



# Assessment of Quality of Antenatal Care at Effutu Municipal Hospital in Central Region of Ghana

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## Abstract

**Background:** Quality antenatal care (ANC) is an effective, efficient, accessible, acceptable/patient centered, equitable, and safe form of maternal health care that is given to a pregnant woman. Quality ANC is a global health challenge. Many pregnant women in developing countries, do not have access to quality ANC. The general objective of the study was to assess the quality of ANC at the Effutu Municipal Hospital.

**Methods:** This is a mixed method study which includes a descriptive cross sectional survey with 200 pregnant women and 10 practicing midwives. Observation guide and questionnaire were used to collect the data. Systematic sampling was used to select the pregnant women and census used to select the midwives. Descriptive statistics were done to analyse the quantitative data and information gathered from the observation guide and clients ANC cards with the support of SPSS version 18.

**Results:** The study revealed that the knowledge of the midwives about quality ANC was high, but the practice of ANC at the facility was below standard. Focused ANC which is a measure of quality ANC was not practiced at the hospital. Majority of the pregnant women were between the ages of 20 to 35 years (69%), Christians (91.5%) and 73.5% were married. Majority of the midwives were more than 35 years old (60%), Christians (80%) and 60% had worked less than 10 years and 70% were professional midwives. Majority of the pregnant women were counseled on diet (70%) and how to take their drugs (64%). Review of the clients ANC booklets revealed that over 63% of the clients had visited the clinic between 1-4 times and about 65% of the pregnant women visited the ANC clinic for the first time when their gestational age were between 4-6 months. Abdominal palpation (94%) was the common physical examination that was done on the clients.

**Conclusion:** It was recommended that in-service training will be organised for the midwives periodically on the new model of ANC to improve the care of pregnant women.

**Keywords:** Antenatal care, Quality care, Focused antenatal care, WHO standard

## Abbreviations

ANC, Antenatal care; FANC, Focused antenatal care; GHS, Ghana health service; HIV, Human immunodeficiency virus;

STI, Sexually transmitted infections; TT, Tetanus toxoid and WHO, World health organization.

## Background

There are complications associated with every pregnancy. These complications make it imperative for all women to access quality maternal health services which can detect and manage these life-threatening complications [1]. Some of such complications are anaemia, miscarriage, stillbirth, infections, preeclampsia, gestational diabetes, high blood pressure among others [2]. The quality to detect and manage as well as other quality assessment of patients always serve as the yardstick to measure quality health services [2]. Quality assessment (QA) is a process of planned activities in the health care system aimed to achieve a continuous improvement of health service through systematic evaluation of structure, process, and outcome measures [3]. Quality assessment measures the difference between expected and actual performance of clients care to identify opportunities for improvement. Antenatal care (ANC) is the health service rendered to pregnant women from the time the conception is confirmed until the beginning of labor by skilled birth attendants [4]. The ANC service include client's history taking, physical examination from hair to toe, checking of weight, blood pressure and respiratory rate; abdominal palpation for foetal growth, foetal lie and auscultation of Foetal; checking of fetal heart sound (FHS) according to the stage of pregnancy; laboratory investigations, such as haemoglobin estimation and urine tests for sugar and proteins, blood group, including the Rh factor, Venereal Disease such as syphilis, Human Immunodeficiency Virus (HIV), blood sugar and Hepatitis B Surface Antigen (HBsAg) test. Counselling is also done on preparedness plan, signs of labour and danger signs of obstetric complications, importance of ANC and PNC, nutritious diet (nutrition) and rest, exclusive breastfeeding, sex during pregnancy, domestic violence and its effects on a pregnant woman and her foetus, family planning etc [5]. Antenatal care helps to prevent the negative outcomes of pregnancy before delivery. Women in developing countries often face serious health risk during pregnancy, both for themselves and their children. In Africa, pregnancy related health risks cause about a quarter of the burden of diseases for women in the age group of 15 – 49 years [6].

Despite the attempts to increase ANC coverage- to curb the challenge facing ANC globally, quality ANC still faces a major

challenge globally [7]. Quality ANC which safeguards the health of pregnant women is a fundamental right for every pregnant woman. The Ghana Statistical Service (GSS) (2010) recorded that, about 78% of pregnant women in Ghana attended four or more antenatal sections [8]. This was an increase from the 2003 survey where 69% of pregnant women had four or more antenatal visits [8]. WHO recommended focused antenatal care (FANC) to achieve the full life-saving potential for women and their babies [5].

