Audit of Antenatal Care Services, *Elhikma* Health Center, Gezira State, Sudan (2013)

By
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B.SC., Omdrman Islamic University (2007)

A Dissertation

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in

Family Medicine

Department Of Family and Community Medicine

Faculty of Medicine

University of Gezira

August, 2013
Audit of Antenatal Care Services in Elhikma Health Centre, Wad Medani, Sudan (January - March 2013)

By
Areej Babikir Ahmed Kanan

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Dr. Osman Hamid Abd Elhamid Co-supervisor

Date: July, 2013
Audit of Antenatal Care Services, Elhokana Health Center, Gezira State, Sudan (2013)

By

Areej Babikir Ahmed Kanan

Examination Committee:

Name                        Position               Signature
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Dr. Sakhr Badawi Omer Elsheikh External Examiner
Dr. Abd Elnasir Ahmed Abuzaid Internal Examiner

Date of Examination :14/8/2013
قال تعالى:

{ قُلْ لَّوْ كَانَ الْبَحْرُ مِدَادًا لِّكَلِمَاتِ رَبِّيَّةِ، لَنَفِدَ الْبَحْرُ قَبْلَ أَنْ تَنفَدَ كَلِمَاتُ رَبِّيَّةِ وَلَوْ جِئْنَا بِِِثْلِهِ مَدَادًا (109) قُلْ إِنَّمَا أَنَا بَشَرٌ مِّثْلُكُمْ يُوحَى إِلَيْهِ إِلَّا أَنِّي أَنْفَكَمْ إِلَّهٌ وَاحِدٌ فَمَنْ كَانَ يُرْجِعُ إِلَيْهِ رَبَّهُ فَلْيُصَلِّ عَمَلًا صَالِحًا وَلَا يُشْرِكْ بِعِبَادَةِ رَبِّهِ أَحَدًا (110) }

صدق الله العظيم

سورة الكهف: 99-110].
Dedication

Dedication to My Mother & Father …..
   With warmth and faith

&

Dedication to my Sisters & Brothers……

&

Dedication to my husband
   With love and respect

&

Dedication to my son
   My God protect him

&

Dedication to My Friends
   Those Who Touched My Life Deeply
Acknowledgement

I am very grateful to all members of the department of community and family medicine department especially Dr. Magda Elhadi, also to the all staff of Elhikma health centre that help me a lot to complete my study
Abstract:

This study was conducted in Elhikma health centre to audit its antenatal care services that introduced to the attended pregnant ladies in Elhikma health centre from January to March 2013 by comparison between the available services in the health centre and international guide lines to put possible recommendations to promote the quality of the services according to our local resources. It was audit research comprising retrospective study of medical records of 100 pregnant women who attended to the health centre in this period. From this population, complicated pregnancy and high risk pregnancy that need referral to hospital were excluded. These data was analyzed manually by simple statistical method in percentage form. All women were underwent blood pressure measuring, hemoglobin estimation, urine general examination, folic acid and iron supplementation. Abdominal examination performance was done to 70% of women; weighting was done to 20% of women, ultra sound scan, screening of infection (HIV ,rubella, HBV ,syphilis), screening of down syndrome, anti –D immunization for rhesus negative women were not done (0%). Tetanus toxoid was given to 80% of women. This study revealed that there is some shortage in some services that need more governmental support to ensure the availability of them, as structure, manpower and instrument.
التدقيق في خدمات رعاية الحوامل قبل الوضع، مركز صحي الحكمة، ولاية الجزيرة، السودان (2013)

اريخ بابكر أحمد كنان
لدرجة الماجستير في طب الأسرة
كلية الطب – جامعة الجزيرة

ملخص الدراسة:

