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CAPSTONE INTERVENTION PROJECT:

SKILLED DELIVERY ATTENDENCE RATE AT GINDEBERET HOSPITAL, OROMIA, ETHIOPIA

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A Capstone project submitted to the school of graduate studies of Addis Ababa University in partial fulfillment as the requirements for the Degree of Masters of Hospital and Health Care Administration

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Approval page to be signed by examining board

I, the undersigned declare that this thesis is my original work and has not been presented for a degree in this or other university and all sources of materials have been fully acknowledged. The Student:

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Table of contents

Contents

Acronyms/Abbreviations

ANC:	Antenatal care
BEmNOC :	Basic Emergency Neonatal and Obstetric Care
CEmONC :	Comprehensive Emergency Neonatal and Obstetric Care
EDHS :	Ethiopian Demographic Health Survey
EFY :	Ethiopian Fiscal Year
GP :	General Practitioner
HCs :	Health Centers
HCF	Health Care Financing
HEWs:	Health Extension Workers
HMIS	Health Management Information System
HSDP:	Health Sector Development Program
MCH :	Maternal and Child Health
MDG :	Millennium Development Goal
MMR :	Maternal Mortality Rate
PNC :	Post Natal Care

List of Tables

Abstract

Introduction: Maximizing skilled birth attendance rate is one of the proven intervention that positively influence the maternal mortality rate of a given country or community. Skilled birth attendance is also the chosen indicator to monitor progress towards MDG 5, which is reduction of MMR by three fourth and it is a priority area of HSDP IV, Ethiopia.

Design: **Pre and post-intervention design (**Pre-intervention base-line assessment, Intervention, Post intervention result assessment)

Setting: Gindeberet district hospital, West Shewa of Oromia Regional State, Ethiopia.

Participants: The primer investigator (PI), Maternity department staffs, Gynecologist &Obstetrician, and finance department staffs.

Implementation: Group health education of ANC mothers on safe delivery, Individual counseling for ANC attendant mothers at MCH unit, Fulfilling medical equipments and furniture needed for hospital deliver, Improve staff capabilities and staff coverage, consensus on referral take-over between the hospital & catchment HFs, and Charge free maternity service & pregnancy related cases of illness were selected strategic intervention implemented.

Main Outcome Measure(s): Increased delivery attendance,

Evaluation: Comparison of baseline and end-line assessment is used to verify the outcome of the capstone intervention, (T-test, P-value<0.05 at 95% CI).

Keywords: capstone intervention, skilled delivery attendance, Gindeberet

Results*:* The number of total deliveries attended in Gindeberet Hospital had been increased from**15/month at** pre-intervention period to **53/month** during the post-intervention period (T-statistics=26.83, with p-value<0.00001Epi Info 16.04 at 95% CI),

Lessons Learned: This capstone intervention project demonstrated the possibility of improving the quality, access and acceptability and utilization of skilled birth attendance at rural hospital level through focused and simple intervention.

Background

Organizational Description

Gindeberet Hospital is a district hospital located in Kachis town of Gindeberet Woreda, West Shewa zone of Oromia regional state. Kachis is located 183 km from Addis Ababa. The hospital has 40 functional beds of which 17 are allocated to the maternity unit. The hospital is providing Antenatal, delivery and postnatal care.

Table 1: General information, Gindeberet Hospital, May 2012

S/N	Description (Variables)	Measurement	Achievement
1	Number of operational beds	number	40
2	Average length of Stay	days	4
3	Number of outpatient visit	No/year	20,000
4	Number of key performance indicator	Amount	54
5	% of EHRIG operational standards met for hospital reform	%	62
6	Average stock out days	day	5
7	Gynecologist		1
8	Midwives		3
9	MCH Nurses		3
10	Ambulance Car	Qty	1
11	Delivery Ward bed	Qty	1

Introduction

Problem Statement

Low skilled delivery attendance was seen at Gindeberet Hospital.

