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## OBSTETRICS

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# The Antenatal Care Services at 12 District Hospitals in Khon Kaen

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## ABSTRACT

**Objective** To study the antenatal care services available and actually received by clients at district hospitals.

**Design** Descriptive study.

**Setting** 12 district hospitals in Khon Kaen.

**Subjects and methods** 768 pregnant women who attended the antenatal care clinics of 12 district hospitals in February 1996. Data were collected from 64 subjects in each hospital by interviewing, direct observation and reviewing the medical records.

**Results** The mean working time for antenatal care services (ANC) was 10.1 hours per week. Most of the activities were carried out by nurses and midwives. Basic ANC services were offered with the exceptions of vaginal examination, Pap smear and Urinary tract infection (UTI) screening. Colposcopic examination and alfa-feto protein test were not available even in high risk cases. The average age and height of the women who attended the clinics were 24.2 years and 154.4 centimeters. The average gestational age at first visit was 15 weeks. Most pregnant women received the basic ANC services, including the laboratory tests other than Pap smears and UTI screening. Preconception counselling and recommendation for contraception rates were given in 8.5% and 57.8% of cases, respectively.

**Conclusion** Most of the basic ANC services were provided in all clinics. The services which should be provided routinely but were provided limitedly include vaginal examination, UTI screening, Pap smear and preconception care. Therefore the content of the ANC services should include few more services activities.

**Key words :** antenatal care, rural area

Antenatal care is a system of management that helps to prevent adverse outcomes in pregnant women and newborn infants : Vaginal bleeding, anemia, preeclampsia, sepsis, genitourinary infection and obstructed labor in mothers ; and congenital anomalies, intrauterine infection, intrauterine growth retardation and preterm births in the newborn.<sup>(1,2)</sup> Such a care program is also essential to help solving the problems of perinatal mortality.<sup>(3)</sup> The antenatal care coverage target of the 7th National Health Plan aims at providing antenatal care for 75% of pregnant women. Many surveys of ANC coverage have been carried out, but the content of the care programme has rarely been studied.

The objectives of this study were to assess the availability of ANC services and the actual use by clients.

## Materials and Methods

Twelve district hospitals in Khon Kaen were

recruited for the study. Three sizes of district hospitals were selected. The survey was conducted by 4 supervisor nurses in February 1996. They : 1) interviewed health personnel 2) directly observed the services and 3) reviewed the medical records of 64 subjects in each hospital.

Percentages, means and confidence intervals were used in the analysis. This study was approved by The ethical committee of the Public Health Ministry.

## Results

Seven hundred and sixty eight pregnant women in 12 district hospitals were enrolled into the study. The results are as follow.

### Clinical and laboratory activities.

The mean working time was 10.1 hours per week. All ANC clinics were operated by health promotion staff of the district hospitals. These were general practitioners and professional

**Table 1.** Number of hospitals with availability of human resources, education and information activities.

	No. of hospitals
<b>Human resources</b>	
General practitioners	12
Professional nurses	12
Administrative staffs	12
Midwife	6
Laboratory technicians	6
Obstetrician and Gynecologist	0
Ultrasonographer	0
<b>Education and information activities</b>	
Recommendation for lactation	12
Antenatal classes	12
Recommendation for contraception	12
Activities to reduce smoking	12
Preconceptional counselling	11

nurses but no specialists in obstetrics and gynecology. Five education and information activities were available in each clinic. (Table 1)

Basic ANC activities were carried out for each pregnant woman. A vaginal examination was performed only in high risk cases. External version for breech presentations was not carried out. A formal risk score classification was not available. The screening laboratory tests and interventions that should be offered to all women were hemoglobin, blood test for syphilis, tetanus immunization and iron-folic acid supplementation.

