ASSESSING THE QUALITY OF ANTENATAL CARE IN THIRUVANANTHAPURAM DISTRICT

January 2002

PROJECT REPORT

KRPLLD - 6/99

Dr.S.Srilatha,
Smt. Remadevi S, Dr. Leela Itty Amma,
Dr. Vijayakumar.K

ACKNOWLEDGEMENT

We hereby express our sincere gratitude and appreciation towards Kerala Rural Project for Local Level Development, Centre for Development Studies, Thiruvananthapuram for giving us on opportunity to carry out this work.

Similarly the readiness and cooperation extended to our work by 5—and odd antenatal women of Thiruvananthapuram district needs special mention. Without their support the project could not have materialized.

Superintendents of SAT Hospital, W&C Hospital Thycaud, Government Hospital Peroorkada had helped us in carrying out this work in the respective institutions. So are the Nursing staff and others who have helped us to track down the subjects over months in out patients departments and wards.

Ms. Sreelatha, Ms Sylaja, Ms Sheena has helped us in collecting data at various stages of the project. Sree Computer Centre has helped us in Computing and reporting works.

Dr. Nirmala C, Gynaecologist of SAT Hospital Thiruvananthapuram and Dr.Mridula of W & C Thycaud had helped us in supervision of data collection.

We express our appreciation for HAP team for giving us the office support and guidance.

CONTENTS

Page

Duration of gestation and birth weight

Dissatisfaction of the subjects after delivery

Postanatal care

Expenditure

6. Summary and Conclusion
7. Bibliography
8. Appendix.

ABSTRACT

Antenatal care and registration receive ferocity among all health care services. NFHS-2 reports that 93% deliveries are institutional and 98% of mothers receive at least 3 antenatal check ups. The maternal and child health services in Kerala is far better than in other states. Inspite of the high coverage of antenatal care and medial attention for delivery, the proportion of low birth weight babies born in Kerala is 20% even through it is 40% in all India level. Quality of health care delivered is one of the factors which determines the outcome of the pregnancy. The estimation of quality of service help as to have an understanding of the mother and child health issues, and possible avenues of intervention.

So a study with the objective of assessing the quality of antenatal care in various health care settings in Thiruvananthapuram district was carried out. The second objective was to estimate the private expenditure of delivery.

A prospective study was carried out in SAT Hospital, W&C Hospital, Thycaud Trivandrum & Govt. Hospital, Peroorkada was carried out. A total of 550 antenatal women were recruited, with 355 from SAT Hospital Peroorkada. These women were recruited at their first visit to the

hospital and followed up till delivery. A total of 430 women were followed up (78%).

Using a pre tested Questionnaire, assessed the quality of a) antenatal care by the following variables, (i) Antenatal visit, - The time of the 1st visit, frequency & source of antenatal care (ii) Investigations- Routine including HbS AgE, VDRL, USS. (iii) Physical examination –

(iv) Health education – Advice on diet, breast feeding, us eof drugs family planning, sleep & rest.

(v) Immunsiation – frequency & timing of TT

(vi) Anaemia Prophylaxis ,) Complication during frequency.

b) Intranatal care- Place of delivery, type of delivery, personnel attended, complication & birth weight

3. The expenditure of antenatal care and child birth.

4. Socio economic & demographic characteristics of antenatal women including information on education, occupation and percapita income were collected.

The major findings are as follows:-

- Over all quality of care is good with 42.2% of antenatal women being registered in the first trimester. But 7.2% are registered only after the fifth month of gestation.
- The blood pressure & weight recording in W&C Hospital, Thycaud and Govt. Hospital Peroorkada has to improve a lot.
- Even though advice of Iron Folic Acid & TT injection is 100%, the dietary advice in recently only 51.3% of antenatal women. Advice regarding rest, exercise and sleep is given only to a negligible percentage 2.3% receiving advice regarding family planning.
- 23.1% deliveries are caesarian section which is equivalent to that of USA.

16.2% of infants have low birth weight. Average expenditure for delivery is Rs 1949 which includes both normal and caesarian. For usual the average is Rs. 1887.3 and for caesarian it is Rs. 2154.7. Average hospital stay is 6.4 days for normal delivery and 10.2 for caesarian section. More than 75% of the subjects fact that the quality of service should be improved.

INTRODUCTION

Antenatal care refers to pregnancy related health care provided by a doctor or a health worker in a medical facility or at home. Ideally antenatal care should monitor a pregnancy for signs of complications detect and treat pre-existing and concurrent problems of pregnancy. It should also provide advice and counselling on preventive care, diet during pregnancy, delivery care, postnatal care and related issues. Antenatal care is necessary for ensuring a healthy mother and baby at the end of gestation. Antenatal care and registration receive priority among all health care services. It is usually incorporated in to the . of maternal and child health care services.