Background of the problem

Being located in remote place of Ethiopia, Gindeberet hospital had been subjected to diverse challenges and shortcomings since its establishment. Lack of needed human power with necessary skill mix, poor transportation system, insufficient budget, low awareness of the community in modern health service utilization, low performance of even the assigned staff and high attrition rate are few of the many. Of these, **low skilled delivery attendance at Gindeberet Hospital** was identified as a major priority area that required immediate intervention. The problem was prioritized by the hospital management team in pre-intervention period through problem identification process lead by this capstone project principal investigator. Underutilization of maternity care had been targeted because its improvement will have a wide bearing to reduce maternal mortality rate which is the main community felt problem in the area. Improving skilled birth attendance rate is also a priority area in EHSDP IV and one of the indicators in MDG V. Moreover, it was possible to plan and implement the intervention that can make a difference using the hospital management team capacity.

Root causes

Primarily, low delivery attendance in Gindeberet Hospital was identified by the principal investigator of this capstone intervention project through problem identification process. The team of nurses and midwives was organized by PI to analyze the causes of low skilled delivery attendance in Gindeberet Hospital. They held discussion in September 2011and reached at the following root causes that

contributes to the observed low delivery service attendance rate which were farther analyzed using fish-bone analyses tools.

1. Poor knowledge/perception of ANC mothers on safe delivery
2. Most mothers doesn't complete their ANC follow up
3. Poor interpersonal relationship between maternity staff and ANC mothers
4. Limited availability of medical equipment needed for safe delivery
5. In adequate staffing and capacity
6. No transportation for referral linkage
7. Cost of maternity service and for related cases of illness

Root cause analysis: The baseline situation were categorized with the use of fish bone root cause analyses tool under community, equipment, staff, and finance categories. The following five steps had been followed to reach at the root cause for low skilled birth attendance rate at Gindeberat hospital.

Baseline tools used:

Record review: ANC and delivery registers were reviewed. Number of ANC follower in the year 2004 E.C was 902 and those who had delivery in the hospital was 259 (259 deliveries among 902ANC = 28% for the 2003EC). For the study purpose, more in-depth review of ANC and delivery register was done for the three month prior to the intervention and the result is as shown in table 2 below.

Table 2: Mothers who attend ANC and delivery service at Gindeberet Hospital, Pre intervention period, Sep-Nov'2004 E.C

Months	No of ANC Attendees	No of Delivery	% of hospital delivery
Sep	52	20	38.5%
Oct	90	15	16.7%
Nov	90	9	10%
Total	232	44	15%

3. Focus Group Discussion (FGD): The principal investigator, three MCH department nurses and three midwives was included in the discussion concerning delivery practice in the hospital and on the factors contributing to low attendance in the hospital. The group also discussed about the quality and contents of ANC with more deliberation on how to improve, the challenges of skilled birth attendance and post natal care. Additionally, the group discussed about competence of the hospital with profession needed, furniture, medical equipment, referral linkage and cost of delivery.

2. In-depth interviews: was conducted in the months of September to November 2011 among ANC mothers and those who had delivery to assess factors that encourage or deter them from delivering at hospital. The same structured questionnaires were used to know the attitude of mothers towards hospital delivery. Among fifty mothers included in the interview forty eight (48) of them 96% have no plan for hospital delivery unless they faced prolonged labor and complicated delivery.

4. Inventory: Inventory of equipments needed for skilled delivery in the labour ward is done by the investigator based on the necessary equipments listed for district hospital by the Federal Ministry of Health (FMOH).

Table 3: Category of root causes for low skilled delivery attendance, Gindeberet Hospital, September2011.

Perspectives/Category	**Seven root causes identified**
Community/mothers	1. Poor knowledge/perception of ANC mothers on safe delivery which should be done at health facility. 2. Most mothers doesn't complete their ANC follow up
Staff	3. Poor interpersonal relationship between maternity staff and ANC mothers 4. Inadequate staffing and capacity
Equipment/Furniture	5.Limited availability of medical equipment needed for safe delivery 6.No transportation for referral linkage
Finance	7. Cost of maternity service and related cases of illness

Literature Review

Delivery service to the pregnant women is the important component of reproductive health care (1). However, around the world one third of births take places at home without the assistance of a skilled attendant. This means 45 million births, occur at home without skilled health personnel each year. In developing countries, only 40 percent give birth in health institutions (2). Skilled attendants assist in more than 99percent of births in more developed countries versus 62 percent in developing countries (3).

