A Report for Mothercare

# A Qualitative Study of Constraints to Reducing Iron Deficiency and Anaemia in Women of Reproductive Age in Thyolo District, Malawi

by

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## EXECUTIVE SUMMARY

The ultimate objective of this study was to identify and describe constraints to reducing anaemia in women of reproductive age in Thyolo District, Malawi, and to make recommendations on how these constraints could be overcome.

Three interviewers (including 2 social scientists) conducted semi-structured interviews and group discussions over a 3 week period. The 3 communities were chosen to represent different degrees of difficulty in access to health care and differing degrees of involvement with the tea estates. Twelve women in the first village and 10 in the compound were the focus of interviews with 15 influential others interviewed in the village and 11 in the compound. In the second village size of the discussion group ranged from 4 to 16. Key informant interviews were conducted with men, grocers, traditional birth attendants and medical personnel involved in the healthcare of the 3 communities. Iron trials took place in one village and one estate compound. Ten women (1 pregnant) of reproductive age were interviewed from the village and 20 women (8 pregnant) from the estate compound. Four older women from the village were also interviewed. Despite measures to avoid response bias there were concerns about the validity of some of the data. Some respondents were nervous during interviews, and some were threatened by health personnel not to tell us the number of iron tablets they were given.

In the poorer village with less access to health care and radio "lack of blood was seen primarily as a wasting disease. In the other communities causes, symptoms and treatment of "lack of blood" corresponded more closely with those conventionally associated with anaemia. However, in these latter communities there were more concerns about iron tablets for fear of an illness called "too much blood", and because health messages had warned against taking medicine without a medical examination. High levels of compliance were apparent in the iron trials with more women refusing to comply because of the above concerns than because of side effects.

Supply of iron tablets at antenatal classes, rather than difficulties with compliance, was given unanimously by women in all communities as the main reason they could not take more iron tablets. Women reported being given few tablets, if any, each visit. Providers confirmed that iron tablets are popular in the area and that women do not get tablets every visit. Supply or worries about sustainability of supply were cited by providers as the reason women are given so few tablets. There was some evidence of leakage of drugs onto the market. Traditional birth attendants are incorporated into the formal health sector and are already established in giving out iron tablets to pregnant women.

Healthcare decisions involve relatives, husbands and sometimes neighbours. Husbands control the finances for the purchase of health treatment as well as food.

Recommendations include suggestions for research on reasons for the inadequate supply of iron tablets to the study area. Target groups for the receipt of iron tablets are recommended on the basis of adequacy of supplies. The advertisement and sale of iron tablets at a low price in local grocers shops is recommended. Recommendations for behavioural and knowledge change within the communities include dispelling concerns about iron tablets as well as generally increasing knowledge on maternal anaemia. Encouraging a more sympathetic approach to teaching and counselling clients is recommended for health care providers

## BACKGROUND

Anaemia, defined as a haemoglobin level less than 11g/dl, is the most common nutritional deficiency in the world (Buetler, 1980; Whitney and Hamilton, 1987). High prevalence rates have been reported for women of reproductive age in developing countries throughout the world. In Africa it has been estimated that two-thirds of pregnant and half of non-pregnant women may be anaemic (Winikoff, 1988). Serious anaemia in pregnant women has been associated with multiple adverse effects, including increased risk of maternal death (Winikoff, 1988; Danforth, 1982) and excess fetal pathology (Garn et al., 1981). In a recent review of the effectiveness of antenatal care, Rooney (1992) concluded that prevention and treatment of anaemia should be a priority and that "routine supplementation with iron (and folate) is probably warranted where the prevalence of anaemia and iron deficiency is high", but left open the question "how high?".

A recent review of the prevalence of maternal anaemia concluded that while iron supplementation is efficacious, population-based programmes have not been very successful and maternal anaemia continues to be a problem of high prevalence in the world (Sloan and Jordan, 1992). There are a number of possible reasons for this, one being that inadequate dietary iron is not the only cause of anaemia. In West Africa folate deficiency is known to be common (Fleming et al., 1968) and malaria is endemic across sub-Saharan Africa. Hookworm infection and schistosomiasis are other possible causes of anaemia in developing countries. Fleming (1989), reporting on severe anaemia among pregnant women in Zambia, found that 84% had malaria (P.falciparum), 62% were folate deficient, and 35% were iron deficient. In such situations one would not be surprised if iron supplementation alone had little impact on the incidence of severe anaemia.

Another reason for the apparent failure of iron supplementation programmes is that although high prevalence rates of anaemia have been observed in both pregnant and non-pregnant women in developing countries, it is only the former group which has been the focus of research and action programmes. It may be, that oral iron supplementation during the relatively short period of pregnancy is insufficient, particularly to treat severely anaemic women. The idea of supplementation outside pregnancy is now beginning to receive attention.

The importance of supply in the failure of iron supplementation programs has also been recently documented (Galloway and McGuire, 1994). Strategies for ensuring adequate and sustainable supplies of iron tablets need to be developed.

A fourth reason for the apparent failure of iron supplementation programmes may be "non-compliance" (WHO, 1990). Non-compliance may be associated with the side effects of the treatment regime, often exaggerated during pregnancy, or may occur because the treatment regime is culturally unacceptable or inappropriate (WHO, 1990). Motivational strategies need to be developed to address barriers to compliance with taking iron tablets.

Paradigms for sickness and health have been described for Africa generally (Cheetham & Griffiths, 1982) and Malawi in particular (Chilivumbo, 1974; Morris, 1985; Morris 1986; Morris, 1989). Knowledge of herbal remedies is reported by Morris to be common in rural areas of Malawi with a person visiting a specialist only if the case is difficult. These specialists may be midwives (azamba) or herbalists/diviners (asinganga). Herbalists are well



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organised in the country with at least two associations which promote good practice (Morris, 1982; Msonthi, 1986). The skills of a diviner are called upon when the illness is thought to be due either to breaking some social rule or observance or due to witchcraft, in order to find out and rectify the underlying cause of the illness (Chilivumbo, 1974; Morris, 1986; Morris, 1989). These various healers along with "western" style health facilities are visited as deemed appropriate.

Little has been written about how anaemia is perceived within this mixture of causes of sickness and sources of treatment for sickness. Morris (1985) from discussions with Malawian herbalists says that the heart (mtima) and blood (magazi) are conceptualised as distinct. He says that the blood is seen as running through the body and is connected with overall strength. Anaemia is described as wochepa magazi (insufficient blood) and heart palpitations as mtima okugunda. He describes as common, medicines for increasing the amount of blood (kuonjezera magazi).

The Ministry of Health Annual Report for Thyolo District for 1993 records 10,404 deliveries occurring in health facilities and 2,349 by trained traditional birth attendants. The number of deliveries by others (e.g. at home) in the district are of course unknown. The Demographic and Health Survey (DHS, 1992) for Malawi as a whole reported that 55% of women were delivered by a nurse/midwife or doctor, 18% were delivered by a traditional birth attendant (TBA), and 27% by someone else.

For antenatal care (a main point of contact for the supply of iron/folate tablets and nutritional advice) the Annual Report for Thyolo (1993) reported that 4,257 women had attended antenatal care at health facilities whilst 2,349 received some antenatal care from trained TBAs. Comparing these figures with those for delivery above suggests that antenatal care attendance in this district is substantially lower than the national average of 90% reported in the recent Demographic and Health Survey.

A joint Ministry of Health/UNICEF report on antenatal services related to prevention and control of anaemia presents results for 913 women from 15 randomly selected antenatal clinics throughout Malawi (2 of which were close to the study area). Fifty six percent of the women had a haemoglobin level less than 11g/dl, 31% had a haemoglobin less than 10g/dl and 2% had a haemoglobin level less than 7g/dl. Fifty six percent of the 715 women attending subsequent antenatal care sessions reported receiving iron tablets regularly and 15% reported receiving iron tablets irregularly (although regularly is not defined in the report). Of the 509 women who received iron tablets (regularly or irregularly) 22% reported experiencing side effects. In addition to questions on iron tablets women were also asked about malaria prophylaxis. Seventy two percent of the subsequent antenatal women reported having received anti-malarial prophylaxis at least once. All facilities reported giving talks on anaemia but none had any IEC material on the subject.



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## OBJECTIVES

### ULTIMATE OBJECTIVE

Identify and describe constraints to reducing anaemia in women of reproductive age in Thyolo District, Malawi and to make recommendations on whether and how these constraints can be overcome.

### SPECIFIC OBJECTIVES

1. Outline beliefs and practices relating to health, health care seeking behaviour and nutrition, especially for women of reproductive age. This will provide the context for the more detailed research on anaemia outlined below.

2. Document knowledge, beliefs and experiences of the community relating to anaemia: symptoms, causes and effects of anaemia, perceived seriousness of anaemia relative to other health problems, perceptions of how anaemia affects birth outcome.

3. Document preferences and experiences relating to treatment for anaemia including: health seeking behaviour, sources of supply, perceived effects of treatment, management of side effects, compliance, and different types of tablet/treatments available.

4. Ascertain relative acceptability of different channels of iron/folate tablet supply and the reasons why they are acceptable or unacceptable. This includes ascertaining opinions on financial cost.

5. Document experiences and opinions of providers relating to the supply, demand, cost, compliance and side effects of anaemia treatment. The provider's opinions on different channels of supply of iron/folate tablets will also be ascertained.

6. On the basis of the information obtained in 1. to 5. above, identify constraints to the success of possible interventions for reducing anaemia, and make recommendations about which constraints can be overcome within the scope of the project and how.

## METHODOLOGY

### PERSONNEL AND TIMING

Two social scientists from the London School of Hygiene and Tropical Medicine travelled to Malawi in October 1995. The Principal Investigator (Linda Williams) and a Malawian social scientist (Linda Semu) were present throughout the month-long preparation and fieldwork period, whilst Dominique Behague was present mainly for the start-up. Two Research Assistants were employed for the duration of the fieldwork and acted initially as interpreters for Dominique Behague and Linda Williams. After Dominique Behague left Malawi one research assistant was considered competent to perform interviews independently whilst the other acted continued as an interpreter for Linda Williams.

A 3 day introductory period was held before the fieldwork began during which the team discussed and finalised sampling schemes, data collection methods, data collection instruments and practical and logistical issues.

### SAMPLING SCHEME

#### Selection of Communities

Three communities were purposively selected for inclusion in the study sample. The first was a village outside the main tea estate area and 6km from the nearest government health facility. It was chosen to represent villages which are not so heavily dependent on the estates for income (or the means of living) and healthcare. It was also chosen because of it's distance from the government health clinic in order to highlight barriers to anaemia reduction in a community where structural constraints are important.

The second community selected was a large tea estate compound relatively close to the tea estate clinic. Estate compounds differ from villages within the tea estates in that the land and houses are owned and controlled by the estate. They are also smaller and much more compact than villages and there is minimal land for farming activities. The chosen compound was relatively large and contained a range of housing types and estate employees. Being close to the estate clinic and relatively close to the district hospital it was also chosen to highlight barriers to anaemia reduction when distance to health facilities is not an important constraint.

The third community chosen was a village in the middle of the tea estate area, served by a clinic in an adjacent tea estate and the district hospital both of which were nearby. It was chosen as a contrast to village 1 in that it was expected to be highly dependent on the estates both economically and for healthcare, and because it was not subject to barrier of distance to healthcare.

On arrival at a community the area was divided into 3 parts and each interviewer worked in one part. For the villages the areas were defined randomly, but for the estate compound the interviewers stratified the estate into 3 blocks according to housing type and each interviewer covered one block.

## Selection of Respondents

For the first 2 communities the fieldwork team decided that the main sampling unit for the study would be "cases" where a case consisted of a woman of reproductive age plus at least one other person (relative or friend) with whom the woman frequently interacted. Cases were chosen as the sampling unit so that the woman's opinions and behaviour could be evaluated along with those of people likely to influence her. Each group of people comprising a case was visited at least twice and more usually three times. Depending on the situation when we visited the respondent individual interviews and/or small group discussions took place. Within each community each interviewer tried to find cases of women from different age groups. The "case" methodology was not used in the third community and instead 3 group discussions took place. This was because of time constraints and because on the first day we intended to visit the community there were severe storms which made it inaccessible. However, because by then the interviewers had identified the main themes arising in conversations and only wanted to find out how these differed for this community the 3 group discussions were judged to be adequate.

Key informants were also identified and interviewed. The medical assistant and a nurse midwife were interviewed for the health clinics nearest each community (excluding private clinics); and trained TBAs nearest each community were also interviewed. Grocers from 2 communities were interviewed as they are an essential component of healthcare. In the tea estate compound husbands were always away from the compound whenever we visited so no men were included in the cases. Therefore interviews were conducted separately for men from the compound and these are regarded as key informant interviews.

## DATA COLLECTION

The method of data collection and the data collection instruments for the study were devised by the fieldwork team. Different interventions for reducing anaemia were discussed. For an intervention based on increasing coverage and compliance with iron tablets two behaviours became the focus for obtaining information: getting iron tablets and taking iron tablets. A brainstorming session was held where ideas were put forward on what could influence these 2 behaviours. These ideas were then discussed and grouped. In addition to the behaviours of getting and taking iron tablets ideas factors relating to food consumption and birth spacing for reducing anaemia were considered. The team decided that semi-structured interviews with an interview guide would be the method of data collection for the cases. Bearing in mind the ultimate and specific objectives, and the ideas generated during the brainstorming session a data collection instrument was devised. This was revised slightly twice throughout the fieldwork mainly by adding new questions as information arose. The final instrument is shown in Appendix II. The data collection instrument was adapted for key informants as appropriate. Instruments for some of the key informants are also shown in Appendix II.