The essential ANC interventions recommended by WHO include: identification and management of obstetric complications such as pre-eclampsia, vagina bleeding, HIV, syphilis and other sexually transmitted infections (STIs) [5]. ANC enhance the provision of skilled attendants at birth, health promoting behaviors among pregnant women such as breastfeeding, early postnatal care, and planning for optimal pregnancy spacing [9]. Many of these opportunities continue to be missed even though over two-thirds of pregnant women receive at least one antenatal visit in Malawi [8]. In Ghana, improvement in the quality of health care is a key objective set out by the Ministry of Health (MOH).

Components of quality antenatal care (ANC) include early registration and regular visits as scheduled by WHO, comprehensive history taken, physical assessment, laboratory investigation, counseling, provision of routine drugs, Tetanus toxoid (TT) immunization, proper records keeping, timely referrals and management of complications [10]. Early and regular contact with quality antenatal care during ones pregnancy period can contribute to timely and effective use of services during and after delivery or in the event of an obstetric complication [8]. Quality ANC is one of the measures that can help to achieve this target. Evaluating the quality of health care is an essential part of ensuring professional accountability [8]. This will enable the public to share their opinion on the care given at our health facilities for appropriate intervention to be made to improve on the care for pregnant women.

Quality ANC, aside the increase in ANC visits has become a global challenge over the years [11]. Good ANC is essential for the mother and the fetus. The linkage in continues care is severely impaired when there is a break in the provision of adequate health care and this affects both the pregnant woman and the babies [12]. In terms of global coverage, ANC is a success story [11]. Worldwide, 71% of pregnant women receive ANC and in industrialized countries, more than 95% [11]. In Sub-Saharan Africa, the coverage is 69%, South Asia, 54%. In Africa, 80% of women are in the richest quintile and poorest women 48% [11]. A similar disparity exists between urban and rural women. Studies that have focused on Africa have revealed low level of quality services including Ghana [11].

According Ghana Statistical Service ANC coverage in Ghana has remained fairly stable, that is about 89 % over the past three years [13]. There was an increase in coverage from 88.4 % in 2006 to 91.1% in 2007 [13]. The challenge is how to ensure quality of care to bring better outcomes for mothers and their babies; to reduce maternal and infant mortality in the country. The ANC service in Ghana has been reported to be below accepted standard where the Efutu Municipal hospital is part [14]. In Ghana between 1999 and 2003, women who received quality ANC were more likely to have been attended to by a skilled attendant at delivery [14]. This is why the study assessed the quality ANC provision at the Effutu Municipal Hospital. The study sorts to find out how knowledgeable health care providers were, in terms of quality ANC and compare existing ANC practices to the ideal WHO standard. The findings will influence

policy making in maternal care and help to reduce maternal mortality in the Effutu Municipality and Ghana at large. This will also contribute to the existing knowledge about quality ANC in Ghana.

## Methods

There are two main types of surveys. There are Cross-Sectional and longitudinal surveys. Cross-sectional survey involves collecting of information from study participants at a single period in time [15]. It is a type of survey used to determine opinions, beliefs and attitudes and to evaluate programs. Questionnaires are used mostly to collect data in cross-sectional surveys concerning a particular topic. It could also be used to measure relationship between two variables in a study [15]. Longitudinal Surveys are surveys that collect information about study participants over a period of time. It's aim is to examine the changes in the data gathered from study. Longitudinal surveys are used in cohort studies, panel studies and trend studies. Some of the advantages of the longitudinal studies are that they are effective in determining variable patterns over time; can ensure clear focus and validity; and they are very effective in doing research on developmental trends. Disadvantages of the longitudinal studies include huge amounts of time, highly reliable, require a large sample size and more expensive compared with cross-sectional studies [15]. Descriptive cross-sectional study was used to collect data through quantitative and qualitative approaches. Qualitative review of clients' antenatal record booklets and non-participatory observation of the activities were done at the clinic. The pregnant women who attended ANC clinic at the hospital between the ages of 15-49 years irrespective of gestational age and number of ANC visits. All the practicing midwives at the hospital were the participants of the study. Midwives who were not directly involved in the care of the pregnant women were excluded from the study. Questionnaire, clients ANC card and observation guide were the data collection instruments. Questionnaires were used to collect information from the pregnant women and the midwives. The items on the questionnaire were close and open-ended questions. Items of the clients questionnaire include age, parity, gravidity, religion, marital status, educational background, occupation, number of visits clients had made to the clinic, gestational age at first visit, physical examination, drugs given/prescribed, counseling during ANC, and number of doctors/midwives that provide care to one client. The review of the clients ANC booklets were based on the number of visits and gestational age recorded.