هذه الدراسة أجريت في مركز صحي الحكمة لتقييم الأداء للخدمات التي قدمت لكل النساء الحوامل اللاتي حضرن للمركز لتلقي خدمة رعاية الحوامل الروتينية في الفترة من شهر يناير إلى شهر مارس من عام 2013 بالرجوع إلى الملفات الطبية. هدفت الدراسة إلى تقييم جودة الخدمات الصحية المقدمة للنساء الحوامل وعمل توصيات لتطوير الخدمة حسب الإمكانيات المتاحة. هذه الدراسة شملت مائة إمرأة حامل. واستبعدت النساء الحوامل الأكثر خطورة اللاتي لديهن حمل مع مضاعفات وتمت احالتهن إلى المستشفى. المعلومات التي جمعت تم تحليلها يدويًا. تم قياس ضغط الدم وفحص البول العمومي وقياس مستوى الهيموجلوبين في الدم لكل النساء وقد تم إعطائها الفيتامينات المطلوبة. تم إجراء الكشف السريري للبطن في سبعين في المائة من النساء. كما تم قياس الوزن في عشرون في المائة من النساء. ثمانون في المائة من النساء اللاتي اجربت عليهن الدراسة اخذن التطعيمات المطلوبة من مصل التناس. هناك بعض الفحوصات التي لم تجري لأي منهن وهي: الكشف على النساء المصابات بمرض الباليدز، الحصبة الألمانية، التهاب الكبد الوابي ب ومرض الزهري وذلك لعدم توفر هذه الفحوصات بالمعمل داخل المركز، وكذلك لاتوجد ماكينة لعمل صورة بالمواجات الصوتية لذلك لم تجري لأي منهن. من هذه النتائج نوصي بأنه لابد من الدعم الحكومي والجهات ذات الصلة بالعمل معاً لتوفير زيادة في عدد الغرف والكوادر المؤهلة والأجهزة المطلوبة.
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Abbreviations:

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
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<tbody>
<tr>
<td>Hb</td>
<td>Hemoglobin</td>
</tr>
<tr>
<td>UG</td>
<td>Urine General</td>
</tr>
<tr>
<td>HIV</td>
<td>Human Immune deficiency Virus</td>
</tr>
<tr>
<td>BFFM</td>
<td>Blood Film For Malaria</td>
</tr>
<tr>
<td>NICE</td>
<td>National Institute for Health and Clinical Excellence</td>
</tr>
<tr>
<td>HCG</td>
<td>Human Chorionic Gonadotrophin</td>
</tr>
<tr>
<td>HBV</td>
<td>Hepatitis B Virus</td>
</tr>
</tbody>
</table>
Chapter One

Introduction:

Ante natal care is an umbrella term used to describe the medical procedures and care that are carried out during pregnancy. It is the care which a woman receives throughout her pregnancy and important in helping to ensure a healthy pregnancy state and safe child birth (1). It is start by the diagnosis of the pregnancy as follow:

Diagnosis of pregnancy and calculation of gestational age

- Diagnosis of pregnancy is best confirmed using a urine-testing kit that determines the presence of beta human chorionic gonadotrophin (beta-hCG).
- Many women will have confirmed their own pregnancy by such means.
- Where the absence of menses is the only current indicator of early pregnancy, it is important to confirm pregnancy using a testing kit.
- An early ultrasound scan should be offered at 10-13 weeks, to determine gestational age and detect multiple pregnancies. This has added benefits of ensuring consistency of gestational age assessments and improving the performance of mid-trimester serum screening for Down's syndrome, and reducing the need for induction of labour at >41 weeks.
- Crown-rump length is the best surrogate measure of gestational age.
- Pregnant women who present at or beyond 14 weeks of gestation should be offered an ultrasound scan to estimate gestational age using head circumference or biparietal diameter.

- If a health professional is involved at this stage they should check if the woman has been taking folic acid and advise as appropriate.

**Frequency and number of antenatal assessments in uncomplicated pregnancies**

- Nulliparous patients with uncomplicated pregnancies should be seen over a schedule of ten appointments.

- Parous women with uncomplicated pregnancies should be seen over a schedule of seven appointments.

**The first antenatal appointment**

NICE recommends that the first antenatal appointment take place early in pregnancy (before 12 weeks) and that it may need to be booked as a double appointment due to the large amount of information and assessments that are required.[1] The checklist below covers those areas that are considered important by NICE:

- Give mother information on her antenatal care and an opportunity to ask any questions/raise any concerns. Consider topics such as:

**Diet:**

- All women should be informed at the booking appointment about the importance, for their own and their baby's health, of maintaining adequate vitamin D stores during pregnancy and whilst breast-feeding.
10 micrograms of vitamin D per day should be taken by women at risk. These include:

- Women of South Asian, African, Caribbean or Middle Eastern family origin.
- Women who have limited exposure to sunlight, such as women who are predominantly housebound.
- Women who eat a diet particularly low in vitamin D, such as women who consume no oily fish, eggs, meat, vitamin D-fortified margarine or breakfast cereal.
- Women with a pre-pregnancy body mass index (BMI) above 30 kg/m².