Most conversations took place in Chechewa. These were tape-recorded, and then translated into English whilst being transcribed. Where tape recording was not possible, summaries of conversations were written up immediately afterwards. In addition to the data collected verbally, interviewers were encouraged to observe nonverbal signals from respondents, as well as aspects of the surroundings which might influence the data collected and provide

some information on socio-economic class. Observations were noted down discreetly during interviews or were written up immediately after the interview.

## IRON TABLETS TRIALS

These took place in the first village and in the tea estate compound. Some of the women interviewed as part of the main study and their neighbours were given a known number of iron tablets (10 for village 1 and 7 for compound 1). Interviewers did not try to assess who might or might not be anaemic when giving out the tablets but were aiming at getting variation in age and pregnancy status. The iron trial in village 1 at times became quite riotous as there was a very strong demand for the tablets. As women had generally been advised by health providers to take tablets with food we decided to advise women similarly in order to avoid confusion. Women were told that the tablets were a gift to them because they were helping us with our research, and that the tablets would help them to make sure they had "enough blood". In these communities there is a way of asking people to do things that makes it "a rule". The team judged that it would be extremely unlikely that women would report not taking the pills or sharing them if they had been told to take them as "a rule". Therefore this form of requesting women to take the pills was avoided. In village 1 we returned 7 days later to conduct the follow-up interviews and in compound 1 it was 5 days later. The data collection instruments are shown in Appendix 2.

## MEASURES FOR REDUCING RESPONSE BIAS

Many measures were taken to reduce response bias during interviews. Interviewers generally refused chairs where these were offered and sat on straw mats on the ground with the respondents. Interviewers ensured that their clothing and appearance was in keeping with that of the women interviewed. Respondents were visited several times in order to build up a feeling of friendship, and the conversations were presented to the women as informal chats. Interview guides, notebooks and tape-recorders were made as unobtrusive as possible (although permission was sought before tape-recorders were used). Women were told that we were trying to build up a general picture of women's health and all respondents were assured that the information they gave us would be confidential.

Table 1 **Details of Sample Obtained**

**Cases - the women around which the case focuses is shown in bold**

Village 1

| Respondent Number | Women in mid-twenties or less (Young) | Women late twenties to mid forties (Medium) | Women in late forties of more (Older) | Men |
|---|---|---|---|---|
| C1 | | | **case** | husband |
| C2 | | **case** + aunt | | husband |
| C3 | | **case (pregnant)** | | |
| C4 | | **case (pregnant)** | mother | |
| C5 | daughter | **case** | grandmother | |
| C6 | | **case** | | husband |
| C7 | **case** | mother | | husband |
| C8 | **case** + sister (sister pregnant) | | | |
| C9 | | daughter + neighbour | **case** | |
| C10 | daughter | **case** | | |
| C11 | | **case** + neighbour | | |
| C12 | | **case** | | husband |

**Compound 1**

| Respondent Number | Women in mid-twenties or less (Young) | Women late twenties to mid forties (Medium) | Women in late forties of more (Older) | Men |
|---|---|---|---|---|
| C13 | neighbour | **case (pregnant)** + neighbour | | |
| C14 | | **case** | | |
| C15 | **case (pregnant)** + neighbour | | | |
| C16 | **case (pregnant)** + 3 neighbours (1 pregnant) | | | |
| C17 | | **case** + 2 pregnant neighbours | | |
| C18 | daughter and niece (pregnant) | **case (pregnant)** + sister | | |
| C19 | | **case** | | |
| C20 | | **case (pregnant)** | | |
| C21 | | **case** | | |
| C22 | | **case** | | |

**Table 1 continued**

**Village 2 - group discussions**

| | |
|---|---|
| Discussion group 1 | minimum of 5 women |
| Discussion group 2 | 16 women (of whom 13 related in some way) |
| Discussion group 3 | 4 women |

**Key Informants**

K1 Compound overseer + 2 friends, compound 1
K2 Watchman, compound 1
K3 2 young men, compound 1

K4 Young grocer + wife, village 1
K5 Female grocer, compound 1

K6 TBA nearest village 1
K7 TBA, village 2
K8 TBA, village 2

K9 Medical Assistant at government clinic nearest to village 1
K10 Medical Assistant at estate clinic near compound 1 and village 2

K11 Nurse/Midwife at government clinic nearest to village 1
K12 Nurse/Midwife at estate clinic near compound 1 and village 2
K13 Nurse/Midwife (pregnant) recently moved to area

## RESULTS

### CHARACTERISTICS OF THE THREE COMMUNITIES SAMPLED

As mentioned above 3 communities were included in the sample.

#### Village 1

This was a small village on the outskirts of the tea estate area. Most of the residents are of the Lomwe ethnic group. In this ethnic group daughters tend to stay near their relatives after marriage whereas sons move away to live near their wife's relatives. Table 1 shows that female relatives and/or husbands were frequently found with case women by interviewers when they visited this village. The village was long and thin being distributed along a dirt road. The majority of houses were constructed from mud bricks and had grass roofs, with a few having metal roofs. Most households had land outside the village on which they grow maize and vegetables, but many complained about the yields they got blaming the size of their plot, lack of rain or lack of fertilizer. Apart from a few traditional remedies available in the village women have to walk long distances to get traditional or "western" healthcare. However, a mobile clinic has recently started visiting the community once a month. Women also have to travel long distances to collect firewood and to go to the maize mill. Water can be collected from 2 boreholes, one well, or a river a short distance from the village. However, women complained that there were always queues at the boreholes and that often no water came out. The nearest primary school was 2 villages away. Some men from this village worked on the estates but this was less so than in the other 2 communities. A few women had worked on the estates when younger but no women presently working on the estates were found. This village appeared to be poorer than the 2 other communities visited.

#### Compound 1

This large compound consisted of one or two roomed houses made from brick with metal roofs. The houses are in uniform rows, much closer together than in the village. Gardens have been planted on all available space in and around the compound but most women did not have access to a garden apart from at their home village. The estate clinic is within easy walking distance and an ambulance is available for emergencies. Traditional health care is not easily accessible as, apart from a few locally known "treatments", residents have to travel to nearby villages or go to their home village. There were fewer complaints about water and firewood than in the villages and separate buildings contained lactrines and washing facilities. None of the women interviewed worked for the estates but their husbands had permanent jobs. The vast majority of compound residents were living as nuclear families away from their extended families in the villages. This is illustrated by Table 1 which shows that women spent time with neighbours rather than their female relatives and that the older generation was not to be found. Some women mentioned sending their sons to the local primary school which was within walking distance of the compound. Many of the women spend substantial proportions of time in their home villages (many of them in the Mulanje area), especially at the times they are needed there for agricultural work. The study period occurred during the "low" season of tea picking so many men were only working 4 days a week. Also, no temporary workers were living in the compound. This community appeared to be wealthier than Village 1 but less wealthy than Village 2.



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**Village 2**

This was a large village completely surrounded by tea estates. House construction was much more varied than in Village 1 with clay brick houses being common as well as mud brick houses. There was a mixture of ethnic groups but as in village 1 female relatives tended to reside close to one another. Women reported taking firewood from the tea estate woods (that are grown to service the factory boilers). There is a primary school adjacent to the village. Women use an estate clinic or the district hospital for health care. They have access to traditional medicine and trained TBAs within the village. This was the only community where women were commonly employed by the estates. This appeared to be the wealthiest of the communities studied.

SAMPLE OBTAINED

Details of the sample obtained are shown in Table 1.

In village 1 twelve cases were interviewed, with 2 young, 8 medium aged and 2 older women being the focus for each case. Two of the medium aged women were pregnant. Eight female relatives, 2 neighbours and 5 husbands were also interviewed as influential persons. In compound 1 ten cases were interviewed. Two younger women and 8 medium aged women were the focus of the cases and 5 of the medium aged women were pregnant. In addition 3 female relatives and 8 neighbours were interviewed as influential persons, but no husbands or older women. In order to obtain men's views on the subject in compound 1 three interviews with men took place. Two of these were with the compound overseer and watchman and one was with 2 men who were not working on the day of our visit. For a person to be included in the sample they had to have been substantially involved in interviews or discussions and so inclusion in the sample involves judgement rather than objective criteria. Other people not included in the sample joined in discussions for a relatively short time. In village 2 group discussions were held with 3 groups of women with the size of the groups varying from 4 to 16.

Three trained TBAs were interviewed. One of these was the closest TBA to village 1 and the other lived and worked in village 2. There was no TBA on the estate compound.

The medical assistant and a nurse/midwife from the government health facility nearest village 1 were interviewed, as were the medical assistant and a nurse/midwife from the estate clinic nearest compound 1 and village 2. An additional nurse midwife who was pregnant and had recently moved to the area was also interviewed as she had strong views about iron tablets.

A grocer and his wife from village 1 and female grocer from compound 1 were also interviewed.

For village 1 one pregnant and 9 non-pregnant women of reproductive age were interviewed following the iron trial. In addition 4 older women were also included in the trial and interviewed, as it would have been disrespectful to exclude them and because their results are of interest. In compound 1 eight pregnant and 12 non-pregnant women of reproductive age were interviewed following the trial. In addition 2 women who had been given the tablets

were reported by others as avoiding being interviewed because they had not taken their tablets. As results of the iron trial are tabulated in detail in Table 2 details of the sample are not shown in Table 1.

The fieldwork team judged that despite time constraints resulting in a lower sample size than had been planned (especially for village 2) adequate numbers and types of people had been interviewed for the objectives of the study to be met.

## RESPONSE BIAS

Despite the measures described above to reduce response bias, it was clear that many respondents were guarded in their responses, especially in compound 1. It is likely that after the Banda regime people still do not feel completely at ease to be open. In fact there was some reporting back to the health care providers from within compound 1 on what people had said to us. Several women in the compound were threatened by a nurse/midwife who was driving around in an estate vehicle shouting through the window at women not to tell us they were not being given iron tablets.

" ..even yesterday some health people were asking me, they said 'you Mrs ..... what were you saying about us not giving you medicine for increasing blood, your visitors will soon leave you and we'll ...'. They said the same thing to women up there"

Following this another of our responendents (a pregnant woman) avoided questions on the number of iron tablets she had been given at ANC.

Several of our respondents seemed nervous and hesitant in their replies to our questions as if they thought they were being tested. The TBA nearest village 1 eventually admitted that she was indeed very afraid and thought we were there to test her.

Therefore despite our reassurances about confidentiality and our efforts to bring about an easy informal exchange, there is likely to be some response bias in the data.

## COMMUNITY'S ASSESSMENT OF HEALTH PROBLEMS

### General

Cough, diarrhoea and malaria/fever were mentioned as serious illnesses in the communities by the majority of respondents. AIDS was mentioned in compound 1 and was commonly mentioned in village 2. These illnesses were said to cause wasting and possibly death and were said to affect adults as well as children. Health facility personnel also mentioned problems of AIDS and malnutrition in these communities. However, even though these diseases correspond to biomedical conditions such as malaria and wasting due to AIDS, TB and malnutrition, it was apparent that communities also thought these diseases could be caused by the other categories of illness described below i.e. social or supernatural. Headache and body pains were also mentioned frequently although they did not seem to be regarded as so serious.

Some illnesses are believed to be caused by breaking rules or obligations relating to sexual behaviour and/or by adding salt to the cooking pot when unclean. This was a complex subject and a full description of all the diseases and variations is not possible in this report although some extra detail is given in Appendix III. These "diseases" caused by breaking rules involve mixing and polluting the blood by sexual behaviour or contaminating food and so are connected with the disease "lack of blood" described later. They result in "thinness and swelling" and can lead to death if not treated. The behaviour of parents is thought to affect new-born babies and spouses as well as themselves. One of these diseases caused mainly by a husbands' adultery "tsempho" is characterised by thinness and swelling with bloody diarrhoea (and "veins standing out" in babies). Another of these diseases which affect men who have sexual intercourse with an "unclean" woman "kanyera" also results in thinness and swelling, but also paleness and coldness and was often described as being like AIDS. Therefore some of the diarrhoea and wasting described above could be ascribed by the communities to this type of disease. Although belief in this type of illness was widespread, with remedies for tsempho being commonly known within communities, there has obviously been some health education telling people that tsempho is really neglect and malnutrition. Men were more likely to report that tsempho is malnutrition than women.

The other class of illnesses common in these communities are those due to sorcery. These are suspected if a serious illness develops suddenly, or if "hospital medicine" cannot find the cause and cure the illness. Many respondents described how they or their child had been cured by a "singanga" (witchdoctor) after hospital medicine had failed and only one male respondent said that he did not believe in witchcraft.

**Women's Reproductive Health**

General illnesses of women of reproductive age mentioned were: infertility, long-term stomach ache and stomach ache connected with menstruation.

