Original

ANTENATAL CARE AND RISK ASSESSMENT IN A WORKING PRIMARY HEALTH CARE CLINIC: A CRITICAL LOOK

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Visits to antenatal clinics are meant to detect, prevent or manage abnormalities in early pregnancy and prepare mothers for safe deliveries. Risk assessment, using risk scores, is one of the tools used for this purpose. This study describes the working procedure and the services delivered in a working clinic in Jeddah, Saudi Arabia, analyses antenatal visits and describes various aspects of the process of risk assessment.

A total of 280 mothers made 1,007 clinic visits in 1991, a mean of 3.6 visits per mother. Attendance for the first visit was relatively late in pregnancy. One-third of all mothers were seen only once or twice in this clinic. Two-thirds of the expected delivery dates were mistaken by a difference of up to 4 weeks. The service lacked many important functions such as nutritional advice and proper health education. Feedback from the hospital was insufficient to judge the effect of risk assessment. Scores used for various pregnancy conditions were criticised for their subjective risk weight with regard to the Arabic pattern of pregnancy and delivery. It is recommended that antenatal care should be restructured according to the available resources of health centres in the community. Clear working protocols for these clinics, a two-way referral system, better training of the service provider and a review of risk scores are some of the recommendations.

Antenatal visits are an important part of maternal care practised at Primary Health Care (PHC) centres. Screening of pregnant mothers at the first antenatal visit by taking the medical history, a clinical examination and doing a simple investigation is the first and the main service provided to women in order to plan the obstetric follow-up and delivery[1]. Other services include vaccination, health education, nutritional assessment, and management of minor pregnancy problems and the preparation of the pregnant mother for the delivery by exercise classes and booking a hospital bed. Assessment of risks is another procedure and is done through the estimation of risk scores using one of the risk score sheets devised for this purpose.

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These scores are based on a subjective estimation of the risk assigned to various areas in the medical history, clinical findings and investigation.

The aim of this paper is to examine the present situation of a working clinic in a crowded area of Jeddah, Saudi Arabia in order to describe the working procedure of the clinic and analyse antenatal visits with regard to the number needed, period of gestation, risk assessment and the services delivered during these visits. Also to identify the weaknesses of this method and discuss any possible solutions to the situation.

THE SETTING

Al-Balad Primary Health Care Centre is situated in a crowded area in the old part of Jeddah and serves more than 25,000 people of low to moderate social

class. The antenatal clinic in this centre is run twice weekly and is operated by a general practitioner and a nurse. The clinic, consisting of one room and a waiting area, is equipped with a Barometer, weighing scales and a sonic aid. On the mother's first visit, an antenatal card is filled, recording weight, height and blood pressure. Urine is tested for sugar and albumin. Findings of the clinical examination and assessment of the foetal heart is also recorded on the card. Results of blood tests done in the centre for blood grouping, Rh factor and haemoglobin level also needed. An extra blood sample is sent to the central laboratory for Hepatitis B and syphilis testing. The expected date of delivery is also noted. The finding of the fundal examination through return visits is also recorded.

Table 1:   The classification of risk category

A Intial Screening		D Exposure to Teratogens	
Age < 16 years	1	Drugs	2
> 35 years	1	Viral infection	2
		Syphilis	2
B Reproductive History		Toxoplasmosis	2
2 + abortions	2		
1 stillbirth	2	E General Examination	
1 neonatal death	2	Height < 150 cm	1
1 low birth weight	1	Weight < 45 kg	1
Previous large baby	2	> 85 kg	1
Para > 5	1	BP > 140/90	2
Previous isoimmu-	2	Breast abnormalities	2
nisation		Heart murmur	3
Pre-eclampsia,	2	Uterine size	2
eclampsia		Over	
Pevious infant	2	Under	
congenital anomalies		Orthopaedic problems	2
Birth-damaged infant	2	Venous disorders	1
Genital tract anomaly			
Predisposing to	2	F Pelvic Examination	
premature delivery		Prolapse	2
Uterine fibroid or	2	Vaginal/vulval	2
ovarian mass		abnormalities	
Previous operative	2	Cervical tumour	3
delivery		loceration	
Previous prolonged	2	Uterine neoplasm	3
labour		Adnexal tumours	3
Previous gynaecolo-	2	Contracted pelvis	3
gical surgery			
Primigravida	1	G Course of Pregnancy	
Involuntary sterility	2	Hypertension	2
Spacing < 3months	1	Pyelonephritis	2
APH	2	High fever	1
PPH	2	Isoimmunisation	2
		Diabetes mellitus	3
C Medical Complications of		Uterine bleeding	3
Pregnancy		Large uterus	3
Chronic hypertension	2	Small uterus	3
Renal disease	2	Abnormal presentation	3
Diabetes mellitus	3	Post-maturity	2
Heart disease	2	Acute surgical condition	2
Sickle cell disease	2	Hydramnios	3
or trait		Thromboembolic disease	3
Chest disease (TB)	2	Suspected disproportion	3
Thyroid disease	2	Twins	2
Epilepsy	2		