Life style:

- Advice on avoiding food-borne infections such as salmonella.
- Benefits of gentle exercise and high-impact sports that should be avoided.
- Safety of sexual intercourse.
- Available pregnancy care services.
- Maternity and associated benefits.
- Working and finishing work when pregnant.
- Availability, purpose and logistics of screening tests in pregnancy.
- Identify women who may need special care (see list below under 'Criteria for more specialised care'; plan pattern of care for pregnancy depending on parity/previous complications of pregnancy.
• Check blood group and rhesus (RhD) status.
• Offer blood test to screen for:
  • Anaemia.
  • Hepatitis B.
  • HIV.
  • Rubella immunity status.
  • Syphilis serology.
  • Screening for sickle cell diseases and thalassaemias should be offered to all women as early as possible in pregnancy (ideally by 10 weeks). The type of screening depends upon the prevalence and can be carried out in either primary or secondary care.\textsuperscript{2}\textsuperscript{3}
• Urine testing to screen for asymptomatic bacteriuria.
• The 'combined test' (nuchal translucency, beta human chorionic gonadotrophin (beta-hCG), pregnancy-associated plasma protein-A) should be offered to screen for Down's syndrome between 11 weeks 0 days and 13 weeks 6 days. For women who book later in pregnancy, the most clinically effective and cost-effective serum screening test (triple or quadruple test) should be offered between 15 weeks 0 days and 20 weeks 0 days.\textsuperscript{4}
• Offer early ultrasound scan to assess gestational age.
• Screening for gestational diabetes, using risk factors, is recommended in a healthy population. Women with any one of these risk factors should be offered testing for gestational diabetes at the booking appointment:
  • BMI above 30 kg/m\textsuperscript{2}.
  • Previous macrosomic baby weighing 4.5 kg or above.
  • Previous gestational diabetes.
  • Family history of diabetes (first-degree relative with diabetes).
Family origin with a high prevalence of diabetes:
  - South Asian (specifically women whose country of family origin is India, Pakistan or Bangladesh).
  - Black Caribbean.
  - Middle Eastern (specifically women whose country of family origin is Saudi Arabia, United Arab Emirates, Iraq, Jordan, Syria, Oman, Qatar, Kuwait, Lebanon or Egypt).

Offer 20-week ultrasound screening for fetal anomaly.
- Measure BMI.
- Check and record blood pressure (BP).
- Test urine for glycosuria/proteinuria.

**Pelvic examination**

Routine antenatal pelvic examination does not accurately assess gestational age, nor does it accurately predict preterm birth or cephalopelvic disproportion. It is not recommended.

**Breast examination**

Routine breast examination is not recommended.

**Weight**

The patient should be weighed and her height measured so that her body mass index can be calculated as:

- $\text{BMI} = \frac{\text{weight in kilograms}}{\text{height in metres}^2}$.
- This can be used as a baseline for future weighing where it is
clinically indicated.

**Urine**

- Test for asymptomatic bacteriuria early in pregnancy using dipstick testing; send mid-stream specimen of urine (MSU) if indirect test is positive.
- Test for proteinuria every time BP is taken.
- Check for glycosuria at every visit; if more than 2 then test random plasma venous glucose and determine need for an oral glucose tolerance test on the basis of that result; there is no evidence of benefit from routine screening for gestational diabetes mellitus.

**Blood pressure**

- Measure BP at presentation and at every subsequent appointment.
- Assess risk factors for pre-eclampsia:
  - Age >40.
  - Family history.
  - Previous history of pre-eclampsia.
  - BMI >35 at presentation.
  - Multiple pregnancy.
  - Vascular disease, eg hypertension, type 1 diabetes.

**Previous history**

Enquire into the areas listed below, and ask about any previous significant
physical or psychiatric illness. Women with a history of significant psychiatric illness should be offered a referral to psychiatric services to screen for problems, and for advice on appropriate support.[1]

- Occupation for any associated risks.
- Domestic violence.[5]
- Psychiatric illness.

Advise and refer accordingly if any areas of concern come to light.

**Abdominal examination**

- Offer estimation of fetal size by measuring symphysis-fundal distance at each examination to look for a fetus that is small or large for gestational age.
- After 36 weeks, palpate the abdomen for possible malpresentation and confirm with ultrasound scan if suspected.