For problems during pregnancy women mentioned bleeding, back and stomach ache, weakness of the body, dizziness and heart palpitations. Loss of appetite was also mentioned sometime in conjunction with not wanting to eat "good" foods. There are many rules which women follow in order to have easier deliveries. Women are advised both by older women and "hospital people" not to do hard work such as hoeing and pounding. However, women are also encouraged traditionally to keep working and become strong so that the baby will be strong and delivery will be easier. This set of beliefs whereby the baby takes on the characteristics of the mother are called "walaza". Other beliefs are that the woman should not stand and wait in a doorway or the child will wait at the doorway when the time comes to deliver, similarly a pregnant woman should not send off a visitor or the child will wait for that visitor when the time comes for delivery etc. Taboos concerning nutrition during pregnancy (not eating eggs, meat, tomatoes) were reported as being less strong than in the past. However, one nutritional taboo which was mentioned as still being strong was that pregnant women should not eat food from the market as this may have been prepared by a "hot" (see Appendix III) person. If the woman eats such food it is believed she may abort. As mentioned above the sexual behaviour of the pregnant woman and/or her spouse are believed to affect the pregnancy, with broken rules leading to abortions or dangerous deliveries.

Problems occurring after delivery were described as blood loss and stomach pains. Some of these pains were referred to as wounds made by the child. There was great concern about what happened to the placenta after birth as it is believed that if it is used for witchcraft the women and the child will grow weak and sickly and that the women will not be able to get pregnant again.

## HEALTH SEEKING BEHAVIOUR

### General

In village 1 "hospital medicine" is provided free at the local government clinic which is 6km away and the district hospital which is about 4 hours walk away. However, there is also a private clinic which is closer than the government clinic. A mobile clinic has also started visiting the village but respondents said it was rarely seen. Medicines were available from grocers within the village although people agreed that the grocer with the widest range of goods was in the next village. The local grocery owner interviewed was selling pain killers: cafenol, aspirin and panadol; a decongestant: conjex; tablets for bilharzia; and vitamin tablets (which he initially described as medicine for increasing blood) but no iron tablets or Fansidar.

Some traditional remedies were available within the community and the headman was said to have quite a good knowledge of roots. However for a traditional healer or witchdoctor who knew a wide range of medicines and divining. people had to travel to other villages.

In village 1 women tended to discuss what to do about illnesses with older female relatives but the husband was always consulted for permission and any necessary money. However, the wife's' extended family could put substantial pressure on the husband to take action on health matters.

Buying medicines from a grocer was reported as common in this village firstly because the government clinic was so far away and secondly because it frequently runs out of drug supplies so that people are told by health personnel there to buy medicines from the grocer anyway. If people went to the clinic first they were told or given a slip of paper with what medicine to buy. However, if people did not go to the clinic they often bought medicine on the basis of what had worked for a similar illness in someone else. In some cases medicine was requested on the basis of price rather than even a name

"the medicine that is going at 1 kwacha 50"

When medicines were bought it was usually the husband who did the purchasing and if not it was he who authorised the money to be spent in this way.

Respondents in village 1 complained bitterly about the distance to the government clinic and the lack of drug supplies if and when they went there. However, in addition to these complaints some respondents also mentioned the amount of time they had to wait for attention and the fact that they are not examined but diagnosed only on what they tell the medical assistant. Some had paid for private health care for serious illnesses mostly because they saw it as effective in addition to being nearer and attention being quicker. The prices for

private treatment are expensive starting at 60 Kwacha just for admission and people described the sacrifices they had had to make in order to pay for treatment.

A variety of traditional and formal treatments are sought in order to find an effective cure for illness. Traditional healers and diviners are frequently sought before or after "hospital" medicine depending on what the cause of the illness is thought to be. For simple remedies traditional healers charge small amounts but for cures for illness involving sorcery hundreds of kwacha may be charged. People tended to have strong feelings about different traditional healers, describing them as crooks and liars if they felt they had not been cured, but as "good" if they felt they had been cured. When asked what made a good healer whether traditional or formal the effectiveness of the cure was by far the most commonly mentioned factor, although the pleasantness and politeness of providers was also considered important.

In contrast to the 1 to 2 hours walk of those in village 1 to get to the government clinic, residents of compound 1 can walk to the estate clinic in about 10 minutes. In addition an ambulance can be called for very serious cases. Therefore there were no complaints about distance. There were also no complaints about supplies running about but instead there were complaints about the providers policy on giving out medicine. As all those living in the compound are families of those working on the estates they get free health care from the clinic. Overall it is likely that women in the compound have more contact with the formal health sector than those in village 1. As for village 1 there were no "expert" traditional healers within the community and women had to travel to nearby villages if they wanted traditional remedies. As for village 1 there were also reports of people spending large amounts of money on both singangas (witchdoctors) and/or private "hospital" treatment because they felt it to be more effective than that available free at the clinic or district hospital. Medicines were also purchased from grocers in the compound and penicillin seemed to be popular. The grocer we interviewed was selling aspirin, conjex (sometimes) and penicillin but no vitamins, iron or Fansidar.

Whereas illnesses were discussed with female relatives and husbands in village 1, in compound 1 they were discussed with neighbours and husbands. Husbands were said to take on the responsibility of the extended family for the health of their wife and children. As for village 1 husbands definitely had to be consulted (and usually provided the money) for any health care.

In village 2, those working on an estate and their families get free health care from estates clinics. Estates at present vary in their policy on helping those with no family member working on the estate. The estate clinic nearest compound 1 and village 2 does treat those with no connection to the estate for a modest charge. Village 2 is relatively close to the district hospital where free health care is provided. They also have TBAs and knowledgeable traditional healers within the village. As for the other 2 communities "shopping around" for effective treatments was common.

## Women's Reproductive Health

### Traditional Birth Attendants

In addition to the "hospital" and traditional medicine described above for general curative healthcare, women can consult TBAs for problems relating to reproductive health. The communities we interviewed understood TBA to mean a government trained TBA, and health facility staff confirmed that these trained TBAs were considered to be part of the formal health sector. Sometimes these were female traditional healers (who now hide their traditional medicine from health officials) and sometimes they were women chosen by the community to train to be a TBA. There were no untrained TBAs but rather "women who know how to deliver". These women deliver babies within the extended family but not outside it, because if something went wrong they would be blamed.

A woman had been chosen by village 1 to train as a TBA but had never been called for training. The nearest TBA to village 1 was 2 villages away and women complained about this distance. This TBA ran antenatal classes as well as helping with deliveries. She also had remedies for stomach ache associated with menstruation and delivery, and 2 types of venereal diseases. She had been told by hospital people that her traditional remedies were bad and should not be used. This TBAs' waiting home had recently collapsed after rain and she was concerned that the building she used for delivery would also soon collapse. Her main problem was getting grass for the roof as the manager of the estate near where she lived had prohibited people from gathering grass there.

There was no TBA in compound 1 but there were 2 in village 2. One of these TBAs has a newly built house in which to do deliveries and before this used to visit people's homes. She does not give antenatal classes saying that she does not have the necessary equipment. The second TBA conducts antenatal classes and is hoping to have a waiting home soon. Neither of these TBAs admitted to knowing or using traditional medicines.

### Antenatal Care

For women from village 1 antenatal care is available from the government clinic or the TBA described above. Those from compound 1 and village 2 can choose between the estate clinic or the district hospital, and those from village 2 can also visit TBAs within the village. Several pregnant respondents had not yet attended antenatal care but said they intended to. Most women had attended some antenatal care at a clinic, hospital or with a trained TBA at some time but it was difficult to ascertain whether they went for every pregnancy and how regularly they attended. Months 5 and 6 of pregnancy seemed to be the most common time for the first antenatal visit.

When asked which was the most important aspect of ANC most women replied that it was being examined. However, receiving iron tablets was also said to be desirable and women often reported disappointment at the low number of tablets given or the fact that they weren't given any. Women also remembered receiving nutritional advice at ANC and said that eating a v...ied diet including meat, vegetables and fruit would produce a strong baby.

Delivery

For village 1 the government clinic, the TBA and a private clinic are the only options for delivery, apart from home. At compound 1 and village 2 there is the estate clinic, the district hospital and for village 2 TBAs within the village.

The long distance between village 1 and the government clinic and the trained TBA (neither of which have waiting facilities) was reported as the reason that many women deliver at home or whilst walking to one of these places. If they deliver at home or "on the way" they are assisted by a female relative, often one who is experienced in handling deliveries.

"I myself delivered on the way to the hospital because the hospital is far".

"even my daughter did the same thing, she delivered on the way"

[what do you do next?] "we just come back home and we give whatever help we can"

If there are problems when delivering at home or on the way the woman is taken to the TBA or clinic on a stretcher. If the TBA or midwife cannot deal with the problem they try and send for an ambulance. The TBA used to be able send a messenger to the nearby estate to telephone the District Hospital free of charge, but since a charge was recently introduced one woman has died because no-one had the money to pay. The government clinic which serves village 1 used to have radio contact with the district hospital but this was not working at the time of the interviews and they have to depend on sending a messenger on foot or by bicycle to the hospital (a journey which takes about one hour by 4 wheel drive vehicle). In addition, government vehicles are not allowed to drive at night so such cases have to wait until morning.

A few women from village 1 expressed concern at being treated by providers who were not "cold" (see Appendix III) but thought that perhaps "hospital people" perhaps did not have to follow that rule as births at the health facilities were not more problematical than those at home.

The estate clinic does not have waiting facilities so women from compound 1 or village 2 start to go there once labour has started. They usually walk, but in an emergency an ambulance can eventually be called for them. There is a waiting area at the District Hospital and some of the trained TBAs also have waiting facilities.

The estate and government clinics and the trained TBAs refer primigravidae, grandmultipara and women with previous complications to the district hospital for delivery. However, all nurse/midwives and TBAs who were asked about this reported women's' fear of delivering at the district hospital and said many women return back to the clinic or TBA, or go home to be delivered by relatives rather than deliver at the district hospital.

"when you tell them you should go to Thyolo District Hospital they go home. We say who is going to deliver your baby and they say their grandmother or the TBA. And we ask them why And they say the nurses are rude, I'm afraid I'll be slapped and this and that. But usually they don't go there"

Reports on how women were treated by estate clinic staff showed that while some nurse/midwives were appreciated, others were not.

"some are nice so are not"

"for example pregnant women, most of the time they meet roughness, and they tend to threaten you and say if you continue like this we are going to send you to Thyolo Hospital, and that's when we say this is a bad nurse. But there are some who care for us as if they are our mothers."

"there is one particular nurse who is nasty. Sometimes she leaves you alone when the baby is about to be delivered and when it is born she comes back and scolds you for delivering in her absence. She says we should hold back until she comes back from wherever she is going. For example, I delivered my youngest child all by myself, this particular nurse went away just when the head was about to come out"

Nurse/midwives and TBAs reported a traditional medicine called mwanamphepho as contributing to problems with delivery in the study area. They said that this medicine is taken by the cupful by pregnant women either to bring on labour (especially if they suspect someone has used witchcraft to prevent them from giving birth) or to make a "fast and safe delivery". Mwanamphepho brings on fast and strong contractions, often before the cervix has dilated enough. This was reported as causing ruptured uterus as well as extremely painful deliveries. Nurse/midwives also said it leads to women being too exhausted to push by the time the cervix has dilated. The nurse/midwife interviewed at the estate clinic estimated that over 50% of women use mwanamphepho. Nurse/midwives and TBAs admitted "scolding" women to get them to say whether they have taken mwanamphepho as most deny it:

"they know that we do shout, we don't accept it"

"you ask them how many teaspoonfuls of mwanamphepho have you taken? Usually they deny, they don't agree, but we are forcing them"

Although the practice of taking mwanamphepho is thought to be dangerous, and those delivering women need to know whether it has been taken, the attitudes revealed in the above quotations from the nurse/midwives are perhaps indicative of the roughness and rudeness described by women.

However, despite problems of long distances (for village 1), imperfect referral systems, complaints about treatment by nurse/midwives and some concerns about the "hotness" of health facility staff, women reported that it is better to deliver at a health facility or TBA because there is more chance of help if there is a problem. The help given by "hospital people" when there was a difficult delivery was often referred to as "widening the way". It is not clear whether this is referring to forceps delivery or cesarian section or even both.

## Sources of Health Information

As mentioned above people tended to consult about health problems within the extended family in village 1 and with friends and neighbours in compound 1. Spouses also consult together about illnesses and (unless the husband cannot be reached) the husbands' permission is needed before health treatment is sought. These consultations whereby people exchange information on where they have tried for treatment, what medicines they took and what was effective seemed to be the most influential sources of health information determining health seeking behaviour.

In village 1 five cases said their household owned a radio and an additional household used to own a radio until it was stolen recently. In compound 1 five cases reported owning radios (with 2 of these owning 2 radios), one said their radio had been stolen recently and 2 other cases said they heard radios but did not have their own. A few respondents said that batteries were low and they could not afford to buy new ones at the moment.

In village 1 there was a major difference between men and women in health information obtained from the radio. Women generally felt themselves to be too busy to pay attention to health messages on the radio and reported that it was mostly men who listened to them. This was validated by the observation that during interviews men were much more likely to mention health messages they had heard on the radio than women. In compound 1 this difference between men and women was less obvious and women also mentioned messages they had heard on the radio.

