



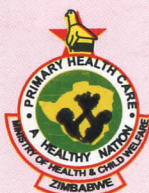
**A Rapid Assessment  
of the Goal-oriented  
Antenatal Care Protocol  
(GOAP) in Zimbabwe**

**Reproductive  
Health Unit**

**August 2006**

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RIO RAP



Produced by the Ministry of Health  
and Child Welfare In Collaboration with UNFPA



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**National Reproductive Health Coordinator;**

**Ms M. Nyandoro**

## Acronyms and Abbreviations Used

<b>ANC</b>	Antenatal Care
<b>BEmOC</b>	Basic Emergency Obstetric Care
<b>CEmOC</b>	Comprehensive Emergency Obstetric Care
<b>DANIDA</b>	Danish International Development Agency
<b>EmO(N)C</b>	Emergency Obstetric (and Neonatal) Care
<b>FANC</b>	Focused Antenatal Care
<b>FCH</b>	Family and Child Health
<b>GOAP</b>	Goal Oriented Antenatal Care Protocol
<b>HIP</b>	Hypertension in Pregnancy
<b>ICPD</b>	International Conference on Population and Development
<b>MOHCW</b>	Ministry of Health and Child Welfare
<b>PCN</b>	Primary Care Nurse
<b>PMTC</b>	Prevention of Mother to Child Transmission (of HIV)
<b>RGN</b>	Registered General Nurse
<b>RHC</b>	Rural Health Centre
<b>RHO</b>	Reproductive Health Officer
<b>RPR</b>	Rapid Plasma Reagent (Test for Syphilis)
<b>SCMN</b>	State Certified Maternity Nurse
<b>SCN</b>	State Certified Nurse
<b>UNFPA</b>	United Nations Population Fund
<b>WHO</b>	World Health Organisation
<b>ZDHS</b>	Zimbabwe Demographic and Health Survey



## Executive Summary

**Introduction:** The study was undertaken on the premise that the goal-oriented antenatal care protocol possibly needed review after its introduction in February 2000. The ensuing report, *A Rapid Assessment of the Goal Oriented Antenatal Care Protocol (GOAP)* gives the results of the study. The major objectives focused on assessing health worker awareness, knowledge of content, utilization and perceived usefulness of the protocol. The results would then be used in the review of the protocol where the necessary changes would be incorporated. The overriding aim is to enhance effectiveness, efficiency and quality of service provision to improve maternal and child health.

**Methodology:** The study used a *rapid assessment* approach. Six provinces namely Manicaland, Mashonaland West, Matebeleland North and Midlands were purposively selected since they had benefited from the Safe Motherhood Project funded by a Canadian donor in the form of program vehicles. Harare and Bulawayo were included for being the two biggest metropolitan provinces with the major referral centres. Two districts were randomly selected from each province. A third district was involved by default for containing the provincial hospital. All district hospitals were included plus two government-owned rural health centres. Questionnaires were administered to health workers directly involved in the provision of ANC services to clients. At least 2 women attending ANC clinic were interviewed at each health facility visited. State certified midwives were the enumerators.

### Key Findings

**ANC Volumes and Booking Patterns:** District hospitals had the highest number of expected pregnancies (slightly over 7,000 per annum) followed by provincial (6,000<sup>+</sup>) and central hospitals (2,000<sup>+</sup>). At the lower level, municipal clinics showed the highest number of expected pregnancies (2,000<sup>+</sup>). The same pattern almost followed for ANC bookings save for the fact that central hospitals showed higher numbers than the provincial hospitals. The national rate of early ANC bookings was still very low at 14 percent, i.e. only 14% of all ANC bookings are made before the recommended 16 weeks of gestation. Generally, early booking rates for rural-based facilities are higher than those for urban-based facilities.

**Staff Skills Development:** One of the most critical factors in the provision of effective and efficient ANC services is the availability of competent and well-equipped staff. The assessment established that a majority of staff at senior level had received training in EmONC. In essence, almost 50 percent of staff interviewed had been trained in EmONC. Thus, in just one year the cascading of training had reached almost half the number of critical staff for the maternal and neonatal health programme.

**Awareness and Utilization of GOAP:** There is universal awareness of the protocol among staff members who are directly involved in MCH activities. However, awareness levels are very low for some senior professionals like doctors (40%) and state certified nurses (33%). Perhaps this is due to the fact that most of these cadres are not directly involved in the provision of ANC services. Almost 82 percent of all the cadres interviewed indicated that they made *some* use of the protocol during their daily discharge of duty. About 12 percent indicated that they "never" used the protocol while another 6 percent reported that they "rarely" used it.

**Availability of GOAP Copies:** Copies of the protocol were present in 61 percent of cases. The highest presence was reported within midwifery schools (67%). The mean shortage of copies was about 6 per department, but the highest needs were shown for the labour, ANC and MCH departments, in that order. Outside the departments providing clinical services, the schools of midwifery indicated the highest need for GOAP copies (approximately 12 copies). The national percentage deficit was around 66 though deficits were wider at facilities offering higher level of health care, more particularly the rural-based ones.

**Usefulness of GOAP Content:** Only 11 percent of all respondents indicated that there was information they rarely used in the protocol. Further probing exposed their lack of acquaintance with the exact content of the



tool. The 18 percent who indicated that there was information missing from the protocol indicated that they wanted to see drug regimens, infant feeding options as well as HIV drugs clearly outlined. The majority noted that the tool was adequate and should be utilized for results. They pointed out that welcome improvements would be in the visual presentation of the tool. Key was the need to increase the dimensions and font size. The current protocol is handier for files but a bigger poster-like chart is needed for sticking on ward walls.

**Knowledge and Awareness of ANC Prophylaxes and Drugs:** The weighted knowledge and awareness of prophylaxes prescribed during ANC revealed that anemia (36%) is the most commonly known followed by malaria (35%), tetanus (26%) and HIV (3%). Respectively, knowledge of drugs used in these prophylaxes emerged as folic and ferrous (38%), fansidar (32%), anti-tetanus vaccines (27%) and nevirapine (3%). Very consistently, HIV/PMTCT was overshadowed by the other three prophylaxes during ANC. Clients have a higher chance of getting fansidar (75%) and folic acid (74%) in health institutions. Around 67 percent reported that their facilities were offering ferrous sulphate while 65 percent offered anti-tetanus vaccines. Chloroquine administration was very low (32%) during ANC and nevirapine was even lower (8%). Folic acid and ferrous sulphate are twin-drugs that are administered concurrently; hence the difference in their provision rates *may* indicate that folic acid is sometimes administered alone. Generally, a client is most likely to get drugs at a district (42%), provincial (22%) and central hospital (12%) but the chances are much lower at other levels. There is an apparent problem of drug shortages within health facilities.

**Laboratory Tests and Physical Examinations:** Knowledge and awareness of laboratory tests performed during ANC was very high. There was above 75 percent awareness for RPR, urinalysis, hemoglobin and blood tests for HIV. Rhesus (40%), grouping and cross-matching (48%) were less known. However, RPR and HIV tests (83%) were the most commonly performed. Urinalysis (65%) and haemoglobin (68%) were much lower though. Only 35 percent indicated that their institutions were doing rhesus tests while about 45 percent reported doing grouping and cross-matching. Important though these tests are, some institutions reported not having the adequate and appropriate facilities to do them. The most commonly conducted physical examinations were BP measurements (94%), abdominal examination (85%), head-to-toe examination (82%) and weight measurements (80%). About 68 percent indicated that they check fetal heart beat. The least known and performed of the physical examinations is symphysio-fundal height (50%) and vulva examination (45%).

**Women Attending ANC:** The mean age of the women interviewed was 24 years. Their ages ranged from 17 to 44 years. These women were intercepted at the health facilities while attending their 4<sup>th</sup> ANC visit for the third pregnancy. The average booking age was 24 weeks of gestation. The average reported distance from home to health facility was 35km and the average time taken to 'walk' was 1 hour. They indicated that the average number of times a woman with an uncomplicated pregnancy should present for ANC is 7, i.e. 1-point higher than the recommended 6. The major source of information about ANC was a health facility or health worker (44%). Some got their information from friends and relatives (19%) while some preferred to act on personal conviction (31%). Only 6 percent reported that they read books to get information about their health. All the women interviewed reported that they were satisfied with the recommended 4-6 visits. The major problems cited in ANC were shortages of drugs, equipment, supplies and staff. This often resulted in delays in service provision. Informal submissions were made for food to be provided to ANC attendees at district and provincial hospitals where delays were a problem of the service provider. Clients, particularly those in rural areas, cited long distances and transport problems as their main hindrance to attending ANC. Unavailability of locomotive transport plus the unaffordability of some of the means were paramount. Hence, the submissions to reduce ANC visits as much as possible, confining then to only the minimum number for critical assessments. There also emerged a tendency to resort to traditional options for both ANC and delivery services where clients felt they could not easily access or afford services in health facilities. An assessment of the mothers' ANC cards reflected much of what has been discussed already. Some of the procedures were not being done except for the less complicated ones.

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<sup>1</sup>Note that these are not the total number of visits as these were not 'term' pregnancies. Other studies have shown that birth order is inversely associated with the use of antenatal care. Children of higher birth order are less likely to receive care from a trained professional.



## 1. BACKGROUND

In 1929 the British Department for Health published a circular with a recommended schedule of antenatal visits. The circular set out the timing of visits as every 4 weeks from booking until 30 weeks, every two weeks between 30 and 36 weeks and then weekly until delivery. It was observed that when this standard model is followed, a woman would have an average of 14 visits. It was also noted that there was a positive correlation between the awareness of the value of ANC and early initiation of care by expecting mothers. However, it was also noted that since the majority of women had uncomplicated antenatal courses, they were receiving excessive and probably unnecessary care. Thus it was necessary to make sure that women received just the adequate and appropriate ANC.

Research has established that ANC is beneficial since women with adequate ANC had better pregnancy outcomes compared with those with little or no ANC. It has also been demonstrated that there are differences in pregnancy outcomes for women with adequate ANC and those with inadequate ANC. The past few decades have seen a raging debate about the appropriateness of this standard ANC model for low-risk women. The major questions revolved around the number of visits and whether all the procedures performed at routine visits were necessary and based on evidence of effectiveness. All these debates culminated in the modification of ANC models with reduced frequency of visits and performance of only those procedures considered necessary and effective. WHO coordinated a large multi-centre trial in four middle-income countries to confirm the safety of a reduced visit program. One weakness of this study was that it excluded sub-Saharan Africa where reproductive morbidity is high. In Zimbabwe, a randomized controlled trial was conducted in Harare and it confirmed that a reduction in the number of ANC visits and an alteration of the procedures for each visit did not directly lead to adverse maternal and perinatal outcomes. Again the major weakness of this study was that it was urban-based. In Zimbabwe, as in most sub-Saharan African countries, the majority of people live in the rural areas, and there are major differences between rural and urban communities in terms of availability, accessibility and utilization of health facilities. The study looked mainly at a low-risk population since only uncomplicated pregnancies were booked at the clinics. In rural areas, however, all women attend the same health centers, thus making risk assessments and appropriate referral crucial. The current rapid assessment aimed to assess compliance with the protocol and to see whether health staff was using it during ANC. The broad aim of the rapid assessment was to assess the awareness, content knowledge and perceived usefulness of the GOAP.