**Ultrasound**

Offer an ultrasound examination early in pregnancy (preferably at 10-13 weeks) to:

- Determine gestational age.
- Detect multiple pregnancies.
- Help with later screening for Down's syndrome.
- At 11-14 weeks, offer nuchal translucency screening for Down's syndrome, with other tests if available.
• At 18-20 weeks, offer screening with ultrasound for congenital anomalies.

• If the placenta is over the cervical os, offer a scan, at 36 weeks, for placenta praevia.
Criteria for more specialised care
The triennial confidential report of maternal and child health identifies many high-risk scenarios in pregnancy. Although the following list is not exhaustive, these conditions can be associated with more adverse outcomes and warrant specialist opinion:

- Cardiac disease, including hypertension.
- Renal disease.
- Diabetes treated with insulin, or any other endocrinological disorder.
- Treated psychiatric disorder.
- Haematological disease including propensity to thromboembolism and autoimmune disorder, such as antiphospholipid syndrome.
- Epilepsy requiring anticonvulsant therapy.
- Any current or recently treated malignant disease.
- Significant respiratory impairment, including severe asthma.
- Chronic viral infections, eg HIV, hepatitis B virus (HBV), hepatitis C virus (HCV).
- Autoimmune disorders.
- Previous uterine surgery including Caesarean section, myomectomy or cone biopsy.
- BMI <18 or >30 kg/m².
- Women at higher risk of complications during pregnancy, eg older than 40 years, smokers, very young mothers, those without social
support.

- Problems associated with previous pregnancies:
  - Recurrent miscarriage (>3 consecutive pregnancy losses or a mid-trimester loss).
  - Preterm birth.
  - Severe pre-eclampsia, HELLP syndrome (= H aemolysis, EL (elevated liver) enzymes, LP (low platelet) count) or eclampsia.
  - Rhesus isoimmunisation or other significant blood group autoantibodies.
  - Previous antepartum haemorrhage or postpartum haemorrhage on two occasions.
  - Retained placenta on two occasions.
  - Puerperal psychosis.
  - Grand multiparity (>6 children).
  - Previous stillbirth or neonatal death.
  - Small-for-gestational-age infant (<5th centile).
  - Large-for-gestational-age infant (>95th centile).
  - Baby weighing <2.5 kg or >4.5 kg.
  - Baby with a structural or chromosomal anomaly.
Rationale:
Selection of this important service was due to its vital role in decreasing the maternal morbidity and mortality and the reflection of this in the family and community health.

Ante natal care is common practice in the health centre. This auditing research was to assess the quality of the service in the health center, and put the possible recommendations that may promote this service.
Objectives:
The main objective of ante natal care is to assure that every pregnancy results in the delivery of a healthy baby without impairing the mother’s health.

Major goals of ante natal care are:
- promote and maintain the physical, mental and social health of mother and baby, by providing education on nutrition, personal hygiene and birthing process.
- Antenatal care can detect and manage complications during pregnancy whether medical, surgical or obstetrical.
- Helps in preparing the mother for birth and any complications may develop.
- Prepare mother to breast feed successfully, experience normal puerperium, and take good care of the child physically, psychologically and socially.

The main objective of the research:
- Assess our available service and compare it with the international and qualified services.

Specific objectives include:
- Assessment of the available staff including doctors, midwife, lab technician, register, pharmacist, ultrasound technician and vaccinator
- Assess the availability of instruments and drugs that required for antenatal care services and to identify the problems and deficiencies that interfere with perfect service performance.
Chapter Two

**Literature Review:**

Selection of this important service was due to its vital role in decreasing the maternal morbidity and mortality and the reflection of this in the family and community health.

Ante natal care is common practice in the health centre. This auditing research was to assess the quality of this service in the health centre, and put the possible recommendations that may promote this service.

There were many previous studies in antenatal care services; for example, study on satisfaction among pregnant women towards antenatal care in public and private care clinics in Khartoum done by Zeidan ZA, Idris AM, Bahairy NM (June 2010), faculty of medicine, university of Khartoum and faculty of mathematical science and statistics the abstract of the study show:

This is cross-sectional study conducted at Khartoum state, Sudan to assess the prevalence of satisfaction and associated factors among pregnant women attending at public and private clinics. Total number of 400 pregnant women. Prevalence of full satisfaction was 22% among pregnant women who visit public antenatal care clinics. Compared to 54% among those who attended private antenatal care clinics. There was association between satisfaction and factors like; type of care, attitude of care provider, and waiting time.

