

ACCELERATING IMPROVEMENTS IN MATERNAL AND NEWBORN HEALTH IN NORTHERN GHANA – Part I (BASED ON 4TH AND 5TH UN MDGs)

NEEDS ASSESSMENT REPORT

(For 7 Districts in Northern Region and 8 Districts in Upper East)

MAIN FINDINGS (UNEDITED RESULTS ONLY)

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**MAIN FINDINGS FROM NEEDS ASSESSMENT SURVEY ON EMERGENCY
OBSTETRIC CARE AND ESSENTIAL NEWBORN CARE**

RESULTS FROM UPPER EAST REGION

3.1 Facilities providing EmOC and ENC in Upper East Region

All the health facilities and the 8 districts in Upper East region were assessed to measure indicator 1a and 1b of the UN Modified Process Indicators, which determine the amount and quality of EmOC/ENC services available. Tables 1a to 1d provide the details.

Table 1a: Health Facilities and Districts Providing Comprehensive EmOC (C EmOC) Services in Upper East Region

EmOC Functions	Bolgatanga Regional Hospital	Bolgatanga Municipal	Bawku East	Bawku West	Kassena Nankana	Builsa	Bongo	Garu-Temppane	Talensi - Nabdam
Total No. of facilities	1	4	8	7	9	6	7	6	5
No. C EmOC Facilities	1	0	1	1	1	1	1	0	0
Parenteral antibiotics	1	0	1	1	1	1	1	0	0
Parenteral oxytocics	1	0	1	1	1	1	1	0	0
Magnesium sulphate/ parenteral sedatives/ anticonvulsants	1	0	1	0	1	1	1	0	0
Use of Partograph	1	0	1	1	1	1	1	0	0
Manual removal of placenta	1	0	1	1	1	0	1	0	0
Removal of retained products	1	0	1	1	1	0	1	0	0
Vacuum Extraction	1	0	1	1	1	1	1	0	0
Blood transfusion	1	0	1	1	1	1	1	0	0
Caesarean section	1	0	1	1	1	0	1	0	0
Anaesthetic Services	1	0	1	1	1	0	0	0	0

Table 1b: Health Facilities and Districts Providing Basic EmOC Services in Upper East Region

EmOC Functions	Bolgatanga Regional Hospital	Bolgatanga Municipal	Bawku East	Bawku West	Kassena Nankana	Builsa	Bongo	Garu-Tempene	Talensi- Nabdam
Total No. of Facilities	1	4	8	7	9	6	7	6	5
Parenteral antibiotics	0	1	3	0	4	2	0	3	5
Parenteral oxytocics	0	2	3	0	7	3	5	5	4
Magnesium sulphate / Parenteral sedatives / Anticonvulsants	0	1	0	0	4	0	5	2	5
Use of Partograph	0	2	3	0	6	2	1	2	4
Manual removal of placenta	0	2	0	0	7	1	3	2	4
Removal of retained products	0	1	0	0	6	1	0	2	5
Vacuum Extraction	0	0	0	0	0	0	0	0	0
Blood transfusion	0	0	0	0	0	0	0	0	0
Caesarean section	0	0	0	0	0	0	0	0	0
Anaesthetic Services	0	1	0	0	0	0	0	0	0

Table 1c: Health Facilities and Districts Providing Comprehensive ENC Services in Upper East Region

ENC Functions	Bolgatanga Regional Hospital	Bolgatanga Municipal	Bawku East	Bawku West	Kassena Nankana	Builsa	Bongo	Garu-Tempane	Talensi-Nabdam
Total No. of Facilities	1	4	8	7	9	6	7	6	5
1. Focused ANC	0	0	0	0	0	0	0	0	0
2. Birth Preparedness Planning	0	0	0	0	0	1	0	0	0
3. Prevention of Hypothermia	0	0	0	0	0	1	0	0	0
4. Infection Prevention	1	0	1	1	1	1	1	0	0
5. Early and Exclusive Breastfeeding in the facility	1	0	1	1	1	1	1	0	0
6. Education on Danger Signs (Newborns)	1	0	0	1	1	1	0	0	0
7. Neonatal Resuscitation	1	0	1	1	1	1	1	0	0
8. Postpartum Follow-up	0	0	0	1	0	0	1	0	0
9. Management of complications (mother and newborn)	1	0	1	1	1	1	1	0	0

Table 1d: Health Facilities and Districts Providing Basic ENC Services in Upper East Region

ENC Functions	Bolgatanga Regional Hospital	Bolgatanga Municipal	Bawku East	Bawku West	Kassena Nankana	Builsa	Bongo	Garu--Tempane	Talensi-Nabdam
Total No. of Facilities	1	4	8	7	9	6	7	6	5
1. Focused ANC	0	3	0	0	4	0	0	0	4
2. Birth Preparedness Planning	0	0	1	0	1	0	0	1	1
3. Prevention of Hypothermia	0	1	1	0	0	2	0	0	3
4. Infection Prevention	0	1	4	0	8	3	4	6	4
5. Early and Exclusive Breastfeeding in the facility	0	3	6	0	8	5	6	6	5
6. Education on Danger Signs (Newborns)	0	4	2	0	8	5	0	6	5
7. Neonatal Resuscitation	0	2	0	0	7	4	0	2	5
8. Postpartum Follow-up	0	4	0	0	0	0	2	0	1
9. Management of complications (mother and newborn)	0	1	0	0	6	0	0	1	5

3.2 Amount of EmOC and ENC services available

The number of facilities providing all the services required of a comprehensive or basic EmOC and ENC facility is on the low side. In the Upper East Region, with the exception of Bolga Municipal (regional hospital located here), Garu-Tempane and Talensi-Nabdam districts, all the rest have district hospitals. About two-thirds of these hospitals provide comprehensive EMOC services. ENC services in the region are very poor in both hospitals and health centres. Only Tongo Health Centre provides the basic ENC services in the whole region.

3.3 Blood

All the districts in the region have blood transfusion services at the district hospitals, except for Talensi-Nabdum and Garu-Tempene, the newly created districts. The Bolgatanga Regional Hospital doubles up as the municipal referral hospital.

3.4 Staffing

The region has 134 midwives located in all the facilities in the region. A little over 70% of them have been trained in LSS as well as EmOC with less than half the number (46%) being trained in ENC. All the midwives in Bawku West and Talensi-Nabdum districts were trained in EmOC/LSS. Over 90% of the midwives in the Bolgatanga Regional Hospital were trained in EmOC/LSS. However, only two (10%) of twenty midwives in Bawku East were trained in EmOC/LSS and one (5%) in ENC. Only one facility (Sumbrungu HC) out of the four facilities in the Bolgatanga MHT benefited from the training. None of the staff (midwives) in Kassena-Nankana and Garu-Tempene districts had had any training in ENC. There were 35 Medical Assistants in the region of which 63% were females. Only two of the female (22) Medical Assistants (Sumbrungu HC and Fumbisi HC) benefited in EmOC/LSS training and just one (Fumbisi HC) was trained in ENC. There was no Obstetrician in the region, except one Cuban and the only Paediatrician in the region is based at the War Memorial Hospital in Navrongo.

3.5 Geographical Distribution of Facilities

Table 3 below gives the breakdown of health institutions in Upper East region. There are fifty-three (53) health facilities in the region. Kassena Nankana district has the highest number of facilities (9) and Bolgatanga Municipal has the least (4) in the region. Apart from the regional hospital, which stands alone, the number of institutions in the region is made up district hospitals, health centres, clinics and maternity homes/clinics. There is no hospital in the newly created districts; Talensi-Nabdum and Garu-Tempene.

Table 3 Upper East Regional Health Institutions

	Name of Districts	Number of facilities
1	Bolgatanga Regional Hospital	1
2	Bolgatanga Municipal	4
3	Bawku East	8
4	Bawku West	7
5	Kassena-Nankana	9
6	Builsa	6
7	Bongo	7
8	Talensi-Nabdam	5
9	Garu-Tempane	6

3.6 Infrastructure of Health Facilities

The physical infrastructure of most of the old facilities needs refurbishment. Most of the facilities are without toilet facilities and running water. The Bolgatanga Regional Hospital has a very efficient running water system and well kept floors. There is also a good privacy for mothers and newborns. However, there is the need for more staff accommodation especially for midwives in the hospital premises.

3.7 Maternal Health

3.7.1 Case Fatality Rates (CFR)

The data analysed gave the CFR for direct obstetric conditions as follows: obstructed labour/ruptured uterus (11.2%), postpartum sepsis (5.6%), ectopic pregnancy (5.2%), haemorrhage (5%), eclampsia (2.3%) and unsafe abortions (1.2%). The CFR for the leading indirect obstetric conditions were hepatitis (2.7%) and anaemia (3.5%).

3.7.2 Met Need

Another indicator used to measure maternal health is met need for EmOC and ENC. This measures proportion of obstetric complications managed in health facilities. Ideally, it is 100%. Table 5 provides the met need of the various districts in the region..

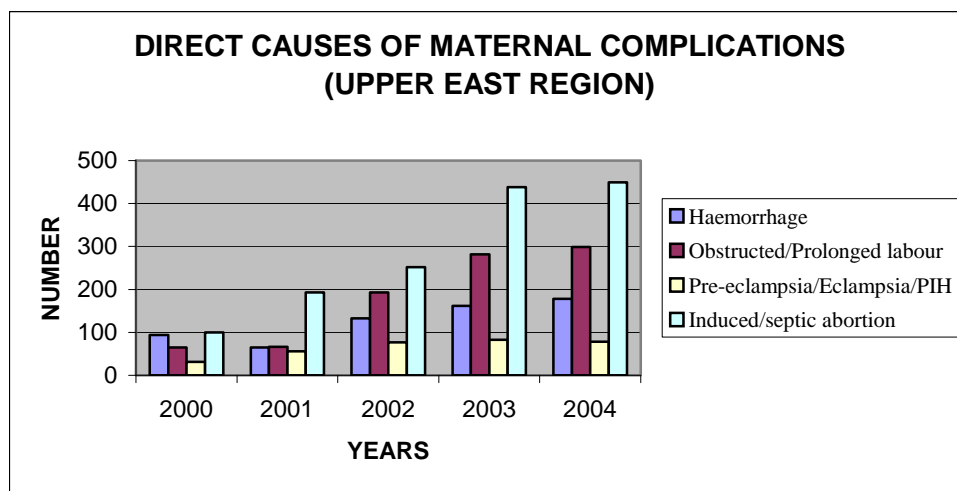
Table 5 Met Needs for Emergency Obstetric Care (EMOC) – UER

Name of District	Population	Expected Number of Complications	Number of Complications Treated	Met Need %
Bolgatanga	144,440	867	230	27
Bawku East	196,610	1180	402	34
Bawku West	84,214	505	186	37
Kassena Nankana	157,896	947	549	58
Builsa	78,747	472	171	36
Bongo	82,264	494	190	38
Talensi-Nabdram	95,558	573	16	3
Garu-Tempene	128,294	770	74	10

In Upper East Region, met need for obstetric care ranged from 3% in Talensi-Nabdram to 58% in Kassena-Nankana in year 2004.

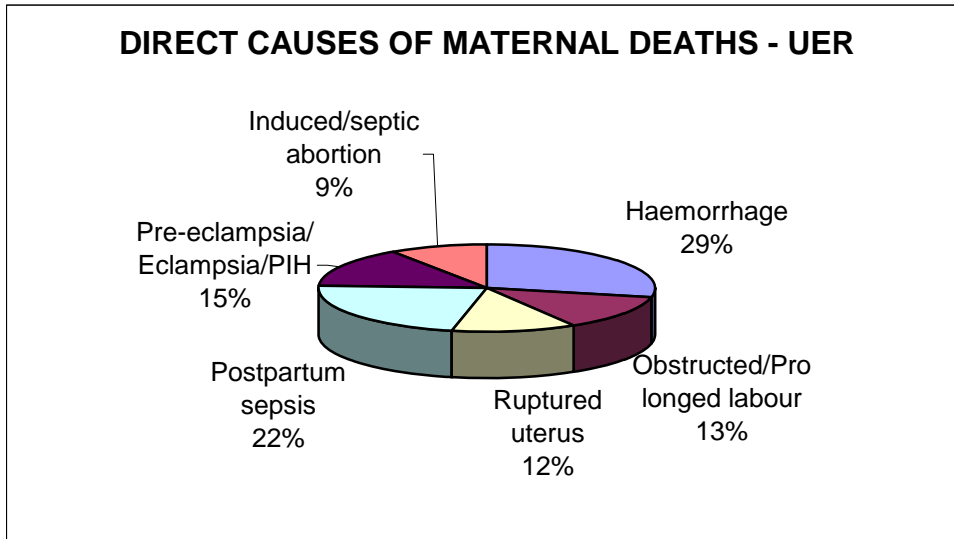
3.7.3 Obstetric Complications

The leading causes of direct obstetric complications in the region were unsafe abortion (28%), obstructed labour (18.7%) and haemorrhage (17%). The leading indirect obstetric complications were malaria (45.8%) and anaemia (18.6%). Figure 1 shows the proportion of direct maternal complications over the last 5 years.