Safe and clean environment under the supervision of health professional reduces maternal mortality. In Ethiopia according to DHS 2005, the majority of births, (94 percent) were delivered at home; only 6 percent of births are delivered with the assistance of a trained health professional in health facilities. The majority of births are attended by a relative or some other person (61 percent). About28% is delivered by a traditional birth attendant. Five percent of all births are delivered without any type of assistance at all, only three percent of births in rural areas were attended by skilled provider.

Study conducted in Bangladesh Dhaka showed that ANC utilization is strongly associated with delivery care. The chance of institutional deliveries four percent times higher for those who have taken antenatal care compared to those who do not take any antenatal care (4). Study in Arsi Zone, Ethiopia revealed that antenatal care utilization were most significant factors determining safe delivery utilization (5). Maternal perception and knowledge is a factor that affects a choice of places of deliveries. Community and facility based education and partner involvement can play significant role in increasing facility care development and utilization of skilled attendant. A

SCHEMATIC FRAMEWORK FOR SKILLED ATTENDANCE AT DELIVERY

This framework places skilled attendance at delivery within the context of a broader health systems approach. It emphasizes that a health professional with the skills to manage deliveries is only part of the picture. A well-functioning health system that can deliver emergency obstetric care when needed is equally important. The boundaries of the ovals are represented by dotted lines to signify that skilled attendance involves interaction between supply and demand and also that skilled attendance can, given the right combination of factors, exist in the community and outside health facilities.

SOURCE: Developed by the SAFE International Research Partnership

Objective

The objective of this capstone project was to increase the number of attended delivery from 15 / month during the pre-intervention period (Sep.1/2004-Nov.30/2004 E.C) to 30 / month at the end of intervention period (February 1/2004 E.C- Apr 30/2004 E.C).

Project Design (Methods)

A Hospital based pre and post-capstone intervention project was conducted in Gindeberet Hospital from September 2011 to April 2012.

Project area/setting

The capstone intervention project has been undergone at Gindeberet Hospital. Gindeberet Hospital is a district hospital in West Shewa Zone of Oromia Regional State, Ethiopia.

Sample population or approach to be used

All mothers attended the hospital ANC service was included.

Sampling procedures

Since all the mothers attended ANC service was included there was no need of sample.

Data collection tools and procedures

The data for pre and post-intervention period of delivery attendance was collected from deliver register of the hospital by the principal investigator (PI) and focus group discussion was held to identify the cause of the gap. Focus group guide, tables and interview guide was used.

Data analyses procedures

The finding of base line survey and end-line survey was analyzed using pre-post intervention comparative descriptive statistics. T-test with P-value<0.05at 95% CI was computed to know the relationship and significance of the capstone intervention project. Epi Info 6.04 and simple scientific calculator were employed for computation purpose.

Data quality management

ANC and Delivery register of the hospital is an official document used for reports and documented for the future hospital activity. It's monitored by HMIS department and the accuracy is checked against individual folder.

Ethical consideration

Ethical clearance and approval was obtained from the Ethical Committee of the School of Public Health at Addis-Ababa University. Confidentiality of the collected data was maintained throughout the project period. Consent for the data collection was obtained from the hospital management team and the hospital board.

Dissemination of results

The report will be disseminated to those governmental and non-governmental organizations that could be potentially benefited from the study. Publication is also being sought.

Operational definitions

Skilled attendance**:**

A professional with midwifery skills working within an enabling environment or health system capable of delivering appropriate emergency obstetric care for all women who develop complications during childbirth.

ANC: Antenatal care:

- Screening and case referral
- Disease prevention, detection and treatment
- Health education

Intervention –strategy chosen

- Group health education to improve the awareness and knowledge of ANC mothers on safe delivery
- Individual counseling for ANC attendant mothers at MCH
- Fulfilling medical equipments and furniture needed for hospital delivery:
- Improve staff capabilities and staff coverage
- Forming referral agreement with catchment HFs through Woreda health office and the Ambulance is made ready at call
- Charge free maternity service and pregnancy related cases of illness

Implementation Accomplishments

Table 4: Selected intervention and planned activities implemented in the intervention period, December1-January 30/2004 E.C., Gindeberet Hospital.

