Towards Health Care Without Borders

A situation analysis
of health services in Thyolo District in 2010,
in light of an anticipated reduced involvement of
Médecins Sans Frontières, and
with an emphasis on maternal and child health

But I, being poor, have only my dreams.
I have spread my dreams under your feet;
tread softly, because you tread on my dreams.
- William Butler Yeats

It always seems impossible until it's done
– Nelson Mandela

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List of acronyms and abbreviations

3M	Mai ndi Mai ndi Mwana programme (Thyolo equivalent of 'M2M2B programme')
4M-Study	Study to Maternal Mortality and Maternal Morbidity in Thyolo District Hospital
AIDS	Acquired Immunodeficiency Syndrome
ANC	Antenatal Clinic
ARI	Acute Respiratory Infection
ART	Anti-Retroviral Therapy
BEmOC	Basic Emergency Obstetric Care
BFHI	Baby Friendly Hospital Initiative
BLM	Banja La Mtsogolo ("Family Forward", local Mary Stopes Clinic)
CBO	Community-Based Organization
CBMNC	Community-Based Maternal and Newborn Care
CHBC	Community Home-Based Care
CEmOC	Comprehensive Emergency Obstetric Care
CFR	Case Fatality Rate
CHAM	Christian Health Association of Malawi
CMS	Central Medical Stores
CMT	Community Media Trust
CPD	Cephalo-Pelvic Disproportion
DHMT	District Health Management Team
DHO	District Health Office
DHS	Demographic and Health Survey
DMO	District Medical Officer
DNO	District Nursing Officer
DEHO	District Environmental Health Officer
DIP	District Implementation Plan
DSP	District Strategic Plan
DTP	Diphteria, Tetanus, Pertussis
EPI	Expanded Programme on Immunisation
ETAT	Emergency Triage Assessment and Treatment
GFATM	Global Fund to fight Aids, Tuberculosis and Malaria
HIV	Human Immunodeficiency Virus
HMIS	Health Management Information System
HTC	HIV Testing and Counselling
IHP	Improved Health Post
IMCI	Integrated Management of Childhood Illness
MBTS	Malawi Blood Transfusion Service
MVA	Manual Vacuum Aspiration
MCH	Maternal and Child Health
MMR	Maternal Mortality Ratio
MoH	Ministry of Health
MSF(-B)	Médecins Sans Frontières (Belgium)
NAPHAM	National Association of People Living with HIV/AIDS in Malawi
NRU	Nutritional Rehabilitation Unit
PAC	Post-Abortion Care
PLWH(A)	Person Living With HIV(/AIDS)
PMTCT	Prevention of Mother-to-Child Transmission (of HIV)
SLA	Service Level Agreement
STI	Sexually Transmitted Infection
SWAp	Sector-Wide Approach
TA	Traditional Authority
TB	Tuberculosis
TBA	Traditional Birth Attendant
TDH	Thyolo District Hospital
TO	Technical Officer
UNICEF	United Nations Children's Fund
VSO	Voluntary Service Overseas
WHO	World Health Organization

About the authors

Thomas van den Akker worked as a general Medical Officer in Thyolo District Hospital, employed by the Ministry of Health (MoH) through Voluntary Service Overseas (VSO), from January 2007 till November 2008. He then joined Médecins Sans Frontières Belgium (MSF) to be the HIV/TB Technical Officer for the Health Centre programme in their Thyolo Project. In June 2009, he changed to the position of Medical Focal Point, responsible for the medical-technical activities in Thyolo. He graduated as a Medical Doctor from Leiden University, The Netherlands. In addition, he holds a Master of Science degree in Biomedical Sciences from the same university and a Diploma in Tropical Medicine and International Health from the Royal Tropical Institute in Amsterdam. Before coming to Malawi, he did residencies in surgery and in obstetrics and gynaecology, as part of the Dutch "Tropical Doctor's training" ("tropenopleiding"). Thomas is the father to Ties Mtendere.

Kinke Lommerse has been employed as a Medical Officer in Thyolo District Hospital since January 2007. She works for the Ministry of Health, through Voluntary Service Overseas (VSO), and has been much involved in the training of Clinical Officers and Medical Assistants in addition to her clinical work. She is a graduate from the University of Amsterdam, The Netherlands, and in addition to her Medical Doctor's degree holds a Diploma in Tropical Medicine and International Health. Like Thomas, she completed her Tropical Doctor's training with residencies in surgery and obstetrics and gynaecology in The Netherlands. Kinke has a special interest in mental health. In 2009, she started a operational research project to the reproductive health status of mental health patients in Thyolo District, with the intention to provide improved and comprehensive health services to patients with mental illness. Kinke is the mother to Ties Mtendere, who came safely into the world on February 7th, 2009.

At the time of writing, Kinke and Thomas are living in Thyolo. Their time in Thyolo will come to an end in May 2010.

Personal note

This document, rather than presenting a definite truth -which would be an inherent impossibility-, intends to facilitate understanding and discussion. We feel that the exchanging of ideas, involving all partners, may contribute to planning the future of our district health service.

This situation analysis started as an assignment for an M.Phil. in Maternal and Child Health at the University of Cape Town, South Africa. It is based on observations, documents and discussions which we have been involved in over the past three years we spent in Thyolo.

We decided to develop the assignment into a document which may be used as an introduction into Thyolo for our successors and other incoming health providers as well as an end-of-service report for relevant district health authorities.

The authors wish to state that the evolving of this report to its current status was entirely their personal initiative. Neither of their employing organizations has taken part in conceptualizing the analysis. Therefore, the responsibility for what we have written in the following pages, is completely our own.

Wherever we may have misconceived or omitted important information, any reader should feel free to add or comment to our observations.

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Introduction

Thyolo District is an exciting place for health workers. With an active District Health Management Team (DHMT), the intense involvement of Médecins Sans Frontières Belgium (MSF) amongst other Non-Governmental Organizations (NGO), and the contribution of private tea estates and institutions associated with the Christian Health Association of Malawi (CHAM), few districts in the country hold the same potential as ours.

This potential carries an obligation. The obligation is for all partners involved in health care to create the best possible district health service that our capacity allows. While working on this analysis, we identified areas where we may not yet have reached this best possible level, but at the same time discovered many positive developments.

The document intends to describe the situation concerning health and health care in Thyolo in a comprehensive, constructive but critical manner. In this respect, the authors feel that the situation analysis fulfils a need. In a dynamic district health service with multiple stakeholders, a comprehensive overview of the health situation may facilitate priority-setting for each of the partners involved. Moreover, a comprehensive report on the situation may lead to greater understanding *between* different partners.

This mutual understanding between parties becomes increasingly important in the current era of integration of health services in the district. The planned phasing out of MSF over the next four years will have considerable impact. Health care which is currently delivered with MSF support will need to be delivered independently by partners, most notably the Ministry of Health (MoH), CHAM and other NGOs. This will require joint decision-making by MSF, MoH and others, in order to effectively plan this transition phase.

We hope that this situation analysis may help the different deliverers of health services in Thyolo gain a broader perspective on health care in the district. It aims to address both managers and health workers, of all cadres and all involved organizations. An emphasis is placed on maternal and child health (MCH). We feel it is important to allow for a more in-depth analysis of MCH, because of the complexity and the broad scope of the field, and because of the vulnerable position of women and children in our district. Moreover, many consider MCH a key area in any district health service and we wish to confirm the vital importance of MCH in Thyolo.

It is not our intention to discriminate against men, however! The importance of the health of fathers on the health of their women and children is sometimes forgotten in accounts of MCH care. We have certainly tried to highlight the role of men where appropriate. Perhaps district health workers should not talk of *maternal* and *child* health anymore, but rather of *family* health. In fact, we were pleased to find that some already do. We would propose to define “family” in a less traditional way, and to apply it also in case unrelated or more distantly related members live in the same unit. As we will describe, such a definition would apply also in Thyolo, where many

orphans are taken care of by more distant relations or where older brothers and sisters are taking care of younger children. The Malawian notion of the extended family facilitates a liberal interpretation of what a family is.

For the sake of readability, however, we have decided not to confuse common terminology known to most readers with our personal preferences and therefore continue to use the phrase “Maternal and Child Health” (MCH).

The contents of every analysis are influenced by the eye of the analyser. This document is no exception. Nevertheless, we did try to include different points of reference by interviewing staff of varying disciplines within the district health system and by basing ourselves on documents from a variety of sources. We hope that this will result in reliable findings which are representative of all groups. Since our expertise lies with the District Health Office (DHO) and with the MSF project, we focus on these two actors. In addition, we included basic information about CHAM, a third major partner in health care in Thyolo.

We conclude this introduction by stating that we do not believe in a dichotomy between MCH and HIV, which some public health experts perceive. Some have stated that too much attention for the HIV-problem has shifted resources away from other health priorities, including MCH. We think that, most certainly in a high HIV-prevalence area like Thyolo, this suggestion is misleading. We would even suggest the contrary: it is clear that HIV and MCH are closely interlinked in a district such as ours, and should be tackled together. Our analysis will clarify this point of view.

It is to be praised that MSF and Thyolo DHO have used the political momentum for HIV to invest in the Thyolo health system, in order to create better health care for all. This situation analysis will show how funds which were intended primarily for HIV have certainly benefited service delivery in a broader sense. Ironically, if HIV had not been around, it is not at all certain that the same amount of money would have been available.

Methodology

We gained information from various sources. It was our choice not to limit ourselves to MoH documents, MSF reports or documents of any other specific origin, but to come to a comprehensive assessment.

Documents

A variety of documents, listed in the bibliography, form the basis for this analysis. They come from different sources: MoH, MSF and CHAM among others. Wherever we felt a need to do so, we tried to verify information given in these reports by discussing the contents with different individuals and by relating the reported findings to our own observations.

Interviews

To modify and complete the documented data, we interviewed several individuals in the district health system. We selected a broad scale of health workers and managers for personal interviews. A list of interviewees is included (page 99). To protect interviewees, and because we ourselves selected and interpreted information obtained during interviews, we did not specify which interviewee made which statement.

Participant observation

In addition to information gained from documents and interviews, we used knowledge gathered over the three years that we have spent in Thyolo. In the course of these years, we discussed health matters with many different health workers and managers in the district. Moreover, we learned much about health care in Thyolo by simply observing different people from all cadres of staff perform their professional duties. Most of all, however, we acquired understanding by engaging ourselves in providing health care. Elements of our own experiences, discussions and observations are included in our analysis.

Conceptual framework

This situation analysis is based on a framework provided by South Africa's Initiative for Sub-District Support [1].
However, we adjusted this framework to facilitate a description of the situation in Thyolo in a number of ways:

1. Instead of focusing on the public health service only, we included MSF-B as a major implementer of health care.
2. We adjusted the health programmes suggested in the South African framework to include those programmes relevant in a Malawian setting.
3. We included a historical overview and future recommendations to put the present into a broader perspective.

Background of data used

Census

A major source of historical demographic data is the nationwide population census, which has been performed almost every decade since 1891. The information is collected by enumerators visiting every household and interviewing all people in the household. The census provides vital information on population characteristics. The most recent one was done in 2008 [2].

Malawi demographic and health survey

The Malawi Demographic and Health Survey (MDHS) is a national survey of a representative sample of 11,698 women aged 15 to 49, and of 3,261 men aged 15 to 54. People in both rural and urban areas are visited at home and asked to respond to a structured questionnaire. The main purpose of the survey is to provide policy makers and programme managers with updated information on different demographic and health-related indicators, including indicators related to MCH. The latest MDHS was done in 2004 [3]. Currently a new MDHS is being conducted and results are expected to be out by the end of 2010.

Population census and demographic surveys are the major sources of mortality data in Malawi. Vital registration, another potential source of mortality data, seems rather unreliable due to incomplete coverage. Mortality data from the Health Management Information System (HMIS) are only facility-based, and therefore not suitable for the calculation of mortality rates in the general population.

Multiple indicator cluster survey

Another large survey was carried out by the National Statistical Office in collaboration with the United Nations Children's Fund (UNICEF) in 2006. The survey aimed at providing statistically valid estimates at district level on a number of indicators related to the wellbeing of children and women in Malawi. This Multiple Indicator Cluster Survey (MICS) included 1200 households in each of the 28 districts. Individuals in four groups were asked to respond: household members, under-fives, women between 15 and 49 years and men in the same age group [4].

Health management information system

The HMIS collects selected data at district level in order to plan and evaluate health services. The HMIS routinely collects reported disease notifications and facility-based data.

Both community and health facilities have a role in identifying and reporting cases of priority conditions. Community members, health staff, traditional healers, Traditional Birth Attendants (TBAs) and Health Surveillance Assistants (HSAs) should be able to recognise cases of priority diseases and report these to the health facilities. Health staff at facility-level should be able to recognise, investigate and report priority conditions to the DHO. Both community members and health workers are briefed on selected priority diseases. Simplified standard case definitions are provided.

The HMIS faces tremendous challenges with regard to the collection of facility-based data as well as to the reporting of notified priority conditions. It is likely that there is vast underreporting. Moreover, available data are compiled incompletely or with considerable delay, and reports are not user-friendly. Working on this analysis, we occasionally observed that Programme Coordinators and other staff were reporting on different –and sometimes more reliable- data than those available in the HMIS. The correct transmission of data from coordinator to HMIS appears to be a challenge.

As a result, HMIS data used in this analysis need to be interpreted with caution. Wherever we felt it necessary to include HMIS statistics in the analysis despite their dubious accuracy, we have tried to make our doubts explicit.

MSF monitoring and evaluation unit

The MSF Monitoring and Evaluation (M&E) unit underwent organizational changes during the course of producing this report. Quality and speed of data reporting were not always up to desired standards. The re-organization is supposed to lead to more efficient data collection and reporting. Unfortunately, the recently recruited manager of the unit has resigned because of other conflicting career perspectives. Therefore, the unit is yet to reach a stable new setup.

Traditionally, the MSF project in Thyolo has treasured a strong operational research component: advocacy based on programme data is a major objective of the project. The M&E unit therefore has always received considerable resources and support –a multitude of the MoH investment available for HMIS-, with many important publications as a result. Some of these publications are used in this analysis.

A. Thyolo, general characteristics

Geography

Thyolo District is a rural area in Malawi, a small landlocked country in sub-Saharan Africa with a population of approximately 13 million (Figure 1). Malawi can be divided into three regions: Northern, Central and Southern. Thyolo is one of the country's 28 districts, and one of 13 districts in the Southern region [5].

Thyolo lies within the Shire Highlands. Its topography consists of rift valley scarp - steeply sloping land- in the southwest, a hill zone in the south and plains in the central and northern parts of the district. Thyolo has a tropical savannah climate and has three annual seasons, namely the hot and dry season, the hot and wet season and the cool and dry season [5].

A large part of Thyolo's surface area is taken up by tea estates, leaving the remainder of land to local families for small-farming and food production. The little soil that is not used for commercial crops is over-utilized and decreasingly fertile in the absence of additional fertilisers. Personal crop-growing has therefore become increasingly dependent on the application of artificial fertilisers, which in recent years have been subsidized by the Government of Malawi, leading to improved food security [5]. Sources of water supply are protected (boreholes, wells) or unprotected (rivers, streams). Almost half of the population still uses water from unprotected sources [6].

Thyolo district is comprised of seven Traditional Authorities (TAs; Nchilamwela, Kapichi, Changata, Nsabwe, Thomas, Bvumbwe and Chimaliro) and four Sub-Traditional Authorities (Mphuka, Mbawela, Thukuta and Khwethemule) with a total of 456 villages [5].

There is one major tarmac highway crossing the district. This highway runs from Blantyre, Malawi's major commercial and industrial centre and largest city, in the north, to Mulanje district in the east. Along this highway, at 47 kilometres from Blantyre, lies Thyolo Town or "Boma" (Chichewa for "government"). Here, the district administrative headquarters, the district hospital and the district health office are located.

Figure 1. Map of Thyolo District

Demography

The population of Thyolo District, according to the most recent population and housing census, was determined at 587,455 people in June 2008. Based on an intercensal annual growth rate of 2.5%, the population in 2010 is estimated at 617,000 [2].

In 2009, around 30,000 (5%) of the total population were estimated to be pregnant mothers, 30,000 under-ones, around 100,000 under-fives and 140,000 women of child bearing age (Table 1). The Thyolo population is predominantly young, with close to half of its people under 15 years of age. Life expectancy is 37 years [3].

The predominant tribes are Lomwe, Mang'anja and Yao. The major religions are Christianity and Islam. Among Christians the major churches are the Central Church of African Presbyterians, the Roman Catholic Church and the Seventh-Day Adventist Church [5]. Notably, members of the apostolic faith, of which two congregations are present in Thyolo, are discouraged from attending medical services including vaccinations [6].

Chichewa, the first national language, is widely spoken. Other languages spoken in the district include Lomwe and Yao [5]. English, the second official national language, is spoken by a minority of higher educated people.

The most populous Traditional Authorities in the district are Chimaliro, Bvumbwe, and Nchilamwela. These three TAs are home to almost half of the district's total population. Sub-Traditional Authority Thukuta has the smallest population [5].

Table 1. Demographic key indicators

Projected population Malawi, 2010	13,800,000[1]	-
Projected population Thyolo District 2010	617.000[1]	-
Children Under One	30,000[1] (estimate)	5% of district population
Children Under Five	105,000[1] (estimate)	17% of district population
Children Under 15	296,000[1] (estimate)	48% of district population
Women of Child Bearing Age	142,600[1] (estimate)	23% of district population
Population Density per km^2, 2008	343 (national: 139)[1]	-
Crude Birth Rate	49.6[2]	-
Crude Death Rate	21.3[2]	-
Married women living with one or more co-wives	12%[3]	-

1. *Projected from Housing and population Census 2008:*
   a. Population Malawi 2008: 13,066,320 with annual growth rate of 2.8%
   b. Population Thyolo 2008: 587,455 with annual growth rate of 2.5%
2. *Demography annual report Thyolo District Health Office (DHO, HMIS) 2009; note that these should be taken with caution as explained on page 14.*
3. *Demographic and Health Survey 2004*

Traditional conceptions

Traditional beliefs are numerous, including beliefs involving magic and witchcraft [6]. These beliefs are powerful: the authors witnessed at least two deaths in the hospital, of women who were held responsible for acts of witchcraft and severely molested. This type of violence is usually aimed at elderly women.

Illness is often seen as the result of bad spirits and traditional healers with a wide variety of traditional medication, including herbal remedies, are found throughout the district. One herbal concoction, termed “local pitocin” by health workers, is known to induce uterine contractions in pregnant women.

Socio-economic profile

Ranked 160 out of 182 countries in the 2007 UNDP Human Development Index, Malawi is among the countries with the lowest income in the world [7]. Being a poor rural district within the nation, it is justifiable to state that Thyolo is one of the poorest regions on earth.

Moreover, there is a considerable socio-economic divide between men and women, which is demonstrated in Table 2. Women receive less education, are more often illiterate and are not as often exposed to mass media as compared to men. Around 40% of women in the region are not able to read at all, compared to 20% of men. Despite these differences, unemployment is higher among men than women [3]. The income of a household often depends on the labour force of its female members.

Of all employed women, 77.5% are farmers and 15.6% are active in sales and services. Of employed men, only 42.2% are farmers, 20.6% do skilled manual labour, 17.8% work in sales and services and 12.7% are unskilled manual workers [3]. Small-farming, the main mode of income generation in Thyolo, is more of a "feminine" than a "masculine" type of work.

Although very few people in Thyolo are active on professional, technical or managerial levels, the rate of men working on this level is higher than the rate of women (3.7% vs. 1.7%) [3].

Of women with an income, 61.4% decide themselves on how to spend the money and 25.7% decide jointly with someone else, usually their partner. In 11.2% another person, most often the husband, is the only one to decide how their earnings are used [3].

Table 2. Selected indicators showing the socio-economic divide between women and men.

	Women	Men
None	31.9%	17.6%
Primary 1- 4	42.9%	44.1%
Primary 5 – 8	19.9%	25.9%
Secondary or higher	5.2%	11.8%
Missing data	0.1%	0.4%
Reads a newspaper at least once a week	11.4%	20.9%
Watches television at least once a week	5.6%	8.4%
Listens to the radio at least once a week	60.0%	93.3%
All three media	2.4%	6.4%
No media	38.6%	6.3%
Employment Rate	70.5%	51.5%

Source: Malawi Demographic and Health Survey, Malawi National Statistical Office, 2004

If women are a vulnerable group within society, then so are their children. Table 3 shows a number of indicators concerning the vulnerable position of children in Thyolo.

Table 3. Selected indicators reflecting the position of children in Thyolo

Child labour*	37.7%[1]
Living with both parents	52.8%[1]
Number of registered orphans	36200[2]
Male	16450[2]
Female	19750[2]
Number of orphan headed households	5238[2]
Classroom-Pupil Ratio	1:117[2]
Teacher-Pupil Ratio	1:93[2]

* Percentage of children age 5-14 years who are doing paid or unpaid work or are working on a family farm or for a family business.

