "the woman's battle" was also found to be prevalent in West Africa, where maternal mortality was referred to as "she fell on the battlefield in the line of duty" (Diallo 1991).

The view that birthing wiled immense power, attributed to the unique nature of childbearing, is especially noticeable in societies where women command much less power than men in the

public domain (Howson et al. 1996). The examples mentioned above clearly show that, especially in remote and rural areas, a wide gap can be expected to be found between perceptions of disease, need and quality of care between the providers and the (possible) consumers of the care. These are the very districts in which low utilisation of services is reported. Therefore, in districts like Kalabo great effort should be made to try to understand the needs and expectations of the patients.

The accessibility of health services is not a problem in Europe or Australia. Nevertheless, an Australian study demonstrated that even small financial barriers could restrain parents with low income from using health services for their child (Taylor 1994). This is a signal that even in countries with highly accessible health care services changes in insurance policies can cause access problems for low-income families. Access to care and adequate insurance coverage are closely related (Butler et al. 1985). Financial accessibility was reported to be a problem in a study in Ghana. Costs related to the payment of hospital fees, the purchase of drugs and blood and the upkeep of relatives accompanying the patient to the health institution are factors that discourage people to use health facilities (Opuku 1996).
In South Asia, the distance to health facilities has been cited as one of the reasons why mothers do not use health facilities (Starss & Measham 1990). In Ghana, distance and lack of transport were identified as factors contributing to low attendance of health services (Kikwala Study Group 1995). The referral of mothers from the rural health centre to the hospital is a problem in some areas of Ghana, and the health centres have no ambulance and no means of communication with the hospital (Opuku 1996).

Social structure is an important factor in the process of health and illness. Social support fits into the category of enabling factors in Andersen's model (Andersen 1995). Not only quality, but also quantity and availability of the social network, are of influence on the amount of support received. The health norms of the network and belief in the efficacy of medical care are important factors that determine whether or not the received support will lead to increased or reduced use of the health services (van Enk 2002). When the health norms are pro-medical, a large close network with frequent contacts is likely to increase the frequency of health visits

(Scambler 1981). Trust in the efficacy of medical care is an important factor that is necessary for lay-advice to influence the decision to seek care (Kooiker 1996).
In societies in which the woman's social status is low, the relatives make decisions to seek health care. A survey conducted in Nepal revealed that mothers in-law play a key role in the decision-making with regard to family activities, including care during pregnancy and childbirth (Starrs & Measham 1990). This is also found in other South Asian countries. The same situation, i.e. women being dependent on relatives to make decisions about seeking health care, is known to exist in many African countries, but there is very little relevant data available.

Ratios of health care personnel and facilities to the population, as well as the price of health services, are factors that logically influence the use of services in a health care system. Most nurses and midwives in Africa are concentrated in urban areas, rural health institutions are frequently understaffed, there is a shortage of drugs, equipment and supplies, and relatives have to buy the items that are not available from the services (Opuku 1996). The same situation exists in Zambia, as described in Chapter 2.

3.5 Determinants of utilisation in the health belief model

In the health belief model four dimensions can be discerned (Figure 3.3). Since the different models in health care service overlap considerably, many of the items included in the health belief model have already been discussed in the previous section.
An individual's readiness to take action for a health condition can at first be dependent on the perceived susceptibility to the condition and the probable severity of the condition, defined either in terms of physical harm or interference with social functioning. The perceived threat of a child's illness is related to the use of services (Kirscht et al. 1976; Becker et al. 1977; Campion & Gabriel 1985; Levy 1980). Previous experiences with medical problems, and especially fear of recurrence, is an important factor that increases the use of services by parents who consider their child to be vulnerable. Family stress can be another factor (Roghmann & Haggerty 1972).

The second dimension of the health belief model, the perception of benefits associated with actions to reduce the level of threat or vulnerability, is very similar to the orientation to health services, which was discussed in relation to the Andersen model.
The third dimension of the health belief model concerns the evaluation of potential barriers in the use of health care, e.g. availability of services, distance, financial costs, etc.
Most of the determinants, which can be grouped under the fourth dimension of the health belief model, have already been discussed in relation to the Andersen model. These can be internal cues, such as symptoms and health orientation or external cues, such as interpersonal relationships (e.g social support) or information received.

3.6 Conclusion

Both the Andersen model and the health belief model, as well as variants such as Thaddeus and Maine's conceptual framework of the three phases of delay and Kroeger's socio-behavioural model, are very often used in research of the use of health care services. They all have in common that they try to logically group the numerous determinants that play a role in decisions about whether, when and where to go to get treatment for an illness. Psychosocial factors are the basics of the health belief model, and the model is more strongly orientated towards the process of decision-making. Many questions need to be answered concerning the direction in which psychosocial factors influence the use of health care services. The health belief model and the socio-behavioural model can be complementary when used in research on the use of health care services.

The wide variety of factors which were found in the various studies to influence decisions with regard to the utilisation of health care, shows that there is no universal truth. Every situation and every district has its own specific characteristics, which make the outcome of the decision-making process different every time. No 'magic bullets' from Washington or Geneva can be expected to solve the specific problems of district health care. Demand-driven research is needed to discover the specific truths in each specific situation.
In the studies presented in this thesis, various models were used, sometimes implicitly, sometimes explicitly. In the study focussing on the utilisation of maternal health care (Chapter 7) the concept of the three phases of delay developed by Thaddeus and Maine was applied,

since it so closely fits the reality. Maternal death is usually caused by delay in these three repetitive phases. Analysis of what happened in each phase makes it clear where improvements can be made. The review of maternal mortality (Chapters 8 and 9) deepens the understanding of what happens during the third phase of delay: sub-standard care in hospitals. Kroeger's socio-behavioural model was used in the study of health care seeking behaviour and the utilisation of traditional healers (Chapter 6), since it so explicitly shows the influence of independent variables on the choice of where to seek help.

After combining the information about Zambia and its health care system (Chapter 2) and the factors which can be of importance in investigating the utilisation of health care (this Chapter), one can conclude that the poor economic situation, combined with the HIV/AIDS epidemic, has a very negative influence on many demographic, social, family and community factors. However, there is more involved than poverty and a shortage of staff. Public health experts and other specialists who are trying their best to help to find the way forward will not be able to improve the economic situation or to reverse the 'brain drain'[6]. However, those who state in political debates about development cooperation that only economical development will help to improve the situation are not right. Other factors, concerning values and beliefs, attitude, perceived versus evaluated need, and the difference between illness and disease and cure and care, are at least equally important in understanding the way forward.
Of course, increasing the budget for health care in Zambia from USD 10 per capita to USD 25 per capita will help a lot, but it will not solve the problems caused by the gap between the providers and the consumers of health care that is caused by differences in perception.

[6] The 'brain drain' refers to the situation in which many highly educated people leave their country, because they expect life to be better elsewhere. Even though Zambia has an absolute shortage of doctors, many Zambian doctors work in other countries, such as Botswana, South Africa, and the United Kingdom (see Chapter 2, section 2.6)

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4 Factors contributing to the high mortality due to pneumonia among under-fives in Kalabo District, Zambia

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4.1 Abstract

Objective

To determine factors contributing to high mortality due to pneumonia among children under five years of age in Kalabo District.

Methods

In a cross-sectional descriptive study 78 mothers and 16 health workers were interviewed using structured questionnaires. Focus group discussions were held with groups of women who did not take part in the survey. Registers, patient records, drug stock control cards, drug stores and equipment were reviewed or checked.

Results

Pneumonia is an important public health problem in Kalabo District. Knowledge about the disease and its treatment is inadequate, both in health workers and in mothers. Low birth weight and distance contribute to high mortality, and Mother and Child Health (MCH) clinic visits protect against mortality.

Conclusion

To reduce the problem of pneumonia in Kalabo District, the District Health Management Team should concentrate on education of the community and the health workers. The community should be educated to recognise the signs and symptoms of pneumonia and to understand the importance of early and adequate treatment. As MCH clinics can play an important role, health workers, especially at rural health centre level, should be re-trained in case definition, case management and the use of available protocols.

Strategies to fight the impact of pneumonia in the district should be part of an integrated package of care, focussing on all other prevalent childhood diseases, as they overlap in many cases.

4.2 Introduction

Kalabo District is one of the seven districts in the Western Province of Zambia, bordering with Lukulu District in the north, Mongu District in the east, Senanga and Shangombo Districts in the south and Angola in the west. The district covers an area of 17,447 square kilometres and has a population density of only seven people per square kilometre, with a total population of 114,996 (CSO 1996). There are no tar roads, no organized public transport, very few vehicles and poor communication infrastructure.

The district has 2 hospitals and 14 rural health centres. The 146 community health workers and 76 trained traditional birth attendants deliver health services at community level. The district health services are facing a critical shortage of staff, resulting in only three of the rural health centres being staffed by a clinical officer. In all other centres, other cadres deliver curative services, including the treatment of pneumonia.

Recent global estimates indicate that 10 million children aged below 5 years die annually and that 99% of these deaths occur in developing countries, with 70% caused by infections. According to 1985 estimates by the World Health Organization and the United Nations Children's Fund, acute respiratory infections (ARI) are the primary cause of mortality in children under five years (4.1 million deaths/year), followed by diarrhoeal diseases (3 million), measles (1.16 million), and malaria (0.9 million). Malnutrition contributes to about one-third (29%) of these deaths (WHO 1995).

The annual reports of Kalabo District Health Service document pneumonia as the primary cause of mortality and the second largest cause of morbidity in children under 5 years of age, ever since proper data became available in 1992. The case fatality rate in the health institutions in Kalabo District has been between 10% and 15% (Kalabo District Health Services 1992 - 2000).

The 1990s have seen a remarkable decrease in mortality among infants and children in most developing countries. In some countries, particularly in sub-Saharan Africa including Zambia, decline in mortality among children has slowed and is now increasing again (Rutstein 2000). The pandemic of HIV/AIDS, which also affects children, plays an important, though not yet measured role. Zambia is badly affected by HIV/AIDS. The HIV prevalence for population

between 15 and 49 years of age in Zambia was estimated 19.7% in 1998, and is still increasing (CboH/MoH Zambia 1999).

Much research has been carried out to identify risk factors and contributing factors for pneumonia. These are numerous and vary between studies: chest indrawings, raised respiratory count, hepatomegaly, age below one year, grunting, malnutrition, low birth weight, history of previous admission, smoking caretakers, underlying heart disease and day-care attendance are among the most mentioned factors (Deivanayagam et al. 1992; Suwanjutha et al. 1994; Gupta et al. 1996; Demers et al. 2000; Rice et al. 2000).
The District Health Management Team has made use of assumptions to develop strategies to reduce the morbidity and mortality due to pneumonia for many years, without exactly knowing the important factors in Kalabo District. Findings from supervision visits by members of the District Health Management Team led in the direction of re-training health workers, with emphasis on the treatment of dual infection with malaria and pneumonia, a combination, which is also mentioned in literature as important with regard to mortality due to pneumonia (English et al. 1996). The possible important role of community health workers in case detection and management of pneumonia (Mehnaz et al. 1997) was also acknowledged.

Community health workers and rural health centre staff were re-trained in case definition, case management and the indications for referral between 1997 and 1999. Emphasis was placed on the use of simple clinical signs, like counting the respiration rate and checking for chest indrawings. Although some authors complain about the insufficient sensitivity of such signs (Falade et al. 1995), it is the only possible method in a rural district like Kalabo. Buffer stocks of essential drugs for treatment of pneumonia were secured and the referral system for patients suffering from severe pneumonia –another important step to decrease mortality figures (Rasmussen et al. 2000) - was improved at all levels. Nevertheless, there was no improvement in mortality and morbidity figures and case fatality rates (Kalabo District Health Services 1992 – 2000).

4.3 Objectives

This study aimed to identify the factors that contribute to high mortality of pneumonia among under-fives in Kalabo District, with the final objective to formulate feasible recommendations to the District Health Management Team to reduce pneumonia mortality and to reduce the case fatality rate for pneumonia from 12% to 5% in the coming 2 years.

Specific objectives were to confirm and determine the magnitude of pneumonia mortality in the under-fives and to get a holistic picture of factors contributing to mortality by using several sources of qualitative and quantitative data.

4.4 Methods

A cross-sectional descriptive study was conducted. The relationship between the problem and the contributing factors was studied in a range of communities with different views, perspectives and environments. A team of four specially trained health workers who used standardized methods, collected all data. Questionnaires were pre-tested in the catchment area of one rural health centre that was not included in the study, to enable the researchers to try out and revise the methods and logistics for data collection. Appointments for interviews were made well in advance. Village headmen and rural health centre staff were the first contacts. They were informed in advance, seeking authority to conduct the study in their areas. The local language (Silozi) was used in all interviews and discussions.

We cluster-sampled the catchment areas to determine the study unit. Six of 14 rural health centres in the District were selected by lottery; Sihole, Liumba, Tapo, Kuuli, Kaluwe and Mambolomoka. Each health centre was visited once. Mothers or caretakers of patients under 5 years of age, diagnosed with pneumonia, were randomly selected from the rural health centres' outpatient registers and then visited at home for interviews. The caretakers of every third child were selected. Interviewers received full-day interview training.

Three groups were interviewed, using structured questionnaires: (1) 78 mothers of children under 5 years of age, who suffered from pneumonia in 1999, (2) four health workers from the two hospitals and (3) all 12 health workers from the six selected rural health centres in the district. The sample size of mothers was conveniently determined as 20% of the total number of pneumonia cases in 1997.

The health workers at the hospitals were randomly selected and interviewed to determine the quality of case management standards. No untrained health workers were included in the study.

Possible answers to 'knowledge-questions' were categorized in advance. To determine knowledge about the case definition of pneumonia among health workers, a standardized grading, in line with the standard case definition from the WHO (1995), was used. A comparable grading was used for testing mothers' knowledge about the signs and symptoms of pneumonia. Those who mentioned four or more correct signs or symptoms were counted as having good knowledge; less than two were counted as bad and 2 – 4 scanty.

Six focus group discussions were also held with 15 mothers each, who were found at the rural health centres' premises at the time of the visit. The participants in the focus group discussions were not included in the interview-group. The focus group discussions served to discuss some of the findings from the questionnaires with mothers in a friendly, protected and traditional atmosphere, thus encouraging the mothers to talk freely. The principal investigator chaired the discussions and one of the other research team members recorded. The other two members of the research team recorded their observations. After the meeting, the full discussions were transcribed and analysed by the entire team.

Registers, outpatient records, quarterly returns and inpatient records at the six selected rural health centres were checked to establish the diagnostic skills, case management and prescription habits of health care personnel. The findings were used to evaluate the results from the questionnaires and as a starting point in discussions with the health workers. Stock control cards and drug stores were checked to see the stock levels of drugs (antibiotics) used in the treatment of pneumonia.

Data were analysed using frequency and cross tabulation tables. Chi-squares were calculated by hand, for most correlations. As the study was conducted without computers, no further statistical programmes could be used.

4.5 Results

Structured interviews with 16 health workers showed that they considered pneumonia to be one of the major causes of death and disease in the District. Of the health workers, 81%

mentioned pneumonia as one of the top five causes of morbidity and 88% mentioned pneumonia as one of the top five causes of mortality in Kalabo District. In focus group discussions mothers also confirmed that pneumonia is one of the major causes of death and disease of their children.

The same health workers were asked to give the case definition for pneumonia. Only four respondents had full knowledge of the case definition, nine had scanty and three no knowledge at all. Regarding the question how to diagnose pneumonia in young children only two mentioned counting the respiration rate.

The case management for pneumonia turned out to be unstandardised. Only 3 respondents said they had treatment protocols in their institution. Indications for admission to the ward were also not clear; eight respondents said they always admitted patients with pneumonia, the other eight did not. The drug of choice was benzylpenicillin for 14 of the interviewed health workers, which is still the first choice according to the National Guidelines (Central Board of Health 1996). Other drugs that were mentioned were co-trimoxazol, amoxycillin and procaine penicillin. Ten health workers gave benzylpenicillin injections four times daily (the correct treatment regime), one three times daily, one two times daily and four once a day. The duration of the treatment was 5 days in 14, and 3 days in two cases, according to the health workers.

Because of the critical shortage of trained staff in the district, only eight of 16 prescribers interviewed were clinical officers, which is still an overestimation of the real situation. Other cadres who prescribe drugs, including antibiotics, were nurses (6) and environmental health technicians (2). The drug position was good in four of the rural health centres that were visited, with sufficient stocks of eight essential drugs from a monitoring list throughout the year. In one health centre, it was bad (absence of at least two essential drugs in all quarters of the year) and in one, it was fair. The main reasons mentioned for the poor drug situation were insufficient distribution because of long distances and floods.

Eighty-eight per cent of interviewed health workers valued the referral system as poor. They said that many mothers go back to their village with their children after they have been referred to the District Hospital, because of long distances, poor transport system, financial problems and poor communication between the units.

Comparable variables that were investigated in interviews with health workers were also tested in the community. In 96% of cases, the respondent was the mother of the child, in 4% it was an aunt. All respondents were taking or took care of a child below 5 years who suffered from pneumonia in the year before. In 47% of cases, the child was <1-year-old on the day of the interview, in 28% between 13 and 24 months and in 19% between 25 and 60 months. Twenty-seven per cent of respondents were 16-25 years and 65% 26-49 years old.

Differences in mortality and case fatality rates for housing standards, distance to the health institution, delay in seeking medical care, low birth weight, Mother and Child Health (MCH) attendance and nutrition status are summarized in Table 4.1.

The socio-economic situation of most respondents and their children turned out to be poor, with 73% of respondents living in temporal and unventilated houses, but type of housing was not correlated to mortality and did not influence the case fatality (Table 4.1).

Mortality and distance are strongly correlated; the difference between mortality in the ‘less than 1 hour group’ and the ‘more than 1 hour group’ was statistically significant. Delay in seeking medical care at a health institution was prevalent with 66% of respondents delaying more than 2 days before going to the clinic. However, the differences found in mortality were not significant.

The birth weight of children was known in 53% of cases, which means that they were born in a health centre, hospital or under the supervision of a trained Traditional Birth Attendant (tTBA) or a Community Health Worker (CHW). The relation between low birth weight and mortality due to pneumonia was quite clearly confirmed in the study. Of a sample of 18 children that were born with low birth weight (< 2500 gram) 14 were alive. The other 4 had died of pneumonia, giving a case fatality rate of 22%, which is significantly higher than the other groups (birth weight unknown and > 2500 gram) with case fatality rates of 9 and 8%, respectively.

The relation between nutrition and pneumonia was investigated by comparing findings from the growth monitoring cards with mortality caused by pneumonia. A significant correlation was found between MCH care attendance and pneumonia mortality (Table 4.1) with the highest case fatality rate (50/100) in the group of children who did not come for growth monitoring. No significant difference was found between children above and children below

the third percentile in weight and height for age curves, although a clear difference in case fatality rate was found (Table 4.1).

The mothers, who mentioned treatment with injections in 83% of cases, confirmed the finding among health workers that 88% use benzylpenicillin injection as the treatment of choice. The answers about the frequency of treatment, although, showed remarkable differences with information provided by health workers, 63% of whom said they give benzylpenicillin injections four times daily, 6% three times daily, 6% two times daily and 25% once a day. However, only 35% of the mothers mentioned to have received treatment for their children four times a day, 23 % three times daily, 24% two times daily and 17% one time daily. In focus group discussions mothers mentioned that health workers sometimes just leave the station, so that injectables are not given.

The mothers' knowledge of the signs and symptoms of pneumonia was also tested. Only 23% were very familiar with the cardinal signs and symptoms of pneumonia (mentioning of at least 4 signs and symptoms); 58% had scanty information (mentioning of two or three) and 19% of respondents had no knowledge (mentioning of less than 2 signs and symptoms). Hence less than a quarter of caretakers can take a correct and timely decision about attending a clinic. In focus group discussions, mothers, including the group with good knowledge of signs and symptoms of pneumonia, mentioned that pneumonia and severe malaria are difficult to distinguish.

The guardians were also asked about the barriers to visit health institutions. No money to pay the user fees was mentioned as an obstacle by 36% of the caretakers and lack of transport possibilities by 4% of respondents. Fifty-nine per cent did not perceive any barriers. The issue of 'no money to pay the user fees' was intensively discussed with the mothers in the focus groups, as, according to the policy, children below the age of 5 years are excluded from paying medical fees. It was mentioned that some health workers, especially in the health centres, do charge a fee, even for small children. Most mothers did not know that they did not need to pay for treatment of their under-fives.

Patient satisfaction was high, with 94% of respondents appreciating the treatment. Even some of the mothers who lost a child acknowledged that the health staff did everything possible, but said that 'the child did not come to stay with us', showing fatalism in a society with child mortality exceeding 10%.

Table 4.1 Results

	FREQUENCY	PERCENTAGE	CASES OF DEATH	CASE FATALITY
Housing standards and pneumonia mortality (type of house) (x^2 = 0,166)				
Unventilated	57	73	7	12/100
Ventilated	21	27	2	10/100
Distance and pneumonia mortality (walking time) (x^2 = 15,251; p<0,001)				
Less than 1 hour	49	63	3	6/100
More than 1 hours	29	37	6	21/100
Number of days before seeking medical care (delay in days) and pneumonia mortality (x^2 = 2,031)				
1	13	17	0	0
2	13	17	2	15/100
More than 2	52	66	7	13/100
Low birth weight and pneumonia mortality (x^2 = 14,9; p<0,001)				
Birth weight below 2500 gram	18	23	4	22/100
Birth weight above 2500 gram	23	29	2	9/100
Birth weight not known	37	47	3	8/100
MCH attendance and pneumonia mortality (x^2 = 16,632; p<0,001)				
Attended	68	87	4	6/100
Did not attend	10	13	5	50/100
Nutrition status and pneumonia mortality (x^2 = 2,241)				
Above the 3rd centile	58	74	2	3/100
Below the 3rd centile	10	13	2	20/100
No growth card	10	13	5	50/100
TOTAL	**78**	**100**	**9**	**12/100**

4.6 Discussion

The small sample size, especially regarding health workers, combined with the low number of deaths, resulted in limited statistical power. As a result, only marked associations were significant. All data analyses, frequencies, cross-tabulations and chi-squares, were carried by hand and confounding was not examined. For some of the tables chi-squares were not valid because of low cell frequencies. Nevertheless, the use of both quantitative and qualitative methods, complementing each other, in this simple health system research, allows the reader to draw some conclusions concerning factors contributing to high mortality due to pneumonia among under-fives in Kalabo District. This is an example of demand-driven research conducted by locally trained health managers, which was conducted with a very low budget and led to results and recommendations which could immediately be implemented at the same local level. As such, it shows progress in the Zambian health system, where local health workers at the district level were trained to use health system research as a tool for policy and planning purposes.

Structured interviews with 16 health workers showed that they considered pneumonia to be one of the major causes of death and disease in the district. Focus group discussions with mothers revealed that they recognised pneumonia as a serious disease and perceived it to be an important cause of death of children in the community. The case fatality rate in this study was 12%. Case management of pneumonia was inconsistent and not standardised, which shows that former training programmes, pre-service and in-service, have been ineffective, although turnover of staff should be considered, as far as efficacy of in-service training is concerned. Half of the respondents answered that they do not usually admit under-fives with pneumonia, which probably means that many patients die in the community. This indicates that institutional data can never give a full picture of the situation. It was also discovered that some health workers do things differently from what they say: 87% recommended the use of benzylpenicillin as first-choice treatment, but one wonders how this treatment regime (four times daily) can be followed in outpatients. Only 35% of the mothers confirmed that their children had received the injections six-hourly.

Half of the rural health centres visited are operated by personnel who are not adequately trained to run curative health services. Surprisingly health workers do not appreciate the

Integrated Technical Guidelines for frontline health workers, provided by the Central Board of Health (CBoH 1996) and available in all institutions, as a treatment protocol.

An alarming finding is that there is hardly any difference between knowledge about the case definition of pneumonia between health workers and mothers. This means that making an informed, timely and correct decision about seeking care or referring a patient is not possible in many cases. Other authors have mentioned comparable findings. In Bangladesh 8.5% of 56 physicians were found not to record any signs of severe pneumonia to support their diagnoses. A majority of Pakistani mothers were found to recognise the most important risk factors for pneumonia, but were not able to see the seriousness of the signs (Mull et al. 1994; Kundi et al. 1993).

Inadequate growth (below the third percentile on the growth chart) was not likely to be a risk factor in this study, but not attending the MCH clinics at all showed a very strong correlation with pneumonia mortality. It means that efforts to encourage mothers to visit the clinics should be continued and intensified, especially if education about the prevention of pneumonia and the recognition of early signs can be integrated in the education sessions. Knowledge of health workers, the facilitators during the education sessions, should be improved first.

The birth weight was known in 53% of cases, which means that the percentage of mothers who delivered under supervision of a trained health worker (hospital, health centre, trained Traditional Birth Attendant, Community Health Worker) was quite high in this selection, compared with other available data, giving the percentage of supervised deliveries ranging from 25 – 40 in Kalabo District. The sample method probably resulted in selecting respondents familiar with the delivery of health services at the health centres, thus leading to better utilisation of services. However, birth weight <2500 gram was an important contributing factor to pneumonia mortality. It must be born in mind that other adverse factors such as HIV/AIDS, tuberculosis, syphilis, malaria, anaemia, which are associated to low birth weight and malnutrition, can also contribute to this finding (Graham 2001; Zar et al. 2001; Perry et al. 2000). Reliability of clinical diagnoses of rural health centre staff is limited as was concluded earlier. Differentiation with malaria, tuberculosis, and severe anaemia can sometimes be difficult.

Selection criteria for community respondents were based on the history of pneumonia in one of their children, diagnosed by a health worker in one of the Clinics. As diagnostic skills of health workers were found to be poor, it is possible that some of the respondents' children suffered and died from a disease other than pneumonia, implying that mothers were selected wrongly because of insufficient diagnostic skills of health workers. Most probably, mothers of children who once suffered from pneumonia but never attended a clinic were not included in the study.

Shortage of drugs was not a contributing factor. Most rural health centres had had sufficient stocks of essential drugs in the previous four quarters. However, it is a known fact that supply of drugs in Zambia is not reliable. Shortage of drugs can still be an important contributing factor to mortality from pneumonia at other times. Resistance patterns were not studied and no literature data from Zambian studies could be found, but penicillin resistance, especially for Streptococcus pneumoniae, could be another factor of concern. More research is needed in Zambia to investigate the possibility of resistance contributing to treatment failures and mortality.

There was no clear relation between housing and pneumonia case fatality rate, although the overall picture of a very poor socio-economic situation and poverty definitely contributes to high incidence and mortality due to pneumonia. The ventilation of houses did not show a significant correlation with pneumonia mortality. One might question whether ventilation is a true indicator for socio-economic development or not. On the other hand, the direct effect of ventilation could be an increase in morbidity, but not in mortality.

Delay in receiving adequate medical care did not make a statistically significant differences. However, one of the reasons for delay, distance, does have a significant impact on mortality. Those who have to walk more than 1 hour have a higher risk of dying. In focus group discussions, other reasons for delay were mentioned: long waiting hours in the institutions and user fees; they prefer to wait to see whether the child will recover on its own. Leaving other children at home, an unwilling husband and shortage of food to eat during travelling and blankets form other barriers for women to travel to a clinic. Mothers confirmed in focus group discussions that on most occasions they do not follow the advice of CHWs to go to the clinic. The same situation counts for referrals from rural health centres to the hospitals, distance and

lack of transport again being the most mentioned reasons. Apparently, a combination of rather practical reasons form barriers for women to travel to and visit health institutions.

The performance of available CHWs and the possibilities for training more of them were not assessed in this research, because of limitations in resources. Another study in 2000 showed performance problems of CHWs in Kalabo District, mainly because of poor selection criteria and overemphasis on curative services (Stekelenburg et al. 2003). But input of CHWs is a possible way of closing the gap between supply and demand of health care. As distance remains an important factor related to morbidity and mortality caused by pneumonia in Kalabo District, the health system should continue to concentrate on the performance of CHWs. Their active case finding and case management has a significant impact on mortality (Dutta et al. 1978; Kielman et al. 1983). In rural districts in Zambia and other countries of sub-Saharan Africa heavily suffering from the HIV/AIDS pandemic, the human resources crisis will not be solved in the next ten to twenty years (Stekelenburg & Sikanda 1998). Training and use of CHWs remains one of the few achievable, affordable and sustainable solutions, to contribute to achieving a situation of 'equity of access to a cost-effective quality health care, as close to the family as possible'.

4.7 Conclusion

The problem of high mortality due to pneumonia is generally perceived as a public health problem, from both the health service and community point of view. Incidences, mortality and case fatality are high. The disease deserves full attention from the District Health Management Team. Because of the HIV/AIDS epidemic the burden of diseases caused by or related with HIV will continue to play a major contributing role to high mortality in under-fives, including mortality from pneumonia (Mahdi et al. 2000; Taha et al. 1999). In Kalabo District, knowledge about pneumonia, both in the communities and in health workers, is inadequate. This leads to a situation where mothers are not able to decide when to seek medical care and health workers do not know when to refer the patient to higher levels of care. Diagnostic and treatment skills are also poor. None of the health workers use treatment protocols, though available in all institutions. Low birth weight and long distances from home to the health institution, in combination with several rather practical barriers, are contributing

to mortality. Children who do not visit the MCH clinics have a higher risk to die from pneumonia.

Recommendations were formulated to the Central Board of Health, the District Health Management Team, and the rural health centre staff, to redress the problems and weaknesses identified in the study. The District Health Management Team should concentrate on education of the community (Muhe 1996; van Ginneken et al. 1996), CHWs and rural health centre staff (trained health workers). Strategies to fight the impact of pneumonia in the district should be part of an integrated package of care, focussing on all other prevalent childhood diseases, as they often overlap (WHO 1995).
The community should be further educated to recognize the signs and symptoms of pneumonia, to know and interpret danger signs adequately and to understand the importance of early and adequate treatment. Health workers should be re-trained in case definition, case management and the use of available protocols. Many studies have shown a positive impact on pneumonia mortality from training health workers and communities (Mtango & Neuvians 1986; Sazawal & Black 1992). Further research is necessary to find out why earlier training sessions were not effective in Kalabo.

The history of the epidemiology of diseases shows the key of success in decreasing mortality. Between 1939 and 1996, the mortality from pneumonia in children in the United States declined markedly. After the introduction of penicillin, improved access to medical care for poor children has played the most important role (Dowell et al. 2000). Poverty reduction in developing countries, as a long-term strategy for development co-operation policies, will improve access to medical care, positively influence many other factors contributing to high incidence of pneumonia and, thus, eventually decrease mortality.

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5 Poor performance of Community Health Workers in Kalabo District, Zambia

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5.1 Abstract

Objective To determine factors contributing to low performance of community health workers in Kalabo District, Zambia.

Methods In a cross-sectional descriptive study, 86 community members, 27 community health workers and 9 rural health centre staff were interviewed, using semi-structured questionnaires. Other methods were focus group discussions and checklists. Data analysis was done manually.

Results The low performance of community health workers is a real problem for Kalabo District. The two most important factors are: the irregular and unreliable supply of drugs and selection of the wrong people to be trained for community health workers.

Conclusion Though initially implemented as such, the comprehensive approach of the primary health care project is no longer functioning in Kalabo. Community health workers are mainly valued because of their curative services. Communities do not properly follow the official criteria for selection of people to be trained, but have other considerations. Strategies will have to be formulated to rehabilitate the programme, mainly focussing on these two findings. Other factors, like inadequate community support and inadequate supervision were mentioned by many contributors, but did not show to be statistically significant.

"Luna lwa shwa, amusikalutiseza kwateni milyani. Seluna nilikweli zepeli lusaboni milyani cwale lukayaha cwani limbuzi?"

(Haven't you bought us any drugs? We are dying. This is the second month without drugs. How do you expect us to construct toilets?)

5.2 Introduction

The Primary Health Care (PHC) approach was adopted as the most rational strategy for health care delivery by all countries of the world in 1978. The principles of PHC were described in the Declaration of Alma-Ata (WHO,UNICEF 1978). PHC seemed to guarantee more equity in health service delivery and encouraged the participation of the people, the consumers of health care. It aimed to provide socially and culturally appropriate care and it stimulated preventive care. PHC was a revolution in the concept of health care (Newell 1988).

Community health workers played a key role in the functioning of PHC. People from the villages were selected and trained to form the link between the communities and the established health systems. Community health workers were the living embodiments of the principles of PHC. Many community health worker programmes were initiated all over the world and first reports in literature were mostly very positive (Maru 1983).

During the first years of its introduction, PHC was hailed as the panacea. Lyrical words about the conceptual change in health care were published (Barton 1979).

After initial enthusiasm different insights arose on how to implement PHC. By reinterpreting the concept of PHC, various professional groups, politicians and activists tried to assert their influence on PHC. The most important discussion was between those believing in the comprehensive PHC approach and those having more faith in the selective approach (Rifkin & Walt 1986; Walsh & Warren 1979).

Critical evaluations were also published about the functioning of community health workers. Community health workers were not able to decrease mortality (Menon 1991). The services provided by them were not consistent enough to have substantial impact and the quality of services was poor (Berman et al. 1987). Community health workers' services were under-utilised and they were by-passed in case of serious disease (Sauerborn et al. 1989). Communities expected more emphasis on curative services and there was no demand for health prevention or promotion (Finau et al. 1986). Larger collaborative research studies concluded that most community health worker programmes had four general problems: unrealistic expectations, poor initial planning, problems of sustainability and difficulties in maintaining quality (Gilson et al. 1989; Walt et al. 1989). In the nineties, interest in

community health worker programmes decreased, whilst most programmes continued to run, with or without lessons learned from mistakes in the past.
It is clear that the PHC concept and the role community health workers should play, were not a blueprint. The PHC concept is an ideology, but the concept did not give enough suggestions as to how this can be implemented in a situation where there are already systems that create and meet the needs of people (Wolffers 1989). It was left to individual countries to decide how to introduce PHC and this is what caused considerable confusion as well.

The PHC programme in Zambia started in 1981. In a national policy paper (MoH 1981) the government of Zambia designed the routes along which the PHC approach should be implemented to achieve the Zambian goal: “Make basic health care available to all the people in the community in an acceptable way and with their full participation”. Five principles were laid down as the basis of this policy:

1. Stimulation of equity of all people
2. Community participation
3. Predominantly aiming at prevention of diseases
4. Making use of appropriate techniques
5. Inter-sectoral approach of community development problems

Community health workers were seen as the key players in the new approach. To achieve full participation of the people, community health workers got the responsibility to explain, educate and motivate the people.
The Zambian government decided to focus on the Western Province to introduce the programme and Kalabo District became one of the pilot districts for the introduction of the concept of community participation in health issues. An essential health care package, accessible to individuals and families, was introduced. Kalabo became widely known and famous because of its community health worker programme. The District started training community health workers in 1983. The first twelve community health workers were selected from areas with active village health committees in place. Selection criteria were: a respected and trustworthy person, preferably female; around 30 years of age and not above 50; living in the community; willing to work on a voluntary basis; able to read and write in the local

language. Community health workers had tasks in promoting proper food production and basic sanitation, to detect risk groups, prevention of common illness, to give first aid treatment and treat minor ailments, to organise the community and to collect and maintain simple community data. Initial evaluations and reports were very positive and the pro-active role of communities was obvious (Heydelberg & Koot 1997).

Later on, as in the rest of the world, communities and the District Health Management Team in Kalabo District have not been satisfied with the performance of the community health workers. Most preventive and promotive programmes have finished, diagnostic skills of health workers have deteriorated, keeping of health records and reporting has been poor and the disease burden of preventable diseases has increased (Macwan'gi & Milimo 1997). Several interventions to improve this situation have already been implemented, but most of them have not born fruit. Because of the importance of this cadre in the Health Reform package, many resources have already been invested in this area, by both the health sector and other stakeholders. Insufficient community support and supportive supervision, as mentioned in studies in other areas as well (Ashwell & Freeman 1995; Berman et al. 1987) have always been considered the most important factors to fight in Kalabo. Selection criteria for community health workers could be another factor.