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<sup>2</sup> Hall M., MacIntyre S., Porter M. **Antenatal Care Assessed**. Aberdeen, UK. Aberdeen University Press, 1985

<sup>3</sup> Gissler M., Hemminki E. **Amount of Antenatal Care and Infant Outcome**. *European Journal of Obstetrics Gynecology and Reproductive Biology* 1994; **56**: 9 - 14

<sup>4</sup> Delvaux T., Buekens P. **The Study on Barriers and Incentives to Antenatal Care in Europe: Disparity in Prenatal Care in Europe**. *European Journal of Obstetrics Gynecology and Reproductive Biology* 1999; **83**: 185 - 90

<sup>5</sup> Tucker J., Florey C du V., Howies P., McIlwaine G., Hall M. **Is Antenatal Care Apportioned According to Obstetric Need? The Scottish Antenatal Care Study**. *Journal of Public Health and Medicine* 1994; **16**: 60 - 70

<sup>6</sup> Carroli G., Rooney C., Villar J. **WHO Program to Map Best Reproductive health Practices: How Effective is Antenatal Care in Preventing Maternal Mortality and Serious Morbidity?** *Paediatric and Perinatal Epidemiology* 2001; **15** (Suppl 1: 1 - 42)

<sup>7</sup> Villar J., Ba'aqeel H., Piaggio G., Lumbiganon P., Belizan J. M., Farnot U., *et al* **WHO Antenatal Care Randomized Trial for the Evaluation of a New Model of Routine ANC**. *Lancet* 2001; **357**: 1551 - 64

<sup>8</sup> Munjanja S. P., Lindmark J., Nystrom L. **Randomized Control Trial of a Reduced-Visit Program of ANC in Harare, Zimbabwe**. *Lancet* 1996; **348**: 364 - 9

<sup>9</sup> Myer L., Harrison A. **Why Do Women Seek ANC Late? Perspectives from Rural South Africa**. *Journal of Midwifery and Women's Health* 2003; **48**: 268 - 72



## 2. OBJECTIVES OF THE ASSESSMENT

The rapid assessment was carried out mainly to, *inter alia*:

1. Determine awareness of the protocol amongst health workers;
2. Assess health worker knowledge of the protocol content;
3. Find out whether health workers are using/utilizing the protocol or not and establish the reasons for non-use
4. Establish perceived usefulness of the protocol from a service provider's perspective.

## 3. METHODS OF DATA COLLECTION

**Geographical Coverage:** The study was a cross-sectional survey conducted in four provinces, namely Manicaland, Mashonaland West, Matabeleland North and Midlands. The two metropolitan provinces of Harare and Bulawayo were included in the survey because they have all the central hospitals and because of their large populations sizes and catchment capacity. Figure 1 below is a map showing the distribution of the districts that formed the study sample.

**Study Timing:** Data collection for this study was done for one week, from 21<sup>st</sup> to 25<sup>th</sup> August 2006. The preparations started three days earlier, from the 17<sup>th</sup> of August. The pilot study was done on the 18<sup>th</sup> of August and logistical arrangements and travel to duty stations was done on the 20<sup>th</sup>.

**Study Design:** The study took, to a large extent, a rapid assessment approach. The major goal was to extract as much relevant information as possible within the budgetary and time limits. The information solicited was more for operational purposes than otherwise. Instead of a nationwide survey, only four provinces were purposively selected to form the sample universe. The major criterion used in the sampling of provinces follows the distribution of resources in the DANIDA-funded Safe Motherhood Project. In each province, two districts were randomly selected. The central thrust was to have both the urban and rural elements in each province. By default, all the district hospitals in the selected provinces were included in the study. Annex 1 summarizes the build-up of the sample and the number of interviews that came from each level of health service delivery.

**Research Personnel:** A total of twelve enumerators and five drivers directly participated in data collection. Thus, a total of seventeen people were involved in the whole exercise. In each province four people (the Provincial Nursing Officer, two enumerators and a driver) formed the data collection team. No RHO operated from within their province of work. The envisaged shuffling was expected to reduce, as much as possible, personal biases and prejudices on data quality arising from familiarity between interviewers and interviewees. All the enumerators were state certified midwives.

**Respondent Selection:** The main respondents were nurses in the ANC, MCH, outpatients and maternity departments. The study also targeted doctors, tutors in training hospitals as well as students. In fact, the study aimed to interview any health worker directly involved in offering service to the pregnant women.

**Pilot Survey:** A pilot study is a dress rehearsal that proceeds as it were the actual, except for the fact that the subjects used will not be in the actual study. Murehwa district in Mashonaland East province was selected for the pilot. The pilot study was carried out so that, firstly, any weaknesses in the survey instrument would be



revealed. Secondly, enumerators' competency was measured against the average performance of the whole team. Thirdly, the pilot run provided a preview of the likely field returns so that the data management team was left in a proactive mood for the handling of data and execution of subsequent phases of the study.

**Fieldwork Logistics:** The key objective of fieldwork was to collect valid and reliable data. Data were to be collected within a predetermined time frame without compromising on quality. Objectiveness and precision outweighed expediency and convenience. Field supervisors were senior nurse managers who were familiar with the provinces they were working in. Daily debriefing meetings were used as quality checking mechanisms.

**Quality Checks:** Various methods were put in place to guarantee data quality. Firstly, quality control was maintained daily by the supervisors who were responsible for ensuring that all questionnaires were filled in correctly, and that there was no cheating. Secondly, supervisors went through all completed data sheets soon after the enumeration while still at the institution. Any inconsistencies were noted, verified and corrected. Thirdly, the questions were designed with in-built consistency checks. These were used for checking consistency and logic during data analysis.

**Data Analysis:** After data entry, all files from different PCs were merged into one whereupon data cleaning ensued to detect missing values and human errors that occur during entry. In certain cases, cross references were made to the data sheets. The analysis took special note of the study objectives. Type of institution, which represented the level of service delivery, was assigned the status of independent (predictor) variable. The 'mean' and 'frequency' commands were the major units of analysis.

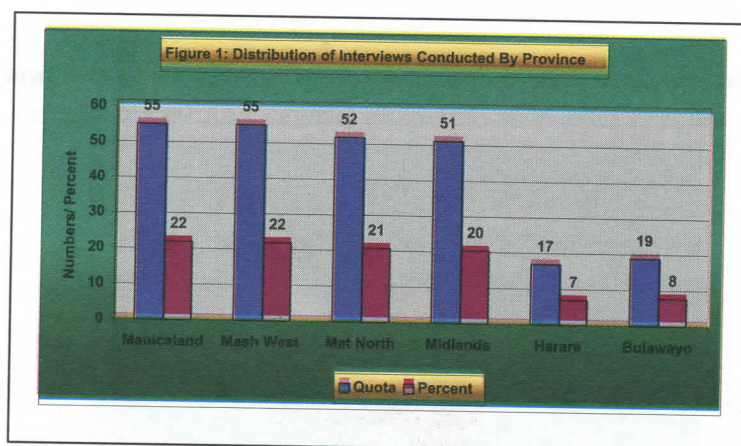
## 4. SURVEY FINDINGS

This section presents the findings of the rapid assessment. Various data presentation techniques will be used but the most preferred are bar, line and column graphs. Pie charts may be preferred ahead of the graphs in very special circumstances where they make the better visual impression in reflecting the findings of the study. Tables will be in situations where none of the mentioned pictorial methods effectively display the findings.

### 4.1 Respondent Characteristics

**Distribution by Provinces:** The purposive nature of the research design resulted in each of the major rural provinces contributing about one-fifth of the total number of interviews required. Harare and Bulawayo together contributed 15 percent of the total sample. The rationale for skewing more numbers in favor of the rural provinces rested mainly on the fact that RHCs, district and provincial hospitals constitute, for the client, the first port of contact with the health delivery system. Again, it was reasoned that urban interviews alone would not give a true reflection of the status regarding awareness, availability and utilization of the GOAP. Figure 1 below shows the absolute numbers of interviews conducted in each province as well as the percentage contributions.

Figure 1: Percentage Distribution of Interviews by Province

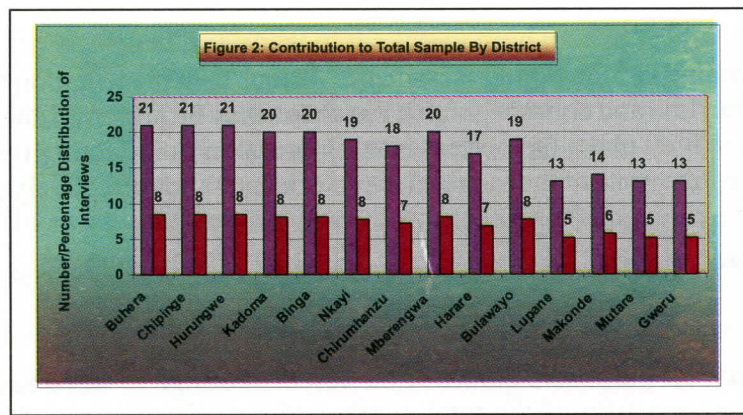


**Distribution by District:** In each province, two districts were randomly selected. By default, the district in which the provincial hospital is located was included. Twenty interviews with health workers (about 8 percent of total) were conducted in each of the districts. As clearly shown in Figure 2 below, fewer interviews were conducted within districts containing the provincial hospital because these were done at one institution. However, on an institution-by-institution basis, the provincial hospitals contributed the largest number of interviews per province. Harare and Bulawayo contributed almost a similar proportion as all the other districts. It was equally necessary to capture the views of health personnel working in urban health institutions.

<sup>11</sup>The primary health care approach stipulates that patients should be adequately attended to at the lower levels of the health delivery system before they are referred upward to the next and subsequent level of service delivery. This helps to reduce congestion at the already burdened secondary and quaternary level institutions.

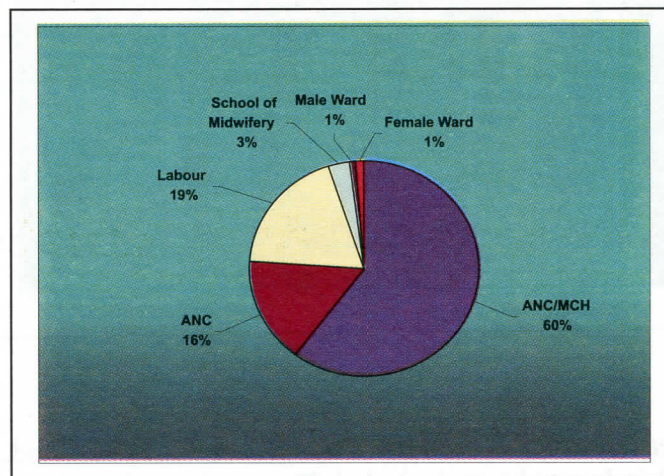


**Figure 2: Percentage Distribution of Interviews by District**



**Distribution by Department:** At each institution visited every effort was made to interview staff directly involved in the provision of ANC services. Since it was not possible to locate them in one department, the respondents interviewed were from various departments. Nevertheless, the first port of call for the enumerators was the MCH department from which further reference was made to staff in other departments. Figure 3 below shows the percentage distribution of departments from which respondents were sourced. The majority (60%) were from the ANC/MCH department while only 16% were from the ANC department proper. The second largest contribution came from the labour ward (19%). Other departments reached were the open (male and female) wards and the school of midwifery, particularly at the provincial and central hospitals.