## Sample size was estimated from the target population and 200 clients were sampled

Systematic sampling was used to select the respondents from the pregnant women on each clinic day. Systematic sampling selection of a sample by a periodic process (such as every 2nd person). This is random as long as the start point is chosen randomly – 2nd. On each clinic day, the first client was selected followed by every 4th client to answer the questionnaire till the required number was obtained. Sample frame was the antenatal register. Four clients' antenatal record booklet were selected and reviewed through systematic sampling a day for five days. List of all the midwives (14) was also collected and they were involved in the study

This study employed the SPSS version 18 to aid data analysis. Descriptive statistics was performed for the responses from the midwives and the pregnant women. Percentages were calculated from the frequencies of responses for the items and were tabulated. The findings from clients ANC booklets and non-participants observation of procedures done of the clients by the midwives at the clinic also analyzed with descriptive statistics.

Approval for the study was sought from MOH/GHS Ethical Review Committee. Initial consultations were done with the Winneba Municipal director of health services, management at the hospital and in charge of the antenatal clinic and letter followed up to confirm the study. Written informed consent was obtained from those who were literate and witnessed verbal informed consent for the illiterates was done. Explanation of the study to the participants (pregnant women and midwives) was done in a language they understand with the help of the interpreter to gain their maximum cooperation. The purpose and objectives of the study were explained to the participants. Study participants were also informed that they will be requested to fill a questionnaire and the study was for academic purpose. The participants were informed to understand that there were no financial or material reward for their participating, except that their participation will generate knowledge for improvement of antenatal care in the hospital and the country at large. Again, the participants were informed that participation of the study was voluntary and they could withdraw at any time if they feel like and there was no risk associated with the study. The participants were allowed to ask questions for further clarification. Confidentiality and privacy were assured. Anonymity was also assured by given a code number to each participant instead of their names.

**Results**

This deals with the results of the responses from clients and midwives, the non-participatory observation and review of clients ANC booklets. Two hundred pregnant women and 14 midwives were supposed to be participated for the study, but four of the midwives did not submit their questionnaires. Non response rate was 28.6% from the midwives and client's response rate was 100%.

Table 1 presents demographic characteristics of the respondents. Majority (69%) of the pregnant women in the study were between the ages of 20 to 35 years. Most of the clients (33.5%) had not given birth before and 49% who form majority were multigravidae. Majority of the respondents (91.5%) were Christians and 73.5% were married. About 35% of the client's were artisans and 40.5% attended middle school, junior secondary school (JSS) and junior high school (JHS).

**Table 1:** Background characteristics of clients

Variable	Frequency	Percent
<b>Age</b>		
19 years or younger	14	7.0
20-35 years	138	69.0
More than 35 years	48	24.0
<b>Parity</b>		
Nulliparous	67	33.5
Secundiparous	40	20.0
Multiparous	59	29.5
Primiparous	34	17.0
<b>Gravidity</b>		
Primigravid	67	33.5
Secundigravid	35	17.5
Multigravid	98	49.0
<b>Religion</b>		
Christian	183	91.5
Muslim	17	8.5
<b>Marital Status</b>		

Married	147	73.5
Unmarried	53	26.5
<b>Educational background</b>		
No Formal Education	34	17.0
Primary	35	17.5
Middle Sch/JHS	81	40.5
SSS/SHS/Secondary/Voca/Tech	31	15.5
Tertiary	19	9.5
<b>Occupation</b>		
Fishing	19	9.5
Civil Servant	20	10.0
Artisan	69	34.5
Trader	64	32.0
Unemployed	28	14.0

Table 2 indicated that among the 10 midwives, 6 were more than 35 years old and 8 were Christians. Regarding their working experience, four had worked for more than 10 years and 7 were professional midwives. The current study reveals that half of the midwives had received in-service training for the past 12 months on quality ANC while the other half have not receive any training.