5.3 Objectives

The objectives of the study were:

- To determine the performance of the community health workers
- To determine the impact of some known factors, which could influence performance of community health workers in the Kalabo PHC project, namely: poor diagnostic skills, inadequate supportive supervision, irregular logistics and supply of drug kits, inadequate community support and poor selection criteria.

5.4 Methods

5.4.1 Study area and population

Kalabo District is one of the seven districts in the Western Province of Zambia, bordering with Lukulu District in the north, Mongu District in the east, Senanga and Shangombo

Districts in the south and Angola in the west. The district covers an area of 17,447 square kilometres and has a population density of only seven people per square kilometre, making a total population of 114,996 (CSO 1996).

The district has 2 hospitals and 14 rural health centres. At the time of the study, there were 143 community health workers and 76 trained traditional birth attendants, who delivered health services at community level.

The district health services are facing a critical shortage of staff, resulting in only three of the rural health centres being staffed by a clinical officer. In all other centres, other cadres deliver curative services (Stekelenburg et al. 2004) .

The district has no roads, no organised public transport, hardly any vehicles and no communication connections. A large proportion of the people of Kalabo live outside the catchment area of the rural health centres. Moreover, rural health centres are unevenly distributed.

5.4.2 Methodologies

Three indicators were used to assess the degree of performance of the community health workers: are they active or inactive; supply of community health worker drug kits; and the available equipment. Quarterly reports were used to judge activity of the community health workers. Rural health centre and community health workers registers were used to assess the community health worker kit supply. A checklist was developed to check the logistics and equipment of the community health workers in a systematic and standardised way.

To understand the reasons for the assumed poor performance of the community health workers, data were collected in a cross-sectional survey of 60 community members, 26 neighbourhood committee executives, 9 rural health centre staff and 27 community health workers. Semi-structured interviews were used to collect data from the individual respondents. The principal investigator and three research assistants conducted the interviews. All interviewers received full-day interview training, before the onset of the research. In all study areas focus group discussions were held with community members and neighbourhood health committees. A total of 63 people were involved in the discussions. During the focus group discussions, a chairperson and a recorder were identified from the community. The principal investigator prepared the meeting with the community chairperson and assisted

during the discussions. Other members of the research team recorded their observations. After the meetings, the recordings were translated, transcribed and analysed by the complete research team.

Cluster sampling was done randomly. Nine health facilities were identified. Within the catchment areas neighbourhood committees were conveniently picked and community health workers were identified and interviewed in the same areas.

For the assumed contributing factors variables, operational definitions and measurement scales were defined in advance, to standardise the result and to ensure systematic interpretation and analysis of data.

Pre-testing of the questionnaires, the checklist and the focus group discussion guidelines was done in one area with the research team. Some changes were implemented afterwards.

Permission to carry out the study was requested from area Induna's[7] and Councillors, through the District Health Management Team and the rural health centre staff. The study team assured confidentiality and avoided injuring any respondents.

Due to the annual floods in the District during the study many areas could not be travelled, by neither foot, canoe, vehicle nor speedboat. The lowest performance of community health workers is expected and experienced in such areas. Even among the selected study population, some could not be interviewed because of floods.

5.5 Results

A total of 122 people was interviewed, unevenly distributed over the four mentioned groups: 27 community health workers, 60 community members, 26 neighbourhood executives and 9 rural health centre staff. Sex distribution was in acceptable ranges with 44% females and 56% males; 68% were married, 15% were single, 10% were divorced or separated and 7% were widower/widow. The age distribution of the respondents was as follows: 6% between 61 and 80 years, 43% between 41 and 60 years, 39% between 26 and 40 years and 12% between 15 and 25 years of age.

[7] Traditional leader serving under the Litunga (the King) at local level in the Lozi Kingdom.

5.5.1 Establishing the functioning of the community health worker programme

The respondents in the study area identified a total number of 143 community health workers. Most of them, 57%, were not active, whilst 43% were still active, according to respondents. The criterion used by the District Health Management Team for activity of community health workers is forwarding of quarterly reports, which showed an even worse picture. Only 38% of community health workers reported regularly in 1999 and 2000. From the 27 community health workers who were interviewed, 13 (48%) were active and 14 (52%) were inactive.

A checklist was used to evaluate the availability of basic equipment at the health post, the community health worker's place of work. Elements of this basic equipment are for example: a thermometer, buckets, receivers, forceps, scissors, a sterilising pot, gloves, a bicycle, a lamp and soap. Apart from soap, which was present at 59% of the checked health posts, all other items (thermometers, buckets, pots, cups, receivers, galleys, scissors, jugs, gloves, stationary, bicycle, lamp, kerosene, etc.) were not present at the majority of health posts (Table 5.1).

The distribution of community health worker drug kits was assessed for the years 1999 and 2000. In the year 1999, no community health worker drug kits came into the district for almost six months. The district had no means and possibilities to correct the irregular supply of drugs from national level. Even if the supply from central to district level was secured, problems arose to reach all community health workers within the district. More than one-third (37%) of the community health workers reported irregular and inconsistent supply of drugs to their health post. According to supply reports at the District Health Office, some distant community health workers, who were not interviewed, have managed without drugs for two years.

Table 5.1. Community health worker's checklist on logistics

Item	Present	Percentage	Absent	Absence (%)
Thermometer	5	19	22	81
Buckets	5	19	22	81
Galley pots	4	15	23	85
Receiver	8	30	19	70
Forceps	9	33	18	67
Medicine cup	6	22	21	78
Scissors	9	33	18	67
500 ml. Jug	0	0	27	100
1 litre. Jug	6	22	21	78
Sterilising pot	7	26	20	74
Stationary	6	22	21	78
Gloves	7	26	20	74
Washhand basin	2	7	25	93
Bicycle	3	11	24	89
Kerosene	7	26	20	74
Lamp	4	15	23	85
Soap tray	5	19	22	81
Soap	16	59	11	41

Based on these outcomes one might conclude that the community health worker programme is not functioning properly. The factors determining performance will be described in the following sections.

5.5.2 Factors causing low performance

Recognition, appreciation and support of community health workers

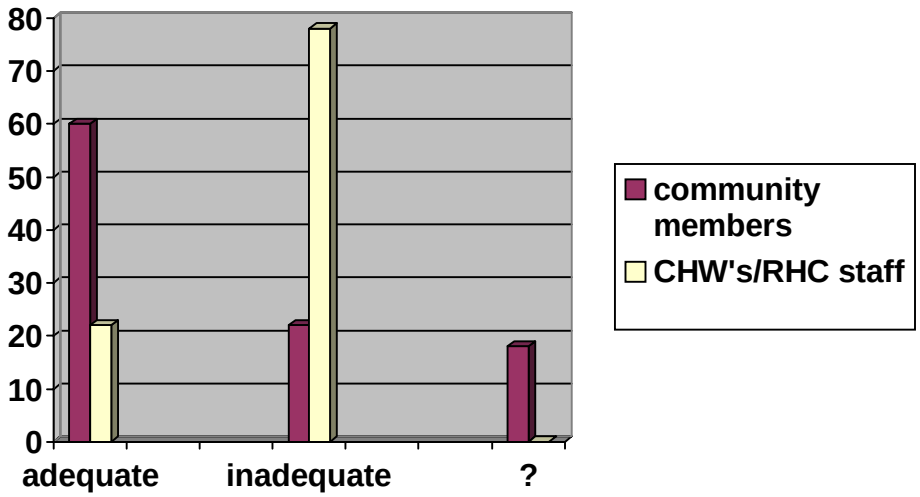
The communities do recognise community health workers as a public institution, with 95% of respondents confirming their knowledge about the existence of community health workers in their community. Most respondents view the community health worker as their doctor and treat the community health workers almost equally like other public institutions, like schools, veterinary camps or health centres.

The appreciation of the community health workers is still high in the community, with 85% of respondents calling the performance good. On the other hand, 95% of respondents say that the

performance is deteriorating, because of inadequate support from all concerned. In focus group discussions, the most mentioned reason for the deterioration was the irregular supply of drugs to the community health workers.

A difference was found between perceptions of community health workers and rural health centre staff on one side and community members on the other side, concerning the support that is given to community health workers. From the community members 60% finds it adequate, 22% inadequate and 18% does not know. From community health workers and rural health centre staff 78% says the support is inadequate, erratic and inconsistent and 22% says it is adequate (Figure 5.1).

Figure 5.1 Appreciation of support from communities to community health workers



In areas where community support was perceived to be adequate, more community health workers were active. Due to the small number of community health workers that could be interviewed (n = 27), statistical power was limited, so that no significant relation between performance of the community health workers and adequacy of community support was found (OR = 5.8; 95% CI = 0.6 – 60.6) (Table 5.2).

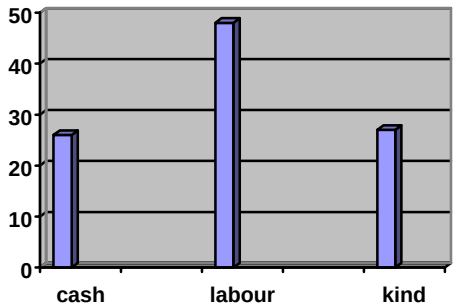
Table 5.2 Community support in relation to performance

Community support	**Performance**		**Total**
	Active	Not active	
Adequate	4	1	5
Inadequate	9	13	22
Total	**13**	**14**	**27**

(OR = 5.8; 95% CI = 0.6 – 60.6)

The type of support offered to community health workers varies. In 48%, it is in the form of labour, in 26% in cash and in 27% in kind (Figure 5.2). In 8%, there is no support at all. The support in labour and kind is very difficult to value. Support at village level is mostly very small and agriculture-oriented, which means it is mainly offered during the agricultural seasons. Cash support is very limited, since in many villages no cash is available at all. The initial agreement when community members were selected to be trained was that community health workers would be supported in terms of labour or in kind. This agreement was confirmed by 90% of respondents (community members). This finding was also supported by the focus group discussions.

Figure 5.2 Type of support offered to community health workers



Selection criteria

A standard measure was developed during the study to assess knowledge of the criteria used for the selection of community members to be trained for community health worker. It was discovered that 44% of the respondents were not aware of the selection criteria used. In 91% of cases community health workers were chosen by the community itself, in 6% it were the community leaders and in 3% the rural health centre staff who selected the candidates. The two findings combined, the community selecting the candidates for training in 91% and 44% of the respondents not knowing any criteria used, implies that accuracy of selecting the right candidates is doubtful. Not following proper selection criteria is likely to contribute negatively to the performance of community health workers in Kalabo (Table 5.3).

Table 5.3 Selection criteria in relation to performance

Selection criteria	**Performance**		**Total**
	Active	Not active	
Good	10	5	15
Poor	3	9	12
Total	**13**	**14**	**27**

(OR = 6.0; 95% CI = 1.1 – 32.6)

Availability of drugs

According to 74% of community members and 37% of community health workers, regular shortage of drugs had happened in the previous year. During the study period no drug kits had been supplied from national level for the previous six months. The distribution of kits, when available, was mentioned untimely and inconsistent. The non-availability of drugs was reported to frustrate both the communities and the community health workers. It was mentioned that the community health workers loose their reputation and recognition when

there are no drugs. The availability of drugs is likely to contribute to the performance of community health workers in Kalabo (Table 5.4).

Table 5.4 Availability of drugs in relation to performance

Availability of drugs	**Low performance**		**Total**
	Active	Not active	
Available	12	5	17
Not available	1	9	10
Total	**13**	**14**	**27**

(OR = 21.6; 95% CI = 2.1 – 218.6)

Supportive supervision

Supervision and support are very important tools to improve the performance of community workers. Existence, frequency and benefits of supervision and who conducted the visits were investigated. In 92% of cases, the respondents answered that community health workers received supervision to improve their performance. In 92% of these cases, supervision came from the rural health centre staff and in 8% from members of the District Health Management Team. No standardised method or checklist was used for the supervision of community health workers.

The frequency of supervision was irregular according to 47% of respondents, monthly (36%), quarterly (13%) and bi-annually (4%). The recommended frequency of supervision visits according to the District Health Management Team is quarterly. From the group of the community health workers 21 (78%) mentioned that they received regular and supportive supervision; 6 (22%) did not. From the group of community health workers who reported to have received regular and supportive supervision, 10 (48%) mentioned that the supervision visits did not have any benefit for them. Supportive supervision did not show a statistically relevant correlation with performance of the community health workers (Table 5.5).

Table 5.5 Supportive supervision in relation to performance

Supportive supervision	Performance		Total
	Active	Not active	
Supervised	10	11	21
Not supervised	3	3	6
Total	**13**	**14**	**27**

5.6 Discussion

The magnitude of the problem, poor performance of community health workers, was clearly confirmed. Only between 38 and 48% of the community health workers are active. It turned out to be impossible to objectively judge the quality of work delivered by the active community health workers, because of the diverging expectations from community health workers in the communities and the lack of defined outcome indicators to measure the performance.

In the community 95% mentioned that the quality of services delivered by community health workers is deteriorating, though 85% said to be satisfied with the services provided by them. Most probably, respondents easily complain about deteriorating services, but find it difficult to express negative opinions about individual community health workers.

The erratic and inconsistent drug supply to community health workers indicates the low priority of the community health worker programme at national level, where the drug kits come from. It also shows the incapacity of the District Health Management Team to distribute the kits adequately within the district and to take initiative at times when national programmes do not run well.

The equipment that community health workers keep in their health posts is far from adequate. Most items are missing. Even basic equipment like a thermometer, scissors, forceps and receivers are missing in the majority of health posts. That means that even the curative

services, that they like to and are expected to deliver so much, cannot be delivered adequately. It clearly indicates the low priority of the community health worker programme. Even very basic and cheap equipment for community health workers cannot be maintained or replaced.

In summary, the community health worker programme functions poorly. The majority of community health workers are inactive and the programme has low priority, both at district and at national level.

The erratic and inconsistent drug supply to community health workers is not only an indicator for the dysfunction of the programme, but could also be a cause of inactivity. It showed to be the most probable factor related to poor performance. Curative services have become the most important part of the work of community health workers. In many occasions, both community health workers and community members mentioned that without drugs community health workers cannot do their work and are unable to report. This, unfortunately, means that the comprehensive approach of the Primary Health Care programme, which encouraged an integration of curative, preventive and promotive services, is no longer followed.

The communities, who select their own community health workers in almost all cases (97%), have very little knowledge about the criteria to follow. Only 14% had adequate knowledge of the selection criteria, which were made available by the District Health Management Team. It means that the selection does not take place in a transparent process and, probably, few community leaders choose the candidates. It also shows insufficient support from rural health centre staff and District Health Management Team to communities, to facilitate selection processes and empower community organisations. The use of impertinent selection criteria leads to training of wrong people, low performance of community health workers and lack of community support.

Supervision of community health workers in Kalabo does not have a positive impact on their performance. The quality is poor and almost half of the community health workers do not experience any benefit from the supervision visits. In too many occasions, the visits only

serve to report to higher authorities that the activity is fully completed. Very few bother about what has actually been achieved.

The level of community organisation was identified before as one of the factors associated with better functioning of community health workers (Mangelsdorf 1988). The feedback and rewards from the community could have a greater influence on work performance than those stemming from the health system (Robinson & Larsen 1990). The support from the community to their community health workers was found to be below the expectations. Even from the community members only 60% feel that their community health worker is adequately supported. The community health workers and rural health centre staff perceive the issue even worse; only 22% feel adequately supported.

Respondents giving desirable answers is one of the limitations of this research. Interviewers could be perceived as representatives of the health system. The discrepancy in the answers about the appreciation of the community health workers and the answers about the deterioration of the system are indicative. Nevertheless, the communities expressed quite a lot of critical answers and comments.
Because of the floods during the time of the research, many areas were not accessible. For that reason, sampling of study areas could not be done randomly and was done conveniently. It means that the performance of community health workers in the remotest areas, where their functioning is even more important - and probably worse - than in other areas, was not studied.

5.7 Conclusion

The once famous community health worker programme of Kalabo District, being part of the Western Province Primary Health Care project, has almost completely collapsed. The majority of community health workers are inactive and the programme has low priority, both at district and at national level, leading to unacceptable weaknesses in supply systems for drugs, equipment and logistics.
The two most important factors related to the dysfunction of the programme are shortage of drugs and poor selection criteria. The concept of community-based health workers has taken a

different angle in the communities, with strong concentration on curative services. According to many contributors, communities will not be ready to contribute to any preventive or promotive programmes, as long as drugs are not available.
Inadequate knowledge about and use of the criteria to select people to be trained for community health workers has contributed to a high drop-out rate and an inadequate quality of work delivered by the community health workers.

The community health worker programme needs a major rehabilitation. This has to happen at different levels, from the District Health Management Team to national level, in close collaboration with community representatives. Sufficient funding for activities to keep the system running (selection, training, support, supervision, refresher courses and logistics) will need to be allocated to the programme. The re-enforcement of preventive and promotive programmes, together with a more reliable drug distribution system should be the main components to be worked upon.
Proper criteria should be used for the selection of new candidates to be trained. A selection criteria tick and score list should be developed to assist communities and rural health centre staff to select their own candidates.

A Primary Health Care programme, aiming to deliver an essential health care package to communities, needs to pay attention to all aspects of the programme: preventive, promotive and curative activities. If essential drug supply is not well organised at national level, preventive and promotive activities of community health workers are not properly carried out and the communities loose confidence.
The PHC approach, formulated in the late seventies of the last century, still stands as the most appropriate concept, to fight the unacceptable differences in health between the developed countries and the low-income countries. The human resources crisis in Zambia has further weakened the health care system and will not be solved in the next ten to twenty years (Stekelenburg & Sikanda 1998). Dependence on clinical officers and other trained workers makes the health system vulnerable and functioning poorly. Training and use of community health workers is the most realistic solution for attaining a high coverage with essential health care (Freund & Kalumba 1985) and one of the few achievable, affordable and sustainable

methods, to contribute to achieving a situation of “equity of access to a cost-effective quality health care, as close to the family as possible”.
However, lessons should be learned from the past and measures to prevent unrealistic expectations, poor initial planning, problems of sustainability and difficulties in maintaining quality should be build into the programme. Outcome indicators to measure the effectiveness of the programme should be defined in the initial stages.

Despite all critics on community programmes, it is the strong conviction of the authors that in districts such as Kalabo in Zambia, characterised by remoteness, difficult geographical features, poor infrastructure and poor access to health care services, community health programmes are and shall continue to be important elements of District Health Care strategic plans. The human resources crisis, aggravated by the HIV/AIDS pandemic, and heavily affecting health workers, leaves governments with no other options, than to put comprehensive community programmes back on their agendas. In many communities health committees are still in place and the will of people to invest in health is there. Governments should support District Health Management Teams with technical expertise and funding to re-develop community programmes, taking lessons learned from the past into consideration.
The research team forwarded more and detailed recommendations, which now form guidance to planning and implementing policy changes, to the District Health Management Team.

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6 Health care seeking behaviour and utilisation of traditional healers in Kalabo, Zambia

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6.1 Abstract

Objective

To identify traditional healers in the catchment area of Kalabo District Hospital and to investigate determinants which play a role in the choise between different health care options, and to explore possibilities for increasing co-operation between the District Hospital and traditional healers.

Methods

In a cross-sectional comparative and descriptive study, a combination of both quantitative and qualitative methods was used. A total of 12 health workers, 13 traditional healers and 100 community representatives were interviewed, using (semi)-structured questionnaires. A focus group discussion was held with 12 traditional healers.

Results

This study shows that all respondents are willing to visit the hospital if they fall ill in future, and 88% of the respondents will visit a traditional healer. More women than men visit traditional healers, but the men who do visit them, do so more frequently. Level of education is not an important determinant. Increasing age leads to more frequent visits to both the hospital and traditional healers. Almost half of the respondents (49%) only have to walk less than 30 minutes to a traditional healer, but the hospital is the same distance for only 34% of the respondents. Waiting time turned out to be an important factor: in the hospital, 48% of the respondents are not helped within time, and only 28% are not helped in time by the traditional healer. Demon possession, mbaci, kanono and infertility are typical health problems for which people visit a traditional healer. The cost of treatment from a traditional healer is usually one cow, but only if the patient is cured. Satisfaction was measured at 89% after hospital treatment, and 74% after treatment from a traditional healer. If dissatisfied with the traditional healer, 86% would consider attending the hospital.

6.2 Introduction

In 2000, a study was carried out in Kalabo District, which is a rural district in the Western Province of Zambia. It was based on research questions formulated by the Kalabo District Health Management Team (DHMT). The research questions concerned traditional healers in the catchment area of the hospital: who and where are they, what are their activities, how do inhabitants decide where to go for treatment and what are the possibilities for co-operation between the hospital and the healers?

Daily practice in the district's health facilities and findings during supervision trips had taught the DHMT that the utilisation of some of its health services and coverage of some of its activities was low. Many patients reported late to the hospital and were in advanced stages of a disease, and many patients had first visited a traditional healer before seeking help at the hospital. Incidentally, stories about cases of malpractice by traditional healers also reached the District Health Office. Some traditional healers strongly appealed to the office for participation in preventive and promotive health programmes and asked to be invited to the in-service training sessions for health workers, that were organised at the Hospital.

The DHMT used to formulate interventions without any proper analysis of the situation. It was not known why and how people choose different health care options, which factors determine their health care seeking behaviour, or for which conditions they go to traditional healers.

6.2.1 Traditional healers

Already in 1978, during the World Health Organization (WHO) conference on Primary Health Care (PHC) in Alma Ata, it was recognised that in many countries two health care systems exist. On the one hand a traditional health system, and on the other hand a health care system based on Western, sometimes so-called, modern medicine. At the conference co-operation between the two systems was already recommended. Since traditional healers were (and still are) so widespread, co-operation could contribute to improving access to health care (Mclean & Bannerman RH 1982). Later on, comparable recommendations for co-operation were presented to fight major diseases in sub-Saharan Africa, such as STDs, HIV/AIDS and tuberculosis (Freemann & Motsei 1992).

A traditional healer, according to the WHO definition is: *" a person who is recognized by the community in which he/she lives as competent to provide health care by using vegetable, animal and mineral substances and certain other methods based on the social, cultural and religious background as well as on the knowledge, attitude and beliefs that are prevalent in the community regarding physical, mental and social well-being and the causation of disease and disability*" (Mclean & Bannerman 1982).

Traditional medicine constitutes a junction of beliefs, practices and stories of ancestral origin adhered to by large groups within the population in different countries in the world. It forms a medical system that can diagnose, treat and prevent diseases of different aetiology. It is believed that traditional healers can play a positive role in the promotion of health care in a community, because their methods are culturally accepted and holistic, compared to 'modern medicine'. Self-esteem can be stimulated because people use their own, instead of foreign, care to maintain or improve health (Wolffers 1989).

More than 80% of the people in sub-Saharan Africa still use the services of traditional healers (Green 1997). In many communities the traditional healers have very important social and cultural positions. Traditional medicine encompasses multiple ways of healing: medicinal plants, animal products, minerals and physiotherapeutic procedures, and there is a wide variety of healers, who can all be called traditional healers.

Most of the literature is based on a classification system which identifies four main types of healers: traditional birth attendants, faith healers, spiritualists and traditional herbalists (Jurg 1993). Traditional birth attendants (TBAs) are mostly middle aged and older women with great experience in pregnancy and childbirth. They focus their attention on pregnancy problems and they assist women when they give birth. A substantial percentage of deliveries in sub-Saharan Africa are assisted by TBAs, and some studies report that this is even as high as 80% (Twumasi 1998). TBAs are key figures to get in touch with women and girls in a community.

Faith healers are mostly men. They use the bible, holy water and prayer sessions to cure a patient. They are representatives or healers of religious movements, and there are many leaders of sectarian-based religious movements among the faith healers (Van der Pal & Oudshoorn 1994)

Diviners or spiritualists are specialist in diagnosing illness through divination and this traditional field of expertise is predominantly the domain of women. In most cases these women have been seriously ill themselves before they become a diviner, and during the illness they received messages from their ancestors or from another healer telling them that they had been chosen to become a healer (Kale 1995). Diviners are intermediates between people and their gods and ancestors, and spiritualists get in touch with the supernatural world to diagnose and to cure the patient. It is sometimes difficult to distinguish between faith healers and spiritualists. Faith healers are part of a particular religious movement, and spiritualists are priest(esse)s of specific shrines.

Herbalists, who are the most numerous among the traditional healers, are usually men, who apply herbs for healing purposes. Herbalists are considered to be the closest of all traditional healers to modern medicine, because they use herbs to counter 'ill-making factors', which comes closest to the concept of causative thinking in 'modern medicine'. Traditional and modern medicine have different explanations for why people are unhealthy. In modern medicine the treatment will be directed at the cause of the disease, but traditional healers will try to find out why a person becomes ill and will then try to treat the illness from a holistic point of view. The use of herbal medicines is not only reserved for herbalists, but can be used by all traditional healers (Du Toit & Abdalla 1985). There are many sub-specialities among herbalists: bone-setters, circumcisioners and healers who sell medicines at markets and in shops.

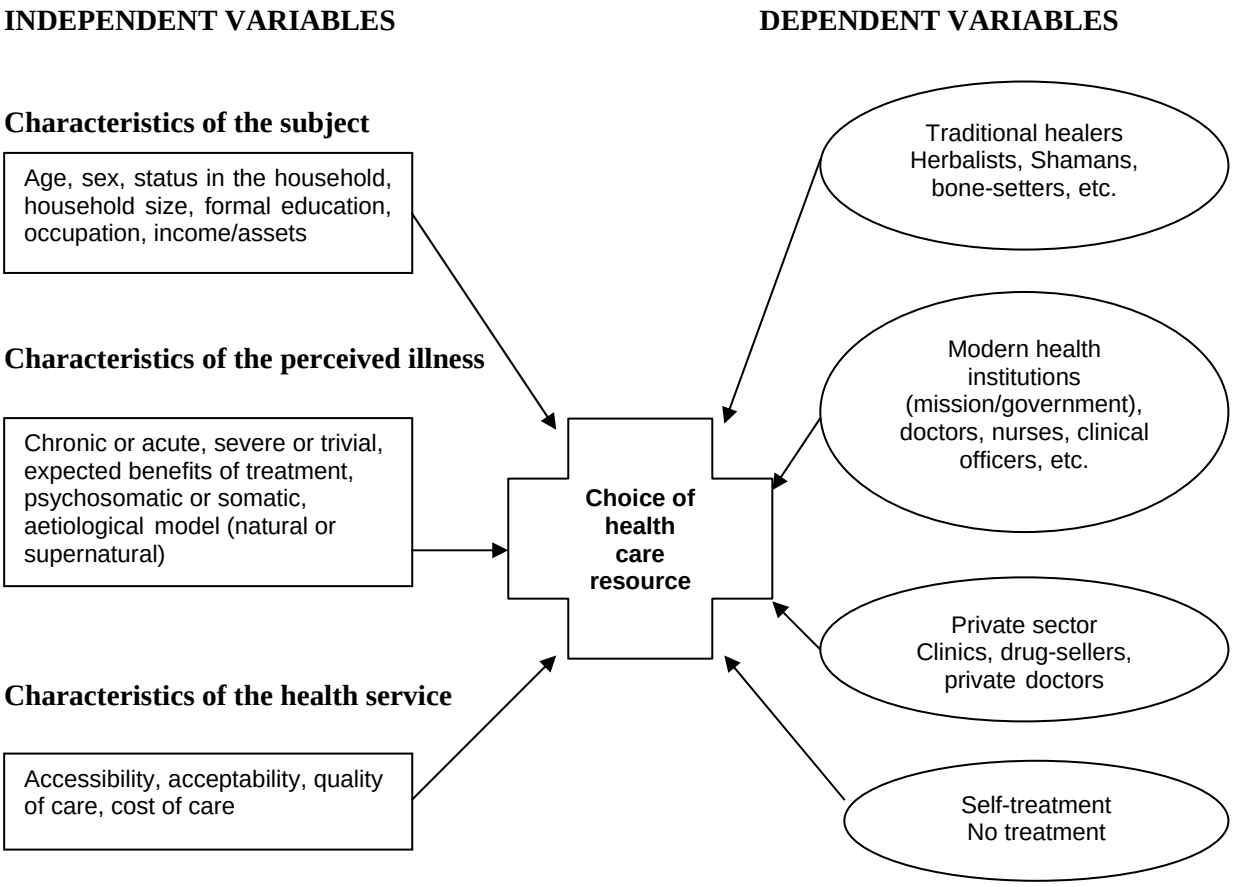
A dualistic approach to health and diseases, which accommodates both the conspiracy theory of witchcraft and the scientific theory of modern medicine is common in most African countries (Pretorius 1991).

6.2.2 Utilisation, coverage and satisfaction

The existence or presence of traditional healers, modern health institutions and/or private drug-sellers are all mentioned as dependent variables in Kroeger's model of various possible explanatory variables, which, together with the so-called independent variables, determine an individual's choice of care or healer. Independent variables can be divided into characteristics of the subject, characteristics of the perceived illness and characteristics of the health service (Figure 6.1).

Figure 6.1

The choice of healer in relation to various explanatory variables

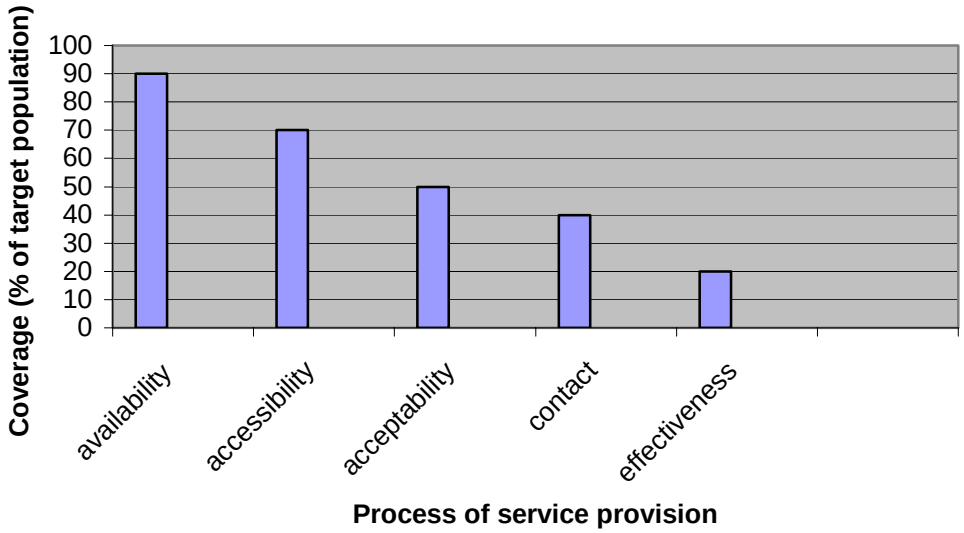


Source: Kroeger 1983

Tanahashi (Tanahashi 1978) worked out the characteristics of the health system in a model, to gain insight into factors that play a role in the process of service provision (Figure 6.2). He identified five separate levels of coverage. The final level, with the lowest percentage, is the effectiveness coverage. Only if services are available, accessible and acceptable, and the patient has actually visited the health service institution, can the service be effective. Service can be valued as effective if the patients' needs are met; if the patients are satisfied. Annis observed that when the effectiveness coverage of a facility is high, users will be willing to travel long distances to seek care (Annis 1981). In the present study, part of Tanahashi's terminology was used to investigate the utilisation of traditional healers.

Figure 6.2

Coverage diagram (Tanahashi, 1978)



If care is to be effective it should be of good quality. Quality of care, though, is a complex term. Patients can be satisfied even after receiving treatment in a health system which does not offer quality of care according to professional standards. Donabedian developed a framework for defining quality of care and differentiated between observed quality of care and perceived quality of care. The observed quality of care focuses merely on the structure, the process and the outcome. Structure refers to facilities, personnel and organisation. Process refers to interaction between provider and consumer. Outcome measures the extent to which the service interaction meets the consumers' expectations. The observed quality of care relates to professionally defined standards of care and the perceived quality of care reflects the views of the patients (Donabedian 1980). In this study, respondents were asked about their satisfaction after treatment in the hospital and after treatment by a traditional healer.

The objective of this part of the study was to create an overview of the role that traditional healers play in Kalabo District health care system. More specifically, the aim was to obtain insight into factors which influence people's choices in health seeking behaviour and how people decide where to go for treatment.

6.3 Materials and methods

6.3.1 Methodology

A cross-sectional comparative and descriptive study was conducted in Kalabo in 2000, based on a combination of both quantitative and qualitative methods, each complementing the other. A total of 12 health workers, 4 of whom were members of the DHMT, 13 traditional healers and 100 community representatives were interviewed, using (semi-)structured questionnaires. The questionnaires for the health workers served to gather information about their willingness to co-operate with traditional healers and about their personal and professional opinion of traditional healing. The questionnaire for the traditional healers was designed to find out more about their working methods, the diseases they could treat, the causes, diagnoses and treatment of these diseases, and their willingness to co-operate with the hospital. The questionnaire for the local people was directed at obtaining data on the health care seeking behaviour of the local population. Annex 1 shows a selection of the questions used to gather data.

A focus group discussion was held with 12 traditional healers to discuss the outcome of the questionnaires and to discuss in more depth the possibilities of working together with the hospital. The focus group discussion was held in a friendly, protected and traditional atmosphere, thus encouraging the participants to talk freely. All discussions were recorded. After the meeting, the recordings were translated, transcribed and analysed.

Quarterly and annual reports, patient registers and institutional data extracted from the Health Management Information System (HMIS) and Hospital Management Information System (HosMIS) were used to obtain general information about the health sector in Kalabo.

A general study of the literature on traditional medicine was carried out before the research protocol was designed.

The sampling of health workers was random. Those who were available when the interviewers arrived at the hospital and the District Health Office were requested to partcipate. Interviews were held in the afternoons, so that the workers were not disturbed during the busy morning hours.

Traditional healers were sampled with different techniques. A list of names of traditional healers was prepared with the help of several key informants. The key informants were people who, during the period in which the interviewers were preparing the study, served as sources

of information for the interviewers. Some were health workers, others worked for the Catholic Mission or the Council. The actual sampling took place according to the area in which the traditional healers resided, in such a way that healers from all around Kalabo were approached.

The local population was sampled randomly. At different locations in Kalabo (the harbour, the road, the hospital, the market), every third person who passed by was approached and invited to participate. A gender distribution of 50 men and 50 women was achieved. Only respondents over the age of 18 years were included, because these people were assumed to be capable of making their own decisions.

Approval to conduct the study was obtained from local authorities: the District Administrator, the members of the DHMT and the Hospital Management Team, and representatives of the Royal Establishment of the Lozi Kingdom, which forms the traditional leadership of the most important population group in Kalabo.

A translator was closely involved in the research activities, since most of the respondents were not able to speak or read English and the interviewers were not able to speak or read Silozi, the local language. Much time and energy was spent on selecting an appropriate person as translator and giving proper instructions to the translator. All questionnaires were translated from English into Silozi, translated back into English by another person, and checked by the interviewers.

6.3.2 Study area

Kalabo District is one of the seven districts in the Western Province of the Republic of Zambia, situated on the western side of the Zambezi River. The upland forest areas are sandy, with a swampy type of vegetation along the Zambezi and her tributaries. The plains get flooded every year and some parts of the plains remain wet throughout the year. Communities living on either side of the flood plains are separated, which sometimes makes visiting health facilities difficult or impossible.

The population projection for 2000 was 115,656. District growth rate is only 0.3%, due to high migration and mortality. Due to the migration of men to sugar cane areas, there is a high percentage of females as head of the household.