**Figure 3: Percentage Distribution of Source Departments**



<sup>12</sup> Private health institutions were not included in this assessment. The major aim of the study was to improve programming for ANC only for the public health sector.

<sup>13</sup> Most health institutions, from the district level upwards, use a staff rotation strategy. Each member of staff is encouraged to rotate all the departments of the hospital, except for the in-charges and other senior personnel.



## 4.2 Analysis of ANC Visits: Patterns and Levels by Level of Institution

For each health facility visited during the study, the volume of work was established by reviewing institutional registers to record the expected number of pregnancies, the total number of ANC bookings and the total number of ANC bookings before 16 weeks of gestation. The reference period focused only on the six months preceding the survey (January to June, 2006) to avoid missing data due to unavailability of institutional records. Table 1 below shows the information disaggregated by type of facility.

**Table 1: Analysis of ANC Volumes and Booking Patterns by Type of Facility**

Type of Institution	Mean Expected Pregnancies	Mean Total ANC Bookings	Mean Bookings Before 16 Wks	% Bookings Before 16 Wks
Central Hospital	1223	1344	47	3.5%
Provincial Hospital	3278	868	111	12.7%
District Hospital	3555	3096	463	14.9%
Rural Hospital	875	162	39	24.2%
Mission Hospital	850	389	57	14.7%
Rural Gvt. Clinic	564	173	30	17.5%
Council Clinic	480	163	21	12.6%
Municipal Clinic	1172	566	33	5.8%
Mission Clinic	266	277	77	27.9%
<b>National</b>	<b>2628</b>	<b>1791</b>	<b>247</b>	<b>13.8%</b>

Table 1 above shows that the highest number of expected pregnancies and ANC bookings are at the district hospital, followed by the provincial and central hospitals. Expected pregnancies for mission and rural hospitals are not very different. At the lower levels, municipal clinics have the highest number of expected pregnancies. This probably reflects on the size of the catchment populations, i.e. urban health facilities tend to handle large volumes of pregnancy cases. While the district hospital leads in terms of ANC bookings, it is the switching of positions between provincial and central hospitals that is remarkable. Thus, although provincial hospitals show a bigger number of expected pregnancies, the central hospitals take over in terms of bookings.

**Bookings Before 16 Weeks:** The national rate of early bookings ( $\leq 16$  weeks) is very low (14%). Facilities in the rural areas record high rates of early booking, particularly mission clinics (28%) and rural hospitals (24%). The low early booking rates at district and provincial hospitals can be explained by the fact that they are referral centres whose early bookings are only from clients who regard them as their first point of contact with the referral system. The same explanation applies for the central hospitals. Generally, urban facilities, as typified by municipal clinics, display very low early booking rates (6%). The possibility of procrastination amongst pregnant women is very high. The main reason may be anchored on their faith on an efficient urban transport system, which can transport them to referral facilities in cases of complicated emergency.

**Staff Grade and EmONC Training Status:** It so happened that this rapid assessment was conducted almost exactly one year after the commencement of EmONC training to improve maternal and neonatal health. It was necessary thus to establish the training status of the people interviewed. As shown in Table 2 below, nearly 50 percent of staff has been trained in EmONC.

<sup>14</sup> Health professionals recommend first booking to be done within the 16 weeks of gestation (first trimester). Pregnancy-related complications can then be timely identified and managed. An opportunity for early introduction of health education is presented.



Table 2: Analysis of Years in Service and EmONC Training Status of Staff Cadres

Grade of Respondent	Number Interviewed	Percent of Total	Mean Years in Service	Percentage Trained in EmONC
Nurse Midwife (SCMN)	82	33	26	21%
Registered General Nurse (RGN)	57	23	7	30%
Sister-in-Charge	20	8	20	90%
Primary Care Nurse (PCN)	20	8	1	58%
Matron	14	6	27	86%
Nurse Aide	11	4	15	00
Doctor	10	4	14	67%
Pupil Midwife	10	4	9	10%
District Nursing Officer (DNO)	8	3	17	57%
Community Health Nurse	4	2	13	100%
State Certified Nurse (SCN)	6	2	26	17%
Clinical Officer (CO)	4	2	14	50%
Tutor	3	1	20	67%
<b>Total</b>	<b>249</b>	<b>100</b>	<b>14</b>	<b>49%</b>

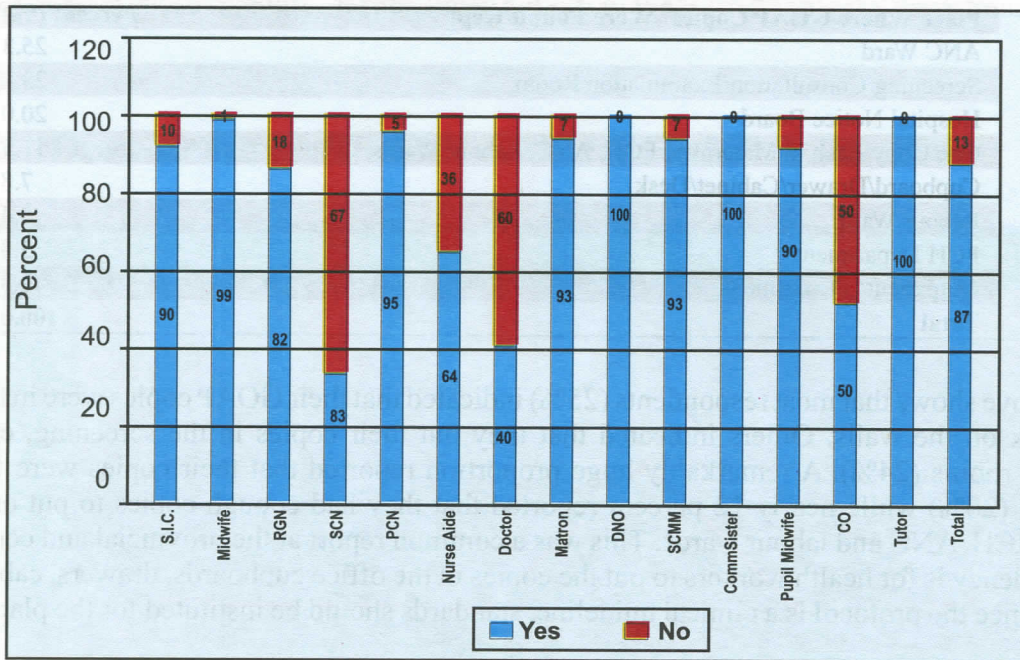
One of the most critical factors in the provision of effective and efficient ANC services is the availability of competent and well-equipped staff. The assessment established that a majority of staff at senior level had received EmONC training. Thus, the cascading of the training to lower levels had reached most staff serving in the lower levels of the health delivery system. The major concern, perhaps, is that although there might seem to be sufficient staff to support the national maternal and neonatal health programme, the same cadres are responsible for many other tasks and functions beyond MNH, and because they are largely concentrated in urban areas, the rural catchment populations remain underserved.

#### 4.3 Awareness and Utilization of GOAP

**Spontaneous Awareness:** All respondents contacted during the study were asked whether they were aware of the goal-oriented antenatal care protocol. Overall, about 1 in 10 staff cadres was not aware of the protocol. However, there were wide variations in awareness by type of cadre. Most surprising is the percentage of unawareness among state certified nurses (67%) and doctors (60%). About half the number of clinical officers (50%) indicated ignorance of the protocol, possibly due to the fact that they are not always involved in ANC procedures. At national level, the 13 percent of staff who are not aware of the GOAP constitute a proportion large enough to warrant action. Some of the cadres interviewed equally admitted to the challenges they had for not being familiar with GOAP. They recommended that GOAP be revived and “all” health professionals should be trained in it, even when the staff member is not routinely involved in providing ANC services. Figure 4 shows a stacked column graph showing a comparison of the proportion aware versus the proportion unaware for each category of staff.



**Figure 4: Percentage Distribution of GOAP Awareness by Staff Cadre**



**Note:** Since higher statistical tests were not computed, the figure above should be applied to the study population only. Owing to very small numbers for the subsamples (n), the external validity is statistically corrupted. Thus, it is not advisable to generalise the results.

Very encouraging is the fact that there was universal awareness of the protocol among senior members of staff directly involved in MCH activities, i.e. 100-percent awareness among midwives, district nursing officers, community sisters and nurse tutors. The call to emphasize GOAP in training curricula is very compelling.

**Utilization of the Protocol:** Table 3 below summarizes the ways the protocol is used by health personnel. The patterns of usage of the protocol clearly show that about 82% of staff makes *some* use of the tool.

**Table 3: Ways of Utilizing the GOAP by Health Personnel**

How Cadre Uses the Protocol	Percent (%)
Always Make Quick Reference	38
Sometimes Refer	34
Only Refer For Special Cases	10
Never Refer	12
Rarely Refer	6
<b>Total</b>	<b>100</b>

The 12% who “never” refer to the protocol and the 6% who “rarely” refer to the protocol probably consist of the cadres who are not normally working on ANC duties on a daily basis. This deduction is premised on the fact that they are a proportion of those who indicated that they were aware of the protocol. It is probably staffs in the ANC department, who always or sometimes have to make a quick reference to the protocol in their daily discharge of duty. Assessment by observation was made on where copies were kept (Table 4).



**Table 4: Analysis of Where the GOAP Was Found**

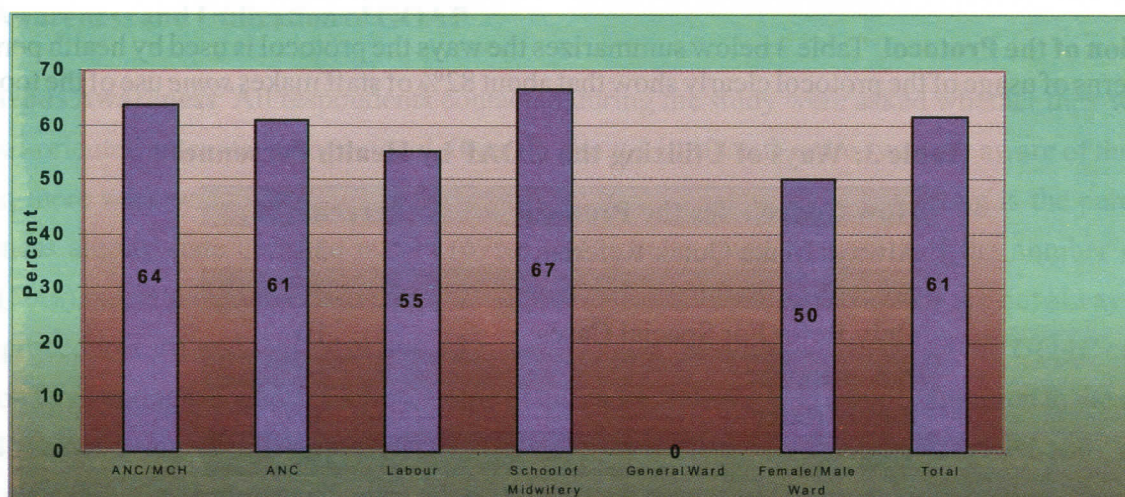
Place Where GOAP Copies Were Found/Kept	Percent (%)
ANC Ward	25.3
Screening/Consultation/Examination Room	23.8
Hospital Notice Board	20.0
One Copy Each in Maternity, FCH, ANC, Labour Wards	11.5
Cupboard/Drawer/Cabinet/Desk	7.8
Labour Ward	5.4
FCH Department	3.8
Outpatients Department	2.3
<b>Total</b>	<b>100.0</b>

The table above shows that most respondents (25%) indicated that their GOAP copies were in the ANC ward, usually stuck on the walls. Others indicated that they put their copies in the screening, consultation or examination rooms (24%). A remarkably huge proportion reported that their copies were in the hospital notice board (20%) while nearly 12 percent reported that they had enough copies to put one each in the maternity, MCH, ANC and labour wards. This was a common report at the provincial and central hospitals. Another tendency is for health workers to put the copies in the office cupboards, drawers, cabinets and even desk tops. Since the protocol is a clinical guideline, standards should be instituted for the placement of such copies.