**Table 2:** Background characteristics of midwives

Variable	Frequency	Percentage
<b>Age</b>		
24 years or younger	1	10
25-35 year	3	30
36 years or older	6	60
<b>Religion</b>		
Christian	8	80
Moslem	2	20
<b>Marital status</b>		
Married	4	40
Single	3	30
Widowed	3	30
<b>Working experience in years</b>		
1-3	2	20
4-6	2	20
6-10	2	20
Above 10 years	4	40
<b>Professional background</b>		
Auxiliary midwife	3	30
Professional midwife	7	70
<b>In-service training within past 12 months on ANC</b>		
Yes	5	50
No	5	50

**Conformity of ANC Practices to WHO Standards**

Table 3 presents results on number of visits clients had made to the clinic, gestational age at first visit, physical examination, drugs given/prescribed, counseling during ANC, and number of doctors/midwives that provide care to one client

Majority of the pregnant women were counseled on diet (70%) and how to take their drugs (64%). From the non participant observation, the counseling was not well done as recommended by World Health Organization. Group talks were the observed common means of providing health information to the pregnant women. Questions normally asked during individual counseling by the midwife were “do you eat well?” “Have you prepared for delivery?” And “Do you have drugs?” Over 98% of the respondents mentioned that more than two staffs attended to them.

### Client responses

**Table 3:** Standard of ANC practices at the facility

Variables	Frequency	Percent
<b>Number of ANC visits</b>		
1-4 visits	127	63.5
More than 4 visits	73	36.5
<b>Gestational age at first visit</b>		
1-3 months	55	27.5
4-6 months	131	65.5
7-9 months	14	7.0
<b>Examination done on clients</b>		
Physical exam from head to toe	37	18.5
Breast examination	6	3.0
Auscultation	70	35.0
Abdominal palpation	188	94.0
<b>Drugs given/prescribed</b>		
Folic Acid tablets	127	63.5
Anti malaria drugs	68	34.0
Tetanus toxoid	122	61.0
Fersolate tablets	111	55.5
<b>Counseling during ANC</b>		
Drugs	129	64.5
Diet	140	70.0
Birth preparedness and complication readiness	91	45.5
Family planning	35	17.5
Exclusive breastfeeding	22	11.0
Prevention of malaria	19	9.5
HIV and STI prevention	44	22.0
Danger signs in pregnancy	5	2.5
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<b>Counseling during ANC</b>		
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Diet	140	70.0
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Family Planning	35	17.5
Ie of Hospital delivery	24	12.0
<b>Number of staff provide care</b>		
One	3	1.5
Two or more	197	98.5

### Observation on clients ANC booklet

Review of the clients ANC booklets revealed that over 63% of the clients had visited the clinic between 1-4 times and about 65%t of the pregnant women visited the ANC clinic for the first time when their gestational age were between 4-6 months.

### Non-participant observation

Findings from the observational guide shows that abdominal palpation (94%) was the common physical examination that was done on the clients. The common drugs given to the pregnant women at the ANC were folic acid (63%) and 61% TT immunization (61%), and fersolate tablets (55%). The non-participatory observation findings show that malaria prophylaxis and Tetanus toxoid immunization were given to clients who were due. Drugs mostly prescribed for the clients to collect from the hospital pharmacy were iron, fersolate and folic acid tablets.

### Responses from the midwives

Concerning topics for counseling majority of the midwives (70%) responded that nutrition is essential to counsel clients on, and 1% mentioned importance of antenatal care, cesaran section, post partum heamrrahge, safe delivery, HIV, anaemia, exercise and immunization. from non-participatory observation it came out that all the clients were counseled on diet, drugs and birth preparedness (Table 4).