The maternal and child health status is better in developed nations. In India efforts were made to develop this service sector. Especially during late 1960's MCH components got a high thrust in planning and implementation of developmental schemes. As part of the strengthening of MCH services various new service components were identified. Similarly during this period, infrastructure was built through out the length and breadth of the country. There are about 26,228 PHCs in India and more than 132,000 paramedics operating in remote and rural areas at the end of 1996.[1,2] In Kerala also there are 944 PHC and 104 CHC's working now. They are spread out uniformly through out the entire state.[3] Unlike the general Indian scenario the institutions in Kerala are better manned and vacancy position is comparatively low. About 5547 Junior Public Health Nurses mainly focus on the maternal and child health area of

service delivery. In Kerala in tune with the spread of institutions, the service provision and utilization is almost complete when compared to other Indian States. NFHS SURVEY(1) 1992-93 cites that 97% of mothers receive antenatal care and 88% deliveries are institutional.[4] NFHS –2 reports that 93% deliveries are institutional, and 98% of mothers receive at least 3 antenatal checkups.[5]

As regard to health indicators Kerala is in fore front. The crude death rate is 6.4/1000 population, infant mortality rate is 16/1000 livebirths, and life expectancy is 70 & 74 years for males and females respectively.[6] This is due to the well developed health care delivery system both in the public and private sector and the high literacy status of the state especially, female literacy. But in general the morbidity in our state is very high, when compared to the developed countries. When considering the Maternal and child health services in Kerala, it is far better than in other states. The prevailing socio-cultural practices and the high female literacy have helped in improving the health status of the women and children in the state. This has helped in bringing down the maternal and infant mortality in the state. The current infant mortality is 16/1000 live births when compared to 74/1000 live births in India. This has resulted in increased acceptance of family planning services by couples and thereby the maternal health also has improved. The maternal mortality is 0.8/1000 live births in Kerala when it is around 4/1000 livebirths in India. But the maternal mortality rate of Kerala is still high when compared to the developed countries of the world. In spite of the high coverage of antenatal care and medical attention for delivery, the proportion of

low birth weight babies born in Kerala is 20%, which is 40% in all India level. Maternal mortality, morbidity and health status of children can be considered as indicators of the quality of service provided.

Once the provision of services is ensured, the quality of the provision has to be taken care of. The quality of the health care delivered is one of the factors, which determines the outcome of the pregnancy. The estimation of quality of service and its constraints in the present scenario helps us to have a better understanding of the maternal and child health issues and it can also act as the base line information. This will also help in identifying new areas of intervention.

Objectives

1. To assess the quality of antenatal care provided in various health care settings in Thiruvananthapuram district as defined by its component services.

2. To estimate the private expenditure of delivery.

Methodology

Design: prospective study

Setting:

Government Hospitals in Thiruvananthapuram city. The study was carried out in a tertiary care setting viz SAT Hospital. The two hospitals selected were W&C hospital Thycaud Thiruvananthapuram and Government hospital Peroorkada. Though planned earlier our efforts to enlist private hospitals and private consultation were not successful.

Sample size:

The reference population is the antenatal mothers in the district. The total number of antenatal women recruited from the 3 institutions is given below-

Table 1

Source and recruitment of study subjects

Hospital	Recruited No	Followed up –No.	% Followed up
Sat hospital	355	297	83.76
W&C hospital	165	108	64
GH Peroorkada	30	25	83
Total	550	430	78.18

Recruitment of antenatal cases:

All subjects getting registered to the hospital in the first trimester were recruited for the study. The study objective, duration and the subject's role were discussed with them. Only willing subjects were enrolled for the study.

Time of the study:

The participants of the study were recruited from March 2000 and were followed up till delivery. The follow up was over by February 2001. The interviewers for the study were recruited in January 2000. They were given the necessary training during January and February 2000, i.e. for two months. The questionnaire was prepared and pilot testing was done at the SAT Hospital.

Data was collected using a pretested interview schedule. The schedule consisted of two parts. Part I is the main questionnaire consisting of various variables for assessing the quality of antenatal care. Part II is the follow up questionnaire containing the relevant questions on follow up. The study variables are:

1 Quality of antenatal care

a) *Antenatal visit.* The time of first visit, frequency and the source of antenatal care

b) *Investigations*- The type of investigations, and frequency with regard to blood, urine, Ultra sound and X-rays were looked into. The blood investigations included grouping, hemoglobin, VDRL, HBSAg

c) *Physical examination*- General and systemic examination. Frequency of obstetric examination with blood pressure and weight recordings.

d) *Health education*: This is an important aspect of antenatal care. The study has looked into whether mothers received advice on diet, breast-feeding, use of drugs, family planning, sleep and rest.

e) *Immunization*: frequency and timing of TT

f) *Anemia prophylaxis*: Did they receive Iron Folic Acid during antenatal period.

g) Complications during pregnancy and delivery

2. INTRA NATAL CARE

Place of delivery, type of delivery, personnel attended, complications if any and birth weight of baby.

3 Expenditure of antenatal care and childbirth

4 Socio economic and demographic characteristics of the antenatal woman including information on education, occupation and per capita income were collected. Socioeconomic categorization was done using the following variables.