Most of the population is involved in subsistence farming, cattle-rearing or fishing (Soeters & Selestine 1994; Kalabo District Health Office 1996-2001). These activities provide the local economy with a small diversity of products, such as milk, meat, timber, and cash crops. The district does not have any form of industry, mainly as a result of the very poor geographical features. The majority of inhabitants certainly live far below the current national poverty line.
Between 10,000 and 15,000 inhabitants live in the town of Kalabo, which is the capital of the district and the place where the study was mainly performed.
The district is virtually cut off from the rest of the country because there are no roads and transport by river is seasonal. Within the district there are also no roads, only sandy tracks. There is no formal public transport and there are almost no vehicles, apart from a few government vehicles that are based in Kalabo town.
Kalabo District has two first level referral hospitals, located only seven kilometres from each other. There are fourteen rural health centres (RHCs), which are unevenly distributed throughout the district, and during the flood season, six of these RHCs are completely cut off from the rest of the district. There are approximately 150 community health workers (CHWs) and 81 trained traditional birth attendants (tTBAs), but the community programmes are not running well (Stekelenburg et al. 2003).
The private sector gives room for the traditional healers, who were the subject of the study, and a wide variety of drug-sellers on the market and in small shops. Compared to other districts in Zambia, the availability of private doctors is still very limited. Only one private practice, manned by a clinical officer who retired from government services, had been opened in the district.
Due to the vast geographical area, the scattered population and the complete lack of any means of transport, adequate access to health services is not available for all communities in the district. Furthermore, there is a critical shortage of trained staff of all cadres in all health institutions.
Infectious diseases, such as malaria, respiratory tract infections (Stekelenburg et al. 2002), diarrhoea, and sexually transmitted diseases (STDs), including HIV/AIDS, are responsible for high morbidity and mortality among children and adults. Similar to the rest of the country and even many parts of sub-Saharan Africa, there is low utilisation of maternal health services and

poor quality of care in the health institutions, leading to an extremely high maternal mortality ratio (MMR) (Stekelenburg et al. 2004; Stekelenburg & van Roosmalen 2002).

6.4 Results

6.4.1 Background data

A total of 100 people were interviewed, 50 men and 50 women. The age and level of education of the respondents was recorded. The majority of the respondents (51%) were between 18 and 30 years of age, 35% were between 31 and 50, and 14% were over 50 years of age. Level of education was subdivided into primary education (55%), secondary education (40%), and higher education, i.e. college or university level (5%).

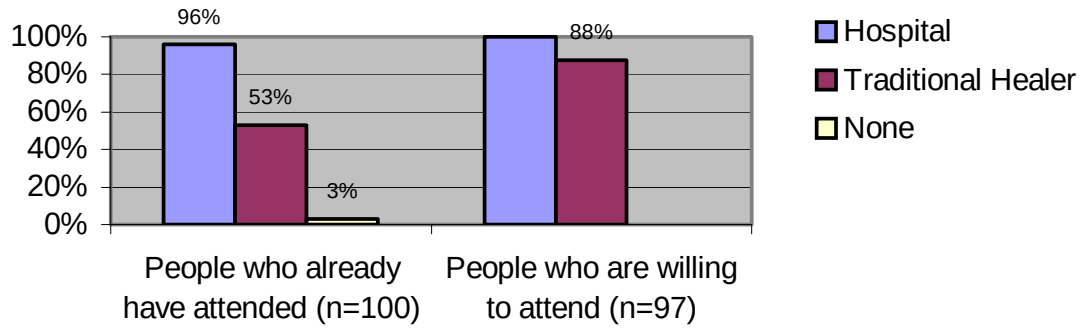
6.4.2 Health service attendance

Of the 100 people who were interviewed, 3 respondents had never visited a health care provider, neither a traditional healer nor the hospital, and 1 had only visited a traditional healer; 96 people had visited the Hospital, and 53 people had visited a traditional healer at least once (Figure 3).

All respondents (100%) answered that they would visit the hospital in the future, if necessary, and 88% answered that they would visit a traditional healer in the future, should health problems arise (Figure 3).

Gender does not seem to play a very important role in health care seeking behaviour, although differences between women and men can be seen, especially in traditional healer attendance. More women than men attended a traditional healer, 62% compared to 44% (Figure 4).

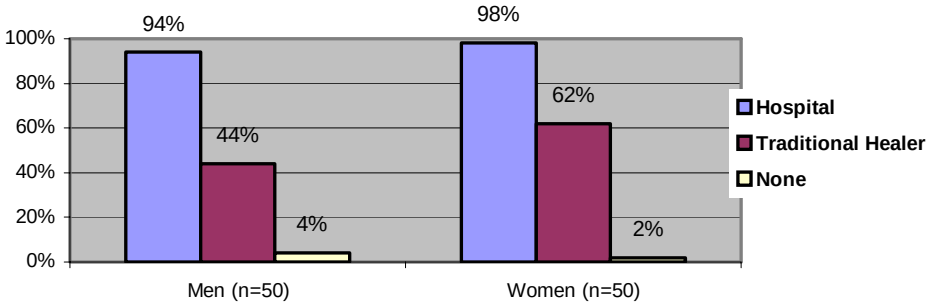
Figure 3
Past and Future Health Care Usage amongst People of Kalabo



However, the men who do visit the traditional healer, do so more frequently. Of the male respondents, 28% said that they visited the traditional healer more than three times a year, compared to 6% of the female respondents. Hospital attendance for men and women is comparable.

In many interviews and discussions with respondents, healers and workers women's diseases, infertility and STDs were discussed. The importance of these diseases was remarkable.

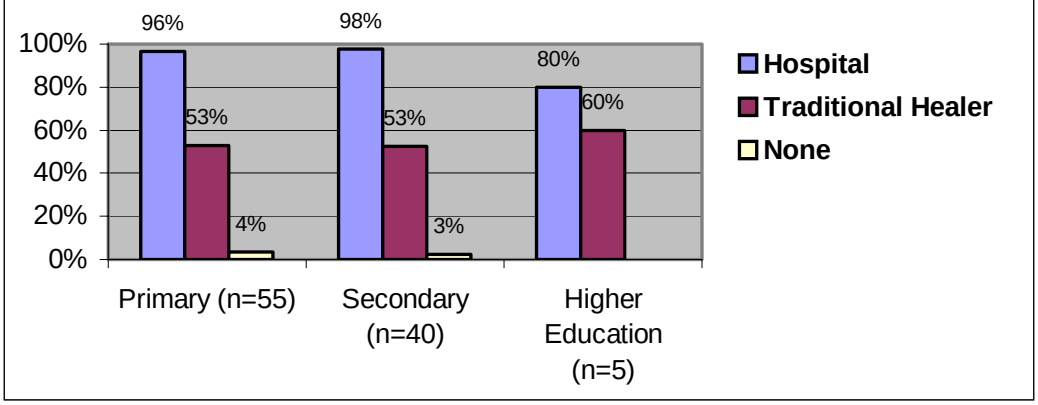
Figure 4
Health Service Attendance according to Gender



In general, level of education did not seem to be a very important factor in health care seeking behaviour. Of the respondents with higher education (college or university; n=5), 80% had been to the hospital at least once, compared with 96% and 98% for respondents with primary or secondary education, respectively. Traditional healer attendance was 53%, 53% and 60% for primary, secondary and higher education, respectively (Figure 5). However, after analysis of health care seeking behaviour for specific problems, level of education did make a difference (Figures 12a,b,c and d).

Larger differences were again found in the frequency of healer attendance. Figure 6 shows that respondents with primary or higher education visit traditional healers more frequently, compared to people with secondary education.

Figure 5
Health Service Attendance According to Education



Age mainly influences the traditional healer attendance, but not hospital attendance, which is very high in all age-groups. The percentages of respondents who had visited a traditional healer at least once range from 39% in the group between 18 and 30 years of age (n = 51) to 80% in the group between 51 and 60 years of age (n = 5) (Figure 7).

Respondents were not only asked about who they went to see when they were ill, but also about the frequency of visits per year, for both the hospital and the traditional healer. Figure 8 shows that the frequency of attendance, for both the hospital and the traditional healer, increases with age.

Figure 6
Frequency of healer attendance according to education

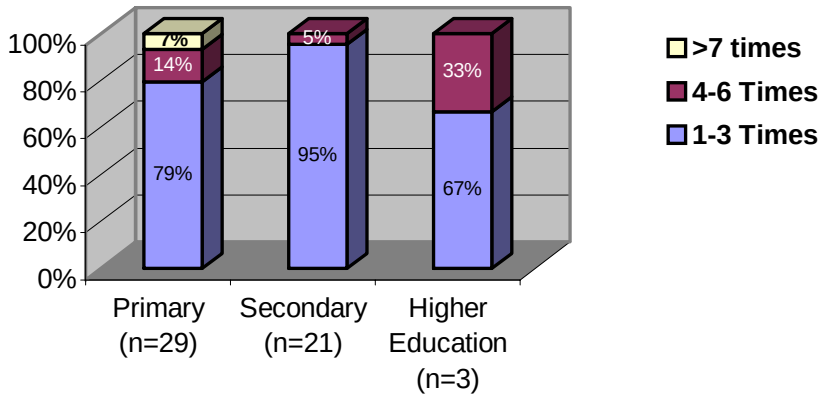


Figure 7
Hospital and Healer Attendance according to Age

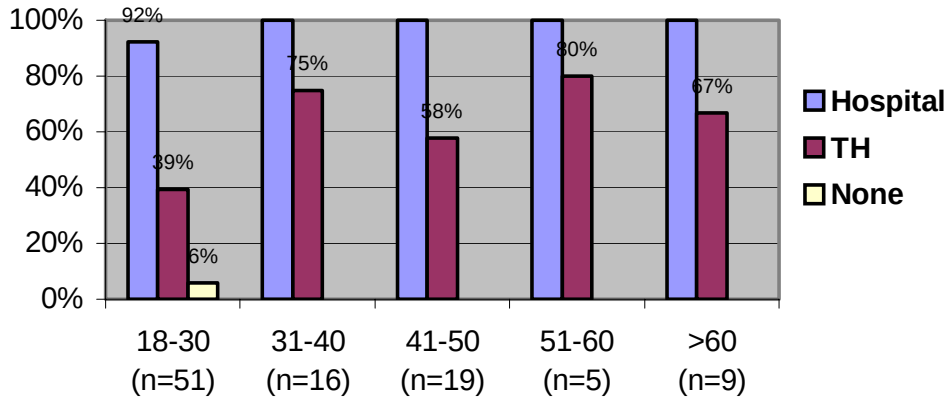
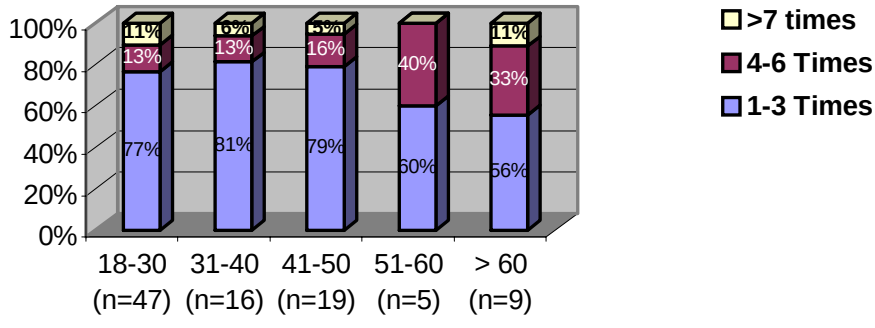
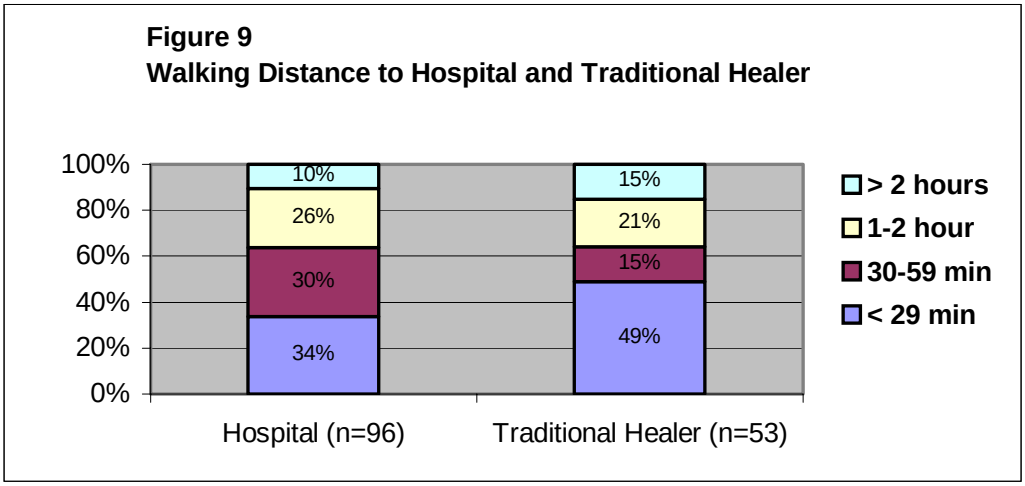


Figure 8
Frequency of Hospital Attendance a Year According to Age



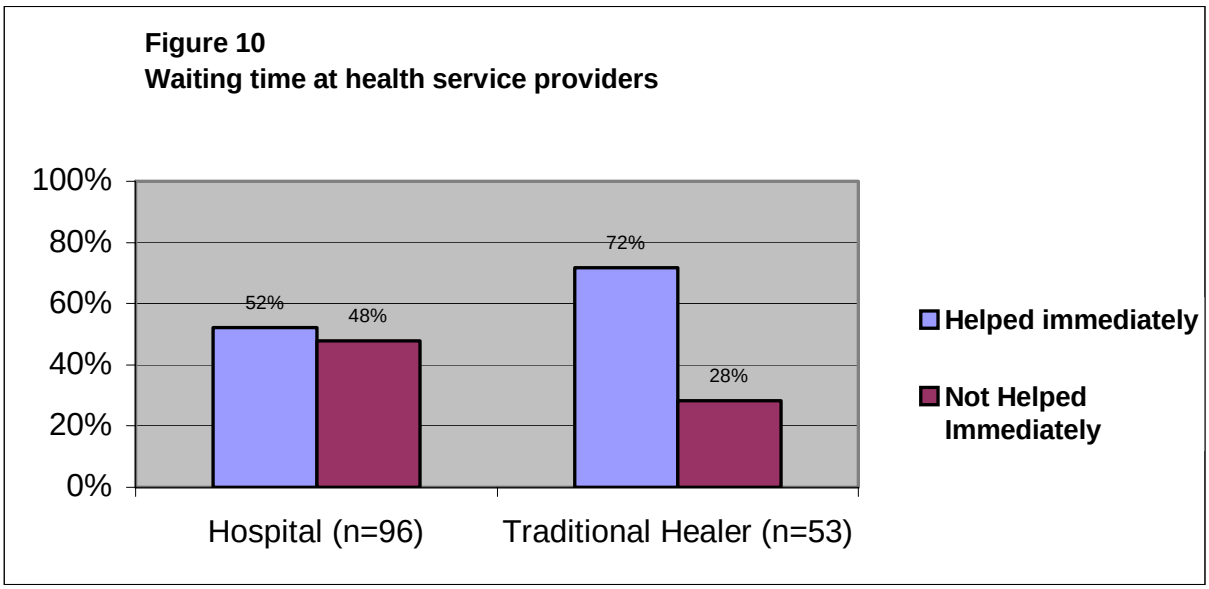
Those respondents who said that they had visited the hospital or a healer were asked how far they had to walk, as a proxy indicator of geographical accessibility. The walking distance is expressed in a time unit, since it does not only indicate distance, but also barriers to access, such as rivers, flood plains, lack of transport facilities, etc. The results are shown in Figure 9. Walking distances were sub-divided into four categories: less than 29 minutes, 30–59 minutes, 1-2 hours, or more than 2 hours. The majority of people live very near (< 29 minutes) to a traditional healer, but 64% of the respondents live within a walking distance of 1 hour from the health care provider of their choice.

Figure 9
Walking Distance to Hospital and Traditional Healer



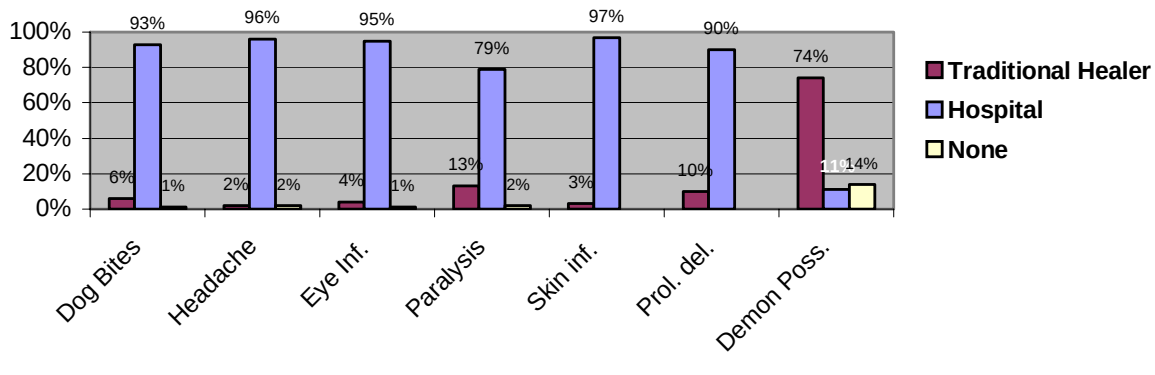
Not having to wait is a factor which is frequently mentioned as a reason for people to visit a traditional healer. Hospital and clinics have a bad name because they let patients wait for a long time. Figure 10 shows whether the respondents received help immediately or not; 48% of the respondents said that they were not helped immediately at the hospital, compared by 28% at the healer.

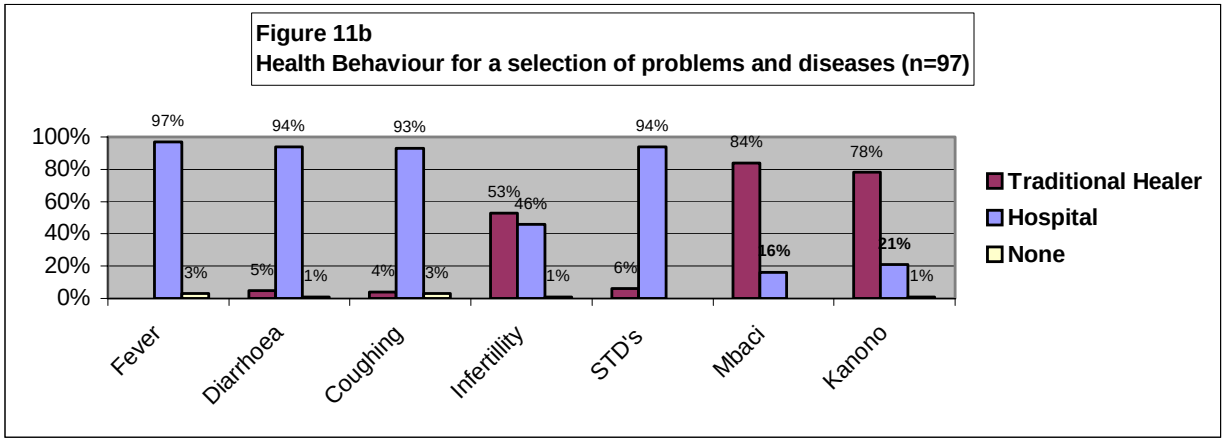
Figure 10
Waiting time at health service providers



Health care seeking behaviour can differ per specific disease or complaint. A list was made of 14 problems and/or diseases that were mentioned by key informants in the preparation phase of the study as being common or interesting problems for which people frequently visit a hospital or a healer. The respondents were shown this list and asked what they would do in each case. The health care seeking behaviour was divided into three possible options between which they had to choose: attending a traditional healer, attending the hospital or neither. Figures 11a and 11b show the results.

Figure 11a
Health Behaviour for a selection of Problems and Diseases (n=97)





Infertility, kanono, mbaci and demon possession were the diseases with the highest probability of people suffering from it visiting a traditional healer. Interesting information about three of these conditions was collected from interviews and focus group discussions with respondents and healers. Demon possession was chosen as the heading of a group of conditions, which were mentioned by the respondents, not easily to define; bad luck, madness, impotence, possession and struck by lightening were among them.

Infertility is caused by a 'disease of the woman'. Some of the causes which were mentioned are: wrong position of the uterus, abdominal diseases, STD's and witchcraft. A diagnosis can be reached by the healers by inspection and examination of the women and consultation of spirits. One of the healers mentioned carrying out a vaginal examination.

Treatment is mainly with roots and herbs, which can be drunk or mixed with porridge, or inserted into the vagina. Other treatment options that were mentioned by healers are: steaming, correction of the wrong position of the uterus and instructions for the husband not to go out and have sex with another woman.

'Mbaci' is a disease also known as the 'African Land Mine'. It is believed to be caused by something which is put in the ground. Usually this 'mine' is made of special medicine, roots or herbs and is designed for somebody particular. This means that it has no effect to somebody else who steps on it. Some people believe that the mine can explode, others believe that it just causes a sharp sensation of pain, felt by the person who steps on the 'mine'. The 'mine' is believed to be planted by witchdoctors. From the moment the patient has stepped on the 'mine' he or she feels pain in his or her leg. Sometimes the foot is swollen or shows signs

of gangrene. Mbaci can be treated by steaming the leg, tattooing the foot or leg and sucking the poisoned blood out with a cow horn, or a herbal medicine.

Kanono is usually associated with fits or epilepsy. According to most respondents, it is caused by witchcraft. One person mentioned that kanono can be caused by accepting food or drinks from a woman who has just had an abortion. Natural causes and heritage were also mentioned. A diagnosis can be made by observing the patient, specifically looking for special symptoms, such as collapsing, flatulence, saliva/foam release and inability of the patient to move. Divining, communication with spirits and asking what is wrong with the patient and how he or she should be treated, was also mentioned. Only herbs can be used for the treatment of kanono. The methods vary from steaming, drinking, and using herbs to cause vomiting and diarrhoea to applying herbs onto the patient's eyes.

It was remarkable to notice the importance of 'women's diseases', STDs, including HIV/AIDS, and infertility in many interviews, both with healers and with respondents. Since STDs are so prevalent in Kalabo and the area of reproductive and sexual health could be one of the areas for co-operation, some ideas people have about STDs are mentioned here.

STDs can be spread by having sexual intercourse with an affected person, according to most people. Migration of worms from a sick person to a healthy person was also mentioned as a way of contracting an STD. Other possibilities which were mentioned were: blood transfusion, many sexual contacts, having sex with a woman who had had an abortion, sleeping with your wife too soon after child birth, and witchcraft. A diagnosis can be made by observing the body of the patient. Some signs are: sores on the genitals or all over the body with scratch marks, loss of weight, swollen stomach, and a persistent cough.

Herbs and roots are used for treatment. They can be applied to the sores on the genitals or the body. Steaming or injecting liquid medicine into the anus is also possible. Four healers mentioned that they were able to treat and cure AIDS, although three of them said that they could only do so in the first stage of the disease. One of the healers claimed to be able to protect people from getting HIV/AIDS.

Whilst gender and age had no significant influence on the health care seeking behaviour of people with these problems, education did (Figures 12a,b,c and d).

The four conditions for which most people visit a traditional healer all show the same pattern. The higher the level of education, the lower the probability of visiting a traditional healer. For infertility, none of the respondents with secondary school education would visit a traditional healer, whilst for mbaci even 60% of the respondents with secondary school education would visit a traditional healer.

Figure 12a
Health Care Seeking Behaviour for Infertillity According to Education

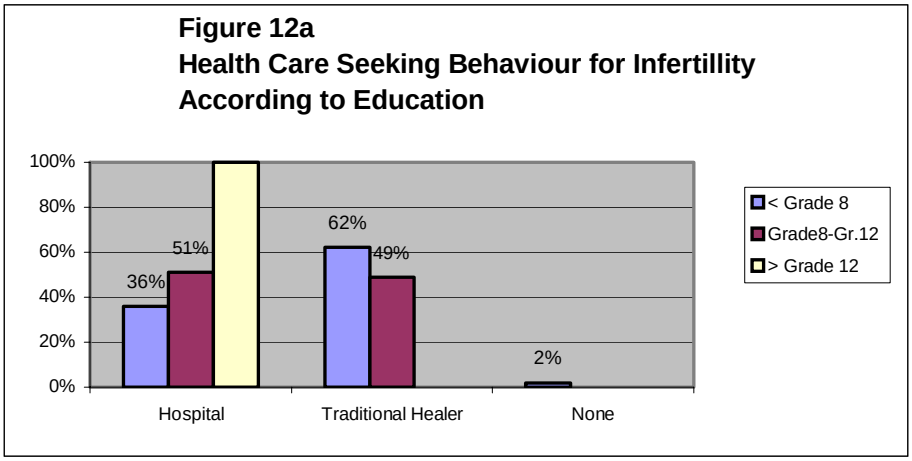


Figure 12b
Health Care Seeking Behaviour for Mbaci According to Education

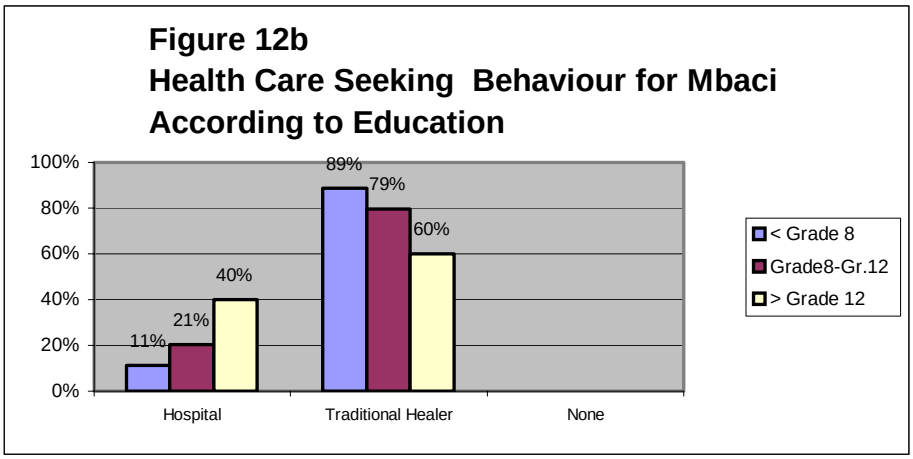


Figure 12c
Health care seeking behaviour for Kanono according to education

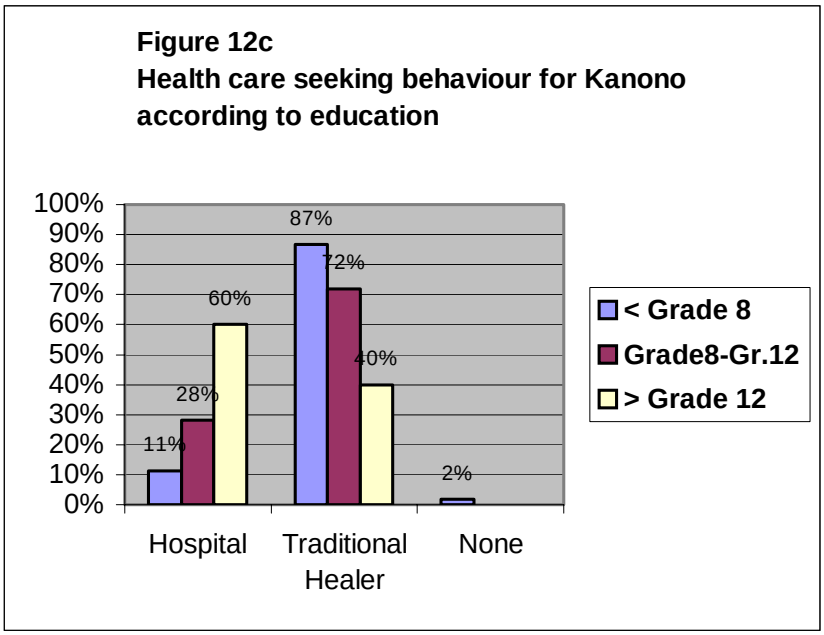
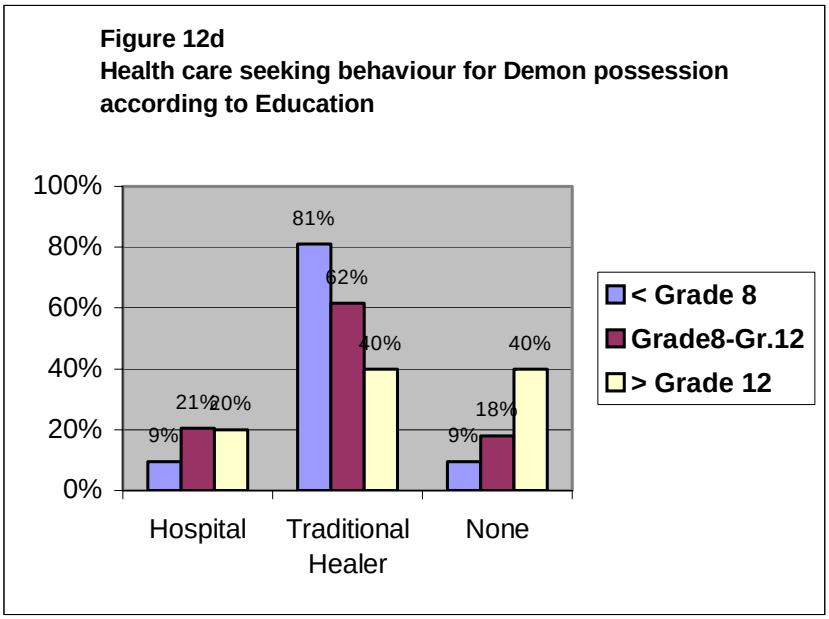


Figure 12d
Health care seeking behaviour for Demon possession according to Education



6.4.3 Affordability

All respondents were asked how much they had to pay for treatment from a traditional healer. The results are shown in Figure 13. Two thirds of all respondents said that they had to pay an animal, which means a cow in most cases. The value of a cow varied between K 200,000 and

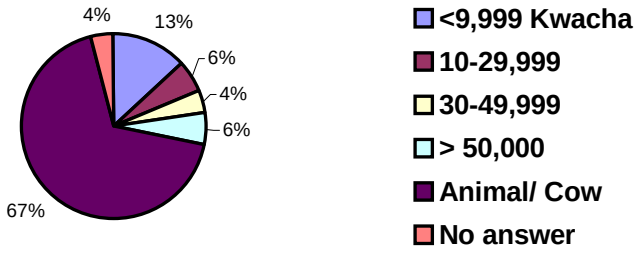
K 400,000 [8]. On the other hand, 13% of the respondents said that they paid less than K 10,000 for treatment from a traditional healer.

Most healers use a 'no cure, no pay' system, which could attract people to accept the higher costs of treatment. How healers and respondents define 'cure' was not clear. Payment in instalments is another modern method, which some healers use.

A remarkable outcome of the focus group discussion with the traditional healers was that they said that their prices are higher because of the risks they run when treating cases of witchcraft. One of the risks is that they themselves become bewitched.

The cost of treatment at the hospital was fixed, and varied from K 2,000 for registration to K 10,000 for major surgery. The most vulnerable groups were exempted from paying medical fees: e.g. children under the age of 5 and elderly people over 65 years of age, people suffering from chronic conditions such as tuberculosis, HIV/AIDS, diabetes, asthma and hypertension, and patients suffering from contagious diseases during outbreaks.

Figure 13
Prices of Treatment by a Traditional Healer



6.4.4 Satisfaction

Most respondents were satisfied after treatment; 89% after treatment at the hospital versus 74% after treatment from a traditional healer. Of the respondents who said that they only attend the hospital, 98% were satisfied after treatment, whilst 81% of the respondents who

[8] K stands for kwachaa, which is Zambia's currency. At the time of the research 1 USD equalled K3,000

sometimes go to a healer and sometimes to the hospital were satisfied after treatment in the hospital.

All respondents who were not satisfied after treatment at the hospital or from a healer were asked whether they would opt for visiting the other care provider in future. After dissatisfaction with the healer 86% of the respondents would consider attending the hospital, whilst only 45% of the respondents would consider visiting a healer after dissatisfaction with hospital treatment.

6.4.5 Co-operation

All health workers were of the opinion that co-operation between traditional healers and the hospital is important, because patients appreciate both services. Health workers are worried about the ability of healers to assess their skills. They consider timely referrals from healers to the hospital to be very important, and mentioned a formal referral system as a prerequisite.

In a focus group discussion with traditional healers, co-operation with the hospital was also discussed. The healers also believe that co-operation is necessary. One of them even proposed that all patients should be examined in the hospital before visiting a healer. Another healer suggested that healers should be allowed to treat patients in the hospital wards.

6.5 Discussion

This study clearly shows the importance of traditional healers in the current health care seeking behaviour of people living in a rural district in Zambia. The study also identifies factors which play a role in people's decisions with regard to when and where to seek help if they are ill.

Additionally, it gives an example of demand-driven research which was carried out with a very low budget and which led to results and recommendations which could immediately be implemented at the same local level to plan strategies to involve traditional healers in the district health programmes.

The study was based on quantitative and qualitative methods. The limitations of the study mainly concern the small number of respondents in some of the sub-groups. No attempt was made to secure statistically significant samples, or to evaluate the quality of the data. For example, only 5 respondents could be included in the group of people with higher education.

This is, of course, illustrative of the general level of education of the people in Kalabo, but it complicates the analysis and interpretation of the results. No further statistical programmes were run on the data, because of lack of statistical power. For that reason, the study should be viewed as a preliminary study that will help future researchers to determine the levels of variation within a population, in order to determine statistically significant sample sizes and selection criteria. Nevertheless, the importance of the data to illustrate some sociological and anthropological patterns in the use of traditional healers cannot be denied.

Many authors have published articles on 'utilisation' and 'coverage', and many models, variables and diagrams have been defined. Tanahashi's and Kroeger's models have been described in this paper, because they create better understanding of what 'utilisation' and 'coverage' mean. Many authors have criticised them and even Kroeger himself has created modifications of his own model, paying attention to the viewpoints of his critics. Nevertheless, the model that is included in this paper describes which variables can play a role in people's decisions with regard to where to go for treatment. Not all variables mentioned in the models were included in this study.

Of the many 'characteristics of the subject' that can play a role in the choice of health care resource, only age, gender and education were studied. Household size, occupation and income, which are considered to be indicators of economic strength, were not included. Other studies in the district had already shown that the economic strength of the inhabitants of the district can generally be described as poor. Questions about household size, assets and type of housing provided very little discrimination between groups (Stekelenburg et al. 2003). This study clearly showed that, despite poverty and the higher costs of treatment from a traditional healer, people still frequently decide to seek treatment from a traditional healer.

The importance of gender as a determinant in the choice of health care options was not clear in this study. Whilst more women than men visited traditional healers, the frequency of attendance of men was higher than that of women. Jurg concluded that traditional healers are more specialised in women's diseases, or that women might be less reluctant to visit a traditional healer (Jurg 1993). More research is needed to find out how the distribution of power, decision-making processes and financial strength of spouses correlates with health

care seeking behaviour. The concept of infertility as a woman's disease and the connection between illness and women as the cause (abortion, sleeping with women) of mbaci, kanono and demon possession, could compel women to visit traditional healers more frequently than men.

Increasing age of the respondents correlated with increasing frequency of visits to both the hospital and the traditional healers. Apparently, the balance between the barriers to seek treatment and the number, frequency and severity of diseases in older people changes, and leads to increasing health care utilisation. In addition, older people can be expected to have a more traditional lifestyle and, therefore, to be more likely to contact a traditional healer when they are ill.