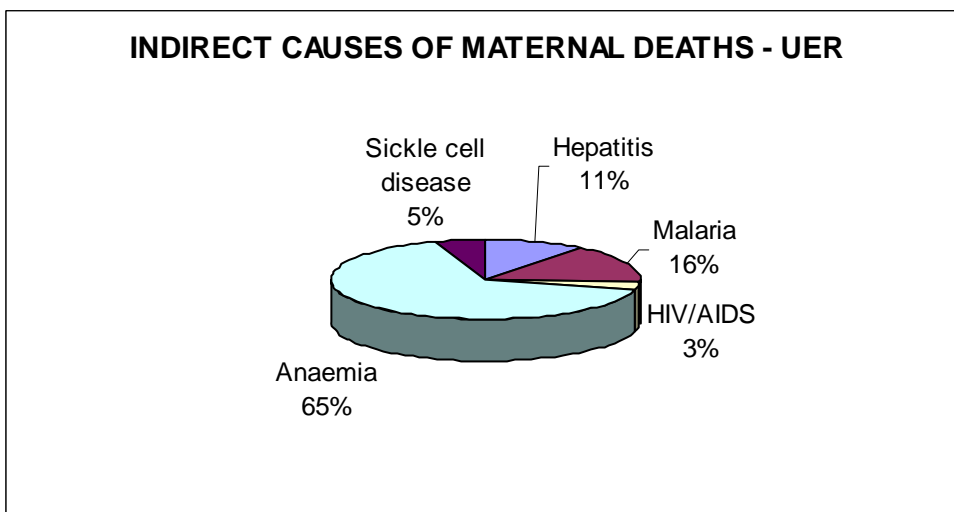


3.7.4 Maternal Deaths

In the Upper East region about a third of all direct maternal deaths is caused by haemorrhage (29%) with postpartum sepsis contributing 22%. Figure 2 provides the details.



Anaemia (65%) is the major indirect cause of maternal death in the region and contributes as much as about two-thirds of the total indirect deaths. The rest are malaria and hepatitis, 16% and 11% respectively. Figure 3 below shows the causes of indirect maternal deaths.



3.8 Caesarean Sections

None of the districts was able to meet the minimum caesarean sections rate of 5% of all expected births in a given population. From Table 6 below the best districts (Bolgatanga, Bawku East and Kassena-Nankana) made about 2% of the expected number of births, which is far below the minimum (5%) standard. Talensi-Nabdam and Garu-Tempene districts have no hospital.

Table 6 Caesarian Sections in EmOC Facilities – UER

Name of District	Population 2004	Expected No. Births	Actual Deliveries	Caesarean Sections	CS/ Expected	CS/ Actuals
Bolgatanga	144,440	5,778	1,808	125	2.2	6.9
Bawku East	196,610	7,864	3,409	189	2.4	5.5
Bawku West	84,214	3,369	1,088	30	1.0	2.8
Kassena- Nankana	157,896	6,316	1,824	132	2.1	7.2
Builsa	78,747	3,150	888	37	1.2	4.2
Bongo	82,264	3,291	768	-	0	0
Talensi- Nabdam	95,558	3,822	563	-	0	0
Garu- Tempene	128,294	5,132	1,229	-	0	0

3.8 Proportion of Births in Health Facilities

The table 7 below shows deliveries supervised by qualified midwives at the various health facilities. None of the districts made a supervised delivery rate of 50%. This means that there are more than half of all deliveries not attended to by qualified health personnel. The supervised delivery rates achieved by the districts ranged from 16% (Talensi-Nabdam) to 43% (Bawku East).

Table 7 Births in Health Facilities – UER

Name of District	Population	Expected No. Births	No. Births	%
Bolgatanga	144,440	5778	1,804	31
Bawku East	196,610	7864	3,402	43
Bawku West	84,214	3369	1,088	32
Kassena Nankana	157,896	6316	1,824	29
Builsa	78,747	3150	888	28
Bongo	82,264	3291	768	23
Talensi-Nabdam	95,558	3822	563	15
Garu-Tempene	128,294	5132	1,229	24

3.9 Newborn Health

3.9.1 Case Fatality Rate

From the regional figures, the leading case fatality rates for the newborn were birth injuries (50%), birth asphyxia (14%), sepsis (31.3%), prematurity (23.4%), neonatal tetanus (33.3%), congenital anomalies (11.8%) and pneumonia (4%). It must be stated here that data for both neonatal complications and deaths were very scanty and therefore interpretation of results must be with caution.

3.9.2 Neonatal Complications

The region data analysed, revealed that the leading causes of neonatal complications are birth asphyxia (22.2%), sepsis (17.6%), Prematurity (10.4%), neonatal tetanus (8.7%) and pneumonia (6.6%). Data for neonatal complications was very scanty and therefore interpretation of results must be with caution.

3.9.3 Neonatal Deaths

From the data analysed, the leading cause of neonatal death in the region is sepsis (25.2%), birth asphyxia (14.1%), prematurity (13.7%), neonatal tetanus (9.2%) and pneumonia (4.9%).

3.9.4 Low Birth Weight (<2.5kg) and Stillbirths

The table 8 below gives the low birth weight and stillbirth rates for the Upper East Region. All the districts have high proportion of births weighing less than 2.5 kilogram ranging from 1.4% to 22.3%, with mean of 11.5 (± 4.8 SD). With the exception of Bongo and Talensi-Nabdam districts which never recorded low birth weight above 10% over the period, the rest are above 10% with some as high as 22.3%. Bolgatanga Municipality and Bawku West showed signs of declining rates over the years. Kassena-Nankana district consistently registered the highest rates ranging between 10.4% and 22.3%.

The stillbirth rates for the region ranged from 0.4% to 8.1% with an average of 3 (± 1.7 SD). The Regional Hospital recorded the highest value (8.1%) and the least was recorded in the Bolgatanga Municipal (0.4%) during the five-year period. The stillbirth rates for the Bolgatanga Municipality were diminishing and somehow stable. Bawku East and Builsa districts also showed declining rates. However, the rate for Bolgatanga Regional Hospital rose from 1.0% (2000) to 8.1% (2004). This rise may be due to improved recording keeping.

Table 8 Low Birth Weight and Stillbirth Rates from 2000-2004 in UER

DISTRICTS	Low Birth Weight Rates (%)					Stillbirth Rates (%)				
	2000	2001	2002	2003	2004	2000	2001	2002	2003	2004
Bolgatanga Regional Hospital	10.9	6.8	16.2	15.1	16.3	1.0	0.8	1.0	5.7	8.1
Bolgatanga Municipal	17.7	12.4	10.9	10.3	9.2	1.8	2.3	2.0	0.6	0.4
Bawku East District	11.8	13.5	14.7	9.4	12.1	5.9	5.1	4.8	4.8	4.5
Bawku West District	12.1	19.3	13.1	10.4	8.9	3.9	5.2	5.0	3.5	4.0
Kassena-Nankana District	21.1	14.0	16.6	22.3	10.4	2.4	1.9	3.1	2.9	3.3
Builsa District	11.1	14.4	8.8	8.6	8.7	4.9	5.2	3.3	3.0	3.0
Bongo District	7.2	7.0	3.2	9.2	7.8	2.6	2.9	1.2	3.0	2.1
Garu-Tempene District	8.0	14.0	19.2	15.4	17.2	1.3	1.7	2.9	2.7	1.7
Talensi-Nabdam District	3.9	3.4	1.4	6.3	5.4	1.0	3.4	0.7	1.4	1.7

3.10 Performance of Districts and Individual Facilities

3.10.1 Bolgatanga Regional Hospital

3.10.1(i) Amount of EMOC and ENC

The regional hospital being a tertiary institution provides all the nine types of services of an EmOC facility and therefore qualifies as a comprehensive services provider. Meanwhile, it does not provide basic ENC services since the hospital provides only five out of the nine ENC functions for the newborn. It does not provide focussed ANC, birth preparedness planning, prevention of hypothermia and postpartum follow-up. See table below:

Table 9 Availability of Emergency Obstetric Care (EmOC) and Essential Newborn Care (ENC) at the Bolgatanga Regional Hospital

Range of Services for EMOC	SCORE	Range of services for ENC	SCORE
Parenteral antibiotics	1	1. Focused ANC	0
Parenteral oxytocics	1	2. Birth Preparedness Planning	0
Magnesium sulphate/parenteral sedatives/anticonvulsants	1	3. Prevention of Hypothermia	0
Use of Partograph	1	4. Infection Prevention	1
Manual removal of placenta	1	5. Early and Exclusive Breastfeeding	1
Removal of retained products	1	6. Education on Danger Signs (Newborns)	1
Vacuum Extraction	1	7. Neonatal Resuscitation	1
Blood transfusion	1	8. Postpartum Follow-up	1
Caesarean section	1	9. Management of complications (mother and newborn)	1
Anaesthetic Services	1		
Total Score	10	Total Score	5

1 = Service available 24 hours daily, 0 = Unavailable

3.10.1(ii) Drugs and supplies

The availability of equipment for EmOC in the Regional Hospital is much better than that of the ENC. However, there are a few shortages with some equipment such as ovum forceps, sterilizers and emergency packs. The hospital can only boast of very few needed

equipment for ENC services. These are Self-inflating resuscitation bag, Laryngoscope with neonatal blades, Oxygen cylinder / source with humidifier, Face masks (newborn sizes), stethoscopes and thermometer, just to mention a few.

There is a good stock of drugs for EmOC services but the same cannot be said for ENC drugs. At the time of the survey there were stock-out for these ENC drugs in the hospital; Adrenaline, Phenytoin, 70% Alcohol and 0.5% Chlorine solution for decontamination.

3.10.1(iii) Maternal Health

The proportion of obstetric complications managed in the hospital (met need) is less than a third of the expected (27%). This coverage also stands for the Bolgatanga municipality since all the obstetric complications here are treated at the regional hospital.

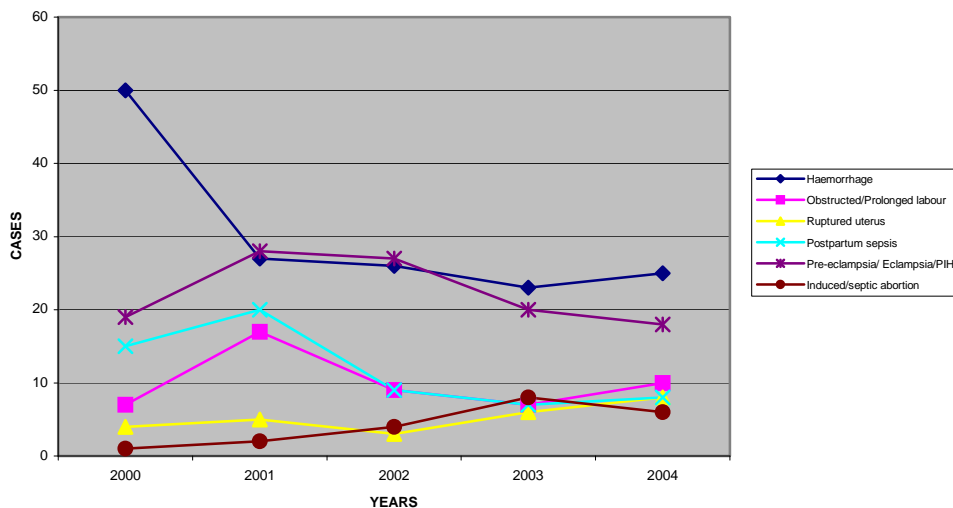
The data for the regional hospital showed that the leading direct causes of maternal deaths were obstructed labour / ruptured uterus (26.1% of direct causes), sepsis (21.5%), eclampsia (18.5%) and haemorrhage (7.7%). For the indirect causes, at the regional hospital, these were anaemia (27.3% of indirect causes), malaria (6.1%) and hepatitis (6.1%). These findings on maternal deaths should be interpreted with caution since record keeping was generally poor.

3.10.1(iv) Obstetric Complications

At the Bolgatanga Regional Hospital, the leading cause of direct obstetric complication is haemorrhage (22.8%), next is obstructed labour (11.5%) and postpartum sepsis (8.9%). The indirect causes are malaria (58.7%) and anaemia (24.8%). Over the years, there was a drastic drop in the number of haemorrhage complications from 50 in 2000 to 25 in 2004. There is a consistent increase in unsafe abortions over the years.

The indirect complications (malaria and anaemia) have been very erratic over the years. Surprisingly there were no cases of ectopic pregnancy over the five-year period (2000-2004) at the hospital. Figure 4 provides the details.

Bolgatanga Regional Hospital Direct causes of Obstetric Complication



3.10.1(v) Newborn Health

There was virtually no data from the hospital except for some pieces of information collected for 2000 and 2001. The leading causes of complication were pneumonia (28%), prematurity (52%) and Congenital anomalies (20%).

From the hospital records, there were no data for neonatal deaths for the period under review.

3.10.1(vi) Referral Mechanisms (radio/communication/transport)

The regional hospital is well connected with telephone but not radio links. The hospital has an ambulance that is used for referrals. There is reliable commercial transport service in its environs.

3.10.2 Bolgatanga Municipal Health Directorate

3.10.2(I) Amount of EmOC and ENC services available

All the five facilities in the municipalities do not qualify as a basic EmOC services provider. Vacuum extraction service is not available around the clock in any of the four

facilities in the district, but for this service, Zuarungu Health Centre would have qualified as a basic EmOC provider. Sherigu Health Centre offers only two of the EmOC range of services whilst Gambibgo Health Centre offers only one service type (use of partograph). Sumbrungu Health centre does not provide any of the services around the clock. Tables 10 and 11 summarise the main findings.