1. *Malawi Demographic and Health Survey, National Statistical Office, 2004*
2. *Thyolo District Assembly, Socio-Economic Profile 2006-2009.*

One of the reasons child labour is high lies in the fact that many children accompany their parents to the tea and tobacco estates. Because some estates are far away from schools and households are under economic pressure, many children end up assisting their parents in manual labour on the estates [5]. Some estates have taken measures to reduce child labour, such as creating their own schools, and now claim to be child labour free.

Mortality related to HIV/AIDS has increased the number of orphans, defined as children who have lost one or both parents. Many children are heading households, taking care of younger brothers and sisters [3,5].

The quality of education to children who do have access to schooling is questionable, as classrooms are full and teachers are few [5]. Children are unlikely to receive

much personal attention under these conditions.

As can be concluded from this socio-economic profile, most people in Thyolo will be part of at least one vulnerable group: the poor, the illiterate, the women, the children. These groups are exposed to greater health risks. In turn, these health risks, including HIV/AIDS, undermine the socio-economic status of the vulnerable to an even larger extent, as the sick have to invest resources in accessing care, may not be able to attend education and may generate less income for themselves and their households.

Political environment

Political history

Understanding Thyolo's current socio-economic and health status requires an insight into the political history of Malawi.

Remains of human life dating back to more than one million years ago have been found in Malawi, and early humans inhabited the area around Lake Malawi 50,000 to 60,000 years ago. In the 15th century, the Amaravi people who eventually became known as the Chewa, founded an empire of iron workers in the region. This empire weakened throughout the 18th century, due to fighting amongst sub-chiefs and to the immense trading of slaves by Europeans and Arabs, which intensified after the colonization by the British. With the passing of the Abolition of the Slave Trade Act by British Parliament in 1807 and the reinforcing 1833 Slavery Abolition Act, the cruelty subsided, but the slave trade has carried long-term detrimental consequences for the local economy [8].

Before independence, Malawi used to be known as British Central Africa (from 1891 to 1907) and Nyasaland (after 1907). The British used the colony to produce cotton, tobacco, coffee and tea. Thyolo became one of the most important areas for tea growing [8].

After gaining full independence from British colonial rule in 1964, Malawi came under dictatorship of under Dr. Hastings Kamuzu Banda, whose reign was characterized by a strong central government that allowed only very limited decision-making power to the district authorities [8,9,10]. It is important to note the repression that especially women faced under Banda. Women were supposed to stay home, and their main responsibilities were to take care of their husbands and children. During the many official functions for their leader, women were requested to spend considerable time singing and dancing in his honour [10,11].

Chastity was a core value in Malawian society at the time, held up high by the Banda-regime. Sexual education and information on Family Planning (FP) were not publicly supported, as these were thought to lead to unchaste behavior [10,11].

With the advent of multiparty-democracy in 1994, more responsibility was shifted to the district. Following the adoption of the Decentralisation Policy and the enactment of The Local Government Act in 1998 by the Malawian Parliament, the country started following a so-described "bottom-up approach" to development and governance [5]. Between 1994 and 2004, the Malawi administration was headed by President Bakili Mulizi. He was replaced by Dr. Bingu wa Mutharika in 2004, who was re-elected in 2009 [8].

In addition to the democratically elected political leaders and official national representatives, the traditional authorities (TAs) still hold considerable power. Each TA is headed by a chief, who plays a key role in community mobilization [5,10].

Current politics and the health system

Even though the bottom-up approach was stated to entail democratic principles, accountability, transparency and participation of the people in decision-making and development processes, a number of factors have hindered the creation of an effective district health service. Among these factors are the high illiteracy rate, the exodus of Malawian health workers, the striking effect of the HIV-pandemic, the focus on donor-driven vertical programmes and rampant corruption combined with poor governance in the post-Banda era [5,10,11,12].

Today, the decentralization of Malawian Health Services is far from complete. Some important elements in the system, such as drug supply and the allocation and disciplining of human resources, are still centrally controlled. This limits the decision-making power and problem-solving capacity of district authorities. In the course of this document the effects of the incomplete decentralization in Malawi on the district health system will become apparent. Particularly limitations in the ability of the district to manage its own human resources and exert control over vertical programmes will be highlighted.

In October 2004, the present government launched the Sector-Wide Approach (SWAp), attempting to revitalise health services and support the delivery of the Essential Health Package which targets the ten conditions causing the highest mortality. Funds from major donors were pooled into the Ministry of Health budget to cover delivery of the package, strengthen human resources and strengthen the district health system [13]. Discrete donors such as the USAID, UN and Global Fund, do not contribute their resources to the pool but fund activities that complement the SWAp and its Programme of Work. The Bingu wa Mutharika administration has shown willingness to spend large sums of money on health. In the fiscal year 2009-2010, 13.24% of the national budget has been allocated to the health sector, an unusually high percentage for an African nation, though still below the 15% recommended by WHO. In absolute terms however, taking into consideration the country's low Gross Domestic Product, per capita funding only stands at $17, half the minimum WHO requirement of $34 [14].

It can therefore be stated that the political willingness to accomplish decent health services for all Malawians is present. The Constitution of Malawi recognizes the duty of the state to provide adequate health care, commensurate to health needs and based on international standards. Malawi has ratified the International Covenant of Economic, Social and Cultural Rights, thereby committing itself to the progressive realization of the right to health for all its citizens. This commitment is also expressed in the National Health Bill which is under realization at the time of writing. This bill expresses that, as a signatory to the 2005 International Health Regulations of WHO, Malawi is obliged to implement these, and it reiterates commitment to the rights of women and children. Malawi has ratified both the Convention for Child Rights and the Convention for the Elimination of all Forms of Discrimination against Women [15].

Family planning

As stated earlier, in the Banda-era, family planning was not much addressed by the public health sector. Because any matter with a relation to sex was taboo, the government refrained from formulating a policy of explicit intervention to modify fertility or population growth, even though it did consider rates of population growth and fertility to be too high. Absolute chastity was the social norm [10,11].

When a family planning programme was first introduced in 1982, its chief objective was to encourage birth spacing. Still today, "child spacing" is promoted by many of the older nurses in Thyolo. In 1987, the Banda regime adopted a resolution calling for birth spacing as a national policy, not interfering with the right of families to have the number of children they desire [16].

Subsequently, the government formulated a comprehensive population policy with the explicit aim of reducing fertility and population growth. After the 1994 International Conference on Population and Development in Cairo, Malawi adopted in 1996 family planning policy and contraceptive guidelines aimed at liberalizing family planning services to accommodate all individuals of reproductive age. In the new contraceptive guidelines, limitations on use of specific methods on the basis of criteria such as parity and age were removed [17]. Despite this, some women trying to access Family Planning services in Thyolo are still sent away, because they are perceived to be "too young" or "not having enough children yet".

Abortion

Under the Malawi penal code of 1930, the induction of abortions is generally illegal. Only when the life of a woman is in danger is it legally permitted to end pregnancy. Anyone unlawfully inducing an abortion is subject to 14 years imprisonment; if a woman tries the act on herself, she is subject to seven years. The Penal Code provides that it is not illegal to perform a surgical operation upon an unborn child in good faith and with reasonable care and skill for the preservation of the mother's life [18].

As a result of this code, abortions are performed clandestinely in Malawi, sometimes by formal health workers, sometimes by untrained community members. Health workers in the public sector are generally reluctant to provide abortion care, but some do occasionally provide assistance or refer women to the private (NGO-) sector [18].

Malawi does not follow the holding of the 1938 English Bourne decision in determining whether an abortion performed for health reasons is lawful. In this decision, a court ruled that the performance of an abortion was lawful because it had been performed to prevent the woman from becoming "a physical and mental wreck". This set a precedent for future cases performed on the grounds of preserving the pregnant woman's physical and mental health [18].

The Malawi government has repeatedly expressed its concern about the number of induced abortions and adolescent pregnancies. In its reply to the *Eighth United Nations Inquiry among Governments on Population and Development,* the Government reported that it had liberalized its contraceptive guidelines for adolescents [17,18].

Teenage and unwanted pregnancies are still the order of the day, however [3]. Even though women are generally reluctant to come to the formal health sector in case of complications arising from unsafely induced abortion, post-abortion problems are encountered in hospitals. Most often the pathogenesis of such a complication is postulated by the health worker and not mentioned by the woman out of fear. Many health workers show a condemning attitude towards these women.

A recent national report and an older report from Thyolo indicate that the complications of abortions –although not specifying whether the abortion was induced- are amongst the major causes of maternal mortality [19,20]. The exact extent of the problem is unknown.

Administrative structures and procedures

The Thyolo District Health Office (DHO) falls under the Assembly Secretariat of the Thyolo District Assembly. The Secretariat is the body responsible for implementing policies [6].

The District Executive Committee has a technical advisory role to the Assembly and is composed of the heads of different offices, including the DHO, and representatives of NGOs in the district [5,6].

The government administrative year runs from July to June, while most NGOs, including MSF, use the calendar year. This provides an administrative challenge, but at the same time an opportunity to streamline NGO action plans with government

planning and budget. The latter are public at the time that NGOs do their yearly planning, usually towards the end of the calendar year.

In each TA, an Area Development Committee is responsible to mobilize and coordinate "development" in the area. Representatives of Village Development Committees are included in the area committee. The Village Development Committees have sub-groups including Village Health Committees, which are responsible for coordinating and supervising health issues at village headman level [5,6]. These seem to function at various activity levels and with varying levels of success.

Health status and problems

In this chapter, we describe a number of main characteristics concerning the health status of Thyolo's population, focusing especially on the health of women and children. Rather than trying to provide a comprehensive overview of the health status, we chose a number of MCH-related topics that provide important insight into the main health threats: fertility, maternal health, child health and priority diseases. This chapter will close Part A, in which we have given a general outline of the district. In part B on "Health Services", specific health problems and related health programmes are described in greater detail.

Fertility

The DHS shows a high Total Fertility Rate in Thyolo of 5.7 [3]. Of all women, 14.4% were pregnant at the time of the survey. Interestingly, a comparison of fertility between 2000 and 2004 indicated that the rate in Thyolo had actually increased from 5.3 in 2000, despite a national decrease from 6.3 to 6.0, and a regional decrease in the Southern Region from 6.2 to 5.8 [21]. Reasons for this increase in the district are not known.

Table 4 gives key indicators concerning fertility in women of reproductive age. Given that the importance of sexual education and family planning was only recently acknowledged as a priority in Malawi, it is hardly surprising that these indicators give the image of a society in which the uptake of family planning has lagged behind. Modern family planning methods are used by a minority of women, although most women do have reasonable knowledge of different methods. This knowledge is likely to have been fuelled by health promotion messages on condoms which have been widely implemented since the advent of the HIV-pandemic. As we will elaborate in the chapter on family planning in part B (page 68), access to contraceptive services is still rather limited today and largely provided by NGOs outside the public sector.

The fertility indicators summarized in Table 4 clearly show the vulnerable position of women in Thyolo: women have their first pregnancy at a very young age and subsequently have to take care of many children throughout their lives.

Table 4. Key indicators related to fertility in women*

Indicator	
Total Fertility Rate	5.3 (2000) 5.7 (2004)
Knowledge of any modern contraceptive methods (all women)	99.7%
Use of any modern method contraception (married women)	28.2%
Met need of family planning (married women)	31%
Unmet need for family planning (married women)	28%
Total demand for family planning (all women)	59%
Female sterilization	6.1%
Age at first sexual intercourse (women)	15.6 yrs
Median age at first delivery	18.5 years

** Source: Demographic and Health Survey 2004*

Maternal health

According to the World Health Organization, a maternal death is "the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes" [22]. Despite being a shockingly high figure, the official Maternal Mortality Ratio (MMR) for Thyolo is likely to be an underestimation of the true value. Many maternal deaths are thought to still go unreported. It is therefore likely that the MMR, reported by HMIS to be 677 per 100,000 live births, will be close to the estimated national MMR (1,100 per 100,000 live births).

Beyond this astonishing mortality figure, severe maternal morbidity and mental disability resulting from complicated pregnancy and childbirth are also rampant. The study into Maternal Mortality and Maternal Morbidity in Thyolo District Hospital (TDH) ("4M-study") gives important insight into facility-based maternal health in a two-year period between September 2007 and September 2009 [23,24]. In the hospital, 46 cases of maternal mortality and 340 cases of severe morbidity (uterine rupture, peripartum infection, major obstetric haemorrhage and severe pre-eclampsia or eclampsia) were included.

Many complications of pregnancy and childbirth occurring in the community will not be reported at facility level. Therefore, the actual extent of the problem in the district is not known.

Child health

Table 5 gives information on the most important child health indicators: the 2004 DHS and the 2006 MICS give fairly consistent figures [3,4]. As explained before, the HMIS figures need to be viewed with caution, as underreporting is likely. Even though the national child mortality rates are reported to have declined over the past years (see table 6), these figures are still among the world's worst. Thyolo District mortality rates for infant and under-five mortality are higher than national rates. Strikingly, neonatal mortality remains a main contributor to infant death. Neonatal mortality is generally regarded as a proxy-indicator of the quality of obstetric care and this high number indicates high rates of birth asphyxia and neonatal sepsis.

Table 5. Key indicators related to child health

Indicator	
Neonatal Mortality Rate (per 1000 live births)	26 [1]
Infant Mortality Rate (per 1000 live births)	76 [1]
Under Five Mortality Rate (per 1000 live births)	123 [2] -133 [1]
Low Birth Weight (<2.5kg) rate of facility deliveries	9% [3]

**Source:*

1. *Demographic and Health Survey 2004*
2. *Multiple Indicator Cluster Study 2006*
3. *Health Management Information System, Thyolo District Health Office 2009; quality of this figure is questionable*

Table 6. Childhood Mortality in Malawi

Source	Year	Neonatal mortality (per 1000 live births)	Infant mortality (per 1000 live births)	Under 5 mortality (per 1000 live births)
MICS	2006	31	69	118
DHS	2004	27	76	133
DHS	1999	49	112	187
DHS	1994	42	104	190

**Source: Demographic and Health Survey 2004, Multiple Indicator Cluster Study 2006*

In Table 7 the target conditions of the Integrated Management of Childhood Illness (IMCI) strategy are listed. All of the five conditions commonly occur in the district, except for measles, of which no cases in Thyolo were reported until recently. At the time of writing, however, a number of suspects have been identified in Thyolo (that in the course of the finalization of this manuscript turned out to have signalled a measles outbreak (for more details on measles, see section on the Expanded Programme on Immunization (EPI), page 76).

Thyolo is a holo-endemic malaria district, but the disease is more common in the areas which lie relatively low, for instance those in the rift valley scarp such as the Sub-Traditional Authorities Thukuta and Mphuka [5,6]. The disease is seasonal, with

a high incidence reported in the rainy season, between December and April. This is the only disease that is likely to be *over*-reported, as the diagnosis is often made on the basis of clinical suspicion and fever only and not after confirmation by rapid test or blood film.

Table 7. Target conditions of IMCI for children under five years of age, facility-based, July 2008 – June 2009*

	New cases	In patient deaths	(Minimum) CFR per 10,000 cases
Acute respiratory infection	50,063	88	18
Malaria	100,370	220	22
Malnutrition	3,552	79	222
Diarrhoea	11,629	48	41
Measles	0	0	

Source: Health Management Information System, Thyolo District Health Office 2009
**These five conditions account for around 80% of all inpatient deaths in under-fives, indicating the appropriateness of the IMCI strategy in Thyolo (Thyolo District Health Office, Health Management Information System, 2008).*

Child malnutrition is a common phenomenon, as is shown in table 8. Almost half of the children are stunted (height for age < -2SD); severe malnutrition (severe wasting and severe stunting: weight for height and height for age <-3SD) stands at 27.4%. Stunted girls are more prone to experience problems during childbirth later in life, due to cephalopelvic disproportion (CPD).

There is a seasonal increase in acute malnutrition (marasmus and kwashiorkor) during the "hunger gap". This is the time between the depletion of the previous year's harvest and the new harvest, usually occurring between March and May [5,6].

Table 8. Nutritional status of children in Thyolo

Height for age (stunting)	22.8[1] - 24.3[2] % below -3SD	47.5[1] - 48.1[2] % below -2SD
Weight for height (wasting)	1.0[1]- 3.1[2] % below -3SD	4.8[1]- 8.7[2] % below -2SD
Weight for age (underweight)	3.3[1] – 5.0[2]% below -3SD	19.5[1] – 22.2[2] % below -2SD

1. Multiple Indicator Cluster Survey, 2006
2. Demographic and Health Survey, 2004

The Countdown Coverage Writing Group reported on the improvements in child survival at national level over the past decades, but stressed that maternal mortality has not decreased substantially in Malawi [25].

District health surveillance priority diseases

In Thyolo District, the priority diseases are listed under three major groups [6]:

1. *Epidemic-prone diseases:* cholera, bacterial meningitis, viral haemorrhagic fevers (VHF), dysentery and plague;
1. *Diseases targeted for eradication and elimination:* poliomyelitis, leprosy, neonatal tetanus and measles;
1. *Diseases of pubic health importance:* HIV/AIDS, pneumonia in under-fives, malaria, schistosomiasis, sexually transmitted infections (STIs) and tuberculosis (TB).

Below, we describe the current situation for some of these priority diseases.

Human immunodeficiency virus

The Human Immunodeficiency Virus (HIV) struck heavily in Thyolo in the eighties and nineties and the prevalence of HIV-infection in the district has remained high ever since. The DHS gave a prevalence of 21% in 2004 [3], when ART was only starting to become available in some clinics. It is not an exaggeration to state that AIDS was about to wipe out a generation of Malawians of reproductive age.

Since 2004, antenatal prevalence –a common proxy-indicator for the general HIV-prevalence- appears to have reduced slightly. It is possible that an increased coverage of ART has reduced transmission within the population. At the same time, mortality from HIV seems to have gone down [26]. If the incidence had been stable, the reduction in mortality would have caused an increase in prevalence, as People Living With HIV/AIDS (PLWHA) stay alive on ART.

We elaborate on the achievements of the HIV-programme on page 81. Some indicators related to HIV are shown in table 9.

Table 9. Key indicators HIV/AIDS

HIV prevalence among newly tested women at antenatal visit, July 2008- June 2009	14%[1]
Number of HIV Tests done in adults, male and female, aged 15-49 years, July 2008 – June 2009	56,271[1]
% of positive test results of all HIV tests performed, July 2008 – June 2009	17%[1]
Number of people alive on ART, End December 2009	15,016[2]
Number of people who started on ART in 2009	4,891[2]
Number of people under the age of 15 who started on ART in 2009	453[2] (9.3% of total initiations)

1. Health Management Information System, Thyolo District Health Office 2009
2. MSF Database, Mastersheet 2009

The very high prevalence of HIV, and the tremendous public health impact which the disease has had in Thyolo, justify the fact that HIV has received considerable attention over the past decade in the district.

Most certainly, HIV has had a profound effect on maternal and child health. Preliminary data from the 4M-study indicate that around half of all maternal deaths were HIV-related. Compared with the general female population of reproductive age, HIV-infection was significantly more common in women with major obstetric haemorrhage and in women with perinatal infections. Children suffer consequences from HIV directly – in 2009, 205 children below 18 months in the district tested HIV PCR-positive despite the availability of an improved PMTCT-protocol (page 73)– and indirectly: by losing their parents, teachers and nurses.

It is clear from the above that in a district like Thyolo HIV and maternal and child health are closely interlinked. The increased investment in HIV over the past years, therefore has undoubtedly benefited maternal and child health. The fact that the MoH has increasingly recognized the importance of scaling up access to ART and PMTCT leads us to be hopeful that Malawi will fight the global "HIV-backlash". This backlash can be discerned from the withdrawal of important donors from funding commitments for HIV care and was reflected during the recent replenishment of the Global Fund to fight AIDS, Tuberculosis and Malaria (GFATM) in Malawi when the amount that donors pledged did not reach the lowest anticipated funding scenario. This withdrawal endangers the lives of the thousands on treatment in Thyolo.

Tuberculosis

The HIV-prevalence has also brought about a high incidence of tuberculosis (TB). However, given the technical challenges in diagnosing this illness, especially in children, TB is most certainly under-diagnosed and under-reported.

Table 10. Key indicators TB, January – December 2009

Tuberculosis, diagnosed, number new cases TDH	986
Number HIV-positive	700 (71%)
Number of inpatient deaths due to TB	110
Mortality Rate TB ward	11%

Source: MSF Database, Project Location 2009

Less than half of TB cases were patients with sputum smear-positive pulmonary TB, one quarter had smear-negative pulmonary TB and another quarter extra-pulmonary TB. The percentage of smear-positive TB among cases of pulmonary TB went up between 2007-2008 and 2008-2009 from 53% to 66%, probably due to investments in training and supervision of laboratory technicians, and improved equipment becoming available, most notably fluorescent microscopy. Only two cases of Multi-Drug Resistant TB were diagnosed in Thyolo in the past three years: one has completed treatment successfully, the other is still under care.