It makes sense to assume that people with a higher level of education have more knowledge about modern medicine, and thus make less use of traditional medicine. On the other hand, Pretorius (Pretorius 1991) showed that highly educated people visited traditional healers just as frequently as people with less education. Observations in Kalabo showed a differentiated health care seeking pattern in people with higher education, carefully weighing the costs and benefits of different options. For those diseases for which many respondents visit a traditional healer (kanono, mbaci, infertility and demon possession), those who are better educated do so less frequently or even not at all.

Characteristics of the perceived illness strongly influence people's decisions with regard to where to go for treatment. Kanono, mbaci and demon possession are unknown conditions in western medicine, and most people who are suffering from these conditions first visit a traditional healer. Additional anthropological research is necessary to understand more about these conditions. Infertility on the one hand is surprisingly included in the group of conditions for which people mainly visit a traditional healer. On the other hand, it is known that the hospital has very little to offer people with infertility problems and, apparently, traditional healers have attracted people to come to them for treatment of infertility.

Whereas in western cultures infertility is predominantly seen as a personal problem based on the lack of fulfilment of womanhood and manhood, due to a defect in the body which can sometimes be resolved through technical interventions, in many African cultures infertility is considered to be a personal and social and spiritual issue. From this point of view it follows logically that infertility is a typical complaint for treatment with traditional medicine, prayers

and rituals (Ventevogel 1996; Ebin 1982). The reason why people with higher education and infertility problems do not visit traditional healers in Kalabo is not fully understood.

Characteristics of the health service, defined as variables in an individuals' choice of care, include Tanahashi's steps in the process of service provision: successively availability, accessibility, acceptability, contact and effectiveness.

The accessibility of services was measured by asking respondents how far they had to walk. The authors are aware of the bias caused by the choice of the study area. Only 10% of the respondents lived a walking distance of more than two hours away from the hospital. Stekelenburg et al., in a study on the utilisation of maternal health services, found that 50% of the respondents in the same district, but in a much more peripherally located study area, had to walk more than two hours to the closest health institution (Stekelenburg et al. 2003). Therefore, care should be taken in drawing conclusions with regard to the situation in the entire district. From the results of this study one can conclude that traditional healers are more evenly distributed than 'formal' health institutions. The average walking distance to reach a traditional healer is less than the distance to a hospital or a clinic. On the other hand, one cannot clearly conclude that this difference in accessibility influences people's choice of health care option. Of the respondents who said that they had never visited a traditional healer, only 5% said that this was because of the walking distance.

Affordability of the treatment is another component of accessibility: financial accessibility. Hospital services are much cheaper than treatment from a traditional healer. Jurg (1993) and Pretorius (1991) reached the same conclusion. Although one third of the respondents who had not visited a traditional healer mentioned that they had not done so because of the high cost, it is difficult to find more indications in this study to support the assumption that affordability does influence the choice of treatment option.

The contact coverage, i.e. the ratio of the number of people who have contacted services and the total population, was high in this study. For hospital attendance it was 96% and for traditional healers it was 53%. Once again, the results could be biased by the selection of a study area near to the hospital. The ratio can be expected to be lower in other parts of the district. Stekelenburg et al. (2003) found antenatal clinic (ANC) coverage of 72% and coverage for delivery services of 54%.

The effectiveness of services is correlated with the technical quality of services, but this was not analysed in the present study. Technical quality can be poor, even when consumers express satisfaction with the services. Earlier studies in Kalabo showed that there was much to be desired both in the treatment of young children with pneumonia (Stekelenburg et al. 2002) and in the treatment of maternal morbidity (Stekelenburg & Van Roosmalen 2002) in the hospital. The technical quality of treatment provided by traditional healers has never been measured.

Questions about 'satisfaction' usually give rise to methodological concerns. In general, respondents are reluctant to express complaints about their health services, and tend to give 'socially desirable' answers. Interviewers can easily be identified as representatives of the health service. However, by asking the respondents about their opinions and perceptions of a range of aspects and elements of the health services, this bias was prevented. Satisfaction was high, both after visiting the hospital and after visiting a traditional healer, but slightly higher (89% compared to 74%) after visiting the hospital. People visiting the hospital appear to be firmer in their decision.

After dissatisfaction in the hospital, 45% go to a traditional healer in future. After dissatisfaction with a traditional healer, 86% would consider going to the hospital next time. Dissatisfaction after treatment in the hospital (11%) was in most cases caused by the poor availability of staff and, as a result, long waiting times.

The study provides increasing insight for policy makers into how people in Kalabo choose where to go for treatment. Some interesting details about traditional diseases, their aetiology and the implications for health care seeking behaviour were obtained. Most probably the findings can be valuable for health care policy-makers in similar rural districts, with comparable health problems and socio-demographic features, in sub-Saharan Africa. However, for meaningful interpretation, the environmental, social and cultural context must be considered. In her thesis Geelhoed described how the specific context of living (of the Akan people in Ghana) implicated the existence of alternative understandings of disease aetiology and its influence on health care seeking behaviour (Geelhoed 2003).

The positive attitude of both traditional healers and health workers towards co-operation between the two systems was promising. Already the fact that the study was carried out has

stimulated discussion and exchange of ideas between representatives of the two systems. More research might be necessary in future to form an idea about how the co-operation should be organised. The field of reproductive and sexual health appears to be important and an appropriate area in which to start making alliances. The exchange of knowledge between healers of all kinds has already started in Kalabo. Mutual understanding, guidelines for referral, agreement about the importance of condom use in the prevention of STDs, infertility and pregnancy are the following important, but large, steps that must be taken.

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Annex 1

Selection of questions used to gather data from traditional healers

Categorization of healers	
1a	What are the most common problems and diseases you treat? Can you give 10 examples?
1b	What are the causes of the diseases and problems just mentioned?
1c	Can you tell us something about how to carry out the diagnosis of the abovementioned diseases and problems?
1d	Can you tell us something about the methods of tretament for the abovementioned diseases and problems?
Co-operation	
6	Do you treat people who have been treated or who are being treated at this moment at the hospital?
7	What do you think about methods of tretament in the hospital and why?
8a	Do you refer people to other traditional healers? To the hospital?
8b	Are people referred to you by other healers or the hospital?
8c	Do you think there should be a referral system between the hospital and the traditional healers?
9	Would you be intersetd in helping with vaccination programmes? With food distribution? Condom distribution?

7 Waiting too long: low use of maternal health services in Kalabo, Zambia

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7.1 Abstract

Objective To gain insight in the level of utilisation of maternal health services and to identify and assess factors that influence women's choices where to deliver in Kalabo District, Zambia.

Methods A cross-sectional descriptive study was held between 1998 and 2000. A total of 332 women were interviewed, using (semi)structured questionnaires. Focus group discussions were held and hospital data and registers were checked.

Results Though 96% of respondents would prefer to deliver in a clinic, 54% of respondents actually delivered in a clinic. Factors responsible for this discrepancy are long distances and non-availability of transport, the charge of user fees, lack of adequate health education given during antenatal clinic attendances, ill staffed and ill equipped institutions and poorly skilled staff.

Discussion Unmarried women, women with higher education and women with formal employment, who are able to pay the user fees and live nearby a clinic, have a higher chance of delivering in a clinic. That does not automatically mean that they will survive. Maternal mortality is high in the district; health facilities are ill staffed, poorly skilled and ill equipped.

7.2 Introduction

Of the more than 515,000 maternal deaths annually, 99% occur in the developing world (Hill et al. 2001). Three quarters of these deaths result from direct causes, such as obstetric haemorrhage, sepsis, obstructed labour, hypertensive disorders of pregnancy and abortion. For many decades, the technical means to prevent the overwhelming majority of maternal deaths from these causes have been available. However, maternal mortality is the result of a combination of biological, medical and social factors, which are often inextricably interrelated. What is lacking in many parts of the world is the ability to bring the necessary technical skills to those in need of help. In many parts of the developing world, barriers to health care prevent women to benefit from life-saving interventions. Studies of maternal mortality in low income countries have shown that making pregnancy and childbirth safer first of all means to ensure that women have access to a continuum of care, including appropriate management of pregnancy, delivery and the post-partum period together with access to life-saving emergency obstetric care (EOC) when complications arise. Access to such care is the crucial component of safe motherhood.

Home births are often the only option for women in low income countries. A large proportion of these home deliveries take place without skilled attendants. The World Health Organization estimates that 60% of births in low income countries would occur outside a health facility, with 47% assisted only by traditional birth attendants (TBAs), family members, or without any assistance at all (WHO 1997). Over the last decade, many TBAs have been given midwifery training as part of the Safe Motherhood strategy. Training of TBAs started in Kalabo in the 1980s, as part of the Western Province Primary Health Care Programme, but the programme has almost collapsed. The programme had low priority, both at national and at district level, and little attention was given to it. If unsupervised, the TBAs tend to slide back into old ways and if unsupported, they are rendered helpless when a killer strikes during childbirth. The impact of trained TBAs (tTBAs) is intangible because of other factors such as accessibility of essential obstetric services (Kamal 1997).

Maternal mortality in Kalabo District is high. The most reliable data are from 1996, when a sisterhood method revealed a maternal mortality ratio (MMR) of 1,238 per 100,000 live births (Vork et al. 1997). Delay in seeking care, poor accessibility and substandard care factors in

health institutions were identified as possible factors responsible for low use of health institutions and high maternal mortality.

In a period between 1998 and 2001, 20 maternal deaths occurred on a total of 1,471 live births, corresponding with a MMR of 1,359/100,000 live births. All maternal deaths in the hospital were analysed in review meetings since mid-1998, in order to formulate recommendations to prevent substandard care and to gain insight in reasons for delay of seeking care and delayed attendance (Stekelenburg & van Roosmalen 2002).

The MMR in the more privileged regions of the world is 21/100,000 live births (Hill et al. 2001). A prospective population-based study in rural Zambia estimated the MMR at 889 per 100,000 live births (Mongu District Health Services 1995). A hospital-based study in a semi-urban area in Zambia showed MMR of 1088 and 2011 per 100,000 live births for 1998 and 1999 respectively (Crabtree 2000).

The cause of differences for MMR between the developing world and the industrialized world is poverty and the failure of health systems in low income countries to provide essential obstetric care for all.

Maternal health use indicators for Kalabo District from 1993 to 2000 are presented in Table 1. Services rendered by tTBAs in the district are not included in these figures. The number of institutional deliveries almost doubled, from 1260 in 1994 to 2335 in 2000. The actual institutional deliveries as a percentage of the expected deliveries ranged from 21% in 1994 and 1995 to 39% in the year 2000. The actual number of institutional deliveries as a percentage of the total number of first antenatal attendances ranged from 29% in 1995 to 52% in the year 1997. Zambia's Central Board of Health national guidelines state a target for institutional deliveries of 40 to 50% of expected deliveries in rural districts like Kalabo. The percentage of first antenatal clinic (ANC) attendance, as a percentage of total expected pregnancies, ranged from 67% to 74%. This was relatively stable, but below the national target of 80%. Use of the different health institutions varies greatly, from 10% in the lowest, staffed by a male clinical officer, to 76% in the highest, staffed by a male Family Health Nurse.

The theoretical framework of the three delays, as described by Thaddeus and Maine was used (Thaddeus & Maine 1994). Delay is assumed to be the key factor attributing to maternal death. If there is prompt and adequate treatment following the onset of an obstetric

complication, the outcome will be satisfactory in most cases. The delays distinguished by Thaddeus and Maine are:

Phase 1 delay includes the decision-making process. Factors that can influence the decision to seek care include the woman herself, the husband and/or relatives, the availability and the skills of a trained traditional birth attendant (tTBA), the ability to recognise high-risk pregnancies and to give the right advice, the status of the woman, illness characteristics (recognition and severity), distance from the health facility (accessibility), financial and opportunity costs (affordability), previous experiences and perceived quality of care.

Phase 2 delay is the delay to reach a health facility. Influencing factors are physical accessibility, travel time from home to facility, the availability and cost of transportation and the condition of roads.

Phase 3 delay is the delay before receiving adequate care after arriving at the facility, but also includes substandard care. Influencing factors are the availability of supplies (blood transfusion, intravenous fluids and antibiotics), equipment and trained personnel, and the competence of available personnel (wrong diagnoses and/or action).

7.3 Objectives

The objectives of this study were to provide data to assist the District Health Management Team (DHMT) of Kalabo District to develop strategies for improving the maternal health services in the District, and more specifically:

- to gain insight in the level of use of maternal health services in Kalabo District, and
- to assess factors that influence women's choices of delivery.

7.4 Methods

7.4.1 Study area and population

Kalabo District is one of the seven districts in the Western Province of the Republic of Zambia, situated on the western side of the Zambezi River. The upland forest areas are sandy with a swampy type of vegetation along the Zambezi and her tributaries. The plains get flooded every year and some parts of the plains remain wet throughout the year. Communities

living on either side of the flood plains are separated, which sometimes makes visiting health facilities difficult or impossible.

The population projection for 1996 was 114,996 (CSO 1996). District growth rate is only 0.3%, because of high migration and mortality. Due to migration of men to sugar cane areas, there is a high percentage of female-headed households with a male to female ratio of 782:1000 (CSO 1996). Most of the population is involved in subsistence farming or fishing, and is certainly living far below the current national poverty line. The district is virtually cut off from the rest of the country, as there are no roads. Transport by river is seasonal. Within the district there are also no roads, only sandy tracks. There is no formal public transport and there are almost no vehicles, apart from a few government vehicles, based in Kalabo town.

Kalabo District has two first referral hospitals, located only seven kilometres from each other. There are 14 rural health centres (RHCs), which are unevenly distributed throughout the district. During the flood season, 6 RHCs are completely cut off from the rest of the district. There are about 150 community health workers and 81 tTBAs. Due to the vast area, the scattered population and the complete lack of any means of transport, adequate access to health services is not available for all communities in the district. Furthermore, there is a critical shortage of trained staff of all cadres in all health institutions.

7.4.2 Methodology

A cross-sectional comparative and descriptive study was conducted in Kalabo District between 1998 and 2000. A combination of both quantitative and qualitative methods, each complementing the other, was used in this health system research.

A total of 332 women in the catchment areas of five RHCs were interviewed, using semi-structured questionnaires. The questionnaires served to obtain information about personal data, obstetric history, and preferences and barriers with regard to delivery services from the respondents. Not all questions were asked to all respondents. Nulliparous women could of course not be included in further statistics concerning the impact of different factors on utilisation of maternal health services. Questions concerning the quality of ANC were only asked to those respondents who visited ANC during pregnancy, and the question about walking distance to the clinic was only put to those who did walk there.

The RHCs were sampled randomly from the 14 RHCs in the district. Within the catchment areas, three villages/areas were selected, meeting the criteria that there should be an active neighbourhood health committee (NHC) and the village/area should be accessible. The interviewers approached women of reproductive age. Every third woman above the age of 16 years, at different locations in the selected villages, was included. There was not a systematic visiting of households, but interviewers tried to cover different areas in the villages. Whilst the mode of delivery concerned the complete obstetric history, the place of delivery was registered for the last delivery.

Four focus group discussions were held with community members and delegates from NHCs. Three discussions were held with women (only), who were found at the RHCs' premises at the time of the visit. The participants in the focus group discussions were not included in the interview group. The same criteria used for inclusion of respondents to the questionnaires were used. One focus group discussion was held among 10 NHC members, during their visit to Kalabo for a workshop. The focus group discussions served to discuss some of the findings from the questionnaires with mothers in a friendly, protected and traditional atmosphere, thus encouraging the participants to talk freely. Each focus group discussion consisted of 10 people. Prior to the focus group discussions, a chairperson was identified from the community. The discussions were prepared together with the principal investigator, who together with the chairperson identified the areas of discussion. Two members of the research team recorded all the meetings. After the meetings, the recordings were translated, transcribed and analysed by the complete research team.

SPSS was used for statistical analysis of the data. Crude odds ratios were calculated. Adjusted odds ratios and logistic regression was not done.

Quarterly and annual reports, in-patient registers and delivery registers were used to find data that could give information about the use of services, including the data for use of the ANC. Institutional data were extracted from the Health Management Information System (HMIS) and Hospital Management Information System (HosMIS), which have been operational in Zambia since 1996.

Checklists were used to assess the presence of equipment to deliver essential obstetric care in the health institutions. Annual reports were used to obtain information about the number of staff employed in the district.

7.4.3 Definitions

Maternal death was defined as 'death of a woman while pregnant or within 42 days of termination of the pregnancy, irrespective of the duration or the site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes', according to WHO's 10th version of the International Classification of Diseases (WHO 1992). MMR is the number of maternal deaths per 100,000 live births. Direct maternal deaths are those resulting from obstetric complications and indirect maternal deaths are those resulting from existing diseases, aggravated by the physiological effects of pregnancy.

In Zambia's Health Management Information System (HMIS) the expected number of deliveries per year is 52 per 1,000 population *(*CBoH 1998*).*

7.5 Results

Age, parity and delivery mode of delivery in obstetric history were noted in the questionnaires (table 7.2). Nullipara represented only 3% of all respondents; 87% of respondents were younger than 36 years (range 16-48); 71% had got 4 or more children. Nullipara were excluded from further statistics. The remaining 323 respondents reported 1,710 deliveries; 56 (17%) had once had an instrumental vaginal delivery or caesarean section; total reported instrumental vaginal deliveries and Caesarean section were 74 (48 caesarean sections and 26 instrumental vaginal deliveries), corresponding with a percentage of 4.3 of total reported deliveries (Table 7.2). Women who had had abortions were not excluded. Abortions were reported 99 times by 42 different respondents (one respondent reported 11 abortions).

In this study 54% of respondents travelled to a health institution (hospital or RHC) for their last delivery, which is higher than the data mentioned in the introduction (from 21% in 1994 and 1995 to 39% in the year 2000; table 7.1) and Zambia's Central Board of Health national target of 40 – 50%. ANC was visited during the last pregnancy by 72% of the respondents. This corresponds with the data mentioned in the introduction, ranging from 67% to 74% (Table 7.1), but is below the national target of 80%.

Table 7.1 Institutional Maternal Health Utilisation in Kalabo District 1993-2000

Year	Number of first ANC attendances	%	Expected deliveries	Actual institutional deliveries	% of number of first ANC visits	% of number of estimated deliveries
1993	4071	67	5864	1262	31	22
1994	4173	68	5881	1260	30	21
1995	4342	71	5898	1267	29	21
1996	4368	71	5915	1471	34	25
1997	4247	69	5932	2195	52	37
1998	4349	70	5950	2142	49	36
1999	4604	74	5968	2268	49	38
2000	4610	74	5986	2335	51	39

Source: annual reports Kalabo District Health Services 1993 - 2000

Almost all respondents (96%) had a preference of delivering in a clinic or hospital. Nevertheless, the actual percentage of institutional deliveries, for the last delivery, was 54%. An overview of factors related to delay in obtaining adequate obstetric care can be found in Table 7.3 and 7.4.

Table 7.2 Background variables (age, parity and delivery methods)

	Frequency	Relative frequency (%)
Age (n=332)		
16-25	192	58
26-35	97	29
36+	43	13
Total	332	100
Parity (n=332)		
Nullipara	9	3
1-3	87	26
4-6	126	38
> 6	110	33
Total	332	100
Mode of delivery (n=323)		
Normal vaginal	267	83
Instrumental vaginal and C-section	56	17
Total	323	100
Total reported deliveries (n=1,710)		
Normal vaginal deliveries	1,636	96
Instrumental vaginal deliveries	26	1.5
Caesarean sections	48	2.8
Total	**1,710**	**100**

Distance, unavailability of transport and uneven distribution of health facilities cause significant delay in deciding to go to a health institution (phase 1 delay), but also influence the delay caused by the travel time from home to the clinic (phase 2 delay). In many occasions, the decision is taken to stay at home to deliver, even when problems are already evident. While 76% of the respondents have to walk to the clinic, 50% even have to walk for two hours or more. This discourages women from seeking help at an institution and in some occasions they come too late. While 71% of those living within 2 hours walking distance delivered in a health institution, only 35% living further away did.

In focus group discussions participants mentioned that maternity waiting homes (MWHs), which they knew to exist at district hospitals of other districts, could help to increase the number of women delivering in the health institutions.

The charge of **user fees** for delivery services also plays a role in decision-making. In 2001 delivery fees were K 3,000 (USD 1) at hospital level and K 800 (USD 0.27) at RHC level. For 59% of the respondents the delivery fees were not affordable. Among the 191 women who said that the fees were unaffordable 44% used the facilities, in the other group 68% delivered in the clinic (OR = 2.7; 95% CI 1.7-4.3).

In focus group discussions participants mentioned that apart from the payment of medical fees, health personnel sometimes instruct women to come with certain equipment, such as new baby gear, clothes, leather blades, candles, paraffin and maternity pads. Women who failed to produce these items often decided to deliver at home.

The perceived quality of care can influence the decision whether to travel to a clinic or not. The quality of delivery services is perceived as good or satisfactory by 96% of respondents; 87% perceived the quality of ANC as good. However, no significant associations were found between the perceived quality of services and the use of the services.

In Kalabo District, **male workers** run most clinics and sex preference is a widely discussed issue. A statistically significant association between the mothers' attitude towards male attendants and the use of services that are exclusively manned by male health workers was found. Women who do not mind to be delivered by a male health worker more often deliver in a clinic (OR = 3.5; 95% CI 2.2-5.6).

Recognition of illness and/or risk factors can be influenced by health education. Only 56% of women who visited the ANC had received health education and 58% of them delivered in a clinic, compared to 48% of the group who did not receive any health education (OR=1.5; 95% CI 0.8-2.8).

Only 15% of women who visited the ANC had adequate **knowledge** about the risk factors and/or danger signs of pregnancy. A statistically significant difference was found in the use of delivery services between the group of women who know the risk factors very well and the group of women who do not (OR = 2.5; 95% CI 1.2-5.4).

Women who visited ANC were asked about their estimated date of delivery (EDD), very important to know in order to make a timely decision to seek care. Only 45% knew their EDD and of this group 78% delivered in the clinic (OR = 3.7; 95% CI 2.1-6.6). During focus group discussions it emerged that health workers usually do not inform the expecting mothers about their EDD. Necessary information about the normal time span around the EDD that the

delivery can take place is not shared with them. Of course, limited awareness of the date of the last menstrual period of some mothers also plays a role.

The **status of women** in society can also influence the decision where to deliver. Unmarried women (OR = 5.6; 95% CI 3.4-9.1), women with higher levels of education (OR = 2.7; 95% CI 1.5-5.0) and women with formal employment (OR = 6.1; 95% CI 2.9-13.0) have higher chances of using institutional delivery services. In 47% of cases women themselves decide where to deliver, in 14% the parents, in 11% the husband, in 9% relatives in general and in 3% the tTBA. No significant correlation was found with the percentage of institutional deliveries.

All facilities in Kalabo are **poorly staffed**. Two RHCs have only untrained staff. Out of the 14 RHCs only two have clinical officers, only one has a trained midwife and only six have more than one trained staff. During holidays or annual leaves in eight RHCs no trained staff is therefore available. The two hospitals are also poorly staffed. This results in more than 50% of all deliveries in the two hospitals not being supervised by a trained midwife or doctor. Both hospitals only have one doctor with surgical skills. In one of the two hospitals no instrumental vaginal deliveries can be performed and only classical caesarean sections are performed. Occasionally, both doctors are out of the district at the same time. The inadequate number and the uneven distribution of tTBAs have led to a situation where some communities, who live very far away from a clinic, do not even have access to a tTBA.

Very few obstetric interventions can be done at RHC level, because of the **lack of trained personnel and/or equipment**. No instrumental vaginal extractions, no blood transfusions, treatment of shock with intravenous fluids or antibiotics can be done. The three main causes of maternal morbidity and mortality (haemorrhage, sepsis and obstructed labour) cannot be adequately treated at RHC level. Only two institutions have full delivery kits for their level. This means that basic EOC cannot be delivered at RHC level.

The two hospitals offer blood transfusion services but do not have a blood bank. This leads to unnecessary delays in adequate treatment. Intravenous fluids and parenteral antibiotics have always been available. Possibilities to diagnose and treat electrolyte and base/acid disorders in severely ill patients are still absent, which also contributes to mortality in some cases.

Table 7.3 Factors with possible impact on utilisation of services (frequencies)

	Frequency (%)
Where to deliver (n=332)	
Hospital/Clinic	319 (96%)
Home	13 (4%)
Mode of transport/travel time (n=323)	
Walking < 2 hours > 2 hours	245 (74%) 84 (25%) 161 (48%)
Other	87 (26%)
Opinion about user fees (n=323)	
Affordable	132 (41%)
Not affordable	191 (59%)
Perceived quality of (general) health care in institutions (n=303)	
Good/satisfactory	291 (96%)
Reasonable/poor	12 (4%)
Perceived quality of care in antenatal clinics (n=232	
Good/satisfactory	202 (87%)
Reasonable/poor	30 (13%)
Sex preference for delivery care attendants (n=323)	
Do not mind	135 (42%)
Female	188 (58%)
ANC visits (n=323)	
Visited ANC during pregnancies	232 (72%)
Did not attend ANC during pregnancies	91 (28%)
Health education and knowledge about the estimated date of delivery (EDD) among those whose attended ANC (n= 232)	
Received health education	129 (56%)
Knowledge of risk factors and danger signs	35 (15%)
Knowledge about the EDD	105 (45%)
Status of women (n=323)	
Married	183 (57%)
Unmarried/divorced/etc.	140 (43%)
Higher education[9]	62 (19%)
Lower education[10]	261 (81%)
Formal employment	58 (18%)
No formal employment[11]	265 (82%)

[9] Secondary school and above
[10] Primary school and below
[11] Agriculture, fishing, beer brewing, business (market), etc.

Table 7.4 Factors studied and their impact on utilisation (cross tables)[12]

Walking distance and where to deliver (n= 245, OR = 4.7 (95% CI 2.6-8.3))			
	Institutional delivery	Non-institutional delivery	
Walking distance			
less than 2 hours	60	24	
more than 2 hours	56	105	
Opinion about user fees and where to deliver (n= 323, OR = 2,7 (95% CI 1.7-4.3))			
	Institutional delivery	Non-institutional delivery	
Affordable	90	42	
Non-affordable	84	107	
Sex preference for delivery care attendants and where to deliver (n= 323, OR = 3.5 (95% CI 2.2-5.6))			
	Institutional delivery	Non-institutional delivery	
No preference	96	39	
Preference for female attendant	78	110	
Knowledge about risk factors and danger signs of pregnancy and where to deliver (n= 232, OR = 2.5 (95% CI 1.2-5.4))			
	Institutional delivery	Non-institutional delivery	
Adequate knowledge	24	11	
Inadequate knowledge	91	106	
Knowledge about estimated date of delivery and where to deliver (n= 232, OR = 3.7 (95% CI 2.1-6.6))			
	Institutional delivery	Non-institutional delivery	
Adequate knowledge	82	23	
Inadequate knowledge	62	65	
Marital status of women and where to deliver (n= 323, OR = 5.6 (95% CI 3,4-9,1))			
	Institutional delivery	Non-institutional delivery	
Unmarried/divorced/etc	107	33	
Married	67	116	
Educational level and where to deliver (n= 323, OR = 2.7 (95% CI 1.5-5.0))			
	Institutional delivery	Non-institutional delivery	
Higher education	45	17	
Lower education	129	132	
Form of employment and where to deliver (n= 323, OR = 6.1 (95% CI 2.9-13.0))			
	Institutional delivery	Non-institutional delivery	
Formal employment	49	9	
No formal employment	125	140	

[12] Different 'n's are used in this table. Where n = 323, all respondents minus the nulliparae (n=9) are included. Where n = 232, those women who visited ANC are included. N = 245 in the crosstable about walking distance, since 245 respondents mentioned to walk to the Clinic.

7.6 Discussion

The use of both quantitative and qualitative methods, each complementing the other, in this health system research, allows the reader to draw some conclusions concerning the use of maternal health services in Kalabo District. Additionally, it gives an example of demand-driven research conducted by locally trained health managers, which was carried out with a very low budget and which led to results and recommendations, which could immediately be implemented at the same local level.

The most probable reason for the sharp increase in institutional deliveries between 1996 and 1997 is an improved data collection in the health institutions. A query still lies in the use of the percentages of 5.2% of total population for expected deliveries, as defined by HMIS in Zambia. It is generally felt that this percentage should be reviewed, bearing in mind current demographic and psychological changes in the population because of the HIV/AIDS epidemic. If the real percentage of expected deliveries were below 5.2%, maternal mortality would be higher, but the utilisation of services better than reported. In this study 54% of respondents answered that their last delivery took place in a health institution, which is higher compared to HMIS data, which showed an increase of institutional deliveries from 21% in 1994 and 1995 to 39% in the year 2000. Nevertheless, maternal health services are underutilised and the MMR is unacceptably high in Kalabo. Maternal mortality is far above 1000/100 000 live births, both with sisterhood method and with hospital data.

Data from tTBAs were not included in the study. Very few data from tTBAs were available from the HMIS. The tTBA programme is not running well in Kalabo District, just like the community health worker programme (Stekelenburg et al. 2003). The majority of tTBAs are inactive and the programme has low priority, both at district and at national level.

We think that the involvement of tTBAs is still one of the most important strategies to be followed in rural districts like Kalabo. Despite increasing numbers of researchers and policy makers openly discussing and doubting the impact of tTBA programmes (Smith 2000), it remains one of the very few feasible and affordable options in sub-Saharan Africa, which suffers from economic malaise, a human resources crisis and the HIV/AIDS epidemic. Instead of criticizing the programme, inefficiently using the little available manpower and jumping from one intervention to the other, it would be better for the international health community to join efforts to improve community programmes (Walraven & Weeks 1999; Kamal 1997).

Despite efforts of many researchers to precisely define use and outcome indicators (Ronsmans et al. 1999) (major obstetric complications, major obstetric interventions, major obstetric interventions for absolute maternal indication and eclampsia), traditional indicators were used in this study: actual number of supervised deliveries as a percentage of expected number of deliveries, first ANC attendances as a percentage and supervised deliveries as a percentage of first ANC percentages. Populations were too small for the use of other indicators, measuring access to facilities providing basic and comprehensive EOC.

Distance is a significant factor of delay to decide to go to a health clinic (phase 1 delay), but also influences the delay caused by the travel time from home to the clinic (phase 2 delay). The geographical features of the district, the uneven distribution of facilities and the absence of any roads or transport systems were already mentioned. The study confirmed these findings. It is clear and straightforward that these factors do negatively influence the use of institutional delivery services. Confirmation could have been even stronger if even those who answered to use other forms of transport than walking had been asked about walking distance. In a study in two districts in the Northern Province of Zambia the population attributable risk from poor accessibility was 29% and 65% respectively (Le Bacq & Rietsema 1997). This confirms and quantifies findings also relevant for Kalabo District.

It was generally felt that the absence of a suitable waiting shelter designed for expecting mothers with high-risk pregnancies could be contributing to the low use of delivery services. Many respondents suggested that separate waiting shelters should be constructed for waiting mothers. The construction of MWHs is an internationally accepted tool to increase the accessibility and the use of maternal health services and to improve pregnancy outcome (WHO 1996; Spaans et al. 1998; Tumwine & Dungare 1996). A further study was conducted to investigate the need and feasibility for an MWH (Chapter 10).

A strong correlation was found between the perceived affordability of user fees and attendance. During the focus group discussion, health authorities were requested to reconsider the issue of charging a fee for delivery services. The practice of asking women to bring requirements for the delivery is not part of the cost-sharing scheme, which is accepted at district level.

The large difference between the reasonably high ANC attendance and the lower supervised delivery percentage is still not fully understood. ANC attendance did not influence the decision where to deliver and most women did not receive health education during their ANC attendance. It indicates poor quality of ANC, further substantiated by the finding that only 45% of pregnant women is aware of their EDD. This finding stands in direct contradiction with 87% of respondents appreciating the quality of ANC as good.
Some respondents might have given wished answers. It could also show that pregnant women's expectations are already met by taking blood pressure and distributing medicines (ferrous sulphate and chloroquine). Women who had a high level of knowledge about risk factors of pregnancy more often delivered in a health institution, which shows the possible positive impact of education.
All assumptions concerning women's status and the decision where to deliver were confirmed. Women with higher education, women with formal employment and unmarried women, in other words women who make their own decisions, have a higher chance to deliver in a clinic. Both economic and social dimensions of the distribution of power between spouses influence use of services (Beegle et al. 2001).

Health facilities in the district are ill staffed and ill equipped. Health workers are not very skilled in obstetrics. RHCs are supposed to act as centres where basic EOC can be given (UNICEF, WHO, UNFPA 1997). This was never the case in Kalabo. Very few complications referred from the communities can be treated and the risk of increased delay is high, because of visiting the RHC. With the recent introduction of radio equipment and the improvement of ambulance services, the most important function for RHCs is to facilitate referrals to the hospital. The District Hospital is able to deal with all obstetric emergencies, but substandard care contributes to maternal morbidity and mortality, as in all hospitals in the world *(*Stekelenburg & van Roosmalen 2002*).* Substandard care may also influence women's decisions where to deliver, which closes the vicious circle of unsafe motherhood.

Recommendations were formulated for the District Health Management Team and led to policy changes in many occasions. Radio equipment was installed at all rural health centres and three ambulances were brought to the District. The maintenance of the communication-

and transport system was once again emphasized. With regard to the finding that RHC staff asked women to bring additional requirements to the labour room, DHMT members added this issue to the supportive supervision check list. The charging of user fees for delivery services is part of a national policy and could not be stopped.

The RHC staff came to the District Hospital to discuss the results of the study. They received maternal health refreshers courses and took notice of findings of the maternal mortality reviews. Together with staff from the District Health Office, they developed programmes to improve the quality of the ANC. Much emphasis was put on the need of proper communication with the clients about where to deliver, the EDD, risk factors and fears and expectations about the Clinic.

The responsible officers from the DHMT shared findings about staff shortages and poor equipment with the provincial and national authorities. In meetings of the District Development Coordinating Committee representatives from the DHMT shared findings about the correlation between educational level and the distribution of power between spouses and the use of services with representatives from other departments, like education, agriculture and social development.

The Hospital was advised to intensify efforts to implement full blood bank services. Problems to attract potential donors could not easily be solved. The HIV/AIDS epidemic and traditional beliefs still stand in the way. The DHMT has written project proposals to attract donors to contribute to improving structures at the mother's shelter, so that an MWH can be opened.

Preferably, after a period of about 5 years, research should be carried out to study the impact and the sustainability of the policy changes. An improvement of maternal health indicators could add to the conviction of the authors that this kind of health system research can lead to increasing knowledge of health managers about their own district health system and facilitate appropriate programme-writing.

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8 The maternal mortality review meeting; experiences from Kalabo District Hospital, Zambia

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8.1 Abstract

Objective To report experiences with a maternal mortality review meeting in Kalabo District Hospital between 1999 and 2001.

Methods Patient files and minutes of maternal mortality review meetings of 15 cases of maternal death were reviewed. Causes of death, classification, substandard care factors, recommendations and implementation were analysed.

Results In 9 cases of maternal death 22 different substandard care factors were found; 12 caused by organisational weaknesses, 8 caused by substandard clinical care. In nine cases, recommendations were formulated, which were completely implemented in 5 and partially implemented in 2 cases.

Conclusion A maternal mortality review meeting can be an important tool to improve essential obstetric services in a district hospital. It can easily and directly correct some substandard care factors, has a high educational value for staff and leads to a better understanding of maternal mortality for all people involved.

8.2 Introduction

Maternal mortality is high in most developing countries. Of the more than 515,000 maternal deaths (Hill et al. 2001), which occur every year, 99% occur in the developing world. Three quarters of maternal deaths result from direct causes as obstetric haemorrhage, sepsis, obstructed labour, hypertensive disorders of pregnancy and abortion. The technical means to prevent the overwhelming majority of maternal deaths from these causes have been known for many decades. What is lacking, in many parts of the world, is the ability to bring the necessary technical skills to those in need of help.