1. Education of husband
2. Occupation of husband
3. Percapita income per month

4. Type of housing
5. Fuel used

Details are given in the Table no. 2

Table 2

SES status Scoring

A. Education of husband	
Professional degree, MA and above	7
Graduation	6
Intermediate Post high school diploma	5
High school certificate	4
Middle school completion	3
Primary school literate	2
Illiterate	1
B Occupation of huband	
Professional	10
Semiprofessional	6
Clerical/shop/farm owner	5
Skilled worker	4
Semi skilled worker	3
Unskilled worker	2
Unemployed	1
C Income per capita per month	
3001 and above	10
2001-3000	7
1501-2000	6
1001-1500	5
501-1000	4
201- 500	2
0-200	1
D. Fuel used	
Wood	2
Kerosene	4
Gas/ electricity	6
E Type of housing	
Kutcha	2
Semipucca	4
Pucca	6

Total score SES

Lower strata = ≤12 Middle strata =13-17 Upper strata= 18+

Table 3

Distribution of subjects across different socio-economic strata

SES	Freq	Percent
1.0	79	18.5
2.0	293	68.5
3.0	56	13.1

6. Obstetric history and Perceived satisfaction with antenatal care and delivery.

Data collection was carried out using trained interviewers. The actual study started from March 2000 with recruitment of antenatal mothers in their first trimester of pregnancy. They were registered on their first visit to hospital and were followed up in subsequent visits up to delivery. In the case of normal deliveries, the information till the 3rd day of delivery was collected. This is because routinely they are discharged on 3rd day. For caesarian sections, the information was collected till the date of discharge. The data collection was completed by February 2001.

RESULTS AND DISCUSSION

Out of the 428 subjects, 68.9% is from the SAT, Hospital, TVPM. This is in accordance with the delivery pattern in the above 3 hospitals. In the SAT Hospital around 17000 deliveries occur in one year out of about 45,000 deliveries taking place in the district.

Table 4

Distribution of subjects according to the source of service

Hospital	Frequency	Proportion
SATH	295	68.9
W&C	108	25.2
GH Peroorkada	25	5.8
Total	428	100

2 records of SAT hospital was not analysed since they were incomplete.

I. Age of Subjects

The mean age of pregnancy is 23.5 years. This corresponds to previous observation of 24.5 years for mean age at birth.[7] This shows that in last 16 years there is not much change in the age of fertility. 80.4 % of the subjects experience the pregnancy during 20-30 years.[8] 12.4% fall below 20 years. 7.2 % are above 30 years. The observed mean age of pregnancy is within the ideal age range suggested. The NFHS-2 gives the median age at first birth as 23.3 for urban and 21.4 for rural women. 'The health and development in rural Kerala' a study by KSSP – reports 76.6% of the rural women deliver at the age of 21 to 30 years of age.[9]

Table 5
Age distributions of the subjects

Age	Frequency	Proportion
<20	53	12.4
20-29	344	80.4
≥30	31	7.2
Mean	23.5	Sd 4.2

2. Education of couples

Just 3% of the couples have only less than 4 years of schooling. 66% of women have education up to 10 years. Corresponding figures for men is 82%. 50% of the women are completing 10 years of schooling. The proportion having over 10 years of schooling is more among women (28.2%) compared to that of men (17.8%). This is in corroboration with the findings of State Planning Board's Economic Review 2000.[10] Girls outnumber boys at the high school stage. And that at higher education 61% are girls.

Table 6
Education of the couples

	Education of the wife		Education Husband	
	N	%	N	%
≤ 4 yrs	13	3	23	5.4
5-10	271	63.3	329	76.7
11+	121	28.2	76	17.8
10 alone	215	50.2	224	53.3

3. Income per month Per capita.

Mean income per capita is RS. 937.7 with SD 675.9. The median and mode of income is 750, which shows a negative skewing. This demonstrates that the relatively poor are attending the hospitals, or it was they got enrolled in our study, which is quite understandable considering nature of ownership of the institution.

Table 7

Income percapita per month

Mean	SD	Minimum	25%ile	Median	75%ile	Maximum	Mode
937.60	675.784	91.00	553.0	750.0	1150.0	6667.0	750.0

4. Type of Family

Table 8
Type of family

Nuclear	**326**	**76.2**
Non-nuclear	102	23.8
Total	428	100

76.2% of the families are nuclear. Only 23.8 are non-nuclear.

5. Number of members in the family

Mean number of members in a family is 4.75, which is in agreement with the census 1991 population figures.

Table 9
No of members in the family

Mean	SD	Minimum	25%ile	Median	75%ile	Maximum
4.75	2.11	2.0	3.0	4.0	6.0	22

6. Smoking habits of husbands

Table 10
Smoking habits of husbands

Smoking	Frequency	%
Non smokers	220	51.4
Smoking inside the house	205	47.9
Smoking outside the house	3	0.7
Total	428	100

48.6% of husbands smoke. The corresponding figures for rural Kerala 1987 figures were 53%.[9] The apparent decline in smoking could be due to sampling variations (KSSP). Many of them smoke inside the house. This leads to increased risk of passive smoking for antenatal women, which may have a bearing on the outcome of pregnancy.