Only 3 clinics offered Rhesus antibody tests and none offered Pap smears and UTI screening. Most of the tests and interventions that should be offered to high risk cases were available except iodine supplement, colposcopic examination and alfa-feto protein determination. (Table 2)

Laboratory tests for infectious diseases were performed in high risk cases. Test for hepatitis B were performed in 3 clinics even in low risk. No facilities for testing for toxoplasmosis were available even in high risk cases. (Table 3)

**Table 2.** Number of hospitals offered screening, laboratory tests and interventions.

<b>Screening and laboratory tests and interventions</b>	<b>No. of hospitals</b>
Tests of intervention that should be offered to <b>all women</b>	
Hemoglobin	12
Syphilis antibody	12
Tetanus toxoid	12
Iron- folic acid	12
Rhesus antibodies	3
Pap smear	0
UTI Screening	0
Tests of intervention that should be offered to <b>high risk women</b>	
Pregnancy test	12
Glucose tolerance test	12
Ultrasonographic scanning	12
HIV antibodies	12
Nutrition supplement	12
Antibiotics	12
Iodine	4
Colposcopy	0
Alpha- feto protein	0

**Table 3.** Number of hospitals offering screening, laboratory tests for infectious diseases.

Screening and laboratory tests	No. of hospitals		
Hepatitis B	Low risk	3	High risk 12
Trichomoniasis	Low risk	0	High risk 12
Gonococcal investigation	Low risk	0	High risk 12
Malaria blood smear	Low risk	0	High risk 12
Toxoplasmosis	Low risk	0	High risk 0

**Table 4.** Characteristics of pregnant women.

Characteristics	Total number = 768		
	Number	Mean	95% CI
Age (years)	766	24.2	23.8 - 24.6
Height (cms)	739	154.4	153.9 - 154.8
Gestational age at 1 <sup>st</sup> visit (weeks)	753	15	14.4 - 15.5
Number of completed years of school	408	6.6	6.3 - 6.9
Number of persons by room	32	2.2	1.9 - 2.5
Marital status	766	99.8	99.5 - 100.0
Previous pregnancy	445	57.2	53.4 - 61.1
Parity	409	53.3	49.5 - 57.2
Stillbirths	14	2.1	0.8 - 3.3
Low birth weight babies	36	4.6	2.9 - 6.3
Pre-eclampsia/ Eclampsia	2	0.3	0.0 - 0.7
History of Obst/Gyne surgery	3	0.4	0.0 - 0.9
Tetanus immunization	753	98.1	97.2 - 99.1
Iron supplementation	754	98.2	97.3 - 99.2
Treated for Trichomoniasis	3	0.4	0.0 - 0.9
Treated for syphilis	2	0.3	0.0 - 0.6
Treated for other STD	0	0	-

#### Characteristics of pregnant women

The characteristics of the pregnant women are shown in Table 4. The average age and height of the women were 24.2 years and 154.4 centimeters respectively. The average gestational

age at the first visit was 15 weeks. The average number of completed years of school was 6.6. Most of the subjects were married. There were 57.2% of the women with previous pregnancies and 53.3% of the women were parous. The

prevalence of history of stillbirths, low birth weight and pre-eclampsia were 2.1%, 4.6% and 0.3% respectively.

### Use of the services.

Most of the basic ANC activities, including a dental examination were received by almost all pregnant women. Vaginal examinations were very infrequently carried out. Similarly, formal risk scores were infrequently made. (Table 5) More

than 90% of the women had a syphilis antibody test, Iron-folic acid supplementation and tetanus immunization. About a quarter (26.3%) of the women were tested for Rhesus antibodies, but none had pap smears or screening for UTI. Blood test for HIV antibodies and hepatitis B were done in 47.8% and 27.1% respectively. Few women, even those at high risk had ultrasound scans. (Table 6)

Every district hospital used the MCH book-

**Table 5.** Actual clinical activities received by pregnant women.

Clinical activities	Total number = 768	
	%	95% CI
Physical examination	99.8	99.4 - 100.0
Routine Obstetric examination	99.3	98.7 - 99.8
Uterine height measurement	99.0	98.2 - 99.8
Breast examination	98.6	97.8 - 99.5
Blood pressure measurement	96.7	95.0 - 98.3
Dental examination	95.1	93.6 - 96.6
Maternal weight gain monitoring	73.5*	72.1 - 74.9
Vaginal examination	0.8	0.1 - 1.6
Formal risk score classification	0.8	0.1 - 1.5

\* About 26.5% were first visits, therefore maternal weight gain monitoring was not applicable.

lets. Only 62.9% of the records had maternal weight in the form of a BMI graph. The uterine height chart was not used. The lactation recommendation rate was high because of the implementation of the breast feeding campaign in Thailand. Although family planning is generally successful in Thailand, the contraception recommendation rate was only 57.8%. The percentage of women who received preconceptional counselling was also low. (Table 7)

Only 4.8% of women made their first visit to an ANC during the first trimester.