Cholera

Outbreaks of cholera occur occasionally in Thyolo during the rainy season, because many water sources are still unprotected and sanitation in most areas is poor. After two seasons without any cases in 2006-2007 and 2007-2008, an outbreak occurred in the rainy season of 2008-2009. Between December 2009 and March 2010, 34 cases have been reported, of whom one patient died [5,6]. At the time of writing, however, there are signs that this year's cholera season is not over and may take a higher toll still.

Other priority diseases

Table 11 shows the notifications of priority conditions, and the number of patients who died. Malaria clearly is the most frequently diagnosed of all these conditions, especially in under-fives. More on the public health importance of malaria and on strategies to reduce its impact are described in the section on the malaria programme (page 84). Strategies to eradicate and eliminate priority diseases (e.g. vaccination programmes) are described in Part B.

Table 11. Other priority diseases, July 2008 – June 2009

Epidemic prone diseases	*Number of cases notified*	*Number of inpatient deaths*
Cholera	254	5
Meningococcal meningitis	0	0
Dysentery	2070	2
Plague	0	0
Diseases targeted for eradication and elimination (Year 2008-2009)		
Poliomyelitis	0	0
Measles	0	0
Leprosy	0*	0*
Neonatal tetanus	0*	0*
Diseases of pubic health importance		
Malaria > 5 year	130,167	111
Malaria < 5 year	100,370	220
Schistosomiasis	4,179	n/a
Cases treated for STI	11,114	n/a

Source: Health Management Information System, Thyolo District Health Office 2009
* (1) The district leprosy coordinator claims to have seen six leprosy cases in 2009; even though these occurred in the first half of this year, they are not reflected in the official statistics for unknown reasons. (2) Neonatal tetanus: between January 2007 and May 2010 a small number of cases with a strong clinical suspicion of neonatal (and in one case maternal!) tetanus were seen by the authors; these are not reflected in official statistics. These findings suggest that both diseases may not be eradicated in the region.

This marks the end of Part A in which we described general characteristics of Thyolo District, with regard to geography and demography, the socio-economic status of the population, the position of women and children, the political context and major health indicators, particularly those concerning MCH. In Part B we will now give a more detailed description of health services and programmes in Thyolo.

B. Health services

General remarks

It is important to view Thyolo's current health services in the light of their past. Insight into "where we are coming from" may lead to greater understanding between different providers. Therefore, this description of health services in the district starts with a historical perspective on the activities of each of the major health partners in Thyolo.

We then proceed with a more detailed analysis of different activities conducted through the district health system. Even though we have tried to describe the current state of Thyolo's health services in a factual and non-judgmental manner, we feel that trying to objectively analyse the situation is as impossible as it would be desirable. Some achievements deserve to be mentioned, and in the same way some challenges deserve to be critically appraised.

I. Past

Ministry of Health

Colonial era

Where traditional medicine had been present long before, western medicine came to Malawi with Livingstone and Kirk's Zambezi expedition in 1859. For decades, it remained the terrain of mission hospitals governed by missionary doctors, who served dual functions as evangelists and caregivers. In 1891, the first colonial government doctor was appointed: an Indian who was killed six months later by a local chief. In 1896 the first government hospital was built in Zomba [27].

The development of a government medical service advanced at a very slow pace during the beginning of the 20th century. After the First World War had depleted resources of the colonial government, the state of the medical services of Nyasaland was deplorable. A report on the dramatic situation in 1930, led to the provision of a large sum of money from the "Colonial Development Fund" of the British government for the building of new hospitals. One of these hospitals was established in Thyolo. It was completed in 1934 and counted 50 beds [27].

The development of a government health system halted with the Second World War, when most government doctors joined the army. During the post-war years, financial means remained limited. By 1955 Thyolo District Hospital had 61 beds [27].

With the increase of tax revenues from the rich economies of Northern and Southern Rhodesia –present-day Zambia and Zimbabwe- the Nyasaland health budget increased markedly. Thyolo benefited also, and by 1962, Thyolo District Hospital had become the country's fifth largest clinic, with 132 beds [27].

Independent Malawi

In 1964, the first independent Malawian government, led by Dr. Hastings Kamuzu Banda –a medical doctor trained in the USA-, inherited an unhealthy medical service that was characterized by a severe lack of human and material resources [27].

Over the next forty years, the patient burden on facilities, including Thyolo Hospital, increased. The advent of the HIV/AIDS pandemic and the influx of refugees from the Mozambican war in the 1980s had a particular impact. To cope with the growing number of patients, several smaller clinics, "health centres", were built in hard-to-reach areas [27].

Because most Malawians completing medical school abroad did not return to their homeland for a professional career doctors' vacancies in Thyolo were filled by expatriate –often Dutch- medical doctors [27]. After the establishment of the Medical College of Malawi and the graduation of the first Malawian trained doctors in the 1990s, the first Malawian District Health Officer was appointed to Thyolo towards the close of the last century.

In 2005, the district health service took a giant leap forward with the opening of the new Thyolo District Hospital, constructed with funding from the European Union.

Médecins Sans Frontières

Pre-ART era

MSF started working in Thyolo in 1997. Their project initially focused on primary prevention of HIV infection through information, education and communication, usually called 'health promotion' nowadays. Activities were coordinated with the District Health Office (DHO) of the MoH, and implemented through government, CHAM and tea estate clinics [28].

After 1999, the organization started emphasizing support and care for people living with HIV (PLHIV). Activities consisted mainly of palliative and home based care in combination with efforts to mobilize community support. Moreover, Voluntary Counselling and Testing services and the provision of co-trimoxazole prophylaxis against opportunistic infections were introduced. MSF also provided technical input into the District Tuberculosis Control Programme and initiated therapeutic feeding programmes for malnourished children and HIV-positive adults [28].

By 2002, MSF had become involved in many activities in the district hospital, among which the upgrading of the district's main laboratory and ward care for hospitalized patients. Prevention of Mother-To-Child Transmission (PMTCT) had become an important focus of the programme, as well as the "Continuum of Care" Clinic (CCC), a more specialized HIV-clinic for ambulatory treatment and monitoring of patients with opportunistic diseases [28].

Starting and scaling up anti-retroviral therapy

MSF started providing Anti-Retroviral Therapy (ART) in April 2003 as part of a national plan to scale up access to medication and with the intention to advocate for the rolling out of treatment in low-resource settings, an effort many deemed impossible. The main objective of the programme became to achieve universal access to ART, defined as having initiated 80% of all people in urgent need of treatment [28,29].

This target was achieved in August 2007, by adapting the national public health approach into the so-called "Thyolo Model of Care" [28], which is based on:

1. decentralisation of HIV/ART services from the district hospital to primary health care centres,
2. simplification and a standardized approach: an easy first-line regimen –still used by more than 95% of patients on ART today- in a fixed dose combination,
3. task-shifting: shifting tasks to cadres of health staff with less professional training, a necessary strategy given the context of a severe lack of human resources,
4. a well-streamlined patient flow in health facilities, with a fast circuit for stable patients, a medium circuit for patients with minor opportunistic infections and a slow circuit for the very ill.

Integration and working towards handover

After achieving its main objective, the focus of the MSF programme shifted. It was realized that universal access had been achieved mostly through a vertical programme, thriving on the political momentum for HIV/AIDS, functioning partly in parallel to existing public health structures [28].

It was also realized that a reduction of MSF involvement could only take place in a situation where HIV care is integrated into the general health system, and other partners are able to continue the services started by MSF. Moreover, in the process of scaling up, quality of care had not been prioritized. Initiatives to improve quality were needed, including better care for children [28].

The third phase of the MSF programme continues until today. With the planned exit from Thyolo in 2013, emphasis is now on integrating HIV services into the general health services as well as building capacity within the general health system in order to prepare partners for taking over activities [28]. When MSF in the past was more focused on the scaling-up of HIV-support in the form of ART and PMTCT, the project objective now focuses on supporting parts of the overall health system (i.e. pharmacy, supervision, human resources) in order to adequately address all of the population's main health problems, HIV/AIDS being one of them. Also, some specific quality improvements are promoted by the NGO, both on district and national levels.

Malamulo and the Christian Health Association of Malawi

In 1915, the Seventh Day Adventist church opened a clinic in Makwasa, located in the central area of Thyolo. The clinic initially focused on the treatment of leprosy. In 1935, a Medical Assistants' Training School was started at the site. With finances and manpower from the Adventist Church of the USA, Malamulo Hospital became the Leprosy Control Centre for the Lower Shire as well as a general hospital [27].

Over the past decades, Malamulo Hospital grew to be a relatively well-equipped general hospital. The Malamulo College of Health Sciences became a well-established training institution for Clinical Officers (COs), Medical Assistants (MAs), Nurse/Midwives and laboratory technicians [27].

With Malamulo and other Malawian mission facilities belonging to many different church denominations, each of these proprietors was too small to efficiently appoint health specialists at management level. Therefore, different Christian hospitals established an association in 1966, so that their common needs could be addressed. This association was titled the Private Hospital Association of Malawi. Since then, most Christian health facilities have become members and the name of the association was changed to the Christian Health Association of Malawi (CHAM) [30].

Malamulo is an associate member of CHAM. Over the years, seven smaller mission facilities in Thyolo, belonging to different church denominations, have also become CHAM members. Four of these facilities have signed Service Level Agreements (SLAs) with the DHO (see page 48). One facility has recently been temporarily closed by the Malawi Medical Council, due to poor infrastructure. This is illustrative of the problematic financial situation CHAM has had to deal with in recent years.

Note: in addition to the three main players described here, some of the health care in the district is delivered by private institutions, most notably tea estates. Because only a small part of the total population has access to these private services, we decided not to include an elaborate general description of this part of the health system. However, we did include the activities conducted in private facilities in some of the following chapters wherever we considered their contribution particularly relevant, for instance in HIV- care.

II. Present

Management

District health management team

The MoH District Health Management Team is ultimately responsible for health care within the district [5,6]. The team is headed by the District Health Officer. In addition to him, the so-called "core" DHMT consists of the District Medical Officer (DMO), the District Environmental Health Officer (DEHO), the District Nursing Officer (DNO), the administrator and the accountant of the DHO. This core DHMT is responsible for the daily running of the health system. The presence of and agreement between three of its members are sufficient to formally approve minor decisions, but not all decisions are taken transparently. In practice, each member of the core DHMT has considerable independence within their own professional area, with the District Health Officer being consulted for major decisions only.

In 2009, the Thyolo DHO launched a District Strategic Plan (DSP) outlining health strategies in the district for the period between July 2009 and June 2012 [6]. Communities and other stakeholders were consulted in the planning process. A more concrete planning is described in a yearly District Implementation Plan (DIP), written every year with involvement of programme managers and DHMT. In recent years, MSF staff have been invited to take part in the DIP.

The previous DHO advertised the Thyolo mission statement with the vision “to become one of the best district health services in the southern region”. She was the main driver behind the current DSP and the recent DIPs and took a clear lead in district health matters. She left Thyolo end 2009 for further studies in South Africa. Since then, the interim DHMT has lacked some organization and leadership. The formulation of the 2010 DIP, which took place in March, was not well-guided: coordinators were not prepared, MSF representatives were invited at a late stage and there seemed to be a lack of an overall sense of direction. With the recent appointment of a new and experienced DHO, there are hopes for the better.

The 2009 DSP for Thyolo was written at the suggestion of the South-Western Zonal Office that wanted to pilot the development of such a plan in a number of districts. For 2010, MoH has requested all districts in the country to present a DSP. Thyolo is also asked to present a revised DSP for 2010-2013, but it is likely that this document will largely be the same as the one written a year earlier. Due to a lack of proper planning, the 2010 DIP was finished before the revised DSP: the logical order suggested had been the other way around.

MSF coordination and management

Most members of the MSF Coordination team are stationed in Limbe, where the head office for MSF's Malawi mission is situated. The only member of coordination in Thyolo is the Field Coordinator [28].

The other members of the MSF Coordination team –the Head of Mission, Medical Coordinator, Logistic Coordinator, Financial Coordinator and Administrative Coordinator- report to "polyvalents" in the operational centre for MSF Belgium in Brussels (Operation Centre Brussels, OCB). This operational centre is divided in "cells" with cell number six being responsible for the Malawi mission.

Strategic decisions are made by the coordination team, often together with the Medical Focal Point (MFP), the main medic responsible in the field, and require approval from the OCB depending on the importance. The Head of Mission and the Medical Coordinator are also responsible for the lobbying and advocacy at national level [28].

At field level, the project is divided into three pillars: hospital, health centre and community. Each pillar is headed by a manager. The pillars are supported by a team of “technical supervisors” and “technical officers” each with a specific focus area. This technical team is headed by the MFP, and supports the different pillars technically. Managers and MFP report to the Field Coordinator. This management team is responsible for the day-to-day running of the project [28].

The yearly annual review of operations of OCB and the formation of the action plan for each project takes place in October of every year. In preparation, the mission has –in the past two years- organized a joint planning meeting, together with the DHO. Technical Working Groups consisting of MoH and MSF staff have been formed for different technical areas (HR, ARV/TB, Reproductive Health, Counselling and Health Promotion, etc.). Each working group has the opportunity to propose plans for the year to come, which are presented and discussed during the planning meeting [28].

The MSF project and coordination team then formulates the agreements into a Project Document and a Country Policy, documents which are presented to the cell and other relevant OCB staff for approval [28]. The resulting log frame and budget form the basis for the action plan.

Christian Health Association of Malawi

According to their mission statement, the main objectives of the CHAM secretariat are “to coordinate, facilitate and provide technical support to its member units in order for them to provide quality health services to their communities” [30].

Table 12 shows services that the CHAM secretariat is supposed to provide to associated facilities.

Table 12. Services provided by the CHAM secretariat

1. Delivery of technical support:
a. Capacity building and institutional strengthening.
b. Technical and administrative support to members on health issues.
c. Communication and providing information on current developments in health care.

2. Resource mobilization
a. Grants management of salaries and projects.
b. Assistance in mobilizing resources for training.
c. Management of drugs and medical supplies.
d. Mobilization and distribution of donated materials and equipment.

3. Representation of interests
a. Advocacy and influence on health issues on behalf of member units.
b. Lobbying government and donors.
c. Networking / linking locally, nationally and globally.
d. Advocating for equity in resource sharing and participation of CHAM in national health matters.

4. Monitoring and evaluation
a. Monitoring quality control and standards of health care.
b. Monitoring administrative affairs.
c. Reporting on indicators of the HMIS and other indicators.

5. Assistance in emergency situations
a. Mobilizing and distribution of drugs, food and other emergency materials for immediate needs of vulnerable groups in health facilities.
b. Building capacity of CHAM facilities in emergency preparedness and response.

To provide these services, the CHAM secretariat communicates and cooperates on health policies and health delivery services with proprietors, Government (Ministries of Health and Finance), CHAM units and other health providers [30].

The reality in CHAM has sometimes been different from the ideal described above. In practice, much of its focus has been on acquiring project grants. Continuous support and a general vision and strategy seemed to be lacking. This came up clearly in some interviews with managers in CHAM institutions, to whom the provision of salaries is the most known activity of CHAM.

Moreover, on national level, CHAM has suffered from mismanagement of funds and other managerial problems. The association has now reorganized itself and has installed more rigorous auditing. Indeed, focus seems to shift increasingly to the provision of more continuous support and the other objectives as described in the mission statement. Still, support to its facilities is perceived by many to be rather limited.

The DHO holds the overall responsibility of health care provided in the district, including health care in CHAM facilities. According to DHO, MSF and even some CHAM officials themselves, activities in mission facilities are not always well-coordinated with the DHO. The different proprietors of facilities in Thyolo do not have one common representative to discuss health matters at district level with the DHO. The organizational structure of CHAM consists of facility level and central levels only; there is no district representation. There are some informal zonal CHAM meetings, but there is no formal zonal body either.

It was shown during the recent SWAp evaluation of the years 2004 to 2010 that the (national) target set for the number of SLAs obtained with CHAM was only met for 50%.

Other non-governmental organizations

A variety of NGOs involve themselves with health issues in the district. NGOs are expected to coordinate their activities with the DHO. Collaboration has been achieved through quarterly review meetings, but the DHO notes in the DSP that "challenges exist regarding joint planning and coordination of the priority needs in the district" [6].

Important NGOs in Thyolo are OXFAM, World Vision International, World Alive Ministries International and the Catholic Health Commission. These organizations focus on various geographic and technical areas of interest [6]. Voluntary Service Overseas (VSO) provides expatriate medical staff to Thyolo District Hospital (TDH) to relieve the effects of the shortage in human resources (HR), as elaborated in the HR section on page 54. In addition, these VSO expats have the objective to contribute to building capacity among local MoH staff.

An important NGO in the course of this analysis is Banja La Mtsogolo (BLM, Mary Stopes Clinic), providing Family Planning (FP) activities and other reproductive health services. They also provide (post-)abortion care. Their important role is elaborated in the FP section.

Infrastructure

Hospitals

Thyolo District Hospital

Thyolo District Hospital (TDH) is the largest health facility in the district. Its new buildings were officially opened in 2005 and are maintained in a good state. The hospital and its surroundings are kept neat and clean. Water supply is dependent on the water board, and is often interrupted. In order to prevent shortfalls, a water tank has been installed, but due to the considerable duration of supply breakdowns from the water board, reserves are often insufficient. During breakdowns, elective surgery and X-rays are often not performed. During the frequent interruptions in power supply, the hospital uses a generator. A few months ago, the automatic switch broke down. Staff, even at night, must now be called in to switch on the generator. Resulting delays have led to difficult situations in labour ward and theatre.

Table 13 displays some basic hospital characteristics. The outpatient department in TDH serves as primary care clinic for the local catchment area of the boma, but also attracts people from catchment areas of health centres. The workload is tremendous, with almost 4000 outpatient consultations per week. Dedicated clinics are held for skin diseases, mental health, ophthalmology, hypertension, diabetes, sexually transmitted infections (STIs) and Kaposi's sarcoma. A clinic for palliative care is planned to open later this year. In the maternal and child health department, antenatal, under-five and family planning clinics are conducted on a daily basis.

There is a 24-hour casualty department, where emergency cases and other acutely ill patients are seen and admitted. This department is supported by an integrated and busy orthopaedic outpatient clinic during office hours.

Table 13. Hospital statistics, July 2008 – June 2009

Number of official beds	298[1]
Number of admissions	35,911[1]
Number of hospital deliveries	
Inpatient days	142,124[1]
Average duration per admission	4 days[1]
Average bed occupancy rate	390[1]
Number of days for elective surgery per week	2
Average number of operative procedures under anaesthesia/month	116[2]
Number of OPD consultations (whole district)	648,885[1]
Number of OPD consultations TDH (OPD, CCC and specialized clinics)	194,524[1]
Percentage OPD consultations in TDH of total	30%[1]
Average number of OPD consultation in hospital per week (OPD, CCC and specialized clinics)	3,740[1]

1. Health Management Information System, Thyolo District Health Office 2009
2. Theatre anaesthetic register, 2008-2009

Patients requiring admission enter into one of the following wards: female, male, paediatric, maternity, labour and the tuberculosis ward. There is a Nutritional Rehabilitation Unit (NRU) for the malnourished, where usually only seriously under-nourished children are admitted.

In the well-organized laboratory a number of diagnostic tests can be done most of the time: full blood count, haemoglobin, CD4 count, Alanine Aminotransferase (elevated levels indicate destruction of liver cells), creatinine (elevated levels may indicate kidney failure), Venereal Disease Research Laboratory testing (VDRL, a test to detect past exposure to syphilis), hepatitis B and C rapid tests, cryptococcal antigen testing, urine analysis and analysis of other body fluids (cerebrospinal fluid, ascites, pleural fluid, sperm). In addition, microscopy for malaria parasites and fluorescent microscopy for TB bacilli can be performed. The laboratory receives blood from the Malawi Blood Transfusion Service (MBTS), but is also able to prepare blood for transfusion from donors in emergency situations.

The radiology department has fairly new and well-run X-ray facilities. A new ultrasound machine is available and used for basic obstetric and abdominal scanning. One challenge is the lack of capacity in the district to perform more advanced ultrasound scans. There is a possibility to perform electrocardiography, but this is only done occasionally, and only by the VSO-doctors.

Malamulo Seventh-Day Adventist Hospital

Malamulo is located in Makwasa, at approximately 20 kilometres from Thyolo boma. The facility has more than 200 beds. There are private, semi-private and general wards for men, women and children, as well as a separate TB ward and a NRU. The

maternity department is undergoing some restructuring, with the labour ward moving to a larger space. The ART clinic, where around 2000 patients were followed up at the end of December 2009 and the general OPD, where another 2000 patients are seen every month (a relatively low number as compared to government facilities, likely because of the user fees requested from patients), are in the process of being integrated. In the college of health sciences, a school linked with the hospital (with a separate infrastructure and management) nurses, MAs, COs and lab technicians are trained.