7. Pregnancy history

Table 11
Pregnancy history

Gravida	Frequency	%
1	223	52.2
2	149	34.9
3	47	11
4	8	1.9
Total	427	100

87% of women are in gravida 1&2. Only 12.9% are having a history of third and above. This is a reflection of prevailing fertility pattern.

8. Parity

Table 12
Distribution of Parity

Parity	Frequency	%
0	233	54.4
1	167	39.0
2	28	6.7
Total	428	100

93.4% of the subjects are in Para 1 or less. This corresponds to the 93 % in 1986. [7]

9. Abortion

Table 13
History of Abortion

History	Frequency	%
Yes	51	11.92
No	377	88.08
Total	428	100

11.92% of the antenatal women give a history of abortion. This

cannot be taken as a reflection of the general population. This is because SAT Hospital being a referral institution, most high-risk cases report here. Spontaneous aortion occur for 6.67 of pregnancies.[11] The proportion over thi figure(6.67) could be because of the tertiary … of institution

10. Stillbirth

Table 14
History of Still birth

History	Frequency	%
Yes	28	6.54
No	400	93.46
Total	428	100

6.54% of the antenatal women have history of stillbirth during their entire fertility period till now. The still birth rate in India is reported as 8.9/1000 live births in 1994(Govt. of India Health Information of India 95-96 Ministry of Health and Family Welfare New Delhi).[12] The still birth rate is 12 /1000 live births in Kerala, which is high. This is because since the majority of deliveries are institutional, the neonatal mortality in the first week of birth are reported as still birth.[13]

11. Infant death

Table 15
History of infant deaths

History	Frequency	%
Yes	9	2.1
No	419	97.9
Total	428	100

2.1% of the antenatal women give history of death of infants in their life.

Table 16
History of Still birth, Abortion and Infant death across different SES

SES	Still birth	Abortion	Infant death
1	7.6	17.7	3.8
2	5.4	9.2	1.7
3	10.7	17.8	1.7

The high proportion of SES 1 & 3 in reporting stillbirths and abortion is intriguing. This could be due to affordable subjects from SES 3 seeking the services of tertiary care hospital from far off places. The experience of infant deaths is less than half among SES 2&3 compared to that of 1.

12. Antenatal Visit

Table 17
First Antenatal visit in relation to gestational age

Gestational age (months)	Frequency	%
1	9	2.1
2	40	9.3
3	132	30.8
4	133	31.1
5	83	19.4
6	22	5.1
7	5	1.2
8	4	0.9
Total	428	100

Mean 3.81 sd=1.22 Median 4

42.2 % of the antenatal women are registered within three months of gestation. This is a very positive sign. But on the otherside, 7.2% are registered only after the fifth month of gestation. Those who turn up for registration after consulting private clinics were not included in the study.

Therefore the observation that 7.2% are registered late is important. In order to avoid certain complications of pregnancy and delivery at least one visit should be made before the end of 12 week of pregnancy.

81.1% of antenatal checkups are done in the first trimester itself according to the NFHS-2.This was 70% in NFHS-1.But in India only 33% of livebirths pregnancies received their first antenatal checkup in the first trimester. Here in this study 2.1 % received their first check up only in the third trimester. This is comparable to the NFHS-2 finding i.e. 2%.

13. Socio economic status and number of antenatal visits

Table 18a
Frequency of visit and SES

Visits	SES 1		SES 2		SES 3		Total	
	N	%	N	%	N	%	N	%
<3	20	25.3	58	20.1	7	12.5	85	20.09
>3	59	74.7	230	79.9	49	87.5	338	80
Total	79	100	288	100	56	100	423	100

5 records were not included due to incompletions

Table 18 b
Frequency of visit and SES

SES	Visit <5
1	45.5
2	44.3
3	39.2

There is a gradient in number of visit across socioeconomic strata. Number of visit less than 5 is more in SES I compared to that of SES3. However, the reduction is not a serious one. But in all SES category 39-45% do not have more than 5 visits. There are reports that 94 % mothers received at least

4 antenatal checkups and 4% had 3 check ups.[5] This is in comparison with Indian figure of 44%.[5,15] The apparent reduction in reported number of ante natal visit could be due to the lack of recording of private consultation, the subjects carry out.

14. Personnel attended

Specialists in O& G examined all of them. This is because they were getting treatment from the leading public sector hospitals in the city.98.8% of antenatal check up is by health professional according to NFHS-2

15. INVESTIGATIONS

Table 19
Hemoglobin levels of antenatal women registered in the hospitals selected

HB level	Freq	%
<7 gm%	7	1.7
<10	29	7.1
<11	120	29.5
=/>12	252	61.7
Mean	10.99	-
Sd	1.61	-
Median	11	-

29.5% of subjects have haemoglobin less than 11. 22.4% are mild anaemic with haemoglobin levels between 10-10.99. This is in comparison with NFHS-2 report of 20.3% having Hb less than 11 gm%. Presence of 1.7% severely anaemias with haemoglobin less than 7 gm /100 ml can be explained by the fact that majority of subjects are from a tertiary level institution. NFHS-2 do not report any case of severe anaemia.