S/n	Root causes	Intervention	Activities	Responsible Body/ Facilitator
1	Poor knowledge/ perception of mothers about safe delivery	Group Health education	1.The title of health education session was identified,	PI and MCH nurses
			2.The schedule for session is designed	PI
			3.The session was given from Monday through Friday from 8:30 to 9:00am	MCH nurses and midwives
			4.Monitoring and evaluation(content regularity of the schedule and number of attendant was continuously registered)	PI
2	Poor interpersonal communication between ANC mothers and maternity health staff	Reorientation of the responsible staffs on the need for hospital delivery during ANC	1. Information on associated health risk and need of hospital delivery for each mothers during MCH	PI, MCH department nurses and delivery ward midwives
3	Limited availability of	Fulfilling medical equipments needed	1. Reaching decision at senior management level to allocate budget to	PI/SMT, finance

	equipments needed for delivery service	at delivery unit	procure the needed medical equipments based on the gap identified 2. Preparing procurement plan, purchasing and hand over to the labor unit 3. Insuring proper utilization of the medical equipment made available.	department Finance department PI, delivery department staff
4	Inadequate staffing and skill mix at delivery department to provide comprehensive obstetric care	Improve staff capabilities and availability	1. One Ob/Gyn specialist was made available. 2.Training is given on emergency obstetrics for two GPs and three midwives	PI Gyn/Obs
5	Poor referral linkage between Gindeberet Hospital and health centers under its catchment	Interring into MOU with health centers in the catchment	1.Referral agreement is done between four health center of the catchment & Gindeberet hospital 2.Hospital ambulance is made readily available for use on call bases from the health centers in the catchment	PI(CEO), SMT,MD PI(CEO), MD
6	Cost for maternity service and related cases of illness	Making maternity service free of charge	1.Preparing agenda for board decision 2.Availing needed medication free of charge 3. Monitoring implementation of the board's decision.	PI(CEO), S MT, Hospital board

Results

As it's seen in different researches and this capstone intervention project the factors that affect skilled delivery attendance are diversified and interrelated at individual, family, community and health facilities level. Medical equipment and supplies, appropriate staff, service and medication fee, appropriate referral linkages and transport facility were the root causes identified contributing for low attendance of skilled delivery service at Gindeberet hospital. To increase utilization of this service of the hospital the capstone intervention project implemented the intervention and the following results were seen in the hospital.

Pre-intervention and post intervention skilled delivery service utilization:

Even though it is difficult to generalize the capstone intervention project brings the improvement in utilization of delivery service of Gindeberet Hospital by only this intervention, table 6 below delivery register extracted figures in comparison of pre-intervention and post-intervention periods shows an increase in deliveries. The result is complying with the objective of this capstone intervention project.

Table 6: Mothers who attended delivery service of Gindeberet Hospital, pre-intervention, Intervention and post-intervention period (Dec-Apr.2004 E.C)

Period	Months	No of Delivery
Pre-intervention	Sep	20
	Oct	15
	Nov	9
Total(pre)		44(15/month)
Intervention period	Dec	43
	Jan	55
Post Intervention Period	Feb	50
	March	63
	April	45
Total(post)		158(53/month)

Medical equipment and supplies:

Inadequate care and care that didn't conform to protocols were among the most prevalent cause of poor quality care (8). Inventory of medical and delivery equipments were done by the PI during the pre-intervention period. The inventory was taken and the percentage of available equipment was seen against minimum requirements set for delivery. By this investigation only 22%of needed equipments were available for use. The senior management team of the hospital had seen it as a major factor of low delivery performance of the hospital. So, the equipment was fulfilled for the delivery room from the internal revenue of the hospital and makes it readily available for the intended activity per national standards listed by Ministry of Health.

Staff:

The main factors leading to maternal death in Egypt were poor management and diagnosis by the obstetric care team was 47%. Provider competence implies accurate knowledge about the disease, problem or condition, technical proficiency in providing safe and appropriate clinical treatment known to produce an impact on mortality, morbidity or the existing condition and knowledge of procedures for referring cases which cannot be adequately managed (9).Structurally District hospitals in the region require three midwives, one Gynecologist, and a

minimum of two scrub nurses in the Operation Room (OR). Table 5 below shows structurally required, available in pre-intervention period; and deployed skilled health professionals for labor and delivery ward by this capstone project.

