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Predictors and Complications of Prematurity in Two Health Facilities in Fako Division, Southwest Region, Cameroon

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Abstract

Background: Prematurity is the leading cause of neonatal mortality. Most preterm births can be associated to an identifiable risk factor. In Cameroon, especially in the Southwest Region, there is limited data regarding prematurity associated risk factors. The aim of this study was to evaluate the risk factors and complications of prematurity in two health facilities in the Fako division, the BRH and RHL. **Methods:** A hospital based retrospective case control study was done from the 1st of January 2021 to 28th of February 2022. We assessed the gestational ages at which preterm birth occurred and their short-term outcome using a structured pretested questionnaire to collect data from files. Data was analyzed using Statistical Package for Social Sciences (SPSS) version 26. **Results:** The minimum sample size was 137 preterms. 45.5% of cases were born between 34 and <37 weeks of gestation. Advanced maternal age (AOR: 1.146; 95% CI: 1.013 - 1.297; p = 0.030), secondary level of education (AOR: 5.545; 95% CI: 1.962 - 15.667; p = 0.001), rural resident (AOR: 2.626; 95% CI: 1.087 - 6.347; p = 0.032), prenatal alcohol consumption (AOR: 3.261; 95% CI: 1.445 - 6.913; p = 0.004) increased the risk of having a preterm birth meanwhile being married (AOR: 0.410; 95% CI: 0.217 - 0.773; p = 0.006) decreased the risk. Hospital complications were neonatal infection 103 (51.5%), respiratory distress 79 (39.5%) and neonatal jaundice 61 (30.50%). Among the cases, 97 (48.50%) stayed in the hospital for 2 to 4 weeks and 177 (88.5%) were discharged alive. **Conclusions:** Modifiable factors that increased the risk of prematurity were advanced maternal age, secondary level of education, rural residence, and prenatal alcohol consumption. Being married decreased the risk. The most common hospital complications in both the cases and

controls were neonatal infection, respiratory distress syndrome and neonatal jaundice.

Keywords

Prematurity, Gestational Age, Risk Factors, Complications, Outcome

1. Background

Preterm birth (PTB) is defined by the World Health Organization (WHO) as babies born before 37 completed weeks of gestation or less than 259 days counted from the first day of a woman's last normal menstrual period but after the age of viability [1]. The age of viability varies between different countries. It is 22 weeks for WHO, 23 weeks for ACOG (American College of Obstetrics and Gynecology), 28 weeks for FIGO (International Federation of Gynecology and Obstetrics), 22 weeks for CGOF (College of Gynecology and Obstetrics France), and 23 weeks for RCOG (Royal College of Obstetrics and gynecology). Preterm births can be classified based on the gestational age as: extremely preterm (<28 weeks), very preterm (28 - <32 weeks), moderately preterm (32 - <34 weeks), and late preterm (34 - <37 completed weeks of gestation). It can also be grouped into two as being spontaneous or provider initiated preterm birth [2]. Prematurity is the most frequent cause of neonatal death and the second most frequent cause of death in children aged <5 years worldwide accounting for 1 million deaths annually [1]. In our setting, a study carried out by Agborndip *et al.* in Buea, 2020 reported that the main causes of neonatal mortality were birth asphyxia (66%), complications of prematurity (14%), neonatal sepsis (10%), meningitis (7%), and pneumonia (3%) [3].

Approximately 15 million babies are born preterm every year worldwide, resulting in a global preterm birth rate of about 11% [1]. The burden of preterm birth ranges from 5% in some European countries to 18% in some African countries. It is clear that low- and middle-income countries (LMICs) like Cameroon account for the majority of the world's preterm births with 60% of preterm births occurring in sub-Saharan African/south Asian countries [4]. The frequency of pregnancies affected by preterm birth (PTB) is rising in Africa with a prevalence of 7.4% [5]. According to the UNICEF data for prematurity in Cameroon, the preterm birth rate is estimated to be 13% [6]. In Yaounde, the rate of premature birth was also 13% in 2020 as reported by Mah *et al.* [7]. In high income countries, about 50% of preterm infants born at 24 weeks survive the first 28 days of life (the neonatal period), rising to 90% at 28 weeks of gestation. In contrast, in low-income countries like Cameroon, less than 10% of those born at 28 weeks will often survive, and it is only those born at 34 weeks of gestation or later that have survival rates of above 50% [8].