408 women out of 428 women (95.3%) had checked the hemoglobin at the first visit itself. 4.7% people have not checked the hemoglobin at all. This is a serious situation. There is no reason why 4.7% of women should

remain untested for hemoglobin. 1.7% of subjects had hemoglobin value less than 7gm%. This is also a problem, which has a bearing on the reproductive health of hundreds of women in the district when addressing maternal mortality and morbidity this proportion of mother with severe anemia should have priority. More over, only by addressing this segment of population can we improve the maternal health in any community.

Table 20

Routine investigations in first visit

	Done	%
Grouping& typing	413	96.5
HB	408	95.33
VDRL	417	97.43
HbsAg	419	97.9
Urine albumin	423	98.83
Urine sugar	423	98.83
Urine microscopy	160	37.38
Ultra sound Scan	206	48.13
X-Ray	2	0.04

3.5% of subjects were not screened for blood group. The proportion is similar for HBV, urine albumin, and sugar. Urine microscopy is carried out only in 37.38 % and Ultra sound in 48.13%. Even though majority of subjects were screened for Hb, VDRL, HBSAg, urine albumin and sugar one cannot understand why about 2.5% were left out without any routine investigations. One cannot expect it from the leading caregivers in the city. It may even be said to be an unpardonable omission. NFHS-2 for Kerala gives the figure of 43.7% for USS and 3.9% for X-ray examinations. The X-ray examinations are less in the sample and USS is slightly more. However, the NFHS figures in this case denotes the experience during the entire pregnancy while the table above shows only the first antenatal visit.

Table 21
Physical examination

Examination	Frequency	%
BP	403	94.16
Weight	320	74.77
Height	61	14.25

It is seen that 5.8% of subjects were not examined for Blood Pressure and 25.2% had not been weighed. The importance of regular recording of weight and blood pressure during antenatal period needs no special mention. But situation puts pressure on us to restate it. Similarly the recording of height is also poor. Only 14.25% subjects were measured for their heights. The identification and management of high-risk pregnancies will be difficult without measuring the height and weight of the antenatal women routinely. W&C Hospital and GH Peroorkada need special mention because only 20% of the subjects are weighed there. Apart from identification of initial high-risk groups, routine weight recording is mandatory for early detection of complications.

Table 22
Proportion of subjects whose weight and blood pressure are recorded & those who have taken Tetanus toxoid

Institution	Weight	BP	Tetanus
SATH	98	99	99
W&C	20	83	93
GH Peroorkada	26	78	100

The BP& weight recording components in W&C and GH Peroorkada need a lot of attention. The picture that emerges is rather disturbing. Even a premier institution like SATH has to improve in this aspect. But the other institutions are far behind SATH.

Table 23
Advice to the antenatal women.

Advice	Frequency	%
Iron Folic acid	428	100
TT	418	97.77
Diet	219	51.3
Rest	65	15.3
Exercise	22	5.2
Sleep	31	7.3
Breast feeding	39	9.2
Care of Nipples	33	7.7
FP	10	2.3

Advice for consumption of Iron Folic Acid & TT injection is near 100% and this is reflected in the mean hemoglobin value of 11gm%. The advice, about diet is received by only51.3 % of the antenatal women. But according to the NFHS-2,72.5 % of the mothers receive advice regarding diet. Advice regarding rest, exercise, and sleep is given only to a negligible %. This is very important since 20% of the babies delivered are low birth weight babies. Even advice about breast-feeding and care of nipples, which are very essential for proper antenatal, and neonatal care are not being given to the majority of subjects. Only 2.3% of the antenatal women received advice regarding family planning in this study whereas it is 30% in the NFHS-2. The advice regarding family limitation or spacing techniques is important in the sense that there is an increase incidence in medical termination of pregnancies mainly in the gravida-2category. This is due to the lack of awareness regarding the spacing methods among the women even though they may be aware of the permanent methods of sterilization. And this is the best time for educating mothers about it.

Table 24
Presence of relatives during antenatal advice.

Relative	proportion
Husband allowed or not during examination	100 % not allowed
Husband allowed for advice	12(2.28%)
Mother/Mother in Law during examination	8/428(1.9%)
Mother/Mother in law during advice	24/428(5.6%)

It should be an accepted practice to have the husband/ mother / mother in law during the examination of the antenatal women. But even in a state like Kerala advice is given to the husband in only 2.8%, and to the mother/ mother in law in 5.6% of the cases. This has to be improved a lot in order to improve the quality of antenatal care. If only the husband & other family members are made aware of the condition of the antenatal women, her problems and solutions, remedial measures can be adopted.