Table 5: Distribution of health professionals for delivery unit, Gindeberet Hospital, Apr/2012,

S/n	Level of profession	Pre-intervention			Post-intervention	
		Required	Available	%Achieved	Available	Achieved
1	Gynecologist/Obstetrician	1	0	Not achieved	1	achieved
2	Emergency Gyn/Obs	1	0	Not achieved	1	achieved
3	midwives	3	3	achieved		
4	General Nurses(scrub)	2	0	Not achieved	2	On training

Free Maternity service

Findings of a confidential enquiry into maternal deaths in Ghana showed that fee exemption helped early arrival of women with obstetric complication to hospitals (10). Based on the discussion held with maternity service professionals and structured interviews collected from ANC follow up mothers Payment for maternity service was identified as a cause for low skilled attendance at Gindeberet Hospital. This was proposed by the PI and hospital Management team and submitted to the hospital board. By the mandates vested on the board to improve health care service of the people, the board decides “delivery service is free of any payment”.

Referral linkage and transportation:

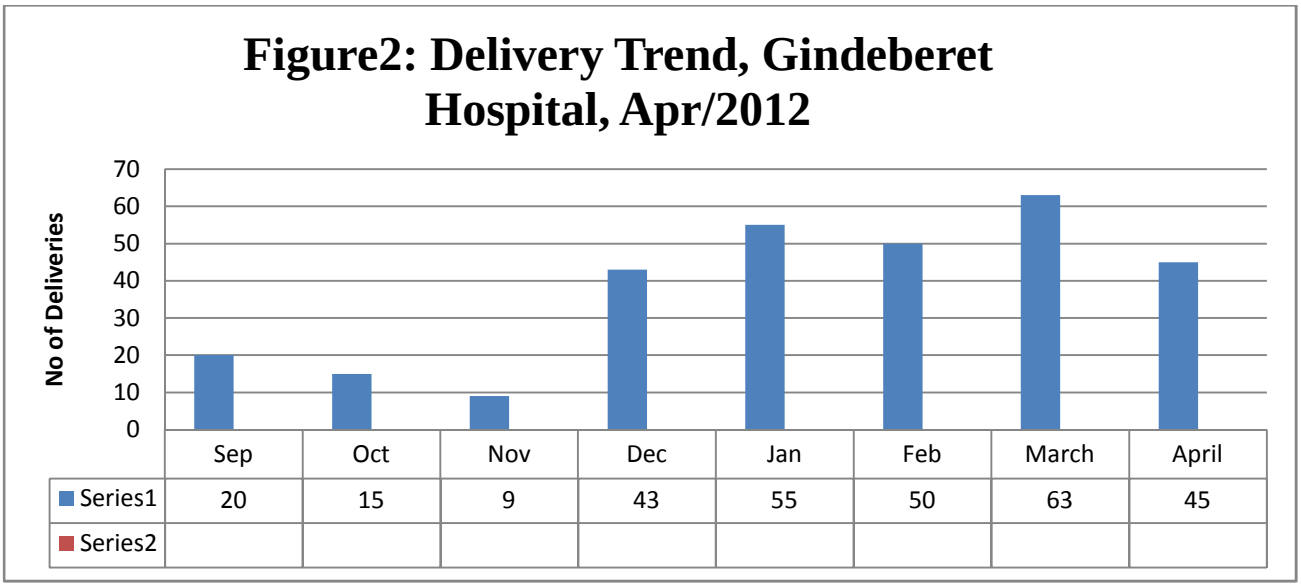
Readily available transport to link all levels of maternal health care, especially in emergencies is a characteristic of a well-organized system of formal maternity care (WHO, 1991). In relation to this, this capstone intervention project was identified absence of referral agreement with the catchment health facilities and transportation problem as one of the root cause for low skilled

delivery attendance of the hospital. As an intervention the hospital signed referral agreement with catchment health facility and the hospital ambulance was made readily available on call received from the health centers.

Discussion

Only about one-third of ANC attendants have delivered in public health facilities. Much attention shall be given to improve the access and utilization of maternal health care services particularly delivery and postnatal care services by adequately staffing all the HCs and hospitals with a midwifery skills. Furthermore, continuing in safe and clean birth and newborn care for HEWs will also contribute a lot in accessing those in unreached areas, improving in birth preparedness and complication prevention, strengthening referral linkages with the HCs and the use of skilled delivery assistance at the HCs and Hospitals (HSDP IV).