Table 10 Availability of Emergency Obstetric Care (EmOC)

Range of Services for EMOc	NAME OF FACILITIES			
	ZUARUNGU	SHERIGU	SUMBRUNGU	GAMBIBGO
Parenteral antibiotics	X			
Parenteral oxytocics	X	X		
Magnesium sulphate/parenteral sedatives/anticonvulsants	X			
Use of Partograph	X			X
Manual removal of placenta	X	X		
Removal of retained products	X			
Vacuum Extraction				
Blood transfusion				
Caesarean section				
Anaesthetic Services	X			
Total Score	7	2	0	1

Table 11 Availability of Essential Newborn Care (ENC)

Range of services for ENC	Facilities			
	ZUARUNGU	SHERIGU	SUMBRUNGU	GAMBIBGO
1. Focused ANC	X	X		X
2. Birth Preparedness Planning				
3. Prevention of Hypothermia	X			
4. Infection Prevention	X			
5. Early and Exclusive Breastfeeding	X	X	X	
6. Education on Danger Signs (Newborns)	X	X	X	X
7. Neonatal Resuscitation	X			X
8. Postpartum Follow-up	X	X	X	X
9. Management of complications (mother and newborn)	X			
TOTAL SCORES	8	4	3	4

For the ENC services in the municipality “Birth Preparedness Planning” is weak in all the facilities. Hence, none of the health facilities qualifies as a basic ENC service provider. But for Birth Preparedness Planning services, Zuarungu would have qualified as a comprehensive ENC centre. The rest of the facilities were providing not more than five of the seven services 24-hour by 7-days.

3.10.2(ii) Drugs and Supplies

All the health facilities in the district are well stocked with supplies like syringes, needles and sutures. However, basic equipment for EmOC services like vacuum extractors, ovum forceps, bladder catheters and sterilizers were not available in these facilities. Emergency packs could only be found at Zuarungu and Sumbrungu health centres and not the other centres. Gambibgo Health Centre lacked some items like vaginal speculum, artery forceps and gloves.

Although some ENC supplies and equipment were available at all the centres, they all lacked most of the equipment required for effective and efficient delivery of ENC

services. Some of the needed items were self-inflating resuscitation bag, laryngoscope with neonatal blades, Oxygen cylinder / source with humidifier, Face masks (newborn sizes), blood pressure monitoring equipment, endotracheal tubes 2.5- 4.0 and airways sizes 0,1,2.

The availability of drugs for EMOC services in the district is fairly good. All the facilities are well stocked with IV fluids, oxytocics and most antibiotics. Apart from Sumbrungu HC, all the facilities had no stock of magnesium sulphate and calcium gluconate. General anaesthetics and oxygen were also not available in all the four centres visited. In terms of EmOC drugs, Gambibgo Health Centre is somehow not well resourced.

Drugs for ENC services in the district were inadequate. Basic drugs like adrenaline, naloxone and phenobarbitone were not available at time of the study. Equally missing are drugs like, ampicillin, gentamicin, cloxacillin (available in Zuarungu and Sherigu HCs), 70% alcohol and 0.5% chlorine solution for decontamination. Apart from Gambibgo health centre all the rest are out of stock with chloramphenicol eye drops.

3.10.2(iii) Infrastructure of Health Facilities

With the exception of Zuarungu HC, which is a new health centre the remaining three facilities need refurbishment at the OPD, consulting rooms and the wards. The windows and the netting at Sherigu and Sumbrungu HC need urgent attention. Only the Zuarungu and Gambibgo Health Centres have good toilet facilities. Apart from Zuarungu, none of the three has a good water system, staff accommodation for midwives and privacy for mothers and newborns.

3.10.2(iv) Maternal Health

The Bolgatanga Municipal has the regional hospital located there, as such all obstetric complications are sent to the hospital for further treatment. Its met need coverage is 27%, which is the same for the regional hospital.

There was no maternal death recorded in any of the four facilities since all complicated cases were sent to Bolgatanga Regional Hospital.

3.10.2(v) Obstetric Complications

The four health centres within the municipality were not handling complications at their end, all such complications were referred to the regional hospital or the nearest referral point, hence there was nothing to report about. A few cases of malaria in pregnancy and other indirect cases were handled at the OPD but were not admitted.

3.10.2(vi) Newborn Health

The leading causes of neonatal complications were birth asphyxia (35.7%), prematurity (7.1%) and congenital anomalies (57.1%). The municipal data indicates that the leading causes of neonatal deaths were birth asphyxia (83.3%) and prematurity (16.7%).

3.10.2(vii) Referral Mechanisms (radio/communication/transport)

The district has a very good radio links in two facilities but not in Sherigu and Gambibgo Health Centres. Apart from Sumbrungu Health Centre, the rest have telephone facilities. With the exception of Zuarungu Health Centre, the rest have very unreliable public transport service.

3.10.3 Bawku East District

3.10.3(I) Amount of EmOC and ENC services available

The Bawku Presbyterian Hospital, which serves as the district hospital is the only facility that provides all the nine range of services around the clock and is a comprehensive EmOC provider. Two health facilities, Binduri Health Centre and Kadra Maternity Home, do not provide any of EmOC services around the clock. The rest of the facilities in the district provide either a single function or just three of the range of services around the clock. They are (Pusiga Health centre, Islam Maternity Home and Akunga Maternity Clinic) and (Widana Health Centre and Magnori Health Centre) respectively. Some of the services specifically absent in all the health centers are the availability of magnesium

sulphate/parenteral sedatives/anticonvulsants, manual removal of placenta, removal of retained products and vacuum extraction. Tables 12 and 13 provide the details

Table 12 Availability of Emergency Obstetric Care (Emoc)

Range of Services for EMOC	NAME OF FACILITIES							
	Bawku Hospital	Pusiga HC	Widana HC	Kadara MH	Islam MH	Akunya MC	Binduri HC	Magnori HC
Parenteral antibiotics	X		X			X		X
Parenteral oxytocics	X	X	X					X
Magnesium sulphate/parenteral sedatives/anticonvulsants	X							
Use of Partograph	X		X		X			X
Manual removal of placenta	X							
Removal of retained products	X							
Vacuum Extraction	X							
Blood transfusion	X							
Caesarean section	X							
Anaesthetic Services	X							
Total Score	9	1	3		1	1		3

Table 13 Availability of Essential Newborn Care (ENC)

ENC functions	Name of Facilities							
	Bawku	Pusiga	Widana	Kadara	Islam	Akunya	Binduri	Magnori
1. Focused ANC								
2. Birth Preparedness Planning					X			
3. Prevention of Hypothermia								X
4. Infection Prevention	X		X	X	X			X
5. Early and Exclusive Breastfeeding in the facility	X	X	X	X	X		X	X
6. Education on Danger Signs (Newborns)			X	X				
7. Neonatal Resuscitation	X							
8. Postpartum Follow-up								
9. Management of complications (mother and newborn)	X							
Total scores	4	1	3	3	3	0	3	3

The ENC service is below average in the district. None of the facilities provides more than three of the range of services for a newborn, not even Bawku Hospital. Functions like Focussed ANC and Postpartum Follow-up are not available in any of the facilities. The following functions are available in only a facility; prevention of hypothermia, birth preparedness planning, neonatal resuscitation and management of complications (mother and newborn). They are Islam Maternity Home, Magnori Maternity Clinic and Bawku hospital respectively.

3.10.3(ii) Drugs and Supplies

The equipment and supplies situation for EmOC in the district is very encouraging. Nevertheless, there are some missing items. Out of the eight facilities in the districts, only two (Bawku Hospital and Islam Maternity Home) have functioning vacuum extractors. There are four facilities (Widana HC, Kadara maternity home, Akunya maternity home and Magnori HC) without Ovum forceps. A set of emergency packs is available in only three facilities (Bawku hospital, Pusiga HC and Islam maternity home), the rest do not have.

ENC supplies and equipment is not as adequate as that of EmOC. Basic supplies like syringes and needles are evenly distributed in all facilities in the district. However, most basic equipment were not available all the facilities; self-inflating resuscitation bag (available here Bawku hospital and Islam maternity home). Apart from the hospital the other facilities lack laryngoscope with neonatal blades, oxygen cylinder / source with humidifier, face masks (newborn sizes), blood pressure monitoring equipment, endotracheal tubes 2.5- 4.0 and airways sizes 0,1,2.

With the exception of antibiotics, which are adequately stocked through out the district for EmOC services, drugs like magnesium sulphate (a lot available at Binduri HC) and calcium gluconate was out of stock. If not the hospital, general anaesthetics and oxygen was also not available in all the facilities visited. The drug situation for ENC in the district is evenly distributed all over the district. However, naloxone and phenytoin were out of stock in the whole district. Equally missing were 1/5th Saline 10% Glucose

(available in Islam MH), Sodium Bicarbonate (available in Bawku Hospital), 70% Alcohol (available in Bawku Hospital and Islam MH) and Chloramphenicol Eye Drops (available at the hospital, Widana HC, Magnori HC).

3.10.3(iii) Infrastructure of Health Facilities

In the district, except for Bawku Presbyterian Hospital, which had the consulting rooms and the wards renovated, the rest of the facilities need renovation. It is only the hospital, which has regular 24-hour electricity. The water and toilet systems are in a very poor shape in all the facilities in the district. Equally so is with staff accommodation at all the facilities. In all the facilities within the district, privacy for maternity and newborn is also very poor is.

3.10.3(iv) Maternal Health

The met need coverage for the district is 34%. The leading direct causes of maternal deaths were haemorrhage (31.7% of direct causes), obstructed labour / ruptured uterus (8.4%), postpartum sepsis (8.3%), eclampsia (5%) and unsafe abortion (13.3%). For indirect causes, the major causes were anaemia (24.3% of indirect), malaria (8.1%) and hepatitis (5.4%).

3.10.3(v) Obstetric Complications

Unsafe abortion is the leading cause of direct obstetric complication in the district. It takes about 40% of the total complications admitted at the hospital. This is followed by haemorrhage (16%), postpartum sepsis (13%) and obstructed labour (7%). The indirect causes are malaria (55%) and anaemia (25%). There was a gradual increase in the number of haemorrhage complications from 15 in 2000 to 47 in 2004. Unsafe abortions showed consistent increase in all the years. About 100% increase in 2004 (97) over that of 2000 (47). Malaria cases too are on the ascendancy, while that of anaemia remained quite stable over the period.

3.10.3(vi) Newborn Health

The district data shows that the leading causes of neonatal complications are neonatal tetanus (18.1%), sepsis (18.1%), birth asphyxia (6.8%), Prematurity (13.9%), pneumonia (11.1%) and diarrhoea (3.2%).

The analysis of the district data shows that the leading causes of neonatal deaths are sepsis (27.2%), neonatal tetanus (17.2%), prematurity (13.9%), birth asphyxia (9.3%), pneumonia (9.3%) and diarrhoea (1.3%). Neonatal deaths from birth asphyxia and prematurity are on the decrease whilst that of neonatal tetanus and pneumonia is on the increase.

3.10.3(vii) Referral Mechanisms (radio/communication/transport)

All the facilities are linked with radio but highly unreliable. With the exception of Bawku hospital, which has a good telephone connection, the connections in other facilities are undependable. Moreover, commercial transport for communities outside the district capital can only be obtained during market days.

3.10.4 Bawku West District

3.10.4(I) Amount of EmOC and ENC services available

With the exception of Zebilla Hospital, which provided almost all the EmOC services none of the remaining six health facilities provide any of the services at any time in the facility. But for the availability of Magnesium sulphate/parenteral sedatives /anticonvulsants around the clock in the hospital, Zebilla could have been classified as a comprehensive EmOC service provider.

The situation for ENC services is different from the EmOC in the district. It is only the hospital, which provides some of the ENC range of services. The following ENC functions are not available 24-hour/7-days in the district hospital; Focused ANC, Birth Preparedness Planning and Prevention of Hypothermia. All the ENC functions were either partially or not available in the health centres. Tables 14 and 15 provide the details.

Table 14 Availability of Emergency Obstetric Care (Emoc)

Range of Services for EMOC	NAME OF FACILITIES						
	Zebila Hospital	Sappellga	Binaba	Tilli/Widnaba	Zongoire	Googo	Yelwoko
Parenteral antibiotics	X						
Parenteral oxytocics	X						
Magnesium sulphate/parenteral sedatives/anticonvulsants							
Use of Partograph	X						
Manual removal of placenta	X						
Removal of retained products	X						
Vacuum Extraction	X						
Blood transfusion	X						
Caesarean section	X						
Anaesthetic Services	X						
Total Score	8						

Table 15 Availability of Essential Newborn Care (ENC)

ENC functions	Name of Facilities						
	Zebila Hospital	Sappellga	Binaba	Tilli/Widnaba	Zongoire	Googo	Yelwoko
1. Focused ANC							
2. Birth Preparedness Planning							
3. Prevention of Hypothermia							
4. Infection Prevention	X						
5. Early and Exclusive Breastfeeding in the facility	X						
6. Education on Danger Signs (Newborns)	X						
7. Neonatal Resuscitation	X						
8. Postpartum Follow-up	X						
9. Management of complications (mother and newborn)	X						
TOTAL SCORES	6	0	0	0	0	0	0

3.10.4(ii) Drugs and Supplies

There is a well stock of equipment and supplies for EmOC in all the facilities in the district. On the other hand, emergency packs as well as ovum forceps are not available in all the facilities and no laparotomy set for the Zebila hospital. Apart from three facilities (Zebila Hosp, Binaba HC and Zongoire HC) the rest have no vacuum extractor. Meanwhile, the same cannot be said for equipment for ENC. Besides syringes and needles and stethoscopes, which all the facilities have, it only Zebila hospital which has a good number of most of the basic tools on the checklist.