Though measuring maternal mortality is notoriously difficult and complex, unacceptable differences in maternal mortality ratios (MMR) between the developing and the industrialised countries exist. The maternal mortality ratio in the more developed regions of the world is estimated 21/100,000 live births against 1,100/100,000 in Sub-Saharan Africa (Hill et al. 2001). A prospective population-based study in rural Zambia estimated the maternal mortality ratio at 889 per 100,000 live births (Mongu District Health Services 1995). A hospital-based study in a semi-urban area in Zambia showed maternal mortality ratios of 1,088 and 2,011 per 100,000 live births for 1998 and 1999, respectively (Crabtree 2000).

Maternal mortality in Kalabo District is also high. A sisterhood-method, which was conducted in 1996, showed a maternal mortality ratio of 1,238/100,000 (Vork et al. 1997). Hospital data give comparable or even higher maternal mortality ratios (Table 8.1).

Table 8.1

Maternal Mortality in Kalabo District (1996-2001)

Year	MMR	Remarks
1996	1,238/100,000	Sisterhood method
1998 (3rd quarter) to 2001 (1st quarter)	1,359/100,000	Hospital data; 20 deaths, 1,471 live births

Effective strategies for reducing maternal deaths, their policy requirements and programme implications have been described by many (Donnay 2000; Jowett 2000). Significant progress can be achieved by strengthening and expanding an essential package of health services for women, improving the policy environment, and promoting more positive attitude and behaviour towards women's health (Tinker 2000). Access to quality essential obstetric care could prevent 48% of maternal deaths. Though it would provide useful information for policy makers, cost effectiveness and outcome of most interventions is yet unknown.

Certain studies claim that essential obstetric services are the only truly cost-effective interventions in reducing maternal mortality (Bartlett et al. 1993). Others found that relatively small investments in obstetric services could have a significant impact on maternal mortality. In Tanzania, studies found that it was wrong decisions at the district level and lack of equipment at the referral centre that were the main reasons for inadequate care (Urassa et al. 1997). Education in the broadest sense at all levels and sectors of society is required, according to others (Kwast 1998).

Comprehensive emergency obstetric care (EOC), which includes administration of antibiotics, oxytocics, anticonvulsants, manual removal of placenta, removal of retained products, assisted vaginal delivery with forceps or vacuum extractor, Caesarean sections and blood transfusions (WHO 1999), is available in most District Hospitals in Zambia. Nevertheless, hospital based maternal mortality figures are high. Delay in seeking and obtaining hospital care, poor accessibility and substandard care contribute to low utilisation of services and high mortality figures (Stekelenburg et al. 2004).

Many improvements have been achieved in recent years in Kalabo. The referral system was improved by installing radios in all rural health centres and the donation of two ambulances. Refresher courses in Safe Motherhood were organised for rural health centre staff and trained traditional birth attendants. This article will focus on substandard care factors in the Hospital. Experiences with and from a maternal mortality review meeting will be discussed.

8.3 Methods

8.3.1 Study area and population

Kalabo District is one of the seven districts in the Western Province of the Republic of Zambia, situated on the western side of the Zambezi River. The upland forest areas are sandy with a swampy type of vegetation along the Zambezi and her tributaries. The plains get flooded every year and some parts of the plains remain wet throughout the year. Communities living on either side of the flood plains are separated, which sometimes makes visiting health facilities difficult or impossible.

The population projection for 2000 was 115,656. The district covers an area of 17,447 square kilometres and the population density is less than seven people per square kilometre. District growth rate is only 0.3%, due to high migration trend and mortality. Due to migration of men to sugar cane areas, there is a high percentage of female-headed households, with a male to female ratio of 782:1000.

Most of the population is involved in subsistence farming or fishing, certainly living far below the current national poverty line.

The District is virtually cut off from the rest of the country, as there are no roads. Transport by river is seasonal. Within the District there are also no roads, only sandy tracks. There is no formal public transport and there are almost no vehicles, apart from a few government vehicles, based in Kalabo boma.

The District has two first referral hospitals, only 7 kilometres from each other. There are 14 rural health centres, unevenly distributed throughout the District. During the flood season, six rural health centres are completely cut off from the rest of the District. There are about 150 community health workers and 81 trained traditional birth attendants. Due to the vast area, the scattered population and the complete lack of any means of transport, adequate access to health services is not provided to all communities in the District.

There is a critical shortage of trained staff of all cadres in all health institutions.

Kalabo District Hospital is the main referral hospital in the District. It has 100 beds and comprehensive emergency obstetric care can be offered in most occasions. Two (foreign) medical officers, 3 clinical officers, 5 trained midwives, 20 trained nurses and 5 ward assistants deliver their services to the people. The hospital counts approximately 3,000 admissions, 500-600 deliveries and 25,000 out-patient-contacts per year. The annual budget

for the Hospital between 1998 and 2000 was approximately USD 25,000. =, which is far less than 1 USD per capita.

The maternal mortality in the hospital is high, as in most rural areas of Africa, with (far) more than 1,000 maternal deaths per 100,000 live births (Table 8.1). A sisterhood method indicated a maternal mortality ratio of 1,238 per 100,000 live births for the District (Vork et al. 1997).

8.3.2 Methodology

Maternal mortality review meetings were instituted in the hospital in 1999. All maternal deaths from 1999 to mid-2001 were discussed in this forum. The medical officer in charge chaired the meetings. medical officers, the nursing officer, the nurses and midwives in charge of female ward and maternity ward, the in charge of the operation theatre and the laboratory technician were always invited. Other officers could be invited occasionally, if their involvement could bring additional information. Minutes were taken by one of the members. During all meetings the same agenda was used. After the introduction, much attention was paid to re-assurance of new members and explaining the objective of the meeting; not to blame officers for their mistakes, but to find and correct structural weaknesses in case management and hospital organisation. Then the case was presented and analysed. The factors contributing to the death were formulated, followed by recommendations. These were sent to the Hospital Management Team for further discussion.

All 15 maternal deaths registered in the period from January 1999 - July 2001 are analysed in this article. Causes of death, classification (direct or indirect), substandard care factors (in the hospital) and delay-factors were separately identified. The recommendations were followed up and implementation was investigated.

8.3.3 Definitions

Maternal death was defined as “death of a woman while pregnant or within 42 days of termination of the pregnancy, irrespective the duration or the site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes”, according to WHO’s 10th version of the International Classification of Diseases (WHO 1992). Maternal mortality ratio (MMR) is the number of maternal deaths per 100,000 live births**.** Direct maternal deaths are those resulting from obstetric complications

and indirect maternal deaths are those resulting from diseases, aggravated by the physiological effects of pregnancy.

8.4 Results

From 15 cases of maternal death between 1999 and 2001, 10 were direct and 5 were indirect. Substandard care factors in the hospital were found in 9 and delay in seeking care-factors in 9 cases. In 5 cases, both substandard care and delay in seeking care were identified. Septicaemia was among the causes of death in 6 cases. Severe anaemia, hypovolaemic shock and post partum haemorrhage were identified in another 6 cases. Substandard care in criminal abortions contributed to three maternal deaths. The age of the mothers who died ranged from 16 -42 years, with a mean of 26 years.

An overview of causes and contributing factors of the 15 maternal deaths, which were analysed, is given in Table 8.2.

In 9 cases substandard care factors were identified, usually more than 1 per case. In total 22 substandard care factors were found. In 2 cases the non-availability of drugs (heparine, intravenous fluids) contributed to the substandard care. In 12 cases organisational failures contributed to death and in 8 cases substandard clinical case management contributed to the fatal outcome.

In all cases but 1 recommendations were formulated to improve management. One time a recommendation was formulated for a case where no substandard care factor was found. Out of 9 recommendations 5 were completely implemented, 2 were partially implemented and 2 were not implemented.

An overview of substandard care factors identified and recommendations formulated in the 15 reviewed cases is tabulated in Table 8.3.

8.5 Discussion

Maternal mortality is unacceptably high in Kalabo District Hospital, with a maternal mortality ratio of 1,359 per 100,000 live births between 1998 and 2001 (Table 8.1). Haemorrhage, sepsis and unsafe abortions were the most frequent causes of death. This is in line with what is mentioned in most maternal mortality reviews. Substandard care factors in the hospital

were present in 60% of the cases, which justifies the institution of a maternal death review meeting in the hospital.

The meetings form a very valuable platform in the hospital organisation. Fatal cases are discussed at a very practical level and officers are stimulated to get involved in evaluation of their own performance and hospital organisation.

The multi-disciplinary composition of the meeting, with representants from most departments and cadres in the hospital, encourages better understanding and better communication. The meeting also has a strong educational value and leads to a better understanding of maternal mortality and the contributing factors for all people involved. Creation of an open atmosphere, encouraging staff to contribute freely and constructively, is an important task of the chairperson. Nevertheless, the meeting can be experienced as threatening, since not only the organisation, but also workers can and will be confronted with their shortcomings.

In some cases, serious mistakes of individual staff can be encountered, which should lead to disciplinary action. For such reasons, the terms of reference for the meeting should be very clear to everybody. Nevertheless, fear for disciplinary actions can hinder the progress of the meeting.

Since maternal deaths are a traumatic experience for all people involved, even in a setting with such a high MMR, and evaluation of the cases leads to direct interventions to prevent more deaths, the maternal mortality review meetings appears to be a sustainable intervention.

Investing time and other resources in such meetings only makes sense if resolutions are implemented afterwards. In the UK, confidential enquiries into maternal and perinatal deaths produce recommendations, the implementation of which is not well audited (Drife 2001). In this case, most (56%) recommendations were completely implemented and others were partially implemented. Problems in the blood bank and absence of vital officers at times are still not solved. The critical shortages of personnel of all cadres and the resistance in the community to donate blood are difficult to solve. The HIV/AIDS-crisis in the area is mainly responsible for both problems.

Since, in many cases of maternal death, health workers at other levels, like rural health centre staff, community health workers and (trained) traditional birth attendants, have already been involved and, in some cases, have contributed to delay in seeking hospital care, sharing

information and minutes of the meetings can be of additional value. Findings of the meetings can also be used as learning material for in-service training of health workers.

Further research is needed in future to evaluate the effectiveness of the intervention, which would aid in decreasing maternal mortality in the hospital.

8.6 Conclusion

Kalabo District in general and Kalabo District Hospital particularly, face an unacceptably high maternal mortality, not different, however, from many parts of sub-Saharan Africa. Among other interventions, the institution of a maternal mortality review meeting at hospital-level can be of high value to improve quality of essential obstetric services. Recommendations should be followed and resolutions implemented.

Though sometimes threatening, a maternal mortality review meeting can be an important tool to decrease maternal deaths at hospital level and should be instituted in all hospitals regularly experiencing maternal deaths. Though sometimes confronting and threatening, it can easily and directly correct some substandard care factors, has a high educational value for staff, within and outside the hospital, and leads to a better understanding of maternal mortality for all people involved.

Table 8.2

Overview of causes and contributing factors of maternal deaths.

No.	Age	Year	Causes of death	Direct/ indirect	Substandard care	Delay in seeking care	Remarks
1	16	1999	Obstructed labour Ruptured uterus	direct	yes	Yes	Two days delay before coming to Hospital; patient arrived in irreversible hypovolaemic shock; no blood available
2	18	1999	Septicaemia	direct	no	Yes	Suspected case of criminal abortion
3	30	1999	AIDS	indirect	yes	No	Severe diarrhoea and dehydration 4 weeks after delivery. No IV fluids available.
4	27	1999	Septicaemia Severe anaemia	direct	No	Yes	Delivered from a Siamese twin on the way to the Hospital, 24 hours before admission. Labour started 24 hours before delivery
5	16	1999	Pulmonary embolism(?)	direct	Yes	No	Collapsed within 24 hours of delivering a macerated foetus
6	31	1999	AIDS	indirect	No	No	
7	30	2000	Septicaemia Severe anaemia	indirect	Yes	Yes	Unexplained septicaemia and anaemia 3 weeks after uncomplicated delivery in a HIV-positive patient
8	17	2000	Hypovolaemic shock	direct	No	Yes	Criminal abortion, perforated uterus
9	42	2000	Post partum haemorrhage	direct	Yes	No	
10	42	2000	Septicaemia	direct	Yes	Yes	Ruptured ectopic pregnancy, probably contaminated auto-transfusion
11	17	2000	Septicaemia DIC	direct	Yes	Yes	Criminal abortion (herbs), retained placenta, septicaemia and DIC.
12	27	2000	Unexplained coma in immunocompromised patient (HIV?)	Indirect	No	No	
13	25	2001	Cerebral malaria	Indirect	Yes	No	
14	30	2001	Septicaemia	Direct	No	Yes	Patient was admitted with irreversible signs of shock and died within 3 hours from admission
15	24	2001	Obstructed labour Ruptured uterus	Direct	Yes	Yes	Obstructed labour, ruptured uterus, hypovolaemic shock. Admitted 4 days after onset of labour.

Table 8.3

Substandard care-factors, recommendations and implementation

No.	Age	Year	Identified factors contributing to substandard care	Recommendations	Implemented	Remarks
1	16	1999	No blood for transfusion available; lab technician not available	Lab technician should always be available	No	Disciplinary problem
2	18	1999	-	-	-	-
3	30	1999	No IV fluids available	Hospital Management should ensure availability of essentials at all times	No	Shortage of essential drugs is a national problem
4	27	1999	-	Information, education and communication (IEC) in MCH/ANC to be intensified	Yes	The patient was seen 2 weeks before delivery and twins were identified. The mother refused advice to stay nearby the hospital
5	16	1999	Pulmonary embolism was not treated; no heparin available (Diagnosis was not confirmed)	-	-	Thrombosis and embolus are very rare in rural Africa, which justifies the absence of heparin from the basic package
6	31	1999	-	-	-	The difficulties of counselling HIV-positive mothers in MCH and ANC were discussed
7	30	2000	Anaemia was not detected clinically and not treated The MO was not informed about the result of the Hb of 2.9g/dl	The MO should always be informed immediately in case of abnormal laboratory results in critically ill patients	Yes	
8	17	2000	-	-	-	-
9	42	2000	No ergometrine was given Bladder was not catheterised Nurse left the patient to look for ergometrine	Case management workshop for PPH to be held for staff Protocol to be formulated	Yes	

10	42	2000	Too long delay between arrival of the patient and laparotomy Watchman refused to call the Doctor (rain) Auto-transfusion pack was not prepared Blood for hetero-transfusion not available Post-operative monitoring not well done	MO should be called immediately for every critically ill patient Watchmen to be instructed about their duties Auto-transfusion pack should always be ready Situation in the bloodbank should be improved	Partially	Blood bank problems are still there
11	17	2000	MO's orders were not followed (blood for Hb urgently) No bloodtransfusion was given; absence of laboratory technician Obstetric intervention was delayed unnecessary Condition was inadequately monitored peri-operatively; absence of anaesthesist	MO's orders should always be followed Vital staff (lab/OT) should always be available In case of active bleeding intervention should follow immediately	Partially	Problems of unavailability and/or shortage of personnel are caused by shortages
12	27	2000	-	-	-	-
13	25	2001	Eclampsia was not completely ruled out Patient was not reviewed daily	Patient to be reviewed daily, even when doctor is absent Urine to be tested for protein in all cases of coma in pregnancy	Yes	-
14	30	2001	-	-	-	Reasons for delay were discussed with RHC-staff
15	24	2001	Prolonged labour at RHC-level without action Inadequate response to clear signs of uterine rupture in mission hospital	Intensification of Safe Motherhood training for staff; especially use of partograph	Yes	

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9 Maternal mortality in Zambia, The Gambia, Namibia and The Netherlands; Just a difference between the poor and the rich?

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Submitted

9.1 Abstract

The magnitude of the problem of maternal morbidity and mortality is enormous and the differences between high- and low-income countries are unacceptably large. Of the more than 500,000 maternal deaths per year, 99% occur in developing countries. Systematic identification and recording of maternal deaths is absent. Facility-based maternal mortality registration is often available, but comparisons are difficult.

In this paper, data from facility-based maternal mortality reviews from hospitals in Zambia, The Gambia and Namibia and data from the ongoing confidential enquiry in The Netherlands are compared. Differences in maternal mortality ratios, direct and indirect causes of death, substandard care and delay factors are identified and analysed.

In the discussion, knowledge about the history of reducing maternal mortality in countries, which are high-income countries at present, is presented. Acknowledgement of the magnitude of maternal mortality and a strong political will to tackle the issue have shown to be important factors.

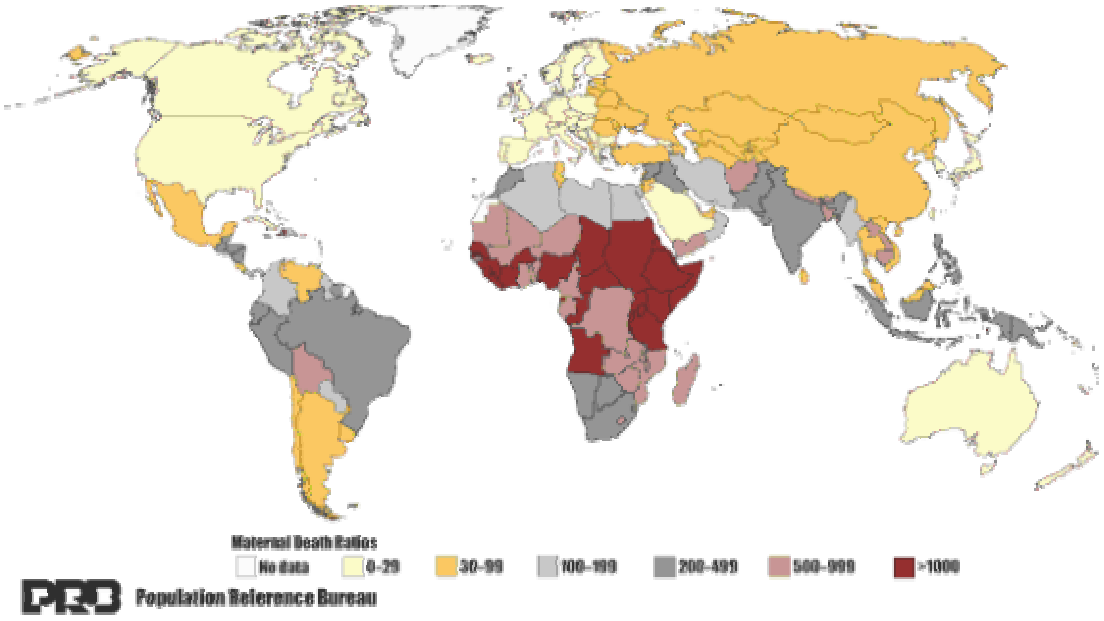
Difference in maternal mortality is more than a difference between the rich and the poor. The challenge is to develop appropriate maternal health services, which are meaningful to the people. This means provision of good quality services at affordable cost, so that people will see the benefit of utilising these services. Integration of sexual and reproductive health services should be sought. Antiretroviral treatment of pregnant women living with HIV can prevent maternal mortality and infant mortality caused by vertical transmission of HIV.

9.2 Introduction

9.2.1 Maternal morbidity and mortality

On average, somewhere in the world a woman dies during or as the result of pregnancy or childbirth, every minute of every day. Of the more than 529,000 maternal deaths (AbouZahr 2003), which occur each year, 99% occur in low-income countries. Countries with the highest maternal mortality ratios (> 500 per 100,000 live births) are found in sub-Saharan Africa (Figure 9.1).

Figure 9.1
Maternal Death Ratios world wide



Source: Homepage Safe Motherhood Initiative (www.safemotherhood.org)

The fact that less than one percent of these deaths occur in high income countries, demonstrates that they could be avoided if adequate resources and services were available.
Women's lifetime risk of maternal death is more than 100 times higher in low-income countries (one in 16 in Africa) as compared to high-income countries (one in 2,000 in Europe) (Figure 9.2).

Figure 9.2

Regional Data: Women's Lifetime Risk of Maternal Death, 1995

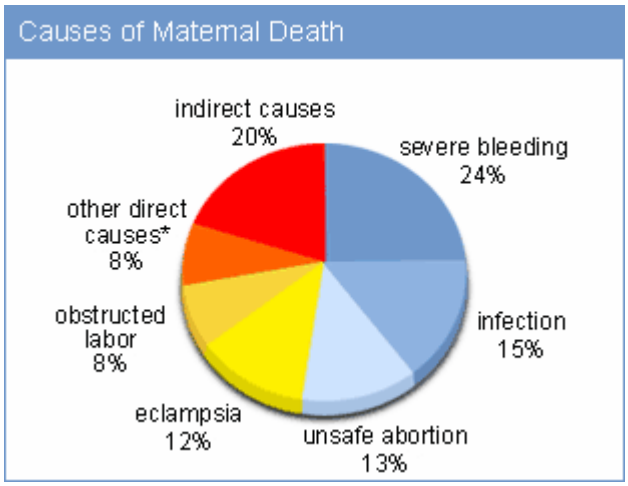
Region	Lifetime Risk of Maternal Death
Africa	1 in 16
Asia*	1 in 110
Latin America & Caribbean	1 in 160
Europe	1 in 2,000
North America	1 in 3,500

* excludes Japan and New Zealand/Australia

Source: Maternal Mortality in 1995: Estimates developed by WHO, UNICEF, UNFPA. World Health Organization, Geneva, 2001.

More than three-quarters of maternal deaths result from direct obstetrical complications, like haemorrhage, sepsis, obstructed labour, hypertensive disorders of pregnancy and abortion (Figure 9.3).

Figure 9.3. Causes of maternal death



Source: Homepage Safe Motherhood Initiative (www.safemotherhood.org)

The technical means to prevent the overwhelming majority of maternal deaths from these causes have been known for many decades. What is lacking, in many areas of the world, is the ability to bring the necessary technical skills to the women in need of help. In much of the developing world, barriers to health care are so great that many women do not benefit at all from the health care system.

9.2.2 Delay in accessing quality health care

Delay is assumed to be the key factor attributing to maternal death. If there is prompt and adequate treatment following the onset of an obstetric complication, the outcome will be satisfactory in most cases. Three phases of delay can be distinguished, if barriers to access of high quality maternal health care are analysed. Deborah Maine's theoretical framework of the Three Delays is very helpful to understand what has happened if a woman has died in a hospital (Thaddeus & Maine 1994).

Phase one delay includes the decision-making process. Factors that can influence the decision to seek care include the woman herself, the husband and/or relatives, the availability of a birth attendant with midwifery skills, the ability to recognise high-risk pregnancies and complications and to give appropriate advice, the status of the woman, illness characteristics (recognition and severity), distance from the health facility (accessibility), financial and opportunity costs (affordability), previous experiences and perceived quality of care.

Phase two delay is the delay to reach a health facility. Influencing factors are physical accessibility, travel time from home to facility, the availability and cost of transportation and the condition of roads.

Phase three delay is the delay before receiving appropriate care after arriving at the facility. Apart from delay in receiving appropriate care, this also includes substandard care. Influencing factors are the availability of supplies (blood transfusion, intravenous fluids and drugs e.g. antibiotics, oxytocics, anti-hypertensive and anticonvulsive drugs), equipment and trained personnel, and the competence of available personnel (wrong diagnoses and/or action).

This paper mainly focuses on phase three delay. Substandard care in hospitals can lead to wrong diagnoses and/or actions, and vice versa. In many hospitals around the world, audits to

review cases of maternal death have been set up, in order to learn from deaths occurring in health facilities.

9.2.3 Facility-based maternal death review

A facility-based maternal death review is a qualitative, in-depth investigation of the causes of, and circumstances surrounding, maternal deaths, which occur in health care facilities. It is particularly concerned with tracing the path of the women who died through the health care system and within the facility to identify any avoidable or remediable factors, which could be changed to improve maternal care in the future. Conducting a facility-based maternal death review is primarily an educational process for health professionals providing care to pregnant or recently delivered women (Bullough & Graham, in press). A facility-based maternal death review is only complete if it is linked with proper, feasible recommendations to improve the situation.

In many situations, especially in low-income countries, only a small proportion of births and maternal deaths occur in health facilities. A facility-based maternal death review therefore only gives a partial picture of reality. Women can experience barriers to travel to a health institution. In case of acute obstetric complications, they might be too late. In Nepal, for example, the most common cause for maternal death in hospitals is eclampsia, whereas the most common cause overall in the population is haemorrhage (Family Health Division Nepal 1998).

A facility-based maternal death review may be conducted at a single health facility, or periodically across several facilities as part of a district or even regional assessment.

If possible, all maternal deaths should be investigated, even those taking place at the homes of women in the villages. A verbal autopsy can be conducted. A verbal autopsy is a method of finding out the medical causes of death and ascertaining the personal, family or community factors that may have contributed to the death in women who died outside of a medical facility, through interviewing the relatives and other community members (Ronsmans et al., in press).

Ideally, community factors are investigated in each case of maternal death, also if the death occurred in a hospital. Low utilisation of maternal health services, which is usually caused by

a complex of many different factors, can contribute to high maternal mortality (Stekelenburg et al. 2004). Information about the second and third phase of delay is important to reconstruct the story of a woman's pregnancy and labour, and uncover other relevant medical, social and service factors on her 'road to death' (WHO 1986). In some situations obtaining reliable information is difficult to achieve. In order to improve maternal health, the best use should be made of whatever information is available within given resources.

An important additive advantage of a facility-based maternal death review is that the findings can be used by health managers at district, regional or even national level to help identify service needs, prioritise resources and raise funds for programmes and/or projects to improve maternal health.

9.3 Objectives

The first objective of this review is to illustrate differences in causes and contributing factors of maternal mortality between low- and high-income countries, by comparing data from three hospitals in sub-Saharan Africa and from the confidential enquiries for maternal deaths in the Netherlands.

The second objective is to share knowledge and experiences with readers about maternal mortality in general and the importance of learning from maternal deaths, occurring in homes or health facilities.

The third objective is advocacy. The differences in maternal mortality and morbidity between low- and high-income countries are unacceptable. Creating more awareness for this great global abuse can help to place Safe Motherhood issues higher on the agendas of policy-making boards.

9.4 Methodology

9.4.1 Study areas and population

Zambia: Kalabo District is one of the seven districts in Western Province of the Republic of Zambia, situated on the western side of the Zambezi River. The population projection for 2000 was 116,003. The district covers an area of 17,447 square kilometres and the population

density is less than seven people per square kilometre (Figure 9.5). Most of the population is involved in subsistence farming or fishing, certainly living far below the current national poverty line.

The District is virtually cut off from the rest of the country, as there are no roads. Transport by river is seasonal. Within the District there are also no roads, only sandy tracks. There is no formal public transport and there are almost no vehicles, apart from a few government vehicles, based in Kalabo boma. The District has two first referral hospitals, only 7 kilometres from each other. There are 14 rural health centres, unevenly distributed throughout the District. During the flood season, six rural health centres are completely cut off from the rest of the District.

There are about 150 community health workers and 81 trained traditional birth attendants. Due to the vast area, the scattered population and the complete lack of any means of transport, adequate access to health services is not provided to all communities in the District. There is a critical shortage of trained staff of all cadres in all health institutions.

Kalabo District Hospital is the main referral hospital in the District. It has 100 beds and comprehensive emergency obstetric care can be offered in most occasions. Two (foreign) medical officers, 3 clinical officers, 5 trained midwives, 20 trained nurses and 5 ward assistants deliver their services to the people. The hospital counts approximately 3,000 admissions, 500-600 deliveries and 25,000 out-patient-contacts per year. The annual budget for the Hospital between 1998 and 2000 was approximately USD 25,000. =, which is far less than 1 USD per capita. The maternal mortality in the Hospital is high, as in most rural areas of Africa, with (far) more than 1,000 maternal deaths per 100,000 live births (Figure 9.5).

The Gambia: **The North Bank Division** is one of the seven divisions in The Gambia, situated on the north of the Gambia River. The population projection for 2003 was 213,700. The division covers an area of 2,256 square kilometres and the population density is 94,7 people per square kilometre (Figure 9.5). The area is flat savannah with seasonal rice cultivation and mangrove swamps near the river. The climate is sub-Sahelian with a short rainy season during June-October. Most of the population is involved in subsistence farming, and 45% have a yearly income below USD 150. Women marry for the first time at a mean age of 15 years and give birth to an average of 6.8 children. Community based maternal

mortality was recently estimated at 424 per 100,000 live births, substantially lower than estimates made in the 1980s. Over the last 20 years there has been a marked change in health services availability in the Division. In the early 1980s, medical facilities in the Division were limited to four dispensaries. Transportation was by bicycle, horse and donkey carts, with some bush taxis travelling on dirt roads. In 1983 a new health centre was opened in **Farafenni**, and essential obstetric services became increasingly available. In the same year, a primary health care (PHC) programme, which incorporated a strong mother and child (MCH) component, was introduced in the Division. This included identification and training of traditional birth attendants. The "maternal" component of the MCH programme provides antenatal care, screening for high-risk pregnancies, and a referral system for high-risk pregnancies and labour complications. In the second half of the 1980s, regular bus services were started between the larger villages and Farafenni, and ambulance services became available. Telephone services were installed in the larger villages in the early 1990s. A new 175 beds general hospital replaced the health centre in Farafenni in 1999. Comprehensive emergency obstetric care can be offered in most occasions. One obstetrician and three medical officers (expatriates), four trained midwifes, and eight ward assistants deliver their services to the people. The hospital counts approximately 5,500 admissions, 1,200 deliveries and 25,000 out-patient-contacts per year. The annual budget for the hospital between 1998 and 2000 was approximately USD 220,000, which is approximately two USD per capita. The maternal mortality in the hospital is high, as in most rural areas of Africa, with (far) more than 1,000 maternal deaths per 100,000 live births (Figure 9.5). Between 1982 and 1998 the proportion of women delivering in a health facility increased from 4.6% to 18.0%.

Namibia: Onandjokwe District is situated in Oshikoto Region in the former North West Health Directorate, north of Etosha National Park and west of Okavango region. Oshikoto region covers an area of 26,607 km^2 and the estimated population is 152,000, most of which live in Onandjokwe district. The district has an arid climate with seasonal rains. In this ‘semi rural’ area, most people depend on subsistence farming with the staple food mahangu porridge. However, peri urban areas (like Ondangwa town) are rapidly expanding and many people come here in search of work. About half of the district population has access to safe drinking water.

Onandjokwe District has one hospital, 3 health centres (with 24 hour service including observation beds run by nurses) 12 clinics (with daytime service run by nurses) and 42 out-reach points (monthly scheduled visits). Onandjokwe Lutheran Hospital is a 450 bed district hospital also serving as referral hospital. The hospital is the headquarter for all district health activities and houses the offices of the district Primary Health Care team. The hospital has six departments; Medicine, Surgery, Paediatrics, Anaesthesiology, Obstetrics & Gynaecology and General Medicine. The latter functions as 'general practitioner' service and only treats out-patients. There are 10 wards including a 4 bed ICU department.
The department of Obstetrics and Gynaecology (O&G) is staffed by 4 doctors (two foreign specialists and two foreign medical doctors) and 34 nurses including 13 registered/ enrolled midwifes. Patients can be admitted at three different wards. The obstetric ward has 17 beds for antenatal admissions, 5 delivery beds and 55 beds for postnatal care. Patients are admitted in this ward when pregnant with a gestational age > 28 weeks and for delivery including subsequent puerperium. The gynaecology ward has 53 beds and houses, in addition to gynaecological patients, all women with a pregnancy < 28 weeks and patients who are admitted in puerperium. In the private ward finally, all patients with a medical aid scheme and all foreigners are admitted. During 2002, the department of O&G admitted over 6,000 patients, including 3,555 deliveries, had more then 10,000 outpatients contacts and had 1,063 theatre cases, of which 599 were major cases (including 274 caesarean sections (7,8%)). Finally, comprehensive Emergency Obstetric Care (EOC) can be given at any time in Onandjokwe Lutheran Hospital. The distribution of blood for transfusion however is centrally regulated from the national level, which sometimes causes a shortage of blood at the district level.

The Netherlands: a western European country, bordering the North Sea between Belgium and Germany. The country covers an area of 41,526 square kilometres, providing home to 16,265,000 inhabitants. The population density is 392 people per square kilometre. Life expectancy is high with 78 years. It is a modern, industrialized nation with an open economy. Stable industrial relations, moderate unemployment and reasonable inflation are features of the economy. A highly mechanized agricultural sector employs 4% of the labour force. The

Netherlands is a large exporter of agriculture products. The industry employs 23% and services 73%. The infrastructure is of high quality.
In the Netherlands 409,222 deliveries occurred in 2000 and 2001. Approximately 70% of the children were born in hospital, 30% were born at home under the guidance of a trained midwife or a family practitioner. The maternal mortality is low (12 per 100,000 live births).

9.4.2 Methods

Maternal deaths in Kalabo District Hospital registered in the period from January 1999 - July 2001, in AFPRC Hospital and in Onandjokwe Lutheran Hospital in 2002 and in the Netherlands, in hospital, in 2001 and 2002 were included and analysed. Causes of death, classification (direct or indirect), substandard care factors (in the hospital) and delay-factors were identified in all cases of the four series. In this paper, data from the four series are compared. Data search was done in order to be able to compare economical, geographical and social indicators of the four countries, and literature study concerning the backgrounds and history of differences in maternal mortality in low- and high-income countries was performed.

9.4.3 Definitions

Maternal death was defined as "death of a woman while pregnant or within 42 days of termination of the pregnancy, irrespective the duration or the site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes", according to WHO's 10^{th} version of the International Classification of Diseases (WHO 1992). Maternal mortality ratio (MMR) is the number of maternal deaths per 100,000 live births**.**
Direct maternal deaths are those resulting from obstetric complications and indirect maternal deaths are those resulting from diseases, aggravated by the physiological effects of pregnancy.

9.5 Results

Differences in economic and social indicators between the four study areas and country data are presented in Figure 9.4. Not all data are available for Kalabo District, Farafenni area and Onandjokwe District separately. In summary, a picture of poverty, low life expectancy and poor health care arises from the data for Zambia and The Gambia. Namibia is slightly better

with a GDP per capita about fivefold and health expenditure per capita about seven-fold, compared to Zambia and The Gambia. The situation in the Netherlands can be characterised as: wealthy, high life expectancy and good health care.

Figure 9.4
Selected indicators for the four countries

Area	GDP per capita (USD)	Life expectancy at birth (years)	Literacy rate (%)	Health expenditure per capita (USD)	People living with HIV/AIDS (% age 15-49)	Skilled attendance at delivery (%)
Zambia	866	37	79	49	21.5	47
The Gambia	1,115	59	38	46	1.6	51
Namibia	5,152	50	83	366	28	86
Netherlands	27,783	78	99	2,255	0.2	100

Sources: www.who.int/country
www.undp.org/hdr2003/indicator
Oshikoto Region Census 2001
Onandjokwe Census 2002
NDHS 2000

Figure 9.5 gives an overview of the most important indicators with regard to maternal health care in the four study areas. The differences in MMR between the four study areas are enormous. Another clear difference concerns the population density in the four areas.

Figure 9.5

Characteristics of study areas/hospitals

Area	Square surface of catchment area (km)	Number of inhabitants	Population density per square km.	Time span (months)	Number of institutional births	Number of maternal deaths	Calculated MMR/ 100,000 Live Births
Kalabo (n = 15)	17,447	116,003	6.6	30	1471	15	1359
Farafenni (n = 18)	2,256	213,700	94.7	12	1169	18	1540
Onandjokwe (n = 21)	26,607	152,000	5.7	12	3480	21	603
Netherlands (n = 48)	41,160	16,000,000	388,7	24	409,222	55	13.4

Figure 9.6 and 9.7 show the characteristics and the causes of the maternal deaths, which were included in the study. Comparison shows only little difference in the mean age of the women who died. Subdivision in direct and indirect obstetrical deaths does not show any difference between Kalabo, Farafenni and the Netherlands. In Namibia, surprisingly, the situation is completely different. Here, indirect causes of maternal death have been identified in 71% of the cases. Substandard care is prevalent in all hospitals. Even in Dutch hospitals in 48% of cases the confidential enquiry committee identified substandard care. In Kalabo and Farafenni substandard care was found in about 60% of cases of maternal death. In Onandjokwe, substandard care was identified in 9 cases (42%). If a missed family planning opportunity in a known or suspected HIV-patient would be classified as substandard care the percentage of would increase to 67%.