16. Perceived satisfaction with services from the center

Table 25
Perceived satisfaction with services from the center

Personnel	Fully satisfied		Satisfied		No Opinion		Dissatisfied	
	N	%	N	%	N	%	N	%
1. Doctor	107	25.1	293	68.6	26	6.1	1	0.2
2. Staff Nurse	103	24.1	291	68.1	32	7.5	1	0.2
3. Other staff	69	16.2	279	65.3	76	17.8	3	0.7
4. Material Supplies	68	15.9	282	66	74	17.3	3	0.7

We find that 68% of the subjects are satisfied with the services of the doctor& staff nurse. 65.3% are satisfied with the services of the other staff. Around 25% are fully satisfied with the services of the doctor and the staff nurse.16.2% are fully satisfied with the services of the other staff. For all practical

considerations it will be better that we focus on these proportion who are fully satisfied as the positive opinion. The rest should be considered as not so happy with the services available. We find the other staff and the material supplies are the ones with which the subjects are dissatisfied.

17. Reasons for inconveniences

Table 26
Reasons for inconveniences

Reason	number	%
Long waiting time	108	91.5
Lack of facilities	6	5.08
Poor laboratory facilities	1	0.08
Crude behavior of staff	3	2.5

Majority find the long waiting time during antenatal visits unacceptable. Only 118 persons responded to our question on this aspect. They are not citing the lack of other facilities as a reason for inconvenience. At the same time when we enquired about their suggestion for improvement the following were put across.

18. Suggestions for improvement

Table 27
Suggestions for improvement

Suggestions	Number	%
Extending laboratory facilities	19	21.8
Extending OP time	41	47.1
Improving hygiene	6	6.9
Improving general facilities	21	24.1

By combining both we come to a conclusion that many feel the long waiting time is due to shorter OP time. In addition, they are concerned about the laboratory services and hygiene of the place.

19. Follow up visits

Table 28
Follow up visits

Examinations	Visit 2		Visit 3		Visit 4		Visit 5	
	N	%	N	%	N	%	N	%
Haemoglobin	101	23.6	36	8.4	36	8.4	55	12.9
Urine -Albumin	186	43.5	184	43	169	39.5	232	54.2
Urine - Sugar	186	43.5	184	43	169	39.5	232	54.2
Blood Pressure	377	88.08	365	85.3	334	78.03	238	55.6
Weight	314	73.4	310	72.4	291	68	194	45.33
Foetal Heart	335	78.3	336	78.5	311	72.7	215	50.23
Height of fundus	379	88.6	353	82.5	335	78.3	233	54.44
Advice given	138	32.24	116	27.1	86	20.1	57	13.32
Use of IFA	391	91.4	375	87.6	342	80	251	58.64
Expenditure - Median	250		210		200		170	

Examinations	Visit 6		Visit 7		Visit 8	
	N	%	N	%	N	%
Haemoglobin	10	2.34	1	0.2		
Urine -Albumin	11	2.57	3	0.7		
Urine -sugar	11	2.57	3	0.7		
Blood Pressure	28	6.54	15	3.5		
Weight	21	4.9	12	2.8	5	1.16
Foetal Heart	24	5.61	13	3		
Height of Fundus	25	5.84	13	3	4	.0.9
Advice Given	2	0.5	1	0.2	1	0.2
Use of IFA	26	6.07	11	2.6		
Expenditure median	250		150		200	

Urine albumin, BP recording, weight, Fetal heart recording, height of fundus, and advice regarding various healthy practices during and after pregnancy is an important aspect of any good quality ante natal care. What we find is that priority given to these dimensions are decreasing as the number of visits increase? This may be because those who are normal during first visit may

be neglected in the subsequent visits or it may not be recorded during subsequent visits. Recording of BP, weight, height of fundus, foetal heart are essentially the most important practices one will have to undertake even during repeat visits. The neglect of these should be considered as an indicator of poor quality care.

20. Type of delivery

Table 29
Type of delivery

Delivery Type	Number	%
Caesarian section	99	23.4
Normal	324	76.6
Total	423	100

23.1 % deliveries are caesarian section. Since the sample is predominantly from SAT hospital; a tertiary care center, there is a chance of many high-risk pregnancies being referred for delivery here. KSSP studies (1997)[14] on the type of deliveries in the rural population of Kerala, have brought out the proportion of caesarean section as 21.4%. This is similar to our results. NFHS-2 gives the proportion of caesarian section as 29%. This is 4 times the national average of 7%. It is the highest among all states in India. But this includes private institutions also which records 34% of deliveries as caesarian section.

21. SES and type of delivery

Table 30
Distribution of caesarian among SES

SES	Total deliveries	Frequency of caesarian	%
1	79	19	24.05
2	288	65	22.57
3	56	15	26.78
	423*	99	23.4

- *Type of delivery for 5 subjects missing*

The proportion of caesarian sections is not that much different across various SES strata. There is only a 2.7% increase from SES1 to SES3. This is a healthy sign. But overall proportion of caesarian is unacceptable. To some extend it can be explained because of the referral nature of the institutions.