The EmOC drug situation is rather erratic in the district, while some districts have stock others do not have. Drugs like magnesium sulphate and calcium gluconate were out of stock in all the facilities in the district. Antibiotics (procaine and crystalline penicillin) were out of stock at Sappelga, Zongoire, Googo and Yelwoko health centres. Apart from the hospital, general anaesthetics and oxygen was also not available in all the facilities visited. The drug state for ENC in the district is needs improvement all over the district. All the facilities have adequate quantities of normal saline and 0.5% Chlorine solution for decontamination. Drugs for dehydration (10% Glucose) and infection prevention (70% alcohol) can only be found at the hospital and none at the health centres. Furthermore, naloxone, calcium gluconate, sodium bicarbonate, ampicillin, antiseptics (Iodine, Savlon and phenytoin (available in Zongoire) were out of stock in the whole district.

3.10.4(iii) Infrastructure of Health Facilities

The Zebila hospital, which is fairly new, is the only facility with very good OPD, consulting room and pharmacy in the entire district. All the wards in the various facilities are in a deplorable state. Apart from Zebila hospital and Tilli/Winaba clinic, the rest have very bad windows and netting. It is only the hospital that has a function toilet and water system in all over the district. Furthermore, all the facilities within the district also have a very poor privacy for maternity and newborn. Only two facilities (Zongoire and Yelwoko clinics) have very good staff accommodation for midwives.

3.10.4(iv) Maternal Health

The met need coverage for the district is 37%.

The leading direct causes of maternal deaths in the district, were obstructed labour / ruptured uterus (37.5% of direct causes), haemorrhage (25%) and postpartum sepsis (25%). For indirect causes, the major cause was anaemia (20% of indirect).

3.10.4(v) Obstetric Complications

The major direct obstetric complication in the district is unsafe abortions, which takes over two-thirds (73%) of all the complications. This is followed by haemorrhage (10%), postpartum sepsis (7%) and obstructed labour (6%). Here too the indirect causes are malaria (76%) and anaemia (21%). there was a shape increase in the number of haemorrhage complications over the years, from 7 in 2000 to 22 in 2004. Induced/ septic abortions remain consistently high over the years, ranging from 80 to 100. The indirect complications (malaria and anaemia) have been very unstable during this period.

3.10.4(vi) Neonatal Deaths

Data available in the district indicates that the leading causes of neonatal deaths are sepsis (56.8%) and birth asphyxia (9.1%). Neonatal deaths due to sepsis are also dwindling.

3.10.4(vii) Referral Mechanisms (radio/communication/transport)

The district facilities are well linked with the Motorola radio. With the exception of Zebila hospital, Tilli/Widnaba and Yelwoko Clinic, which have a good telephone connection, the connections in other facilities are unreliable. Besides motorbikes at the facilities, commercial transport in the communities can only be obtained on market days.

3.10.5 Builsa district

3.10.5(I) Amount of EmOC and ENC services available

Out of the six health facilities in the district, only Sandema Hospital provides two-third of the range of services. This is followed by Wiaga Clinic, which offers five services and Fumbisi and Kanjarga health centres with just two. The rest Chuchuliga and Siniense

health centres do not provide any of the range of services around the clock daily(see Table 16).

Table 16 Availability of Emergency Obstetric Care (EmOC)

Range of Services for EMOc	NAME OF FACILITIES					
	SANDEMA HOSPITAL	FUMBISI H/C	WIAGA CLINIC	KANJARGA H/C	CHUCHULIGA H/C	SINIENSI PPHC
Parenteral antibiotics	X		X	X		
Parenteral oxytocics	X	X	X	X		
Magnesium sulphate/parenteral sedatives/anticonvulsants	X					
Use of Partograph	X	X	X			
Manual removal of placenta			X			
Removal of retained products			X			
Vacuum Extraction	X					
Blood transfusion	X					
Caesarean section						
Anaesthetic Services						
Total Score	6	2	5	2	0	0

Though none of the health facilities in the districts got to the status of a comprehensive or basic ENC service provider, at least four of the range of services are available in most health centres. Fumbisi facility, however, provides only two of ENC services. The services of Focussed ANC and Postpartum Follow-up are absent in all the facilities. Apart from the Hospital, Birth Preparedness Planning and Management of complications (mother and newborn) is not available daily in the health centres. Table 17 below provides the details.

Table 17 Availability of Essential Newborn Care (ENC)

Range of services for ENC	F a c i l i t i e s					
	SANDEMA HOSPITAL	FUMBISI H/C	WIAGA CLINIC	KANJARGA H/C	CHUCHULIGA H/C	SINIENSI PPHC
1. Focused ANC						
2. Birth Preparedness Planning	X					
3. Prevention of Hypothermia	X		X	X		
4. Infection Prevention	X		X		X	X
5. Early and Exclusive Breastfeeding	X	X	X	X	X	X
6. Education on Danger Signs (Newborns)	X	X	X	X	X	X
7. Neonatal Resuscitation	X		X	X	X	X
8. Postpartum Follow-up						
9. Management of complications (mother and newborn)	X					
TOTAL SCORE	7	2	5	4	4	4

3.10.5(ii) Drugs and Supplies

A survey of equipment and supplies for EmOC services in the district reveals a well balanced stock at all levels. However, besides Sandema hospital, none of the remaining five health institutions in the district has vacuum extractor. Only Chuchuliga HC has no emergency packs and cord Scissors. Unfortunately, the exact opposite is what pertains for ENC supplies and equipment. Except for stethoscopes and thermometer which all the facilities have, most basic equipment was not available at the centres. Some are endotracheal tubes 2.5 - 4.0, airways sizes 0, 1, 2, incubator and blood pressure monitoring equipment.

The drug situation for EmOC in the district is equally good. There is well stock of oxytocics, IV fluids, Metronidazole and Amoxicillin in all the facilities. However, magnesium sulphate is only available at the hospital and not the centres. It is only Wiaga clinic which has stock of valium, the rest do not have. ENC drugs are not adequate in the

district. Most facilities do not have naloxone and 10% glucose, phenytoin, sodium bicarbonate and ampicillin.

3.10.5(iii) Infrastructure of Health Facilities

Most of the facilities within the district have a fairly good infrastructure. All facilities need some refurbishment at the OPD, consulting rooms, pharmacy and the wards but Siniensi clinic needs urgent attention. Apart from Wiaga clinic, which has a good water system, the rest have to improve on their water systems. The toilet facilities within all the facilities are in a bad shape and most facilities are even without toilet for staff. Moreover, all the facilities have a very poor privacy for maternity and newborn. The staff accommodation for midwives in the district is very poor. Two facilities (Kanjarga HC and Siniensi HC) have no 24-hour electricity.

3.10.5(iv) Maternal Health

The met need coverage for the district is 36%.

For the district, the leading direct causes of maternal deaths were haemorrhage (20% of direct causes), obstructed labour / ruptured uterus (20%) and postpartum sepsis (10%). For indirect causes, the major causes were anaemia (33.3% of indirect), malaria (8.3%) and hepatitis (8.3%).

3.10.5(v) Newborn Health

The district data analysed, shows that the leading causes of neonatal complications are birth asphyxia (33.7%), sepsis (14.5%), prematurity (10.5%), neonatal tetanus (3.5%) and birth injuries (2.3%). The data also shows that there is a decline in the complications of birth asphyxia and sepsis over the years whilst that of prematurity was on the increase.

The district data gave the leading causes of neonatal deaths as birth asphyxia (28.9%), sepsis (26.3%), prematurity (15.8%), neonatal tetanus (5.3%) and birth injuries (5.3%). The data also shows that there is a decline in the neonatal deaths from sepsis. Meanwhile figures for birth asphyxia and prematurity are not stable over the years.

3.10.5(vi) Referral Mechanisms (radio/communication/transport)

There are no telephone connections in all the facilities in the district, except for Sandema hospital. Moreover, there are no radio links in any of the health facilities. However, all the health facilities have motorbikes. Most importantly, it is very difficult getting public transport in the communities to use during referrals if not a market.

3.10.6 Kassena Nankana District

3.10.6(I) Amount of EmOC and ENC services available

War Memorial Hospital, which is the main referral centre in the district offers all the range of services and thereby qualifies as a comprehensive EmOC service provider. However, Naga clinic could not provide any of the services on a daily bases. Moreover, most of the other facilities failed to qualify as basic EmOC providers due to the absent of vacuum extraction services at health centres. The provision of Parenteral antibiotics and Magnesium sulphate/parenteral sedatives/anticonvulsants were not available in these facilities; Nakolo Clinic, Yua Clinic and Biu Clinic. Tables 18 and 19 summarise the key findings.

Table 18 Availability of Emergency Obstetric Care (Emoc)

Range of Services for EMOC	NAME OF FACILITIES								
	War Memorial Hospital	Chiana Health Center	Kassena Nankana East Health Center	Paga Health Center	Sirigu Clinic	Nakolo Clinic	Yua Clinic	Biu Clinic	Naga Clinic
Parenteral antibiotics	X	X	X	X	X				
Parenteral oxytocics	X	X	X	X	X	X	X	X	
Magnesium sulphate/parenteral sedatives/anticonvulsants	X	X	X	X	X				
Use of Partograph	X		X	X	X	X	X	X	
Manual removal of placenta	X	X	X	X	X	X	X	X	
Removal of retained products	X	X	X	X		X	X	X	
Vacuum Extraction	X								
Blood transfusion	X								
Caesarean section	X								
Anaesthetic Services	X								
Total Score	9	5	6	6	5	4	4	4	0

Table 19 Availability of Essential Newborn Care (ENC)

Range of services for ENC	Name of Facilities								
	War Memorial Hospital	Chiana Health Center	Kassena Nankana East Health Center	Paga Health Center	Sirigu Clinic	Nakolo Clinic	Yua Clinic	Biu Clinic	Naga Clinic
1. Focused ANC				X	X	X	X		
2. Birth Preparedness Planning									X
3. Prevention of Hypothermia									
4. Infection Prevention	X	X	X	X	X	X	X	X	X
5. Early and Exclusive Breastfeeding	X	X	X	X	X	X	X	X	X
6. Education on Danger Signs (Newborns)	X	X	X	X	X	X	X	X	X
7. Neonatal Resuscitation	X	X	X	X	X	X	X	X	
8. Postpartum Follow-up									
9. Management of complications (mother and newborn)	X		X	X	X	X	X	X	
TOTAL SCORE	5	4	5	6	6	6	6	5	4

The provision of ENC services in the district is encouraging as most of the facilities were offering more than four functions daily. With the exception of Prevention of Hypothermia and Postpartum Follow-up, all the other range of functions is available daily in all the health facilities in the district. Out of the nine facilities, it is only Naga clinic, which offers Birth Preparedness Planning services.

3.10.6(ii) Drugs and Supplies

The district is endowed with well stock equipment and supplies for EmOC services. All the facilities have IV fluid sets, fetal stethoscopes, bladder catheter and supplies (syringes, sutures and needles). Conversely, there are no emergency packs at any of the facilities and only the hospital has a vacuum extractor in the whole district. The supply of ENC equipment and supplies is rather scanty. Though all the facilities have stethoscopes, thermometer, self-inflating resuscitation bag, gloves, syringes and needles, there is more room for improvement especially at the centres. Apart from the hospital, which has these equipment; endotracheal tubes 2.5 - 4.0, airways sizes 0,1,2, incubator and blood pressure monitoring equipment, there is none at the centres.

Availability of Drugs for EMOC is evenly spread in all the facilities in the district. All facilities have in their dispensary enough stock of oxytocics, IV fluids and antibiotics. However, none of the nine facilities has in stock magnesium sulphate, calcium gluconate, General anaesthetics (available at War Memorial Hospital and China HC) and oxygen (available at War Memorial Hospital). ENC drugs usually experience occasional stock outs in all facilities. Most of the facilities were not having stocks of some basic drugs like adrenaline, naloxone, sodium bicarbonate and some antibiotics.

3.10.6(iii) Infrastructure of Health Facilities

The physical infrastructures of most of the facilities within the district are fairly good. Two facilities (China HC and Biu clinic) may need some refurbishment at the OPD, consulting rooms, and the pharmacy. Apart from War Memorial Hospital, Paga HC, Biu clinic and Kassena Nankana East HC, which have good water supplies, the rest have to improve on their water systems. All facilities have adequate and functioning toilet facilities for both staff and clients. Moreover, two facilities (Yua and Naga clinics) have a

very poor privacy for maternity and newborn. The staff accommodation for midwives in the district is very poor. Two facilities (Nakolo and Naga clinic) have no 24-hour electricity.

3.10.6(iv) Maternal Health

The met need coverage for the district is 58%, which is the highest in the region.

The maternal deaths recorded in the district shows that the leading direct causes of maternal deaths were haemorrhage (20% of direct causes), postpartum sepsis (12%), obstructed labour / ruptured uterus (8%) and unsafe abortions (8%). For indirect causes, the major causes were anaemia (33.3% of indirect) and hepatitis (16.7%).

3.10.6(v) Obstetric Complications

Obstructed labour is the leading cause of direct obstetric complications. It takes 29% of the total direct complications. The other main causes are unsafe abortion (25%), haemorrhage (16%) and postpartum sepsis (2.4%). Eclampsia and ectopic pregnancy follows with 2% each. The major indirect causes are malaria and anaemia, contributing 60% and 21% respectively. Haemorrhage and unsafe abortion is on the increase over the years. The trend for obstructed labour and Eclampsia is very erratic. Malaria cases are increasing over the period.