**Table 4:** Topics for counseling at ANC

Topic for counseling	Frequency	Percentage
Importance of antenatal care	1	10.0
Prevention of ceacaran section	1	10.0
Post partum haemorrhage	1	10.0
Safe delivery	1	10.0
HIV	1	10.0
Anaemia	1	10.0
Breastfeeding	6	60.0
Personal hygiene	4	40.0
Nutrition	7	70.0
Danger signs in pregnancy	5	50.0
Complications	1	10.0
Birth preparedness	3	30.0

Exercise	1	10.0
Rest and sleep	2	20.0
Clothing	2	20.0
Bowel movement	2	20.0
Immunization	1	10.0

**Level of Knowledge of the Midwives about Quality Antenatal Care**

In relation to signs that indicated danger to pregnancy, majority of the midwives (70%) mentioned excessive vomiting and oedema as danger signs in pregnancy and 1% also mentioned malpresentation, diabetes, blurred vision, premature rupture of membrane and no fetal movement.

**Table 5:** Danger signs in pregnancy

Danger signs in pregnancy	Frequency	Percentage
Hypertension	2	20
Malpresentation	1	10
Diabetes	1	10
Anaemia	5	50
Severe abdominal pains	4	40
Severe frontal headache	6	60
Vaginal bleeding	9	90
Excessive vomiting	7	70
Oedema	7	70
Blurred vision	1	10
Premature rupture of membrane	1	10
Lower abdominal pains	3	30
No fetal movement	1	10

To determine the level of knowledge of the midwives about quality ANC, the respondents were asked to explain what FANC is. Some of their explanations were “care given to pregnant women”; “individualized care”; “care that helps to detect diseases”; “client centered care”; “care given according to client’s needs”; and “care to detect abnormalities”.

**Benefits of quality ANC indicated by the midwives**

When the midwives were asked about benefits of quality ANC, they mentioned that it helps clients to recognize danger signs, receive Sulfadoxine-Pyrimethamine (SP) to prevent malaria, detect abnormalities, have safe delivery, ensure healthy mother and baby, enable the pregnant woman to prepare towards labor, and learn how to care for their babies after delivery. The staff, mentioned that quality ANC will result in effective and efficient work done, improve performance, make work easy, help to detect abnormalities for management or referral, make the midwives responsible, and ensure good working relations with their clients. At the facility level, they stated that it will give good recommendation to the facility, decrease maternal mortality, bring about reduction in obstetric emergencies, increase attendance and project a good image of the facility. The quality ANC provision at the hospital will communicate to the public how competent the hospital management and the staff are, improve quality care provision at the facility, make the hospital to be dedicated to the clients/patient care and increase revenue generation.

**Response of midwives on the conformity of ANC practices to WHO guidelines**

About the number of visits expected of every woman with normal pregnancy before delivery, 9 of the midwives stated that

clients were expected to visit the clinic four times. Although the midwives were much aware about the expected number of ANC visits, the findings from the clients cards did not confirm this. Findings from the clients’ record reviewed showed that majority of the clients had attended the clinic more than four times. Some had even attended between 6-9 times. This could be that the clients were not informed about the number of visits before delivery. It could also be that the women were used to the old system of the ANC visits and it was difficult for the women to conform to the new practice.

**Gestational ages at which pregnant women are expected to visit clinic before delivery**

Majority of the midwives mentioned that pregnant women are expected to visit the clinic within the first trimester, as soon as they miss their period up to 28 weeks, then 28-36 weeks, and 36 weeks till delivery. One of the midwives also mentioned that clients are expected to first visit the ANC clinic within 10-12 weeks, then between 20-30 weeks, and during the 36th week. Concerning physical examination done for the clients, the midwives provided varied responses. Majority (8) responded that they perform abdominal palpation, 7 mentioned auscultation, 6 also indicated examination from hair to toe and 2 indicated breast examination. Although the midwives mentioned the above examinations were done for clients, during non-participatory observation it came out that physical examination, abdominal inspection and breast examination were not done for any of the clients but the midwives estimated the fundal heights, checked the presenting part of the fetus, communicated with the clients during the palpation, auscultation were done for some of the clients, and feedbacks were not also given to the clients unless they asked.

Majority (8) of the midwives stated that clients’ weight and height were checked every time the pregnant mother visited the clinic and two mentioned every month. Blood pressure, height and weight were observed to have been monitored for all the clients who attended the clinic. Nine of the midwives also indicated that the pregnant women were to receive two doses of tetanus toxoid before delivery.