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    Anaemia (< 10gm)        1
    Emotional disturbances  2
    Disease or injury to    2
     boney pelvis
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Low risk 0 - 2,     Moderate risk  3 - 4,     High risk > 5
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The risk status of the pregnancy is decided on the first visit, based on findings from the medical history, clinical examination and available investigation results. The risk category is calculated by adding scores assigned to various items and classified accordingly into low, moderate and high risk groups (Table 1). High and moderate risk pregnancies are recorded in a separate registry and the woman were referred to the Maternity Hospital in Jeddah for further evaluation and follow-up. No further contact with these women is made whilst low or no-risk cases are monitored in the clinic up to 36 weeks of gestation, when they are referred with a copy of the antenatal card to the general maternity hospital for delivery. The hospital should send a report of all deliveries to the health centres after discharging the mothers.

At the clinic, appointments are given for return visits once every 4 weeks during the first 28 weeks and every 2 weeks up to 36 weeks, making a total of 8 visits. On return visits, weight and blood pressure is recorded and urine is tested for proteins and sugar. Clinical fundal examination and foetal heart assessment is also done. Minor pregnancy problems are managed and mothers are given two doses of tetanus toxoid during their pregnancies. Administration of iron or vitamins is not a routine practice at this clinic. Health education is provided in the form of a weekly scheduled lecture on one of the clinic days by the nurse in the waiting area, in addition to health education posters on the wall. No nutritional assessment is done at the clinic and home visits to pregnant mothers are rarely made. Mothers are asked to attend 6 weeks after delivery for a postnatal clinic. This visit is not connected to the vaccination schedule of the expected child and no home visits are made if they fail to appear.

METHODS

The records of all clinic patients in 1991 were reviewed and the available information on their antenatal cards was analysed. Feedback forms from the hospitals were reviewed and the risk status of mothers in the clinic registry book was analysed.

RESULTS

Table 2:   Frequency of antenatal visits

Visit	No	%
1 - 2 visits	100	35.7
3 - 5 visits	107	38.2
6 - 10 visits	61	21.8
> 10 visits	12	4.3
Total	280	100.0

A total of 280 mothers were seen in the clinic during 1991 (Table 2). Their ages ranged from 14 to 45 years old with a mean of 26.9 years old (SD5.6 ́ years old). Non-Saudis formed the majority (Yemenis 60%, Egyptians 15.8%, other nationalities 13%) while Saudi mothers formed only 11.2%. A total of 1,007

clinic visits were recorded, giving a mean of 3.6 visits per mother and 10.5
mothers per clinic. Attendance for the first antenatal visit showed a pattern
of late arrival with regard to the patient's gestational period and the first
visit ranged between the 5th and the 36th week of pregnancy (Table 3) with a
mean of 16.2 weeks (SD7.3 ˚) for the first visit.

Table 3: Week of gestation at which first visit was made

Visit time	%
Up to 8 weeks	9.8
9 - 12 weeks	29.9
13 - 16 weeks	21.2
17 - 20 weeks	11.8
21 - 24 weeks	11.0
25 - 28 weeks	9.2
> 28 weeks	7.1

Table 4:   Risk status of pregnant women

Risk status	No	%
No risk	109	39.5
Mild	95	34.5
Moderate	55	19.9
High	17	6.1
Total	276	100.0

Missing = 4

Risk assessment made for these mothers on the first visit showed 26% of mothers
in moderate and high risk state (Table 4). A total of 246 (88%) mothers were
given tetanus toxoid of whom 43% took one dose and 57% two doses. There was no
feedback from the maternity hospital about the referred cases and the 60 (21%)
mothers who attended the postnatal clinic were the only source of information.
The date calculated for the delivery was checked against the acutal delivery
date (Table 5).