### Discussion

Most pregnant women in Thailand receive antenatal care at district hospitals. Most of the basic ANC services are offered in all clinics and most pregnant women receive them. However, some services are not offered or received.

Health education in clinics stresses the

**Table 6.** Actual screening and laboratory tests received by pregnant women.

		<b>Total numbers = 768</b>
Screening and laboratory tests and interventions that should be offered to all women	%	95% CI
Syphilis antibody	97.9	- 99.0
Iron - folic acid level	95.1	- 96.8
Tetanus toxoid	92.0	- 93.9
Rhesus antibodies	26.3	- 26.9
Pap smear	0.0	-
UTI screening	0.0	-
Screening and laboratory tests and interventions that should be offered to high risk women	%	95% CI
HIV antibodies	47.8	45.2 - 50.4
Pregnancy test	12.8	10.7 - 14.9
Nutrition supplement	2.8	- 4.0
Alpha - feto protein	0.0	-
Ultrasonographic scanning	0.0	-
Screening and laboratory tests for infectious diseases	%	95% CI
Hepatitis B	27.1	26.1 - 28.0
Gonorrhoea	0.2	0.0 - 0.5
Trichomoniasis/yeast	0.0	0.0 - 0.6
Malaria	0.0	-
Toxoplasmosis	0.0	-

importance of lactation in 97.8% of cases, presumably due to the National Baby Friendly Hospital Initiative Program. The reason for the low rate of contraceptive counselling is that it is usually given after delivery instead. The purpose of preconception care is to ensure that a woman is healthy prior to pregnancy, but the use of preconception care in these clinics was low which is similar to the other study.<sup>(4,5)</sup>

Vaginal examination is useful in the first

trimester and early period of the 2nd trimester. Bi-manual palpation can confirm evidence of pregnancy and estimate the size of the uterus and symptomatic STD can be diagnosed by vaginal examination. This intervention has been shown to be offered to pregnant women in 99.2% of Cuban, and 43% of Argentinian, women in a similar studies, but very few in Saudi Arabia and Thailand. However only single vaginal examination is recommended.<sup>(3)</sup> Urine culture and dipstick for

**Table 7.** Actual use of instruments, health education and Information activities and human resources.

Instruments	Total number = 768	
	%	95% CI
Maternal weight gain chart	62.9	- 64.3
Doppler for fetal heart	31.1	28.8 - 33.3
Vaginal speculum	0.4	0.0 - 0.9
Education and information activities		
Recommendation for lactation	97.8	96.8 - 98.7
Antenatal classes	83.4	- 84.2
Recommendation for contraception	57.8	55.6 - 60.1
Activities to reduce smoking	14.6	13.6 - 15.5
Preconceptional counseling	8.5	6.4 - 10.7
Human resources		
Professional nurse	98.4	97.5 - 99.3

leukocyte esterase and nitrite, with subsequent treatment of positive cases, reduces the risk of pyelonephritis and appears to be cost-effective.<sup>(1,6)</sup> These tests are used in 99.1% of pregnant women in Saudi Arabia, 34.9% in Argentina and 5.7% in Cuba, but none in Thailand.

Every clinic in this study offered USG scanning but very few women received scans. Mid-trimester routine USG screening in pregnant women was shown to be of benefit and cost-effective in Ramathibodi Hospital,<sup>(7)</sup> but meta-analysis of all randomized controlled trials demonstrated that routine ultrasound screening does not improve the outcome of pregnancy in terms of live births and morbidity.<sup>(8)</sup>

In our study, it can be predicted that, if the gestational age of the pregnant women reaches 37 weeks, there should be 6 ANC visits which is similar to the number of visits in Argentina and

Saudi Arabia, but less than in Cuba (12 visits). At 42 weeks of pregnancy there were only 8 visits comparing with the 14 visits recommended in standard textbooks.<sup>(5)</sup>

Some simple procedures should be included in ANC to improve the quality of the service. They are vaginal examinations, UTI screening, USG scanning for high risk group and encouraging preconception care. If the ANC program contains all of the useful tests and effective activities and they are carried out at the proper times during the course of pregnancy, it might be possible to reduce unnecessary visits to the ANC clinic. Our study is a hospital based survey of district hospitals that is the forefront of health care provision. Provisions of the interventions that have been proved to be effective in these hospitals should be recommended to the health administrators.

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