3.10.6(vi) Newborn Health

Available data in the district indicates that the leading causes of neonatal complications are birth asphyxia (18.1%), prematurity (11.2%), congenital anomalies (6.9%), sepsis (1.7%) and pneumonia (1.7%). The leading causes of neonatal deaths in the district are birth asphyxia (4.3%), prematurity (8.5%), congenital anomalies (6.4%) and sepsis (2.1%).

3.10.6(vii) Referral Mechanisms (radio/communication/transport)

There are motorola linkages for all facilities including the DHA to enhance referral of clients. Besides, have pick-up vehicles for Chiana H/C, Kassena Nankana East H/C, and

Sirigu Clinic, all facilities have motorbikes for referrals and other services. Those facilities without vehicles rely on the nearest health facility with vehicles, especially the hospital for ambulance services. Mobile phone services are available in all facilities except Yua, and Nakolo Clinics. The War Memorial Hospital has a fixed telephone line.

3.10.7 Bongo District

3.10.7(I) Amount of EmOC and ENC services available

A comprehensive EmOC service is available at the Bongo Hospital, the only facility that provides all the range of services in the district. The rest of the facilities are not providing more than four of EmOC functions. Only Zorko clinic provides four of the functions, Ve a and Bongo Soe health centres provide three, Namoo health centre provides two and finally Dua health as well as Adaboya clinic provides only one function. Parenteral antibiotics Magnesium sulphate/parenteral sedatives/anticonvulsants and Vacuum extraction are not provided in all the health centres and clinics. Only Zorko clinic provides daily manual removal of placenta (see Tables 20 and 21)

Table 20 Availability of Emergency Obstetric Care (Emoc)

Range of Services for EMOC	NAME OF FACILITIES						
	Bongo Hosp	Dua HC	Ve a HC	Zorko Clinic	B/Sue HC	Adaboya Clinic	Namoo HC
Parenteral antibiotics	X				.		
Parenteral oxytocics	X		X	X	X	X	X
Magnesium sulphate/parenteral sedatives/anticonvulsants	X						
Use of Partograph	X	X	X	X	X		X
Manual removal of placenta	X			X			
Removal of retained products	X		X	X	X		
Vacuum Extraction	X						
Blood transfusion	X						
Caesarean section	X						
Anaesthetic Services							
Total Score	9	1	3	4	3	1	2

Table 21 Availability of Essential Newborn Care (ENC)

ENC functions	Name of Facilities						
	Bongo	Dua	Vea	Zorko	B/Sue	Adaboya	Namoo
1. Focused ANC							
2. Birth Preparedness Planning							
3. Prevention of Hypothermia							
4. Infection Prevention	X	X	X	X	X		
5. Early and Exclusive Breastfeeding in the facility	X	X	X	X	X	X	X
6. Education on Danger Signs (Newborns)							
7. Neonatal Resuscitation	X						
8. Postpartum Follow-up	X	X			X		
9. Management of complications (mother and newborn)	X						
TOTAL SCORES	5	3	2	2	3	1	1

Provision of ENC services is very weak in the districts. All the facilities offer Early and Exclusive Breastfeeding and Adaboya as well as Namoo clinics cannot be said to have daily prevention of Infection. The following functions are absent in all the facilities; Focused ANC, Birth Preparedness Planning Prevention of Hypothermia and Education on Danger Signs (Newborns). However, Neonatal Resuscitation and Management of complications (mother and newborn) can only be obtained at the hospital.

3.10.7(ii) Drugs and Supplies

The district has adequate equipment and supplies for EmOC activities. All the facilities have supplies of syringes, needles and sutures. Apart from Bongo hospital none of the remaining health centres has vacuum extractor and ovum forceps. Only the hospital and Zorko HC have emergency packs. Supplies for ENC services are very scanty. Most of the facilities do not have endotracheal tubes 2.5 - 4.0, airways sizes 0,1,2, and blood pressure monitoring equipment.

Some drugs for EMOC services are well distributed in all the facilities in the district. All facilities have in their dispensary enough stock of oxytocics, IV fluids and antibiotics. However, none of the facilities has stock of magnesium sulphate, calcium gluconate, general anaesthetics and oxygen (available at Bongo Hospital). With the exception of Bongo hospital, which has a variety of most ENC drugs, the other facilities are sparsely stocked. All the facilities were not having stocks of some basic drugs like naloxone, phenobarbitone, phenytoin, and sodium bicarbonate. Besides the hospital, most health and clinics lack some antibiotics, 10% glucose, chloramphenicol eye drops (also in Zorko) and adrenaline.

3.10.7(iii) Infrastructure

Almost all the facilities in the entire district have reasonably good physical infrastructures but needs to be improved. Most of the facilities require some refurbishment at the OPD, consulting rooms, and the pharmacy. Apart from Adaboya clinic, all the remaining facilities have fairly good windows and netting. Two (Zorko HC and Adaboya clinic) out of the seven facilities have moderately good water systems, the rest should improve on their water systems. All facilities have very poor functioning toilet facilities except for Zorko HC and Bongo-Soe clinic. Moreover, two facilities (Bongo Hospital and Bongo-Soe clinics) have very poor privacy for maternity and newborn. The staff accommodation for midwives at all the facilities is very poor. Two facilities (Dua HC and Adaboya clinic) have no 24-hour electricity.

3.10.7(iv) Maternal Health

The district met need coverage is 38%, the second highest in the region.

For data for the district revealed that the leading direct causes of maternal deaths were eclampsia (50% of direct causes), unsafe abortions (25%) and postpartum sepsis (25%). There was nothing for indirect causes.

3.10.7(v) Obstetric Complications

Haemorrhage (44%) is the leading cause of direct obstetric complications. The other leading causes are unsafe abortion (34%), obstructed labour (12%), and postpartum sepsis (10%). The major indirect causes are malaria and anaemia, contributing 48% and 19% respectively. Haemorrhage and unsafe abortion cases are very erratic. Equally are malaria and anaemia cases.

3.10.7(vi) Newborn Health

The leading causes of neonatal complications in the district are birth asphyxia (32.8%), prematurity (50%) and congenital anomalies (15.6%).

The causes of neonatal deaths in the district are birth asphyxia (46.7%), prematurity (40%) and congenital anomalies (13.3%).

3.10.7(vii) Referral Mechanisms (radio/communication/transport)

With exception of Bongo hospital the other health facilities have no radio links. However, they have motorbikes, which are used to call for help from the district hospital. Telephone services are very poor in the district.

3.10.8 Garu-Tempani District

3.10.8(i) Amount of EmOC and ENC services available

This is one of the new districts created in the Upper East region. There is no hospital in the district but has health six health centres and clinics. However, none of these facilities qualifies as a basic EmOC provider. Vacuum extraction is not done daily in any of these facilities. Only Worinkambo provides five of the range services, and then Garu Health centre follows with 3 services. The rest do not offer more than three services, they are;

Bayonde offers 3 services, Fame clinic offers only two. The rest are Bugri and Woriyanga maternity clinics, which provide only one of the functions.

The following functions are available daily in only two facilities in the district; Magnesium sulphate/parenteral sedatives/anticonvulsants, Use of Partograph, Manual removal of placenta and Removal of retained products (see Tables 22 and 23)

Table 22 Availability of Emergency Obstetric Care (Emoc)

Range of Services for EMOC	NAME OF FACILITIES					
	Fame	Garu HC	Bugri HC	Basyonde	Woriyanga	Worikambo
Parenteral antibiotics	X	X		X		
Parenteral oxytocics	X	X	X	X		X
Magnesium sulphate/parenteral sedatives/anticonvulsants				X		X
Use of Partograph					X	X
Manual removal of placenta		X				X
Removal of retained products		X				X
Vacuum Extraction						
Blood transfusion						
Caesarean section						
Anaesthetic Services						
Total Score	2	4	1	3	1	5

Table 23 Availability of Essential Newborn Care (ENC)

Range of services for ENC	NAME OF FACILITIES					
	Fame	Garu HC	Bugri HC	Basyonde	Woriyanga	Worikambo
1. Focused ANC						
2. Birth Preparedness Planning		X				
3. Prevention of Hypothermia						
4. Infection Prevention	X	X	X	X	X	X
5. Early and Exclusive Breastfeeding in the facility	X	X	X	X	X	X
6. Education on Danger Signs (Newborns)	X	X	X	X	X	X
7. Neonatal Resuscitation	X					X
8. Postpartum Follow-up						
9. Management of complications (mother and newborn)						X
TOTAL SCORES	4	4	3	3	3	5

For ENC services in the district, none of the health centres and clinics provides all the full requirement of the functions. Three out of the nine range of services cannot be obtained on daily bases in any of the facilities. These services are; Focussed ANC, Prevention of hypothermia and postpartum follow-up.

3.10.8(ii) Drugs and Supplies

All the six health centres in the district are well stocked with syringes, sutures and needles. Two facilities do not have IV infusion set (Bugri and Basyonde HC) and bladder catheter (Woriyanga and Worikambo clinic). Three facilities (Garu HC, Woriyanga and Worikambo clinic) have fetal stethoscope. All the facilities have a sterilizer except Worikambo clinic. On the other hand, none of the facilities is having a vacuum extractor, ovum forceps and emergency packs. Unfortunately, equipment for ENC services in the district is highly inadequate for a meaningful delivery of service. All the facilities lack items like self-inflating resuscitation bag, laryngoscope with neonatal blades, Oxygen

cylinder / source with humidifier, face masks (newborn sizes), blood pressure monitoring equipment, endotracheal tubes 2.5- 4.0 and airways sizes 0,1,2.

The EmOC drug position is on the average in the district. There is good stock of oxytocics and IV fluids in all facilities. Drugs like magnesium sulphate and calcium gluconate was out of stock in all the facilities in the district. Apart from Fame clinic antibiotics (procaine and crystalline penicillin) are out of stock. General anaesthetics and oxygen was also not available in all the facilities visited. The drug situation for ENC in the district is needs improvement in all facilities. It only Fame clinic, which seems to some good stock of drugs for ENC services. Drugs like phenobarbitone, phenytoin, 10% glucose naloxone, calcium gluconate, sodium bicarbonate, and adrenaline were out of stock in the whole district.

3.10.8(iii) Infrastructure of Health Facilities

Besides Fame clinic and Garu HC, the rest of the facilities have deplorable physical infrastructures and therefore needs to be improved. They would require some refurbishment at the OPD, consulting rooms, wards and the pharmacy. All the six facilities have very poor water systems. Fame clinic have no functioning toilet facilities. Furthermore, two facilities (Garu HC and Worikambo clinics) have very poor privacy for maternity and newborn. The staff accommodation for midwives at all the facilities is very poor, except for Fame clinic. Two facilities (Bugri HC and Woriyanga clinic) have no 24-hour electricity.

3.10.8(iv) Maternal Health

The district met need coverage is 10%, one of the lowest coverages in the region. This is one of the newly created districts and therefore has no hospital. Most of the obstetric complications are sent to Bawku hospital. There was no maternal death recorded for the period under review, but the fact is that there is no district hospital.

3.10.8(v) Obstetric Complications

The leading cause of direct obstetric complications in the district is obstructed labour. It takes 44% of the total direct complications. The rest are haemorrhage (28%) and postpartum sepsis (11%). Malaria is the major indirect causes, taking as much as 69%. Others are hepatitis and anaemia, each contributing 9%. Haemorrhage, postpartum sepsis and malaria is on the increase. However the number of anaemia cases is on decline, while that of obstructed labour is unpredictable.

3.10.8(vi) Newborn Health

The causes of neonatal complications in the district are birth asphyxia (93.5%), prematurity (3.2%) and diarrhoea (2.4%). All the neonatal deaths in the district were caused by prematurity.

3.10.8(vii) Referral Mechanisms (radio/communication/transport)

There are no telephone connections in any of the facilities in the district. With exception of Fame clinic, the other health facilities have radio links that hard work. However, all facilities have motorbikes, which are used to call for help from the district hospital.

3.10.9 Talensi-Nabdam District

3.10.9(I) Amount of EmOC and ENC services available

The absence of Vacuum extraction in all the five facilities in the district denied three facilities (Tongo HC, Pwalugu HC and Nagodi HC) the status of providing Basic EmOC. The use of Partograph is not done on daily bases at Pelungu HC furthermore Parenteral antibiotics is also not provided at the Kongo Health Centre around the clock. Tables 24 and 25 provide the details.

Table 24 Availability of Emergency Obstetric Care (Emoc)

Range of Services for EMOC	NAME OF FACILITIES				
	Tongo HC	Pwalugu HC	Pelungu HC	Nangodi HC	Kongo HC
Parenteral antibiotics	X	X	X	X	X
Parenteral oxytocics	X	X	X	X	
Magnesium sulphate/parenteral sedatives/anticonvulsants	X	X	X	X	X
Use of Partograph	X	X		X	X
Manual removal of placenta	X		X	X	X
Removal of retained products	X	X	X	X	X
Vacuum Extraction					
Blood transfusion					
Caesarean section					
Anaesthetic Services					
Total Score	6	5	5	6	5

Table 25 Availability of Essential Newborn Care (ENC)

ENC functions	Name of Facilities				
	Tongo HC	Pwalugu HC	Pelungu HC	Nangodi HC	Kongo
1. Focused ANC	X	X	X		X
2. Birth Preparedness Planning	X				
3. Prevention of Hypothermia	X	X			
4. Infection Prevention	X	X		X	X
5. Early and Exclusive Breastfeeding in the facility	X	X	X	X	X
6. Education on Danger Signs (Newborns)	X	X	X	X	X
7. Neonatal Resuscitation	X	X	X	X	X
8. Postpartum Follow-up		X			
9. Management of complications (mother and newborn)	X	X	X	X	X
TOTAL SCORES	8	8	5	5	6

Though Tongo Health Centre provides eight out of the nine required ENC services it can only be classified as a Basic ENC service provider, this is because the first seven requirements were met. Pwalugu HC missed this status because it does not provide Birth Preparedness Planning services to all clients around the clock. This particular service can only be obtained on daily bases in the district at Tongo health centre. Likewise postpartum follow-up is only provided on daily bases at Pwalugu HC.