Thekerani Rural Hospital

With a catchment population of 24,362, Thekerani is situated at 60 kilometres from the Boma, in the remote and underprivileged southern area in the district. Thekerani Health Centre is being upgraded to the level of a rural hospital. Jointly, MSF and MoH are working to achieve that pharmaceutical supplies, infrastructure, services and HR levels are in accordance with the MoH standards for a rural hospital.

In this regard, MoH has officially deployed two nurses, a medical assistant and a clinical officer, although in reality only one MoH nurse and one MoH medical assistant are present. MSF has deployed an expatriate medical doctor and midwife, a clinical officer and two nurses. Houses are being renovated and built for them. In the longer run, these houses should be occupied by additional MoH staff deployed to the facility. Efforts to improve water supply and acquire a generator are underway.

There are two small buildings on site that serve as inpatient wards: one for males, the other for females and children. The female and male sections each have a capacity of 6 beds, children have smaller section of 3 beds. On average, 150 deliveries are conducted in the facility every month. High-risk antenatal mothers and mothers from far away are advised to wait in the maternity waiting room built with MSF support. There is a separate postnatal ward where women are followed up for 24 hours after delivery. In the outpatient department, an average of 4500 patients are seen every month, a remarkably high number leading to a high workload for the available staff.

Because Trinity Hospital (CHAM) in Fatima, Nsanje District, is the closest facility to Thekerani with an operation theatre, emergency referrals are generally sent to this facility, utilizing the a CHAM-DHO Service-Level Agreement (SLA). All other cases in need of referral are sent to TDH.

A laboratory with the capacity to perform largely the same diagnostics as TDH will be opened in the second quarter of 2010. This will impact on the quality of care and will reduce referrals.

Thekerani is surrounded by five HCs (Chipho, Zoa, Molere, Mapanga, Gombe, Nsabwe) and three ‘Improved Health Posts’ (Thukuta, Chamera, Sandama, see page 45). Thekerani staff also perform outreach to these facilities as part of on-going

capacity building of staff in these remote sites.

Health centres

Thyolo District will soon count 31 primary care centres, which are described in Table 14. These can be divided into:
(1) MoH facilities: Health Centres (HCs), maternity centres (providing only maternal and child health, staffed by nurses), and dispensaries (outpatient clinics only, staffed by a MA).
(2) Tea estate clinics, each supposed to be staffed by one clinician (MA or CO) and one nurse. In recent times, it has been a challenge for these clinics to employ clinicians.
(3) CHAM HCs (of which St Helena Oakley is a maternity centre only).

Four CHAM facilities in Thyolo, in addition to Malamulo Hospital, have Service Level Agreements (SLAs) with Thyolo DHO, as explained in the "finances" section on page 48. Trinity Hospital in neighbouring Nsanje District also has an SLA with Thyolo DHO as it receives patients from the Thekerani catchment area.

In addition to Thekerani Rural Hospital, three MoH HCs (Khonjeni, Chimaliro and Mikolongwe) have been upgraded to facilities providing Basic Emergency Obstetric Care (BEmOC) services or are in the process of being upgraded (Bvumbwe). BEmOC services include [31]:
(1) administering of intravenous antibiotic treatment,
(2) performing manual removal of the placenta,
(3) performing manual vacuum aspiration,
(4) performing vacuum extraction,
(5) magnesium sulphate for treatment of (severe pre-)eclampsia,
(6) resuscitation in case of shock.

All other (non-BEmOC) centres, except for Nsabwe MoH dispensary, provide primary maternal and child health services, including basic obstetric care.

Seven HCs are ART initiation sites, fourteen provide ART follow-up care with adherence counselling and ART refill. Seven centres (including Thekerani RH) have qualified as "ART stand alone sites", meaning they receive ART supplies directly from Central Medical Stores (CMS, page 51) as they fulfil basic quality needs. Most sites provide TB follow-up services with drug refill and adherence support. By the end of 2010 ten sites will be doing fixation of sputum smears, five will perform smear microscopy.

Table 14. Health Centres supported by MSF in Thyolo District [28]

Health Centre (+Type)	**ART initi-ation**	**ART follow up**	**Stand Alone ART Site**	**PMTCT RH**	**CD4 sample collection**	**BEMOC**	**HTC**	**DBS**	**TB micro-scopy**	**Nutri-tion**	**TB fixa-tion**
1. Khonjeni MoH	X	X	Plan '10	X	X	X	X	X		X	X
2. Chimaliro MoH	X	X	X	X	X	X	X	X		X	X
3. Bvumbwe MoH	X	X	X	X	X	Plan '10	X	X	X	X	
4.Mikolongwe MoH	X	X	X	X	X	X	X	X		X	X
5. Changata MoH	X	X	X	X	X		X	X		X	X
6. Makungwa MoH	X	X	Plan '10	X	X		X	X		X	X
7. Thekerani MoH	X	X	X	X	X	X	X	X	X	X	
8. Mangunda MoH		X		X	X		X	Plan'10		X	X
9. Zoa MoH		X		X	X		X	Plan'10		X	X
10. Chimvu MoH				X	X		X	Plan'10		X	
11.Nsabwe Dispensary MoH		X					X			X	
12.Mapanga Maternity MOH				X	X		X				
13.Makandi Tea Estate		Plan '10		X	X		X	Plan'10			
14. Nchima Tea Estate				X	X		X				
15. Conforzi Tea Estate		X					X				
16. Satemwa Tea Estate		X		X	X		X				
17. Mianga Tea Estate				X	X		X	Plan'10			
18. Chipho CHAM (SLA with MOH)				X	X		X	Plan'10		X	X
19. Makapwa CHAM (SLA with MOH)				X	X		X	Plan'10		X	
20. Thomasi CHAM (SLA with MOH)	Plan '10	X		X	X		X	Plan'10			Plan '10
21. Molere CHAM (SLA with MOH)				X	X		X		X	X	
22. Mitengo CHAM				X	X		X	Plan'10	X		
23. Chingazi CHAM				X	X		X		X	X	
24. St Helena Oakley CHAM				X	X		X				
25. Gombe Maternity MoH		X		X			X				Plan '10
26. Mbalanguzi CHAM	(CHAM dispensary opened on Sundays and managed as an outreach clinic by Malamulo)										
27. Amalika Health Post (only staffed by HSAs)							X				
28. Nansonia Tea Estate	(small Tea Estate clinic, staffed by a nurse)										
29. Chinthebe MoH	(MoH dispensary, recently opened, activities not yet well-defined)										
30. Chisoka MoH	(MoH HC to be opened soon, activities not yet well-defined)										
31. Didi MoH	(MoH HC to be opened soon, activities not yet well-defined)										

Community

MSF and MoH have in recent times invested in bringing health care closer to the Thyolo community. As outlined below, the resulting community network carries great potential, but requires refining. MSF has focused its activities in Improved Health Posts (IHPs) and reduced its involvement in outreach to other sites [28]. MoH performs outreach to a large number of sites throughout the district.

Community outreach – "static sites"

As a district initiative, the Thyolo DHO started performing outreach to a number of Community-Based Organisations (CBOs) in 2007. MSF had already been involved in a number of these sites before, providing pre-ART care [28]. The DHO and MSF community teams are now in the process of being integrated. Outreach activities include care for chronic diseases, palliative care, treatment of opportunistic infections, mental health and a few antenatal care and family planning clinics in hard-to-reach areas. Community nurses travel on a daily basis from the district hospital to one of these so-called "static sites". Each of these sites is manned by a number of Community Home-Based Care (CHBC) volunteers. They have received training in palliative care and are allowed to dispense a number of drugs to bedridden patients in the community. Not the entire district is covered by outreach of community clinics. For ANC and FP ten out of 12 TAs are covered, for chronic diseases and CHBC eight out of 12. To cover Thyolo south, Thekerani RH is used as the basis for outreach activities. A group of community nurses is deployed there for one week every month.

Improved health posts

In 2009, MSF revised its community programme [28]. Over the years before, the number of CBOs visited by MSF and MoH nurses had grown larger and larger. At the same time, after the introduction of ART, the number of bedridden patients in need of palliative care as well as the incidence of opportunistic infections had gone down. It was found that the moving up and down by nurses to and from the boma was inefficient. In agreement with the DHO, MSF developed a different approach. Fourteen CBOs located at relatively large distances (> 10 km) from existing facilities in areas with considerable catchment populations were identified. The idea was to develop these sites into larger health posts where a basic package of comprehensive primary care, including maternal and child care and the dispensing of ART, could be provided. These Improved Health Posts (IHPs) would ensure a relatively easy access to primary care including ART for all people in Thyolo.

Six IHPs are now open daily, the remaining eight are planned to be open by mid-2011. Three MSF nurses have been deployed and another three are about to be

deployed to conduct clinics in one or more IHP each. A house and a motorbike are provided to each nurse. MSF plans to lobby for a number of IHPs to be managed by MoH nurses. Houses built by MSF will be made available to deployed MoH nurses, depending on the success of this lobby.

To coach these nurses and guarantee an acceptable standard of care, nurses are now visited by MSF MAs on a monthly basis. Moreover, each IHP is staffed by three HSAs and three Patient Support Attendants (PSAs). These PSAs are a new local cadre of "expert patients", with a DHO contract, financed by MSF. Their task is to enhance treatment literacy amongst PLWH visiting the clinics. PSAs are planned to be transitioned into the recently proposed cadre within the Round 10 proposal of the Global Fund, that will be introduced in Malawi: Adherence Support Workers ("ASW").

In the longer run, IHPs are supposed to be taken up into the formal health system. This has been agreed with the DHO. The first and largest IHP, Sandama, is expected to become a dispensary within the MoH system in the near future, with an MA deployed there and MoH taking full control.

Support groups

There are 85 functioning support groups for PLWHAs throughout Thyolo District [28]. These groups are associated with the National Association of People living with HIV/AIDS in Malawi (NAPHAM) and its members pay a MK 50 fee to become NAPHAM-associates. Those who cannot afford to pay can still subscribe as members.

The groups meet every two weeks in order to provide psychosocial support to its members. In recent times, MSF –which has been heavily involved in the building up of NAPHAM and the support groups- decided to use this network to improve treatment literacy among people on ART. The objective is to improve adherence to treatment and to retain people in care. Three members of each support group –a woman, a man and an adolescent- received treatment literacy training and are expected to facilitate health promotion sessions in the groups.

Support groups will be visited by members of the MSF Patient Support Unit (PSU) every other month for the next six months, until another partner, the Community Media Trust (CMT), will have taken over support group supervision [28,32]. This South African NGO, a sister organization of the renowned Treatment Action Campaign, has recently stepped in to capacitate support groups even further by starting a treatment literacy project throughout the district. A CMT Project Coordinator has been recruited, 12 "Treatment Literacy Prevention Practitioners" were trained and a DVD/flipchart-session is being developed. Using mobile phones, the implementation of the treatment literacy project will be monitored and evaluated. The coordinator will be located in the NAPHAM Thyolo office and will try to capacitate NAPHAM as an organization. He will also be responsible to assist in accessing additional funding to make the TL project and NAPHAM sustainable. Funding for the CMT project comes from DFID and has been secured for two years [32].

The intention of both CMT and MSF is to make PLWH increasingly responsible for their own health, by capacitating them with necessary knowledge. In addition to investments in treatment literacy, suggestions to “demedicalize” and “de-stigmatize” HIV care and empower PLWH include: (1) the implementation of ART refill (support) groups with one leader collecting medication at the facility for a group of people (after evaluating a similar initiative in Mozambique), (2) a decrease of clinical contacts at the facility and (3) integration of HIV care with care for other chronic diseases and maternal and child health care [33].

Support systems

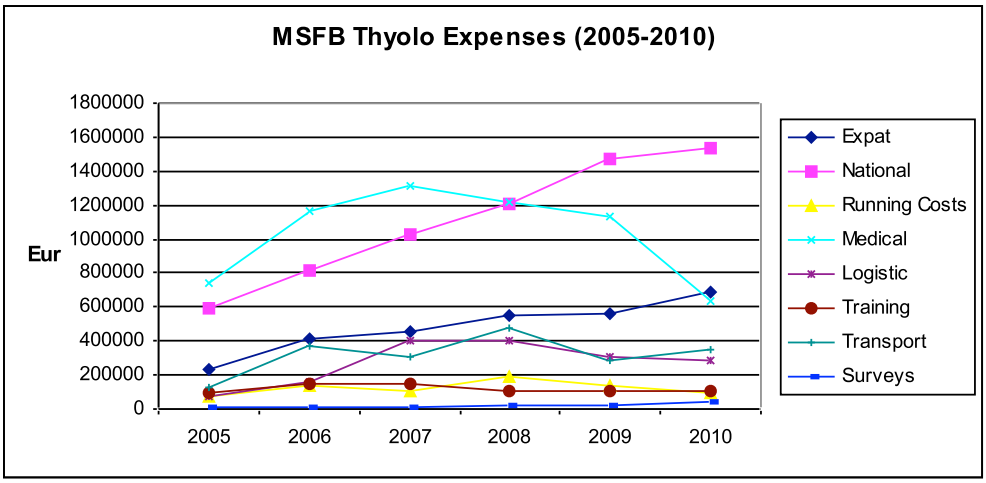
Finances

Resources clearly differ between the major partners in the district. The budget for the Thyolo health office is determined by the Ministry of Health based on SWAp-funding each administrative year, with approval from DC and parliament [6,13]. As a result of the tumbling economy, the budget for 2010-2011 will likely to be frozen at around the same level as the year before: 418,000,000MK, around 2,000,000 Euros. If districts identify major health needs in their DIPs that are not covered by SWAp-funding, they may source parallel funds. It needs to be noted that staff costs as well as some construction works (staff housing) are paid directly from national level and are not included in this district budget.

The MSF budget is set during the yearly MSF action planning. The budget for 2010 for the Malawi mission stands at approximately 4,800,000 Euros with 80% allocated to Thyolo project and around 40% to staff salaries. A midyear budget review is done, and spending is rather flexible throughout the year, but emphasis is put on transparent and detailed budgeting based on effective needs and follow-up [28].

In the past two years, more efforts have been made by DHO and MSF to track each other's planning and budgets, and to ensure that these address complementary needs, rather than duplicating activities [28]. Budget tracking can and must still be further improved, however, especially on the DHO side. Consumption figures are often unclear and spending non-transparent. Up to recently, the DHO sometimes bypassed its own supply lines and considered MSF to be a supplier rather than a gap-filler. MSF is now engaged in a rationalisation process, relying more and more on MoH responsibilities and commitments.

Figure 2.



An important note on the financing of Malawi's health system, is that all care in the public health system is provided free of charge [3,6]. Patients are only advised to buy a "health passport" at 40MK. Even though some rumours of illegal cost recoveries have circulated, the achievement to have free care has a major beneficial effect on access for the poorest of the poor. According to some, the health system has become overused however, with 400 to 500 consultations a day in a major health centre being no exception. Currently, in preparation of the next Programme of Work under "SWAp2" (2011-2016), the government is investigating alternative financing for the health sector after concluding that public resources are insufficient. This may include user fees, social insurance or private-public partnerships.

CHAM facilities have a partial cost recovery system and charge user fees. Being admitted for a night in Malamulo, for instance, costs 60 MK for a bed in the general ward, 350 MK in the semi-private ward and 2000-3000 MK in the private ward. An outpatient consultation by a CO costs 40 MK, by a MD 700 MK.

In addition, each facility attracts funding from the "mother" church and from other private donors, often with religious origins. Many facilities have struggled with insufficient resources however, and there have been several scams related to abuse of funding in CHAM facilities and in the national secretariat.

As CHAM facilities are often located in hard-to-reach and other strategic locations, they fulfil an important role in access to primary care. In acknowledgment of their importance, the Thyolo DHO has engaged in signing Service Level Agreements (SLAs) with five of these facilities, including Malamulo, in order to have them provide treatment at no charge. Usually, only maternal, under-five and HIV care are included in the agreement. An interesting note is that the paediatric in-patient care was included in the SLA with Malamulo in September 2009. This led to an influx of patients as well as to a decrease in mortality at ward-level. This was likely due to the fact that fewer children were admitted with advanced disease, because their parents did not need to look for money before being able to access care.

These SLAs have enabled CHAM facilities to sustain themselves, while the DHO has managed to maintain access to health care in crucial places. However, CHAM facilities, including Malamulo, complain that SLA payments expected from the DHO are often seriously delayed. At the same time, the DHO has expressed doubts about the sustainability of these agreements, stating that SLAs have become unaffordable.

Transport system

Users often complain about the DHO transport system. In emergencies, ambulances are not always available in time. Outreach programmes are regularly cancelled because of a lack of functioning vehicles. In the rainy season, the poorly equipped cars sometimes fail to reach destinations. Monitoring of car movements and fuel consumption is poor. In addition, cars are inadequately maintained –the MoH does not have a mandate to maintain their cars themselves-, and break down regularly.

At the time of writing, there are five working ambulances run by Thyolo DHO: three stationed at TDH, one at Chimaliro HC and one at Thekerani RH. Two additional vehicles were recently donated by MSF. Another three cars are currently grounded.

MSF has invested in rationalization of its own car use in recent times. Their fleet is large and costly, but managed quite efficiently and much of the district logistics rely on MSF transport. Further rationalization is taking place in 2010. MSF cars have transported increasing numbers of patients in addition to (MoH and MSF) health staff, and have been called upon occasionally for emergencies. However, most of the patient transport, especially for emergencies, is done by MoH ambulances. In 2009, collaboration between the MSF and MoH transport departments started. Two MSF vehicles were donated to the DHO. Mechanics from both sides are assisting each other, and the MoH transport manager has received some coaching in fleet management. Plans are on the way to: (1) perform a cost-efficiency analysis, (2) implement monitoring tools in order to rationalize utilization and (3) further integrate car utilization where possible.

The challenge for MoH to maintain and manage a fleet seems to be a major bottleneck to the taking over of all MSF-supported activities by MoH. This should prompt a critical analysis, involving both MoH and MSF, of how to continue to provide transport for the most important activities with the most efficient vehicle movements. The importance of this analysis was emphasized by an MSF consultant, who was brought in recently to assist the district in developing an exit strategy for MSF.

Communication and referral system

The most important means of communication between health facilities is the so-called "health passport". This document is available in all health facilities for a small fee (40 MK). Some patients use school scrap books instead of the official health passports. Health passports are not always updated consistently by health workers. Due to time constraints and mere neglect, usually only limited information is recorded and in some cases no information at all.

In case of emergency referrals, HCs are equipped with radios and are able to call an ambulance from the district hospital for assistance. Sometimes, these radios are broken or their signal does not reach the district hospital. If phone credit is available, mobile phones are used in case the regular system fails, but there is no agreement on the use of phones by health workers, and some are reluctant to use their own resources to call for help.

Patients referred to higher echelons of care, as well as patients referred back to lower echelons, often arrive with very little information about medical history or management. Referral criteria are unclear. Moreover, feedback from higher to lower echelons is often absent. This causes a feeling of being "left-out" among health workers in lower echelons. Many feel that without adequate feedback they do not "learn" from their referrals, which often concern the more challenging medical cases.

In 2009, it was tried to improve the referral and feedback system between health facilities by creating a referral and feedback form, and by implementing a referral register at HC level. Form and register have been inconsistently used since then. Senior MoH and MSF staff have tried to increase the feeling of responsibility among health staff for the accuracy of their referrals and feedback on different occasions. However, the referral and feedback system still needs improvement.

Drugs and equipment

The DHO relies on supply from the Central Medical Stores (CMS), a centrally controlled pharmacy in Lilongwe with a regional office in Blantyre. In the public health system, all drugs are required to come through these stores. This rule applies both for drugs inside the SWAp (most of the essential drugs) as well as for drugs which are donated by parallel partners such as GFATM which provides ART, TB medication and anti-malarial drugs.

Only in exceptional circumstances, and with explicit agreement from CMS, can districts order medication from other (private) sources, via a rather laborious procedure.

The delivery of drugs to the district health system has seen serious, and worsening, problems in recent years. CMS has challenges to deliver adequate supplies. In 2009 and 2010, many essential drugs and other supplies ran out on several occasions, and ART stocks were dangerously low a number of times. In other districts in the country, ART stock-outs occurred.

At district level, rational drug use is not always practiced: drug orders from the facilities to the main district pharmacy, as well as from the main pharmacy to CMS, are sometimes erratic or late. There is rampant over-prescription and therefore over-consumption increasing the pressure on supplies. Moreover, the quality of certain materials (blood pressure machines, gloves and dressing materials) is sometimes so low that these easily break down.