All women interviewed had seen posters at antenatal clinics or under 5 clinics and most could describe posters and/or give the underlying message. However, many said they did not pay attention to them especially if they were ill or were looking after a sick child.

One woman reported that a poster showing a woman overwhelmed with many children had inspired the women to make up a song. Villagers offered to sing songs in honour of our visit, and one woman described the health talks on the compounds as no good because there were no songs. Songs seem likely to prove a popular way of getting health messages to women.

# THE ILLNESS "LACK OF BLOOD"

## Chechewa Translation of Anaemia

Health providers translate anaemia into Chechewa as phrases describing quantity of blood and iron tablets are described as medicine for increasing blood.

| | | |
|---|---|---|
| magazi osakwana | = | insufficient blood |
| wochepa magazi | = | little blood |
| kusowa magazi | = | lacking blood |
| | | |
| mankhwala a magazi | = | medicine for blood |
| mankhwala o onjezela | = | medicine for increasing blood (iron tablets) |

### Village 1

In village 1 "lacking blood" was recognised primarily as a wasting disease. Lack of food was given as the cause of lack of blood for the vast majority of respondents and phrases such as "food is blood" were common. Tsempho was also thought by most respondents to lead to lack of blood because of the loss of appetite and the water lost through diarrhoea. Water loss through diarrhoea was thought to lead to lack of blood with people using the phrase "water is blood". Water loss through sweating was also cited when people talked about how hard work could lead to lack of blood; and people described how when they worked they could feel the life (meaning blood) leaving their bodies. Several respondents from this village told us they felt they themselves were lacking blood because of lack of food and too much hard work. Any long illness was also thought to lead to lack of blood and fever was thought to dry up blood. No respondent said that sorcery could directly cause lack of blood but most said that sorcery could cause illnesses which would lead to lack of blood. Loss of blood at delivery was mentioned rarely but was acknowledged when prompted. Symptoms of lack of blood in village 1 focused mainly on swelling. Weakness, faintness and heart palpitations were mentioned by a few and pallor was mentioned rarely.

### Compound 1

In compound 1 lack of food was reported as an important cause of lack of blood but was not mentioned as frequently as the major cause as in village 1. Frequent deliveries were commonly mentioned as was AIDS, malaria and high temperatures, with a few women mentioning breastfeeding and pregnancy. Lack of the right kind of food (rather than just quantity), tsempho and sorcery were also mentioned. Worms, snakes of the stomach and bilharzia were mentioned, but rarely, as was the belief that lemons dry up blood. A greater variety of symptoms of lack of blood was mentioned in compound 1 with dizziness, weakness, heart palpitations and pallor being mentioned much more frequently than in village 1.

### Village 2

In village 2 lack of food was mentioned first as causing lack of blood but malaria, illness (especially frequent), heavy work and frequent births were also mentioned. As for compound 1 heart palpitations, pallor, weakness and faintness were mentioned as symptoms alongside swelling.

### All Communities

In all communities removal of blood for transfusions and hospital tests was also described as a cause of lack of blood when the respondent had experienced this.

Without probing respondents in all communities tended to describe severe lack of blood but on probing recognised different levels of severity according to the severity of symptoms.

## TREATING LACK OF BLOOD

For severe lack of blood respondents mentioned transfusions as the treatment. Many described stories of relatives needing transfusions, blood they had donated and hearing requests for blood on the radio. Several respondents mentioned transfusions in the context of blood loss after delivery.

In village 1 food was the most frequently mentioned treatment of less severe lack of blood with "vegetables and tomatoes" being the most commonly mentioned food for increasing blood. Coca cola was also bought to increase blood. Iron tablets were mentioned rarely as a treatment for lack of blood and men and pregnant women were much more likely than others to mention them. However, at the end of several interviews, several women said they felt they were lacking blood and asked us for iron tablets.

In compound 1 food was also frequently mentioned as a way of increasing blood but respondents described a greater variety of fruits and vegetables and several mentioned eggs and meat. There must have been a recent health education programme advising people to eat 3 food groups as this was mentioned frequently. Coca cola was also commonly used to treat lack of blood with many respondents reporting that health care providers had advised them to get coca cola after delivery and to take iron tablets with coca cola. Iron tablets were much more frequently mentioned as a cure for lack of blood than in village 1 and again there was some indication that men and pregnant women were more likely to mention them. However, unlike in village 1 respondents did not ask interviewers for iron tablets.

All respondents asked about traditional medicine said there was none for increasing blood. However, there were medicines for treating underlying causes (such as tsempho), and diviners could be consulted if a disease causing lack of blood was thought to be due to sorcery.

In all communities the idea of treating lack of blood was mentioned but the idea of prevention was rare. One TBA and one women from compound 1 mentioned taking iron tablets "to protect themselves" and keep themselves strong, while 2 men from village 1 reported buying iron tablets to keep themselves strong.

## IRON TABLET SUPPLEMENTATION FOR WOMEN OF REPRODUCTIVE AGE

### Supply

Village 1 - **Community**

Sources of iron tablets for women in village 1 are the government clinic (during ANC and curative), the nearest TBA (during ANC) and buying from grocers, mobile salesmen, and markets. The majority of women who had attended ANC mentioned the government clinic as the place they attended. Of the currently pregnant women the number of pills given was reported as being between 2 and 8 per visit although one of these said:

"these days it's not common to find tablets at the clinic".

Another of these women complained about the number given and told us that many women and children were dying of lack of blood after swelling. Women describing the tablets they had been given during their previous pregnancy reported getting between 7 and 11 pills and said they were given an alternative date to go back if the clinic had run out of supplies. Many of the nonpregnant women complained that they were not given iron tablets outside pregnancy even though the women felt they needed them because of lack of food and hard work. There were also some complaints that the TBA would not give iron tablets to nonpregnant women. Both pregnant and nonpregnant women in this village said they had not bought iron tablets with only one woman reporting buying them for her child. Interestingly 2 of the men interviewed in this village bought iron tablets to help keep themselves strong.

Village 1 - Providers

The lack of supplies at the government clinic near village 1 was confirmed by the medical assistant there. He said he was not given sufficient supplies for the size of population he deals with and frequently runs out of many drugs before new supplies were due to arrive. He is given 4 tins of 1000 tablets per month of which he uses 2 and gives 2 to the maternity ward. He said that even if he requests extra supplies the amount given is less than that requested and he still does not have enough. He said that he gives less than the required dose of medicine to try and make supplies last and that when they run out he writes what is needed on a slip of paper so that people can go and buy it. He mentioned that AIDS was big problem in that area but that he did not tell people when he suspected they had AIDS but sends them home with iron tablets. He thought that even if he told them they had AIDS they would still think it was witchcraft.

The TBA confirmed that she gives out iron tablets to women who come to her ANC sessions. She said she gives women 9 tablets every other week during pregnancy and 10 to be taken after delivery. She was dealing with the last deliveries from a batch of 20 women who she had seen through from pregnancy and to delivery. She said she was given the iron tablets she asked for by Thyolo Hospital and got 2 tins (of 1000) approximately every 6 months.

The grocer we interviewed in the village did not sell iron tablets but when first asked described vitamin tablets as medicine for increasing blood.

Village 1 - Preferred Outlets of Iron Tablets

During interviews and the follow-up to the iron trials, respondents were asked their preferences for supply of iron tablets. Responses given during the iron trial are tabulated in Table 2. A more local supply than the clinic was unanimously preferred. The TBA was also thought to be quite far away but otherwise was recommended, although some women complained that she would not give out tablets to non-pregnant women. The headman was strongly favoured by many respondents who said that his being a man would not be a problem. However, other respondents were strongly opposed to this idea saying the headman would not be fair and would favour his family. The mobile clinic was favoured by a few people and some said they would buy tablets if they were sold cheaply at the grocers. (however some said they would still have trouble affording them) and others thought grocers would not sell them at the low price.

Compound 1 - Community

Women in compound 1 reported going for ANC at the estate clinic. Of the 6 pregnant women we talked to about this 3 had not yet started ANC. One of these said she would start at 5 months and the other at 6 months. The other 3 pregnant women said they were getting between 5 and 7 tablets per visit with one of these ladies also buying iron tablets (at a price of around 10T) when she could afford them. The number of tablets given per visit during previous pregnancies of non-pregnant women was between 4 and 9. Several of these women reported that they were only given the tablets if they were ill. Some women in the compound seemed to be wary of buying iron tablets or getting them from TBAs as they had heard they might get expired pills which would poison them. However, as well as the pregnant woman mentioned above one other woman had bought pills at 5T from a mobile seller after feeling she was lacking blood after donating (the hospital had not given her tablets when she requested them).

Compound 1 - Providers

The medical officer explained that the policy at the clinic was to encourage good nutrition practices rather than encouraging dependency on iron tablets because of worries about sustainability of supplies.

"we cannot depend on iron forever, the time will come when it won't be available, if they get addicted to this thing ..."

He said there used to be a problem with the supply of iron tablets but that they now get some supplies direct from Central Stores which had eased the problem. He mentioned giving iron tablets to AIDS patients and those with malnutrition (both of which he said are common problems in the area). The nurse/midwife described how the women who attend ANC at the clinic are given nutritional advice but cannot always afford to take it.

nurse/midwife "if you tell them eat vegetables, meat, they say - I can't afford but if you can give me some medicine .."

female respondent "they know that even when we give this person medicine she doesn't have enough food in her box. They give one of those red pills"

The nurse midwife was very pleasant and helpful throughout the interview but avoided the question on the number of iron tablets given. Eventually she said that women were given 28 pills on their first visit, but were only given pills on subsequent visit if they showed pallor or reported symptoms of lack of blood.

The grocer interviewed in compound 1 did not sell iron tablets.

Compound 1 - Preferred Outlets of Iron Tablets

When asked about preferences for the supply of iron tablets the majority reported that they would prefer the compound watchman to distribute them. Many seemed to be vehemently against distribution by the Health Surveillance Assistant (HSA) although he was favoured by

a few. However there were some suggestions that those in the compound fear the watchman and that in the long term he could not be trusted to distribute them fairly.

Village 2 - Community and Providers

In addition to the estate clinic and the district hospital pregnant women can also get iron tablets from trained TBAs. Both TBAs interviewed gave out iron tablets to pregnant women even though one of them did not do antenatal sessions. The TBA who does not do ANC gives out 10 iron tablets to pregnant women who come to her though it was not clear how regularly women visited her and whether they visited her instead of going to ANC elsewhere. She also reported giving tablets after delivery if the women has lost a lot of blood. This TBA uses a tin of 1000 tablets each month. The other TBA who does antenatal sessions reported giving women 21 tablets every other month between months 4 and 8 and then 7 tablets every other week in the ninth month. She also gives women nutritional advice. She was not asked about the number of tins she used although she did not mention any problem with supply.

Leakage of Iron Tablets from the Health Sector

Several respondents mentioned buying iron tablets from mobile salesmen, markets and grocers. The medical assistant at the clinic nearest village 1 also commented on the fact that he sees a lot of medicine for sale at markets when his clinic is so short of supplies. Therefore one of the research assistants visited a few hawkers and grocers in the 2 main towns in the district to ascertain what was for sale. In one town she tried 6 hawkers and found iron tablets being sold for 10T per tablet at 2 of them. At one of these she bought some tablets and saw that they were taken from a UNICEF tin. She also noticed from the tin that the expiry date was 3 months past but the hawker reassured her that there would be no problems upto 7 months after the expiry date. She was advised to take 2 tablets 3 times a day. The research assistant asked the hawker if he could give her a full tin and he replied that although he did not have that today he could help her. She also tried 2 grocers and found iron tablets in one. The medicine was hidden in a bag under the counter but the research assistant could see that all the medicine was in bags used in outpatients at government hospitals. The iron tablets sold looked the same as those sold by the hawker. In the second town the research assistant tried 4 hawkers but all said they were out of stock of iron tablets.

Another example of leakage was that one respondent in compound 1 mentioned that she had been given iron tablets by her sister whose husband was a medical assistant at a clinic.