3.10.9(ii) Drugs and Supplies

This is one of the districts with a well stock of equipment and supplies. Except for vacuum extractors all the facilities have equipment and supplies for the delivery of EmOC services. All the facilities have at least one emergency packs. For ENC activities, apart from thermometer and stethoscopes, there is lack of other equipment (self-inflating resuscitation bag, laryngoscope with neonatal blades, Oxygen cylinder / source with humidifier, face masks (newborn sizes), blood pressure monitoring equipment, endotracheal tubes 2.5- 4.0 and airways sizes 0,1,2) at most facilities. There are enough supplies (syringes, needles and gloves) at all centres in the district.

There are adequate drugs for EMOC services all over the district. All the health centres have in their dispensary enough stock of oxytocics, IV fluids and antibiotics. Even magnesium sulphate, which is missing in most districts, was available at Tongo HC and Pelungu clinic. However, none of the facilities has stock of, calcium gluconate, general anaesthetics and oxygen. None of the facilities can be said to have a variety of most ENC drugs, the picture is that the facilities are sparsely stocked. All the facilities were not having stocks of some basic drugs like adrenaline naloxone, 10% glucose calcium gluconate and sodium bicarbonate.

3.10.9(iii) Infrastructure of Health Facilities

Most of the facilities have very good OPD, consulting rooms, and the pharmacy. The infrastructure at Pelungu clinic has to be renovated, not excluding windows and netting. Two (Kongo HC and Nangodi clinic) out of the five facilities have moderately good

water systems. All facilities have very poor functioning toilet facilities except for Kongo HC. Most importantly all the facilities have very good privacy for maternity and newborn. The staff accommodation for midwives at Nangodi HC and Pelungu clinic is in poor condition. Pelungu clinic is the only facility without 24-hour electricity in the district.

3.10.9(iv) Maternal Health

The district met need coverage is 3%, the least in the region. This may be due to the absence of a hospital in the district, since if not all of such complications end up in the regional hospital. There was no maternal death recorded for the period under review, but most importantly there is no district hospital.

3.10.9(v) Obstetric Complications

Obstructed labour (63%) is the principal cause of direct obstetric complications, contributing over 60% of the total complications. Other major causes are haemorrhage (11%), and ectopic pregnancy (9%). The rest are unsafe abortion (8%) and eclampsia 2.4%. This is one of the newly created districts without a district hospital, hence all these cases were referred to Bolgatanga Regional hospital for surgical interventions.

3.10.9(vi) Newborn Health

The causes of neonatal complications in the district are congenital anomalies (55.6%) and prematurity (22.2%). Talensi-Nabdam district never recorded low birth weight rate close to 10% over the period. The stillbirths rate are equally low, not even up to 2%. The causes of neonatal deaths in the district are prematurity (66.7%) and congenital anomalies (33.3%).

3.10.9(vii) Referral Mechanisms (radio/communication/transport)

There are no telephone connections in all the five facilities in the district. Apart from Kongo HC, the other health facilities have no radio links. Besides, all facilities having motorbikes, it is easy getting public transport in Tongo and Kongo which can be used during referrals.

Table 26 Upper East Regional Staff Strength of some Personnel

Personnel	Bolgatanga REG HOSP			BOLGA MHT			BAWKU EAST			BAWKU WEST			Kassena Nankana			BUILSA			BONGO			Talensi Nabdam			Garu Tempani			TOTALS					
	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C			
Paediatricians	2												1																		1		
Obstetricians	2												0																		0		
Medical Officers	6						8			1			2			1			1												19		
Medical Assistants – M	2						3			1			2			2			1			1			1						13		
Medical Assistants – F	2			2	0	0	5			0			4			3	1	1	1			3	1		2						22	2	1
Midwives	30	28	28	4	1	1	20	2	1	10	10	7	26	20	0	15	11	11	15	12	8	7	7	5	7	4	0	134	95	61			
Nurses	112			2			105	1	0	23			58			38			39			18	2	2	16						411	3	2
Nurse-Anaesthetists	2						3			1			1			1			1												9		
Laboratory Technicians	3						4			1			1			1			1			1			3						15		
Pharmacists	2						2			1			1			1															7		
Dispensing Technicians	7			1			8			1			6			3			1			2			4						33		
Blood Bank Technician	1			0			1																								2		
Records Officers	7			1			15	1	1	3			5			1			1						1						34	1	1
Others	0			11			71	1	0	27			28			23			12						22						194	1	0

***Key**

A:- Number at post

B:- Number trained in LSS/EmOC

C:- Number trained in ENC

Table 27 Deliveries and Low Birth Weight in Upper East Region: 2000 to 2004

DISTRICTS	Total Deliveries					Total Low Birth weight <2.5kg					Total Stillbirths				
	2000	2001	2002	2003	2004	2000	2001	2002	2003	2004	2000	2001	2002	2003	2004
Bolgatanga Regional Hospital	1,823	2,964	1,640	1,698	1,547	198	203	266	257	252	19	25	17	97	125
Bolgatanga Municipal	113	129	101	156	261	20	16	11	16	24	2	3	2	1	1
Bawku East District	2,714	2,333	2,282	2,631	3,409	321	314	335	248	413	160	118	109	127	153
Bawku West District	462	462	498	685	1,088	56	89	65	71	97	18	24	25	24	44
Kassena-Nankana District	1,443	1,334	1,377	1,437	1,824	305	187	229	320	189	35	25	43	41	60
Builsa District	550	499	523	604	888	61	72	46	52	77	27	26	17	18	27
Bongo District	265	272	339	576	766	19	19	11	53	60	7	8	4	17	16
Garu-Tempene District	374	413	577	979	1,229	30	58	111	151	211	5	7	17	26	21
Talensi-Nabdram District	307	291	278	432	542	12	10	4	27	29	3	10	2	6	9

RESULTS FROM NORTHERN REGION

4.1 Facilities providing EmOC and ENC

All health facilities in the health districts surveyed were assessed to measure indicator 1a and 1b of the UN Modified Process Indicators which determine the amount and quality of EmOC/ENC services available.

4.2 Amount of EmOC and ENC services available

This measures the EmOC and ENC services available to the population at basic and comprehensive levels, i.e. at least 1 comprehensive and 4 basic EmOC and ENC facilities per 200000 population (or per health district). In Northern Region, all health districts surveyed have at least 1 “district hospital” and 4 “health centres”. The physical facilities are in place. However, majority do not provide the required EMOC and ENC services pertaining to their level.

The challenge is to massively upgrade health facilities to provide EmOC and ENC services in order to prevent and control avoidable maternal and neonatal deaths. Provision of key EmOC and ENC functions were assessed in all facilities surveyed to determine whether they provided 24 hour services throughout the year. Though most of the health facilities surveyed are functional, only few actually provided the full range of key EmOC/ENC services.

In the Northern Region, only five (5) facilities including the teaching hospital provide comprehensive EmOC services. These are Tamale Teaching Hospital, Nalerigu Baptist Medical Centre, Walewale Government Hospital, Salaga Government Hospital and Yendi Government Hospital. Tamale West Hospital and Savelugu-Nanton Hospital, which are district hospitals, provide Basic EmOC services. Ngani and Adibo Health Centres in Yendi District also provide Basic EmOC services. The remaining health facilities do not provide basic EmOC services but often provide 5 or 6 out of the expected 7 key functions of Basic EmOC. For ENC services, only Tamale Teaching Hospital

provides the full range of newborn services in Northern Region. As pointed out earlier with EmOC, similarly the remaining facilities provide some ENC services but not the full range. Tables 28a and 28b below show facilities that provide Comprehensive and Basic EmOC services respectively.

Table 28a: Health Facilities in Northern Region Providing Comprehensive EmOC Service

EmOC Functions	Tamale Teaching Hosp	Tamale Metro	Yendi	Bole	East Gonja	East Mamprusi	West Mamprusi	Savelugu Nanton
Parenteral antibiotics	1	1	1	1	1	1	1	1
Parenteral oxytocics	1	1	1	1	1	1	1	1
Magnesium sulphate/ parenteral sedatives/ anticonvulsants	1	1	1	1	1	1	1	1
Use of Partograph	1	1	1	1	1	1	1	1
Manual removal of placenta	1	1	1	0	1	1	1	1
Removal of retained products	1	1	1	0	1	1	1	1
Vacuum Extraction	1	1	1	0	1	1	1	1
Blood transfusion	1	0	1	1	1	1	1	0
Caesarean section	1	0	1	0	1	1	1	0
Anaesthetic Services	1	0	1	0	1	1	1	0
Total	10	7	10	5	10	10	10	7

From table 28a above, only 5 facilities provide comprehensive EmOC/ENC services in Northern Region. These are Tamale Teaching Hospital, Yendi Government Hospital in Yendi District, Salaga Government Hospital in East Gonja District, Wale Wale

Government Hospital in East Mamprusi District and Nalerigu Baptist Medical Care in West Mamprusi.

Table 28b: Health Facilities in Northern Region Providing Basic EmOC Services

EmOC Functions	Tamale Metro	Yendi	Bole	East Gonja	East Mamprusi	West Mamprusi	Savelugu Nanton
Number of Facilities	8	5	4	10	4	5	8
Parenteral antibiotics	1	2	0	0	0	0	1
Parenteral oxytocics	1	2	0	0	0	0	1
Magnesium sulphate/ parenteral sedatives/ anticonvulsants	1	2	0	0	0	0	1
Use of Partograph	1	2	0	0	0	0	1
Manual removal of placenta	1	2	0	0	0	0	1
Removal of retained products	1	2	0	0	0	0	1
Vacuum Extraction	1	2	0	0	0	0	1

From Table 28b above, only four (4) facilities provide basic EmOC/ENC services in the Northern Region. These are Tamale West Hospital in Tamale Metro, Ngani and Adibo Health Centres in Yendi District and Savelugu Government Hospital in Savelugu-Nanton District. Based on the available data, women and their newborns in Northern Region are not receiving adequate EmOC/ENC services.

4.3 Equipment

Generally, in the Northern Region, the availability of equipment for EmOC and ENC is poor. Throughout the region, most of the health facilities either lack some basic EmOC/ENC equipment or have inadequate quantities. Some of these equipments include

gloves, weighing scales, vacuum extractor, ovum forceps, fetal stethoscope, bladder catheter, self inflation resuscitation bag, BP monitoring machine for babies etc.

4.4 Drugs and Supplies

In the Northern Region, the availability of drugs and supplies is quite encouraging in the health facilities surveyed. There is some stock of drugs for infection prevention and haemorrhage arrest. However, drugs such as Magnesium sulphate/ parenteral sedatives for anti-convulsants are out of stock in some of the districts. These districts include Savelugu-Nanton, West Mamprusi and Yendi. Nevertheless, there is enough quantity of valium and diazepam in the health centres in those districts to arrest convulsion.

Drugs for ENC service, on the other hand, are not evenly distributed within the districts. Whilst some districts have enough quantities of all sorts of basic drugs for dehydration and infection prevention in newborns, others barely have stock.

4.5 Blood

Apart from the Tamale Metro where only the Teaching Hospital provides blood transfusion service, all the districts surveyed in the Northern region provide this service. However, the provision of the service is limited only to the District Hospitals where they have blood banks and some quantities of blood bags.

4.6 Staffing

In terms of staffing, the Northern Region including the Teaching Hospital has the following number of staff; 3 Paediatricians, 3 Obstetricians, 6 Nurse Anaesthetics, 292 Midwives, 295 Nurses, 36 Medical Officers, 34 Medical Assistants, 11 Pharmacist, 36 Dispensing Technicians, 15 Laboratory Technicians, 3 Blood Bank Technicians, 49 Records Officers and 261 others.

Only 18%, 0.3% and 3% of the number of Midwives, Nurses and Medical Officers and Assistants have been trained in Life Saving Skills (LSS) respectively. The same proportions have also been trained in ENC services except that for the Midwives which has dropped to 15%.