The risk factors of prematurity could be grouped as being maternal or fetal risk factors. The maternal risk factors could further be divided into two as being

sociodemographic factors and medical factors [9]. Sociodemographic factors such as low socioeconomic status, low level of maternal education, marital status, maternal alcohol consumption and smoking, low or high body mass index (BMI) and maternal age [10]. Medical factors include Preterm premature rupture of membranes, eclampsia and pre-eclampsia, diabetes mellitus, obesity, hypertension, urinary tract infection, antepartum hemorrhage which commonly result from placental abnormalities, HIV status of the mother [11]. Fetal conditions such as, multiple pregnancy, birth defects, limited access to antenatal care services [12]. Moreover, having a history of preterm birth is a risk factor for future preterm birth [13].

Infants born preterm as compared to term infants are more likely to experience short term complications such as feeding difficulties, hypothermia [14], respiratory distress syndrome, neonatal infections and jaundice, necrotizing enterocolitis and hypoxic ischemic encephalopathy [8]. The risk of most short-term complications increases by decreasing gestational age [15]. The advance in neonatal care in the last few decades has increased the survival rate of more premature infants but despite the increase in the survival rate, some children who survive suffer lifelong complications like learning disabilities from visual, hearing and cognitive problems, cerebral palsy, seizures, repeated infections, bronchopulmonary dysplasia, and periventricular leukomalacia [15].

Though the risk factors for prematurity are known and primary prevention of prematurity is emphasized during maternal education at ANC visits, prematurity remains a major public health problem [16]. Although other studies have been carried out to describe the risk factors of prematurity in other regions of Cameroon, progressive approaches to studying this long-standing public health problem are essential as risk factors vary in time and within geographical localities [16]. Our study therefore adds to existing knowledge and will provide information needed for primary and secondary prevention strategies targeted towards reducing the burden of prematurity in our setting and achieve Sustainable Development Goal 3 which says ensure healthy lives and promote wellbeing for all at all ages. So, the aim of this study was to evaluate the risk factors of prematurity and its complications in preterm babies admitted in the Buea Regional Hospital (BRH) and Regional Hospital Limbe (RHL).

2. Materials and Methods

During a period of two months from 7th of March 2022 to 8th of May 2022, we reevaluated files of preterm babies born within the 1st of January 2021 to 28th of February 2022 using a hospital based retrospective case control study at the neonatology units and maternities of the BRH and RHL of the Fako Division of the Southwest Region of Cameroon. The RHL is the principal referral level hospital in the region and the BRH is the second referral level hospital in this region with each having at least one specialist in pediatrics, obstetrics and gynecology, internal medicine, and surgery. Apart from these specialists, this is a huge turnover of patients in these health facilities.

The study population was made up of a 1:1 case and unmatched control. The cases were preterm babies and their mothers born before 37 completed weeks of gestation while the controls were term babies and their mothers born between 37 and 42 completed weeks of gestation. Included in the study were all files of preterm and chosen control term babies admitted in the BRH and RHL during the study period, while incomplete files of term and preterm babies (files with up to 50% of unavailable data) were excluded from the study and a consecutive sampling method was used in selecting the cases and controls. The estimated sample size was 137 cases and 137 controls using the Schlesselman formula. Administrative authorization was obtained from the Regional Delegation of Public Health for the Southwest Region and the Directors of the health facilities involved in the study; of BRH and RHL. The ward charge of the neonatology units and maternities of these health facilities were then informed about the study and permission was granted to access the concerned registers and files of these hospitals and also administer questionnaires to the mothers of the preterm and term babies for completion of data. After obtaining permission to gain access into the neonatology units and maternities of each hospital. Pretested structured questionnaires (pretested in the maternity of solidarity hospital) was used by myself and the trained medical student carrying out the research to get information of preterm and term babies in the neonatology units and maternities respectively that were admitted in the BRH, and LRH from 1st of January 2021 to 28th of February 2022 using files and hospital registers in a consecutive manner. Independent variables included: maternal sociodemographic characteristics: Age, level of education, occupation, nature of occupation, marital status, residence. While gestational age at birth, gender, birth weight, hospital complications, duration of hospitalization were investigated variables for the babies. The dependent variable was outcome of hospitalization. Due to the fact that we could not have complete data from the files, questionnaires were completed through Phone calls.