Another study was done in education, poor antenatal care coverage and teenage pregnancy at Kassala hospital, Eastern Sudan done by Abdel Azim A. Ali, Abdalla A. Mohammed and Mohammed A. Sulaiman.
The study was conducted at Kassala hospital in eastern Sudan over six month’s duration (April to October, 2009) to determine antenatal care coverage, risk of anemia, obstructed labor, preterm birth and low birth weight among teenage primiparous women (<20 years) with singleton deliveries compared with the similar group of women aged 20 to 35 years. All primiparous women who delivered single babies were invited to participate in the study. Among 2115 primiparous deliveries, there were 321 teenagers (152 per 1000 deliveries). In comparison with older women, teenagers received poor antenatal care, were more likely to lack secondary education, at risk of preterm delivery and to develop obstructed labor (P value = 0.00, 0.00, 0.03 and 0.00 respectively). Health education and concept of contraception might reduce this high incidence of early motherhood and its consequences.
Chapter Three

Methodology:

Study area:
The area of the study in Albayan area, Wad Medani, Gezira State, Sudan, Elhikma Health Center, located in Albayan area, it covered a lot of areas include Alashir, Almadanin, Albayan and others areas due to it is accessible location. It is catchment area include (15217) person and about (3667) females in reproductive age, it has reasonable client frequency during day contain all ages which include the pregnant ladies. It include three medical officers, one midwife, two vaccinaters, one pharmacist, one lab technician, one lab assistant, three lister registration, three workers, and one keeper. It open its door all the days of the week except the Friday from 8:30 AM to 1:00 PM and from 8:00PM TO 10:00 PM. it is formed of 5 rooms (doctors room, vaccination room, pharmacy, nursing room, and laboratory room).

Study subject:
Eligibility criteria:
From medical records for pregnant woman attending Elhikma Health Center in the period from January to march 2013.

Exclusion criteria:
From this population complicated pregnancy and high risk pregnancy that need referral to hospital are excluded.
Study design:

It is audit research comprising retrospective study of medical records of pregnant women who attended Elhikma health centre.

Sample size:

100 samples for audit were used in the study.

Sample techniques:

All pregnant women who attended Elhikma Health Center from January to March 2013 were included in the sampling technique.

Data collection method:

In retrospective clinical study by review of mid wife registration from January to March 2013. The clinical data was collected by check list for audit.

Statistical analysis and interpretations:

The data were subjected to simple manual statistical method by percentages. Then the analyzed data were well discussed and interpreted for each parameter individually and collectively.
**Ethical considerations:**

Scientific and ethical approval from the institute director.

Mid wife consent.

No names were taken.

---

**Check-list for: Table no.1**

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</tr>
<tr>
<td>1</td>
<td>History</td>
<td></td>
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<tr>
<td>2</td>
<td>Abdominal palpation</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Blood pressure</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Weight</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Urine general</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Hemoglobin</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Ultra sound scan</td>
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</tr>
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<td>8</td>
<td>Infection screen (HBV-HIV-syphilis-rubella)</td>
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<tr>
<td>9</td>
<td>Down’s syndrome screening</td>
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<tr>
<td>10</td>
<td>Tetanus toxoid</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Folic acid and iron supplement</td>
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<td>12</td>
<td>Blood grouping</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Ant- D immunization</td>
<td></td>
</tr>
</tbody>
</table>
Chapter Four

Results:

The mean age of the attended women was 25 years were between (15-41) years. Most of them from wad medani city areas (80%), the remaining from neibouring village (20%).70% of women were house wife, 30% were workers. Primigravida women were 30%, multipara were 50% and grand multipara were 20% of total population. About education 20% were primary school level, 50% were secondary school level, 5% were illiterate and 25% were university certified.