The midwives mentioned that risk factors were detected through the following: eight mentioned interview, another eight mentioned physical examination, seven stated checking of vital signs, and six mentioned laboratory investigation, but three of the midwives also mentioned that it could be detected through observation.

**Infection prevention measures at the clinic**

About infection prevention, all the midwives (10) mentioned that they had veronica bucket for hand washing at the clinic and they had towels that were used once, 6 mentioned that they had safety boxes for disposing sharp objects, 5 mentioned disposable gloves, and 3 stated that they had surgical gloves, 3 mentioned alcohol hand rub and another 3 stated that they had soap in a perforated dish. The researcher also observed a midwife wash her hands only after attending to every client. When the midwives were asked about the number of midwives who attended to one pregnant woman the following were their responses: 6 mentioned that one midwife attended to one client, and 4 indicated that 2 midwives attended to one client. During non-participatory observation it was observed that activities at the clinic were shared among 2 health extension workers and 2 midwives.

Almost all the midwives (9) stated that they take client’s personal, social, family, medical, surgical, obstetric, current pregnancy and breastfeeding history at the clinic. It was observed from clients’ records that clients’ personal, social, family, medical, surgical, obstetric, current pregnancy and breastfeeding history were partially taken at the clinic. Last menstrual period, drugs used by the clients, allergies and expected date of delivery were not seen to have been taken and recorded in the client’s card. Some of the clients were using standard ANC cards and others were also

using small exercise books due to shortage of the standard cards. With those using the exercise books all the clients' histories were not taken.

Majority (9) of the midwives indicated that hemoglobin test was done for the clients, 7 mentioned grouping and cross matching, 7 also mentioned HIV testing, another 7 also mentioned urine test for protein and sugar, 5 stated syphilis test, 3 indicated hepatitis B test and 2 mentioned rhesus factor. Observations and clients' record reviewed also showed that some of the clients had done some of the laboratory investigations such as hemoglobin and HIV test except hepatitis B and rhesus factor. It was also observed that explanations were not given to the clients who were asked to go for HIV test. They were just told to go to the HIV counseling section and testing for the HVI test.

Concerning essential topics for counseling the midwives provided varied responses. Some mentioned more than one topic. Majority (7) responded nutrition, 6 mentioned breastfeeding, 5 mentioned danger signs in pregnancy, 4 stated personal hygiene, and 3 indicated birth preparedness. During non-participatory observation clients were partially counseled on diet, next time to visit, tetanus toxoid vaccination, and malaria prevention. Clients were more so given list of items to be bought towards delivery. Some of the phrases that were used during counseling include; "what food do you eat?"; "hoping you are eating well"; "have you taken some of the malaria prevention drugs"; "have you taken the tetanus injection?".

### Discussion

From the data collected on the background of clients and midwives, the findings show that majority of the clients (69%) were between the ages of 20-35 years and majority of the midwives (6) were also more than 35 years. About parity, majority of the clients (33.5%) have not given birth before, and 49% the majority were also multigravidae. This is in support of the findings from a study conducted in Ghana where high parity women were less likely to use ANC [16]. Majority (91.5%) of the midwives and the clients were Christians and married (73.5%). This findings is possible because the Ghana is Christian dominated country.

Majority of the midwives (4) have worked for more than 10 years, and majority (7) were professional midwives. This correlates with WHO's model which mentioned that antenatal care provision requires skilled attendants such as a qualified midwife [17]. Majority of the clients (40.5%) attended school up to middle school or Junior Secondary School or Junior High School. Majority of the clients were also artisans (34.5%).

The midwives saw FANC as care of pregnant women, individualized care, care that help to detect diseases, client centered care, care given according to clients' needs and to detect abnormalities. This is in support of the WHO's model on FANC published in 2001. Majority of the midwives (9) stated vaginal bleeding, (7) mentioned excessive vomiting and another 7 indicated edema as danger signs in pregnancy. This shows that the knowledge of the staff about danger signs in pregnancy was high.