MSF has its own main pharmacy at their head office in Limbe, where international orders arrive. The organization has been supplying many drugs to the district, some of which because it wants to lobby for their use (e.g. bleomycin for treatment of Kaposi's sarcoma, and amphotericin-B for treatment of cryptococcal meningitis). Many facilities in the district, including CHAM clinics and tea estates placed their orders directly with MSF without going through the DHO. This system, impossible to maintain in light of the MSF exit, has changed recently. MSF and DHO agreed that MSF would only supply drugs to the main district pharmacy. MSF tries to assist in the running of this pharmacy by adding staff and providing technical support. "Lobby-drugs" are still supplied, and buffer stocks are kept of HIV-drugs (including ART) and other life-saving medication. In these times of rampant drug shortages, MSF's buffer stocks are often used.

Surgical equipment is also ordered from CMS. There is a Central Sterilization Service Department (CSSD) in TDH, and each of the HCs has an autoclave. Many autoclaves in the district do not function, however, and even the equipment at CSSD broke down a number of times over the past year. According to the head of this department, CSSD had significant service interruptions four times during 2009. Occasionally, instruments had to be taken to a neighbouring district for sterilization.

Water and electricity

In the section on hospital infrastructure (page 40, some difficulties regarding the supply of water and electricity to TDH were already discussed. In most HCs, the situation is even more challenging. Only one in three HCs has running water and only a few more have a working electricity source, either through the general electrical network or using solar energy. Paraffin lamps are still regularly used in many places. During a survey in 2008, medical assistants noted the lack of electricity as one of the major obstacles to them performing their work adequately.

Most HCs use steam sterilizers heated by gas stoves to clean their equipment. In many HCs refrigerators also function on gas. Frequent interruptions to gas supply often make it impossible to sterilize instruments or maintain the cold chain.

Collaboration with central level

The third-level referral hospital for Thyolo is Queen Elizabeth Central Hospital in Blantyre, which also functions as the country's academic hospital as it is affiliated with the College of Medicine of the University of Malawi.

The collaboration with the central hospital has certainly been beneficial to Thyolo in a number of ways:

1. A number of consultants visit TDH on a regular basis:
    a. An internist comes once per month to do a teaching round and a lecture, usually very informative and much appreciated by district staff.
    b. A surgeon comes once every two weeks to do a surgical outpatient clinic and to perform a number of major operations, together with one of the Thyolo clinical officers who as such receives important on-job training.
    c. An experienced gynaecological clinical officer visits every other week to perform major gynaecological surgery.
    d. A visiting paediatrician was promised a while ago. However, no support from the central paediatric department has been received over the past years.
2. Specialists at central level can be consulted by phone or email, and with most a good working relationship is maintained.
3. A clinical ART meeting is held at the central hospital every month. All referring districts are invited, interesting topics are presented and there is room to present and discuss difficult cases.

There are, however, also challenges in the collaboration:

1. Despite the district giving accurate information in a referral letter, extensive feedback about referred patients is seldom given, unless district staff make a phone call to ask the specific department explicitly or go there themselves (and even then it happens that no one at the department is able to provide information).
2. The district is rarely included in the continuum of care after discharge from the central hospital. In general, except for the monthly meeting, the district is not included in any activity that may be of interest to district staff. A recent publication by central level staff of a case report concerning a case diagnosed and treated at TDH but later referred, was done without involving the district [34].

Human resources

Human resource crisis

Malawi has been facing severe shortages of human resources in the health sector for several years. There is only one doctor per 53,622 population [35]. Therefore, most of the tasks that would be performed by MDs in other settings, are performed by non-physician clinicians (CO and MA). Nurses are also scarce: one per 3,062 people. These staffing levels of doctors and nurses are respectively 90% and 67% below WHO recommendations to have 20 doctors and 100 nurses per 100,000 population [36]. Staff strongly prefer to work in (semi-) urban areas, and there is therefore a considerable disparity in staffing levels between rural and urban areas.

Table 15. Important cadres in the Malawi Health System.

Cadre
Medical Doctors (bachelor level)
Clinical officers (degree level)
Medical Assistants (certificate level)
Registered Nurse (degree level)
Pharmacist (degree level)
Pharmacy technician (diploma level)
Environmental Health Officer (EHO, degree level)
Health Surveillance Assistant (HSA)

Staff are centrally allocated to the different districts. DHOs may influence secondary working conditions (hardship packages, transport allowances, et cetera) in order to retain staff and deploy them to rural health centres. There are significant differences between DHOs in how successfully these strategies are applied. In Nsanje district, for instance, a larger percentage of staff is working in health centres in comparison with Thyolo, probably as a result of innovative measures taken by the local DHMT.

Over the past years, the main reasons for attrition of health staff have been death (with HIV and TB as the most common causes) and migration outside the country. Despite the launching of the Emergency Human Resource Plan in 2004 and improvements reported during national SWAp revisions, there is little improvement visible on the ground.

In Thyolo, the number of hospital clinicians has gone up in the last three years, from 11 COs in April 2007 to 19 COs in April 2010. However, no increases are seen in other cadres and in health centres.

Malamulo is better staffed than other facilities, with four medical doctors and four senior clinical officers (they strive to all inpatients being seen by a MD on a daily basis!). It also receives many students helping out as part of their study internships.

Interestingly, CHAM facilities compete with each other for staff by providing incentives to top up basic salaries. According to Malamulo management, they lose some staff to other CHAM centres as they do not have the same financial means.

Remuneration, allowances and incentives

The MoH salary scale with examples of a number of cadres is shown in Table 16.

MSF salaries tend to be two- or threefold higher for comparable positions and are adjusted to prices of important commodities. MSF has been criticised in the past for taking staff from the public health system, but is now very conscious not to recruit from the public sector and has generally reduced health staffing levels over the past 2-3 years. There are also advantages to the MoH system: the retirement package is perceived as better, and the possibilities to pursue further education are probably higher.

Table 16. MoH salary scale

CADRE	GROSS MONTHLY SALARY (MK)
DMO	148,189.00
DNO	120,750.00
DEHO	81,876.00
HIV-coordinator	81,876.00
Nurses	38,554.00
Medical Assistant	28,347.00
Lab Technician	37,494.00
HAS	15,434.00
HSA Counsellors	15,434.00
Receptionist/clerk	11,409.00
Ward Attendant	11,409.00
Hospital Servant	10,067.00
Ground Staff/cleaner/Laundry attendant	10,187.00
Watchman	11,409.00
Driver	12,207.00

Source: Ministry of Health, 2009
**1US$ equals approximately 150 Malawian Kwacha*

At district level, it has been a tremendous challenge to allocate more MoH human resources to peripheral areas. For instance, despite the intention to upgrade Thekerani to the level of a rural hospital, the facility depends heavily on MSF staff as MoH staff are often not present. The vacancy levels for different cadres in different MoH facilities are shown in Table 17.

Table 17. Vacancy levels for different cadres within MoH system.

Cadre	Location	Nr. end 2009	MoH establishment	Vacancy
Medical Doctor	District Hospital	2	6	76%
Clinical Officer	District Hospital	17	65	74%
	Health Centres	1	23	96%
Medical Assistant	District Hospital	7	24	70%
	Health Centres	23	46	50%
Nurse	District Hospital	50	128	60%
	Health Centres	42	368	89%
	Community	13	12	100%
HAS	Entire district	501	560	11%

Source: HR Office, Thyolo District Health Office

The DHMT in recent times has explored possibilities to use a rotational system for nurses and clinicians to temporarily man the hard-to-staff facilities. This system needs further exploring and could potentially be used to also include Improved Health Posts.

It is remarkable that the DHO has made 17 nurses available for the community programme, which therefore is the only programme reaching establishment levels. This choice for a comparatively large human resource allocation to the community programme is a result of the DHMT's emphasis on chronic disease and other outreach care. These nurses, however, operate from the district hospital on a daily basis, relying heavily on (MSF) logistics.

In general, it can be stated that there is a tremendous lack of proper coordination and management of human resources at district level, even though some improvements were made in recent times. The monitoring of staffing levels has been challenging but is improving. Absenteeism, however, is still common and staff availability, performance and allocations are poorly supervised.

The donor-driven system to supply sitting allowances for meetings and trainings has led to people perceiving allowances as justified top-ups to their salaries. Meetings and trainings are not always attended out of the right professional motivation. Some staff attend meetings and trainings which are completely irrelevant for their daily work, aggravating absenteeism at the work place. An important reason that a position as programme coordinator is popular, are the possible allowances that come with it.

Task-shifting

As a consequence of low staffing levels and the resulting high workload, task-shifting to cadres with less formal training has been applied in Malawi, in order to ensure access to care. In Thyolo, this approach has been adjusted and rigorously applied, especially with regard to HIV/ART care, including –though to a more limited extent- care for HIV-positive children. This has made increased access to ART care possible, while still ensuring decent outcomes as explained in the HIV-section on page 81.

Table 18 shows which tasks have been shifted at different levels.

Table 18. Task-shifting in Thyolo.

Task	***Past***	***Current***	***Future***
Hospital			
HTC	Nurse	HSA counsellor	HSA counsellor & PLWH
ART/OI care	MD	CO & MA	CO & MA & nurse
Dispensing ART/drugs	Pharmacists	Nurse/pharmacy technician	Dispenser
Ward rounds	MD	CO	CO&MA
Complicated cases & treatment failure, 2nd line	MD	MD	MD&CO
Health Centre			
HTC	Nurse	Lay counsellor	PLWH
ART initiation	MD	CO & MA	MA & nurse
Follow Up, OI management and referral	MA	Nurse&MA	Nurse/MA/trained HAS
ART dispensing	MA & Nurse	Nurse & HAS	HSA
Improved Health Post			
HTC	N/A	HAS	PLWH
WHO clinical staging	CO	Nurse	Nurse
Group counselling	Nurse	Nurse & HAS	PLWH
Screening & OI management	MA	Nurse	Nurse
Defaulter tracing	Nurse	Nurse & PLWH	PLWH
Support group activities	Nurse	Nurse & PLWH	PLWH

The most important challenge at district level poses the shifting of tasks to Health Surveillance Assistants (HSAs). Their helping out at facility level has been instrumental in achieving access to ART, but MoH appears to increasingly restrict their activities to the community level. Also, MoH would like to keep HSAs as generalists, all with the same basic training. In contrast, others including MSF, have proposed to specialize some and have them perform a limited range of specific tasks, for instance HIV-related tasks. The latter approach would prevent this cadre with limited training having to perform many different assignments for different programmes, which would cause compromises to the quality of care in different areas.

Some HSAs in Thyolo have received additional training to perform specific tasks, such as ART refilling. However, they are legally only allowed to perform these tasks under supervision of nurses or clinicians.

Maternal and child health services

Perinatal care system

The perinatal care system is organized in different levels. Every mother and newborn should be managed at the level of care suitable for them: at health centre (primary level), district hospital (secondary level) or central hospital (tertiary level). In health centres, nurse-midwives are responsible for perinatal care. In the district hospital, nurse-midwives also provide most of the daily care. In addition, COs do ward rounds in the maternity ward and infrequent rounds in labour ward. They are also called in case of complications.

Previously, the maternity and labour wards, were supervised by one of the authors (TvdA) in his capacity of VSO Medical Officer. Currently, these departments are being supervised by a senior clinical officer, who has often been absent because of other duties during the past year. This has compromised the quality of supervision of (intern) clinical officers and nurse-midwives, even though other hospital doctors can be consulted for difficult cases.

At tertiary level, gynaecologists and registrars are available for consultation, but difficult to reach and not always helpful. Transport and communication around urgent referrals are often problematic due to logistical difficulties, as described in relevant sections on pages 49 and 50. Management and referral should be following written and easily available guidelines and protocols. A number of, sometimes outdated, protocols for emergency obstetrics are present in most health facilities. Reasons for HCs to refer to secondary level are described in Table 19. Interestingly, in the semi-urban area Bvumbwe market where prostitution is common, complications of abortions are relatively frequent which may indicate a higher number of induced abortions. It must be noted that Cephalo-Pelvic Disproportion (CPD) is often not properly evaluated and most certainly over-diagnosed.

Table 19. Top-five of reasons for referral, per BEmOC site, between July 2006 and July 2008.

	Reason for referral	**Percentage**		**Reason for referral**	**Percentage**
	Chimaliro (492)			**Bvumbwe (273)**	
1	CPD	18.5%	1	Abortion	28.9%
2	Primigravida	13.4%	2	CPD	12.1%
3	Abortion	11.2%	3	Previous scar	6.6%
4	Prolonged first stage	5.3%	4	Breech	6.6%
5	Previous scar	4.5%	5	Prolonged first stage	4.0%
	Mikolongwe (252)			**Khonjeni (163)**	
1	CPD	35.7%	1	CPD	23.3%
2	Slow progress	13.1%	2	Abortion	17.2%
3	Abortion	9.9%	3	Slow progress	8.6%
4	Previous scar	6.0%	4	Previous scar	7.4%
5	Twin gestation	4.8%	5	Primigravida	6.8%
	Thekerani (102)				
1	CPD	16.7%			
2	Slow progress	11.8%			
3	Prolonged first stage	10.8%			
4	Prolonged second stage	7.8%			
5	Primigravida	6.9%			

Referrals should be accompanied by a referral letter and partogram if indicated, and proper management, for instance resuscitation or administration of intravenous antibiotics or magnesium sulphate, should have been started at the HC.

Based on the catchment area and a 15% rate of complications requiring comprehensive obstetric care at a hospital, a number of expected obstetric complications per area can be calculated (Table 20). However, the observed referrals are well below these numbers of expected complications. The main reason is that many women deliver at home. BEmOC sites refer varying percentages of admitted women. One possible reason for the differences between centres is the varying physical distance to the secondary level.

Table 20. Number of Expected Obstetric Complications per major TA

HC	EOC*	Observed referrals 2007	Percentage of referrals in 2007
Chimaliro	341	176	18.10%
Bvumbwe	497	130	11.40%
Khonjeni	232	64	8.50%
Thekerani	170	31	5.60%
Mikolongwe	133	136	16.20%

** According to Health Management Information System: 15% of pregnant women in catchment area*

Overall, there is little attention for psychological and social problems of women experiencing complications. It was attempted by the authors to integrate counselling into the postnatal visit recommended at six weeks for women who had experienced serious complications during pregnancy and childbirth in TDH, but this turned out to be difficult because staff have little time for and knowledge about postpartum psychosocial support. The postnatal visits still purely focus on physical well-being and postnatal mental problems are rarely diagnosed.

Antenatal care

Antenatal care is delivered throughout the district by nurse-midwives: at hospital, health centre and even –to a limited extent- at community level. Throughout the district, 24 facilities and 16 outreach clinics provide antenatal care to the target population of almost 30,000 pregnant women in the district yearly. Of all pregnant women, almost 90% went for at least one antenatal visit during pregnancy in 2009. Less than 10% of the women had their first visit in the first trimester. Approximately 8% of planned outreach antenatal clinics in 2009 had to be cancelled, because of lack of transport or cars being poorly equipped to pass bad roads during the rainy season.

During ANC all women are supposed to be screened for HIV, syphilis and anaemia. Urine analysis using a dipstick is performed at first visit if available, but the beneficial value of this screening method in the first visit in asymptomatic women is questionable. Monitoring of blood pressure and foetal growth is of doubtful quality and a proper risk assessment and making of a birth plan do not always take place. According to the risk assessment, mothers should receive health promotion, adequate care and advice on which level of care to attend. Table 21 gives some indicators related to antenatal care.

If women are tested HIV positive, they are referred to the PMTCT program. At hospital and health centre levels, PMTCT is integrated in ANC; at community level, however, there is no integration of PMTCT, leading to a questionable quality of antenatal care during outreach clinics, with most likely high losses to follow-up of HIV-positive women. A detailed description of the PMTCT programme is given in the relevant section on page 73.

Pregnant women are supposed to receive iron supplementation during every visit and malaria prophylaxis (SP) twice. Guidelines for a complete workup are not

available in Thyolo facilities, but are, according to a number of midwifes interviewed, "learned at school". In reality, women often do not receive comprehensive care with all relevant tests and treatment, due to lack of nursing time, antenatal contacts, test kits, equipment, knowledge and guidelines.

Table 21. Antenatal care, 2008 -2009

Indicator	
Antenatal care first visit in first trimester, coverage	<10% [1]
Antenatal care, at least one visit, coverage	88% [1]
Number of VDRLs positive during ANC (2008-2009)	1034 [1] (almost 5% of pregnant women at ANC)
Tetanus toxoid vaccination during pregnancy (2 or more), coverage	60%[2]
Iron supplementation during ANC, coverage	85%[2]
Complications of abortions treated (2008-2009)	592[1]
HTC coverage amongst pregnant women (2008-2009)	83%[1]
Number of pregnant women newly tested HIV positive (2008-2009)	2806 (9% of total pregnant population) [1]
Number of women who received postpartum care within two weeks of delivery (2008-2009)	10509 (34%) [1]

1. Health Management Information System, Thyolo District Health Office 2009
2. Demographic and Health Survey 2004

In the district hospital, low-risk and high-risk mothers are admitted together into the same antenatal ward, which is therefore crowded (often up to 100 patients). Because triaging at the ward is generally not done formally, high-risk mothers are sometimes forgotten, even though they should receive regular reviews according to protocol.

During audit sessions, inadequate identification and monitoring of high-risk cases, insufficient handing over between nurses, unclear communication between nurses and clinicians as well as delays in decision-making have been identified as contributing factors to maternal and neonatal morbidity and mortality. Some improvements have been made over time, as a result of audit, but much work remains to be done still.

Four maternity waiting homes were opened in BEmOC sites in 2009. It is hoped that many women, especially pregnant women at risk of complications, will make use of these facilities. Their effect should be evaluated in the near future.

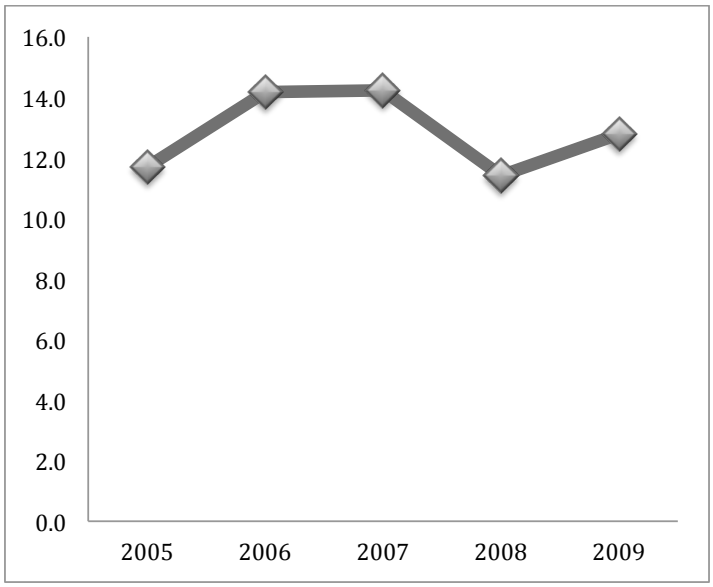
Intrapartum care

Normal labour starts with the first regular contractions, and ends with the delivery of membranes and placenta.

Many women in Thyolo District still deliver outside formal health facilities with assistance of a relative or traditional birth attendant. According to the 2004 DHS around 50% of the deliveries took place outside the formal health sector. However, the number of women in Thyolo who deliver at health facilities has increased markedly in recent years and coverage was estimated to be around 65% in 2009. In HCs, the number of deliveries almost doubled. Many efforts underlie this achievement: the post-delivery non-monetary incentive packages supported by MSF appear to play the most important role, but also important are the Community-Based Maternal and Newborn Care Initiative supported by Save The Children, as well as efforts to improve the quality of obstetric care, with critical incidence audit being an important tool. In addition, efforts by the government to stop TBAs from providing intrapartum care may have contributed. These factors have recently been investigated more closely and documentation is under way.

In 2009, around 350 deliveries were conducted per month in TDH. Figure 2 shows a C/S rate between 10 and 15% over the past years. In Malamulo hospital, around 120 deliveries are conducted monthly, with a comparable caesarean section rate.

Figure 2. C/S rate Thyolo District Hospital



Intrapartum care, when uncomplicated, is delivered by registered nurse–midwives and nurse-midwife technicians. In the district hospital, COs are called for in case of complications. Most qualified clinical officers are relatively experienced in obstetrics, but some inexperienced intern clinical officers do take major decisions without supervision of seniors.

In order to monitor labour, and the maternal and foetal condition, the partograph is used during every delivery in every health facility. Audit has shown that inadequate use of the partograph is an important reason for complications, sometimes with fatal consequences. Over the past years, a number of short trainings and significant on-the-job coaching have taken place –also as a result of audit-, but continued attention is needed.

In most health facilities, emergency case management protocols for obstetric complications are present and clearly displayed on the walls. In health centres, usually the most important emergency drugs are available to stabilize patients for referral. MSF nurses are assisting their MoH colleagues more and more in updating of drug stocks. Magnesium sulphate was made available at BEmOC HCs for stabilization of patients, as a result of audit.

In addition, HCs usually have intravenous antibiotics, appropriate anti-malarial drugs, oxytocin, intravenous fluids for resuscitation and urine catheters. In BEmOC centres, equipment for vacuum extraction and manual vacuum aspiration is available and manual removal of the placenta is performed.