Data collected were coded and entered in excel sheets to avoid an accumulation of work at the end. The entered data was always cross-checked to minimize errors. Data were analyzed using Statistical Package for Social Sciences version 26.0 after data cleaning. Frequency tables were exported to Microsoft excel 2016 to draw charts. Categorical variables were presented as frequencies and percentages. Continuous variables were presented as means and standard deviations. The chi-square test was used to establish if there was a relationship between independent and dependent variables in the cases and control groups. All independent variables with p-values less than 0.05 in the chi-squared analysis were included in the final logistic regression model (multivariate analysis). Statistical significance was set at a p-value < 0.05 at a 95% confidence interval.

3. Results

A total of 327 preterm babies were hospitalized during our study period in both BRH and RHL with respect to the registers, 25 files were missing, 45 files were incomplete, and 57 files were from twin pregnancies. So, 200 files of preterm ba-

bies and 200 files for term babies were retained for the study. The mean gestational age of the cases was 32.85 +/− 2.45 meanwhile that of the controls were 39.26 +/− 1.808. Most of the cases admitted were late preterm 91 (45.5%). The cases were dominated by females 103 (52.3%) compared to the controls that were dominated by males 107 (53.5%). The mean birth weight of the cases was 1880.28 +/− 458.703 meanwhile that of the controls were 3399.35 +/− 632.899 as shown in Table 1.

The mothers had a mean age of 26.62 +/− 5.942 years with majority aged between 20 to less than 30 years 237 (59.3%). Most of our cases had attained secondary level of education 125 (62.5%) as compared to the controls where most had attained tertiary education 112 (56.0%). The age ≥ 40 ($p = 0.038$), primary and secondary education ($p < 0.001$), resident in the rural and semi-urban areas ($p < 0.001$) and marital status ($p < 0.001$) were all sociodemographic factors statistically correlating to the occurrence of prematurity on bivariate analysis. Most mothers were unemployed 88 (44.0%) as compared to the controls that were self-employed 80 (40.0%). Carrying out strenuous activities during pregnancy was statistically significant ($p = 0.023$) to the occurrence of prematurity with 29 (14.5%) in cases and 23 (11.5%) in the controls on bivariate analysis. Amongst the cases, 98 (50.5%) were overweight as compared to the controls where 84 (42.6%) were of normal weight. Nevertheless, the body mass index was not statistically significant to the occurrence of prematurity. Being HIV positive and consuming alcohol during pregnancy were positive determinants to the occurrence of preterm birth with p values at 0.006 and 0.001 respectively on bivariate analysis. In this study, 54 (27.1%) of the controls consumed alcohol compared to 28 (14.1%) in the cases. Premature rupture of membrane and multiple gestation were statistically significant to the occurrence of prematurity with both having p values of <0.001. Up to 100 (50.3%) of the cases had PPROM meanwhile only 34 (17.0%) of the controls had. Also, 47 (23.5%) of cases had twin pregnancies as opposed to 4 (2.0%) in the controls. Amniotic fluid abnormality on ultrasound and the number of antenatal visits during pregnancy was statistically significant to the occurrence of prematurity as both had p values of <0.001 on bivariate analysis. In the cases, 99 (49.5%) attended <4 ANC meanwhile 179 (89.5%) of the controls attended ≥4 ANCs. Complications such as pre-eclampsia ($p = 0.003$), anemia ($p < 0.001$) and placenta praevia ($p = 0.012$) were all positive determinants to the occurrence of prematurity. Preeclampsia occurred in 26 (13.0%) of the cases. The controls had 43 (21.5%) of anemia. There were 12 (6.0%) pregnancies with placenta previa in the cases as opposed to 3 (1.5%) in the controls.

Multivariate logistic regression was used to further analyze the associated factors to prematurity that were statistically significant following bivariate analysis to exclude confounders. Following this analysis, age of the mother >40 years, secondary level of education, rural residence, and alcohol consumption were all predictors of prematurity, while been married was a protective factor as illustrated in Table 2.

Table 1. Profile of term and preterm babies.

Variables	Cases, n (%)	Controls, n (%)
Gender		
Male	94 (47.0)	**107 (53.5)**
Female	**103 (52.3)**	93 (46.5)
Gestational age groups (weeks)		
22 - <28	3 (1.5)	_
28 - <32	47 (22.0)	_
32 - <34	62 (31.0)	_
>34 - <37	**91 (45.5)**	_
≥37	_	200 (100)
Birth weight(g) [M +/− SD]	**1880.28 +/− 458.703**	**3399.35 +/− 632.899**

Table 2. Multivariate analysis of factors associated with the occurrence of prematurity.