#### 4.4 Institutional Availability of GOAP Copies

*GOAP Presence by Department:* Enumerators were instructed to check for the physical presence of the GOAP copies within institutions and the relevant departments. As shown in Figure 5 below, the GOAP protocol had a total institutional observed presence of 61 percent. The ANC/MCH department had a relatively higher presence of 64 percent while the ANC proper (mostly commonly seen at central hospitals) had 61 percent GOAP visibility.

**Figure 5: Percentage Distribution of GOAP Presence by Department**

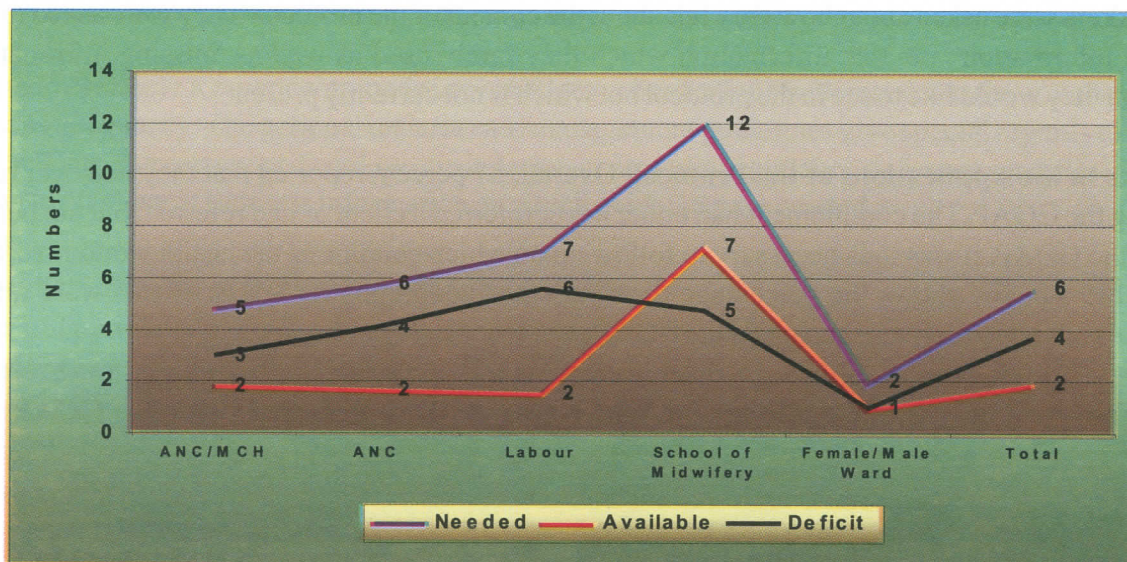


GOAP visibility should be increased to 100% in all the relevant departments, particularly those that provide ANC services. Some institutions like Harare Central Hospital have devised means of increasing GOAP visibility by reproducing and using photocopies of the protocol. The major undoing of this practice is that the photocopies are not very user-friendly as they sometimes use small font on smaller dimensional paper (e.g. A4 bond paper). Further, such copies are durable and quickly wear out through repeated use.



**Deficit Analysis:** Senior staff was asked about the number of copies they had within their respective departments and the ideal number of copies they would need for effective discharge of their duties. Figure 6 below summarizes current availability and perceived deficits of the GOAP copies by department.

**Figure 6: Analysis of GOAP Availability and Deficits by Department**



The national mean deficit was 4 copies per the relevant department within the institution. The highest deficit is reflected on the midwifery schools (mean = 5 copies). Overall, the study revealed that there are not enough copies of the protocol within the institutions. There is therefore a need to print and equitably distribute more copies. Table 5 below summarizes the institutional availability and shortage of GOAP copies.

**Table 5: Analysis of Availability of GOAP Copies by Type of Facility Level**

Type of Institution	Mean			Percentage Deficit
	Available	Mean Required	Mean Deficit	
Central Hospital	2.3	8.1	5.8	71.9
Provincial Hospital	1.8	5.6	3.8	68.1
District Hospital	2.0	5.8	3.8	65.9
Rural Hospital	0.0	3.5	3.5	100.0
Mission Hospital	1.2	5.5	4.3	78.2
Council Clinic	1.6	3.1	1.5	48.4
Rural Gvt. Clinic	1.9	3.5	1.6	46.2
Municipal Clinic	2.3	5.0	2.7	53.3
Mission Clinic	1.7	3.0	1.3	44.4
<b>Total</b>	<b>1.9</b>	<b>5.6</b>	<b>3.6</b>	<b>65.6</b>



The percentage deficit column in the Table 5 above is probably the most informative. It mathematically portrays the magnitude of the *perceived unmet need*. Thus, rural hospitals have the greatest need of GOAP copies (100% deficit), followed by mission hospital (78%) and central hospital (72%). The numerical requirements and deficits are directly related to the size of the institutions. Nationally, GOAP availability is just a mere 34%. Indeed, there are insufficient copies of the protocol and the need to print and distribute more copies is implied.

#### 4.5 Health Worker Evaluation of GOAP

Health workers were asked about how they felt about the content of the protocol. They were asked to identify 'redundant information', i.e. that information which they rarely used as well as 'missing information', i.e. information they would like to see in the protocol but which is not currently present.

**Experience in the Applications of the Protocol:** Overall, 57 percent reported that they had ever referred a client using the GOAP. The complement had either never referred a client or had referred, but not necessarily basing on the GOAP. It was thus necessary to follow up on which conditions the health workers referred the clients. Table 6 below shows the percentage distribution of conditions for which clients were referred to higher levels of service delivery basing on the GOAP.

**Table 6: Analysis of Conditions for Which Clients Were Referred Using the GOAP**

Condition for Referral	Percent (N =249)
HIP	24.4
Other General Illnesses	13.1
Previous Caesarian Section	12.7
Abnormal Lie/Malpresentation/Breech	9.4
PPH/APH/Bleeding/Hemorrhage	8.5
Multiple Pregnancy	7.0
Blood Pressure	5.2
Eclampsia	5.2
Anaemia	4.2
Sexually Transmitted Infections (STIs)	2.3
Delayed/Obstructed Labour	2.3
Fetal Distress	1.9
Threatened Abortion	1.9
No Fetal Movements/FHNNH/	0.9
Rupture of Uterus	0.9
<b>Total</b>	<b>100.0</b>

The analysis in Table 6 above shows that pregnancy-induced hypertension (PIH) was the most common condition for referral (24%). Women who had a previous caesarian section performed on them were also referred (13%). Abnormal fetal lie (9.4%), haemorrhage (9%) and other unspecified general ailments were reported as the most common conditions requiring referral.

*Note: Facilities at the lower level of service delivery are required to refer all pregnant women who had a caesarian section performed on them during their last delivery. Although some health personnel ascribed this referral to GOAP, it was not.*



**Perceived Weaknesses of the Protocol:** Nearly 11 percent of the respondents indicated that the protocol had information that they rarely used. Probed on what this information was, a majority portrayed their lack of close acquaintance with details of the protocol. Nevertheless, some highlighted the areas, albeit wrongly sometimes, that needed to be reviewed. Around 3 percent observed that the antimalaria prophylaxis is not recommended after 36 weeks of gestation as “*it might result in early labour*”. While there might be reservations about the correctness of this assertion, there are real concerns about prevention and treatment of malaria in pregnancy. This explains why some of the respondents indicated that drug regimens should be specified in the GOAP.

**Malaria in Pregnancy:** Respondents made very pertinent observations with respect to the use of anti-malaria drugs during pregnancy. The national malaria case management guidelines give special regards to malaria in pregnancy. Thus, the current protocol seriously lacks on providing guidance on issues specifically touching on malaria in pregnancy. Below is information on which guidelines are needed:

- The use of oral quinine and doxycycline;
- Intermittent Preventive Treatment (IPT) and gestation age;
- The use of pyrimethamine/dapsone (malasone) in the first trimester;
- The use of oral quinine as first line therapy for pregnant women presenting with malaria;
- The administration, as first line therapy, of chloroquine, sulphadoxine and pyrimethamine (SP) after 16 weeks;
- The treatment of complicated malaria in pregnancy and the use of parenteral quinine.

Given that malaria is a major problem leading to maternal mortality, there should be an integration of malaria management into ANC services. Another 2 percent highlighted that ferrous sulphate ( $\text{FeSO}_4$ ) is not recommended before 16 weeks of gestation. This assertion still has to be reviewed in line with national guidelines. Overall, 18 percent affirmed that there was information lacking in the protocol. Out of this, about 41 percent indicated that there was need to clearly show drug regimens, particularly on malaria (*see above*), instead of just stating the drug to be used. Another 19 percent felt there was need to show infant feeding methods on the protocol. This is probably an aspect not specifically for ANC and can be left for post natal care (PNC). Yet another 3 percent felt that HIV treatment drugs and regimens should be shown in the protocol. The remaining 37 percent mentioned other reasons too numerous to show individually.

**Physical Attributes:** A qualitative analysis of respondent answers revealed that health workers would welcome a bigger tool, incorporating all the information gaps highlighted above. The current protocol is probably too small for quick references and should be dimensionally increased. Subsequently, the font size will be enlarged making the tool friendlier for use in a ward situation. The GOAP is presently too small for use; hence some are keeping it in office drawers where its use is limited. In addition, instead of highlighting text, color can be used for emphasis and enhancement of contrast.

<sup>15</sup> Zimbabwe National Malaria Control Programme: Malaria Case Management Guidelines for Free Combination Therapy of Chloroquine and Sulphadoxine/Pyrimethamine (SP).



**Table 7: Analysis of Health Worker Knowledge of ANC Standards by Type of Cadre**

Type of Cadre	Mean Number of ANC Visits		Gestation At Booking (Mean)
	Minimum	Maximum	
S.I.C.	4	6	15
Midwife	4	6	15
RGN	4	6	15
SCN	5	6	14
PCN	4	6	15
Nurse Aide	5	7	14
Doctor	5	6	16
Matron	4	6	14
DNO	4	7	15
SCMN	4	6	14
Community Health Nurse	4	7	15
Student Midwife	5	6	16
Clinical Officer	4	8	12
Tutor	5	6	16
<b>Total</b>	<b>4</b>	<b>6</b>	<b>15</b>

The minimum recommended number of ANC visits was reported to be 4 while the maximum emerged as 6. The gestation age at booking was reported as 15 weeks. The doctors, midwifery students and nurse tutors were more precise on the recommended gestation age at booking (16 weeks). The study showed that health workers are aware of the standards of ANC with respect to minimum and maximum number of ANC visits.