The capstone intervention implementation was started in month of December 2011 by specifically looking into the root causes that limits skilled birth attendance rate, especially among those who had ANC at Gindeberet Hospital. The needed equipment was fulfilled, focus group discussion was conducted, intensive health education, and interpersonal communication with mothers at MCH/ANC department had been provided on the need for hospital deliveries. Needed setup to do C/S was created, provision of C/S initiated and 16successful procedure had been carried out during the last 2 months and one obstetrician had been assigned to train two GPs to insure sustainability. The following table shows delivery trends of Gindeberet hospital for the last eight months.



Objective	pre	post	T-Statistic	P-value (95% CI)
Increasing skilled delivery attendance	44(15/month)	158(53/month)	26.83	<0.00001

Strength and limitation

Strength

- Capstone intervention project is not only identification of a problem but also it implements the recommended solution to the capacity of individual institution which could be scaled up by others.

Limitation:

- Since the capstone project is a hospital based it does not cover all expected pregnancy of the hospital; so the data doesn't represent the catchment population.
- Limited time to measure and conclude the result/improvement is from the capstone intervention
- Change in attitude takes long time and it should be done at community level; but this capstone project covers only ANC mothers who come to the hospital on their time.
- Most of the mothers who included in the intervention process deliver after the final data collection by their gestation period

Conclusion and recommendation

Conclusion:

The result of this capstone intervention project indicates that simple and focused activities could improve the efficiency of service delivery, confidence of the community to utilize the service and sustainability of initiated services.

Recommendation:

- Studies which represent expected pregnancy of the catchment pregnant women
- Intervention which are to change the whole community attitude towards skilled delivery attendance not only ANC following mothers.

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Annex 1: Gestation period of ANC mother (Sample)

Annex 2: Facility Audit (assessed need)-Sample

S/N	Instrument	Facility Need	Available	% achieved
1	Kidney Dish	8	2	25
2	Artery Forceps	9	3	33.3
3	Metal Catheter	5	1	20
4	Tissue Holder	4	2	50
5	Tissue Forceps	4	2	50
6	Sponge Forceps	4	2	50
7	Can	3	1	33.3
8	Suction Machine	1	0	0
9	Heater	1	0	0
10	Thermometer	2	0	0
11	Breast Pump	2	0	0
12	Refrigerator	1	0	0

	Card No	Kebele	Age	Date of visit	Gestation in weeks for Mothers On ANC	Dec	Jan	Feb	Mar	Apr	May	June
1	010984			01/03/'04	26_{wks}	30_{wks}	34_{wks}	✓				
2	022144			04/03/'04	8_{wks}	12	16	20	24	28	32	✓
3	022166			04/03/'04	16_{wks}	20	24	28	32	✓		
4	020440			04/03/'04	12_{wks}	16	20	24	28	32	✓	
5	022205			04/03/'04	18_{wks}	22	26	30	34	✓		
6	022208			04/03/'04	26_{wks}	30	34	✓				
7	011019			05/03/'04	20_{wks}	24	28	32	✓			
8	022274			05/03/'04	16_{wks}	20	24	28	32	✓		
9	022324			06/03/'04	16_{wks}	20	24	28	32	✓		
10	010563			07/03/'04	20_{wks}	24	28	32	✓			
11	010563			07/03/'04	16_{wks}	20	24	28	32	✓		

Annex$_{3:}$ Discussion Guide for Mothers (ANC):

1. Well come the group and introduce yourself (facilitator) and your note taker and explain your roles. Request permission to tape record the discussion and explain that it is needed to capture ideas that emerge from the discussion. Explain to participants that written reports will not include names and the tapes not be shared outside the study team. You should also remind participants to guard confidentiality of the discussion.
2. Explain the goal of the discussion which is exploring reasons for underutilization of the Hospital's delivery service
3. When you end the discussions you can ask the participants to summarize what was said.

Topics for discussion:

1. Where do women deliver in your area?
2. Do women in your area go to hospital when they are in labour?

   If yes, in what circumstances do they go to the institution?

   If no, why don't they go to the Hospital, any factor at home, institution, any other?

   When shall women in labour go to health institution?
3. Are there any institutional factors that influence utilization?

   Do you or women in your area know that delivery services are available in this hospital?

   Are women who deliver in hospital expected to pay?
4. How does the decision making process looks like?

   Under what circumstances is laboring women taken to health institution?

   Who makes the decision to take the labouring women to health institution?