As a result of audit, standard patient monitoring and treatment sheets for (pre-) eclampsia are available in the hospital and routinely used. Procedures requiring anaesthesia are currently only performed in the two major hospitals by clinicians; the plan is to open a small operating theatre in Thekerani Rural Hospital later this year. In TDH, significant delays occur in arrival of theatre staff for emergencies. Staff stay at home during on-call hours and are picked up by hospital transport in case they are needed. Despite some improvements as a result of audit, there is still a lack of documentation of anaesthetic follow-up (for more details see chapter on surgery, page 89).

After the birth of the child, oxytocin is routinely given intramuscularly in all facilities. Ergometrin and misoprostol are also available in the hospital, but not easily accessible and rarely used. Some HCs have had stock shortages of oxytocin, due to inadequate following of ordering procedures.

Postnatal and neonatal care

The puerperium starts after delivery of the placenta and lasts for 42 days.

In most facilities, babies are put to the mother's breast within the first hour (see section on BFHI, page 75). An hour after the completion of the third stage of labour, mothers are followed up in the maternity ward of the facility. Their physical and mental condition is supposed to be evaluated routinely by a skilled health worker. This evaluation includes the checking of vital signs, examination of the fundus, assessment for vaginal bleeding and an enquiry whether the mother feels comfortable. The latter, if mother or guardian do not explicitly complain, rarely happens.

The length of stay in the facility after delivery depends on the condition of mother and neonate. Mothers who had uncomplicated deliveries leave the health facility normally after 24 hours, provided that their child is well. Before discharge, breastfeeding needs to be sufficiently established. The mother is advised to report to a health facility in case of problems and is asked to come for a postnatal visit one week after discharge. Post-partum health promotion in TDH happens during health talks to groups of women, in HCs a little more individual attention is given. The one-week postpartum visit includes checking for early postpartum complications by a trained health worker. According to HMIS figures for the administrative year 2008-2009, 10,509 women (34% of all deliveries) received postpartum care within two weeks of delivery.

A second visit, six weeks postpartum, is then promoted. A review is done by a trained nurse or midwife in order to evaluate whether the mother has returned to her normal daily activities and whether there are any signs of serious mental of physical problems. The growth and development of the infant are assessed and breastfeeding is checked. Importantly, family planning should be organized during this visit and vaccinations for neonates are given according to the national immunization schedule (see the section on EPI, page 76). This integration of services is essential in order to reach adequate immunization levels among under-fives and meet the need for family planning. The implementation of a quality six-week visit requires reinforcement still.

Child health services

Basic preventive services for young children, such as immunisation, growth monitoring, nutritional advice and other health promotion activities, are delivered throughout the district at hospital, health centre and even –to a limited extent- at community level by outreach clinics. Treatment of ill children is mostly offered at primary care level: the health centre or –to a limited extent- the improved health post. In case a higher level of care is needed, children are referred to the district hospital.

Community outreach clinics are undertaken by nurses who are assisted by the community health surveillance assistants. In HCs, children are seen by nurses or medical assistants. HCs usually do not have separate clinics for adolescents, but some do have dedicated clinics for under-fives. Most children, however, simply queue up together with adults. The hospital has a large, fairly well integrated Maternal and Child Health (MCH) department and a paediatric ward. Children of up to 12 years of age are admitted into the paediatric ward. Older children are usually admitted into the adult wards, unless the nurses deem them to be 'small in size'. In the paediatric ward, rounds are done on a daily basis by clinical officers, and the ward supervised by a very committed senior clinical officer. For more complex cases, the medical doctors available in the hospital are consulted. A small number of cases, mainly children with surgical problems or those in need of chemotherapy, is referred to the tertiary level. According to the referral register, five cases were referred over the three months prior to the time of writing, four of them for specialized paediatric surgery.

In general, children are not prioritized over adults and triage prioritizing (ill) children is poorly practiced in most health facilities. Children are often not regarded as full individuals with special needs and most of the times they are not directly addressed by health workers. All attention is given to the guardian, and young children in particular are often not talked to. The attitude towards adolescents may sometimes be negative, especially if they come with needs related to their sexuality. Like any other patient they only receive very little information from health workers.

School health services and services dedicated to adolescents are only minimally available in the district. These services are described in the sections on the specific programmes related to these services (School Health, page 79; Youth Friendly Services, page 78).

Ministry of Health programmes

General remarks

Currently, there are 42 running health programmes in Thyolo District. Some of these specifically focus on maternal and child health. Others have a larger or smaller component dedicated to maternal or child health care, or are more indirectly related to maternal and child health.

Table 22. Ministry of Health Programmes

MCH-related programmes	*Other health programmes*	*Programmes not included in this analysis*
Safe motherhood (page 67)	HIV/AIDS, HTC and ART (page 81)	Onchocerciasis
MCH (page 68)	TB (page 82)	Water and Sanitation
Family planning (page 68)	STI (page 83)	Occupational Health
ITN (page 70)	Malaria (page 84)	Food and Hygiene
PAC (page 70)		IEC-IDSR
ARI (page 71)	CHBC and Non-Communicable Diseases (page 85)	Infection Prevention
ETAT (page 71)	Nutrition (page 86)	Health and Safety
IMCI (page 72)	Mental health (page 87)	Eye, Skin and Dental programmes
PMTCT and EID (page 73)	Care for Carers (page 87)	Filariasis
BFHI (page 75)		
CMNC (page 76)		
EPI (page 76)		
Youth friendly services (page 78)		
TBA (page 78)		
School health (page 79)		
Cervical cancer (page 80)		

All these programmes are vertical programmes, with a top-down approach from different departments within the central MoH, such as the Reproductive Health Unit, the HIV/AIDS unit and the National Tuberculosis Programme. At district level, every programme has its own programme coordinator who reports on specific activities. Programme indicators are usually set by the national level.

The District Nursing Officer (DNO) has the overall responsibility for reproductive health in the district, reporting directly to the DHO. The programme coordinators report to DNO, DHO or DEHO, depending on the scope of their programme. How programmes are grouped together at district level and how coordinators liaise with each other is unclear and none of the interviewed programme coordinators has been able to clarify this.

Programme coordinators are appointed by the DHMT. They are not always chosen on the basis of specific competencies, experience or motivation, but the professional degree and the years of service within the MoH play an important role in the decision. Still, programme coordinators are often inexperienced and usually poorly

coached by their busy superiors. Each programme coordinator also has many additional tasks, including clinical duties as a regular health worker. The collection of crucial data is often difficult, because of inadequate monitoring tools, or lack of record keeping in facilities. Data analysis may be problematic due to lack of time and experience. Therefore, many programme coordinators fail to sufficiently monitor their programmes. Few of them have been able to produce a year report eight months after the end of the administrative year 2008-2009. Moreover, data are sometimes difficult to access at district level, as many reports are sent to the central level for analysis, and feedback is not always provided.

It is important to note that, despite the challenges related to the management of these programmes, certain areas of care which do not have programmes assigned to them (for instance non-communicable diseases and surgery) are underdeveloped, probably due to a lack of guidance from central level.

Safe motherhood

The safe motherhood coordinator is supposed to collect data on mode and number of deliveries and on maternal and neonatal morbidity and mortality. In addition, the programme coordinator should take the lead in organizing maternal and neonatal death audit. Analysis of data and audit should lead to recommendations and actions for better care.

However, in Thyolo, the coordinator of this programme has been replaced three times during the past year. This has led to incomplete reporting and minimal action in the safe motherhood programme.

Audit

As part of the safe motherhood programme, obstetric audit has been implemented in Thyolo District, mostly at the initiative of the authors and the previous DHO. The initiative has been well-sustained in recent times, with involvement from the current hospital management and the maternity team. Cases of maternal mortality and some cases of severe maternal morbidity have been openly discussed with hospital staff (both MoH and MSF) and management; the implementation of resulting recommendations was monitored. Feedback to involved HCs is given, and follow-up into the community has been done on a number of occasions.

The monitoring of maternal mortality and morbidity, and the effects of audit have been researched in the Study to Maternal Mortality and Maternal Morbidity in Thyolo District Hospital ("4M-study"), as described in the chapter on operational research (page 91).

MoH also advises performing audit on neonatal mortality. Even though some audits have taken place, this advice has not been fully implemented, also due to an already rather high caseload of maternal complications.

Maternal and child health programme

The Thyolo Maternal and Child Health (MCH) Programme focuses on routine services for children under the age of five years and for pregnant women. Primary MCH services are delivered at the MCH departments of hospitals and health centres and during outreach clinics.

At the so-called 'scale' or under-five clinic, growth monitoring is performed in under-fives, and caregivers receive health promotion and nutritional advice, including advice about weaning practices. For growth monitoring the 'road-to-health-chart' is used. The quality of these under-five services is questionable: charts are not always correctly interpreted, explanation and encouragement to mothers is often inadequate and referral practices are poor. All this is likely the result of lack of time, knowledge and motivation on the providers' side. The MCH programme is also responsible for antenatal services.

In addition, its coordinator, together with the EPI Programme Coordinator, organizes Child Health Days twice a year.

On Child Health Days, taking place twice a year, vitamin A is given to all children between six and 59 months (recent coverage according to the EPI Programme Coordinator is above 95%) and to postnatal mothers in the community, albendazole is supplied to de-worm under-fives, sanitation messages are given and other activities such as supplementary measles campaigns and bed net re-treatment are undertaken.

Family planning

The most recent FP policy promotes new approaches for accessing and expanding family planning services such as community-based delivery of contraceptives and social marketing. FP is now discussed more openly than ever before and the contraceptive prevalence rate in Thyolo District for 2008/2009 stood at 39% of women in the fertile age group. This is however still below the target of 45% set by the DHMT for June 2012 [6].

FP methods available in the district today are: male and female condoms, oral contraceptives, depo-provera injections, intra-uterine contraceptive devices, subdermal implants and bilateral tubal ligation. Only one vasectomy was performed in the past two years, at BLM.

FP is provided at hospital, HC and community-levels, but entry points are limited in number and not all facilities provide the complete FP package. FP, in most facilities, is not integrated into other MCH services and is conducted on specific clinic days. Thekerani RH is a positive exception in this respect. Currently, TDH has only one entry point for FP, the dedicated clinic located at the MCH department. HCs are supposed to provide daily FP services, but this is not happening everywhere. The community department increased the number of outreach clinics for FP to 30, each

visited on a monthly basis.

In the year 2008-2009 around 2000 bilateral tubal ligations were done in the district, of which only 50 in Thyolo District Hospital and most of the rest by BLM. To increase the number of tube ligations, a number of clinicians have been trained to perform this procedure under local anaesthesia. The hospital management looks into the possibilities to provide daily services in the hospital. The challenges in the surgical programme in the district, as outlined below on page 89, have to be addressed to increase access.

Within the family planning programme, there is a fairly new component called the "Comprehensive Condom Programme" which is responsible for the distribution of male and female condoms and for conducting community awareness campaigns.

Considering the high unmet need for FP in the district (28%, DHS 2004) with only around 50% of the demand for FP satisfied, MoH and MSF have planned to upgrade the FP services for the whole district in 2010. Recent figures from the 4M-study in Thyolo indicate that one quarter of all uterine ruptures in TDH occurred in unwanted pregnancies [23]. It can be stated that many severe complications could be prevented if the need for FP was met to a larger extent.

To date, MSF has not invested much in FP, and many MSF staff feel that this is an important gap in the programme. The MSF plan for 2010 is to support FP services, in close collaboration with MoH, and increase entry points to:

(1) different hospital departments (PMTCT+, < 5 clinic, CCC and OPD). This will be done by training two HSAs to provide oral contraceptives and depo-injections, tasks which they are legally allowed to perform, and five nurses (who are already FP providers) in inserting subdermal implants;
(2) all HCs, by refreshing nurses' skills on-the-job and providing implant training to nurses;
(3) the 14 IHPs: two HSAs will be trained in each site to give oral contraceptives and depo-injections [28].

In the community, Community-Based Distributing Agents have been trained to give contraceptive pills. These providers are not allowed to give these pills without an HSA supervisor present. Training of 28 supervisors will be shared between MSF and MoH.

The HIV-era has posed specific challenges on health workers to provide correct messages to PLWH regarding FP. A number of health workers in the district have expressed discomfort in offering FP to HIV-positive women. They feel that any offer would mean a "double message", as condom use is advised strictly, and "abstinence" is a notion endorsed by some.

Other health workers stress the need to offer FP to all, and intend to respect the right of every woman, HIV-positive or –negative, to make an informed choice on FP methods. In 2010, discussions are planned to come to a common and respectful approach. Given the social and cultural sensitivities around the subject reaching consensus may not be easy.

Insecticide-treated bed nets

Free Insecticide-Treated Nets (ITNs) for under-ones during vaccination visits and for pregnant women upon the first antenatal visit were introduced in Malawi in 2006. From 2008, the target group was extended to include under-fives. Nets are distributed routinely in health facilities and via periodical mass distribution.

During the past years, an increasing number of ITNs have been distributed. In November 2008, the ITN programme conducted a census at community-level and found reasonable coverage of use of ITNs for under fives (77.6%) and for pregnant women of 36.8%.

With continued high distribution in 2009, in which year almost 30,000 nets were distributed to under fives and 10,000 to pregnant women, a better coverage is expected. The programme also organizes activities to improve the utilization of ITNs. In the hospital, ITNs are not consistently provided to patients.

Post-abortion care

To reduce morbidity and mortality from spontaneous and induced abortion, the MoH has developed a national Post-Abortion Care (PAC) strategy and guidelines in 2001, after a needs assessment in 1999. This assessment showed: (1) a high incidence of complications of abortions amongst adolescents, (2) lack of community awareness and health promotion messages around infection prevention (3) fragmented services for PAC.

The programme was implemented in Thyolo District Hospital in 2003. It provides health care providers with the necessary knowledge on the causes and differential diagnosis of vaginal bleeding, and with skills related to the assessment and preparation of patients, the provision of emergency PAC, pain management, the manual vacuum aspiration (MVA) procedure, post-abortion family planning counselling, management of complications, emergency contraception and other PAC services.

PAC in the hospital mainly entails conducting MVAs and evacuations. In the eight months between July 2009 and February 2010, 159 MVAs were performed, an average of 20 per month. There are only four MVA sets, leading to some delays in management. Every patient who underwent MVA receives post-abortion FP counselling. The FP counselling after evacuation is not well implemented. This may improve in the near future, when female ward will become an entry point for family planning. In the past years, five COs and two nurses in the hospital have been trained in PAC. Of these workers, four remained in Thyolo district, and only two are currently working with the target population. Emergency contraceptives are rarely prescribed in the A&E department, and generally only in case of sexual abuse.

Out of the four (BEmOC) health centres that are supposed to provide PAC services,

the only facility where MVAs are performed is Khonjeni HC. It seems that a lack of tables or beds required for the procedure is withholding other HCs from providing MVA services. At the time of writing, there is no Programme Coordinator for PAC services in Thyolo District.

Acute respiratory infection programme

MoH introduced the Acute Respiratory Infection (ARI) programme in order to reduce mortality of pneumonia in under-fives. The programme has provided treatment protocols for children with mild, moderate and severe pneumonia, both for HIV-positive and HIV-negative children. In order to monitor pneumonia cases, clinicians in the hospital fill out a form for each patient, providing information on severity, treatment and outcome.

Currently, the programme coordinator collects these data only for hospital admissions. According to him, the number of admissions for pneumonia increased and the mortality of in-patients decreased from 14% in 2007, to 7% in 2009. The national target is a mortality below 4%. The coordinator states these numbers can be explained by an earlier identification of cases in the community due to improved health promotion on ARI, and by using clear guidelines and referral criteria.

Emergency triage assessment and treatment programme

The Emergency Triage Assessment and Treatment (ETAT) programme aims at reducing mortality in under-fives within 24 hours after admission. The national target is that this mortality should be below 4%. With the introduction of the programme in Thyolo District Hospital, a number of clinical staff and 40 support staff members (clerks, maids and HSAs) have been trained in triaging, and categorising patients into three categories.

The programme coordinator is supposed to achieve the target by ensuring a good stock of emergency treatment, availability of emergency equipment and good knowledge among staff about managing emergencies in under-fives. The programme coordinator is also responsible for keeping records and evaluating data. Unfortunately, there has not been a coordinator for the programme since late 2009. This has contributed to the reality that no evaluation has been undertaken. In general, triaging and emergency management appear to be poorly practiced.

Table 23. ETAT-related indicators

Period	# of paediatric admissions	# paediatric deaths all ages (case fatality rate)	# deaths <5 years (case fatality rate)	# of deaths < 5 y in first 24 hrs	Percentage # of deaths < 5 y in first 24 hrs of # deaths <5 y
2008 Jan-Dec	3198	469 (14.7%)	408 (12.8%)	163 (5.1%)	40%
1st quarter 2009	1933	190 (9.8%)	171 (8.8%)	67 (3.4%)	37%
2nd quarter 2009	928	96 (10.3%)	84 (9.0%)	25 (2.7%)	30%

Source: ETAT-coordinator annual report, 2008-2009

In general, systematic triage is poorly practiced in most health facilities in Thyolo, both in adults and children. Informal triage happens in most places, and patients with an obviously serious acute condition are accepted to skip the lines. Those without a stout guardian, however, or those who are seriously but not outwardly ill, may end up waiting. Children are in general not prioritized over adults, even though most facilities run specific under-five clinics.

Integrated management of childhood illness

In order to improve integration of services and offer comprehensive health promotion and case management for the five most common causes of under-five mortality, Malawi has started to implement the Integrated Management on Childhood Illness (IMCI) strategy. The IMCI strategy includes preventive and curative elements and focuses on families, communities and health facilities.

The programme responsible for the implementation of the IMCI-strategy in Thyolo has two motivated programme coordinators: one for "facility-based" and one for "community-based" IMCI. The coordinators stress that the IMCI-strategy is not a vertical programme but rather an approach to incorporate a strategy throughout all levels of child health care.

The national target, based on a WHO recommendation, is that 80% of health staff should be trained in IMCI. Currently, 67 workers have been trained, comprising 24% of the total staff. Five Trainer-Of-Trainers were trained in IMCI community case management. These facilitators have the potential to train HSAs in basic IMCI management at community level; 22 HSAs were trained in October 2009. Those HSAs have started Village Health Clinics in January this year. The HSAs provide first-line treatment for pneumonia, malaria, diarrhoea, fever and eye infections. The programme has not yet been evaluated, but seems to be welcomed by the community.

In facility-based IMCI five Trainer-Of-Trainers were trained. These are able to train nurses and clinicians. One IMCI supervision was conducted in 2008, which showed that in all HC there are one or two staff trained in IMCI and most health facilities had IMCI guidelines available.

The plans in the DIP 2010-2011 are to: (1) increase the number of trained health workers: 80 nurses and clinicians in the facilities, 72 HSAs, as well as the telephone operators at the switch board (2) conduct more technical supervision of trained health workers (3) enhance multi-sectoral collaboration as part of the Accelerated Child Survival and Development plan, establishing a relation with other relevant sectors, (4) reduce the proportion of under-fives presenting with severe disease at TDH from 13.3% late 2009 to 8% by December 2011.

As the most important challenge to the implementation the coordinators mention the lack of funds to train health workers. Despite submission of numerous proposals, no funds were received from UNICEF for facility-based IMCI in the past two years. Only community-based IMCI received some –limited- funding to train HSAs. Another challenge is that in-charges of HCs have been poorly informed on IMCI activities that are to be performed by HSAs, and some have refused to give out IMCI drugs to them.

Prevention of mother to child transmission and paediatric HIV care

Despite experiencing significant challenges to full implementation nationally, the implementation of the PMTCT programme has led to important achievements in Thyolo, by and large because of MSF support.

All pregnant women in Thyolo who present at ANC are offered HTC. Less than one per cent of women in Thyolo opt out from testing. The only challenge to continue the 99% HTC coverage at ANC has been the recent shortages in the supply of HIV tests.

During ANC, if being found HIV-positive, women are screened for HIV-related symptoms and assessed according to the WHO clinical staging system. All women have their CD4 count taken. CD4 sample collection happens in 27 sites. Women in WHO clinical stage 3 and 4 and all women with a CD4 below 350 cells/mm3 are started on ART. The threshold stood at 250 cells/mm3, but was raised recently after vigorous advocacy, including by MSF coordination. All HIV-positive women receive cotrimoxazole prophylactic therapy regardless of CD4 count. Monitoring of HIV-positive mothers and their children within the programme is organized until 12 months after delivery.

Scale up of a combined PMTCT regimen happened to a total of 27 facilities in the district, including TDH, of which 20 sites use the improved zidovudine (AZT) protocol, providing AZT to women from 28 weeks gestation. Anaemia is the most important side effect of AZT. Seven facilities do not yet possess Haemocues© to monitor for the occurrence of anaemia, but these are budgeted for this year.