## Table 2 Results of Iron Trials in Village 1 and Compound 1

| Feels lack blood? | Took tablets? | No. tablets left | When & how tablets taken | Negative aspects of taking tablets | Positive aspects of taking tablets | Comments by husband or neighbours | Problems with taking more tablets | Preferences for provision of tablets |
|---|---|---|---|---|---|---|---|---|
| **Village 1** | | **10 given visited 7 days later** | | | **Older Women** | | | |
| Yes (prior to trial) | Yes | 4 | 2 per day | | knees and ankles less stiff & heart stopped beating as fast | | when she goes to hospital they don't give them to her | headman free (1)<br>headman 5T (2)<br>grocer 5T (3) |
| Yes (retrospectively) | Yes but gave 1 to husband | 4 | 1 per day after lunch | none | gaining strength | husband wishes we had given him some<br><br>neighbours also wished had been given | would love to get even more, hospital is far and only place people can buy is market | headman free (1)<br>grocer 5T (2) |
| | No | 0 | | made body ache so gave them to people who wanted them | | | | |
| | Yes | 3 | | none | can see a change but skin problem is still there | | didn't understand question | TBA - if in village & reliable stock<br>grocer - a problem because of lack of money<br>headman - no emphatically |
| | | | | | **Pregnant Women** | | | |
| Yes (retrospectively) | Yes | 2 | 1 per day after a meal | - one day got heart palpitations<br>- didn't feel like eating anything afterwards | none | neighbours told her "the government wants to reduces its' people & therefore when you take the pills you are going to die" | ANC only gives 5 tablets per month<br><br>would buy if she had the money | government clinic too far, mobile clinic rare and private clinics expensive prefer<br>headman free (1)<br>headman 5T (2)<br>grocer 5T (3) |

| Feels lack blood? | Took tablets? | No. tablets left | When & how tablets taken | Negative aspects of taking tablets | Positive aspects of taking tablets | Comments by husband or neighbours | Problems with taking more tablets | Preferences for provision of tablets |
|---|---|---|---|---|---|---|---|---|
| **Nonpregant Women** | | | | | | | | |
| No | Yes | 4 | on waking | | felt weak on waking before but now wakes with strength | | "pills rarely found unless one goes to buy at a private clinic" | grocer ST |
| | No | | was waiting to see how husband got on with his | | | | | |
| | Yes | 0 | | "there is no such thing as being unhappy with medicine" | "I feel better now I think maybe it's these pills" | | not given after delivery | prefer someone local but needs to be discussed at village level |
| | Yes | | 1 per day | none | feeling better | | clinic too far | free from grocer |
| Yes (retrospectively) | Yes | 6 (as away in town for a few days) | 1 per day after porridge | | "I can see my body is physically fit" | | | TBA if in village and good stocks |
| | Yes but gave 3 to child | 0 | morning sometimes evening | none | | | "the clinic is far and it's definite that you cannot receive enough medicine" | not the headman |
| Yes (retrospectively) | Yes but gave 2 to child | 0 | | | feels fit (blood = life) | neighbours complained that only some people received them | TBA won't give them to nonpregnant women | interviewers preferred<br><br>grocer a problem because of lack of money<br><br>"chief will not share properly" |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Yes (retrospectively) | Yes but 3 to child | 0 | after lunch every other day | pains and weakness first day<br><br>"felt a bit of a smell in my mouth" | | received the tablets<br><br>was told at the borehole that the tablets were FP but thinks it was jealousy | have problems where to get them" | headman (1)<br><br>a village elder |
| Yes (retrospectively) | Yes but gave 4 to daughters | 0 | 1 per day after lunch | 1st day had body pains and weakness but did not consider stopping taking them | feels fit and physically strong | husband asked if she had been advised how to take them<br><br>was also at borehole when people were saying the pills were FP | has bought in past for child | chief (1)<br><br>mobile clinic (2) |



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| 'eels lack lood? | Took tablets? | No. tablets left | When & how tablets taken | Negative aspects of taking tablets | Positive aspects of taking tablets | Comments by husband or neighbours | Problems with taking more tablets | Preferences for provision of tablets |
|---|---|---|---|---|---|---|---|---|
| 'ompound 1 | | **Given 7 tablets visited 5 days later** | | | **Pregnant Women** | | | |
| | Refused tablets | | | worried about taking pills without being examined | | husband told her "you are silly you didn't get the pills, in your state (pregnant) that's what you need" | asked us for pills when we returned for interviews | |
| | Yes | 1 | | felt dizzy first day but then fine | sleep better stronger | husband told her she was lucky to have been given the pills<br><br>neighbours wanted to know why they had been given pills and not everyone else | | compound watchman preferred |
| | Yes | 1 | after breakfast | | no change as getting at ANC anyway (thinks pills are helpful) | neighbours looked at the pills and confirmed that they were iron tablets, they told her she was lucky to get them | | |
| | Yes | | | none | none | told husband she had the pills but not the neighbours | couldn't tell | would be willing to buy because they are medicine |
| | Yes | | | nausea (but nauseous anyway) | | husband didn't mind her taking them<br><br>neighbours wanted to know on what basis the pills had been given | | clinic except that they only give to anaemic women<br><br>local people could not be trusted<br><br>interviewers preferred |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Yes retrospectively) | Yes | 0 | 1 in the morning and 1 in the evening with water | worried about taking pills without being examined | have become strong | husband was told about the pills | getting the pills especially from clinics "only pregnant women are given" | compound watchman "people will know the pills will be entrusted there"<br><br>grocer - no because wouldn't know where or when he got the pills |
| Yes (prior to trial) | Yes (forgot on one day) | 1 | after breakfast or supper | none | none | husband encouraged her to take them | getting medicine | watchman<br><br>strongly against HSAs (would sell them)<br><br>cant get them on demand at clinic |
| | Yes | 3 | each day after supper | "the medicine has the smell of blood but that didn't worry me because they are helpful and good" | | did not tell neighbours | hospital people would not give them out on demand | compound watchman |

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| Feels lack blood? | Took tablets? | No. tablets left | When & how tablets taken | Negative aspects of taking tablets | Positive aspects of taking tablets | Comments by husband or neighbours | Problems with taking more tablets | Preferences for provision of tablets |
|---|---|---|---|---|---|---|---|---|
| **Nonpregnant Women** | | | | | | | | |
| | Yes | | | dizzy first day but then no problems | (looked better to interviewer - swollen feet almost normal) | | access to pills | HSA preferred even though would have favourites and sell the medicine |
| | Yes | | | none | enable her to work better | told husband she had the pills | | clinic<br>no-one locally<br>interviewers preferred |
| | Yes | | before bed | first day couldn't get up | stronger and better | | | (as above discussed together) |
| Yes (retrospectively) | Yes | 0 | 1 in morning 1 in evening | didn't like the smell | getting strength | husband asked what the pills were for<br><br>neighbours said they would not have chatted with us on such issues | "they don't give us when we go to the hospital/clinic, it is rare" | HSA preferred |
| | Yes then stopped | 4 | 1 per day | stopped taking tablets because felt weak & knees and ankles shook | | husband asked what the pills were for<br><br>did not tell neighbours | "they don't give them at the clinic" | HSA as "they can be trusted" (1)<br><br>the watchman (2) |
| | Yes but offered them to husband | 1 | before breakfast | made her hungry<br><br>worried to take pills without being examined | less dizziness and gaining strength | husband didn't take pills although offered them<br><br>neighbours wished they had been given some | "pills are not easily found"<br><br>"one can't easily get the pills at the clinic/hospital" | HSA as it would be convenient |
| | Yes | 3 | one in the morning and one in the evening after meals | none | | husband asked what the pills were for<br><br>did not tell neighbours | getting pills | compound watchman most preferred<br><br>grocer least preferred |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| No (prior to trial) | Yes | 3 | 1 per day | heart palpitations 1st day even though pills taken after supper | | reported that 2 neighbours given the pills were not going to take them because they were worried | people not given tablets unless sick<br><br>(this person previously very adamant that should only take tablets if lacking blood) | |
| | Yes | 1 | after breakfast (or supper if forgot) | overslept 1st day after taking tablets night before<br><br>at first was hesitant to take the medicine as thought it was bad | | | not enough pills given, 7 on first ANC visit only | |
| No (prior to trial) | Yes but gave some to child | 1 | after breakfast (or supper if forgot) | no problems | body no longer weak and dizzy in the mornings | husband encouraged her to take them | | "give them to the compound watchman rather than the hospital people" |
| No (prior to trial) | Yes | 1 | after breakfast | none | none | husband encouraged her to take them | | |
| | Yes | 2 | 1 each day after lunch | heart palpitations and a slight smell | | husband asked to see the medicine then didn't say anything<br><br>neighbours told her it was medicine to make her barren | can't get on demand at hospital | compound watchman best |



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## Compliance

Questions on compliance were asked during case interviews and in addition iron trials were undertaken with the specific aim of eliciting information on compliance. The results of the iron trials in village 1 and compound 1 are shown in Table 2.

Village 1

During case interviews women were asked about iron tablets taken during the present or previous pregnancy. All women said they had taken the iron tablets given to them even though one of them said they had not taken Fansidar when given it. The dosage recommended was 1 or 2 tablets per day with 2 being slightly more common. One of the nonpregnant women said she was advised to take the pills with coca cola. One of the 3 pregnant women commented that the pills are helpful and of the 7 nonpregnant women 4 said the iron tablets make them feel better. One nonpregnant woman said she was told the pills would stop her losing a lot of blood at delivery and another said she had been told that at delivery she would only lose the blood increased by the pills. Two of the nonpregnant women mentioned that they suffered from nausea when taking the pills although one of these said she did not suffer the side effect if she took the pill with food. Two of the nonpregnant women mentioned that they do not share their tablets because they are given an exact dose.

Ten women of reproductive age took part in the iron trial in village 1 and one of these was pregnant. Four older women also took part in the trial. The pregnant women had taken 1 tablet a day despite having heart palpitations the first day she took them and loss of appetite thereafter. Neighbours had tried to worry her about taking the pills by saying that they were to kill her. She said she was only 5 given tablets at ANC and would buy more if she had the money. Of the nine nonpregnant women of reproductive age only one had not taken any pills as she was waiting to see how her husband (who had also received pills) had got on. Half of the remaining 8 women had shared some tablets with their children. Of the 8 nonpregnant women who had taken pills 2 reported side effects on the first day but 7 made positive comments about how they felt. Of the 4 older women who took the pills, 3 reported only positive effects but the other said her body had ached so she had given the tablets away to those who wanted them. Apart from the neighbours comments to the pregnant woman mentioned above and comments about the pills being family planning to 2 other women, the other 3 comments from neighbours were complaints that they had not received pills.

Interestingly although the vast majority of women said during interviews that they took the tablets they were given, one of the husbands interviewed said that some women do not take the pills because they cause drowsiness, headaches and nausea. This man listened to the radio frequently and was one of the few in village 1 to give frequent births as a cause of lack of blood. The same man also thought it was possible to become addicted to iron tablets.

The medical assistant at the clinic nearest to village 1 said that women like iron tablets:

"they are keen, they are keen, ... and they say they need more"

Compound 1

During the case interviews with women talking about their present or previous pregnancy none said that they had not taken the medicine. Of the 3 pregnant women who had started ANC one was very enthusiastic about iron tablets and said she bought pills when she could afford and another said that the pills help with palpitations and faintness. However, the latter woman also said that if you take the pills when you are not ill it leads to a problem. Of the 8 nonpregnant women 2 mentioned that the pills protect the baby (increase the blood for 2 lives) and 1 woman mentioned feeling stronger when she took the pills. One reported feeling weak when she took the pills and so took them in the evenings. Five of the 8 nonpregnant women mentioned that it was bad to take pills if not lacking blood because of spoiling the blood or getting too much blood. One of these was very adamant and felt she had lost a lot of blood at delivery because she had taken iron tablets during pregnancy. Two of the 8 nonpregnant women mentioned that the dose of iron tablets they got was an exact one for them. In this community different coloured iron tablets were mentioned. The usual tablets are red or pink but some women have experience with khaki tablets. For both cases where the khaki tablets were mentioned there was a debate between women about whether both tablets were the same or whether the khaki ones were only for nonpregnant women.

Twenty women were followed up for the iron trial in compound 1 with 8 of these being pregnant. Two other women given the pills were reported to be avoiding the interviewers because they had been too worried about the pills to take them. One of the pregnant women refused to receive the iron tablets having previously mentioned that health messages on the radio said that medicine should not be taken casually. However, when she told her husband he told her she should have received the pills and when the interviewers returned for the follow-up interviews she requested some pills. All the other pregnant women said they had taken the pills with 2 women reporting minor side effects and 2 reporting feeling better. As well as the women who refused the pills one other pregnant women reported being worried about taking the medicine without being examined. Of the 12 nonpregnant women one stopped taking the pills because of side effects but the others said they had taken their pills despite any side effects reported. Two nonpregnant women reported being worried about taking the pills without being examined. Reactions of others to the women being given the pills to take were: encouragement by some husbands to take the pills; envy of some neighbours; and being told that the pills were to make women barren. No sharing of pills was reported although one nonpregnant woman had offered one to her husband (he refused it).

There was some concern about the validity of the data collected during this iron trial. The belief that iron tablets shouldn't be taken if a person has enough blood was common in the compound as were concerns that tablets should only be taken after an examination and were given as an exact dose. However, despite this only one woman refused the tablets and 3 did not take them. Even one young woman who had been adamant about not taking pills if not lacking blood received the pills and reported taking them. When questioned about this inconsistency she said":

"of course I cannot refuse a thing I've just been given freely! Suppose somebody has given you something are you going to refuse it? Suppose someone gives you a chitenje (wrap) are you going to refuse it just because you have another chitenje?"

However, despite these doubts about the validity of this data the health providers confirmed the popularity of the tablets. The medical assistant at the estate clinic when asked if women like iron tablets said:

"generally they like it, some people come and ask for pills. So far I never came across anyone refusing to take it" (he gets women to swallow it in front of him because he is worried about sharing of pills)

The nurse midwife at the same clinic when asked if any women tell them they won't take the iron tablets said:

"no I haven't heard that but when we were giving Fansidar they were reluctant"

Asked if she had had side effects of iron tablets reported to her:

"I think they seem to like the tablets"

Village 2

In village 2 the side effects of dizziness and palpitations were mentioned when iron tablets were discussed. However women also reported feeling better and one had bought iron tablets. In one discussion women said that older women advised pregnant women to take iron tablets. Fears about getting too much blood and the belief that iron tablets are given in an exact dose were common.