For other staff categories, apart from Savelugu- Nanton and East Mamprusi Districts where only 1 Medical officer and Assistant and a general Nurse have been trained in LSS and ENC, the rest have not benefited from such training. Table 29 provides the details

Table 29 List of Health Staff – Northern Region

Personnel	Regional Totals			Yendi			Bole			East Gonja			East Mamprusi			West Mamprusi			Savelugu Nanton			Tamale Metro			Tamale T / Hospital		
	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
Paediatricians	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
Obstetricians	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
Medical Officers	22	1	1	4	0	0	2	0	0	4	0	0	2	0	0	1	0	0	4	1	1	5	0	0	14	0	0
Medical Assistants – Males	26	0	0	6	0	0	2	0	0	3	0	0	4	0	0	4	0	0	2	0	0	5	0	0	0	0	0
Medical Assistants – Females	3	1	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	1	1	0	0	0	5	0	0
Midwives	139	32	25	22	0	0	9	2	1	23	8	2	15	0	0	14	13	13	17	9	9	39	0	0	53	20	20
Nurses	206	1	1	39	0	0	14	0	0	26	0	0	47	1	1	16	0	0	24	0	0	40	0	0	89	0	0
Nurse-Anaesthetists	3	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	3	0	0
Laboratory Technicians	10	0	0	1	0	0	0	0	0	2	0	0	1	0	0	1	0	0	0	0	0	5	0	0	5	0	0
Pharmacists	3	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	8	0	0
Dispensing Technicians	25	0	0	4	0	0	2	0	0	5	0	0	5	0	0	2	0	0	1	0	0	6	0	0	11	0	0
Blood Bank Technician	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	2	0	0
Records Officers	37	0	0	2	0	0	3	0	0	5	0	0	13	0	0	6	0	0	2	0	0	6	0	0	12	0	0
Others	96	0	0	1	0	0	3	0	0	36	0	0	26	0	0	2	0	0	14	0	0	14	0	0	165	20	20

A = No of Staff at Post

B = No Trained in LSS/EmOC

C = No Trained in ENC

TTH = Tamale Teaching Hospital

Tamale Metro alone has 39 Midwives with 0% trained in LSS and ENC while the Teaching Hospital has 53 Midwives with 38% trained in LSS and ENC.

4.7 Geographical Distribution of Facilities

Generally, in terms of health facilities, the Northern Region is not adequately supplied. It has a very poor geographical distribution of EmOC / ENC services. The region has a peculiar settlement pattern with about 54% of the villages having a population of less than 200 people. Distances between villages are far apart and that makes it difficult to access health facilities which are mostly located in more densely populated towns/villages. However, this can be quickly remedied if all non-EmOC / ENC facilities are upgraded to provide services. More needs to be done to improve service delivery in Northern Region. CHPS with basic EmOC / ENC will possibly be the way forward and requires further advocacy and research.

4.8 Infrastructure of Health Facilities

Generally, there is poor infrastructure of health facilities in the Northern Region. Apart from the fact that most of the facilities need complete refurbishment, support services such as water supply systems, toilet facilities, interrupted power supply, staff accommodation etc continue to be major setbacks on improving service delivery in the region.

In the Teaching Hospital for instance, the water supply system and toilet facilities are completely broken down thereby causing sanitary problems that seriously affect EmOC/ENC service delivery. For the rest of the Metro, the situation is not different.

4.9 Maternal Health

Met Need for EmOC and ENC

This indicator measures the proportion of obstetric complications managed in health facilities. Ideally, it is 100%. Table 31 below shows the met need for Northern Region.

Table 31 Met need for Emergency Obstetric Care (EmOC) – Northern Region

Name of District	Population	Expected No Complications	Number of Complications Treated	Met Need %
Tamale Metro	328,210	1969	2,192	111
Yendi	145,888	875	552	63
Bole	56,930	342	192	56
East Gonja	200,336	1202	366	30
East Mamprusi	102,368	614	269	44
West Mamprusi	132,056	792	187	24
Savelugu –Nanton	103,292	620	260	42

From Table 31, met need for obstetric care ranged from 24% in West Mamprusi to 111% in Tamale Metro. Figures for Tamale Metro appear inflated due to Tamale Teaching Hospital serving as a large referral centre.

Maternal Deaths

In Northern Region, the trend of occurrence of maternal deaths over the period has been erratic especially with the indirect causes of maternal deaths. Table 32 shows the causes of maternal deaths over the years

From table 32, it can be seen that the number of maternal deaths for direct causes reduced from 36 in 2000 to 29 in 2001 and in 2002, it remained the same (29). For 2003, it increased to 46 but reduced to 39 in 2004. The number of maternal deaths for indirect causes reduced from 19 in 2000 to 15 in 2001 and in 2002, it increased to 22. For 2003, it reduced again to 19 but increased to 24 in 2004.

The leading direct causes of maternal deaths for the region are; haemorrhage (25%), pre-eclampsia/eclampsia (20.1%), induced/septic abortion (18%), postpartum sepsis (8.3%), obstructed/prolonged labour (8%), ruptured uterus (6%) and ectopic pregnancy (3.3%). For indirect causes of maternal deaths, the leading ones include; malaria (21.2%), hepatitis (15.2%), anaemia (15.2%), sickle cell disease (4%) and HIV/AIDS (3%).

4.10 Obstetric Complications

In Northern Region, results of the findings revealed that the number of obstetric complications has increased over the five (5) years (See Table 33 below). From the table it can be seen that direct causes of obstetric complications increased from 1719 in 2000 to 1797 in 2001 and 2163 in 2002. In 2003, it increased again to 2674 and 2004 it further increased to 2733. For indirect causes, the number increased from 831 in 2000 to 1414 in 2001 and 1521 in 2002. In 2002, it increased again to 1669 and in 2004, it further increased to 2460.

Table 32 Causes of Maternal Deaths – Northern Region

Direct Causes	2000	2001	2002	2003	2004
Haemorrhage	6	6	6	23	3
Obstructed/Prolonged labour	5	3	3	0	3
Ruptured uterus	0	0	3	4	3
Postpartum sepsis	2	6	1	1	5
Pre-eclampsia/Eclampsia/PIH	8	4	7	7	9
Induced/septic abortion	9	3	5	4	11
Ectopic pregnancy	1	2	2	0	1
Others	5	5	2	7	4
TOTAL	36	29	29	46	39
Indirect Causes					
Hepatitis	4	3	4	0	4
Malaria	4	1	4	7	5
HIV/AIDS	0	0	2	0	1
Anaemia	4	1	5	1	4
Sickle cell disease	0	1	0	2	1
Others	7	9	7	9	9
TOTAL	19	15	22	19	24

Table 33 Obstetric Complications – Northern Region

Direct Causes	2000	2001	2002	2003	2004
Haemorrhage	192	153	239	325	313
Obstructed/Prolonged labour	67	72	204	287	330
Ruptured uterus	52	49	64	92	88
Postpartum sepsis	43	57	56	75	113
Pre-eclampsia/Eclampsia/PIH	116	115	257	221	225
Induced/septic abortion	670	828	690	1123	1160
Ectopic pregnancy	38	43	29	45	54
Others	541	480	624	506	450
TOTAL	1719	1797	2163	2674	2733
Indirect Causes					
Hepatitis	7	7	17	12	12
Malaria	436	901	948	982	1570
HIV/AIDS	3	0	9	8	3
Anaemia	213	275	297	305	287
Sickle cell disease	2	8	6	5	15
Others	170	223	244	357	573
TOTAL	831	1414	1521	1669	2460

The principal causes of obstetric complications varied from urban to rural districts. In Tamale (based on teaching hospital data), the leading causes of direct obstetric complications were unsafe abortion (26.7% of direct causes), eclampsia (23.3%), haemorrhage (including ectopic pregnancy) (21.1%), obstructed labour/ruptured uterus (5.5%) and postpartum sepsis (4.4%). For the rest of the region (including Tamale metropolis), the leading direct causes were haemorrhage (including ectopic pregnancy) (34.6% of direct causes), obstructed labour/ ruptured uterus (21.4%), eclampsia (15.7%), postpartum sepsis (12.4%) and unsafe abortion (9.0%). For indirect causes, malaria (21.3% of indirect causes), anaemia (17.5%), hepatitis (11.3%) and sickle cell disease (5.0%) were the leading causes of complications in Tamale Teaching Hospital. For the rest of the Region, the leading causes were hepatitis (31.6%), malaria (21.1%) and anaemia (5.3%). Case fatality rate for both direct and indirect causes of maternal mortality for all types of complications was far above 1%, except for malaria.

4.11 Proportion of Births in EmOC Facilities

The proportion of births occurring in EmOC and ENC facilities (Supervised Deliveries) for the districts surveyed was also measured. Table 34 summarizes the findings for Northern Region.

Table 34 Proportion of Births in Health Facilities – Northern Region

Name of District	Population	Expected No. Births	No. Births	%
Tamale Metro	328,210	13,128	5,669	43
Yendi	145,888	5,836	1,787	31
Bole	56,930	2,277	450	20
East Gonja	200,336	8,013	1,739	22
East Mamprusi	102,368	4,095	1,435	35
West Mamprusi	132,056	5,282	966	18
Savelugu –Nanton	103,292	4,132	1,529	37
	1,069,080	42,763	13,575	32

From Table 34, the proportion of supervised deliveries (births taking place in health facilities) ranged from 18% in West Mamprusi to 43% in Tamale Metro for the year 2004.

4.12 Newborn Health

4.12(i) Neonatal Complications

In Northern Region, results of the findings also revealed that neonatal complications increased by over 50% in the five (5) years. It increased from 318 in 2000 to 562 in 2004. Table 35 provides the details.

From Table 35 neonatal complications increased continuously from 318 in 2000 to 562 in 2004. The leading causes of neonatal complications include; birth asphyxia (38.3%), sepsis (11.1%), pneumonia (9.2%), pre-maturity (7.0%), diarrhoea (5.4%), congenital anomalies (2.1%) and, birth injuries and neonatal tetanus (0.7%) each.

Table 35 Neonatal Complications – Northern Region

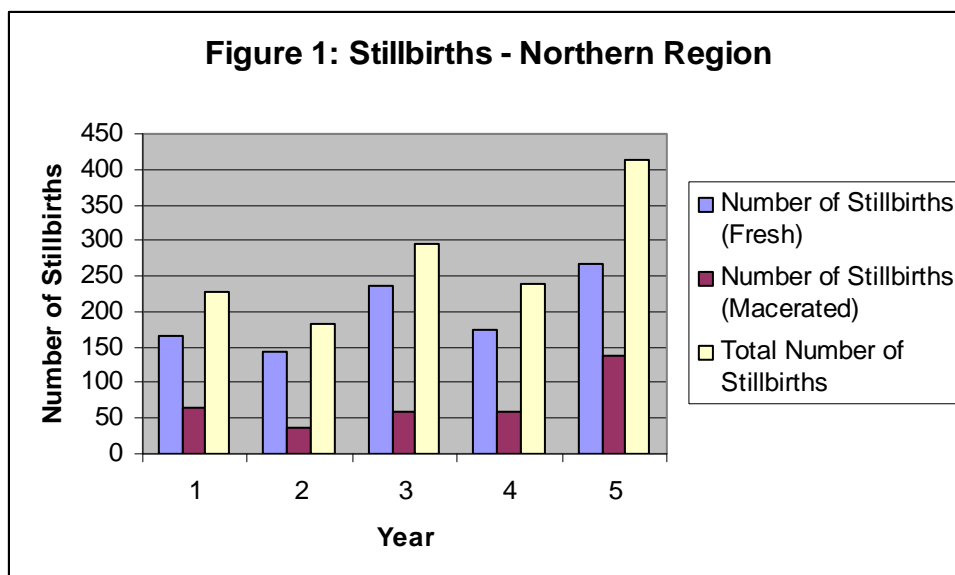
Complications	2000	2001	2002	2003	2004	Total	%
Birth asphyxia	35	134	229	221	255	874	38.4
Birth injuries	3	6	3	1	4	17	0.747
Neonatal tetanus	4	3	3	5	2	17	0.747
Sepsis	34	52	56	71	40	253	11.12
Pneumonia	68	41	48	24	29	210	9.227
Diarrhoea	11	30	24	17	42	124	5.448
Prematurity	28	28	28	33	43	160	7.03
Congenital anomalies	15	7	10	5	11	48	2.109
Others	120	108	112	97	136	573	25.18
TOTAL	318	409	513	474	562	2276	100

4.12(ii) Proportion of Stillbirths and Low Birth Weight

The total number of stillbirths over the five years in all facilities surveyed in Northern Region was 1355 out of which, 73% were fresh and 27% were macerated. The trend over the years is shown in figure 6 below. In figure 6, the total number of stillbirths reduced from 277 in 2000 to 183 in 2001 and in 2002, it increased to 294. It reduced again in 2003 to 238 but went upwards to 413 stillbirths in 2004.

The trend of the fresh stillbirths follows the same pattern. It reduced from 176 in 2000 to 144 in 2001 and increased to 235 in 2002. In 2003, it reduced again to 175 but increased to 266 in 2004. For macerated, the number reduced from 64 in 2000 to 37 in 2001 and increased to 60 in 2002. In 2003, it remained the same (60) but increased to 137 in 2004.

Figure 6 Proportion of Stillbirths



The proportion of births occurring in EmOC facilities that are stillbirths or have low birth weights was also measured. Table 39 below compares the proportion of stillbirth rates and Low Birth Rates over the years.

Table 39 Low Birth Weight/ Stillbirth – Northern Region

District	Low Birth Weight (%)					Stillbirths (%)				
	2000	2001	2002	2003	2004	2000	2001	2002	2003	2004
Tamale Teaching Hospital	15.8	0.9	13.3	14	11.1	10.4	7.8	10.1	13	7.8
Tamale Metro	8.9	11.8	8.8	10.8	13.4	2.1	1	2.3	3	3.4
Yendi	8.8	15.4	16.8	14.2	16.3	6.2	3.6	6.3	1.3	3.9
Bole	8.5	6.1	6.6	9.3	8.9	2.6	4.5	7.1	2.2	5.3
East Gonja	10.8	7.2	10	10.7	9.4	5.2	3.3	2.9	4.6	4.1
East Mamprusi	13.5	13.8	9.9	11.7	12.8	5.7	3.9	6.1	2.5	5.2
West Mamprusi	2.5	4.1	10.2	11.1	6.5	2.5	1.2	1.4	3.5	3.6
Savelugu Nanton	12.6	12.9	14.5	14.6	9	3.3	2.8	3.1	4.1	2.8

From Table 39, the proportion of low birth weight in the Teaching Hospital increased from 0.9% in 2001 to 14% in 2003. For stillbirths in the Teaching Hospital, the trend has been erratic.