Variables	Adjusted OR	95% CI	p value
Age (years)⁺	**1.146**	1.013 - 1.297	**0.030**
Level of education			
Secondary	**5.545**	1.962 - 15.667	**0.001**
Residence			
Rural	**2.626**	1.087 - 6.347	**0.032**
Marital status			
Married	**0.410**	0.217 - 0.773	**0.006**
Alcohol consumption			
Yes	**3.161**	1.445 - 6.913	**0.004**

Six complications during hospitalization were assessed. The most common hospital complications were neonatal infection 103 (51.5%), followed by respiratory distress syndrome (RDS) 79 (39.5%) and neonatal jaundice 61 (30.50%) in the cases and for the controls we had neonatal infection 15 (7.5%), followed by neonatal jaundice 7 (3.5%), and lastly RDS 6 (3.0) as shown in Table 3. There was no statistical significance between the gestational age group and the complications. Majority of the cases stayed in the hospital for 2 to 4 weeks 97 (48.50%) for which most of them were discharged alive 177 (88.5%) as opposed to 23 (11.5%) who died. On the other hand, all the controls 200 (100%) spent < 1 week in the hospital and were all discharged alive, seen in Table 4.

4. Discussion

The burden of preterm birth is particularly high in low and middle-income countries, especially those in sub-Saharan Africa for which Cameroon is one. Progressive approaches to studying this long-standing public health problem are essential but to the best of our knowledge, no study has been conducted in the South West Region emphasizing on the risk factors of prematurity. Therefore,

Table 3. Hospital complications of term and preterm babies.

Variables	Cases, n (%)	Controls, n (%)
Neonatal infection		
Yes	**103 (51.5)**	**15 (7.5)**
No	97 (48.50)	185 (92.5)
RDS		
Yes	**79 (39.50)**	**6 (3.0)**
No	121 (60.50)	194 (97.0)
Hypothermia		
Yes	13 (6.50)	_
No	187 (93.50)	200 (100)
Neonatal jaundice		
Yes	**61 (30.50)**	**7 (3.5)**
No	139 (69.50)	193 (96.5)
Severe anemia		
Yes	19 (9.50)	1 (0.5)
No	181 (90.50)	199 (99.5)
NEC		
Yes	**7** (3.50)	_
No	193 (96.50)	200 (100)

Table 4. Duration of hospitalization and outcome of term and preterm babies.

Variables	Cases, n (%)	Controls, n (%)
Duration of hospitalization (weeks)		
≤1	85 (42.50)	200 (100)
2 - 4	**97 (48.50)**	**_**
>4	18 (9.00)	_
Hospital outcome		
Discharged	**177 (88.50)**	200 (100)
Dead	23 (11.50)	_

this study will add to existing knowledge and will go a long way to address some of the maternal risk factors of prematurity which can be identified and regarded with caution during antenatal consultations. This hospital based retrospective case control study was carried out to identify the average gestational ages for which most preterm delivery occur in the BRH and RHL, risk factors associated with the occurrence of prematurity, frequent hospital complications and outcome of these preterm babies.

We found out that preterm babies born between 34 to <37 weeks of gestation predominated while those born at less than 28 weeks of gestation were the least. A similar trend was found in retrospective studies carried out by Abdul-Mumin *et al.* in Ghana and Paudel *et al.* in Nepal [17] [18]. The very low prevalence of

extremely preterm babies in our study can be explained by the high stillbirth in this group. Regarding their sex, there was a male to female ratio of 1:1.1 in the cases indicating a female predominance as opposed to the controls where there was a male to female ratio of 1.2:1 indicating a male predominance. The finding in the cases was similar to those observed by Abdul-Mumin *et al.* in Ghana and Mustapha *et al.* in Nigeria [17] [19]. However, this finding was contrary to that of Chiabi *et al.* in Cameroon and Ayele *et al.* in Ethiopia who had a male predominance as it was the case in our control group [20].