#### 4.6 Knowledge of Prophylaxes Prescribed During ANC

Health workers were asked whether they knew the prophylaxes prescribed during ANC. The pie chart below shows the weighted awareness levels. The share of mind (SOM) index clearly shows the *relative significance* of each prophylaxis as mentioned as shown in the pie chart below (Figure 7).

<sup>16</sup> The share of mind (SOM) index assumes a psychological approach in dealing with mental storage, retention and retrieval of single entry data on groups made up of several items with similar traits. In spontaneous response questions, this technique reveals the significance of each item relative to others in the same category. It rescales the within-category percentages to a 100-point scale to give a standardized group index.



**Figure 7: Weighted Percentage Awareness of Prophylaxes Prescribed During ANC**

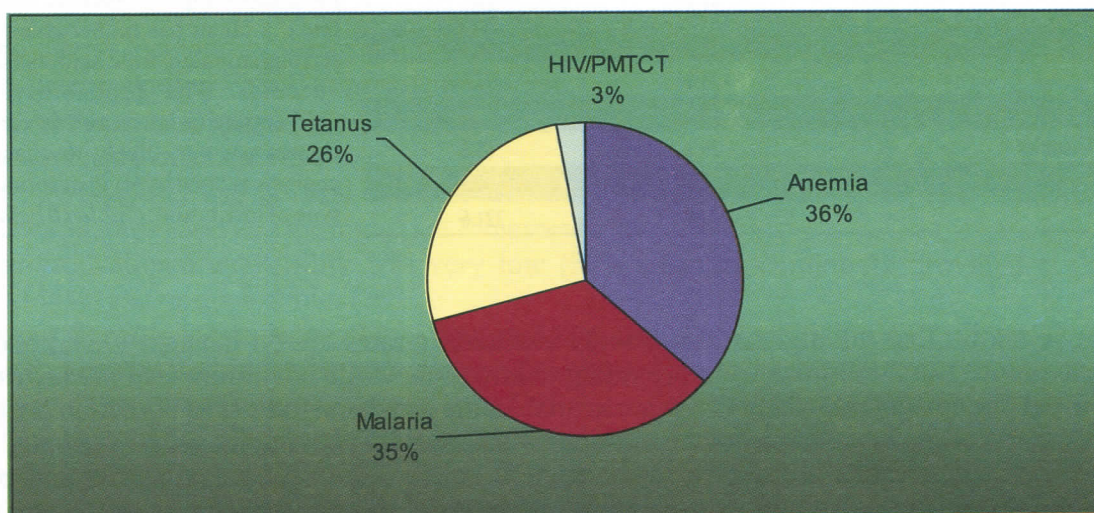


Figure 7 shows that the anemia prophylaxis sits on 36 percent brain area for a typical health worker providing ANC services. Malaria prophylaxis takes slightly lower percentage of 35 percent followed by the tetanus prophylaxis (26%). HIV prophylaxis is the least known with a mere 3 percent. This perhaps points to the slow integration of PMTCT into maternal and child health services, particularly during ANC.

#### 4.7 Knowledge of Drugs Administered for Prophylaxes Prescribed During ANC

Having established awareness of health workers on the prophylaxes, it was also necessary to find out whether they were knowledgeable about the drugs used in the prophylaxes. For each prophylaxes mentioned, a follow-up question addressed the drug issue. Table 8 below shows the weighted percentage distribution of knowledge of drugs used for the respective prophylaxes.

**Table 8: Knowledge of Drugs Used for the Prophylaxes Prescribed During ANC**

Drugs Used in Prophylaxis	Weighted (SOM)	% Within Categories
Folic & Ferrous	38	95.1
Fansidar/Chloroquine	32	81.8
ATT Vaccine	27	69.2
HIV/PMTCT ARVs	3	7.3

As expected, the SOM measure takes cue from the awareness indices (*Figure 7 above*). The within-category figures show the percentage knowledge attributed to each of the drugs amongst all respondents who displayed some knowledge about the drugs

The table above shows that folic acid and ferrous sulphate are highly known drugs. The comparatively lower percentage knowledge of antimalaria drugs possibly results from an apparent confusion about the antimalaria prophylaxis (*see section 4.5 above*). Nearly 70 percent were knowledgeable about anti-tetanus vaccines. Very consistently, PMTCT drugs are also very little known about just like the HIV prophylaxis itself. Again, we infer that PMTCT is not yet fully integrated in ANC.



**Table 9: Analysis of Drugs Provided During ANC in Health Institutions**

Drug Administered <sup>17</sup>	Weighted	% Within Drugs
Ferrous Sulphate	21.0	67.4
Folic Acid	23.0	74.0
Fansidar	23.4	75.3
Chloroquine	10.0	32.2
Anti-tetanus Vaccines	20.3	65.2
Nevirapine	2.3	7.5
<b>Total</b>	<b>100</b>	<b>321.6</b>

Ideally, the weighted percentage for each of the drugs should be 16.7%. Thus, at national level, a client has higher chances of getting ferrous sulphate, folic acid, fansidar and ATT vaccines. The probability of getting chloroquine or nevirapine is very low. These figures are very likely to change when the analysis is done by level of service delivery or type of institution. (Table 10 below)

Table 9 above shows that the highest institutional availability rates are on fansidar (75%) and folic acid (74%). On average, 1 in 3 facilities were providing chloroquine while nevirapine had the lowest provision rates. In normal circumstances, where drugs are available, the provision rates (i.e. “% within drugs”) should be 100 percent or closer. Only 8 percent of institutions were providing nevirapine for HIV prophylaxis during ANC. More revealing results are shown in the section below where drug availability and provision is disaggregated by level or type of facility. The rate of provision of drugs is likely to vary by type of facility and this is reflected in the Table 10 below.

**Table 10: Analysis of Drug Provision for ANC Prophylaxes by Type of Facility**

Type of Facility	Statistic	Anti-Anemia		Anti-Malaria		Anti-tetanus Toxoid	Nevirapine	Facility Total
		Ferrous Sulphate	Folic Acid	Fansidar	Chloro-quine			
<b>Central Hospital</b>	In-Facility %	84.6	80.8	23.1	26.9	61.5	11.5	<b>11.5</b>
	In-Drug %	14.5	12.6	3.5	9.6	10.8	17.6	
<b>Provincial Hospital</b>	In-Facility %	92.0	88.0	82.0	44.0	62.0	6.0	<b>22.1</b>
	In-Drug %	30.3	26.3	24.1	30.1	20.9	17.6	
<b>District Hospital</b>	In-Facility %	60.6	69.1	87.2	34.0	64.9	4.3	<b>41.6</b>
	In-Drug %	37.5	38.9	48.2	43.8	41.2	23.5	
<b>Rural Hospital</b>	In-Facility %	33.3	66.7	66.7	33.3	66.7	0.0	<b>1.3</b>
	In-Drug %	0.7	1.2	1.2	1.4	1.4	0.0	
<b>Mission Hospital</b>	In-Facility %	54.5	54.5	72.0	18.2	54.5	27.3	<b>4.9</b>
	In-Drug %	3.9	3.6	4.7	2.7	4.1	17.6	
<b>Rural Gvt. Clinic</b>	In-Facility %	27.3	45.5	100.0	27.3	90.9	9.1	<b>4.9</b>
	In-Drug %	2.0	3.0	6.5	4.1	6.8	5.9	
<b>Council Clinic</b>	In-Facility %	62.5	62.5	75.0	18.8	62.5	6.3	<b>7.1</b>
	In-Drug %	6.6	6.0	7.1	4.1	6.8	5.9	
<b>Municipal Clinic</b>	In-Facility %	28.6	100.0	14.3	0.0	57.1	0.0	<b>3.1</b>
	In-Drug %	1.3	4.2	0.6	0.0	2.7	0.0	
<b>Mission Clinic</b>	In-Facility %	62.5	87.5	87.5	37.5	100.0	25.0	<b>3.5</b>
	In-Drug %	3.3	4.2	4.1	4.1	5.4	11.8	
<b>National</b>	*****	<b>67.3</b>	<b>73.9</b>	<b>75.2</b>	<b>32.3</b>	<b>65.5</b>	<b>7.5</b>	<b>100.0</b>

<sup>17</sup> The guidelines on malaria management indicate that **parenteral quinine** is the drug of choice in complicated pregnancy. The study did not reveal quinine as a common drug in the provision of ANC services. Also note that “fanzidar” is known as a drug and not a brand name.



## Annotations

1. *Ferrous Sulphate*: Mainly provided at the tertiary and quaternary levels: provincial (92%), central (85%) and district hospitals (61%). At primary levels, council and mission clinics (63%) were the major providers. Availability was poorer in government facilities. Overall, 67 percent of health facilities were providing FeSO<sub>4</sub> to pregnant women.
2. *Folic Acid*: Was available in all municipal clinics. Availability was lowest at RHCs (46%). Nationally, facilities have a provision rate of 74%.
3. *Fansidar*: Availability was poorest in urban facilities - central hospitals (23%) and municipal clinics (14%). Overall, provision was the highest at 75 percent.
4. *Chloroquine*: National availability was very low (32%). Rather commonly provided at provincial hospitals (44%) and mission clinics (38%).
5. *Anti-tetanus Toxoids*: All mission clinics reported that they were providing ATT. Over 90 percent of RHCs also indicated that they were administering the drug. Generally, anti-tetanus vaccines were being provided in 66 percent of facilities visited.
6. *Nevirapine*: Nationally, this was the least available drug. Provision was better in church-owned facilities - mission hospitals (27%) and clinics (25%).

**Overall:** For all the six drugs considered in the study, district hospitals led on provision of drugs in ANC prophylaxes (42%), followed by provincial hospitals (22%) and central hospitals (12%). The other facilities showed rates much lower than 10 percent.

**Drug Unavailability:** The main reason why drugs were not being administered is because they are out of stock (58%). The recommended practice of maintaining minimum stocks is probably no longer sustainable because of acute drug shortages. There is every need to source, procure, purchase and equitably distribute the necessary drugs that are in short supply. The distribution should take note of institutional needs based on volumes of work.

### 4.8 Knowledge of Laboratory Tests Recommended During ANC

During ANC, some laboratory tests are recommended. In that regard, enumerators asked whether the respondents knew about the recommended laboratory tests. Table 11 below presents the findings.

**Table 11: Analysis of Knowledge of Laboratory Tests Performed During ANC**

Laboratory Test	Weighted % (SOM)	% Within Category
RPR	22.6	96.8
Urinalysis	17.7	75.7
Haemoglobin	18.5	79.4
HIV Tests	19.8	84.6
Rhesus	9.3	39.7
Grouping & Cross matching	11.2	48.2
Others	0.9	4
<b>Total</b>	<b>100.0</b>	<b>-----</b>

- The SOM measure shows that health providers will more likely remember to do RPR tests (for syphilis), blood tests for HIV, urine analysis for protein and haemoglobin analysis than rhesus, grouping and cross-matching.

- There is almost a universal knowledge of RPR (97%) as a lab test performed during ANC. However, awareness of rhesus, grouping and cross-matching is very low.

\* HIV is better recognised in lab settings than as an ANC procedure.