<table>
<thead>
<tr>
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<th>Audit question</th>
<th>number of women done to them</th>
<th>% of women under went</th>
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<td>History</td>
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<td>100%</td>
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<td>Abdominal palpation performance</td>
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<td>70%</td>
</tr>
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<td>3</td>
<td>Blood pressure</td>
<td>100</td>
<td>100%</td>
</tr>
<tr>
<td>4</td>
<td>Weight</td>
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<td>Down’s syndrome screening</td>
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<td>Blood grouping</td>
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</tr>
<tr>
<td>13</td>
<td>Anti- D immunization</td>
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Table no.2: Standard was 100%
### Table 3: Instruments check list

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<tr>
<td>sphyngomanometer</td>
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<td></td>
</tr>
<tr>
<td>Pinard stethoscope</td>
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<td></td>
</tr>
<tr>
<td>Weighting tool</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Ultra sound machine</td>
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<tr>
<td>Ultrasonography</td>
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<td>Electronic microscope</td>
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<td>Centrifuge machine</td>
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<td></td>
</tr>
<tr>
<td>Sahli heamoglobinometer</td>
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</tr>
<tr>
<td>Manometer</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Colorimeter</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Auto clave</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Delivery table</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Examination lamb</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

### Table 4: Investigation check list

<table>
<thead>
<tr>
<th>Investigation name</th>
<th>Available</th>
<th>Not available</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hb</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>UG</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Urine for pregnancy test</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Blood group</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Down syndrome screening</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Screening of (HBV-HIV-rubella-syphilis)</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>BFFM</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Blood sugar</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

Table 3: . instruments check list

Table 4: .investigation check list
<table>
<thead>
<tr>
<th></th>
<th>Found</th>
<th>Not found</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doctor room</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Lab room</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Pharmacy</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Waiting room</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Midwife room</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Vaccination room</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Path room</td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>

Table 5: Health centre structure

<table>
<thead>
<tr>
<th>The drug</th>
<th>Available</th>
<th>Not available</th>
</tr>
</thead>
<tbody>
<tr>
<td>folic acid</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Iron supplementation</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Anti emetic</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Anti biotics</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Anti malaria drugs</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Anti hypertensive drug</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Insulin</td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>

Table 6: Drugs check list

<table>
<thead>
<tr>
<th>Staff+</th>
<th>Available</th>
<th>Not available</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doctor</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Midwife</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Lab technician</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Pharmacist</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Vaccinator</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Ultrasound technician</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Register</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

Table 7: Manpower check list
Chapter Five

Discussion:
Study revealed that history was taken to all women who help in early detection of complication and knowing past medical history, blood pressure was measured to all women which show no prevalence of pregnancy induced hypertension. Hemoglobin estimation was done for all women and the correspond tonics was given for all women, 40% of women in the first trimester were put in folic acid tabs that is very important in protection of neural tube malformation, 60% in second and third trimesters were put in folic acid in addition to iron supplementation which protect women from anemia due to increase demand.

Urine general was done to all women revealed that 50% had asymptomatic bacteriuria, 20% was clear urine and 30% have urinary tract infection, also important in detection of protienuria for diagnosis of pre eclampsia and gestational diabetes and non of women had this.

Weighting was done to small population, tetanus toxoid was given to more than half of women (60%).

There was some shortage in some services which was not done to all women include down syndrome screening, blood grouping and screening of infection(HIV, HBV, rubella, syphilis).

Most of instruments were available see table 3. (good performance), 63% of laboratory investigation that needed for ante natal care were available see table 4. Concerning the structure 100% were available (see table 5), most of drugs were available in the pharmacy which include tonics and others that were needed to treat common health problems e.g. anti malaria drugs.

Staff was good in quantity and quality (see table 7).
Conclusion:

The health centre was good in its structure, manpower, drugs and instruments (excellent performance). Some deficiencies were found in instruments (ultrasound scan, ultrasoundography for fetal heart sound) and in some investigations (blood grouping, screening of down syndrome and screening of HBV-HIV-rubella-syphilis) i.e. weak performance.
**Recommendations:**

Public health policy should focus on developing more high quality primary health care facilities for routine antenatal care, development and implementation of mass-media and community education for pregnant women on the need for routine antenatal care.

Also ensure the availability of ultra sound machine with its technician to increase the quality of services.

Encourage the screening program of HBV, HIV, rubella and syphilis.
References:

1- NICE guideline 62-antenatal care.

2- www.nice.org.uk/CG045.

3- www.info choice.org.

4- Arab League. FMOH/Unicef, USAID, WHO,


6- 5- Federal Ministry of Health - Sudan (FMOH).

7- 6- Previous studies.