The TBA in village 2 who gives out iron tablets but does not run ANC sessions said that women asked her for the pills and would often come when she had run out. She said that women were happy with the red pills but had complained about the khaki ones. She thought that if women shared their iron tablets they would be too afraid to say so. The other TBA said that sometimes she can tell by the way that women receive tablets that they are not happy to take them. She said that the women often deny this but that their friends reveal the truth. She advises women who are reluctant to take the tablets to take them after food and finds that this solves the problem. She also reported that women don't like the grey iron tablets but are generally happy with the red ones. She said:

"they talk (i.e. badly) about the contraceptive pills, they praise ferrous"

This TBA thought that it just would not happen that a person with enough blood can take iron tablets. She diagnoses lack of blood on the basis of pallor of eyes, palms and tongue and reports of weakn· heart palpitations, tiredness and faintness.

The pregnant nurse/midwife who has recently moved from another district of Malawi and now works in a town clinic could not tolerate iron tablets during pregnancy and so takes folic acid instead. She thinks that for women with severe side effects in pregnancy it would be preferable to give women iron after delivery. In the district where she used to work she estimated that around 1 in 20 women complained of side effect. It is interesting that she had such a different experience of giving and taking iron tablets to the other providers we spoke to.

The Illness "Too Much Blood"

In compound 1 and village 2 the illness of too much blood was a commonly mentioned concern. Taking iron tablets if not actually lacking blood was seen as a problem with phrases such as "it's impossible to take iron tablets and yet you know you have enough blood!" being common. Too much blood was said to activate dormant diseases in the body. One person said that a symptom is sweating because of too much water in the body. One woman in village 2 mentioned asthma as one disease activated by too much blood and another said she had developed heart disease because of having too much blood. The mention of heart disease caused the interviewers to question whether people were referring to high blood pressure as "too much blood". Medical personnel use a phrase translated as "blood running too fast" to describe high blood pressure but it seems likely that people are confusing the two.

OTHER INTERVENTIONS

This qualitative study of constraints to reducing anaemia in women of reproductive age was conducted before a hospital based study of which the aim was to obtain some idea of what could be causing anaemia in the study area. The qualitative study therefore went ahead on the basis that iron deficiency would be a major cause. Data on possible constraints to iron supplementation are given above and in this section constraints to: improved diet, use of iron cooking pots; and malaria prophylaxis are briefly considered.

**Nutritional Advice**

The diet at the time of year we interviewed (October/November) consisted mainly of:

| | |
|---|---|
| breakfast | Tea or maize porridge or nothing |
| lunch and/or supper | Processed or unprocessed maize alone or with a green-leafed "relish" which sometimes has tomatoes added.<br>Small fishes or beans were sometimes as relish<br>Meat was consumed rarely if at all |
| outside main meals | mangoes |

Respondents in village 1 reported that food could increase blood and the most commonly mentioned combination of food for increasing blood was vegetables and tomatoes. In compound 2 the range of fruit and vegetables mentioned was wider and many people mentioned that it was good to eat food from the 3 food groups. However, money and food were reported to be in short supply. Tea estate workers were on minimum hours or short weeks (because it was the low season for tea picking) and villages had run out of food from the last harvest. Therefore people could barely eat enough of the staple (maize) let alone eat what they thought they should.

village 1 (1) "we always like to change from one food to another but we can't do that because we don't have money" (2) "during harvest time it's easy to find food but during this time it's difficult to find food (meaning maize) as well as relish"

compound 1 (1)"during the rainy season vegetables are easy because we grow them ourselves like pumpkin leaves, green jala, and leaves of cowpeas. But this time they are expensive. For example we are buying 2 leaves of pumpkin at 20 Tambala and rape, 2 leaves at 50 Tambala" (2) "like this time it's difficult to find food because it's expensive. For example maize is going at 2 Kwacha 50 Tambala per Kg and the salaries are very little, and that maize lasts a few days only, and after ... problem, problem" (3) "I don't eat fish and meat, the last time I ate meat was last year"

There were some indications that when there is meat it goes to the husband. Women mentioned that when they marry they are told to cook the food the husband likes. A couple of women mentioned that men prefer meat to vegetables, and one woman said that it is easier to give a small portion of meat to the husband than to divide it up. It seems to be a widespread practice to give the last piece of meat to the husband so that he knows it is finished. Apart from this women said that the food is divided equally.

### Use of Iron Cooking Pots

Throughout the study area aluminium or clay cooking pots are used. Therefore there is potential for increasing iron levels in the population by the introduction of iron cooking pots. The acceptability of iron cooking pots was not investigated and no local supplies were known.

### Malaria Prophylaxis

Especially in the tea estate compound and village 2 malaria was known to be a cause of "lack of blood" and to be dangerous to unborn babies if occurring in pregnant women. Reports of what happen at ANC suggest that malaria prophylaxis is not presently routine. Information on compliance was not deliberately collected but in the course of collecting data on iron tablets in compound 1 one nurse midwife mentioned that women were reluctant to take Fansidar and one woman said she had not complied with taking it. .

## CONCLUSIONS

### THE ILLNESS LACK OF BLOOD

Anaemia is defined by haemoglobin levels in the blood and it is not easily diagnosed by signs and symptoms even by trained clinical personnel. However, the causes, symptoms and treatment mentioned by men in village 1 and men and women in village 2 more closely fit the accepted clinical picture of anaemia than those mentioned by women in village 1. Cough, malaria and diarrhoea leading to wasting and death were seen as serious illnesses within the study area. AIDS was mentioned in compound 1 and village 2. Wasting was associated with lack of blood, more obviously so in village 1. These diseases are believed to be caused by sorcery and breaking rules regarding sexual behaviour and women's cleanliness as well as biomedical causes.

*Knowledge of: causes of anaemia, especially those specific to women and those not relating to wasting; and symptoms of anaemia other than "thinness and swelling' is poor amongst those with relatively little contact with health messages, such as those living in the villages, and especially women in the villages.*

### COMPLIANCE

Women's beliefs about the cause of lack of blood in village 1 combined with difficulties in getting enough food and the need to work hard on the land translated into a strong demand for iron tablets which was not so obvious in compound 1 and village 2.

Pregnant women in village 1 were more likely to mention iron tablets as a way of treating lack of blood than nonpregnant women. Apart from that there was no obvious difference either in attitudes to the tablets or in compliance or side effects between pregnant and nonpregnant women.

People in village 1 mentioned less concerns about taking iron tablets than those in compound 1 and village 2. The concerns expressed were terms of too much blood, only taking tablets after examination and being given an exact dose. Three women in compound 2 did not comply with taking the tablets in the iron trials because of these concerns. It seems likely that a recent radio campaign about not taking medicine casually could be responsible for this, as could the fact that the estate clinic only gives iron tablets to women diagnosed (on the basis of pallor or reported symptoms) to have anaemia.

Side effects were reported by women in both communities, and tended to be more common on the first day of taking the tablets. Only one woman in each community admitted to not taking the tablets in the iron trials because of side effects.

Apart from the 5 women mentioned above all women said they complied with taking iron tablets. Some from village 1 admitted sharing pills with children, whilst, apart from one woman offering tablets to her husband, no sharing was admitted in compound 1.

Benefits of taking iron tablets were talked of in terms of the woman feeling better and stronger. By the belief of "walaza" this would also lead to a stronger child. Benefits to the

unborn child of taking iron tablets were rarely mentioned although it was recognised that lack of blood in the mother would affect the child.

Iron tablets seemed to be regarded as a cure for lack of blood rather than for prevention by the majority of those interviewed. However, women seemed to accept that they were slightly lacking blood when pregnant, and that they needed to increase their blood because they needed enough for "2 lives". "Increasing blood" to mitigate against the blood lost at delivery was also mentioned as a reason for taking iron tablets either during pregnancy or after delivery.

Providers in all communities confirmed the popularity of iron tablets.

*There is a demand from all sections of the community for iron tablets to help against wasting (however caused). Although food is viewed as the primary way of imparting health to the mother and child, the benefits of iron tablets to the mother, and therefore the child, were recognised by most members of the communities in terms of treating slight lack of blood due to pregnancy, increasing blood for "2 lives" and mitigating blood lost at delivery. However, in communities with a higher exposure to health messages (through radio and contact with providers) concerns had been raised about iron tablets inducing the illness "too much blood", taking iron tablets without an examination, and not taking them as an exact dose. There was a more liberal attitude to getting and taking iron tablets as well as more sharing in communities that do not have these concerns. There was some evidence of non-compliance due to the above mentioned concerns as well as side effects but in general women and health providers confirmed the popularity of iron tablets.*

SUPPLY

When women from either community were asked what stopped them from taking more pills the unanimous answer was that getting the pills was the problem.

For women from village 1 the distance to the health centre, the small number of iron tablets given at ANC and erratic supplies were given as the main problems in getting the tablets.

In compound 1 the low number of tablets given at ANC was cited as a problem along with the fact that only women who are assessed as having anaemia are given tablets on subsequent visits. This policy is likely to be contributing to the concerns about iron tablets described in the paragraph above.

Health personnel at the clinic nearest to village 1 confirmed the low number of tablets given at ANC as well as confirming erratic supplies. They said they were not given enough iron tablets or other drugs for the population they serve. They thought this problem was common throughout Malawi and also that there was some leakage of drugs onto the market.

Health personnel at the estate clinic which serves compound 1 said that although they had previously had supply problems with iron tablets they had overcome this by obtaining supplies direct from central stores. They confirmed the policy mentioned by women of only giving iron tablets to all women on first visits although there was some discrepancy between the numbers they said they gave and the numbers that women said they received.

Medical assistants at both clinics reported giving iron tablets to those they suspected had AIDS or malnutrition. Given the extent of these problems in the study area a significant proportion of iron tablets is likely to be utilised in this way.

There was a government trained TBA at a distance of 2 villages from village 1, and there were at least 2 trained TBAs in village 2. All three supply iron tablets to pregnant women. None mentioned supply as a problem.

A very brief preliminary inspection of hawkers and grocers indicated that there is some leakage of iron tablets onto the market.

Women mentioned starting antenatal care at around 5 to 6 months of pregnancy but it was difficult to assess how regularly they actually went.

Women in both communities were asked about preferences for distribution of iron tablets. Most wanted more local supplies, but local distributors such as the headman in village 1 and the compound watchman or the health surveillance assistants in compound 1 proved controversial. Tablets being sold at a low price by grocers was viewed positively, but with reservations about the ability to afford them, by some respondents in both communities. Grocers showed a lack of knowledge about anaemia and iron tablets and on giving appropriate advice when people buy medicines.

*All sections of the community, as well as pregnant women, felt the main barrier to them taking more tablets was obtaining the tablets. Pregnant women were not given iron tablets every ANC visit and when they were given tablets the number was low. This was due either to inadequate stocks, or the providers policy. Possible reasons for inadequate stocks for providers are: inadequate supplies to the country as a whole, leakage into the market somewhere along the chain of distribution to providers, and provision of tablets to large numbers of the community suffering from malnutrition and AIDS which takes away supplies for pregnant women. It is also likely that providers adjust their policy for giving out iron tablets according to the stocks they assess they can rely on. The idea of increasing coverage by introducing additional local outlets was popular but there was controversy over who and what the additional outlet should be. If tablets were sold at a low price e.g. 5T and advertised as such more people than at present are likely to buy them. Grocers have a low level of knowledge about anaemia and iron tablets. If health providers increase the number of iron tablets given out at ANC and for curative purposes then the demand for bought tablets may be less.*

## INFLUENCES ON HEALTHCARE DECISIONS

Decisions about healthcare are made by consultation among spouses and extended family members in village 1 and neighbours in compound 1. The husband usually has to authorise the final decision and payment (where necessary). However, especially in the villages, considerable pressure could be put on him by the wife's family.

There were reports of beating and scolding of women at delivery by some nurse/midwives, as well as threats to some of the respondents about the information they were giving us. This

attitude of some of the providers is likely to discourage women from attending health facilities. It is also not indicative of a sympathetic relationship where women can discuss side effects of medication easily.

Men in village 1 and men and women in compound 1 were more likely to listen to health messages on the radio than women in village 1. Posters containing health messages were observed but described passively. Songs general and about healthcare were described enthusiastically.

It seems likely that because of the distance from the government clinic near village 1 and because of lack of motivation in attending because of erratic drug supplies that people in village 1 have less contact with the formal health centre than those living in compound 1 or village 2.

*Decisions about healthcare are made by the family rather than individuals. Men control the finances to purchase treatment. Women are sometimes treated unsympathetically by nurse midwives. The difference in exposure to radios, and contact with health providers was associated with differences in knowledge about anaemia and iron tablets, as well as concerns about iron tablets. Men in the villages (through radio) and residents on or among the tea estates (through radio and contact with health personnel) had a higher exposure to health messages but this had resulted in more concerns about iron tablets as well as the advantage of increased knowledge about maternal anaemia. Songs are likely to be a popular mode of communication for health messages.*

NUTRITION

Nutritional advice was favoured by the estate clinic as a method of reducing anaemia and women were advised to eat a varied diet including vegetables, eggs and meat. Other health advice also recommends a varied diet (3 food group). Women said they tried to follow this advice but could not afford such a diet at the time of year we were interviewing.