Table 5: Difference between calculated and actual delivery
  dates of the 60 mothers attending antenatal check-ups

Difference	Frequency	%
0 to +/- 2 weeks	14	23.3
+/- 3-4 weeks	8	13.3
+/- 5-8 weeks	20	33.3
+/- 9-16 weeks	7	11.7
+/- 17-30 weeks	11	18.4
Total	60	100.0

Missing = 220

DISCUSSION

The pattern of antenatal care has remained unchanged since the beginning of the nineteenth century, much of it being directed towards the early detection and diagnosis of abnormalities. This is done during antenatal visits throughout the period of gestation. Antenatal care is thus considered a multiphasic screening process[3]. The time, number and content of these visits are only some of the factors which play a part in the success of this service.

The effectiveness of visits and the value of many routine procedures has been challenged in recent years[4,5]. The degree of importance, hazards attached to any pregnancy problem and the benefit of any medical intervention and advice, is still arbitrary. Thus the real value of mass-produced antenatal care is in doubt[3]. Individualisation of care, together with increased use of locally devised structures of care based on community characteristics, is thought to provide the best results of these visits[6].

In Saudi Arabia, there is a need to review the antenatal care system used in primary health care[7], and the findings from this study are in line with this concept. Antenatal care practised in this typical health centre in Jeddah is conducted by general practitioners and nurses who have been given only basic training for this service. Two thirds of the expected delivery dates were mistaken by a difference of up to 4 weeks. Resources are highly stretched and services lack many important aspects such as nutritional advice, home visits and proper health education. Attendance for the first time to this clinic is relatively late in pregnancy and this reduces the benefit of early recognition of risks. Doctors lack the obstetrical judgement needed to categorise cases into high or low risk and, hence, use of the risk scores as a quick indicator of risk status is thought to be helpful in this matter. These scores are given arbitrary values.

The subjectivity involved in the estimation of the risk assigned to various areas in the medical history, examination and laboratory findings, results in a large bias inherited in these scores[8]. Examples of such bias in the score system used in Saudi Arabia include the assignment of score one to situations which deserve more risk weight, such as spacing of three months or less, low maternal weight of <45 kg, short stature of <150 cm or the finding of anaemia of <10 gm haemoglobin level. Mothers over 35 or under 16 years old were also given the score of one, even if aged 12 or 45, whilst history of a single abortion, twin delivery or ectopic pregnancy were not considered as risk factors at all. A score of 2, on the other hand, is given to factors which can be of little risk such as breast abnormalities and viral infection. Additionally, these scores, produced in various Western societies, were copied in our centres with no consideration to the different epidemiological profile of pregnancy and delivery prevailing in Arabic society, such as parity levels, age distribution and delivery indices. The addition of scores to produce a single final score is another problem as it assumes an accumulative effect of risk factors which is not true in all cases. These factors are not known to operate independently of each other[8].

Risk scoring is also thought to increase the worry attached to minor problems of pregnancy, which can be easily monitored in the antenatal clinic. The increased anxiety of these mothers and the extra stress of travelling to the hospital are examples of the side effects[3]. It should be kept in mind that these scores are only indicative in nature and should not replace the clinical judgement of the physician[8-11].

Lesinski[8] argued that increased attention to screening of risks should improve the opportunity for patients to get better prenatal and intrapartum care. One-third of all mothers in Al-Balad centre were seen only once or twice in this clinic and were then referred to the hospital as being moderate or high risk.

The protocol of hospital management of these cases is not clear and the benefit of this early recognition is not evaluated since no link is kept with the centre and no feedback is returned from hospitals. Thus, it seems that subjective scores are used in some situations to push high-risk patients to busy hospitals, disconnecting their link to the PHC centre.

CONCLUSION

Antenatal clinic visits are important in screening, preventing or managing abnormalities in early pregnancy and in preparing mothers for a safe delivery. In Saudi Arabia, this service should be restructured according to the community characteristics and the capabilities of health centres within the applied concept of PHC. Clear working protocol in these clinics and a feasible two-way referral system is considered vital to the success of this service. Services such as nutritional advice and health education must be stressed. The quality of training of the service provider is also an important success factor. Risk scores used in PHC centres should be reviewed to suit the epidemiological pattern of pregnancy and delivery in Saudi Arabia.

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