Our study revealed that the occurrence of preterm birth increased with increasing maternal age. This finding was similar to those of Butali *et al.* in Nigeria and Wagura *et al.* in Kenya who reported that age of <20 years was protective against the occurrence of preterm births [5]. These results were however contrary to those reported by Alliance for Maternal and Newborn Health Improvement (AMANHI) Gestational Age Study Group in a study involving south-Asia and sub-Saharan Africa who found adolescent pregnancy to increase the risk of prematurity and Kudzo *et al.* in Ghana who stated that those aged 20 to 34 years were less likely to have preterm birth than those <20 years of age [21] [22]. Majority of our participants were 20 to 40 years of age in both the cases and control groups. This common age group (20 to 40 years) revealed in our study falls within the procreation age group of women in Cameroon that is between 15 and 49 years of age as stated by united nations population fund Cameroon (UNFPA). Also, most preterm births occurred in between the age of 20 to 40 years of age of unmarried ladies as this is the age group where most ladies believe they can secure a husband by bearing them a child.

Majority of the cases had secondary level of education as compared to the controls whose maturity had a tertiary level of education. Secondary level of education had a 5times increase risk of having a preterm birth. This result was similar to those of Chiabi *et al.* in Cameroon and Mekonen *et al.* in Ethiopia [23]. Nevertheless, this was contrary to the findings of Taha *et al.* in United Arab Emirates who reported that education level below secondary was associated to a 4 times more increase to the occurrence of preterm birth [24]. Also, Waguru *et al.* in Kenya reported that there was no association between level of education and preterm birth [11]. This probably reveals that most Cameroonian girls end their education at the secondary level. Many families view their daughters as a source of income hence don't see the need to further their education above the secondary level.

Rural resident was associated with 2 times increase in the occurrence of preterm birth. This result was similar to those of Muhumed *et al.* in Ethiopia and Ayebare *et al.* in Uganda [2] [25]. This could mean that to an extent, poverty could be associated to preterm birth as most of the inhabitants of rural areas usually are unemployed hence have a lower household wealth compared to those living in urban areas. This could also be explained by the fact that women in rural arears carry out a lot of strenuous activities being pregnant or not to support

and manage their families.

A good number of the controls were married as opposed to the cases where most of them were single. Our study found that being married, reduced the odds of having a preterm birth. This result was similar to the findings of Chiabi *et al.* in Cameroon and Alamneh *et al.* who gave evidence from the recent demographic and health surveys of sub Saharan-African countries [26]. This could be explained by the fact that, married women have financial and psychological support needed by all pregnant women to ensure adequate follow up of their pregnancy. However, Mekonen *et al.* in Ethiopia reported that there was an increase odds of the occurrence of preterm birth among married woman [23]. Also, Waguru *et al.* in Kenya and Ngandu *et al.* in a sub-Saharan Africa reported that there was no association between marital status and preterm birth [11] [27].

A lower proportion of both the case and control groups consumed alcohol during pregnancy. There was however a higher rate in the controls than with the cases. Lastly for the factors associated with the occurrence of preterm birth, we found that there was 3 times increase risk of preterm birth in mothers that consumed alcohol during pregnancy. This result was similar to those of Bayih *et al.* in Ethiopia [28]. They however took into account that this association occurred during the second and third trimesters, but not first trimester and when taken at higher rates. Our study compared women who consumed alcohol and those that did not consume irrespective of the gestational age. This could be explained by the fact that alcohol interferes with placenta perfusion and favors preterm birth in the second and third trimesters. In contrast to our findings, Waguru *et al.* in Kenya reported that there was no association between prenatal alcohol use and preterm birth [11].

The most common hospital complications in the cases were neonatal infection, followed by respiratory distress syndrome and neonatal jaundice meanwhile in the controls the most common complications were neonatal infection, followed by neonatal jaundice and respiratory distress. The occurrence of complications was quite lower in the controls comparatively. However, there was no statistical significance in associating these complications to the gestational age of the preterm babies. This result was similar to those of Paudel *et al.* and Kunle-Olowu *et al.* in Nigeria [14] [18]. This could be explained by the fact that the comparatively low socio-economic status of the cases usually doesn't permit them to do their third trimester infection checks, for example vaginal swab should be done between 34 and 36 weeks to prepare an infection free delivery. They stay with undiagnosed/untreated infection hence the higher rates of neonatal infection. The absence of exogenous surfactant in our setting could explain the higher levels of respiratory problems in the cases. Approximately 80% of preterm babies as opposed to 60% of term babies will develop jaundice, which usually appears 2 to 4 days after birth, and resolves spontaneously after 1 to 2 weeks [29]. This could explain the higher rates in the cases. However, our results were contrary to that of Ayele *et al.* in Ethiopia whose most frequent hos-

pital complications were hypothermia, respiratory distress and neonatal jaundice [20]. High rates of hypothermia were absent in our study due to the institution of kangaroo mother care (KMC) which keeps the babies warm hence prevents hypothermia.