The belief that coca cola increases blood was common throughout the communities. Although coca cola was roughly 10 to 20 times more expensive than an iron tablet it was purchased by more people for increasing blood than iron tablets. Advice from nutritionists consulted has conflicted as to whether coca cola does contain iron, and/or whether it facilitates absorption of iron from tablets or food.

Lemons were believe to reduce blood, but it is not clear how available lemons are on the markets or in what way they are used in the diet.

Tea drinking does not appear to be common. Sweet tea seems to be most commonly drunk as breakfast.

When available a relish of green leaves is eaten with the main staple of processed or unprocessed maize. Sometimes tomatoes are cooked with these green leaves. The absorption of iron from such a diet was not mentioned either by the communities or health providers.

There were some indications that men are more likely to eat meat than women when it is available to the household.

*Women in the village had a poorer knowledge of nutritional advice than those on the estate but all cited poverty as the major constraint to a varied diet. Gender roles may also be a constraint to a varied diet for women. No nutritional advice on methods of increasing iron intake from food were found for the type of staple (maize) eaten in Malawi. The role of lemons in the diet is unclear. Information on whether coca cola should be discouraged or not is conflicting.*

## IRON COOKING POTS

Aluminium or clay cooking pots are used in the study area. Acceptability of iron cooking posts to increase iron intake was not investigated. Nearest sources of iron cooking pots were also not investigated.

*The introduction of iron cooking pots into the area may be a sustainable way of increasing iron intake but their acceptability and availability are not known.*

## COMPLIANCE WITH MALARIA PROPHYLAXIS

Especially in the tea estate compound and village 2 malaria was known to be a cause of "lack of blood" and to be dangerous to unborn babies if occurring in pregnant women. Malaria prophylaxis during pregnancy is not presently routine. However although not the main focus of concern during this research There was some evidence that compliance with taking Fansidar as a prophylaxis is a problem.

*If malaria prophylaxis with Fansidar during pregnancy is recommended as part of tne intervention there are likely to problems with compliance*

## RECOMMENDATIONS

### CONSTRAINTS TO INCREASED IRON SUPPLEMENTATION THROUGH TABLETS

#### Supply of Iron Tablets

The major constraint to increasing the number of iron tablets taken during pregnancy is the number of tablets provided at ANC. Research to answer the following questions is therefore recommended :

- whether the number of tablets supplied to Malawi is adequate
- whether leakage onto the market is occurring and at what level
- basis on which the supplies to each provider are decided
- basis on which providers allocate their supply of iron tablets to ANC
- basis on which providers allocate iron tablets to pregnant women

During this research it will be vital always to validate the number of tablets the supplier reports giving with the number received.

#### Additional Outlets of Iron Tablets

- no additional outlets of free iron tablets are recommended
- the legitimacy of supply of grocers, hawkers and travelling salesmen should be investigated
- legitimate supplies of iron tablets should be provided to local grocers to sell at a low price (5T)
- availability and safety of iron tablets bought from local grocers needs to be advertised
- concerns about obtaining iron tablets other than after an examination by a health provider need to be dispelled (see below)

#### Target Groups for the Supply of Iron Tablets

- if supplies are adequate pregnant women should be given the WHO recommended dose of iron tablets

  if supplies are inadequate then supplies need to be targeted at women assessed to be anaemic and methods for assessing anaemia made as accurate as possible

- if supplies are adequate women should be given iron tablets after delivery

- if supplies are adequate women should be offered iron tablets at child clinics and when they request them because they feel they are "lacking blood"

**Behavioural and Knowledge Objectives Relating to Iron Tablets**

All members of the community

- improve knowledge of causes, symptoms and treatment of anaemia, drawing special attention to those that relate to women and pregnancy (especially for those with limited access to health care and messages)

- emphasise to elders and husbands that they are fulfilling well their responsibility for the health of the woman and the unborn child when they encourage women to go to ANC, and encourage them to take their tablets (without sharing).

- dispel worries about the disease "too much blood" by reassuring people that if iron tablets are taken according to the doses specified then they are unlikely to cause illness even if a person is not obviously anaemic; and by clarifying that high blood pressure is not caused by taking iron tablets

- educate that iron tablets are not like other medicines and can be bought and taken safely without the person being examined by a health provider (assuming that supplies are legitimate and unexpired)

- inform communities that iron tablets are available in grocers at a specified price, and that this source of tablets is legitimate and safe

- educate that while blood donating can lead to "lack of blood" giving small amounts of blood for medical tests is both necessary and does not lead to lack of blood

Pregnant women

- visit health facility or TBA in the second trimester of pregnancy and thereafter as requested by providers, to obtain iron tablets (assuming supplies are adequate and providers will give them out)

- talk to providers about any side effects and obtain advice on how to minimise these

- take the iron tablets in accordance with counselling given by provider to increase absorption but minimise side effects

- understand that TBAs are part of the health sector in Malawi and that the tablets they give out are not more likely to be expired (and therefore poisonous) than those given out at clinics

- benefits of iron tablets for pregnant women should be couched in terms of the following:
    - they make the women and therefore the baby healthy and strong (rather than big)
    - pregnant women need to increase their blood for "2 lives"
    - pregnant women often lack blood slightly (relating this to the "2 lives" and the fact that women may not want to eat properly)
    - increasing blood during pregnancy makes up for the blood lost at delivery

Iron Tablet Providers (including TBAs):

- give the WHO recommended dose of iron tablets to every pregnant woman at ANC (if supplies are adequate)

- if supplies are inadequate providers should be advised on the optimal way of targetting iron tablets

- advise women when to return for their next visit and their next supply of iron tablets

- be sympathetic and empathic to women's' problems with iron tablets, pregnancy or delivery

- make every effort to obtain adequate supplies of iron tablets

- maintain an awareness of how iron tablets are being distributed among different groups (e.g. pregnant women, malnourished people, suspected AIDS/TB sufferers etc.)

Health providers, TBAs and Health Surveillance Assistants should receive (refresher) training on:

- causes, effects, consequences and treatment of anaemia, especially for mild anaemia which may not be obvious from signs and symptoms

- recognition of moderate/severe anaemia based on observed signs and reported symptoms

- effective ways to communicate information on anaemia during group teaching sessions and in one to one counselling.

- the importance of being approachable and sympathetic

Grocers

- causes, symptoms, effects, consequences and treatment of different severities of anaemia

- when appropriate to recommend iron tablets to customers

- advice on answering customer's queries and concerns about iron tablets

- advice concerning the relative merits of coca cola and iron tablets for increasing blood

Communication Channels

- radio messages are likely to reach men and economically better off communities

- posters at wage collection points could be used to reach men

- health talks at ANC sessions (given by nurse/midwives and TBAs) could reach pregnant women (colourful visual aids could be incorporated into this)

- songs in the waiting area for child clinics could be used to reach women of reproductive age (existing expertise in the use of songs for communicating health message could be utilised)

- health talks given by HSAs could be used to reach mainly women of reproductive age (colourful visual aids could be incorporated)

- drama groups could be utilised in market places, at eating places for estate workers and during health talks to reach different sections of the community

CONSTRAINTS TO IMPROVED IRON ABSORPTION IN DIET

- more information on diet throughout the year should be combined with expert nutritional advice to ascertain what the optimal and most feasible methods of improving iron absorption are

- nutritional advice should emphasise that citrus fruits help the absorption of iron and that lemons do not dry up the blood

- expert nutritional advice is needed to reconcile conflicting information on whether the drinking of coca cola to "increase blood" should be encouraged or discouraged.

- men should be targeted for nutritional education as they often take part in planning food purchases or purchase the food themselves

- men and elders should be taught about the importance of encouraging women and especially pregnant women to eat a varied diet (or more specifically an optimal diet for improving iron absorption if this becomes available)

- present education given to women of reproductive age on the importance of a varied diet (or an optimal diet for iron absorption) for the health of the pregnant women and their babies should be continued

- communication channels are as for education on iron tablets

## CONSTRAINTS TO INCREASED IRON INTAKE THROUGH THE USE OF IRON COOKING POTS

Further research should be conducted to ascertain acceptability and supply constraints to the use of iron cooking pots

## CONSTRAINTS TO REDUCTION OF ANAEMIA THROUGH MALARIA PROPHYLAXIS

If malaria is found to be associated with anaemia in this community and malaria prophylaxis is recommended as part of the intervention then the steps set out above to improve motivation and compliance with iron tablets will need to incorporate compliance with Fansidar.

## Appendix I

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Appendix II Data Collection Instruments

**Reducing Iron Deficiency and Anaemia in Women of Reproductive Age in Thyolo District, Malawi**

**Revised Interview Guide :Women + friends/relatives**

**Introduction to the project:**

Say your name and where you are from.

We are here to learn from people about women's health in general. Project Hope is helping us do this work. We would like to speak to people about what they think about health and the care they receive. We would like to talk about things which concern people, but in particular, we are interested in knowing about medicine for adding blood. Everything we learn from people we will put together to have a complete picture, but no names of people or the villages we visit will be written down or talked about with anyone.

**Beliefs/ideas/values & personal experiences:**

What are the main illnesses that affect adult women here?

What are the main problems that a pregnant woman can have here? (list- ask about severity, symptoms, causes, remedy, possible prevention for each illness cited). If possible, ask if she or anyone she knows has ever experienced any of these illnesses- concrete narrative)

What should a woman do and not do when she is pregnant (work-related, food taboos, sexuality...)? What happens if she does not do this? Do women often follow these rules?

What are the rules that a woman should follow after the baby is born? (ask about timing, possible risks, specific care-taking, who is available to help the mother)

What illnesses can affect a woman after the birth? Have you ever heard of any women having this?

Can the types of food you eat affect your blood? How? Why? When? What are vitamins good for? How? Why?

Can you tell me about the different types of diseases relating to slightly decreased blood or lack of blood? What can cause a person to have decreased blood? (probe diet, mtsempho, other disease, sorcery etc.) How can you tell whether a person has decreased blood etc? How does a person who has decreased blood feel? What can a person who has decreased blood do to treat themself? (probe traditional, hospital etc, do they mention iron tablets?) What can happen if a person who lacks blood or has decreased blood is not treated? If a pregnant woman has decreased blood can this affect the baby? How?

Can a person have too much blood? How can this happen?

**Experiences with iron tablets:**

What do they do in antenatal care here? (list things) What do you think is most important for a doctor or nurse to do for a pregnant woman? (try to get a hierarchy and see where iron tablets are placed)

Have you ever taken iron tablets, when, what for? Who gave them to you? Did they give you any advice on how to take the tablets? What did the tablets make you feel like? Have you taken different types of iron tablet? (if so how are they different and which is better? Why?)

Have you heard any stories about iron tablets? (probe for details, whether they are commonly believed etc).

Do you think iron tablets can help pregnant women? How? Why? Do you think iron tablets could help women who are not pregnant? How? Do you think it is better to take iron tablets during pregnancy or after delivery? If iron tablets are taken during pregnancy can this affect the baby?

Do you think iron tablets can help men, children? How? Why? (Probe whether woman ever under pressure to share tablets with husband, children etc)

What affect do iron tablets have on people who do not have decreased blood?

Do you know of any TBAs who supply iron tablets? Would you like to go to a TBA to get iron tablets? Have you ever bought iron tablets? Where? How much were they? Why did you buy them?

What is it that makes getting, taking iron tablets difficult for you?

**Health care seeking and expectations:**

Who helps you and your family when you are sick? What options do you have? When was the last time you went there? Were you happy with what happened? What could have been better?

What do traditional healers here do for women? When was the last time you went to one? Do traditional healers help pregnant, menstruating, breastfeeding women? How? What do TBA's do for pregnant, menstruating or breastfeeding women here? Do they help you after the birth? What do they do?

What makes a good doctor, nurse, health care attendant, traditional healer?

If she has not mentioned a clinic or health centre: how long does it take to get to your nearest clinic? How do you travel there? When did you last go? Were you satisfied with what happened there?

**Other sources of health information**:

Who do you talk to most when you have a question about your health or the health of one of your family members?

Do you ever listen to the radio - are there ever any health messages on the radio?
When you go to the hospital or health centre (if at all), are there any posters there? What do they tell you?
Home craft groups/church groups/HSAs - do they help with health at all? What do they say to people?
(If people mention family planning as one of the messages probe: stories about family planning, whether and why it is good, what men think)

**Household structure and relations**:

Kinship diagram (for about 5 cases just to get an idea) See who are the main people in her life and in what ways they interact with her.

Who makes decisions about where to go for illnesses, about medicines to buy, about foods to buy?

Main sources of income. Who in your family works on the estates? Does the woman work? Does she have to ask for money? If she works, does she have complete control over that money?

Who decides how much money is going to be used for what household items (including food)? How is this decided? Has it ever changed? When and why? Rank main household expenditures from most important to least important. What would you do if you had to choose between these items? What does your husband like to spend money on apart from household items? (beer? clubs?)

Would you ever pay for health care? Have you ever paid for health care? Do you think health care that is paid for is better? Why? How much would you pay for iron tablets?