About attributes of quality health care, all the midwives (10) mentioned accessibility, nine mentioned continuity of care, and another nine stated interpersonal relations. This implies that to ensure quality ANC the service must be close to the users, and be continues, and the staff has to relate well with the clients. Half of the midwives (50%) had received in-service training for the past 12 months but half had not. In line with this finding, assessment of ten clinics about staff awareness and their (staff) knowledge of FANC done shows that almost all the clinics assessed reported that their staff had been trained on FANC. Findings from the providers interview in the same facilities brought to light that about half of them were not at all trained on the components of FANC [18]. Similarly, 40% of study participants mentioned

that they were not trained in reproductive health [19]. On the contrary, to ensure quality care, staff must be trained with the best practices recommended by WHO [20]. Service providers are trained on counseling to improve maternal and new born care [21]. Through the training, the lay nurses were able to perform well in counseling, which improved the knowledge of the antenatal mothers in birth preparedness and which aided their identification of danger signs. The researchers concluded that adequate training and support for service providers will result in effective counseling to bring change in the health care for clients. This also confirms the new guidelines for implementing quality ANC. The guideline states that, in-service training must be organize for providers for ANC services and their supervisors [17]. The level of knowledge of the midwives can affect the quality ANC negatively.

When the midwives were asked about benefits of quality ANC, they mentioned that it help clients to recognize danger signs, receive SP to prevent malaria, detect abnormalities, have safe delivery, ensure healthy mother and baby, enable the pregnant woman to prepare towards labor, and learn how to care for their babies after delivery. To the staff they mentioned that it will result in effective and efficient work done, improve performance, make work easy, help to detect abnormalities for management or referral, make the midwives responsible, and ensure good working relations with their clients. At the facility level, the midwives stated that it will give good recommendation to the facility, decrease MM, bring reduction in obstetric emergencies, increase attendance and good image of the facility. The quality ANC provision at the hospital will tell how competent the management is, improve quality care provision at the facility, it tells the public how competent the hospital is, makes the hospital to be dedicated to the health care of clients and increase revenue generation. The new ANC model promotes quality health care and prevents pregnancy induced diseases; ensures early detection of existing diseases for treatment; early detection and management of complications; and birth preparedness and complication readiness to save the life of mothers and their babies [17].

Majority (63.5%) of the clients had reported to the clinic between 1-4 times, and more than 36% had visited the clinic more than 4 times. This is not in agreement with the WHO's FANC model published in 2001 which states that about 75% of the pregnant women should have at least four antenatal visits. Nine of the midwives stated that clients are expected to visit the clinic four times and one mentioned eight times. Findings from the client record reviewed also shows that majority of the clients have attended the clinic more than four times. Some have even attended ANC between 6-9 times. In support to this, midwives mentioned that pregnant women visit antenatal clinic less or more than the four recommended visits [16].

Over sixty five percent of the pregnant women visited the antenatal clinic when they were within 4-6 months of their pregnancy. On the contrary WHO's model for quality ANC states that, pregnant women should visit the clinic as soon as they think they are pregnant [17;19]. Majority of the midwives mentioned that the pregnant women are expected to visit clinic within the first trimester, as soon as they miss their period up to 28 weeks, 28-36 weeks, and 36 weeks till delivery. One also mentioned 10-12 weeks, 20-30 weeks, and 36 weeks. This will help to improve the care given to the pregnant women and reduce the cost of care on the clients.

Abdominal palpation (94%) was the common examination that was done on the clients, followed by auscultation (35.0%). Majority of the midwives (8) responded that they perform abdominal palpation. The observation findings show that physical examination was not done for any of the clients, inspection of the abdomen was not also done but the midwife estimated the fundal heights, checked the presenting part of the

fetus, communicated with the clients during the examination, perform auscultation for some of the clients, feedback was not given to the clients unless they asked. Breast examination was not also done. This can affect the quality of care that is provided at the clinic as most of the danger signs cannot be detected on time.

Over sixty three percent of the clients indicated that they were given folic acid, 61% were given TT, over 55% were given fersolate tablets and 34% were also given anti malaria drugs. During observation, malaria prophylaxis, and TT were observed to be given to clients who were due. Prescriptions were also given to the clients to collect, fersolate and folic acid tablets from the dispensary. Nine of the midwives also indicated that the pregnant women were to receive 2 doses of TT before delivery. This confirms the WHO guideline which states that all pregnant women should receive the following preventive interventions; immunization against tetanus, and iron and folate supplementation to prevent anemia. All pregnant women should also receive protection against malaria through intermittent preventive treatment and insecticide-treated bed nets.