Looking at the causes of maternal death (Figure 9.7) differences in the study areas are clearly demonstrated. A high percentage of cases of sepsis and no eclampsia in Kalabo, no abortion-related cases in Farafenni, absence of obstructed labour and abortion-related cases in the Netherlands and a very high percentage of indirect maternal deaths in Onandjokwe are among the most striking findings.

Figure 9.6

Characteristics of maternal deaths

Area	Mean age	Direct causes (%)	Indirect causes (%)	Substandard care (%)	Delay in seeking care (%)
Kalabo (n = 15)	25,5 (15 – 42)	67	33	60	60
Farafenni (n = 18)	28,1 (17 – 45)	67	33	61	56
Onandjokwe (n = 21)	27,0 (16 - 40)	24	71	42	?
Netherlands (n = 48)	29,2 (16 – 40)	67	33	48	2

Figure 9.7

Causes of death

Area	Haemorrhage (%)	Hypertension and related disorders (%)	Sepsis (%)	Abortion (%)	Obstructed labour (%)	Other direct causes (%)	Indirect causes (%)
Kalabo (n = 15)	7	0	33	7	13	7	33
Farafenni (n = 18)	17	6	17	0	22	6	33
Onandjokwe (n = 21)[13]	5	10	5	5	0	0	71
Netherlands (n = 48)	2	27	6	0	0	33	33

[13] One case could not be classified, which makes the sum of all percentages < 100%

Because of the high percentage of maternal deaths with direct causes not fitting into the five most important categories (Haemorrhage, hypertension and related disorders, sepsis, abortion and obstructed labour) and indirect causes, together in the Netherlands even counting 67% and in Onandjokwe 71%, a subdivision for these categories was made (Figure 9.8). For Onandjokwe and Kalabo the most important finding from Figure 9.8 is the striking role HIV/AIDS plays in maternal mortality. The same disease could also have played a role in the one case, which was booked out as ‘chronic disease’ in Farafenni. Four cases in Farafenni were booked out as ‘unknown’. Even in the Netherlands one case of AIDS, one case of TB and one case of herpes encephalitis was found as the cause of maternal death. Otherwise, the major categories are cardiac complications, thrombo-embolism, acute yellow liver atrophy and necrosis and amniotic fluid embolism.

Figure 9.8

‘Other direct’ and ‘indirect’ diagnoses as cause of death

Area	Causes of death
Kalabo (n = 6)	4 x AIDS 1 x Pulmonary embolism 1 x Cerebral malaria
Farafenni (n = 7)	1 x heart failure 1 x severe anaemia 1 x ‘chronic disease’ 4 x unknown
Onandjokwe (n = 15)	8 x HIV/AIDS 3 x malaria 2 x fulminant hepatitis 1 x diarrhoea 1 x pneumonia
Netherlands (n = 32)	5 x cardiac disease 5 x thrombo/embolism 4 x acute yellow liver atrophy/necrosis 4 x amniotic fluid embolism 2 x other pulmonary complications 2 x suicide 2 x cancer 1 x AIDS 1 x miliar TB 1 x herpes encephalitis 1 x fasciitis necroticans 1 x CVA 1 x ruptured ectopic pregnancy 1 x unknown 1 x iatrogenic

9.6 Discussion

Maternal mortality is notoriously difficult to measure. Hospital data tend to overestimate maternal mortality in the community (Walraven et al. 2000). A large proportion of women who die in hospital are emergency-admissions, who had intended to give birth at home and who were transported to hospital when a life-threatening complication arose. In fact, hospital maternal mortality is expected to overestimate community rates, if the hospital functions well as an integrated part of a primary health care network, to which women with high-risk pregnancies and complications are referred. Analysis of hospital data, although not useful for maternal mortality estimation in the community, provides detailed information about the underlying causes of death and substandard care factors, which can be used in strategies to reduce maternal mortality.

It is remarkable to note that in all four series indirect maternal deaths are reported, even up to 71% in Onandjokwe. Indirect maternal deaths are particularly prone to being reported as non-maternal (Schuitemaker et al. 1997; Songane & Bergstrom 2002) and there are significant differences between countries in the classification of indirect deaths to the maternal category. Of the 60 countries reporting vital registration figures for causes of maternal death over the period 1992-1993, over half (33 countries) reported no indirect deaths at all. Yet, the 1997-99 Confidential Enquiry in the UK found that indirect deaths now account for more maternal deaths than direct causes (Lewis & Drife 2001). There is reason to assume that, at least, attention for maternal mortality as a problem has led to reasonable registration, even of indirect causes. Most countries with confidential enquiries into maternal deaths see an initial increase in registered maternal deaths after introduction of the programme due to improved diagnosing and classification (Schuitemaker 1998).

The series of the Netherlands shows two suicides as indirect cause of maternal mortality. According to the definition of maternal mortality, deaths of pregnant or recently pregnant women caused by incidents should not be counted as maternal deaths. However, it is likely that many of these suicides are attributable in some way to the pregnancy (Fortney et al. 1984).

The data in this paper show a clear association between poverty (low GNP) and maternal death (high MMR). This relationship, however, is not straightforward. In countries where

GNP per capita was below USD 1,000,= in 1993, estimates of maternal mortality ratios ranged from 22 to 1,600 per 100,000 live births (Stanton et al. 1995; World Bank 1995). For example, at that time, maternal mortality ratios were estimated at 160, 1200 and 1300 in Vietnam, Uganda and Burundi, respectively, despite very similar GNPs per capita (USD 170-180) in these three countries. Even if estimates of maternal mortality, like those of GNP, have to be taken with caution, clearly, economic development is not a sufficient condition to mitigate the risk of childbirth (De Brouwere et al. 1998).

At the end of the 19th century maternal mortality ratios in the countries which are now called high-income countries (Sweden, England, Wales, USA) were at the same level as the maternal mortality ratios of the low-income countries today (500-1,000/100,000 live births). Loudon published a schematic representation of trends in maternal mortality in high-income countries (Loudon 1988). The first phase in reduction of maternal mortality was initiated by recognition of the magnitude of maternal mortality and identification of the factors affecting its distribution and what could be done to alleviate it. The second phase was made possible by the improvement of techniques, like use of antibiotics, caesarean section and blood transfusion, but also with improved organisation of obstetric services and less interference in normal labour. Hogberg identified improvements in obstetrical and antenatal care by the introduction of antibiotics and blood transfusion, and a favourable shift to more appropriate ages for reproduction, as the most important changes leading to the decline in maternal mortality in Sweden between 1931 and 1980 (Hogberg & Joelsson 1985).

In low-income countries, up to today, the importance of maternal mortality is still undervalued. Many reasons may contribute to that. At first, it affects women and the value and status of women is still low in many societies. Secondly, very few low-income countries are able to provide reliable national data on maternal health. For estimating maternal mortality and morbidity hospital or district data have to be used. In districts with small population size and low use of maternal health services, like Kalabo, even a very high maternal mortality ratio of more than 1,000/100,000 live births, ‘only’ leads to approximately 60 cases of maternal death in the district per year and less than 10 cases in the hospital per year. In a society overburdened with major health problems (infant mortality, epidemics of contagious

diseases, HIV/AIDS, malnutrition, etc.) maternal mortality is just one of them, both for the population and for health policy makers.

Introduction and improvement of techniques has taken place in remote districts of sub-Saharan Africa, but availability of skilled personnel and/or equipment is still limited in many occasions. In Farafenni, in 7 of 11 cases of substandard care no proper blood transfusion could be given. The same counts for Kalabo. The HIV/AIDS epidemic has increased the unwillingness of the community to donate blood and has also led to critical shortage of health workers of all cadres in many remote districts (Stekelenburg & van Roosmalen 2002).

The striking difference in the presence of delay-factors in cases of maternal death between the Netherlands on one hand and Zambia and The Gambia on the other hand corresponds with expectations. Absence of delay-factors in Namibia is surprising and can be explained by the quality of the referral system in Onandjokwe.

A very important factor in the second phase of delay (as defined by Thaddeus and Maine) is distance to a health facility and availability of transport. The case of Kalabo clearly demonstrates what happens in a large district (in square kilometres almost 50% of the Netherlands) with only one hospital offering emergency obstetric care and no transport system at all (Stekelenburg et al. 2004). The decentralisation of emergency obstetric care has not taken place and is not feasible. Only in one case in the series from the Netherlands a (second phase) delay factor was identified. This fact plays a role in understanding the absence of obstructed labour as a cause of maternal death in the Netherlands, among other factors. The absence of obstructed labour as a cause of maternal death in Onandjokwe is remarkable and can be seen as a resultant of the quality of services given within the district referral hospital and the general health care service in Namibia.

Like the relationship between poverty and maternal mortality, the possible relationship between population density and maternal mortality is not straightforward either. The example of Sweden makes this clear. Sweden was a country with a very scattered (and poor) population and a very high maternal mortality ratio in the first half of the 18th century. Early recognition of the magnitude of the problem and a strong political will to tackle the problem led to a decrease to below 100/100,000 live births by 1950 (Hogberg & Joelsson 1985). However, good funds and concentration of many people, like in refugee-camps, can make designing a well-functioning maternal health programme much easier.

Total fertility rates in sub-Saharan Africa (6.0) and high-income countries (Europe: 1.4) differ widely. The mean age of first conception is far lower for women in sub-Saharan Africa, compared to European (and Dutch) women (Sinding 2002). From that perspective the outcome of the mean age of the cases of maternal death in the four series, presented in this paper (Figure 6), is difficult to understand. The difference was expected to be higher.

In countries where abortion is illegal, restricted or inaccessible very little information about abortions can be found. As a result, abortion figures tend to be unreported or underreported. Surveys show that under-reporting occurs when abortion is legal, and when taking place in clandestine conditions it may not be reported at all or as miscarriage (Jones & Forrest 1992; Figa-Talamanca 1986). In Sweden, the maternal death rate associated with illegal abortion was reduced from 18.5 to 1.7 per 100,000 women with the legalization of abortion and the introduction of modern contraceptive methods (Hogberg & Wall 1990). That there were no induced abortion deaths in Farafenni, is in agreement with the findings in an earlier community-based maternal mortality survey (Walraven et al. 2000). Induced abortion may be rare in the Farafenni area, due to a combination of early age of marriage and childbearing being the norm in this society, with low numbers of premarital pregnancy, and continued fertility and motherhood which is regarded as women's main source of security.

The HIV/AIDS-epidemic plays a devastating role in health care in Africa. The current overall seroprevalence rate among the adult population (over 15 years of age) in Zambia and Namibia is rampant and is estimated to be around 20% (Figure 4), rates being much higher in urban than in rural areas. In Zambia, peak HIV prevalence rates of 50% have been estimated among women aged 20-29 years, and of 42% among urban men aged 30-39 years (Ministry of Health/NASTBLP 1998). The Zambian HIV Sentinel Survey showed prevalence of HIV in 17% of women attending antenatal clinic in Kalabo in 1998 (Ministry of Health/Central Board of Health 1998). The national sentinel survey in Namibia found 28% of antenatal clinic attendants in Onandjokwe to be HIV-positive (Ministry of Health and Social Services Namibia 2002). In a community based survey in the Farafenni area 1.7% of women aged 15-54 years was HIV positive (Walraven et al. 2001).

In Kalabo, in at least 4 of 15 cases of maternal death HIV/AIDS was the cause. Probably, some of the women who died from septicaemia were also HIV-positive, but it was not tested. In Onandjokwe, in at least 8 of 21 cases, HIV/AIDS contributed to the cause of death. In the series from Farafenni one case of 'chronic disease' appears, which might have been HIV/AIDS as well. The effects of the HIV/AIDS-epidemic in sub-Saharan Africa negatively affect maternal health, and not only maternal health, through a cascade of interrelated factors: e.g. anaemia, susceptibility for infection, co-morbidity with other STD's, malnutrition, poverty, shortage of staff, lower immunity for malaria, etc.

Hypertension in pregnancy and its related diseases, pre-eclampsia and eclampsia, is the largest single group as cause of maternal death in the Netherlands, with 27%. Other direct causes (33%) and indirect causes (33%) consist of many different diagnoses. The absence of eclampsia in the series from Kalabo is remarkable. Ethnic genetic differences or under-reporting could have been the cause of this.

Sound information is the prerequisite for health action: without data on the dimensions, impact and significance of a health problem it is neither possible to create an advocacy case nor to establish strong programmes for addressing it (AbouZahr 2003). However, absence of systematic identification and recording of maternal deaths and weakness of health information systems makes it very difficult to reliably estimate the magnitude of the problem of maternal mortality. Facility-based maternal mortality registration and review leads to more awareness.

Hospital statistics, like used in the four series presented in this paper, indicate the prevalence of the condition among women delivering in the hospital. Comparisons are difficult, as studies may have used different definitions and study design, and their results may not be generalised to the population, which does not deliver in the hospital. Given these constraints, estimates of the overall burden of maternal ill-health associated with pregnancy and childbearing are necessarily incomplete. Nonetheless, they provide an idea of the orders of magnitude of the problem, and, in this paper, the unacceptably large differences between the chances to survive for women in low- and high-income countries.

Implementation of a maternal mortality review meeting at hospital-level can be of high value to improve quality of essential obstetric services (Stekelenburg & van Roosmalen 2002). Though sometimes confronting and threatening, it can easily and directly correct some substandard care factors, has a high educational value for staff, within and outside the

hospital**,** and leads to a better understanding of maternal mortality for all people involved. Recommendations should be formulated and implemented and regular follow-up, to evaluate the progress made in providing essential obstetric emergency care, should be guaranteed.
Making antiretroviral treatment available to the population of sub-Saharan Africa, where most people living with HIV live, is definitely part of that strategy. Treatment for pregnant women living with HIV will also assist to reduce maternal mortality and morbidity and contribute to prevention of vertical transmission to babies and infant mortality.

Socio-economic and organisational factors, like poverty, shortage of staff and lack of transport, and the effects of the HIV/AIDS pandemic, are not the only factors to be worked upon. It is more than just a difference between the poor and the rich. The most important challenge is to develop health services, which are appropriate and meaningful for the people. This means provision of good quality of services at affordable cost, so that people will see the benefit of utilising these services.

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10 Maternity waiting homes in rural districts in Africa; a cornerstone of Safe Motherhood?

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10.1 Abstract

Maternal mortality is high and utilisation of maternal health services is low in many rural, poor districts in sub-Saharan Africa. Long distances, poor transport facilities and inadequate distribution of health care facilities are responsible for low utilisation of health care services in many rural districts in low-income countries. In addition, a range of social, economic, and cultural factors also contribute to women's poor health during pregnancy and childbirth.

Provision of a maternity waiting home (MWH), a residential facility, located near a medical facility with comprehensive obstetric care, where women can await birth, is a possible intervention.

A literature review of feasibility and effectiveness of MWHs is presented. MWHs have proven to be effective in several studies. Pitfalls, however, are to be anticipated. The accessibility of the MWH itself, the risk identification process, the quality of community education and antenatal care and the quality of service delivery at the District Hospital are factors to be considered.

10.2 Introduction

Like in many other poor, rural districts in sub-Saharan Africa, the maternal mortality ratio in Kalabo District, a rural district in the Western Province of Zambia, is above 1,000 per 100,000 live births and the utilisation of maternal health services is low (Vork et al. 1997; Stekelenburg & van Roosmalen 2002; Stekelenburg et al. 2004).

The lifetime risk of maternal death is one in 14. Utilisation data from Kalabo, with an antenatal care coverage of 72% and a skilled attendance at delivery coverage of 54% (Stekelenburg et al. 2004), correspond with international data for low-income countries (Figure 10.1). Factors responsible for low utilisation are, among others, long distances and non-availability of transport. An overwhelming majority of interviewed inhabitants of Kalabo District mentioned a Maternity waiting home as a possible intervention to increase utilisation and to decrease maternal mortality.

MWHs are residential facilities, where women with "high risk" pregnancies can await birth. MWHs are within easy reach of a facility with comprehensive emergency obstetric care, where women can go shortly before birth, or earlier should complications arise. Many consider MWHs to be a key element of a strategy to "bridge the geographical gap" in obstetric care between rural areas, with poor access to equipped facilities, and urban areas, where the services generally are available. As one component of a comprehensive package of essential obstetric services, MWHs may offer a low-cost way to bring women closer to obstetric care. Many pitfalls, however, have been described, which form potential barriers for travelling to and/or using a MWH.

10.3 Objective

In this review, data on maternal mortality and utilisation of maternal health services in Kalabo District will be placed in a broader perspective. The literature on feasibility and effectiveness of MWHs will be reviewed.

We try to answer the question whether implementation of a MWH in Kalabo District, and other comparable, rural districts in sub-Saharan Africa, can be a solution for the problems of high maternal mortality and low utilisation of maternal health services.

10.4 Maternal mortality and morbidity

On average, somewhere in the world a woman dies during or as the result of pregnancy or childbirth, every minute of every day. Of the more than 529,000 maternal deaths (AbouZahr 2003) , which occur each year, 99% occur in low income countries. Countries with the highest maternal mortality ratios (> 500 per 100,000 live births) are found in sub-Saharan Africa (Figure 9.1).

The fact that less than one percent of these deaths occur in high income countries, demonstrates that they could be avoided if adequate resources and services were available. Women's lifetime risk of maternal death is more than 100 times as high in Africa compared to Europe and North America; one woman in 16 versus one in every 2,000 (Europe) or 3,500 (North America) will die from pregnancy-related complications (Figure 9.2).

Over 300 million women in the developing world currently suffer from short- or long- term illness related to pregnancy and childbirth, such as vesico- and rectovaginal fistulae, incontinence, pain during intercourse, nerve damage (obstetric drop foot), pelvic inflammatory disease, infertility and uterine prolapse (Safe Motherhood Initiative 2004) .

Today, more than three-quarters of maternal deaths result from direct obstetrical complications, such as haemorrhage, sepsis, obstructed labour, hypertensive disorders of pregnancy and abortion (Figure 9.3).

Due to the devastating effects of the HIV/AIDS-epidemic, the epidemiology of maternal diseases has changed over the past decade, particularly the indirect causes of maternal death have increased. HIV/AIDS also hits the health workers, which leads to a worsening problem of understaffing of health facilities in rural districts. The unwillingness of many people to donate blood, because they fear to be confronted with a positive test result for HIV, complicates the acute treatment of post-partum haemorrhage.

The technical means to prevent the overwhelming majority of maternal deaths from direct obstetrical complications have been known for many decades. What is lacking, in many areas of the world, is the ability to bring the necessary technical skills to the women in need of help. In much of the developing world, barriers to health care are so great that many women do not benefit at all from the health-care system.

Fortunately, the world has not accepted this poignant inequality and injustice. World leaders agreed on an ambitious agenda for reducing poverty and improving lives at the Millennium Summit in September 2000. They defined the Millennium Development Goals. For each goal one or more targets have been set using 1990 data as a benchmark. Most goals are very relevant for improving maternal health, since they deal with eradication of poverty and hunger, improving primary education, promoting gender equality and empowering women, reducing child mortality, reducing maternal mortality, combating HIV/AIDS, malaria and other diseases and developing a global partnership for development. The target for maternal mortality is set at a reduction by three-quarters by 2015 (UNDP 2003).

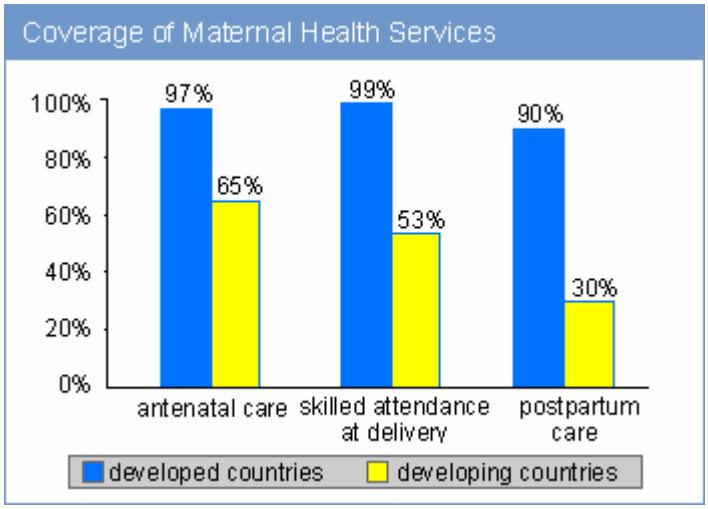
10.5 Utilisation of maternal health services

Studies of maternal mortality and morbidity in low-income countries have shown that making pregnancy and childbirth safer means ensuring that women have access to a continuum of care, including appropriate management of pregnancy, delivery and the postpartum period together with access to life-saving obstetric care when complications arise. Access to such care is a crucial component of the Safe Motherhood Initiative.

Low utilisation of maternal health services is mainly a result of barriers to access. Differences in utilisation figures between high and low-income countries are enormous (Figure 10.1).

Figure 10.1

Coverage of maternal health services



Source: Homepage Safe Motherhood Initiative (www.safemotherhood.org)

Long geographical distances, poor transport facilities and inadequate distribution of health care facilities are responsible for low utilisation of health care services in many rural districts in low-income countries.

Many women cannot afford to use services, even when fees are low or services are delivered for free. This is due to additional, often hidden, costs women must cover – transport, drugs, medical supplies, and even food and lodging for themselves and their families.

Expectations of health services are often negatively coloured by former interactions with providers. Too often health care providers are rude, unsympathetic, and uncaring. They often do not respect women's cultural preferences for privacy, birth position, or treatment by women providers. In addition, understanding gender-based violence and the appropriate case management of women with a current or previous history of violence are now recognised as core competencies for health workers (Watts & Zimmerman 2002).

In addition, a range of social, economic, and cultural factors also contribute to women's poor health during pregnancy and childbirth. Women in many areas of the world lack the power to make choices about their health and lives, with negative consequences for maternal health. Tradition, values, and even laws limit women's decision-making and rights with regards to childbearing, contraception, choice with regards to sexual relations, and if and when to seek medical care. In some settings, a husband's permission is required for women to receive health services, including life-saving care; in others, mothers-in-law decide whether women can use available services.

In 1987, a call to action to reduce the appallingly high maternal mortality ratios was launched at the Safe Motherhood Conference of the World Health Organisation (WHO) in Nairobi. The major goal was to reduce maternal mortality by half in one decade. This unfortunately has not been met in any country in sub-Saharan Africa.

In many districts where maternal mortality is high, utilisation of maternal health services is low. In low-income countries, Bulatao et al. showed that access to maternity health services is a key indicator for maternal mortality. Maternal health services in 49 countries were rated by experts in each country, using a 81-item questionnaire. Links between these ratings and the maternal mortality were analysed. The ratings in this questionnaire, measuring access to maternal health services, have a consistent effect on reducing maternal mortality. Stepwise

logistic regression analysis indicated only two important predictors of maternal mortality ratios: per capita gross national product and adequacy of access to maternal health services (Bulatao & Ross 2003).

This study supports the growing opinion that reaching a health facility, which can provide essential obstetric care is the best tool for reducing maternal mortality.

There are three possible ways to improve access to obstetrical services when complications arise.

1) Bringing medical services to women in need - "flying squads"

2) Bringing women who need them to medical services - emergency transport

3) Decentralisation of care so that women have easy access to skilled obstetric care; this would require provision of obstetric facilities close to every community.

All three options are not viable in the foreseeable future, for most low-income countries. In very large and poor districts, with very low population density, like Kalabo District, “flying squads” or emergency transport for women in need is not feasible for a variety of reasons. As an alternative for the third solution, which is available in much of the developed world, some countries have built maternity waiting homes.

10.6 Maternity Waiting Homes

The use of maternity waiting homes (MWHs) was suggested to be an adequate answer to poor access to hospitals. The purpose of MWHs is to provide a shelter, near a hospital with essential obstetric facilities, where women can be accommodated during the final weeks of their pregnancy. At first, maternity waiting homes were intended for women with high-risk pregnancies (Thaddeus & Maine 1994). Several studies suggested that risk assessment should play a central role in reducing maternal mortality (Essex & Everett 1977; Lennox 1984; Larsen & Muller 1978), based on the paradigm of risk assessment. The WHO identified four elements, which are essential for a well functioning MWH (Figure 10.2) (WHO 1996).

Figure 10.2

Essential elements for a well-functioning Maternity Waiting Home

1. Definition of antenatal risk factors and selection of women staying at a MWH;
2. The availability of a viable community health service for identifying women in need of referral and community awareness in compliance with the referral indication;
3. Skilled obstetric services, including emergency care;
4. Community and cultural support.

Source: WHO, 1996

In this concept of a MWH, which presupposes that it is possible to identify pregnancies that are likely to develop complications ("high-risk pregnancies"), selection of women for referral to a MWH is important. Examples of high-risk pregnancies, suggested to benefit from admission to a MWH, are presented in Figure 10.3 (Figa'-Talamanca 1996).

Figure 10.3

Examples of indicators for high-risk pregnancies

1. Malpresentation, e.g. breech and transverse lie;
2. Poor obstetric history, e.g. previous stillbirth, previous early neonatal death, previous postpartum haemorrhage, prolonged labour with vesico-vaginal fistula;
3. Previous caesarean section or symphysiotomy;
4. Multiple pregnancy;
5. High pregnancy order;
6. Age, adolescent or women beyond 35 years of age;
7. Malnutrition; anaemia;
8. Hypertension/pre-eclampsia.

Source: Figa'-Talamanca, 1996

It should be noted, that on the one hand high-risk pregnancies often do not lead to complications, and on the other hand, in initially low risk pregnancies unexpected complications may arise. Even in a low risk population, it is estimated that 20% of pregnancies will result in complications, which will need treatment at a facility providing essential obstetric care (WHO 1999). The essential treatments of obstetric care, as identified by the WHO, are summarised in Figure 10.4.

Figure 10.4

Components of essential obstetric care

1. Parenteral antibiotics, oxytocin and anti-convulsants;
2. Facilities for manual removal of the placenta;
3. Facilities for removal of retained products of conception;
4. Assisted vaginal delivery: vacuum extraction;
5. Facilities for blood transfusion;
6. Facilities for caesarean section.

Source: Goodburn & Campbell, 2001; WHO, 1991

Selection of women with high risk pregnancies, who should be transferred to MWHs, has never been very successful. In Tanzania for example, a study by Jahn et al. showed very poor risk selection by health care workers; only risk factors like previous caesarean section and first pregnancy lead to a marked selection towards health facilities with essential obstetric care (Jahn et al. 1998).

Since identifying "low" and "high" risk pregnancies proved to be difficult, the safe motherhood initiative changed its priority towards "access to quality emergency obstetric care". This policy should increase the quality of supervision of birth and international organisations aim at 80% skilled attendance of births by 2005 (Maine & Rosenfield 2001).

It is difficult to evaluate safe motherhood programmes. Maternal mortality ratios are not very useful in monitoring the effects of these programmes, because the standard error of MMR measurement is usually greater than the difference over a 10 year period. In order to assess the success of safe motherhood programmes, other indicators than mortality ratios have been proposed by Unicef and the World Health Organisation. Suggested indicators of maternal health care are: the number of facilities offering emergency obstetric care, the proportion of deliveries attended by qualified personnel, the proportion of obstetric complications seen by obstetric emergency services, and the proportion of caesarean sections performed among all births (Maine et al. 1997). In addition, De Brouwere introduced "unmet obstetric need" in order to assess maternal health care programmes. The difference, between the number of women in a population with an indication for a major obstetric intervention and the number of women who received that intervention, is the unmet need (De Brouwere & Luck 1998).

It is not easy to prove that maternity waiting homes "work". Nevertheless, they improve the accessibility of maternal health care in a certain area. Studies which show a decrease of the ‘unmet obstetric need’ have not yet been published.

Relatively few data are known about the functioning of maternity waiting homes. The African studies on MWHs stem from Ethiopia, Zimbabwe and Zambia and show better pregnancy outcomes among women making use of these homes (Millard et al. 1991; Poovan et al. 1990; Chandramohan et al. 1994; Tumwine & Dungare 1996; van Lonkhuijzen et al. 2003; Spaans et al. 1998). From Ghana, however, there is a reported failure of a MWH. The MWH was built far from a hospital, and emergency transport was needed to travel to the main hospital where obstetric facilities were available. During twelve months, only one woman stayed for one night at the MWH. This project lacked community support and clearly did not improve the accessibility of health care, and therefore was doomed to fail (Wilson et al. 1997).

In a utilisation-study in Kalabo, Zambia, 97% of 332 respondents answered that they would be ready to stay in a MWH if it was available (Stekelenburg et al. 2004). They also mentioned several facilities, which should be available: food provision, proper accommodation, free service, regular medical attention, privacy and separation from men. Lack of food provision was one of the reasons that a maternity waiting home in the Karawa health zone in former Zaire was rarely used (Sambe 1990).

Successful studies are summarised in Figure 10.5. In all studies, perinatal and maternal mortality were lower among MWH users. Two studies, Poovan et al. and van Lonkhuijzen et al., reported that the majority of users consisted of women with high-risk pregnancies. In the study by Poovan et al., the stillbirth rate was ten times higher in the non-MWH users than in MWH users; many women in the non-MWH group were emergency admissions with severe complications. Results of these studies indicate that the objective of proper selection of women to be admitted in a MWH, one of the criteria of WHO at the start of the safe motherhood initiative in 1987, was not yet completely met. Though the majority of women using the maternity waiting homes were women with high-risk pregnancies, others with high-risk pregnancies did not make use of the maternity waiting homes. Whether these "non-users" were once properly selected as having high-risk pregnancies or not can not be concluded, but the influence of barriers to use of a maternity waiting home might have played a role.

Figure 10.5

Summary of studies on Maternity Waiting Homes (19-24)

Reference	Country	women using MWH[1]/Non-MWH[2]	Para 0 (%) MWH/Non-MWH	Para>6 (%) MWH/Non-MWH	PMR[†] MWH/Non-MWH	MMR[*] MWH/Non-MWH
Poovan et al., 1990	Ethiopia	151 / 635	7 / ?	11 / ?	28 / 254	0 / 2047
Miljard et al., 1991	Zimbabwe	486 / 336	25 / 24	7 / 9	35 / 71	? / ?
Chandramohan et al., 1994	Zimbabwe	1573 / 2915	42 / 38	7 / 5	19 / 32	64 / 69
Tumwine & Dungare, 1996	Zimbabwe	280 / 773	32 / 28	25 / 25[b]	25 / 30	357 / 388
Spaans et al., 1998[a]	Zimbabwe	813 / 228	31 / 15	18 / 27[b]	22 / 39	123 / 877
Van Lonkhuijzen et al., 2003	Zambia	218 / 292	54 / 31	12 / 8	53 / 54	0 / 342

[†]Perinatal mortality rate per 1,000 live births

[*]Maternal mortality ratio per 100,000 live births

[1] Women staying in a Maternity Waiting Home

[2] Women not staying in Maternity Waiting Home, but travelling to a hospital

[a] District survey: women giving birth at a maternity waiting home/hospital setting (MWH) compared to women giving birth at home (non-MWH)

[b] Parity 5 or above

10.7 Discussion

There is evidence that improving access to facilities offering high-quality essential obstetric services is a good tool in reducing maternal mortality. The option of decentralisation of care so that women have easy access to skilled obstetric care by provision of obstetric facilities close to every community, is not feasible in rural districts in sub-Saharan Africa. Provision of a MWH is a promising alternative to decentralisation of essential obstetric services.

MWHs have proven to be effective in several studies. Pitfalls, however, are to be anticipated. The accessibility of the MWH itself, the risk identification process, the quality of community education and antenatal care and the quality of service delivery at the District Hospital are factors to be considered. Utilisation studies have shown that cultural factors of accessibility have to be taken in account. Proper communication and interaction with the target-communities will have to take place, to become familiar with their needs and expectations. A MWH will only be used if transport facilities to reach the facility will be made available and women will be assisted to bear the direct and indirect costs of their longer stay.

Separation from children and leaving home for a long period leads to indirect costs and loss of earnings. Proper accommodation should be available with beds and bedding, provision of food and regular medical attention.

Improvements in the assessment and identification of high-risk pregnancies will remain an important issue to work on. Training of traditional birth attendants and health care workers in risk assessment, however, should go hand in hand with improving the accessibility of obstetric care. Figa' Talamanca's list of indicators for high-risk pregnancies will need to be adjusted for every different district. HIV/AIDS appears to be a risk factor, for example, which should be included in the list for districts in endemic areas. Integration of sexual and reproductive health services should be sought, where antiretroviral treatment of pregnant women living with HIV, to prevent vertical transmission, is concerned.

Investments in the functioning of the community health system, including the trained traditional birth attendant system, and the staff at rural health centre level are urgently required. Only if the quality of antenatal clinics organised by these cadres can improve, successes of a MWH can be expected. The majority of pregnant women are currently unaware of the estimated date of delivery, which makes a timely decision to travel to a MWH difficult. Dating of pregnancies is very important to all delivery planning. It is not only women who are

not sure of when they are due to have their babies, but primary health care workers are notoriously inept in working out gestation.
Offering pregnant women a possibility to stay in a MWH, waiting for high quality essential obstetric care obliges the District Hospital to offer that. Improvements of the quality of care in District Hospitals is mandatory.

Reducing maternal mortality requires sustained, long-term commitment and the inputs of a range of co-operating partners. Governments, non-governmental organisations (including women's groups and family planning agencies), international assistance agencies, donors, and others should share their diverse strengths and work together to promote safe motherhood within countries and communities and across national borders. Programs should be developed, evaluated and improved with the involvement of clients, health providers, and community leaders. National plans and policies should put maternal health into its broad social and economic context, and incorporate all groups and sectors that can support safe motherhood.
Unfortunately, those countries with the highest maternal mortality ratios and the lowest utilisation levels are also the countries, which are hit hardest by the HIV/AIDS pandemic. Achieving improvements in a maternal health programme in such a country is now more than twice as difficult as it used to be. The burden of disease has dramatically increased, whilst the lack of staff is worse than ever.

Institution of a MWH, however, together with improvement of the quality of antenatal care, risk assessment and essential obstetric care in the hospital can, in close collaboration with the target-communities, play an important role in increasing utilisation of maternal health services, decreasing maternal mortality and morbidity and, thus, improving maternal health. MWHs are ideal locations for family planning counselling, including counselling for sterilization. Indeed spacing and famliy size limitation are likely to save more lives than the MWHs themselves.
For Kalabo District, however, investments directed at improving risk assessment and identification and the quality of essential obstetric care in the hospitals and clinics might be more cost-effective at the short term.

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11 Health System Research as a tool to improve health care in a rural district in Zambia

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11.1 Abstract

The authors introduce the concept of ‘demand driven research’, as a tool for health workers, in close collaboration with users of the health care system, to break the dependence on conventional research cooperation programmes which have a tendency to focus mainly on biomedical research and often disregarding the context in which potential innovations are to be utilised.

The authors stress the importance of involving perspectives of users of care in health system research, so that research outcomes will be meaningful to them, and recommendations will have a better chance of being implemented. To create more awareness of the importance of the users’ perspective, four examples of demand driven health system research in a rural district in Zambia are presented. The way local health workers and community representatives worked together in designing, analysing and interpreting the studies, leading to feasible recommendations that can be implemented, is described.

Obstacles to implementing good quality health system research are many and can also easily be extracted from the examples given. The authors conclude that demand driven health system research can play a role in a learning process to enlarge the knowledge that is necessary to build health systems that are meaningful. To overcome these obstacles development of guidelines and handbooks for a “Where there is no health researcher”-programme are needed.