22. Indication for caesarian section

Table 31
Indication for caesarian section

Indication	CAESARIAN	
	Freq	%
First degree CPD	23	23.23
Previous caesarian	19	19.19
FETAL DISTRESS	10	10.01
Abnormal presentation	12	12.12
PROM	7	7.07
BOH, PIH	5	5.05
No pain,	2	2.02
HIGH B.P	2	2.02
IUGR	1	1
MVP-colloid goitre	1	1
Abruption &CPD -2 ^{o}	1	1
Obstructed labour	1	1
Elderly multipara	1	1
Total	99	100

1st degree Cephalopelvic disproportion and previous caesarian section constitutes 43 % of the total caesarian sections. 53% has other indications. Other reports from SAT hospital cites the common indications for caesarian section for 1997 as

1. CPD 38%
2. Foetal distress 11%

3. Previous Caesarian 5%

4. Malpresentation 5%

5. PROM 4%

23. Birth weight

Table 32
Distribution of Birth weight

Birth weight		
Mean	2863.7	sd 430.8
Median	2890	
<2500	16.2	
<3000	58.4	

Mean birth weight is 2.863 Kg. 16.2% of infants have low birth weight(less than 2.5 Kg)

Table 33
Distribution of LBWs across different socioeconomic strata

SES	HB1	Wt1	Wt4	Mean Bwt	LBW%
1	11.33	48.5	51.5	2875.8	19.0
2	10.9	49.0	53.2	2857.7	16.8
3	10.9	52.4	56.6	2877.0	8.9

It is interesting to note that the birth weight as well as haemoglobin levels is similar in all social classes and the observed differences are not significant. But the proportion of LBW is half in the higher socio economic strata.NFHS-2 cites 15.1% as of LBWs. The present data shows16.2% as LBWs. This could be due to the referral nature of the subjects.

24. Duration of gestation and birth weight

The mean duration of gestation is 271.5 days. With SD of 14.5. Minimum is 209, 25th percentile 265, median 274 mode 278 and 75 percentile is

279. Only 30 out of 428 ie 7% of deliveries were before 252 days or 36 weeks of gestation. The overall distribution of gestational period is as follows.

38.3% of subjects deliver before 38 weeks of gestation which records 100 gms less than that of babies after 38 weeks gestation. This is contributing to the high LBW proportion.

25.Dissatisfaction of the subjects after delivery

Table 34
Reasons of dissatisfaction after delivery.

REASON for dissatisfaction	Freq	%
We expect only this much and it is enough	13	10.4%
Attenders	13	10.4%
Bath rooms and toilets, Mosquitoes	38	30.4%
Staffs are very rude	15	12.0.6%
Waiting time	1	0.01%
Not enough bed	33	26.4%
Lab facilities	5	0.04%
Bribe to staff	9	0.07%
Total	125	100.0%

The most important reasons for dissatisfaction were1) Inadequacies of the toilets and mosquito nuisance in the wards and 2) Unavailability of beds. A large number of patients are admitted in the wards as floor patients. The nature of complaints is more or less the same before and after the delivery. It is noteworthy that the adverse comments are more strong in if worded in post-natal period than in antenatal period.

Suggestions include improving hygiene, laboratory services, extending OP time, Increasing beds, punishment for bribe taking

26. Postnatal care

Table 35
Satisfaction post natal visit

	Number	%
Full	115	27.4
Partial	169	40.2
No Opinion	136	32.4

Here again in comparison with immediate post partum period 27.4% of subjects were satisfied fully. The rest were partial or had no opinion at all. There were no cases of any complications, as the sample size is not enough to capture it.

27. Expenditure

a. Antenatal visit

Expenditure of the antenatal visit was collected. Each person spends about Rs 232 /- per visit. The pattern of expenditure across different socio economic strata is given in Table 36. It is clear that unlike our expectation people will have to spend more or less the same amount whether they are from poor socio economic strata or that of higher one. This private expenditure is incurred because of travel, incidental expenses, and purchase of some medicines. We were not in a position to capture private expenditure incurred towards private consultation.

Table 36
Expenditure for antenatal visit(RS)

SES 1	SES2	SES3
222.5	225.4	234.5

b. Expenditure for delivery

Average expenditure for delivery is Rs1949. This includes caesarian also. The break up of the expenditure is given in table 37. As some of the subjects did not incur the expenditure for all the items listed the total of all is higher than that of the average cited above. The total if worked out will be Rs 2285/ for all types of deliveries pooled across various SES. All the 3 centers selected for this study are government hospitals, which is supposed to render free services. When we break this expenditure into normal delivery and caesarian the findings are given in table 37

Table 37
Average Expenditure for delivery

Medicine	**271**
Bed	495
Doctors fee	486
Laboratory fee	196
Other services	135
Food	501
Transport	133
Incidental	68

Table 38
SES and expenditure for normal delivery

	SES1	**SES2**	**SES3**	**General**
Mean	1751.6	1896.5	2035.4	1887.3
Sd	423	507	637	516

In general every subject spends Rs 1887.3. This varies from 1751 of SES1 to 1896.5 of SES2 and 2035.4 of SES3. There is a gradient from SES 1 to 3. But the extend of hike is minimal ie only Rs 283.8. There may be some error in estimation. Some in the SES 3 may not have revealed all the expenditure especially that have gone to the doctor. Even the poorest will have to

spend nearly RS.1751/- from their pocket to avail delivery related services.