Most preterm had a hospital duration of 2 to 4 weeks and 88.5% were discharged alive. Also, among the discharged, we had a decrease duration of hospitalization with increasing gestational age meanwhile in the control group, they all spent <1 week in the hospital and were all discharged alive. This finding was similar to that of Paudel *et al.* in Nigeria who had a 75.3% of cases discharged alive and Gupta *et al.* in India who had 76.5% [18] [30]. The very high rate of those discharged alive in the cases could be explained by the fact that our study population had a very low proportion of extremely preterm babies in which case mortality is comparatively higher.

5. Strengths

This is one of the few studies to be carried out in the South West Region on the risk factors of prematurity including the two referral hospitals in the South West Region.

6. Limitation

Very few files had complete information needed for the study hence the need for the phone calls for completion of data. This complex procedure caused us to exclude a good number of participants as it was impossible to work with data from the files alone in most cases hence our study could be affected by recall bias and social desirability.

7. Conclusion

The most frequent gestational age at which preterm births occurred was between 34 to <37 weeks, advanced maternal age, secondary level of education, rural resident and prenatal alcohol consumption were modifiable maternal factors increasing the risk of preterm births meanwhile being married reduce the risk of preterm birth. Amongst the hospital complications neonatal infection, respiratory distress syndrome and neonatal jaundice were the most common and most preterm babies spent about 2 to 4 weeks and their stay in the hospital was inversely related to their gestational ages.

Author Contributions

NM conceived the study and drafted the initial manuscript, KH and NV participated in data extraction and analysis, VS and NN reviewed and corrected.

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Conflict of Interest

The authors have no conflict of interest to declare.

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Appendix: Questionnaire

Date……...

CONSENT FORM

I …… having understood the study, after having the patient information sheet well explained to me, having been given the opportunity to ask questions, do hereby agree to participate in this study.

Signature of principal investigator or legal representative **Signature of participant/ representative**

Mother-baby pair code:

Mother

Age (years):

Height (m):

Weight (kg):

Modern serology

Positive ☐ Negative ☐

SOCIO-DERMOGRAPHIC DATA:

Tribe:

Level of education

No formal education ☐ Primary ☐ Secondary ☐ Tertiary ☐

Occupation

Employed ☐ Unemployed ☐ Self employed ☐

Nature of activity

Strenuous ☐ Not strenuous ☐

Residence

Rural ☐ semi urban ☐ Urban ☐

Marital status

Married ☐ cohabitation ☐ divorced ☐

Religion

Muslim ☐ Christian ☐ non ☐

SOCIAL HISTORY:

Alcohol consumption

Yes ☐ No ☐

Cigarette smoking

Yes ☐ No ☐

HISTORY OF PREGNANCY:

Preterm premature rupture of membrane

Yes ☐ No ☐ can't tell ☐

Multiple gestation

No ☐ twin ☐ triplet ☐ quadruplet ☐

Medical conditions in pregnancy

Pre-eclampsia ☐ Eclampsia ☐ Gestational diabetes ☐ non ☐

Assisted fertilization

Yes ☐ No ☐

Pregnancy interval (months):

Presence of uterine fibroids

No ☐ Yes ☐

Antepartum hemorrhage

Placenta previa ☐ Placenta abruptio ☐ Trauma ☐ non ☐

Age of pregnancy at first ANC visit (weeks):

Number of ANC visits

None ☐ <4 visits ☐ ≥4 visits ☐

Onset of labor

Spontaneous ☐ induced ☐ caesarian section (indication) ☐

Amniotic fluid disorder on ultrasound

Polyhydramnios ☐ oligohydramnios ☐ non ☐ can't tell ☐

Infections in pregnancy

Urinary tract infection ☐ Malaria ☐

STI (syphilis, chlamydia, hep B/C) ☐ non ☐ Others ☐

PAST HISTORY:

Past history of preterm delivery

Yes ☐ No ☐

History of chronic disease

Non ☐ hypertension ☐ diabetes ☐

Baby

Gestational age at birth (weeks):

Birth weight (grams):

Sex

Male ☐ female ☐

congenital abnormalities

yes ☐ No ☐

Short term complications

Neonatal infection ☐ Respiratory distress ☐ NEC ☐

Hypothermia ☐ Severe anemia Jaundice ☐

Outcome

Duration of hospitalization (weeks):

Discharged ☐ Dead ☐