From August 2007 onwards, an early infant diagnosis programme has been introduced. Infants of HIV+ mothers are tested from six weeks of age using the Dried Blood Spot (DBS) sample collection technique for PCR on HIV-1 DNA.

With a negative DBS-result and after weaning at six months, a rapid HIV test is performed at 9 months, if again negative followed by a repeat test at 12 months. If any of these rapid tests turns out positive, a DBS PCR is performed. Children in the PMTCT programme receive nutritional follow-up support throughout the first year of life. Children who sero-convert are referred to an ART clinic providing children's care. An operational research in TDH is ongoing to evaluate the use of Kaletra syrup for treatment to children who were exposed to nevirapine, to which they could have developed resistance while it is part of ART-prophylaxis to mother and child.

Out of 659 children in the PMTCT programme who were tested at six weeks of age, only 11 tested positive (1,7%, January - June 2009). However, one has to bear in mind that this percentage is calculated over those babies seen at the health facility, estimated at approximately 33,5% of the total number of six-week old exposed babies.

The cessation of breastfeeding at six months in HIV-positive women poses a significant challenge to the PMTCT programme. Until a recent decision was taken to end this practice, women in Thyolo were given cabergoline to suppress lactation at six months. Many women do not want to stop breastfeeding, also out of a fear to be stigmatized. In addition, it is observed that infants who have been weaned, despite receiving nutritional support in the form of Ready-to-Use Therapeutic Feeds (RUTF) often fail to grow.

The MSF team in Thyolo has requested support from their head quarters to supply lactogen in addition to RUTF for weaned children up to 12 months of age, and to continue RUTF up to 18 months. This is pending approval.

The ultimate solution for the PMTCT programme, however, would be the implementation of the recent WHO recommendations as formulated in the rapid advice for PMTCT. The HIV unit has recently expressed the desire to implement ART to all HIV-positive pregnant women from 14 weeks gestation, suggesting to even provide lifelong ART for these women. This would go even further than the WHO recommendation which suggests cessation of ART protection after cessation of breastfeeding in women with a CD4 count above 350 cells.

If the MoH lobby succeeds and donors are willing to commit to this proposal, this would mean a tremendous simplification and improvement of the PMTCT protocol. This lobby is much supported by MSF coordination. This improved protocol is expected to reduce vertical HIV-transmission to rates as low as 1-2%, while at the same time allowing for a continuation of breastfeeding, minimizing the nutritional compromise for HIV-exposed children. And, importantly, ART for life would allow for a simplified protocol which may be easy to implement and sustain, as long as a heavy short-term investment is guaranteed.

In addition to the difficulties with the PMTCT protocols, there are two main challenges to the PMTCT programme in Thyolo today:

1. The integration of PMTCT care in ANC.

PMTCT care still relies heavily on MSF support. Efforts need to be undertaken to fully empower MoH staff to implement PMTCT. Moreover, all facilities in the district, as well as the outreach clinics, should provide the standard PMTCT protocol as an integrated part of the ANC package. This is not yet the case today, as can be judged from the above, and from the section on antenatal services (page 60).

2. The continued considerable loss-to-follow-up among mothers in the programme.

Like in other PMTCT programmes in the region, the loss-to-follow-up among mothers in the Thyolo programme has been unacceptably high. Therefore, a peer support system was started in September 2009, adapted from the South African "Mother-to-Mother-to-be (M2M2B)"-concept, and in Thyolo called "3M": Mai ndi Mai ndi Mwana. MSF has supported the training of 40 peer mentor mothers, spread throughout the district, in the hope to reduce the current high lost-to-follow-up rates. The success of this system will be evaluated late 2010.

Baby friendly hospital initiative

The WHO and UNICEF have drawn up *ten steps to successful breastfeeding* for hospitals [37]. If followed, a hospital may call itself a "baby friendly hospital". Thyolo District Hospital has acquired this status in 2008. The Programme Coordinator tries to promote the standards of practice, and organizes training for staff in skills necessary to implement the Baby Friendly Hospital Initiative (BFHI) policy.

Since the introduction of the BFHI programme in Thyolo 90 nurses, 42 HSAs, 170 other staff and 100 community volunteers have been trained. Due to the considerable staff turnover, and to staff rotating between different departments, the number of untrained staff in MCH departments is increasing. Some HC nurses have been trained in infant feeding, but have not implemented the policy in their facility. In one TA members of the safe motherhood committees have been trained in infant feeding.

Data which are supposed to be collected, such as the number of mothers initiating breastfeeding within half an hour after delivery or the number of women with breast conditions within 6 months after delivery, are merely just estimated by the Programme Coordinator, since they are not recorded in the hospital. Whether all mothers in the hospital are informed about the benefits of breastfeeding is not clear, but health talks are given at the MCH department every morning. The current level of implementation and the impact of the programme have not been measured.

For 2010, the coordinator wants to train and refresh staff, as well as to perform a study in the community to measure the impact of the training. This may be a challenging undertaking for her since she has very limited experience in doing such

assessment. During an interview, she also expressed the wish to support HCs in implementing the policy.

The latest WHO recommendations for HIV and child feeding [38] have been discussed in Thyolo and the Programme Coordinator attended. The most important proposed change in the new guidelines is that mothers known to be HIV-infected should exclusively breastfeed for 6 months, introduce appropriate complementary foods thereafter, and continue breastfeeding for the first 12 months of life, while receiving appropriate care to reduce transmission (see section on PMTCT). Women are advised to discontinue breastfeeding at 12 months, unless they cannot provide an affordable, feasible, acceptable, sustainable and safe diet and unless the baby is known to be HIV positive. Moreover, abrupt weaning is no longer advised [38]. These recommendations are currently under discussion at national and district level. The advice on infant feeding practices is therefore likely to change in the near future.

Community-based maternal and newborn care

This programme started by Save the Children in collaboration with UNICEF and aims to improve maternal and neonatal health at community level [39]. The programme equips HSAs with knowledge, attitudes and skills in maternal and neonatal health care. The HSA works hand in hand with community-based and facility-based workers. He visits households during the antenatal and postnatal periods and will motivate, inform and assist, in the promotion of health. The HSA mobilizes the community for maternal and neonatal health activities, keep records, and provide the most basic information and care for the target group.

The programme started with its preparations end 2008 and has slowly increased its capacity. The programme has 8 target areas: Thyolo Boma, Khonjeni, Malamulo, Thekerani, Thomasi, Mikolongwe, Bvumbwe and Chimaliro. In most of these target areas, all HSAs have received training. The impact of the programme in the areas with all HSAs trained will be evaluated mid 2010.

Expanded programme on immunisation

In 1979, Expanded Programme on Immunisation (EPI) became fully operational in Malawi [40]. The programme currently provides vaccinations for tuberculosis (BCG), diphtheria, tetanus and pertussis (DTP), poliomyelitis, measles, hepatitis B and Haemophilus influenzae type B for children, and Tetanus Toxoid Vaccine for pregnant women and women of childbearing age.

According to district HMIS-figures, the WHO-target of 90% coverage and the MoH-target of 85% coverage of all vaccines in the routine childhood immunization schedule are not reached.(see table). Nevertheless, the national EPI programme received an international award for excellence in February 2010.

Women should receive the first dose of the Tetanus Toxoid Vaccine during the first

antenatal visit (TT1). TT2 should be given four weeks after TT1 and at least 2 weeks before the Estimated Date of Delivery (EDD). The target coverage for fully vaccinated pregnant women is >60%, current coverage is around this threshold.

A major difficulty in the programme is the storage of vaccinations at health centres. A large number of fridges in these facilities run on gas, which is only infrequently provided by the DHMT. The cold chain is therefore regularly broken and many sites do not stock vaccinations for this reason.

Vaccination programme Malawi	
Day 1 after birth:	BCG, Polio 0
At 6 weeks	DTP1-HiB-HepB*, Polio 1
4 weeks later	DTP2-HiB-HepB*, Polio 2
4 weeks later	DTP3-HiB-HepB*, Polio 3
At 9 months	measles
* pentavalent formulation	

Table 24. Vaccination Coverage

Vaccination	*Estimated coverage*	*Vaccination coverage Thyolo, Demografic and health survey 2004*
BCG		97.9%
Pentavalent 3		88.4%
Polio 3		87.2%
Measles 1st dose	2007: 73% * 2008: 71% 2009: 88%	87.0%
Immunized fully under 1 year		74.8%

**Source: EPI coordinator, Thyolo District Health Office*

The target population for the measles vaccination are 9 to 11 months old children. One dose of measles vaccine is offered, and additional Supplementary Immunisation Activities, called "Integrated Measles Campaigns (IMC)", are regularly performed. These campaigns target 9 – 59 months old children.

A second measles-vaccination is not routinely given. An unknown number of children receives a second dose during a mass immunization campaigns. Some experts suggest that the measles immunization schedule in Malawi should be adapted to start at six months of age.

In 2009, there were 630 clinical measles suspects in Malawi, of whom 22 were confirmed using serological IgM-testing. At the time of writing, measles outbreaks are ongoing in Blantyre, Mzimba and Lilongwe. MoH intends to do a mass campaign for the whole population up to 15 years of age.

At the time of writing, a measles outbreak has also occurred in Thyolo. A mass vaccination campaign with MSF support was conducted and a district rapid response team was formed to increase case surveillance and management.

Youth friendly health services

This programme aims to give high quality services to all young people between 10 and 24 years of age [41]. It is delivered at hospitals, health centres, schools and CBOs. The intention of the Programme Coordinator is to train all health workers and supportive staff in how to provide health services in a way which is appealing to adolescents. After the training, service providers are supposed to be more knowledgeable about specific characteristics and needs of this age group, and better equipped with information and resources.

In addition, "youth health service points", called "youth corners" will be implemented in different levels. These service points will provide a comprehensive health package in a safe and supportive environment. The package should include health promotion, HTC, reproductive health services, mental health services and other primary care. To prepare for these "youth corners", several youth clubs from within the district have been invited to discuss the format and content of such clinics. Advertisement for the clinics will be done through health talks, peer education, and by putting up posters. Twenty-seven people, including 13 nurses, five clinicians, two HSAs and seven adolescents have been trained as services providers or trainers. Most of the programme implementation is expected to happen in 2010-2011.

However, until today, there are no dedicated clinics available for adolescents in Thyolo, and no special attention is given to youths attending existing clinics, including the clinics for Sexually Transmitted Infections (STI), HIV, mental health and antenatal care. Sometimes the contrary of 'best-practice' occurs, with young people being sent away from the family planning clinic or the HTC room. An unfriendly attitude towards pregnant girls and denial of their psychological needs is common.

Traditional Birth Attendant programme

In 2005, MoH presented the "road map for accelerating the reduction of maternal and neonatal mortality and morbidity in Malawi" [42]. In the road map, the plan was presented to change the role of Traditional Birth Attendants (TBAs) from delivery assistant to counsellor and point of referral to the health system. In October 2007, a law was passed in parliament, legally restricting the activities of TBAs. According to the Thyolo TBA Programme Coordinator, the law was effectuated in Thyolo in 2009, and most TBAs have since been informed on the law.

According to this law, TBAs are no longer permitted to conduct deliveries and are obliged to refer pregnant woman for antenatal or intrapartum care to a formal health facility. They may still give advice to women on making an appropriate birth plan. Although some reportedly have stopped their activities, many TBAs still provide maternal care, including assistance at delivery. In 2009 still almost half of the estimated deliveries in Thyolo occurred outside the formal health system.

The TBA programme mainly entails supervision of approximately 140 TBAs with the intention to encourage referral of women to formal health facilities. There has been no budget available to conduct the planned orientation to TBAs on referral guidelines. A recent discussion during the evaluation of the 2009 DIP revealed the controversy amongst health workers on whether capacity-building of TBAs should be done at all, since some argue that this would lead them to "continue the work they should not do".

Despite some reports of TBAs accompanying women to the facility, other TBAs are uncomfortable to do so, fearing to be scolded by health workers at the facility, as was confirmed to us during several interviews. Therefore, some women who started labour at the TBA but had complications have had to make their way to the facility alone. An obstetric audit was performed on the case of a woman who developed a ruptured uterus on the way between the TBA and the facility. She fortunately survived after being found by the side of the road.

Some community nurses have engaged in discussions with village headmen and other community leaders, with the aim of preventing TBAs from providing obstetric care. They report that their efforts have met varying levels of success. Some community leaders expressed concerns regarding care at the health facility, describing patients being received poorly and 'being shouted at', which prevented them from encouraging their women to go to the facility.

A decision was made to give non-monetary incentives (salt, sugar and soap) to TBAs who refer pregnant women and who hand in verifiable reports on how many referrals they have done. At the end of 2009, twenty TBAs had handed in such reports and were provided with the incentives.

School health

The School Health and Nutrition Programme tries to optimize the health status of school going children [43]. In Thyolo District, there are 186 primary schools and 29 secondary schools, with a total of 172,186 pupils. The classroom-pupil ratio in primary schools in the district is 1:117. Available classrooms only accommodate half of the school children. The other half attend school in open space, exposed to the different weather conditions. About 100 schools have sanitary facilities, 144 safe water supplies and 126 safe grounds and buildings.

The Thyolo DHO provides School Health and Nutrition services to 48 out of 186 schools. NGOs such as the World Food Programme and Mary's Meals support 64 additional schools with a school feeding programme.

School health programme activities currently entail visits by community nurses. During visits, pupils are: (1) physically examined (7% of all Thyolo pupils in 2008-2009), (2) treated for minor ailments (tinea capitis, conjunctivitis etc), (3) supplied with deworming tablets if available and (4) given referral advice for further services (dental or eye clinic). Unfortunately, the other recommended standard interventions, such as iron and vitamin A supplementation, and the administering of praziquantel have recently not been carried out. In all schools visited health promotion sessions were conducted. No policies or guiding documents for school health are publicly available in the district.

A more integrated approach to the health needs of school-going children, addressing their physical, mental, emotional and social needs, is not practiced in Thyolo District.

An important partner for school health is the Ministry of Education. Both the DHO and the District Education Office point out the importance of the school health programme, but state that a lack of resources in the district makes it difficult to improve the quality of the programme at this moment.

Cervical cancer

Cervical cancer is the most common cancer among Malawian women [44]. The MoH introduced a programme for cervical screening and prevention at the end of 2009. The screening makes use of visual inspection with acetic acid. In Thyolo District two nurses and one clinical officer have been trained to use this screening method and they are in the process of setting up a clinic in the MCH department in the hospital. The Programme Coordinator is the hospital matron.

All health workers in the district will be informed about the programme and will be able to refer patients to the clinic. All patients who are positive for acetic acid, which means that an acetowhite area is visible on the cervix after application, will be referred to the central hospital for cryotherapy. In the future, these services are supposed to be expanded to HCs. The cost-effectiveness of the programme and expected patient load seems unclear.

Other health programmes

HIV/AIDS

HIV testing and counselling

Where most HIV tests before 2004 were done by MSF, MoH has tremendously increased HIV Testing and Counselling (HTC) capacity over the past years [45]. This has led to the transfer of the MSF HTC programme to MoH and other partners in 2008. Currently, plans for district-wide door-to-door testing are under way, but the added value of such programme seems unclear.

Around 80,000 tests have been done every year for the past few years. There remain challenges, including stock shortages of HIV test kits in recent months, and the generally poor quality of the counselling, which is aggravated by a lack of supervision and on-job training, despite the efforts of MSF and MoH counsellor supervisors.

Especially the counselling of children has lacked quality. It is not common in Malawian society to address children directly, and there is often little attention for their psychosocial well-being. MSF responded to this need by recently recruiting a children support coordinator, but much remains to be done in this area.

Anti-retroviral therapy

The scaling up of ART has undoubtedly been the biggest public health achievement in Thyolo in the past decade, and arguably one of the biggest in the country. Since 2003, access to ART was scaled up with MSF support, achieving district-wide access in 2007, an achievement which has been sustained until today [45].

At the end of 2009, 21064 persons had ever been initiated on ART, of whom 15016 (71%) were still alive and on treatment in the district.

The achievement of universal access in Thyolo has been documented and is currently in press. It was reached through:

1. Simplification: use of a free, standardized and simple first-line regimen in a fixed dose combination with minimal laboratory monitoring.
2. Task-shifting, as explained in the section on Human Resources.
3. Decentralization of care.
4. Community engagement, through support groups and IHPs as described in relevant sections.
5. Strengthening the health system.

In 2009, the target to have 10% of the total initiations performed in children was narrowly missed, despite the increased attention for paediatric ART as described on page 84. Out of 4,891 initiations during that year, 453 (9.3%) were individuals below 15 year of age. It is hoped that with improved PMTCT protocols and better youth friendly services, the need for paediatric ART will reduce in the future.

Today, the main challenges for the ART programme are:

1. To retain the growing cohort in care. With this objective, MSF established a Patient Support Unit focusing on quality of counselling and on treatment literacy. It is important to mention in this respect the involvement of CMT as described in the section on support groups (page 46).
2. The identification of patients failing on the first-line regimen.
3. The number of patients with side-effects of the first-line regimen.

The national switch to a less toxic first-line regimen based on Tenofovir (TDF) instead of stavudine (d4T) will be a crucial step to deal with these challenges and is planned to take place following the recent WHO recommendations, pending approval of the GF Round 10 proposal.

Tuberculosis

TB incidence in Malawi increased with the emerging HIV pandemic. However, where the national ART response was quickly adjusted to the needs, the National Tuberculosis Programme has not followed suit. The rigid focus on a Directly Observed Treatment Strategy (DOTS) over the past years has hindered decentralization of treatment. Where the district has 10 initiation sites for ART, TB treatment has to be started in TDH or Malamulo hospital. Recently, an agreement was reached between MSF and the DHO to decentralize initiation of treatment to Thekerani Rural Hospital.

Follow-up TB care, after an initial admission for initiation, is done in most HCs, and is usually taken care of by HSAs without much supervision from other cadres. The integration between TB and HIV care is a challenge in some sites: drug refills are not always provided the same day.

TB detection has been scaled up in recent years. Eight smear fixation sites, and seven facilities doing smear microscopy are available throughout the district. Twenty-four HCs have “cough walk-in areas” where sputum samples are collected. Multi-Drug Resistant (MDR) TB is still rarely diagnosed in Malawi. In Thyolo, two cases have been identified in the past two years. TB culture and sensitivity testing is only done at the national laboratory in Lilongwe. MSF has decided to assist the laboratory of the College of Medicine in Blantyre with the implementation of the Thin-Layer Agar (TLA) culture methods. This laboratory could become a reference facility for the southern region in the future.

TB detection in children poses a particular challenge, which needs to be addressed more strongly. In the first 6 months of 2009, 9% of all TB cases were detected in children. The national target is between 10 and 15%. As sputa of TB-infected children are rarely positive, the diagnosis is usually based on history, physical examination, chest X-ray and empirical antibiotic treatment. Isoniazide Preventive Therapy (IPT) was introduced in the hospital in 2008 for children of smear-positive TB patients under the age of five.

A programme to identify TB cases in the three prisons in Thyolo has experienced challenges due to a lack of willingness amongst staff to provide outreach services to these detention centres. Staff requested special lunch allowances. However, out of 40 planned visits in 2009, 30 were reportedly conducted.

Sexually transmitted infections

Sexual Transmitted Infections (STIs) are treated according to a syndromic approach, following national guidelines, which were revised in 2008 [46]. All health workers have received a training or refresher course on these updated guidelines. In the hospital there is an STI clinic five days per week in the general out patient department. Patients receive treatment on the spot. At the HC, STI patients are seen at in the general out patient department. All patients at the STI clinic in the hospital are offered counselling and testing for HIV; in HCs this is not always the case. An information "slip" for the patient to take to his sexual partner is used to identify more STI cases and encourage patients to come for treatment.

Table 25. Number of STIs treated in fourth quarter of 2009

	4th quarter 2009	Average # /month
Number of STIs treated (whole district)	2928	976
Most commonly treated syndromes	1. Abnormal vaginal discharge 2. Syphilis/VDRL+ 3. Genital ulcer disease 4. Lower abdominal pain	324 235 111 109
Number of referrals from STI to other clinics (gynaecology, surgery, ART assessment, PMTCT)	117	39
Number of partner slips given to patients	1581	527

Source: Quarterly report STI coordinator, 4th quarter 2009

Malaria

Thyolo is a holo-endemic malaria area, and malaria is seen all year round with a peak from January till March. The common type of parasite is *Plasmodium falciparum*. During the last two years, the first line treatment for uncomplicated malaria in children above 5 kilograms and adults has been Lumefantrine-Artemether, an Artemisinin-based Combination Treatment. This treatment is available in health centres and hospital, and recently in a few village health clinics in the community.

HSAs are legally allowed to administer ACT and plans are underway to expand the number of trained staff. The treatment for complicated malaria and for women in the first trimester of pregnancy is still quinine.