Do you like eating the same thing or do you like to change foods? Why? What types of relish do you like to eat? Who shares the same plates of food in this houshold? Who prepares the food? How is the food distributed in your family? Other women have told us that women in Malawi love their men too much and give them the best food - is this true?

Do you ever drink tea, coffee? What type of cooking pots do you use? (ie aluminium, clay, chrome, iron)

Is it difficult to get enough food for your family? When is it easier and when is it harder?

**Form for demographic data: women**

Name_____

Address/Village/Compound etc_____

_____

Some assessment of age _____

Number of living children |__|__|

Marital Status _____

Ever attended school? |__| yes |__| no

**Socio-economic status**

What do they use for cooking? _____

What do they use for lighting? _____

Do they have chairs? |__| yes |__| no

Do they have a bed |__| yes |__| no

Do they have a radio |__| yes |__| no

**Mother**

Is mother still alive |__| yes |__| no

How close does she live _____

_____

**Others interviewed**

Names & relationship to woman of other people included in this case study:

_____

_____

_____

**Reducing Iron Deficiency and Anaemia in Women of Reproductive Age in Thyolo District, Malawi**

Key Informant Interview Schedules

**Medical Assistants**

What are most common diseases here?

What are the most serious diseases here, leading to death?

Is there much hookworm, Shisto, malaria, anaemia, AIDs here? What facilities do you have for determining whether a person has anaemia?

When you see patients that you suspect have AIDS what do you do? (prompt give iron tablets?) What do you say to them? (what do they think is wrong with them?)

Do you think people might be confusing lack of blood and AIDS?

Do you get enough drugs to give to people? Why? What about iron tablets? Can you always give them when there is a need? Do you think they should be given routinely to pregnant women or only if they are anaemic?

Do people here like to take iron tablets? What do they say about them?

What do you think the best intervention would be to reduce iron deficiency and anaemia here?

**Nurse/Midwives**

What do you do for ANC here? (test for anaemia? look for anaemia? mention iron tablets?) What are the most common problems women suffer from during pregnancy? (mention anaemia?)

Do you think women should be given iron tablets routinely during pregnancy or only if the woman is anaemic? How many tablets do you give women here? for how long? etc Do women here like iron tablets?

What are the common problems/concerns of women at delivery? After delivery?

Do you think people might be confusing lack of blood and AIDS?

What do you think the best intervention would be to reduce iron deficiency and anaemia here?

**Reducing Iron Deficiency and Anaemia in Women of Reproductive Age in Thyolo District, Malawi**

**Interview Guide :Azambas (TBAs)**

**Introduction to the project:**

Say your name and where you are from.

We are here to learn from people about women's health in general. Project Hope is helping us do this work. We would like to speak to people about what they think about health and the care they receive. We would like to talk about things which concern people, but in particular, we are interested in knowing about medicine for adding blood. Everything we learn from people we will put together to have a complete picture, but no names of people or the villages we visit will be written down or talked about with anyone.

**Beliefs:**

What should a woman do and not do when she is pregnant (work-related, food taboos, sexuality...)? What happens if she does not do this? Do women often follow these rules? Do you encourage women to follow these rules or not?

What are the rules that a woman should follow after the baby is born? (ask about timing, possible risks, specific care-taking, who is available to help the mother)

**Women's illnesses and the TBA**

What are the main illnesses that affect adult women here?

What are the main problems women have outside of pregnancy to do with reproduction? (probe: menstruation, infertility etc). Which ones can you treat? How?

What are the main problems that a pregnant woman can have here? (probe: how common, severity, symptoms, causes). Which can the TBA treat and which does she refer? What treatment does she give?

What do you do for antenatal care? (list things) What do you think is most important. How much is charged for antenatal care?

Do women come here to wait for delivery or only come when they have labour pains? How many women can you accomodate? What are the concerns of a woman when she comes to deliver? (probe: cheerfulness of TBA, delivery position, what happens to the placenta etc). Do many women take the medicine which brings on contractions? Do you find that women are afraid to deliver at Tholo District Hospital if they are referred there?

What illnesses can affect a woman after the birth? (probe: how common, severity, symptoms, causes). Which can she treat and how?
Do you give any advice or services regarding family planning?

**Lack of Blood**

Can you tell me about the different types of diseases relating to slightly decreased blood or lack of blood? What can cause a person to have decreased blood? (probe diet, mtsempho, other disease, sorcery etc.) How can you tell whether a person has decreased blood etc? How does a person who has decreased blood feel? What can a person who has decreased blood do to treat themself? (probe traditional, hospital etc, do they mention iron tablets?) What can happen if a person who lacks blood or has decreased blood is not treated? If a pregnant woman has decreased blood can this affect the baby? How?

Can a person have too much blood? How can this happen?

**Experiences with iron tablets**:

Have you heard any stories about iron tablets? (probe for details, whether they are commonly believed etc).

Do you think iron tablets can help pregnant women? How? Why? Do you think iron tablets could help women who are not pregnant? How? Do you think it is better to take iron tablets during pregnancy or after delivery? If iron tablets are taken during pregnancy can this affect the baby?

Do you give iron tablets during antenatal care, following delivery? How many, how often? Do you charge or are they free? Where do you get the pills from? Can you get as many tablets as you need? Do you think generally women would like to be able to receive tablets from TBAs. Do you think TBAs would be prepared to do the extra work needed so that people could come to them for iron tablets? What if TBAs could charge, say 5T per tablet and so make a small profit?

Do you think iron tablets can help men, children? How? Why? (Probe whether woman ever under pressure to share tablets with husband, children etc)

What affect do iron tablets have on people who do not have decreased blood?

**About the TBA**

How did you come to be a TBA? How long have you been a TBA?

What training have you had? is there any ongoing training?

What support do you get eg from the hospital, clinics etc?

What equipment, facilities, medicines do you have? Can you show me where you grow the plant for medicine which brings on contractions?

What do you charge for: treatment of illnesses; antenatal care; delivery

**Reducing Iron Deficiency and Anaemia in Women of Reproductive Age in Thyolo District, Malawi**

**Iron Trial Nadolo Village**

Try and get the following information for each package of 10 pills handed out - concentrate on women of reproductive age, especially any pregnant women:

Last week we gave you some iron tablets when we said goodbye, so we thought we would call by and see how you got on with them.

Who took the tablets we gave to you? probe: yourself, husband, children, others? How many do you have left? Would you mind if we see them?

How many tablets per day were taken? What time of day did you (or the person/people who took the pills) take the tablets? Did you take them with any drink or food?

Were there any things about the tablets that you (or the person/people who took the tablets) didn't like (probe: size, colour, swallowing, tastes, smell, hates pills etc)

Did you notice any changes in how you (or the person/people who took the pills) felt while taking the tablets (probe: benefits, bad effects etc)

What did other people (probe: husband, family, neighbours etc) say about you getting and taking these pills?

Did you feel that you (or the person/people who took the pills) were (i) lacking blood at all (ii) had some other illness that iron tablets can help, when we gave you the tablets? If no: did it worry you to take the tablets when you weren't ill?

Would you like to take more pills? If yes: what are the biggest difficulties you face in (i) getting and (ii) taking the pills?

Would you prefer to get iron tablets from:

- TBA (free)
- TBA (5 tambala each)
- Government clinic (free)
- Mobile clinic (free)
- Private clinic (charge?)
- Headman (free)
- Headman (5 tambala each)
- Grocery (5 tambala each)
- Some other way? (specify)

(try and rank these in order of preference)

Thank you again for your help.

**Reducing Iron Deficiency and Anaemia in Women of Reproductive Age in Thyolo District,**

**Iron Trial Mango Compound**

Try and get the following information for each package of 7 pills handed out - concentrate on women of reproductive age, especially any pregnant women:

Last week we gave you some iron tablets when we said goodbye, so we thought we would call by and see how you got on with them.

Who took the tablets we gave to you? probe: yourself, husband, children, others? How many do you have left?

How many tablets per day were taken? What time of day did you (or the person/people who took the pills) take the tablets? Did you take them with any drink or food?

Were there any things about the tablets that you (or the person/people who took the tablets) didn't like (probe: size, colour, swallowing, tastes, smell, hates pills etc)

Did you notice any changes in how you (or the person/people who took the pills) felt while taking the tablets (probe: benefits, bad effects etc)

Were there any things that worried you about taking the tablets (or giving them to to others) (probe: too much blood, taking medicine when not ill etc.)

What did other people (probe: husband, family, neighbours etc) say about you getting and taking these pills?

Do you have problems getting or taking thepills?

Which of the following would you prefer to get iron tablets from? Why? (ie prompt for what they think would be the best way)

TBA (free)
TBA (5 tambala each)
Government clinic (free)
Estate clinic (free)
Private clinic (5 tambala)
Compound watchman (free)
Compound watchman (5 tambala each)
Grocery (5 tambala each)
HSAS (free)
Some other way? (specify)

Thank you again for your help.

## Appendix III Further Information on Illnesses Caused by Breaking Rules.

### The concept of "hot" and "cold"

A person who is having sexual intercourse only with their spouse is called "warm". A person abstaining from sex is called "cold". Women are expected to be cold before marriage, during menstruation, for around 7 months after delivery, and if helping to deliver another women. Both men and women are expected to be "cold" for initiations, funerals and to help to treat certain outbreaks of disease in the village. If a person has sex with someone other than their spouse then they become "hot".

### Tsempho

If people do not remain "cold" when they should, or if the husband or wife becomes "hot" it leads to tsempho. The most commonly cited form of tsempho was where the husband is adulterous when he has a new-born baby. This gives the baby and the wife tsempho and can lead to the death of both. Many mothers obtain medicine to bathe the baby which protects them from this type of tsempho.

Tsempho can also be caused by "cold" women adding salt to the relish and therefore polluting it. Therefore when a woman is "cold" she has to ask a child to add the salt for her.

"people just hear that so so is dead just because the woman added salt"

The symptoms describing tsempho were often very similar to those describing general wasting and the illness "lack of blood", that is thinness and swelling. The main difference was that tsempho is accompanied by diarrhoea, sometimes bloody whilst lack of blood was not. A few respondents also said it made the face swell. and several respondents when describing tsempho in babies said it made the veins "stick out".

### Kanyera

Men can become ill with "kanyera" by sleeping with a women who is menstruating or recently delivered (i.e. "unclean"). If such a man then goes and sleeps with his pregnant wife this leads to abortion. If a man sleeps with a woman who has recently aborted, miscarried or had a husband or child die recently he can become ill and die very rapidly. The symptoms of kanyera in a man are similar to tsempho but with the additional symptoms of paleness and coldness. Many people described this illness as "being like AIDS".

### Underlying Causes

Interestingly, many of these diseases are based on an underlying belief that women are unclean during menstruation, and after delivery or abortion. During these times a woman would pollute food by adding salt. Similarly, a man who has intercourse with a woman during these times becomes ill because he "sucks bad things from the woman's womb" (C17). After menstruation and delivery a woman can only become clean again by having intercourse. Asked why unmarried women cannot add salt one respondent said:

"after your menstruation you haven't met a man to conclude the finality of your period and the things are still inside, so how can you add salt".

Other diseases involve the mixing of blood. For example the man's adultery makes his wife ill because

"it affects the woman's blood because the man will be taking someone else's blood and giving it to you"

**Direct cause vs. sorcery**

Some respondents spoke as if breaking these rules leads directly to illness whilst others said that breaking these rules made you more susceptible to sorcery which was what actually caused the sickness.

"people just watch you, waiting for you to make a mistake so they can take advantage of that and practice their sorcery, and you get blamed for a minor mistake"

Prevalence of tsempho and kanyera

Some older respondents said that people were not following the rules so much these days and that this was leading to increased health problems in the community.

"too many illnesses nowadays, especially the adults, we are destroying their lives due to tsempho ... because we don't follow the rules"

Others had heard from health education that tsempho is really neglect and malnutrition, although many of them still said they could differentiate tsempho and malnutrition.

"Lack of food causes one to start swelling. People may say one has tsempho when it is merely lack of food"

The treatment for tsempho seemed to be among those available very locally which suggests it may be a common disease. Of our respondents, 2 admitted to knowing and preparing the medicine to treat tsempho, and one of the TBAs said she could provide medicine for protecting babies from tsempho.

**Diagnosis of tsempho**

Tsempho seemed to be diagnosed on the basis of knowledge or supposition about peoples behaviour in addition to an assessment of the symptoms suffered. The traditional medicine requires that the "guilty" person who has caused the tsempho should add salt to the medicine. The elders and extended family may be the ones who start suspecting tsempho and who put pressure on the "guilty" person to add salt to the medicine. If those suffering get well after taking the medicine it is regarded as proof that it was the "guilty" person's actions that were causing the problem.

**Form for demographic data: TBA**

Name_____

Address/Village/Compound etc_____

_____

Some assessment of age _____

Number of living children |__|__|

Marital Status _____

Ever attended school? |__| yes |__| no

**Socio-economic status**

What do they use for cooking? _____

What do they use for lighting? _____

Do they have chairs? |__| yes |__| no

Do they have a bed |__| yes |__| no

Do they have a radio |__| yes |__| no

**Others interviewed**

Names of any additional people interviewed such as clients

_____

_____

_____