<sup>18</sup> *A Rapid Assessment of Maternal & Neonatal Equipment, Drugs and Supplies (2005)* Operational Research by the MOHCW in Collaboration with UNFPA.



It is evident from the table above that the most commonly known laboratory tests performed during ANC are, in order of awareness: RPR, HIV tests, haemoglobin analysis, urinalysis, grouping and cross-matching and rhesus. The study also focused on laboratory tests that were actually being performed at the different institutions. It was found out that although the health personnel knew about some of the lab tests, they were not being performed at their institutions for various reasons. Table 12 below gives an analysis of the lab tests being performed at the health facilities visited during the study.

**Table 12: An Analysis of Laboratory Tests Being Performed During ANC**

Laboratory Test Performed	Weighted % (SOM)	% Within Category
RPR	21.6	82.7
Urinalysis	16.9	64.6
Haemoglobin	17.8	67.7
HIV Tests	21.8	83.2
Rhesus	9.1	35.0
Grouping/Cross matching	11.8	45.1
Others	1.0	4.0
<b>TOTAL</b>	<b>100.0</b>	<b>-----</b>

- HIV tests emerged as the most commonly performed lab test, followed by RPR. Rhesus, grouping and cross-matching remain the least popular tests performed within health institutions.
- The service provision rates are still far much lower than ideal 100 percent level. This entails the need for more efforts in making available facilities to enhance the performance of lab tests.

Some of the major reasons mentioned for not being able to perform lab tests revolved around the lack of facilities and inadequate staff (laboratory technicians). At the central hospital level, performance of most laboratory tests was reported to be hampered by the outward flight of laboratory technicians. In some lower level facilities which routinely sent samples for analysis at higher levels, the major problem was reported to be lengthy delays in receiving results.

#### 4.9 Knowledge of Physical Examinations Performed During ANC

There are routine physical examinations that should be performed during ANC besides the prophylaxes and the laboratory tests. The health workers were asked what physical examinations they would perform when a woman presented for ANC. Table 13 below summarizes the findings about respondent awareness about physical examinations.

**Table 13: Analysis of Physical Examinations Conducted by Health Personnel**

Physical Examination Conducted	Weighted % (SOM)	% Within Category
Weight	15.4	80.2
Blood Pressure (	18.1	93.9
Head-to-toe	15.7	81.8
Symphysio Fundal Height	9.6	49.8
Abdominal Examination <sup>1</sup>	16.3	84.6
Fetal Heart Beat	13	67.6
Vulva Examination	8.7	45.3
Others	3.2	16.2
<b>TOTAL</b>	<b>100</b>	<b>-----</b>

During ANC, a client stands a good chance of having her BP checked. She also has a good chance of having an abdominal exam, head-to-toe examination and weight measurement; She, however, is least likely to have symphysio-fundal height and fetal heart beat checked as well as a vulva examination. The most commonly performed physical examinations are therefore BP, abdominal exam, head-to-toe exam and weight.

<sup>19</sup> The analysis cannot be presented by institution since some facilities are not fully equipped to conduct lab tests.

<sup>20</sup> It is acceptable for abdominal examination and fetal heart beat monitoring to be below 100% as their performance depends on gestation.



In the analysis of Table 13 above, a woman attending ANC is least likely to have a vulva examination as well as a symphysio-fundal height measurement. Important as these examinations may be, the importance attached to them by health workers is incongruent.

## 5. INTERVIEWS WITH WOMEN ATTENDING ANC

**Preamble:** It was necessary to find the community's evaluation of ANC services provided at the health facilities. As such, during this study, 25 women were intercepted while they were receiving ANC services and interviewed about the services they were getting. Besides the demographic characteristics, much of the information was qualitative and will be presented in the following section.

**Sample Characteristics** - The mean age of the women interviewed was 24 years. Age ranged from 17 to 44 years. The mean gravida was 3. At the time of interview, the average number of ANC visits made was 4 including the one in question. On average, the women had booked at 24 weeks of gestation. Table 14 below summarizes the issues enquired about from the community.

**Table 14: Summary of Interviews with Women Attending ANC**

Item of Analysis	Statistic
Mean Age of Women Interviewed (Years)	24
Mean Gravida	3
Mean Distance from Home to Health Centre (km)	35
Mean Distance from Home to Health Centre (minutes)	62
Mean Number of ANC Visits at Time of Interview <sup>1</sup>	4
Mean Gestation at Booking (Weeks)	24
Mean Number ANC Visits Known for Uncomplicated Pregnancy	7

**Accessibility of Health Facilities:** The reported mean distance from home to the health facility was 35km. In other cases, the respondents preferred to give an estimation of the time it took them to walk from home to the clinic. The average time taken to 'walk' to the health facility came out to be about 1 hour. Note that these figures should be treated with extreme caution since they are based on estimations.

**Knowledge about ANC Standards:** Asked how many times a woman with an uncomplicated pregnancy should go for ANC, a mean of 7 visits emerged. The major sources of information about ANC were reported as follows:

### **Sources of Health Information for Pregnant Women**

Clinic/hospital/health worker	44%
Personal Conviction	31%
Friends/Relatives	19%
Books (Reading)	6%
<b>Total</b>	<b>100%</b>

It is encouraging that the majority of women (44%) get information about their health when pregnant from the health facilities through trained health workers. Perhaps worrying is the 50 percent who base their actions

<sup>21</sup> The study did not establish gestation at time of interview. This would have helped to deduce total ANC visits per pregnancy.



on personal hunch and community knowledge combined. It may be difficult to control the spread of incorrect and harmful information when women tend to rely heavily on unconventional sources of information about their health.

**Attitudes about 4-6 ANC Visits:** All the women interviewed indicated that they were satisfied with the recommended 4-6 ANC visits. The main reasons against more visits revolved around lack of time to go to the clinic for the routine ANC check-ups, long distances between homes and clinic and overall costs. The majority cited transport problems highlighting that sometimes they do not afford the fares. In some cases where they can afford the fares, there is no available transport, making it take longer to go to and from a health facility. Some pregnant women in Chimanimani indicated that they would go and sleep over at a relative's place nearer the health facility. The following day they get ANC services and walk back home. In Buhera, some women reported that they rose as early as 4 a.m. to walk to the clinic where they arrived around 11 a.m. After getting the ANC services and resting for a while they would then start on the long journey back. Interestingly, these women indicated that if the nurses *okayed* their pregnancies towards delivery they would prefer to deliver at home since it will be very difficult to walk back to the clinic when delivery is approaching<sup>22</sup>.

**Major Problems in Getting ANC Services:** Overall, most of the women pointed out that they were getting excellent service. Nevertheless, it is the few who raised very pertinent issues whose comments deserve special attention. The major concern centred around the inability of health centres to offer adequate ANC services mainly due to lack of drugs, equipment and other supplies. The other problem was the inadequacy of staff manning the clinics. In most cases, the problem of staff shortages often inadvertently resulted in delays in service delivery. At provincial and district hospitals the women interviewed suggested that food be availed to clients who take very long to get service. The words of a 22-year old woman cited below clearly reflect the plight of many other women:

*"I woke up very early to come here. I have been here since morning but have not been served yet because we are many. The nurses sometimes close the door and go for tea leaving us to wait on this hard bench. One of them went for tea twice while we were waiting. Imagine I have not eaten anything yet and I'm pregnant. I also have to walk back home. I was told these nurses are going out for lunch very soon..." - ANC Client, Murambinda Hospital.*

It is apparent from the above quotation that the delays in getting service lead some of the women to make somewhat unreasonable suggestions like the one for ANC attendees to get food from the hospital. The community sees these delays as a problem of the hospital.

**Perception about Services:** Most women, particularly those in the rural areas, felt that some of their visits were unnecessary. Chief among the complaints was that they do not get value for their efforts in attending ANC. Some even indicated that when they were feeling "okay", they would rather skip the next date of visit. The women reported that they only got worried and forced themselves to attend ANC after noticing some irregularities. They highlighted that they did not see the importance of attending ANC only for weight, BP, height and other measurements and be told that they are "fine and should come back at the next date of visit". They suggested that nurses should clearly explain the procedures they will be taking on the woman and possibly give a later date than the routine if they think nothing serious will happen in the interim period. The women also complained that the nurses do not equip them to handle their own health where they can. The major issue was that health professionals only wanted pregnant women to present at the health facilities for

<sup>22</sup> It is common practice for the pregnant woman to be accompanied (always) by another woman especially where there are long distances to walk. The implications on family obligations are very demanding since more than one person is always attending to the pregnancy.



minor examinations which the women can do on their own and only present if they notice something harmful or unusual. Some clients in Manicaland pointed out that their communities were so remote and mountainous that getting health services was very difficult. They suggested that 'mobile clinics' be instituted on specific days to serve those communities. In essence, in these difficult times health services should go to the people rather than the vice versa.

**Traditional Options:** It was revealed that in cases where pregnant women felt there was no need to go to the health facility they opted for traditional medicine which is more accessible, available and affordable. The study revealed that women visited traditional medicine practitioners, especially elderly women in the community, more frequently than health facilities. Such patronage of traditional services was reportedly continuing even up to delivery and post natal care. However, it emerged from further probing that some of the traditional service providers were neither trained nor properly equipped to provide services. They were women with a track record of assisting expecting mothers and even helping them during delivery.

**Assessment of ANC Records:** Each woman interviewed was requested to produce her Mother's ANC Card from which the enumerators checked quality of service in the provision of services. Table 15 below summarizes the findings of the survey in terms of performance of the key routine ANC duties by health providers. The study covered at most three visits. It should be noted, however, that not all clients had had three visits at the time of the study. All the 25 women had records for the first visit, 21 of them had the second visit and only 12 had records for the third visit. To avoid the complications of weighting the data, the table below was generated using information about the first visit.

**Table 15: Analysis of ANC Record of Procedures Performed From Mother's ANC Card**

Procedure/Item Recorded on ANC Mother's Card	Percent
<b>Date of Visit</b>	<b>92.0</b>
<b>Weeks Pregnant by Dates</b>	<b>88.0</b>
<i>Fundal Height in CM</i>	44.0
Fundal Height in Weeks	72.0
Per Vaginal Examination	60.0
Anaemia	64.0
Urinalysis	56.0
Weight	72.0
<b>Blood Pressure</b>	<b>76.0</b>
Abnormal Lie After 36 Weeks	52.0
<b>Fetal Heart Heard</b>	<b>80.0</b>
<b>Fetal Movements</b>	<b>80.0</b>
Oedema	72.0
Vulva	60.0
Iron	52.0
Folic Acid	60.0
Tetanus Toxoid	72.0
<i>Antimalaria Prophylaxis (IPT)</i>	48.0
<i>Laboratory Results Discussed</i>	36.0
Place of Delivery Discussed	56.0
PMTCT Discussed	68.0
Family Planning Discussed	56.0
<b>Date of Next Visit</b>	<b>84.0</b>

All the items in bold in the table above indicate procedures that were done at above 75% level, the highest of which is recording of the next date of visit and weeks of pregnancy by dates. The routine check-ups on the fetus (heart beat and fetal movements) were being performed in 8 out of 10 times. BP measurement is the most commonly done (76%). Some institutions at lower levels reported that they could not measure BP for lack of sphygmomanometers. The items in italics were performed in less than 50 percent of the cases. Discussion of laboratory results was the least performed procedure (38%) followed by measurement of fundal height in centimeters (44%) and provision of the antimalaria prophylaxis (48%). Discussion of laboratory result is mainly hampered by non-availability of laboratory facilities in most of the institutions.