11.2 Introduction

The Bangkok conference on Health Research for Development in 2000 recommended efforts to strengthen Health System Research (HSR) and to link health research to development (WHO 2001-2002). However, there appears to be limited research capacity in developing countries. In addition, conventional research cooperation programmes tend to focus mainly on biomedical research, often disregarding the context in which potential innovations are to be utilised (Wolffers et al. 1998). Resource-constraint countries would highly benefit from streamlining its health systems to cut cost and provide better access to users. HSR can play a key role. There seems to be one condition, however. The needs and expectations of users of health care have to be reflected in order to make HSR and its consequences on health care delivery meaningful.

Participation of users of care was already advocated in the Primary Health Care strategy (WHO 1978). The PHC strategy aimed at replacing the so far mainly hospital based and curative oriented health services, as well as disease specific special programs by preventive and promotive services as close as possible to the community, with community participation, inter-sectoral collaboration and implementation of cost-effective interventions using appropriate technology (Muller 1995). Several approaches were developed depending on different interpretations of the concept and local circumstances. Such approaches were selective PHC (Walsh & Warren 1979) versus integral (or comprehensive) PHC, the District Health Care system, cost- recovery schemes following the Bamako Initiative (Unicef 1990) and Community Based Health Care. Even if the approaches differed, they all focussed on improving the health services at the users' level, rather than at reorganising the health sector in general. Evaluation of the implementation of the HFA policy by WHO (WHO 1993; WHO 1997) showed that on a global level considerable progress was made. However, community participation, which was originally meant to be the corner stone of the PHC-strategy, was insufficiently implemented. That might be one of the reasons why in HSR often the views of the users of care are also lacking.

How can HSR contribute in solving the immense problems resource-constraint countries are facing? The overall health situation in sub-Saharan countries is affected by epidemiological

changes, in particular due to the HIV pandemic, demographic pressure, urbanisation and predominantly by continuation of poverty. Recent efforts to improve the health of disadvantaged populations have focused on making available resources to treat major diseases, specifically tuberculosis, AIDS and malaria, and on developing and improving access to vaccines (Global Fund to Fight AIDS, Tuberculosis and Malaria 2004; GAVI 2004). However, the problems faced are at all levels and are very basic: shortages of medicines and medical equipment, staffing crisis, inadequate infrastructure. All this undermines the quality of health care across sub-Saharan Africa. Hospitals are deteriorating in terms of both the scope and quality of health care they provide, despite receiving a significant portion of public resources. In addition, negative attitudes due to low salaries, unprofessional behaviour and high turnover of health care practitioners have compromised service provision. Some hospitals have inadequate water, sanitation and disposal facilities and can be hazardous to both health workers and patients. It has led to a situation of care below expected standards, resulting in client dissatisfaction and increasing mortality rates, hospital acquired infections and other adverse effects. Result is a low utilization of services. In combination with lack of participation of the end users of care there seems to be limited hope if we continue policies as they are now.

A World Summit on Health Research (Editorial Lancet 2004), in Mexico in mid-November this year, will provide a forum for ministers of health and other health policy-makers to chart a way forward. The summit will focus particularly on the role of HSR and on what new knowledge is required to move forward. HSR involving the perspectives of the users of care is one of the tools that can provide new knowledge in this endeavour. In this paper we would like to give examples of how this can be done. It aims to create awareness of the importance of the perception of clients of health care and to describe efforts to use the concept of demand-driven research as a tool for the development of more meaningful health care services. After introducing the concept of demand-driven research, four examples will be given from Kalabo District, a rural district in Zambia.

11.3 Demand-driven research

'Ownership' is an often-used concept in development work. For health care this implies that people are empowered to share knowledge about their own health problems, their life-styles, the features of their own district and the way the health-care system deals with this. This 'sharing' has to be accommodated in the research methodologies used. Results and recommendations of such studies, which are action-oriented, should guide policy-makers to develop, in close cooperation with all stakeholders, measures and programmes to improve the situation. If true respect is given to the very people in the district whose health is to be improved, there is a possibility that sustainable, community-based and meaningful services and programmes can be designed. This may lead to people making better use of these services.

Since the beginning of the 1990s, international organisations and major donors have promoted more demand-driven research and better identification of capacity building needs in the South, because conventional research partnerships between researchers from the North and the South are often dominated by research agendas that reflect academic rather than societal needs. As a lot of research results that are nicely published in academic journals do not go beyond that specific publication and two copies of a report, which is subsequently shelved because the recommendations are difficult to implement, innovative research methodologies have to be developed. More demand-driven research programmes have been developed, but there seems to also be a lot of resistance against changes in the conventional approach.

Of course, studies like presented in this paper can be criticised from an academic perspective; however, they have their own criteria for scientific and societal quality. Demand-driven HSR aims at identifying general areas for improvement rather than quantifiable indicators, and to facilitate a discussion around issues of access to and quality of services among all those involved in decision-making.

The conditions for research in low-income countries are far from ideal. Professionalism in research for development is based on knowledge and experience in how to deal with these unfavourable conditions without sacrificing basic scientific principles. Demand-driven research should be like all research: repeatable and transparent. Methods and results should be shared and discussed with others and results should lead to recommendations, which can be implemented (Wolffers 2000).

Health care staff, NGO-workers and community members with basic understanding of research principles will be able to do health research for development and to use this tool to improve their living conditions. It will imply a different role for academic health researchers, with other priorities. In a sense this will change the aims, methodologies, tools and outcomes of research. We will present four examples of demand-driven HSR, carried out in Kalabo District in Zambia (Stekelenburg et al. 2002; Stekelenburg et al. 2003; Stekelenburg et al. 2004a; Stekelenburg et al. 2004b).

11.4 Kalabo District

Kalabo District is one of the seven districts in Western Province of the Republic of Zambia, situated on the western side of the Zambezi River. The upland forest areas are sandy with a swampy type of vegetation along the Zambezi and her tributaries. The plains get flooded every year and some parts of the plains remain wet throughout the year. Communities living on either side of the flood plains are separated, which sometimes makes visiting health facilities difficult or impossible.

The population projection for 2000 was 115,656. The district covers an area of 17,447 square kilometres and the population density is less than seven people per square kilometre. District growth rate is only 0.3%, due to high migration trend and mortality. Due to migration of men to sugar cane areas, there is a high percentage of female-headed households, with a male to female ratio of 782:1000. Most of the population is involved in subsistence farming or fishing, certainly living far below the current national poverty line.

The District is virtually cut off from the rest of the country, as there are no roads. Transport by river is seasonal. Within the District there are also no roads, only sandy tracks. There is no formal public transport and there are almost no vehicles, apart from a few government vehicles, based in Kalabo boma.

The District has two first referral hospitals, only 7 kilometres from each other. There are 14 rural health centres, unevenly distributed throughout the District. During the flood season, six rural health centres are completely cut off from the rest of the District. There are about 150 community health workers and 81 trained traditional birth attendants. Due to the vast area, the scattered population and the complete lack of any means of transport, adequate access to health services is not provided to all communities in the District.

There is a critical shortage of trained staff of all cadres in all health institutions.

Kalabo District Hospital is the main referral hospital in the District. It has 100 beds and comprehensive emergency obstetric care can be offered in most occasions. Two medical officers, 3 clinical officers, 5 trained midwives, 20 trained nurses and 5 ward assistants deliver their services to the people. The hospital counts approximately 3,000 admissions, 500-600 deliveries and 25,000 out-patient-contacts per year. The annual budget for the Hospital between 1998 and 2000 was approximately USD 25,000. =, which is far less than 1 USD per capita. The maternal mortality in the Hospital is high, as in most rural areas of Africa, with (far) more than 1,000 maternal deaths per 100,000 live births. A sisterhood method indicated a maternal mortality ratio of 1,238 per 100,000 live births for the District (Vork et al. 1997).

11.5 Pneumonia and mortality in children under five

The nursing staff in children's ward of Kalabo District Hospital wanted to know why so many children were admitted with very severe conditions of pneumonia, in their perception just and only to die in the ward. A study was conducted to analyse the factors playing a role in the high mortality due to pneumonia among children under five years of age in Kalabo District.

In a cross-sectional descriptive study 78 mothers and 16 health workers were interviewed using structured questionnaires. Focus group discussions were held with groups of women who did not take part in the survey. Registers, patient records, drug stock control cards, drug stores and equipment were reviewed or checked.

The results showed that pneumonia is an important public health problem in Kalabo District. Knowledge about the disease and its treatment is inadequate, both in health workers and in mothers. Low birth weight and distance contribute to high mortality, and Mother and Child Health (MCH) clinic visits contribute to lowering pneumonia mortality.

To reduce the problem of high mortality due to pneumonia in Kalabo District, the District Health Management Team decided to concentrate on education of the community and the health workers.

Health workers, especially at rural health centre level, were re-trained in case definition, case management and the use of available protocols. After returning to their posts, the rural health centre staff, in close collaboration with community representatives, designed specific programmes to work on improving the ability to recognise the signs and symptoms of

pneumonia and to understand the importance of early and adequate treatment. The MCH clinics played an important role.

Strategies to fight the impact of pneumonia in the district should be part of an integrated package of care, focussing on all other prevalent childhood diseases, which are co-existent in many cases.

11.6 Community Health Workers

In order to answer a research question from the District Health Management Team, one of the members, in collaboration with staff from rural health centres and community representatives, designed and carried out a study to analyse factors playing a role in the poor functioning of the community health worker programme. A cross-sectional descriptive study was performed to determine factors contributing to low performance of community health workers in Kalabo District, Zambia; 86 community members, 27 community health workers and 9 rural health centre staff were interviewed, using semi-structured questionnaires. Other methods were focus group discussions and checklists. Data analysis was done manually.

The low performance of community health workers is a problem for Kalabo District. The two most important factors are the irregular and unreliable supply of drugs and selection of the wrong people to be trained for community health workers.

Though initially implemented as such, the comprehensive approach of the primary health care project is not functioning in Kalabo. Community health workers are mainly valued because of their curative services. Communities do not properly follow the official criteria for selection of people to be trained, but have other considerations.

The study-results were discussed with community representatives and agreement was reached that strategies should be formulated to rehabilitate the programme, mainly focussing on these two findings. Other factors, like inadequate community support and inadequate supervision were mentioned by many contributors, but did not show to be statistically significant. Community representatives appeared to be motivated to explain the need for promotion and prevention to the people in their villages and areas and put pressure on the DHMT to put more effort on supplying drugs to the community health workers. Regular follow up was agreed upon.

11.7 Health care seeking behaviour/traditional healers

This study was conducted after discussions in the meetings of the DHMT about health care seeking behaviour and strategies of patients with HIV-related diseases. The DHMT wanted to know how traditional healers could be involved in preventive programmes like education about condom use.

The objective of the study was to identify traditional healers in the catchment area of Kalabo District Hospital and to investigate determinants, which play a role in choosing between different health care options, and to explore possibilities for increasing co-operation between the District Hospital and traditional healers.

In a cross-sectional comparative and descriptive study, a combination of both quantitative and qualitative methods was used. A total of 12 health workers, 13 traditional healers and 100 community representatives were interviewed, using (semi)structured questionnaires. A focus group discussion was held with a group of 12 traditional healers.

In this study it became clear that all respondents are willing to visit the hospital if they fall ill in future and 88% of the respondents will visit a traditional healer. More women visit traditional healers, but if men do, the frequency of visits is higher. Level of education is not an important determinant. Increasing age leads to higher attendance frequency of both the hospital and traditional healers. Almost half of the respondents (49%) only have to walk less than 30 minutes to a traditional healer. The hospital is so close for only 34% of respondents. Waiting time turned out to be an important additional factor. In the hospital, 48% of respondents is not helped within time. At the traditional healer, only 28% is not helped in time. In addition, demon possession, mbaci, kanono and infertility are typical health problems, which make people go to a traditional healer. Cost of treatment by a traditional healer usually is one cow, but only if the patient is cured. Satisfaction was measured at 89% at the hospital and 74% after treatment by a traditional healer. In case of dissatisfaction by the traditional healer, 86% would consider attending the hospital.

The study led to increasing insight of policy makers about how people in Kalabo choose where to go for treatment. Some interesting details about traditional diseases, their aetiology and the implications for health care seeking behaviour were obtained. Most probably, findings can be valuable for health policy makers in similar rural districts, with comparable health problems and socio-demographic features, in sub-Saharan Africa.

Already immediately after the focus group discussion with the traditional healers, a change could be noticed. Traditional healers were invited for and actually visited clinical lessons in the hospital. Interesting discussions about prevention of sexually transmitted diseases were held and more referrals were noticed.

11.8 Low use of maternal health services

During a yearly analysis of data from the Health Management Information System, the discrepancy between the high maternal mortality and morbidity and the low use of maternal health services was discussed in the meeting of the DHMT. The DHMT wanted to know which factors were responsible for this discrepancy in the District.

A cross-sectional descriptive study was held between 1998 and 2000 to gain insight in the level of utilisation of maternal health services and to identify and assess factors that influence women's choices where to deliver. A total of 332 women were interviewed, using (semi)structured questionnaires. Focus group discussions were held and hospital data and registers were checked.Though 96% of respondents would prefer to deliver in a clinic, only 54% of respondents actually did. Factors responsible for this difference are long distances and non-availability of transport, the charge of user fees, lack of adequate health education given during antenatal clinic attendances, ill staffed and ill equipped institutions and poorly skilled staff.

Unmarried women, women with higher education and women with formal employment, who are able to pay the user fees and live nearby a clinic, have a higher chance of delivering in a clinic. That does not automatically mean that they will survive. Maternal mortality is high in the district; health facilities are ill staffed, poorly skilled and ill equipped.

Recommendations were formulated for the DHMT and led to policy changes in many occasions. Much emphasis was put on the need of proper communication with users of care about where to deliver, the estimated date of delivery, risk factors and fears and expectations about the clinic.

Preferably, after a period of about 5 years, research should be carried to study the impact and the sustainability of the policy changes. An improvement of maternal health indicators could add to the conviction of the authors that this kind of simple health system research can lead to

increasing knowledge of local health managers about their own district health system and facilitate appropriate programme-writing and implementation.

11.9 Discussion

The studies described in this paper have not resulted in immediate improvement of the health situation in Kalabo District. Poverty is still the major factor that has an impact on the health of its inhabitants. The health system is not functioning well. Reproductive health problems are enormous and child mortality is high. A hospital-based maternal mortality ratio of 1,359/100,000 between 1998 and 2001 is a figure unimaginable in an industrialised country and a percentage of 46% of deliveries not taking place with skilled assistance is unthinkable. The poor functioning of the community health workers system, where community health workers do not receive adequate support and supervision are other features of a health-care system that is not meaningful for people. Simultaneously, the fact that traditional healers have a prominent position in the local health system and the willingness of users of care to pay for services that are meaningful to them became clear.

However, through demand-driven HSR the voice of people in Kalabo has been heard. The results of the studies were reflected in setting of priorities, in decision-making and in making the health-care system more user friendly. The research process turned out to be a learning process. It was no longer only a matter of knowledge production by and for researchers. It was a learning process in which as well providers of care as users of care were involved, leading to empowerment of inhabitants of Kalabo, helping them to take better informed decisions. Demand driven HSR can play a role in this learning process to enlarge the knowledge that is necessary to build health systems that are meaningful and make a difference.

To overcome the obstacles that were observed to implementing good quality HSR we need development of guidelines and handbooks for a programme that we might tentatively call ‘Where there is no health researcher’. This might break the dependence that is part of the culture of poverty.

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12 General discussion

The health of many Zambians is poor, and there is high infant mortality, high maternal mortality, high fertility rate and decreasing life expectancy. HIV/AIDS, malaria, respiratory tract infections, tuberculosis and maternal health complications are still killers of children and adults in Zambia (Chapter 2).

For the people in Kalabo District the situation is even worse. The health care system is not functioning well. Reproductive health problems have a serious impact on the lives of women and children. A hospital-based maternal mortality ratio of 1,359/100,000 between 1998 and 2001 is a figure that is unimaginable in an industrialised country (Chapter 8 and 9), and a percentage of 46% of deliveries with no skilled assistance is unthinkable (Chapter 7). Child mortality is high, and the finding that 94% of mothers were satisfied with the treatment they received, even after losing a child due to pneumonia, in a society with child mortality exceeding 10% (Chapter 4), is a finding which places complaints about the health care system in the Netherlands in a very different perspective. The poorly functioning system of community health workers, who do not receive adequate support or supervision (Chapter 5), and the prominent position of traditional healers based on local health beliefs, are other features of the health system (Chapter 6), which are dealt with in this thesis.

Most other sub-Saharan countries struggle with similar, or even worse, health problems. Shortages of drugs and medical equipment, a staffing crisis and inadequate infrastructure are undermining the quality of hospital care across sub-Saharan Africa. Hospitals are getting worse in terms of both the scope and the quality of the health care they provide, in spite of the fact that they receive a significant portion of public resources. In addition, demoralisation, unprofessional behaviour and high turnover of health care practitioners have compromised the provision of services. Some hospitals have inadequate water, sanitation and waste disposal facilities and are often a hazard to both health workers and patients. All this has led to a situation in which the care that is provided is below acceptable standards, resulting in client dissatisfaction, increasing mortality rates, hospital-acquired infections and other negative side-effects (IRIN 2003).

The contradiction of the high burden of disease and high mortality in the district and the low use of services is the central theme of this thesis. Poverty, the HIV/AIDS epidemic and inadequate health care staff are important factors for understanding why health indicators have not improved, despite the significant portion of public resources that has been received for many years. The interaction between the providers and the users of health care is another important factor. The way this interaction takes place might be the most important determinant of the meaningfulness of services. Only if services are meaningful, will people use them.

12.1 Use of services and barriers

When people in Kalabo District fall ill, their reaction is often not as expected by health professionals. People are often not prepared for illness, and find it difficult to anticipate situations of severe illness or any other health crisis. The future becomes an abstract concept, if one lives for the day. Many people feel that they cannot influence the course of their life, and traditional beliefs and religiosity are very important in helping them to cope with what is happening to them in life.

The barriers to visit a health centre or hospital are sometimes so high that discussions and consultations have to take place before a decision is made. This delay, which is referred to as phase 1 delay in the framework of Thaddeus and Maine, can already result in severe morbidity or death. For children with severe pneumonia (Chapter 4) and for women with prolonged labour (Chapters 7, 8 and 9) it can already be too late. The delay in the decision-making process can be influenced by long distances (in some cases aggravated by the uneven distribution of health facilities), lack of transport, the direct and indirect costs of treatment, the gender of the health worker, inadequate knowledge among women about the risk factors of pregnancy and their estimated date of delivery, and the low status of women (Chapter 7). Traditional healers are more evenly (geographically) distributed than ‘formal’ health institutions, and they are therefore more accessible (Chapter 6). In discussions, women mainly mentioned practical reasons for delaying the decision to travel to a health facility. Leaving other children at home, unwilling husbands, and shortage of food and blankets are often practical barriers to visit health institutions (Chapter 7).

Looking at Andersen's prediction model, we can conclude that many of the variables he included in his model were studied in Kalabo. Marital status, level of education and occupation proved to be very important predisposing factors in the power women have to decide where to give birth (Chapter 7). The poor socio-economic status of most people in Kalabo District, expressed in the high percentage of respondents living in temporary and unventilated accommodation (73%), definitely contributes to the high incidence of and mortality due to pneumonia (Chapter 4). There is also a correlation between maternal mortality and socio-economic development. However, countries with a comparable GDP per capita, can have very different maternal mortality ratios. Meaningfulness of services, resulting in high use of services, appears to be a crucial factor (Chapter 9). Beliefs, values concerning health and illness, attitudes towards health services, and inadequate knowledge about diseases were identified as important determinants in all the studies presented in this thesis.
Income is important as a determinant of the utilisation of maternal health services. Women with formal employment who are able to pay the required fees have a higher chance of giving birth in a clinic (Chapter 7). Health insurance schemes, which are also mentioned in Andersen's model, had not yet been introduced in Kalabo at the time of the studies.

Affordability (financial accessibility) of health services is a rather complex issue. In the literature there are many conflicting conclusions about the relationship between the introduction of fees and the utilisation of services. In Chapter 7 user fees are identified as a determinant of the utilisation of maternal health services, but in Chapter 6 respondents admit that the costs for treatment from a traditional healer is often higher than the cost of hospital treatment. Costs for treatment cannot be separated from issues such as quality of care and satisfaction with treatment. If people expect to receive high quality care, and they expect the services to be meaningful, they are usually willing to pay substantial fees.
Andersen distinguished between perceived and evaluated need as illness-related determinants. This difference became very clear after a radio communication system was established between rural health centres and the hospital in Kalabo. Regularly, representatives of patients 'on the other side of the line' had a completely different idea about the need to send an ambulance.

Proper knowledge about the danger signs of pneumonia (Chapter 4) or high risk pregnancies (Chapter 7) is frequently inadequate, from a professional health worker's point of view. Obstructed or prolonged labour can be a reason to consult a traditional healer first (Chapter 6), but on the other hand a difficult discussion can take place to make a caller understand that, even for his relative, a common cold is not a good reason to send an ambulance. Early involvement and the participation of communities in designing health programmes can prevent such problems. It can also lead to a situation, however, in which communities decide that having an ambulance is not one of their most crucial needs.

12.2 Meaningfulness of services and the interaction between clients and providers

Patients and health worker interact at some point; the patient has a need, the health worker has something to offer. So far, it is almost like a market. In most health care systems, however, there is a third party: the government. The government often sets the rules to be followed, in order to influence the quality of the care. Government regulations should protect the people against the dominating position of the health care providers, but in many low-income countries the governments fail to do so. The Alma Ata Declaration of 1978 tried to strengthen the position of patients in their negotiations on the health market.

It is very difficult to define the needs of the users of health care. Needs can differ within populations, communities and individuals. The most important problem in defining the needs of people is deciding who should do so. What is the most important problem in Kalabo? Is it the high maternal mortality or the high percentage of children dying from pneumonia? Or maybe the absence of a road, the shortage of teachers in secondary school, river sand in the tap water, the high level of unemployment, or even something completely different? The people of Kalabo themselves should answer the question. However, they are not used to speaking up, and they are hardly ever invited to do so. Participation in community development or in health care is very important, but it is not easy to organise or achieve. The problems encountered in the selection of villagers to be trained as community health worker (Chapter 5) are illustrative of the problems which can be experienced when encouraging participation of the community. Another typical example is the fact that the chairman of a Neighbourhood Health Committee misused the ambulance for the transportation of his maize (Textbox 1).

To really find out about people's needs, appropriate research is necessary, based on excellent interviewing techniques and observational studies.

What do people do when they suffer from diarrhoea, malaria, mbaci or kanono? Mbaci and kanono are deliberately mentioned here to make it clear that not only modern biomedical diseases are important if one truly wants to find out about the needs of the people. Chapter 6 describes health care seeking behaviour and the use of traditional healers by the people of Kalabo. Kanono, mbaci and demon possession are unknown conditions in western medicine, and in Kalabo people suffering from these conditions first visit a traditional healer. A simple answer to the question what people's most important needs are, is therefore very difficult to find. Only if people analyse their needs themselves, as was proposed in the Declaration of Alma Ata, can a true answer be expected.

Text Box 1

The Chairman

The institution of a radio-communication system in Kalabo District (all 14 Rural Health Centres and the hospital were connected with radios) and the availability of three ambulances (donated by the Permanent Secretary) was a major achievement for the District Health Management Team in its efforts to improve the referral system. Definitely, many lives were saved. It was not expected that very difficult discussions were to follow about the indications for use of the ambulance and the radios. A chairman of a Neighbourhood Health Committee even had to be laid off because of misuse of the ambulance (for transporting his maize to the provincial capital).

A second reason why it is difficult to understand the true needs or demands of people is that needs can be influenced by what is being offered in health care. For example, by offering adequate essential obstetric care in a district hospital, women might be encouraged to experience maternal deaths in the community as a problem, whilst in the past maternal deaths were accepted as "a fall on the battlefield in the line of duty" (Chapter 3). The same can be said about children dying from pneumonia (Chapter 4). Would mothers mention this problem if they had not known that pneumonia could be treated with antibiotics in the hospital?

Thirdly, people are different and experience different problems, needs and demands. Men, women, the old and the young, the rich and the poor, can all experience different health needs. In other words, it depends on who you ask, as to which health needs will be expressed.

Women who are educated, not married, and who have formal employment will have different ideas about a maternity waiting home than other women.

The last reason why it is so difficult to know what people really need and demand is that very little research has focussed on needs.

Even in direct interaction, health workers frequently pay insufficient attention to what patients really need. At the end of a consultation health workers have a different impression of the needs of their patients than the patients themselves. Some public health specialists have defined the needs of people, making use of statistics and epidemiological data. They mislead themselves by thinking that they do not need to ask people about their needs. They think that they already know the needs of the people, because they have data. They are able to design their intervention programmes without talking to the people whose health needs to be improved. Even the public health priorities for Zambia, mentioned in Chapter 2, should give rise to questions. Whose priorities are these? What do the people think of them? The example in Textbox 2 shows how difficult it can be, at district level, to work according to an annual plan which was drafted with full participation of the community.

Text Box 2

Priorities

In Kalabo we worked according to the Annual Action Plan. In the development process communities at all levels were involved. The participation process was not easy, but we did our best to let it take place. Every month we extracted a monthly ghant chart from the annual plan. We tried to prioritise the activities we wanted to carry out that month. So far, so good. Very regularly it happened that we received a call or fax from WHO, UNICEF, CBoH or another important organisation that a considerable amount of money had been transferred to our account for a certain programme. We then stopped all other activities and started to implement the programmes, which had been designed by others, in other offices, without talking to us or the communities in the district. The local health workers were very eager to run the large programmes, because many allowances were usually available.

A market is a place where clients have the opportunity to make choices. Choices between different forms of treatment, for example. However, the different options, the dependent variables in Kroegers model (Chapter 6), are limited in Kalabo. Traditional healers, modern health institutions and a private clinic are available. People's choices, according to Kroeger, are determined by the characteristics of the subject, the perceived illness and the health

service. How, exactly, people choose is not known. Factors which play an important role in making choices have been identified in Chapter 5, 6 and 7: distance, availability of transport, direct and indirect costs, previous experiences with health care (workers), i.e. waiting time, and knowledge. An important difference between low and high-income countries is that the choices in low-income countries are often limited.

Access to health services in Kalabo is often limited and there is an unfair difference. This is demonstrated in all studies in this thesis. Children with pneumonia who live more than two hours away from the rural health centre run a higher risk of dying from the disease than those who live closer to the centre. The charging of fees has reduced financial accessibility, according to more than one third of the respondents (Chapter 4). More than half of the CHWs in Kalabo District are not active and the distribution of CHW kits was irregular and inconsistent. This situation reduces access of the people to quality care (Chapter 5). Almost half of all deliveries in the district do not take place in health institutions, as a result of limited access, and this situation leads to unacceptably high maternal mortality (Chapters 7, 8, 9 and 10). Compared to the accessibility of the hospital, the (geographical) accessibility of traditional healers is much better in the district, and the financial accessibility (affordability) of traditional healers is not affected by their higher charges (Chapter 6).
Target communities should participate in designing and implementing plans. Then, and only then, the people will commit themselves to the services, the services will be meaningful, and the people will use the services. These principles of participation, leading to meaningfulness and use, are not new. They have been part of the PHC-strategy ever since 1978, but attention has lagged. Misconceptions have played a role in the failure of PHC: implementing PHC programmes is not at all easy and certainly not cheap! The maintenance of PHC programmes costs a lot of money and a great deal of time. Ongoing support, supervision and teaching of community workers is necessary, after their initial training.

The most important aspect of the interaction between health workers and their clients is commitment. Lack of commitment is the underlying problem in some cases of sub-standard care resulting in maternal death (Chapters 8 and 9), or leading to mortality in children under five due to pneumonia (Chapter 4). The examples in the chapters mentioned above are quite

shocking, but this is observed in health care systems all over the world. In some cases the struggle for life, and the individual and existential problems which health workers have to cope with, are so severe that providing appropriate and committed care is no longer possible. Cultural problems can be another reason for lack of contact between health workers and patients.

The distance between health care workers and clients can be substantial, and difficult to bridge. Differences in knowledge, the difference between the theory of modern medical science, which was taught to health workers in medical school, and the local beliefs that clients have, cultural differences and many other things, are at the basis of misunderstanding, dissatisfaction and low use of services (Wolffers 1990).

12.3 Poverty, HIV/AIDS and inadequate numbers of health care staff

History of the epidemiology of diseases shows that improved access to health care for poor people forms the key of success in decreasing mortality figures (Chapter 4). Already in Alma Ata, in 1978, almost all governments of the world acknowledged that ill-health is related to poverty and to unfair living conditions, which are the result of powerlessness of the poor. In Chapter 7 of this thesis, it was reported that a medical fee of about 1 USD or even less for delivery services creates an important barrier for many women to go to the clinic.

Despite positive developments through the Heavily Indepted Poor Country (HIPC) initiative and the IMF Poverty Reduction and Growth Facility (PRGF), there is still extreme poverty and high unemployment levels in Zambia. Almost 73% of the population live on an income of less than 1 USD per day. After Angola, Mozambique and Malawi, Zambia is fourth in Southern Africa on the Human Poverty Index ranking. On the Human Development Index, a measure for achievements in three aspects of human development (longevity, knowledge and a decent standard of living), Zambia is number 153 out of 173 countries. External debts increased from 5.1 to 7.3 billion USD between 1996 and 2001, which correlates with 185% of the GDP. The trade balance and the current account have registered deficits in recent years, and interest payments on official debts have put pressure on the current account (UNDP 2000; Africa Research 2003).

The realisation that poverty reduction is essential to improve health, makes one sceptic about the chance of success of new approaches, the revitalisation of the Health Sector Reform in

Zambia, millennium development goals, joint mission identification teams, and what more. Why should they succeed if many people are still poor? If the distribution of wealth on earth could be more fair, if debts could be reduced, if hospital budgets in sub-Saharan Africa could be tenfold and households could spend ten times more money, there would be far fewer problems and people would be healthier as a result.

The devastating effects of the HIV/AIDS epidemic cannot be emphasized enough. The burden on societies in sub-Saharan Africa is unimaginable. The improvements in child survival and life expectancy that were achieved in sub-Saharan Africa in the 1980s and 1990s have been reversed. The unavailability of antiretroviral drugs (ARVs) means that even vertical transmission of HIV infection from mother to child cannot be prevented in many areas. Fortunately, some governments are slowly making headway to provide ARVs to patients in the most affected countries. However, will this development be accompanied by a development of health care services which can effectively deliver ARVs to all, and stimulate compliance with ARV therapy? There is still an extremely long way to go before people living with HIV in rural areas, like Kalabo District, can be adequately treated with these drugs. Currently, other preventive and promotive programmes are barely functioning effectively. The National Tuberculosis Programme in Zambia collapsed during the Health Sector Reforms, as a consequence of the combination of insufficient capacity for tuberculosis control at district level, lack of technical assistance from regional and national level and recurrent partial or total TB drug shortage (Bosman 1997). The necessity to make ARVs accessible to all, is an enormous challenge for Zambia's Ministry of Health and its co-operating partners. Of course, the hardest battle against the virus needs to be fought in changing sexual behaviour and condom distribution. The impact of the HIV/AIDS pandemic and health care staff shortages have been widely discussed in Chapters 2, 4, 7, 8, 9 and 10. In negotiations on the health market, with clients, governments, NGOs and multilateral organisations, these topics should be on the agenda.

Human resources problems have been described repeatedly in Chapters 2, 4, 7 and 8. The shortage of health care personnel is one of the key problems to be solved. The unequal distribution of manpower over the country, leaving many rural areas unattended, the political

pressure on DHMTs to open health centres or health posts in villages in which important politicians live, and the unattractiveness for health workers to work in rural districts should be adressed. Hardship allowances and attractive packages for those who are prepared to work in rural districts are some of the possible solutions.

The way in which sub-Saharan African countries are currently being left to combat their own problems of poverty, HIV/AIDS, maternal mortality and other ill-health, is unfair and unacceptable.

12.4 Equity and the revolution of democratisation of science

Discussing the word ‘equity’, which means ‘fair’, in the context of health care in developing countries, leaves many questions unanswered. The unfairness of how the world is organised and arranged comes to expression in health and poverty indicators in an extremely confronting way. It is almost obscene that so many children die of preventable diseases, that so many mothers die because of pregnancy or delivery-related complications, that so many people die from AIDS, whilst medication is available but too expensive, and that so many people live in poverty and under unacceptable conditions.

Equity also means that each setting should be studied separately and thoroughly, to identify those factors which make one particular setting different from others, and to make arrangements for improving a particular setting. There are no ‘magic bullets’, or blueprints of solutions, which can be implemented worldwide to solve the problems of the poor. Each setting requires its own specific and unique solutions (Meguid 2001).

Several examples of demand-driven research can be found in this thesis. They show how people in Kalabo District believe they should be assisted to solve their health problems. The real significance of the word ‘ownership’ is that people are empowered to share knowledge about their own problems, their own life-styles and the features of their own district. The results and recommendations of relevant studies, which should be action-oriented, should guide policy-makers to develop, in close co-operation with the people, measures and programmes to improve the situation. Only then, if there is true respect for the owners of the district, is there a possibility that sustainable, community-based and meaningful services and programmes can be designed. Then, and only then, people will make use of the services.

Since the beginning of the 1990s, international organisations and major donors have been pushing for more demand-driven research and better identification of capacity building needs in the South, because conventional research partnerships between researchers from the North and the South are often dominated by research agendas that reflect academic rather than societal needs. The major consequence is that the majority of research results do not go beyond two copies of a report, which is subsequently shelved.

Of course, studies like those presented in this thesis can be criticised because of methodological concerns. However, suspicion of subjectivity in the interpretation of, for example, factors that contibute to the low utilisation of maternal health care, should not discourage efforts to identify them. The facility-based maternal death review meeting aims at identifying general areas for improvement, rather than quantifiable indicators, and a discussion about issues of access to and quality of services among all those involved in decision-making might be more important than arriving at the precise list of contributing factors.

Research on the utilisation of heath services at (rural) district level and laboratory studies that focus on increasing resistance levels of malaria parasites to drugs take place in different environments and therefore need to be based on different approaches. The conditions for research in low-income countries are far from ideal. Professionalism in development research is based on knowledge and experience of how to deal with these unfavourable conditions without sacrificing basic scientific principles. Studies should be repeatable and transparent, methods and results should be shared and discussed with others, and the results should lead to recommendations which can be implemented easily. These are the main issues of scientific quality in applied research (Wolffers 2000).

Health care staff, NGO workers and community members with basic understanding of research principles will be able to carry out health development research and to use this tool to improve their living conditions. It will imply a different role for academic health researchers with other priorities. In a sense, that will be a revolution. It is the revolution of the democratisation of science (Wolffers 2000).

12.5 The way forward in maternal health

Reproductive health issues have recently been placed high on the international development agenda. That is not for nothing. Some maternal health problems in Kalabo, which are not very different from those in many other districts in sub-Saharan Africa, have been described in Chapters 6–10. High maternal mortality and morbidity, low use of maternal health services, problems with risk assessment and identification, problems with the implementation of tTBA programmes, sub-standard care in hospitals, difficulties in the referral system, and so on. There are many more maternal health problems, however, which have not been discussed in this thesis.