In under-fives, the diagnosis is made on clinical grounds, according to IMCI guidelines. Rapid tests are usually not performed in this age group, despite evidence that tests of good quality could prevent over-diagnosis of malaria. In older people, the diagnosis has to be confirmed using a rapid test, or –if not available- a blood film. Despite this recommendation, tests were available in Thyolo only because MSF supplied them. With the inclusion of the tests in Global Fund Round 9, it is hoped that supplies will come through CMS in the near future. Often, Lumefantrine-Artemether is given without proper examination or malaria testing.

Table 26 shows that over the past years, malaria has been diagnosed more often, and –despite the availability of ACT-, the case fatality rate has not decreased. A reason for the increased incidence at facility level could be that SP, the previous first-line treatment, was freely available, even outside health facilities, and cases may have gone unreported.

Table 26. Malaria in Thyolo, 2006-2009

Year	Cases of malaria diagnosed in U5s	Malaria U5s, in patient mortality	CFR per 1000 cases (U5)	Cases of malaria in over-fives	Malaria, >5, in patient mortality	CFR per 1000 cases (>5)
July 2006-June 2007	82,002	133	1,6	112,946	115	1
July 2007-June 2008	90,921	151	1,7	128,986	111	0,9
July 2008-June 2009	100,370	220	2,1	130,167	111	0,85

Source: Malaria Programme Thyolo annual data

Community home-based care programme and non-communicable diseases

As described on page 45, the Thyolo DHO started performing outreach visits to a number of Community-Based Organisations (CBOs) in 2007. In 2008, they expanded their outreach to include care for chronic diseases.

In 2010, the community outreach programme for Community Home-Based Care (CHBC) is planned to focus on providing improved palliative care in the community. Community nurses and clinicians will be trained. Liquid morphine will be made available in the district for this purpose. It seems however that this palliative care programme has lost some of its relevance, since the number of bedridden patients in the community has reportedly markedly decreased over the past years.

The part of the community programme delivering care for patients with chronic non-communicable diseases (epilepsy, hypertension, psychiatric illnesses and asthma) is facing problems. Patients are supposed to be seen and initiated on treatment by a clinician and followed up and supplied with drugs by a community nurse thereafter. However, there is no schedule for clinicians to join the outreach programme and they are usually occupied with other duties. In addition, there are no existing guidelines for treatment of non-communicable diseases in the community and the team does not have sufficient equipment and knowledge to manage patients. The programme experiences continuous problems with the organization of transport, which sometimes results in interrupted treatment of patients. Much of the transport is delivered by MSF; what will happen to the community programme after the MSF exit therefore remains uncertain.

Other options for patients with non-communicable chronic diseases are attending the health centres or hospitals. Health centres have a number of essential drugs in stock to treat moderately severe cases. In the district hospital an out-patient clinic is held once a week, run by a doctor and an auxiliary nurse who is responsible for most of the health promotion and psychosocial support. In this clinic, more difficult cases are seen, as well as most diabetics from within the district. TDH is the only clinic providing glucose testing free of charge. Most nurses and clinicians have received in-service training to diagnose chronic diseases and provide lifestyle advice. No patient management guidelines suitable for community and OPD levels are currently in place.

In Malamulo, patients with non-communicable diseases are seen in the general OPD and consultations and basic drugs are available against fees.

Table 27. Patients in the CHBC programme

	>28y male	<28y male	>28y female	<28y female
Total patients enrolled	4611	1227	10589	4093
% of HIV positive patients of total	84%	88%	86%	95%

Source: Community home based care quarterly report, 4th quarter administrative year 2008-2009

Table 28. Statistics CHBC programme

Number of households with CHBC patients	4875
Number of CBOs delivering HBC	64
Number of HSAs trained in CHBC	89
Number of volunteers trained in CHBC	1474
Number of volunteers trained in palliative care	65

Source: Community home based care quarterly report, 4th quarter 2009

Nutrition

The district has three Nutrition Rehabilitation Units (NRUs), TDH, Malamulo and Mitengo, and 18 Outpatient Therapeutic Programme (OTP) sites. After previous years of supporting the starting-up of nutritional activities, especially for PLWHA, MSF now completely reduced its involvement in these sites and MoH and CHAM have taken full responsibility. Supplies are received through the central nutrition unit, supported by UNICEF.

In a number of government HCs, nutritional support to adults and adolescents is given, with supplies from UNICEF. Most of the patients are HIV-positive.

Table 29. Combined data Nutrition programme Thyolo District, January-December 2009

	#admission	#deaths	Death rate	# cured	Cure rate	# defaulted	defaulter rate
OTP	1751	54	3.1%	1374	78.5%	88	5.0%
NRU	1000	67	6.7%	749	74.9%	38	3.8%
Total	2751	121	4.4%	2123	77.2%	126	4,5%

Source: Nutrition Programme Thyolo Annual Data

The national targets of a cure rate above 75%, a death rate below 10% and a defaulter rate below 15% were met in 2009. However, the pressure on the programme was limited during that year, since no serious hunger gap occurred.

Mental health

In Thyolo District the mental health programme is run by five nurses trained in basic psychiatry. Two nurses are based in the hospital and conduct weekly ward rounds to review mental health cases. In addition to sharing the psychiatric inpatient care, they are allocated to other duties and departments (one of two mental health nurses is also the nurse-in-charge of labour ward *and* the safe motherhood coordinator). Every week, a morning mental health clinic is conducted by a psychiatric nurse in the OPD. Although every clinical officer in the hospital did an attachment in Zomba Mental Hospital, most of them feel uncomfortable providing care for mental health patients and intend to avoid them.

Of the community nurses, three have been trained in mental health. Most areas in the district receive outreach visits by this community mental health team, in HCs, IHPs and static sites.

Care for carers

This programme, started in 2006, focuses on the implementation of "care to the workforce at the workplace". As previously many health workers were lost due to HIV, a problem compounding the human resource crisis as described on page 62, the programme contains a large HIV/AIDS component.

Forty peer educators from different departments and health centres have been trained, in order to provide support to colleagues. Secondly, the programme coordinates and promotes different initiatives to reduce the stigma around HIV at the work place and promotes the health of staff living with HIV/AIDS. There is a health worker peer support group and the hospital organises remuneration packages (milk, cooking oil, etc) for staff who have disclosed their HIV status.

Condom distribution happens in staff toilets and wards and there is a staff clinic where health workers and their first degree relatives can receive medical treatment, including ART. By the end of 2009, 108 staff members (11 clinical staff, 97 support staff) have disclosed their HIV status. Out of these, 40 people receive their ART at TDH.

There is a protocol for Post-Exposure Prophylaxis available in the hospital, but there is inadequate awareness of the prophylaxis among hospital staff, especially among lower cadre staff. Emergency tests and medication are available 24 hours a day. The follow-up of staff after incidents is often inadequate.

In 2008, the Care for Carers programme organised Hepatitis B vaccination sessions for staff in hospital and health centres. A care for carers policy is under revision.

Programmes not included in this situation analysis

We decided not to include the programmes of lesser public health importance in this analysis. Some of these programmes do have active coordinators however, and we find it important to acknowledge their work also: the District Leprosy coordinator, for instance, reported six leprosy cases in 2009. Most of these patients, according to him, came from Mozambique.

Additional clinical services linked to MCH services

Surgery

Facilities

Even though it has never gained an official "programme" status, surgery is an important discipline in Thyolo, mostly practised within the hospitals. In a number of health centres, minor procedures are performed under local anaesthesia. Future plans for the district include the establishment of an operation theatre in Thekerani Rural Hospital.

TDH has two running surgical theatre rooms. There is another room that is equipped as a theatre, but has not been used as such for several reasons. Most minor procedures, as well as most caesarean sections, are performed by clinical officers, sometimes with the assistance of senior clinicians. Much of the major surgery was until recently performed by one of the authors (TvdA), who trained several clinical officers on the job. Three of the more experienced clinicians are now competent to perform more difficult procedures independently. A consultant surgeon from the central hospital visits every 2 weeks. He teaches clinical officers in basic surgical diagnosis and treatment and performs major elective surgery together with them.

Anaesthesia

TDH has two health workers trained in anaesthesia: one nurse and one medical assistant. In the current schedule, each anaesthetist is on duty for one week, during both day and night. This may compromise the quality of care.

The anaesthetists do not stay in the hospital during nights and weekends. In combination with the problematic transport system, which is responsible to pick all theatre staff at their homes in case of an emergency, there are long delays between the identification of the need for surgery and the start of a procedure.

Spinal anaesthesia is commonly used for caesarean sections. For laparatomies and other major procedures, general anaesthetics used are ketamine and halothane. These drugs are considered obsolete in most other settings.

Preoperative and postoperative care

The quality of preoperative and postoperative care has been a reason for concern. The proper pre-operative workup for patients is not always done by the clinician,

risk factors for surgery are not always identified. A patient's consent is rarely really "informed" and merely consists of a finger print below a scribbled note that reads: "*I hereby give consent to the doctor to do any operation on my body*"!

Overworked night nurses in the crowded wards lack time to sufficiently check the condition of patients post-surgery.

High dependency unit

The initiative has been taken by the DHO and one of the authors (TvdA) to create a High Dependency Unit (HDU) in order to closely monitor and treat unstable post-operative or otherwise critically ill patients. The space –an empty ward next to the nutritional rehabilitation unit- has been identified, staff have been trained and most of the necessary materials are available. Some infrastructural adjustments have been made and budget to finalize the necessary infrastructure is available for it in the DIP. The actual implementation is thought to take place in the second quarter of 2010. One of the incoming VSO-doctors, a general surgeon in training, has shown an interest to build on this initiative and will play an important role in this respect.

Malamulo hospital used to have a service called “Intensive Care Unit”. In essence, this unit provided HDU care. The hospital management is trying to revive the unit which has in recent years merely functioned as a post-operative recovery room.

Malawi blood transfusion service

Malawi’s central blood bank has serious challenges to provide enough blood for transfusion to hospitals, especially during the malaria season. Children and women with obstetric complications regularly die because of a lack of blood. In the near future district hospitals will have to pay a fee to Malawi Blood Transfusion Service (MBTS) per pint of blood received.

MBTS has a basic procedure to guarantee blood safety. District hospitals are allowed to look for donors, in case of an emergency, as long as they guarantee using a basic safety procedure, including testing of donors for HIV, hepatitis B and syphilis. HIV-testing is done by rapid test only, and blood may therefore come from an HIV-infected donor in the window period.

Table 30 shows the number of cross-match tests requested. Laboratory staff will not perform the cross-match in case no blood for transfusion is available. Therefore, in only 64% of cases the cross-match is performed. In little more than half of the requests, the need for blood is finally fulfilled. Patients seldom receive more than one unit of blood. The average number of pints received by women suffering major obstetric haemorrhage (more than one litre) and who were included into the 4M-study, stood at only 1.7 pints per woman. In Western settings, these women would certainly receive many times this amount.

Table 30. Indicators about blood transfusion in Thyolo

	Year 2008	Year 2009
# grouping and X-matching requested	4139	3823
# of X-matching tests done (% of requests)	2252 (54%)	2430 (64%)
# units received from MBTS (% of requests)	1609 (39%)	1699 (44%)
# units collected in laboratory from donors (% of requests)	643 (16%)	431 (11%)

**note.: units are of 250 ml for children or 450 ml for adults*
Source: TDH laboratory registers

Operational research

Thyolo has established a renowned history of operational research. Especially with tremendous support from the MSF operational research department, many activities have been documented and published. In the bibliography, the publications used for this situation analysis are mentioned. Also, the Malawi Liverpool Wellcome Trust has used Thyolo as a study site for important research on anaemia in children [47].

Recently conducted, or still ongoing operational research projects include:

1. A multi-country research into treatment of Kaposi's Sarcoma.
2. The TREAT TB-study, which tries to identify underlying opportunistic infections in patients who have been started on ART on the basis of weight loss and chronic fever.
3. The already mentioned study to Maternal Morbidity and Maternal Mortality (4M-study).
4. The early infant HIV diagnosis and treatment study, looking into early treatment with protease inhibitors (a class of ART) to HIV-positive children.

Other sectors which impact on health

Water and sanitation

Thyolo District has four major sources of water, namely rivers, streams, boreholes and wells. Except for the boreholes, sources are generally unprotected. Of the Thyolo population approximately 38% has access to safe drinking water. Safe drinking water is defined as piped water, a public tap, borehole, protected well or spring located either on the premises or less than one-half kilometre away [4].

Types of sanitation facilities used by communities in Thyolo are many and varied. The location and distribution of facilities differs much between the rural and semi-urban ("boma") settings. According to the Thyolo profile, it is estimated that of all households 67% have private pit latrines, 24% share latrines and 8% have no toilet facilities [5].

Of all households, 64% dispose solid waste in pits, 26% burn their rubbish and 10% dispose their waste indiscriminately [5].

Social welfare

An important component of the services provided by the department of social welfare of the Thyolo District Assembly focuses on the welfare of children. The department has a number of programmes related to child welfare.

One programme focuses on strengthening community networks in order to improve family and child welfare. This is done via supervising Community-Based Childcare Centres and Community-Based Organisations (CBOs). There are 450 Community-Based Childcare Centres throughout the district, in almost every village. These centres are run by CHBC volunteers and are supposed to promote child health by health education and through recreation. It has been tried in recent years to introduce a monthly under-five clinic in centres located in hard-to-reach areas. According to one of the social welfare officers, however, this effort has not been successful.

CBOs organise care and activities at community-level for orphans and other vulnerable children. To do this, organizations receive technical support from the social welfare office. Funds for these activities are usually raised within the community itself.

Social welfare is also involved in arranging foster care and adoption and provides yearly school fees to students who are not able to pay (578 students this year). Like other departments, social welfare operates with little resources and guidance and therefore seems to often fail to produce desired results.

Conclusions

In this document we have described the most important characteristics of the health situation and health services in Thyolo District, with an emphasis on maternal and child health.

Socio-economic problems, a high fertility rate, low literacy levels and a history of oppression are some of the factors that make the Thyolo population susceptible to several health threats. Women and children are especially vulnerable.

The major diseases are HIV, TB and malaria; in under-fives acute respiratory infections, diarrhoeal diseases and malnutrition are also common. Complications of pregnancy and childbirth are common, maternal and neonatal morbidity and mortality are very high.

At the head of the system combating these and other health problems stand the DHO and the DHMT of the MoH. MSF is a major partner, particularly in HIV care but also in wider support to health services in government and CHAM facilities. The latter are important service providers, some of them placed in very hard-to-reach areas.

Services are provided in two main hospitals, one rural hospital , 51 primary care centres and in community health posts, some of which have been upgraded as "improved health posts". Services in the community pillar are not yet well-defined and integration is incomplete.

Major challenges in the district are a lack of human resources, low resources available for logistics and difficulties with decentralized planning and organization of services. Health programmes, including those related to MCH, are often centrally controlled. At district level, decision-making is limited, leading to losses of quality and accountability. Reporting is of poor standard, and there is a lack of integration of different programmes at district level.

MSF intends to exit from Thyolo in 2013. A major exit strategy is currently being worked out, together with the DHO.

III. Future

Recommendations

We feel that a number of recommendations follow logically this analysis. Therefore, these implications for the future are an essential element of this document. In other words, the analysis would not be complete without them.

These recommendations are presented as a rough outline of a possible future strategy for the district. We, intentionally, do not describe this strategy in great detail, as the exact policy-making should be left, of course, to the appropriate leaders within the Thyolo health service. In fact, it is up to each individual within the health system to translate these future implications into relevant ideas for his or her daily practice.

A. Thyolo District Health Office: keep the vision, but plan and coordinate more effectively and realistically

Our analysis shows that many important initiatives have been undertaken in Thyolo in recent years. The development of the DSP, and the inclusion of partners to come to a comprehensive DIP are excellent developments. The priority given to mothers and children in the district planning is noted: the signing of SLAs with CHAM facilities, the establishment of BEmOC sites and maternity waiting homes and other investments are highly commendable.

However, the district has to better monitor and evaluate the impact of activities conducted. HMIS data are often unreliable and programme coordinators are inexperienced and lack guidance. An evaluation of different activities in the district is crucial, in order to measure impact and to assess which activities can be sustained after the MSF exit. For instance, the community outreach programme seems too ambitious and relies heavily on MSF transport: it would be wiser to follow MSF's focus on the IHPs, and make sure these most crucial facilities provide a comprehensive care package, including maternal and child health, of acceptable quality. This would make resources available for other activities. And the spending of these resources needs to be more closely monitored and more transparent than is currently the case.

On the basis of vision, monitoring and comprehensive evaluation, and according to clear planning on the basis of indicators, the Thyolo DHO should take charge again of health care in the district. Where autonomy from central level could benefit quality of care, DHOs should request to be more independent. To date, decentralization is incomplete, leading to a situation which sometimes hinders decision-making at district level, particularly when it comes to human resources management, construction interventions such as the building of staff housing and programme planning. Coordination of the DHO should extend to more explicitly include CHAM

facilities and NGOs. A common understanding of objectives and joint planning would allow for more streamlined service provision.

Lack of interrelations and interaction between Technical Working Groups and programmes at national level has its repercussions at district level: interventions proposed to or implemented at district level are sometimes poorly coordinated.

We are confident that the Thyolo DHMT, with the new and motivated DHO and DMO in the lead, will be able to establish clear coordination and guidance at district level, as long as its members will remain in Thyolo for some years to come.

B. MSF, coordination and management levels: develop and communicate a clear exit strategy

The major undertaking for the MSF coordination and management for the near future is to develop a clear exit strategy, in order to leave Thyolo in a responsible manner. Two recent consultant visits have been important in starting this process. The exit strategy must contain the following elements:

1. The defining of clear outcome indicators.

These should concern the situation of Thyolo district in –say- 2016, so some time after the MSF exit. Efforts must be made to convince the MSF head quarters that an evaluation of the most important activities should be done after the exit, as this evaluation will be of considerable value to determine MSF's success and to evaluate the current process of handing over.

2. An agreement on which activities should realistically be taken over by MoH and other partners.

This agreement should be based on an evaluation of current activities supported by MSF according to clear criteria: effectiveness, cost, clinical complexity and political will. MSF will have to move away from wanting to attain the best possible standard in every area and take into consideration the limitations that other partners have, particularly concerning finances, human resources and logistics.

All new activities and initiatives should, from now on, more clearly be seen in the light of the exit. Visiting advisors should be asked to take this into consideration.

There should be a strong national lobby by Head of Mission and Medical Coordinator, based on a realistic and clear plan to include activities intending to be maintained. As an MSF mission, support should be given to assist the HIV unit and other MoH departments in acquiring funding for their ambitious plans to implement the improved PMTCT and ART protocols. The success of this government planning is crucial for the success of the handover of the Thyolo project.

C. MSF, project level: from implementer to technical support

MSF should, in the near future and where human resources permit, take on more clearly a technical support role and move away from substitution. This will encourage the MoH in taking full responsibility for the implementation of HIV-related activities and allow for a more gradual exit.

A logical step to be taken in this respect is in TDH, where the number of clinicians has gradually increased over the past three years. The experienced MSF clinical officers working in the facility can be important contributors to the quality of care in Thyolo, but their job description should be more clearly adjusted to a technical-supportive role. This could be done, for instance, by having the four clinicians expected to remain in their posts by the end of this year specialize in different technical areas.

In the HCs, MSF clinicians have in recent times been divided into different zones. Each MA or CO is responsible for providing technical support to the facilities in their zone. In addition to doing consultations, they try to coach the local MAs in correct patient management, as well as to assist them in placing rational drug orders, collecting and reporting reliable data and managing the patient flow in their facilities. This approach is promising and needs to be further strengthened, by coaching the MSF clinicians in their new roles.

However, technical support is not "trustworthy" if support staff lose their willingness to themselves get their hands dirty. Therefore, it is important to still remain involved in some direct patient care, but in addition to and in close collaboration with MoH staff.

D. For CHAM: focus on the district

To really capacitate the district health system, CHAM should coordinate activities more closely with the DHO. In order to achieve a more effective collaboration CHAM should appoint a representative member at district level, to be a real partner to the DHMT. Common objectives must be agreed upon.

The abolition of user fees to increase access to the poorest of the poor, but at the same time the existence of CHAM facilities should be agreed upon at national level, between the CHAM secretariat, the Government of Malawi and the donors.

E. For all partners: continue working on integration

The efforts to combine MoH and MSF planning are highly commendable. Most certainly, the authors acknowledge that the involvement of the MSF Malawi mission, despite depending on a mandate for HIV care, has strengthened the Thyolo health system in a broader sense, thanks to an open and collaborative attitude on both

sides.

The Thyolo experience shows that further integration of HIV care within other health services may, if done correctly, lead to a higher standard of general care (and may well disprove the critics), while at the same time ensuring that HIV care be sustained and the stigma around HIV further reduced.

The collaboration between the coordination and management teams, between the logistical departments, between programme coordinators and TSs/TOs and between MoH and MSF clinical and nursing staff are essential to ensure the building of appropriate capacity within the Thyolo public health system to improve and maintain decent care. CHAM facilities should follow suit and streamline their activities more clearly with priorities set for the district.

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