## 6. CONCLUSION

The study established that there are awareness and knowledge gaps amongst health workers, even among some senior professionals. This indicates a need for emphasis on the GOAP in training curricula if the utilization of the tool is to be enhanced. Again, there is need to complement strategies aimed at improving awareness and knowledge with the actual provision of GOAP copies. Some serious deficiencies have been noted even in departments and institutions that provide ANC services daily. Amongst the health workers who indicated awareness of the protocol, knowledge of the content is also high regardless of qualification of cadre interviewed. Knowledge of prophylaxes, drugs, laboratory tests and physical examinations conducted during ANC was very encouraging. However, there are tremendous variations in the levels in which individual aspects are known. A share of mind analysis revealed that there were two or three well-known aspects of individual procedures while the rest were less known. The majority of health workers indicated that the current protocol is alright but might need content review in terms of drug regimens, infant feeding options and HIV/PMTCT drugs. In fact, the integration of PMTCT in ANC seems to be overridden by other procedures hence low awareness of the prophylaxis as well as the drugs used. Drug availability for ANC procedures was generally very low but much better at the district, provincial and central hospital level, in that order. Discounting the evident efforts of the health service provider, pregnant women reported that their main problems lied in shortage of staff, drugs, equipment and other supplies resulting in delays in getting service. Further, accessibility of institutional health services has been hampered by poor transport networks in rural areas compounded by high fares. Subsequently, most rural women are turning to traditional medicine and traditional health service providers. The chain of community reliance on traditional medicine stretches from ANC through delivery to the post natal period. The likelihood of maternal deaths resulting in complications arising in the absence of skilled health workers is very high. Thus, while the protocol can be improved, ANC services need to be reviewed in light of the challenges obtaining now. Thus, any proposed changes to the current protocol should be accompanied by overall ANC service review for tangible results.



## 7. RECOMMENDATIONS

### 1. Law awareness levels among some health staff.

All personnel should be encouraged to be knowledgeable and competent enough to provide ANC services to clients. The staff rotation amongst departments makes it all the more compelling to fully equip staff with skills to provide ANC. This should be done in light of the continuing outward 'flight of health personnel'.

### 2. Low early booking rates.

The essence of ANC visits is to detect pregnancy-related complications early enough to effectively manage before they cause harm to the pregnant woman as well as the unborn baby. There seems to be a very strong call to encourage women to book early, particularly in the urban areas where the tendency to delay is very common.

### 3. Inadequate GOAP in some facilities. There is a national mean deficit of 4 GOAP copies per facility although this varies by type of facility and level of service delivery. Percentage deficits are greater at higher level facilities than the lower level facilities. Since the GOAP is essentially a management as well as a referral tool, the need to improve availability in the referring facilities is clear. This should be done without conveniently forgetting the needs of the higher level facilities for their management purposes.

### 4. Shortage of drugs for prophylaxes during ANC. District hospitals are apparently better stocked with drugs for the various prophylaxes. While provincial hospitals also display high provision rates, there is inadequacy. Central hospitals, by comparison, do not handle large volumes of ANC work. There is a need to look into the inability of institutions to provide drugs during ANC. ANC services not realising clients in remote areas.

### 5. Limited coverage of ANC Services in remote areas. Resources permitting, there is need to consider the informal community submissions to adopt the concept of 'mobile clinics' in the very remote communities. Again, special considerations should be made to avail food to ANC clients where delays are due to hospital administration, especially at higher levels of service delivery. There are clear and positive improvements in maternal and neonatal health if over-reliance on traditional options is stemmed.

### 6. Improve the GOAP Tool and ANC Services. While focus can be put to improving the protocol, there is need to go beyond that and devise strategies that address the ANC service delivery in its totality in light of the challenges facing the country at the moment. Emphasis should be placed on client-driven strategies for the development targets are to be achieved.

### 7. In terms of content, the protocol seriously lacks on details on drugs and drug regimens. Granted that this was not the whole objective of the tool, there is need to seriously consider including information on antimalaria prophylaxis during pregnancy, PMTCT and health promotion guidelines as necessary.



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## ANNEX 1: SAMPLE BUILD-UP FOR THE RAPID ASSESSMENT OF GOAP

Level of Care	Institution's Name	DEPARTMENT			Total	Summary Breakdown By Grade of Cadre
		ANC/MCH	ANC	Labour		
Central Hospitals	Harare Hospital	5 Nurses 1 Doctor 1 Matron	3 Nurses 1 Tutor	2 Nurses 1 Supervisor	14	Nurses = 10 Doctors = 1 Matron = 1 Supervisors = 1 Tutors = 1 <b>Total = 14</b>
	Mpilo Hospital	5 Nurses 1 Doctor 1 Matron	3 Nurses 1 Tutor	2 Nurses 1 Supervisor	14	Nurses = 10 Doctor = 1 Matron = 1 Supervisor = 1 Tutors = 1 <b>Total = 14</b>
Cities	Harare	Low Density = 2	High Density = 2	0	4	Nurses = 4 <b>Total = 4</b>
	Bulawayo	Low Density = 2	High Density = 2	0	4	Nurses = 4 <b>Total = 4</b>
Provincial Hospitals	Mutare PH	5 Nurses 1 Doctor	3 Nurses 1 Matron	2 Nurses 1 Supervisor	13	Nurses = 10 Doctor = 1 Matron = 1 Tutors = 1 <b>Total = 13</b>
	Chinhoyi PH	5 Nurses 1 Doctor	3 Nurses 1 Matron	2 Nurses 1 Supervisor	13	Nurses = 10 Doctor = 1 Matron = 1 Tutors = 1 <b>Total = 13</b>
	St Luke's PH	5 Nurses 1 Doctor	3 Nurses 1 Matron	2 Nurses 1 Supervisor	13	Nurses = 10 Doctor = 1 Matron = 1 Tutors = 1 <b>Total = 13</b>
	Gweru PH	5 Nurses 1 Doctor	3 Nurses 1 Matron	2 Nurses 1 Supervisor	13	Nurses = 10 Doctor = 1 Matron = 1 Tutors = 1 <b>Total = 13</b>



	Hurungwe	5 Nurses 1 Comm. Sister 1 Doctor	3 Nurses 1 ANC S.I.C 1 Matron	2 Nurses 1 DNO	<b>15</b>	Nurses = 10 Doctor = 1 DNO = 1 Matron = 1 ANC S.I.C = 1 Community Sister = 1 <b>Total = 15</b>
	Kadoma	5 Nurses 1 Comm. Sister 1 Doctor	3 Nurses 1 ANC S.I.C 1 Matron	2 Nurses 1 DNO	<b>15</b>	Nurses = 10 Doctor = 1 DNO = 1 Matron = 1 ANC S.I.C = 1 Community Sister = 1 <b>Total = 15</b>
	Binga	5 Nurses 1 Comm. Sister 1 Doctor	3 Nurses 1 ANC S.I.C 1 Matron	2 Nurses 1 DNO	<b>15</b>	Nurses = 10 Doctor = 1 DNO = 1 Matron = 1 ANC S.I.C = 1 Community Sister = 1 <b>Total = 15</b>
	Nkayi	5 Nurses 1 Comm. Sister 1 Doctor	3 Nurses 1 ANC S.I.C 1 Matron	2 Nurses 1 DNO	<b>15</b>	Nurses = 10 Doctor = 1 DNO = 1 Matron = 1 ANC S.I.C = 1 Community Sister = 1 <b>Total = 15</b>
	Chirumhanzu	5 Nurses 1 Comm. Sister 1 Doctor	3 Nurses 1 ANC S.I.C 1 Matron	2 Nurses 1 DNO	<b>15</b>	Nurses = 10 Doctor = 1 DNO = 1 Matron = 1 ANC S.I.C = 1 Community Sister = 1 <b>Total = 15</b>
	Mberengwa	5 Nurses 1 Comm. Sister 1 Doctor	3 Nurses 1 ANC S.I.C 1 Matron	2 Nurses 1 DNO	<b>15</b>	Nurses = 10 Doctor = 1 DNO = 1 Matron = 1 ANC S.I.C = 1 Community Sister = 1 <b>Total = 15</b>
	Buhera	Gvt. = 2	Council = 2	Mission = 2	<b>6</b>	Nurses = 6

**Legend** ANC = Antenatal Care, MCH = Maternal and Child Health, PH = Provincial Hospital, Gvt. = Government



**SECTION A: BACKGROUND INFORMATION**

1. PROVINCE..... DATE.....August 2006
2. DISTRICT.....
3. NAME OF CENTRE.....
4. INTERVIEWER'S NAME.....
5. Type of Institution: (Circle Only the Most Appropriate One)
 

Central Hospital ..... 1	Rural Hospital ..... 2
Rural Gvt. Clinic .....3	Provincial Hospital..... 4
Mission Hospital ..... 5	Council Clinic.....6
District Hospital.....7	Municipal Clinic .....8
Mission Clinic.....9	
Other (Specify) _____	10
6. Department: ANC/MCH.....1      ANC.....2      Labour.....3
7. Interviewee's Grade:
 

Sister-in-charge.....1	Midwife .....2
RGN.....3	SCN.....4
PCN.....5	Nurse Aide.....6
Doctor .....7	Matron.....8
DNO.....9	Pupil Midwife.....10
Other (Specify).....	
7. **Number of Respondent's Years In Service:** \_\_\_\_\_
8. **Expected number of pregnancies (January to June) 2006:** \_\_\_\_\_
9. **Total No. of First ANC Visits (January to June) 2006:** \_\_\_\_\_
10. **Number of ANC visits before 16 weeks gestation (January to June) 2006:** \_\_\_\_\_  
(Check with ANC register or T5)
11. **Were you trained in Emergency Obstetric and Neonatal Care (EmOC)?**  
Yes .....1 No..... 2



**SECTION B: AWARENESS, UTILIZATION & KNOWLEDGE OF THE PROTOCOL**

12. Have you ever heard about the Goal Oriented Antenatal Care Protocol (GOAP)?  
Yes .....1                      No.....2      (IF "NO" GO TO Q23)

13. In this department do you have copies of the GOAP to refer to?  
Yes .....1                      No.....2      (IF "NO" GO TO Q16)

14. How many copies of the GOAP are there in this department? \_\_\_\_\_

15. Where are the copies kept?  
.....  
.....

16. What is the ideal number of GOAP copies needed in this department?

17. How do you yourself use the GOAP?  
Always make a quick reference to it .....1  
Sometimes refer to it .....2  
Only refer to it for special cases .....3  
Rarely refer to it .....4  
Never refer to it .....5  
Other (Specify).....

18. Have you ever referred a client using information in the GOAP?  
Yes .....1                      No.....2

(b) If YES, what were the reasons for referral?  
.....  
.....  
.....