The midwives mentioned that most of the risk factors were detected through interview with (8) and physical examination (8) with the clients. The findings concur with the WHO's 2004 model. The model suggests that for the assessment to be effective to detect risk factors, providers should talk with the pregnant woman, examine her for signs of chronic and infectious diseases, and perform laboratory investigations to detect and manage HIV, malaria, syphilis, and other sexually transmitted diseases, anemia, heart disease, diabetes, malnutrition, and tuberculosis.

Concerning infection prevention all the midwives (10) mentioned that they have veronica bucket for hand washing. Observations proved that there were no surgical gloves and hand washing was done under running water with liquid soap only after each physical examination. In conformity with the observation, [19] stated that performance of the staff on infection prevention was observed to be substandard, 38% on the average wash their hands with soap and water and dry them.

Majority of the midwives (8) stated that client's weight and height are checked on every visit. Findings from the non-participatory observation showed that all the clients' blood pressure, height and weight were monitored. This is contrary to WHO's model. The model suggests that weight and height checked at each visit must be optional [17].

Over 98% of the clients mentioned that two or more staff members attended to them and per observation, duties were shared among two midwives and two health extension workers. On the contrary the responses provided by the midwives were the following; six mentioned that one midwife attended to one client, and four indicated that two midwives attend to one client. In support of the findings, [20] study proves that 51.4% of the study participants indicated that 3 or more staffs attended to them. This is not in agreement with the WHO's guidelines which was published in 2001.

Almost all the midwives ( 9) stated that they take client's personal, social, family, medical, surgical, obstetric, current pregnancy and breastfeeding history at the clinic. The non-participatory observation and client's record that was reviewed also confirm some of these except the last menstrual period, drugs used by the clients, allergies and calculation of expected date of delivery which were not observed to have been done and recorded in the client's card. In conformity, providers did not take comprehensive personal, family, and social history of the clients in any of the 72 first visit consultations observed. All the clients had partial history taken, because the providers recorded some of the history and ignored some. Full history was observed to be taken in only one in 72 consultations [18].

Majority of the midwives (9) indicated that hemoglobin test was done for the clients. Findings from observation and clients' record review also show that some of the clients have done some of the investigations such as hemoglobin and HIV test except hepatitis B and rhesus factor. The findings support WHO's model published in 2001. The model requires that only examinations and tests that serve an immediate purpose must be done. For example, checking of blood pressure, urine testing for bacteria and protein, blood test for syphilis and severe anemia [17].

According to majority of the clients (70% and 64.5%), counseling given was about diet and drugs. From observation, the counseling was not well done. Group talks were common. Questions normally asked by the midwife were "do you eat well?" "Have you prepare for delivery?" "And Do you have drugs?". In confirmation, counseling of clients was poorly done for clients [20], and 42% of the clients were not informed of danger signs in pregnancy [21]. On the contrary clients were counseled well on benefits of ANC [22].

Majority of the midwives responded that nutrition (70%), breastfeeding (60%), and danger signs in pregnancy were essential topics to counsel clients on. According to WHO, staff are expected to counsel women on complication readiness which none of the staff were observed to be doing [17; 23]. Staff at maternity unit has poor knowledge of emergency obstetric care [20;24;25]. Their findings show that less than quarter of the staff members were able to counsel clients on birth preparedness and danger signs of pregnancy. Whereas the observation showed staff were not engaged in any sort of counseling, close to half of the staff (40%) spoke about counseling clients on complication readiness.

### Conclusion

Knowledge of quality ANC among the midwives was high but focused antenatal care which was a measure of quality ANC was not practiced at the clinic. Pregnant women must be educated about the importance reporting to the ANC during the first trimester of their pregnancy.

In-service training should be organized for the midwives periodically on the new model of ANC to improve the care of pregnant women. The municipal health directorate in collaboration with hospital management should organize health education programs for the general public and the pregnant women to be aware of the kind of services rendered to pregnant women at the facility and the new model of ANC.

### Ethics approval and consent to participate

All procedures performed in study was in accordance with the ethical standards of the Ghana health service. The study was approved by the Ghana Health Service Ethics Review Committee. Written informed consent was sought form the study participants

### Authors' contributions

I conceived the study, the design, data collection, data analysis, interpretation, and write-up and in the preparation of the draft manuscript.

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