The Inter-Agency Group (IAG) is a conglomerate of international organisations, e.g. UNICEF, UNFPA, WHO, WB, FIGO, etc., which was established in 1987. The mission statement of the IAG is to improve maternal and newborn survival and well-being by promoting and supporting the implementation of cost-effective interventions in the developing world, policy support and dissemination of best practices and other information among policy makers, programme managers, and other stakeholders worldwide. The IAG sponsored the first International Conference on Safe Motherhood in Nairobi. It was at this conference, in 1987, that the Safe Motherhood Initiative, a global effort that aims to reduce deaths and illnesses among women and infants, was launched. Essential services for Safe Motherhood were identified and lessons were learned. It was agreed upon that Safe Motherhood can be achieved by providing high-quality maternal health services to all women. The strategies and priorities chosen by the Safe Motherhood Initiative presented are in Figures 12.1 and 12.2.

Figure 12.1

How can Safe Motherhood be achieved?

- Care by skilled personnel;
- Emergency care for complications;
- Services to prevent and manage complications of unsafe abortions;
- Family planning services;
- Health education and services for adolescents;
- Community education.

Figure 12.2

The priorities for Safe Motherhood

- Advance Safe Motherhood through human rights;
- Empower women, ensure their choices;
- Safe Motherhood as a vital economic and social investment;
- Delay marriage and first birth;
- Every pregnancy faces risk but some more than others;
- Ensure skilled attendance during childbirth;
- Improve access to high quality maternal health services;
- Prevent unwanted pregnancy and address unsafe abortion;
- Measure progress;
- The power of partnership.

Of course, these are the themes and topics which are important for maternal health. More specific information is needed, however, to translate rather bureaucratic, empty phrases into usable, specific blocks of information, leading to the pathway of designing specific and meaningful services and programmes at district level, in close co-operation with the target

communities; and, indeed, only if the communities themselves have agreed that maternal problems are important for them.

Several theses on maternal health issues have recently been published in the Netherlands. They all describe, from a biomedical perspective, the causes of poor maternal (and child) health: malaria and HIV (Van Eijk 2002; Ayisi 2002); malaria, anaemia, unwanted pregnancy, infertility and abortions (Geelhoed 2003); and again HIV/AIDS and failing population control (Verkuyl 2003). From an anthropological perspective, the diversity of households headed by a female and livelihood strategies that women employ, were studied (Van Vuuren 2003). These theses all add something to solving specific problems in maternal health in the specific areas in which the studies were conducted. This contributes to the global efforts to improve maternal health, initiated by large organisations, like the IAG.

This thesis, hopefully, also adds something. The revival of participation of the community to increase the meaningfulness of services, the necessity to lighten the burden of poverty, the influence of the HIV/AIDS epidemic and the shortage of health care personnel on societies, the promising possibilities of implementing maternity waiting homes, and facility-based maternal mortality reviews in the district hospitals, are among the specific themes that are adressed in this thesis.

12.6 Conclusion

Reading this thesis leaves the reader with a picture of high maternal mortality and morbidity, child losses, the low status of many women and a poorly functioning health system in Kalabo. These are typically the dominant features of (reproductive) health care in many low-income countries. They cannot be separated from larger issues, such as underdeveloped political, social and economical structures, and together they are interwoven in a vicious circle. Poverty and inadequate democratisation of health care is at the basis of most of the problems described in this thesis.

Due to inadequate interaction between health care providers and consumers, inadequate democratisation of health care, poverty, the HIV/AIDS epidemic and other prevalent infectious diseases and gender inequalities, many people in Kalabo and throughout Zambia suffer from poor health. In daily practice, the many barriers to utilisation of health care

services, which are known from the literature, are the reasons why people decide not to go to a clinic (in time).

Fortunately, if one so wishes, this thesis also provides enough starting points for optimism, the most important of which is that people in the district know their problems and know how they should be solved. It would be a sign of respect to ask the people, the owners of the district, to draw up their own development agenda.

If all people involved, villagers, health workers, policy-makers, donor agencies and researchers, could take that for granted and stake their knowledge, skills and money into the development of that agenda, and would listen to the people, something could be achieved.

The achievements of so many years of (medical) development co-operation should also be mentioned. The achievement of a vaccination coverage of more than 70% is not bad at all. A percentage of 54% of deliveries with skilled attendance (Chapter 7) is also an accomplishment. One of the most prominent achievements of the Health Sector Reforms in Zambia is that, at community level, neighbourhood health committees are able to prioritise and analyse their health problems, formulate possible interventions and choose the most useful intervention for implementation.

Poverty alleviation is an important method that can break the vicious circle of poverty and poor health. However, true empowerment of clients and real democratisation of health care are still the key elements in the way forward. People in the districts, the owners, know very well what their problems are and how they should be solved.

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"I am, because we are".

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Samenvatting

Van 1997 tot 2001 werkte de auteur in het Zambiaanse gezondheidszorgsysteem en wel in het Kalabo District Hospital. In die tijd rezen bij hem vele vragen. Een aantal daarvan wordt in dit proefschrift behandeld en beantwoord. Het centrale thema is de tegenstelling tussen enerzijds de grote ziektelast en de hoge mortaliteit en anderzijds het lage gebruik van de beschikbare gezondheidszorgvoorzieningen. De belangrijkste vragen zijn:

- Hoe vindt de interactie tussen gebruikers en aanbieders van gezondheidszorg in Kalabo plaats (met nadruk op zorg voor moeder en kind)? Wat is de invloed van belangrijke concepten als basisgezondheidszorg of 'Primary Health Care' (PHC), het districtsgezondheidzorgsysteem en de 'Health Sector Reforms' op deze interactie? Wat zijn de gevolgen van deze interactie op het gebruik en de kwaliteit van de gezondheidszorg?
- Hoe beslissen mensen in Kalabo of, wanneer, waar en hoe ze actie ondernemen gericht op het verkrijgen van behandeling op het moment dat ze ziek zijn?
- Wat kunnen gebruikers en aanbieders van zorg doen om de gezondheidszorg te verbeteren?
- Wat is vraaggestuurd onderzoek, en hoe kan deze vorm van onderzoek bijdragen aan ontwikkeling?

De Republiek Zambia wordt ingesloten door 8 buurlanden: de Democratische Republiek Congo, Tanzania, Malawi, Mozambique, Zimbabwe, Botswana, Namibië en Angola. Het land heeft een oppervlakte van ruim 750.000 km^2. Er wonen meer dan 10 miljoen mensen en de bevolking groeit met ongeveer 3.2% per jaar. De bevolking van Zambia is relatief jong. Ongeveer 69% is jonger dan 25 jaar. Zambia is het meest ge-urbaniseerde land van sub-Sahara Afrika. Ongeveer 42% van de bevolking woont in of vlakbij een stad. De officiële taal in Zambia is Engels, maar er zijn ongeveer 73 verschillende etnische groepen, die vrijwel allemaal hun eigen taal of dialect hebben. De belangrijkste zijn de Lozi (in het westen), de Tonga (in het zuiden), de Bemba (in het noorden en midden) en de Nyanja (in het oosten). Tussen de 54 en 75% van de volwassenen in Zambia kan lezen en schrijven en dat is een hoog percentage in vergelijking met andere landen in de regio. Toch is 60% van de vrouwelijke

bevolking tussen 15 en 49 jaar nooit verder gekomen dan de lagere school en is 13% helemaal nooit naar school geweest.

Van 1924 tot 1964 stond Zambia, toen Noord-Rhodesië geheten, onder Brits bestuur. In 1964 werd de onafhankelijkheid gevierd en werd Kenneth Kaunda de eerste president. In 1972 riep hij zijn politieke partij uit tot de enige legale partij en zo was hij ook de enige kandidaat voor het presidentschap. Tot 1991 bleef hij aan de macht. Kaunda's bewind was gebaseerd op een door hem zelf ontwikkelde mix van marxisme en traditionele Afrikaanse waarden, die humanisme werd genoemd. Het ging Zambia goed in de eerste jaren van zijn bewind. Dankzij de grote kopervoorraden en de bloeiende wereldkopermarkt werd Zambia een relatief welvarend land, dat zich bijvoorbeeld gratis onderwijs en gezondheidszorg voor iedereen, en bovendien van een behoorlijke kwaliteit, kon permitteren. Door het ineenstorten van de wereldkopermarkt aan het einde van de zeventiger jaren, slecht management en corruptie ging het later bergafwaarts en ging Zambia behoren tot de armste landen van de wereld. Desondanks ondersteunde Kaunda verschillende bevrijdingsbewegingen in buurlanden, zoals het ANC in Zuid Afrika, Frelimo in Mozambique en de SWAPO in Namibië. De relatie met de overheden van die landen was hierdoor natuurlijk slecht wat de handel belemmerde.

In de negentiger jaren was er sprake van toenemende protesten tegen de stijgende voedselprijzen en Kaunda kwam onder zware druk om de oppositiepartijen te legaliseren. Dit leidde uiteindelijk tot een grote verkiezingswinst van Chiluba met de "Movement for Multiparty Democracy" (MMD). Tijdens het presidentschap van Chiluba werd de rol van het IMF en de Wereldbank veel groter. De structurele aanpassingsprogramma's die waren bedacht om in landen als Zambia de economische problemen en het enorme schuldenvraagstuk op te lossen, leidden tot strategieën waarin de gezondheidsvraagstukken voornamelijk vanuit een economisch perspectief werden beschouwd. Vanuit deze strategie werden ook de Health Sector Reforms (HSR) geïmplementeerd. De HSR waren gericht op het effectievere gebruik van schaarse middelen door o.a. decentralisatie van planning en herverdeling van middelen van centraal naar perifeer.

Aanvankelijk leken de HSR in Zambia erg succesvol en stond Zambia zelfs model voor andere Afrikaanse landen waar nagedacht werd over het aanpassen van de structuur van de gezondheidszorg. Het veranderen van de structuur van het gezondheidszorgsysteem bleek echter niet te leiden tot verbetering van de gezondheid van de bevolking. De vreselijke

gevolgen van de HIV/AIDS epidemie, de gevolgen van de structurele aanpassingsprogramma's voor andere sectoren en de aanhoudende economische crisis en schuldenproblematiek leidden allemaal tot verslechtering van de gezondheidssituatie.
Ook werd duidelijk dat de HSR veel aandacht hadden besteed aan het ontwikkelen van nieuwe systemen, maar weinig hadden gedaan aan het daadwerkelijk leveren van goede gezondheidszorg op basaal niveau.

De gezondheid van veel Zambianen is op dit moment dan ook nog steeds slecht. Er is sprake van een hoge kindersterfte, hoge moedersterfte en een afnemende levensverwachting. Belangrijke oorzaken hiervan zijn o.a. HIV/AIDS, malaria, luchtweginfecties, tuberculose en complicaties van zwangerschap en bevalling. Voor de bevolking van Kalabo, een district in het westen van het land, is de situatie niet anders. Behalve de bovengenoemde ziektes dragen armoede, een tekort aan gezondheidswerkers en een onvoldoende afstemming van de voorzieningen op de wensen en verwachtingen van de gebruikers een rol. De studies die worden gepresenteerd in dit proefschrift zijn verricht in Kalabo District, van 1997 tot 2001 de woon- en werkplaats van de auteur.

Kalabo District is 1 van de 7 districten in de Western Province van Zambia en ligt ten westen van de rivier de Zambezi. Het grenst aan Lukulu District in het noorden, Mongu District in het oosten, Senanga en Shangombo District in het zuiden en Angola in het westen. De oppervlakte van het district is ruim 17.000 km^2 (ongeveer de helft van Nederland) en er wonen ongeveer 115.000 mensen.
De infrastructuur van het district is slecht. Er zijn geen verharde wegen, ook niet naar Mongu, de hoofdstad van Western Province, gelegen op een afstand van ongeveer 75 kilometer. Gedurende de helft van het jaar staat een groot deel van het district onder water. Er zijn nauwelijks auto's en er is geen openbaar vervoer.
Er zijn twee ziekenhuizen, een missieziekenhuis en een overheidsziekenhuis, en veertien klinieken (rural health centres), ongeveer 150 dorpsgezondheidswerkers en 81 getrainde traditionele vroedvrouwen in het district. Onder andere door de enorme oppervlakte van het district, de geringe bevolkingsdichtheid, het ontbreken van een transportsysteem en een

gebrek aan opgeleide gezondheidswerkers zijn er veel logistieke problemen bij het leveren van gezondheidszorg. De kwaliteit van de zorg laat dan ook te wensen over.

Als mensen in Kalabo ziek worden, reageren ze vaak anders dan gezondheidswerkers zouden verwachten. Mensen zijn vaak niet goed voorbereid op ziekte. Traditionele normen, waarden en geloof zijn vaak bepalend voor de manier waarop mensen omgaan met crisissituaties.
De drempel om naar een ziekenhuis of kliniek te gaan kan hoog zijn en vaak moet er eerst nog worden overlegd voordat een beslissing genomen kan worden. Dit leidt tot vertraging, met in sommige gevallen fatale gevolgen. In hoofdstuk 4 wordt duidelijk dat deze vertraging bij kleine kinderen met longontsteking een overlijdensoorzaak kan zijn. Hetzelfde geldt voor vrouwen met complicaties bij de bevalling (hoofdstuk 7,8 en 9).
Het aantal factoren dat van invloed kan zijn op het zogenaamde gezondheidszorgzoekgedrag is zeer groot. Er is veel onderzoek gedaan naar hoe mensen hierover beslissingen nemen. Een overzicht van de belangrijkste modellen die in de literatuur te vinden zijn, is opgenomen in hoofdstuk 3. In dit proefschrift wordt vooral het model van Kroeger (hoofdstuk 6) en het theoretische kader van Thaddeus en Maine (hoofdstuk 7) gebruikt.

In hoofdstuk 6 wordt een studie beschreven die werd gedaan om de **traditionele genezers** in Kalabo te identificeren, een indruk te krijgen van hun bezigheden, meer te leren begrijpen van hoe mensen besluiten of ze naar het ziekenhuis of naar de traditionele genezer gaan (of helemaal nergens heen) en te inventariseren of er mogelijkheden tot samenwerking tussen traditionele genezers en het ziekenhuis zijn. De studie laat zien dat vooral vrouwen naar traditionele genezers gaan, maar dat mannen, als ze gaan, vaker gaan. Traditionele genezers zijn beter bereikbaar dan ziekenhuis en klinieken en de wachttijden zijn er korter. De betekenis van de behandeling door de traditionele genezer is blijkbaar groter voor veel mensen dan de betekenis van de behandeling in het ziekenhuis. De hogere kosten, vaak moet een koe betaald worden bij succesvolle behandeling, worden voor lief genomen. De aard van de ziekte waaraan mensen lijden, is ook bepalend voor de keuze van behandeling. Vooral in de reguliere geneeskunde onbekende aandoeningen als mbaci, kanono en ‘demon possession’, maar ook infertiliteit, zijn ziektes waarvoor behandeling bij de traditionele genezers wordt gezocht. Opvallend is dat in de etiologie van deze ziektes vaak aandoeningen van vrouwen

een rol spelen, wat mogelijk een verklaring zou kunnen zijn voor de conclusie, dat meer vrouwen dan mannen naar de traditionele genezers gaan.

In hoofdstuk 7 wordt het geringe gebruik van gezondheidszorgvoorzieningen voor zwangere vrouwen geanalyseerd. In dit hoofdstuk wordt gebruik gemaakt van het theoretische kader van de zogenaamde **'drie fasen van vertraging'**.
De eerste fase van vertraging treedt op doordat er, voordat de beslissing om naar een ziekenhuis te gaan kan worden genomen, eerst overlegd moet worden.
Deze vertraging kan worden beïnvloed door de grote afstanden die overbrugd moeten worden, het gebrek aan transportvoorzieningen, de directe en indirecte kosten van behandeling en het geslacht van de gezondheidswerker. Ook is er vaak sprake van onvoldoende kennis bij vrouwen over zwangerschapscomplicaties en risicofactoren en weten ze dikwijls niet precies wanneer de bevalling verwacht kan worden. De maatschappelijke positie van vrouwen is in het algemeen niet sterk en veel vrouwen zijn niet in de positie zelf te beslissen om naar het ziekenhuis te gaan. Ook economische factoren spelen een rol. Het blijkt dat vrouwen, die in staat zijn zelf te beslissen – meestal vrouwen met een betaalde baan, die zelf de behandeling kunnen betalen, of ongetrouwde vrouwen - vaker in het ziekenhuis bevallen dan andere vrouwen. Ook eerdere ervaringen van vrouwen kunnen een rol spelen en die worden vaak negatief gekleurd door het gebrek aan staf in de klinieken en het ziekenhuis, tekortschietende vaardigheden van de wel aanwezige staf en het gebrek aan middelen.
De tweede fase van vertraging ontstaat door de vaak grote afstanden die overbrugd moeten worden, rivieren die overgestoken moet worden, het ontbreken van wegen en de zeer gebrekkige transportvoorzieningen. Een van de mogelijke oplossingen voor dit probleem zou het openen van zogenaamde **'Maternity Waiting Homes'** kunnen zijn. Dit zijn voorzieningen, gebouwd in de onmiddellijke nabijheid van ziekenhuizen waar goede en volledige obstetrische zorg kan worden geleverd, waar vrouwen met zwangerschappen met hoog risico kunnen wachten op de bevalling. In hoofdstuk 10 wordt gekeken naar de haalbaarheid en effectiviteit hiervan. In verschillende studies is de effectiviteit gebleken en ook in Kalabo zou een 'Maternity Waiting Home' mogelijk kunnen bijdragen aan betere verloskundige zorg. Wel wordt ook geconstateerd dat dit samen moet gaan met andere verbeteringen, zoals een verbetering van de kwaliteit van de prenatale zorg inclusief het

opsporen van risicofactoren, betere voorlichting van de doelgroep over zwangerschap en verbetering van de kwaliteit van de obstetrische zorg in het ziekenhuis. Ook de toegankelijkheid van het 'Maternity Waiting Home' zelf baart zorgen, omdat dezelfde fase 2 vertragingsfactoren, die debet zijn aan het geringe gebruik van ziekenhuisvoorzieningen, zouden kunnen gaan gelden voor het 'Maternity Waiting Home'.
De derde fase van vertraging treedt op nadat de patiënt al in het ziekenhuis is gearriveerd. Vaak duurt het dan nog te lang voordat adequate behandeling wordt ingesteld en soms gebeurt dat helemaal niet. Er is dan sprake van **'sub-standard care'**. In hoofdstuk 8 en 9 wordt hierbij, in analyses van **moedersterfte** in Kalabo en ziekenhuizen in Gambia, Namibië en Nederland, uitgebreid stilgestaan.
De beschreven gevallen van moedersterfte worden geclassificeerd als directe of indirecte moedersterfte, en 'sub-standard care' factoren en vertragingsfactoren worden geïdentificeerd De verschillen in moedersterfte tussen Nederland en de andere landen zijn onaanvaardbaar groot en ook in de oorzaken van moedersterfte zijn duidelijke verschillen zichtbaar. Wat opvalt is dat, behalve de gebruikelijke belangrijke directe oorzaken van moedersterfte (bloeding, infectie, onveilige abortus, (pre)-eclampsie en vastgelopen bevallingen), HIV/AIDS een veelvoorkomende indirecte oorzaak van moedersterfte is geworden in endemische gebieden.

De effecten van de **HIV/AIDS** pandemie zijn verschrikkelijk en kunnen niet genoeg benadrukt worden. De maatschappelijke gevolgen in landen in sub-Sahara Afrika zijn ongelofelijk groot. De verbeteringen in gemiddelde levensverwachting en overleving van kinderen, die in de tachtiger en negentiger jaren van de vorige eeuw waren bereikt, zijn volledig tenietgedaan. Zelfs de verticale transmissie van het HIV- virus van moeder naar kind kan in de meeste gevallen niet worden voorkomen, omdat antiretrovirale medicijnen nog niet beschikbaar zijn. Langzaamaan wordt de beschikbaarheid van deze medicijnen groter, door voortgaande prijsdalingen, maar het zal nog lang duren voordat ook in de meest afgelegen gebieden, zoals Kalabo, alle mensen die leven met HIV over deze medicijnen kunnen beschikken. De ervaringen met andere verticale programma's, bijvoorbeeld het tuberculosebestrijdingsprogramma, beloven helaas weinig goeds.

De gevolgen van HIV/AIDS voor het functioneren van de gezondheidszorg in Zambia zijn beschreven in dit proefschrift. Het zijn niet alleen de toename van het aantal patiënten en het ernstiger worden van de aard van hun klachten, die het systeem onder druk zetten, maar ook het grote aantal gezondheidswerkers dat uitgeschakeld is door ziekte, afwezig is vanwege ziekte in de familie of het bezoeken van begrafenissen en het hoge sterftecijfer onder gezondheidswerkers.

De **PHC-strategie**, zoals gedefinieerd in 'de Verklaring van Alma Ata' in 1978, probeerde o.a. de positie van de gebruikers van de gezondheidszorg te versterken. In het model waarin de gezondheidszorg wordt vergeleken met een markt, waarop zowel aanbieders als consumenten van zorg een rol spelen, wordt die markt vaak overheerst door de aanbieders, de professionals die werkzaam zijn in de gezondheidszorg. Vaak is er onvoldoende oog voor de vraag van de (potentiële) cliënten en hun verwachtingen.
Ook bij het bepalen van prioriteiten worden de cliënten vaak niet gehoord. De interactie tussen aanbieders en gebruikers van zorg laat dus te wensen over.
Het valt niet mee om de vraag en de behoeften van de cliënten te formuleren en de enige manier om het te proberen, is om de mensen zelf aan het woord te laten. Zo werd het belang van meedoen **(participatie)** in ontwikkeling en in gezondheidszorg geboren. Het is belangrijk te beseffen, dat de behoeften en verwachtingen van mensen ook kunnen worden beïnvloed door wat er geboden wordt. Als een ziekenhuis kwalitatief goede obstetrische zorg biedt, ervaren vrouwen moedersterfte wellicht als een vermijdbare tragedie, terwijl in een situatie waarin moedersterfte bij wijze van spreken aan de orde van de dag is, het wordt gezien als iets onvermijdbaars wat hoort bij het vrouw zijn ("a fall on the battlefield in the line of duty" – hoofdstuk 3). Ook is het van belang te erkennen dat verschillende mensen ook uiteenlopende wensen en verwachtingen ten aanzien van de gezondheidszorg kunnen hebben. Mannen en vrouwen, ouderen en adolescenten, mensen van verschillende etnische achtergronden, rijken en armen, allen kunnen verschillende verwachtingen hebben.
Een ander belangrijk aspect van de interactie tussen aanbieders en gebruikers van zorg is de **betrokkenheid**. In sommige gevallen van 'sub-standard care', zoals beschreven in hoofdstuk 7 met betrekking tot moedersterfte en in hoofdstuk 4 met betrekking tot sterfte van kinderen aan longontsteking, is er sprake van gebrek aan betrokkenheid. Dergelijke situaties zijn

overigens niet specifiek kenmerkend voor Zambia, maar kunnen overal ter wereld voorkomen. In Kalabo lijkt het erop dat de persoonlijke problemen van sommige gezondheidswerkers zo groot en existentieel zijn dat het niet langer mogelijk is om goede zorg te verlenen. Een ander probleem is dat de afstand tussen sommige gezondheidswerkers en sommige patiënten zo groot is, dat die nauwelijks overbrugd kan worden. Het gaat dan bijvoorbeeld om taalverschillen, culturele verschillen en verschillen tussen traditionele ziekteconcepten en de theorie van de reguliere geneeskunde, die er voor zorgen dat de communicatie stroef verloopt. Dit leidt tot onbegrip, ontevredenheid en het niet gebruiken van voorzieningen.

De training van dorpsgezondheidswerkers en traditionele vroedvrouwen was onder andere bedoeld om de **participatie** van de doelgroep te verbeteren. Een belangrijk ander voordeel van het opleiden van mensen die op dorpsniveau basale gezondheidszorg kunnen leveren, is dat daarmee de afstand die mensen moeten afleggen verkleind wordt en daardoor de toegankelijkheid van de zorg verbetert.
Ook in Kalabo werden in het kader van het 'Western Province Primary Health Care Programme' dorpsgezondheidswerkers, in Zambia 'Community Health Workers' (CHW) genoemd, opgeleid. In hoofdstuk 5 wordt een studie beschreven die werd gedaan om te achterhalen wat de oorzaken zijn van het slechte functioneren van het CHW-programma in Kalabo. CHW's worden in Kalabo alleen nog maar gewaardeerd om hun curatieve activiteiten. Aan de activiteiten in het kader van promotie van gezondheidsbevorderend gedrag en preventieve programma's, die in de blauwdruk van PHC eigenlijk veel belangrijker zijn dan de curatieve activiteiten, wordt nauwelijks nog aandacht besteed. Omdat de benodigde medicijnen door logistieke problemen dikwijls niet aan de CHW's geleverd kunnen worden en ook de verdere ondersteuning en supervisie van de CHW's te wensen overlaat, raken de CHW's ontmoedigd en verzanden in passiviteit. Ook bij de selectie van mensen die getraind gaan worden tot CHW gaat van alles mis. De officiële criteria worden niet meer gevolgd, waardoor minder geschikte mensen worden opgeleid.

In dit proefschrift wordt het begrip **'meaningfullness of services'** (opnieuw) geïntroduceerd. Het gaat erom of de aangeboden gezondheidszorgvoorzieningen betekenis hebben voor de

mensen. Dat kan alleen zo zijn als ze voldoen aan de verwachtingen van mensen en dus een antwoord zijn of geven op hun vragen, wensen en behoeften. Het is dus heel belangrijk om op de hoogte te zijn van die wensen, vragen, behoeften en verwachtingen en daarvoor is participatie nodig. Als de mensen in de gelegenheid worden gesteld mee te doen aan de verschillende fasen van de cyclus van het ontwerpen, implementeren, evalueren en aanpassen van de gezondheidszorgprogramma's, zullen ze die zorg als eigen gaan zien. Als dat lukt, krijgt het betekenis en zal het gebruik van de voorzieningen toenemen.
De hier genoemde begrippen zijn niet nieuw, ze waren al onderdeel van de PHC-strategie gedefinieerd in 1978, maar de aandacht ervoor was verslapt. Verschillende misverstanden lagen hieraan ten grondslag. Goede PHC-programma's zijn niet makkelijk te onderhouden; voortdurende ondersteuning, training en hertraining en supervisie van mensen en programma's is nodig en dat kost veel geld.

Dat **armoede** is gerelateerd aan ziekte behoeft geen betoog. Ondanks positieve ontwikkelingen, zoals het kwijt schelden van schulden en een positieve economische groei, is Zambia een extreem arm land. Dit geldt zeker ook voor Kalabo. Bijna driekwart van de bevolking leeft van een inkomen van minder dan USD 1,- per dag. Op de 'Human Development Index' neemt Zambia de 153ste positie (van de 173) in.
De constatering dat armoedebestrijding essentieel is voor het verbeteren van gezondheid leidt tot het relativeren van de verwachtingen die gesteld kunnen worden aan de effecten van de Health Sector Reforms, en andere initiatieven, die genomen worden binnen de gezondheidssector. De verdeling van welvaart in de wereld is buitengewoon ongelijk en onrechtvaardig.

Een rechtstreeks gevolg van de constatering dat het noodzakelijk is om mensen te laten participeren in alle fasen van gezondheidszorgbeleid, dus ook in het vaststellen van de behoeften en verwachtingen en het stellen van prioriteiten, is dat er onderzoek nodig is naar de specifieke kenmerken van bepaalde gebieden of districten. Ieder district is weer anders en dat betekent dat overal ook weer andere accenten gelegd moeten worden. Er zijn dus geen uniforme blauwdrukken van oplossingen die overal toepasbaar zijn.

In dit proefschrift worden verschillende voorbeelden van **vraaggestuurd onderzoek** gepresenteerd. Het voordeel van deze vorm van onderzoek is dat het goedkoop is, dat het door mensen die in het gebied zelf wonen en werken (aanbieders en gebruikers van zorg) kan worden gedaan en dat het dus tot relevante uitkomsten en aanbevelingen kan leiden, die direct op hetzelfde niveau kunnen worden geïmplementeerd. Voor academische gezondheidswetenschappers, die gewend waren hun eigen onderzoeksagenda te volgen, die vaak meer de academische dan de maatschappelijke behoeften bevredigde, leidt dit tot een andere bepaling van plaats en rol. Deze ontwikkeling wordt wel de **democratisering van de wetenschap** genoemd.
In hoofdstuk 11 wordt nog eens samengevat op welke manier de vraaggestuurde studies, waarover in dit proefschrift wordt gerapporteerd, hebben kunnen bijdragen aan de ontwikkeling van de gezondheidszorg in Kalabo. Het is de bedoeling dat, in een iets andere vorm, de tekst van dit hoofdstuk zal worden gebruikt tijdens een internationale topconferentie in Mexico aan het einde van 2004 over de mondiale ontwikkelingen in de gezondheidszorg. De conferentie zal zich toespitsen op de vraag hoe de zogenaamde ‘know-do gap’ kan worden overbrugd en welke rol ‘health system research’ daarin kan spelen.

Reproductieve gezondheidszorg staat tegenwoordig hoog op de agenda van vele internationale (ontwikkelings)organisaties. Dat is niet voor niets zo, want in grote delen van Afrika is er sprake van een hoge moedersterfte, te weinig gebruik van gezondheidszorgvoorzieningen voor zwangere vrouwen, onvoldoende kwaliteit van prenatale zorg, ziekenhuiszorg en postnatale zorg, problemen in het verwijssysteem en problemen met de programma’s voor training van traditionele vroedvrouwen. In 1987 werd door een conglomeraat van internationale organisaties, zoals UNICEF, de Wereldbank, de WHO, UNFPA en FIGO, de zogenaamde ‘Inter-Agency Group’ (IAG) opgericht. Deze groep wil overleving en welzijn van vrouwen en kinderen verbeteren door o.a. het promoten en ondersteunen van de invoering van kosteneffectieve interventies in zich ontwikkelende landen. De IAG heeft zich ingezet om die ervaringen uit onderzoek en uit succesvolle projecten, die effectief bleken te zijn, bekend te maken. Hiertoe werd het **‘Safe Motherhood Initiative’** ingesteld. Hoe veilig moederschap kan worden bereikt en wat de prioriteiten zijn, wordt verder beschreven in hoofdstuk 12.

Dit proefschrift voegt iets toe aan de prioriteiten zoals die gesteld zijn door het ‘Safe Motherhood Initiative’ en de verschillende proefschriften die recentelijk over ‘Safe Motherhood’ in Nederland zijn verschenen. Het belang van participatie van de gebruikers van zorg bij het formuleren van de behoeften, wensen en verwachtingen van de gezondheidszorg wordt opnieuw aangekaart, omdat de aandacht hiervoor ten onrechte is verslapt. Verder worden het belang van armoedebestrijding, de verschrikkelijke gevolgen van de HIV/AIDS-epidemie en het tekort aan gezondheidswerkers behandeld. Voor het bereiken van ‘Safe Motherhood’ wordt gewezen op de mogelijkheden van de zogenaamde “Maternity Waiting Homes’ en het gebruiken van moedersterfte-analyses in ziekenhuizen, als methode om de zorg voor vrouwen te verbeteren.

Het risico bestaat dat de lezer van dit proefschrift blijft zitten met een uitgesproken negatief beeld over Zambia en Kalabo: moedersterfte, kindersterfte, achtergestelde positie van vrouwen in de maatschappij en een slecht functionerend gezondheidszorgsysteem. Dit zijn, inderdaad, de typische kenmerken van de (reproductieve) gezondheidszorg in veel zich ontwikkelende landen. Dit kan echter niet los gezien worden van grotere zaken, zoals onderontwikkelde politieke, sociale en economische structuren. Samen zijn deze kenmerken verweven in een vicieuze cirkel. Armoede, onvoldoende democratisering van de gezondheidszorg en de HIV/AIDS-epidemie staan aan de basis van vrijwel alle gezondheidsproblemen die in dit proefschrift worden genoemd.
Er zijn echter ook redenen voor optimisme. De belangrijkste is, dat de inwoners van Kalabo hun problemen kennen en ook weten hoe ze opgelost kunnen worden. Ze zouden het als een teken van respect beschouwen als er naar hen geluisterd werd en als ze in staat zouden worden gesteld hun eigen ontwikkelingsagenda op te stellen.
Als alle andere betrokkenen dat aan zouden kunnen nemen en hun geld, kennis en vaardigheden zouden aanwenden voor het afwerken van die agenda, kan er iets bereikt worden.
De successen van vele jaren (medische) ontwikkelingssamenwerking mogen ook genoemd worden. Tot voor het uitbreken van de HIV/AIDS-epidemie was er op vele fronten (bijvoorbeeld moedersterfte, kindersterfte, levensverwachting) een stijgende lijn. Van alle kinderen in Kalabo wordt nu 70% gevaccineerd, ondanks de bijkans hopeloze geografische

situatie; een constatering dat in Kalabo 54% van alle vrouwen bevalt onder deskundige begeleiding is ook zo slecht nog niet. Een van de meest prominente successen van de ‘Health Sector Reforms’ in Zambia is dat op dorpsniveau de daar ingestelde ‘Neighbourhood Health Committees’ in staat zijn hun problemen te definiëren en analyseren, en haalbare interventies te bedenken, prioriteren en uitvoeren. Dat is een rijkdom aan de basis van het gezondheidszorgsysteem waarvan veel meer gebruik zou moeten worden gemaakt, en wel op korte termijn, voordat deze structuren zijn komen te vervallen.

Armoedebestrijding is een zeer belangrijk instrument om de vicieuze cirkel van armoede en slechte gezondheid te doorbreken. Echte democratisering van de gezondheidszorg is echter ook een onmisbaar element op de weg naar vooruitgang.

Curriculum Vitae

December 25th, 1966, on Christmas Day, Jelle Stekelenburg was born in Klundert in Noord Brabant in the Netherlands, only few hours before his father yelled “a child was born last night”, in a Christmas play at Sunday School. His early youth was spent peacefully in the rural villages of Klundert (1966 to 1969), Ede (1969 to 1974) and Balk (1974 to 1982). Secondary school education was completed at the Blaucapel College, Utrecht, in 1985. His longstanding ambition to become a physical education teacher was frustrated by chronic repetitive otitis media and poorly performed tympanoplasty in a district hospital.

While studying medicine at the Vrije Universiteit in Amsterdam (1986 to 1994) his interest was soon attracted to international health. Especially a lectur on ‘Health care in developing countries’ stimulated his new ambitions. After studying the essential drug policy in Bangladesh and knowledge among health workers about diarrhoea in Guatemala, students in Amsterdam were coached by him in their scientific efforts abroad. Together with Ivan Wolffers, Jelle developed a new subject for medical students, ‘Culture and Health’, which is still very important in an ever-changing society. It mainly deals with the position of migrants in the health care system.

Two years working as a House Officer in Surgery and Obstetrics/Gynaecology (Sneek 1995-1996) and a diploma course in Tropical Medicine and International Health (Amsterdam, 1997) prepared him for medical work in Africa. From 1997 to 2001 he worked as a Medical Superintendent for Kalabo District Hospital in Zambia. The absence of a Technical Advisor for Health and the presence of his wife, who was also a Medical Doctor and prepared to take over many clinical duties, allowed him to spend much time in advising the District Health Management Team. Additional duties, such as coaching Zambian students on the District Health Management Course and Dutch medical students from Amsterdam in their field research, completed the diverse scala of his experiences during those years. More than ever before, it made him realise that only where good quality clinical medicine and a well-considered public health policy meet, can achievements be expected.

Since October 2002 Jelle has been training to become a medical specialist in Obstetrics and Gynaecology, first in Leeuwarden and currently in Groningen. Since 2001 he has been invited to teach Safe Motherhood topics in the Master programme in International Health at the Royal

Tropical Institute/Vrije Universiteit in Amsterdam and other courses at the Vrije Universiteit. His ambition to return once again to Africa, in order to further complete his mission of helping to provide access to high quality essential reproductive health services to all women, is still strong. Hopefully, in the role of obstetrician/gynaecologist, with a strong awareness of the need for health services which are meaningful for the people, he will be able to contribute to further developments in this field.