19. In your opinion is there information in the protocol which is not necessary?  
Yes .....1                      No.....2      (IF "NO" GO TO Q21)

20. If YES, please explain:  
.....  
.....

21. In your opinion, is there information which is missing in the protocol?  
Yes .....1                      No.....2      (IF "NO" GO TO Q23)

22. If YES, please explain:  
.....  
.....

23. What is the minimum/maximum number of ANC visits recommended for an uncomplicated pregnancy?

(i) Minimum \_\_\_\_\_ Don't Know ....33                      (i) Maximum \_\_\_\_\_ Don't Know ....33

24. What is the recommended gestation age for ANC booking? (IN WEEKS) \_\_\_\_\_

Don't Know ....33



LABORATORY TESTS	KNOWN	PERFORMED AT CENTRE	
		YES	NO
1. Syphilis (RPR)	1	1	2
2. Urine for Albumin	2	1	2
3. Hemoglobin	3	1	2
4. HIV Tests	4	1	2
5. Rhesus Factor	5	1	2
6. Grouping	6	1	2
7. Other (Specify).....		1	2

26. Are you providing these prophylaxes? Yes .....1 No .....2  
 27. If "Yes": Which ones are you providing?

.....  
 .....

28. If "No": Explain why you are not providing these prophylaxes?  
 .....

29 (a) Please state the routine laboratory tests that are recommended during ANC? (CIRCLE ONLY AS MENTIONED UNDER "KNOWN" IN THE TABLE BELOW)  
 (b) Which laboratory tests are performed at this institution? (RECORD IN TABLE BELOW)

**What are the major prophylaxes prescribed during ANC? (Circle Only as Mentioned)**

PROPHYLAXIS	Mentioned	DRUGS USED	REGIME
a) Ferrous Sulphate			
b.) Folic Acid			
c.) Anti-malarial			
d.) Tetanus Toxoid			
Other (Specify) .....			

28. Please mention the examinations done during a woman's visit for ANC? (Circle Only as Mentioned)  
 Weight..... 1 Blood Pressure..... 2  
 Head-to-Toe..... 3 Symphysio-Fundal Height..... 4  
 Abdominal examination..... 5 Fetal Heart Beat..... 6  
 Vulva Examination..... 7  
 Other (Specify).....

RESPONDENT'S GENERAL COMMENTS.....  
 .....

SUPERVISOR'S NAME (PRINT).....

SUPERVISOR'S SIGNATURE..... DATE .....



**ANNEX 3 : DATA COLLECTION TOOL - WOMEN ATTENDING ANC SERVICES**

1. PROVINCE..... DATE..... August 2006

2. DISTRICT.....

3. NAME OF CENTRE.....

4. INTERVIEWER'S NAME.....

5. Type of Institution: (Circle Only the Most Appropriate One)

Central Hospital ..... 1 Rural Hospital ..... 2

Rural Gvt. Clinic ..... 3 Provincial Hospital..... 4

Mission Hospital ..... 5 Council Clinic..... 6

District Hospital..... 7 Municipal Clinic ..... 8

Mission Clinic..... 9

Other (Specify) \_\_\_\_\_ 10

1. Woman's Age (In Completed Years) \_\_\_\_\_

2. Gravida: \_\_\_\_\_

3. How away is your home from this health facility? \_\_\_\_\_ Km

4. Number of this visit \_\_\_\_\_

5. At what gestation age did you book for ANC? \_\_\_\_\_ WEEKS.

6. How many times should a pregnant woman go for ANC if there is no complication? \_\_\_\_\_

7. Where did you get this information?

8. Are you satisfied with the recommended number of 4-5 ANC visits?

Yes ..... 1(GOTO Q10) No ..... 2

9. If "NO", please explain.

.....  
.....  
.....  
.....

10. Are there any other comments you have about the services offered during ANC? Please state them.

.....  
.....  
.....  
.....  
.....

**SUPERVISOR'S NAME (PRINT).....**

**SUPERVISOR'S SIGNATURE.....**

**DATE .....**



## ANNEX 4: THE GOAL ORIENTED ANTENATAL CARE PROTOCOL

### MINISTRY OF HEALTH AND CHILD WELFARE ZIMBABWE

**Important:** Goals are different depending On the timing of the visit. Six visits are aimed at in an Uncomplicated Pregnancy. If a woman books later than in the first trimester, preceding goals should be combined and attended to. At all visits, address any identified problems, check the BP and measure the Symphysio-Fundal Height.

Trimester	Goal	Timing of Visit	History Taking	Examination	Laboratory Investigations	Health Promotion	Prophylaxis
First Visit <b>First Trimester</b> <16 weeks	<ul style="list-style-type: none"> <li>- Risk Assessment</li> <li>- Health Education</li> <li>- Plan of Delivery</li> </ul>	Any Time <16 weeks	<ul style="list-style-type: none"> <li>- Medical</li> <li>- Surgical</li> <li>- Obstetric</li> <li>Confirm period of gestation</li> <li>* L.M.P.?</li> <li>* Use of contraceptives</li> <li>* Date of conception known?</li> <li>- STI</li> <li>- Social: Smoking/Alcohol/Drugs</li> </ul>	<ul style="list-style-type: none"> <li>- General examination</li> <li>- Vulva examination (speculum if indicated)</li> <li>- S.F.H. measurement</li> <li>- Abdominal examination</li> <li>- Vital observations</li> </ul>	<ul style="list-style-type: none"> <li>- Syphilis Test</li> <li>- HB</li> <li>- Urine – Albumen</li> <li>- Glucose</li> <li>- Discuss HIV/AIDS</li> </ul>	<ul style="list-style-type: none"> <li>- Address any problem</li> <li>- Involve husband in ANC</li> <li>- Draw up delivery plan</li> <li>- Discuss future FP, postpartum FP, TL, Condoms</li> <li>- Discuss symptoms of miscarriage, PIH</li> <li>- Educate and counsel on prevention of mother to child transmission of HIV</li> </ul>	<ul style="list-style-type: none"> <li>- TT vaccination according to ZEPI</li> <li>- FeSO<sub>4</sub></li> <li>- Folic Acid</li> <li>- Anti-malaria</li> </ul>
2 <sup>nd</sup> Visit <b>Second Trimester</b>	<ul style="list-style-type: none"> <li>- Action on Abnormal Laboratory Results</li> <li>- Second TT</li> </ul>	4 weeks after first visit	<ul style="list-style-type: none"> <li>- Ask for problems</li> <li>- Date of first fetal movements</li> </ul>	- BP		<ul style="list-style-type: none"> <li>- Address problems</li> <li>- Discuss laboratory results and need to treat partner</li> </ul>	- TT
3 <sup>rd</sup> Visit <b>16 – 28 weeks</b>	<ul style="list-style-type: none"> <li>- Exclude Multiple Pregnancy</li> <li>- Assess for Signs of PIH</li> </ul>	24 – 28 weeks	<ul style="list-style-type: none"> <li>- Ask for problems</li> <li>- APH?</li> </ul>	<ul style="list-style-type: none"> <li>- BP</li> <li>- SFH (multiple pregnancy)</li> <li>- Abdominal examination</li> </ul>	- If BP 140/90: Urine for albumen ?	<ul style="list-style-type: none"> <li>- Address problems</li> <li>- Check for PIH</li> <li>- Discuss APH</li> <li>- Discuss PMTCT/VCT</li> </ul>	<ul style="list-style-type: none"> <li>- FeSO<sub>4</sub></li> <li>- Folic Acid</li> <li>- Anti-malaria</li> </ul>



4<sup>th</sup> Visit

5<sup>th</sup> Visit

6<sup>th</sup> Visit

<p><b>Third Trimester</b></p>	<ul style="list-style-type: none"> <li>- Check Fetal Growth</li> <li>- Exclude Anemia</li> <li>- Assess for Signs of PIH</li> <li>- Review Delivery Plan</li> </ul>	<p>32 - 4 weeks</p>	<ul style="list-style-type: none"> <li>- Problems?</li> <li>- APH?</li> </ul>	<ul style="list-style-type: none"> <li>- BP</li> <li>- Palm/Conjunctiva 1 pallor</li> <li>- SFH (too small)</li> <li>- Abdominal examination</li> </ul>	<ul style="list-style-type: none"> <li>- HB Urine for albumen</li> </ul>	<ul style="list-style-type: none"> <li>- Address problems</li> <li>- Discuss labour/EROM</li> <li>- Review delivery plan (waiting mother shelter)</li> <li>- Rediscuss FP</li> </ul>	<ul style="list-style-type: none"> <li>- FeSO<sub>4</sub></li> <li>- Folic Acid</li> <li>- Anti-malaria</li> </ul>
<p><b>28 weeks - 42</b></p>	<ul style="list-style-type: none"> <li>- Check Fetal Growth</li> <li>- Assess for Signs of PIH</li> <li>- Review Delivery Plan</li> <li>- Exclude Abnormal Presentation and Lie</li> </ul>	<p>36 - 38 weeks</p>	<ul style="list-style-type: none"> <li>- Ask for problems</li> </ul>	<ul style="list-style-type: none"> <li>- BP</li> <li>- SFH (</li> <li>- Abdominal examination</li> <li>- Check lie</li> <li>- Presentation</li> </ul>	<ul style="list-style-type: none"> <li>- If BP ? 140/90: Urine for albumen</li> </ul>	<ul style="list-style-type: none"> <li>- Address problems</li> <li>- Discuss labour/EROM</li> <li>- Review delivery plan (waiting mother shelter)</li> <li>- Discuss PMTCT/VCT</li> </ul>	<ul style="list-style-type: none"> <li>- FeSO<sub>4</sub></li> <li>- Folic Acid</li> <li>- Anti-malaria</li> </ul>
	<ul style="list-style-type: none"> <li>- Assess Fetal Well-being</li> <li>- Assess for Signs of PIH</li> <li>- Exclude Abnormal Presentation and Lie</li> <li>- Review Delivery Plan</li> </ul>	<p>38 - 42 weeks</p>	<ul style="list-style-type: none"> <li>- Ask for problems</li> </ul>	<ul style="list-style-type: none"> <li>- BP</li> <li>- SFH Abdominal examination</li> <li>- Check lie</li> <li>- Presentation</li> </ul>	<ul style="list-style-type: none"> <li>- If BP ? 140/90: Urine for albumen</li> </ul>	<ul style="list-style-type: none"> <li>- Address problems</li> <li>- Discuss PMTCT/VCT</li> <li>- Discuss labour</li> <li>- Review delivery plan (waiting mother shelter?)</li> </ul>	<ul style="list-style-type: none"> <li>- FeSO<sub>4</sub></li> <li>- Folic Acid</li> <li>- Anti-malaria.</li> </ul>



## THE RESEARCH TEAM

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Dodzo M. K.	Demographer
Mandiki M.	BCC Officer
Mushapaidze S.	National Reproductive Health Officer
Machena C.	National IMCI Officer
Mungazi M.	Executive Secretary
Gerede R.	Provincial Nursing Officer, <b>Mashonaland East</b>
Makoni A.	Principal Midwifery Tutor, <b>Mpilo Central Hospital</b>

### MANICALAND

Manyumwa C.	Provincial Nursing Officer
Mawere E.	Provincial Reproductive Health Officer

### MATEBELELAND NORTH

Tshuma E.	Provincial Nursing Officer
Ngaru E.	Provincial Reproductive Health Officer

### MASHONALAND WEST

Bakasa C.	Provincial Nursing Officer
Mambudzi D.	Provincial Reproductive Health Officer

### MIDLANDS

Midzi O.	Provincial Nursing Officer
Zimbizi P.	Provincial Reproductive Health Officer

**ONE MATERNAL OR NEONATAL  
DEATH IS ONE DEATH TOO MANY**



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