When we compare the expenditure for caesarian deliveries it varies from 2051,2057 and 2708 for SES1, 2 and 3 respectively. In general Rs 2154.7is being spend by every subjects. The difference between normal and cæsarian is just 267 for total and 300 for poorest sections. This could be due to prolonged hospital stay.

Table 39
Expenditure pattern for Caesarian and SES

	SES1	SES2	SES3	General
Mean	2051.1	2057.3	2708.2	2154.7
Sd	535.2	541.9	1234.5	719.28

28. Bystanders

In order to avail the services 99.5% of subjects need one(21.5%) or two(78%) bystanders to meet the requirements in the hospital. The cost of that was not worked out. Similarly at least one person (97.4%) has to wait outside the hospital to provide the services or to facilitate the services.

Table 40

Bystanders within and outside the hospital

Within the hospital	**One**	**21.5%**
	Two	78%
	Three	O.5%
Outside	One	97.4%
	Two	2.4%
	Three	O.2%

29. Hospital stay

On an average each subject spends 7.2 days in the hospital. So one will have to spend three person's services in the hospital to see through the

delivery.

Table 41

Duration of hospital stay

Duration of hospital stay	Mean duration	SD
	7.2 days	2.7

Table 42

Hospital stay for normal and caesarian among different SES

SES	Normal	Caesarian
1	5.9	10.05
2	6.42	10.27
3	6.49	11.13

There is a minor increase in duration of hospital stay across SES1 to SES3.

Summary and conclusions

We have studied the quality of the antenatal care in public health care institutions of Thiruvananthapuram district. SATH, W&C Thycaud, and GH Peroorkada were studied. 550 persons were recruited for the study in the first trimester. 430 were followed upon. This gives a follow up rate of 78%. The major observations are as follows.

- Overall quality of care is good. But there is small group of subjects who are not receiving essential care.
- The quality of care has to improve more in W&C and GH Peroorkada
- The record keeping is poor and is more so in the W&C hospital and GH peroorkada.
- In the following visits records as well as carrying out monitoring of FH weight and BP comes down.
- Proportion of caesarian sections is 23% which is somewhat equivalent to that of USA
- The expenditure pattern of the subjects across various SES

shows close similarity in previously reported expenditure

- Even in these government hospitals as each subject had to pay for bed and doctor to the tune of 500.
- There is a total disregard for antenatal advice.
- Majority of the subjects (>75%) feel that the quality of the services should be improved
- Average hospital stay is 7.2 for all types of delivery including the last antenatal days. This will be 6.4 for normal delivery and 10.2 days for caesarian sections.

Bibliography

1. Govt of India(2000), Annual Report 1999-2000, *Ministry of Health & Family Welfare, New Delhi*
2. Govt of India(2000), Bulletin on Rural Health Statistics in India, Dec 1999, Rural Health Division, *Ministry of Health & Family Welfare,New Delhi*
3. Directorate of Health Services,Kerala Report as on 30-12-1999
4. National Family Health Survey-1, Kerala 1992-93
5. National Family Health Survey-2, Kerala 1998-99
6. Registrar General of India-*SRS 1995*
7. Vijayakumar.K, V.Ramankutty&C.R. Soman, 'Trends in Birth Weight in Kerala A Hospital Based Study',Health and population –*Perspectives and Issues 13(1&2):52-60, 1990*
8. Vijayakumar.K, 'Birth Spacing and its bearing on birthweight',*Indian Journal of Community Medicine, VolXVII, No.1,1992*
9. K.P.Kannan &K.R.Thankappan, 'Health and Development in Rural Kerala' published in 1991,*Kerala Sastra Sahitya Parishad*
10. Economic Review 2000-*State Planning Board*
11. Veng,T et al(1973), Pregnancy Termination, *The George Washington University (Population Report SeriesF:3)*
12. Govt of India(1998), Health Information of India 1995 and 1996, *Ministry of Health and Family Welfare, New.Delhi*
13. S. Irudaya Rajan & K.C. Zachariah, 'Long term implications of low fertility in Kerala, India, *Asia Pacific Population Journal, Vol 13, No3 (1998pp41-66)*
14. K.P.Aravindan, T.P. Kunjikannan, ' Health Transition in Rural Kerala 1987-1996',*Kerala Sastra Sahitya Parishad published in 2000*.
15. Padam Singh, R.J Yadav, 'Antenatal care of Pregnant Women in India' *Indian Journal of Community Medicine. Vol. 25(3) July –Sept 2000.*
16. Anoop Mohan Nair, Reena J. Sathyan, Sindhuja N.S. Caesarian sections, the real picture(unpublished).