In Tamale Metro, the proportion of low birth weight ranges from 8.8% to 13.4%. The proportions for 2000 (8.9%) and 2001 (8.8%) indicate very good signs of nutritional status in the Metro. But because of poor records keeping at the facilities, these figures should be interpreted with caution. For stillbirths, the range is between 1% and 3.4%.

4.12(iii) Neonatal Deaths

In Northern Region, the survey findings revealed that neonatal deaths have been fluctuating over the years as show in table 26 below.

Table 26: Neonatal Deaths – Northern Region

Neonatal Deaths	2000	2001	2002	2003	2004	Total	%
Birth asphyxia	8	5	9	10	9	41	10.62
Birth injuries	1	4	1	1	1	8	2.07
Neonatal tetanus	1	2	1	3	2	9	2.33
Sepsis	9	9	14	13	12	57	14.77
Pneumonia	5	0	4	3	8	20	5.18
Diarrhoea	1	3	4	6	8	22	5.70
Prematurity	12	18	16	18	27	91	23.58
Congenital anomalies	8	3	5	4	9	29	7.51
Others	31	18	22	16	22	109	28.24
TOTAL	76	62	76	74	98	386	100

From table 26, the leading causes of neonatal deaths are pre-maturity (24%), sepsis (14%), birth asphyxia (11%), congenital anomalies (8%), diarrhea (6%), pneumonia (5.1%), neonatal tetanus (2.3%) and birth injuries (2%).

4.13 Referral Mechanism

Referral mechanisms in the Northern Region especially the remote areas need some improvement in order to safe the lives of women and their newborns. Findings of the survey reveal that some facilities in the region are not well linked to another when it comes to referrals. While in some districts all facilities have radio links, telephones and transport, in others none of these mechanisms exists.

4.14 Performance of Individual Districts and Facilities

4.14.1 Tamale Teaching Hospital

4.14.1(i) Maternal Health

The number of maternal deaths for direct and indirect causes increased over the period in the Teaching Hospital though the increase is not continuous over the years. See Table 36 below.

Table 36 Maternal Deaths – Tamale Teaching Hospital

Direct Causes	2000	2001	2002	2003	2004
Haemorrhage	2	3	5	5	
Obstructed/Prolonged labour	1		1		
Ruptured uterus			1		2
Postpartum sepsis	1	2	1		
Pre-eclampsia/Eclampsia/PIH	3	3	6	4	5
Induced/septic abortion	8	2	3	2	9
Ectopic pregnancy	1	2			1
Others	3	5	2	4	3
TOTAL	19	17	19	15	20
Indirect Causes					
Hepatitis	1	3	2		3
Malaria	3	1	3	6	4
HIV/AIDS			2		1
Anaemia	4	1	5	1	3
Sickle cell disease		1		2	1
Others	5	6	7	7	8
TOTAL	13	12	19	16	20

From Table 36 maternal deaths from direct causes reduced from 19 in 2000 to 17 in 2001 and in 2002, it increased again to 19. In 2003, it reduced again to 15 but increased to 20 in 2004. Maternal deaths from indirect causes also reduced from 13 in 2000 to 12 in 2001 and increased to 19 in 2002. In 2003, it reduced to 16 but in 2004 it again increased to 20.

The leading direct causes of maternal deaths in the Teaching Hospital include; induced/septic abortion (27%), pre-eclampsia/eclampsia (23.3%), haemorrhage (17%),

postpartum sepsis (4.4%), ectopic pregnancy (4.4%), ruptured uterus (3.3%) and obstructed/prolonged labour (2.2%). The leading indirect causes include; malaria (21.3%), anaemia (18%), hepatitis (11.3%) and HIV/AIDS (4%).

4.14.1(ii) Equipment, Drugs and Supplies

The Teaching Hospital which is a major referral point for the region is poorly equipped. For EmOC, the Hospital lacks a sterilizer and fetal stethoscope. The remaining equipments are available but in inadequate quantities. The situation for ENC is even worse. For ENC, it lacks BP monitoring equipment, nasal prongs, pulse oximeter, ventilation, umbilical catheterization, chest tube set, glucometer, exchange blood transfusion and bilirubinometer. The rest on the ENC list are inadequately available.

4.14.1(iii) Newborn Health

In the Teaching Hospital, there were some fluctuations with neonatal deaths recorded over the period. See Table 37 below.

Table 37 Neonatal Deaths – Tamale Teaching Hospital

Neonatal Deaths	2000	2001	2002	2003	2004	Total	%
Birth asphyxia	2	3	6	0	1	12	8.45
Birth injuries	0	0	0	0	0	0	0
Neonatal tetanus	0	0	1	0	1	2	1.41
Sepsis	7	5	6	29	21	68	47.88
Pneumonia	1	4	0	1	2	8	5.63
Diarrhoea	1	2	0	0	1	4	2.82
Prematurity	1	0	0	0	2	3	2.11
Congenital anomalies	1	3	2	1	1	8	5.63
Others	4	6	5	12	10	37	26.06
TOTAL	17	23	20	43	39	142	100

From Table 37, the leading causes of neonatal deaths are sepsis (48%), birth asphyxia (8.4%), pneumonia (6%), congenital anomalies (6%), diarrhea (3%) and pre-maturity (2.1%).

4.14.1(iv) Obstetric Complications

The leading complications in Tamale Teaching Hospital mirror those of Tamale metro.

4.14.1(v) Infrastructure

In the teaching hospital, the water supply system and toilet facilities are completely broken down thereby causing sanitary problems that seriously affect EmOC/ENC service delivery.

4.14.1(vi) Referral Mechanism

The survey revealed that the Teaching Hospital has good radio and telephone links but poor transport.

4.14.2 Tamale Metropolitan

4.14.2(i) Amount of EmOC and ENC Services Available

Apart from the Tamale Teaching Hospital which serves as a major referral point for the region, the Tamale Metro health district has 1 District Hospital (Tamale West Hospital) and 7 other facilities that provide EmOC/ENC services. These include Tamale Old Hospital, 6MRS, Kpanvo Health Centre, Bilpela Health Centre, Deha Health Centre, Fulera Maternity Home and ABF. Here, none of the health facilities surveyed can be said to be providing the full range of key EmOC/ENC services.

In Tamale Metro, the survey revealed that only Tamale West Hospital provides basic EmOC/ENC services. The rest of the facilities though functional, do not provide the full range of key EmOC/ENC services to qualify as basic facilities. This is shown in Table 38 below.

Table 38 Health Facilities in Tamale Metro and EmOC Services

Signal Functions	NAME OF FACILITIES IN DISTRICT								
	Tamale West Hospital	Old Hospital	6MRS	Kpanvo HC	Bilpela HC	Deha HC	Fulera Maternity	ABF	
Parenteral antibiotics	X		X						
Parenteral oxytocics	X	X	X	X	X	X		X	
Magnesium sulphate /parenteral sedatives/ anticonvulsants	X					X			
Use of Partograph	X	X				X			
Manual removal of placenta	X	X	X	X	X	X	X		
Removal of retained products	X	X	X	X	X	X	X		
Vacuum extraction	X	x			X	X	X		
Blood transfusion									
Caesarean section									
Anaesthetic services									
Total Score	7	5	4	3	4	6	3	1	

From Table 38 above, Tamale West Hospital scored 7 out of 10, followed closely by Deha Health Centre and Old Hospital which scored of 6 and 5 respectively. For the rest of the facilities, the range was from 1 to 4.

4.14.2(ii) Equipment, Drugs and Supplies

In the Tamale Metro, the Tamale West Hospital in relative terms is better equipped than most of the facilities in the Metro. For EmOC, it lacks needles, c-section set, laparotomy set, MVA kit and curette. For ENC, it has on average 2 of the following equipment; oxygen cylinder, face masks, thermometer, clock with seconds hand, sharps container and clean dry linen. The rest of the equipment on the ENC list are absent.

The Old Hospital lacks the following EmOC equipment; IV infusion set, vaginal speculum, sutures, needles and cord scissors. Other equipment on the list are available but in small quantities. For ENC, it has on the average 2 of the following equipment; self

inflating resuscitation bag, oxygen cylinder, face mask, nasal prongs, stethoscope, thermometer, clock with seconds hand, sharps container, gloves, syringes, needles and sterile blades. The rest of the equipment on the ENC list are absent.

6MRS facility lacks vacuum extractor, needles and fetal stethoscope for EmOC. Other equipment on the EmOC list are available in small quantities. For ENC, the following equipment are available; thermometer, clock with seconds hand, sharps container and sterile blades. The rest of the equipment on the ENC list are not available.

In Kpanvo Health Centre, the following equipments for EmOC are not available; vacuum extractor, bladder catheter, IV infusion set, ovum forceps, vaginal speculum, artery forceps, sutures, sterilizer, episiotomy scissor, cord scissor, emergency packs, stethoscope, fetal stethoscope, microscope, test tubes and slides. Other equipments on the list are available. For ENC, the following are available; stethoscope, thermometer, clock with seconds hand, sharps container, sterile gloves, syringes, needles and blades. The rest on the ENC list are not available.

In Bilpela Health Centre, equipment for EmOC that are not available include; vacuum extractor, bladder catheter, IV infusion set, stethoscope, weighing scale, gloves, fetal stethoscope, microscope, test tubes and slides. Others on the list are available. For ENC, the following are available; self inflating resuscitation bag, stethoscope, thermometer, clock with seconds hand, sharps container, sterile gloves, syringes, needles and blades. The rest on the ENC list are not available.

In Deha Health Centre, the following equipments for EmOC are not available; cord scissors, microscope, test tube and slides. The rest on the list are available. For ENC, the following are available; self inflating resuscitation bag, stethoscope, clock with seconds hands, sharps container, sterile gloves, syringes, needles, blades and clean dry linen. The rest on the ENC list are not available.

In Fulera Maternity Home, the following equipment for EmOC are not available; bladder catheter, cord scissors, emergency packs, stethoscope, weighing scale, gloves, fetal stethoscope, microscope, test tubes and slides. Others on the list are available. For ENC, the following are available; self inflating resuscitation bag, stethoscope, thermometer, clock with seconds hands, sharps container, sterile gloves, syringes, needles, sterile blades and clean dry linen. The rest on the ENC list are not available.

In ABF, the following equipment for EmOC are not available; vacuum extractor, bladder catheter, sterilizer, emergency packs, stethoscope, weighing scale, gloves, fetal stethoscope, microscope, test tubes and slides. Others on the list are available. For ENC, the following are available; self inflating resuscitation bag, oxygen cylinder, stethoscope, thermometer, clock with seconds hand and sharps container. The rest on the ENC list are not available.

In Tamale Metro, apart from Kpanvo Health Centre and 6MRS which have no stocks of drugs and only two kinds of drugs (oxytocics and IV fluids) available respectively, the others have some stocks of basic drugs for EmOC and ENC. However, the following drugs for EmOC are not available in all the facilities in the Metro; calcium gluconate, gentamicin, general anaesthetics and anti hypertensives. For ENC, the following drugs are not available in all the facilities; naloxone, phenobarbitone, phenytoin, calcium gluconate, sodium bicarbonate and 70% alcohol.

4.14.2(iii) Maternal Health

Met Need

The met need for emergency obstetric care is 111%. This figure appears inflated possibly due to Tamale Teaching Hospital serving as a large referral centre.

Maternal Deaths

In Tamale Metro, no maternal deaths occurred in the facilities surveyed for the five year period. This is probably because most complications were referred to the Teaching Hospital.

4.14.2(iv) Obstetric complications

For Tamale Metro, the leading direct causes of complications are obstructed/ prolonged labour (53%), haemorrhage (17%), pre- eclampsia/ eclampsia (6%) and postpartum sepsis (1%). Obstructed/prolonged labour reduced from 4% in 2000 to 0% in 2001 and 2002. It, however, increased rapidly to 45% in 2003 and 53% in 2004. Haemorrhage also reduced from 15% in 2000 to 0% in 2001 and 2002. In 2003, it increased to 23% and in 2004 it reduced again to 17%. Pre-eclampsia/ eclampsia reduced from 16% in 2000 to 11% in 2001 and in 2002, it further reduced to 0%. It shot up again in 2003 to 14% and in 2004 it fell to 6%. Postpartum sepsis also increased from 12% in 2000 to 78% in 2001 and between 2003 and 2004, it reduced rapidly to 1%. For induced/septic abortion, it reduced to 0% in 2001 and 2002 from 46% in 2000. In 2003, it increased to 5% and in 2004 it fell again to 0%. The erratic nature of the trend of obstetric complications could be attributed to poor records keeping at the facilities.

For indirect causes, the leading causes are malaria (96%) and anaemia (3%). Malaria increased steadily from 67% in 2000 to 96% in 2004 while anaemia reduced from 22% in 2000 to 20% in 2001. It reduced further in 2002 to 3.3% and increased again in 2003 and 2004 to 4% and 4.2% respectively.

4.14.2(v) Caesarian Sections

Caesarian sections should form 5 – 15% of all expected births in a given population. It provides a measure of accessibility, availability and utilization of EmOC/ENC services.

In Tamale Metro, the Caesarian sections as a proportion of expected births is 3.9% and for actual births, it is 8.9%.

Table 37 summarizes the findings for Northern Region.

Table 37: CAESARIAN SECTIONS IN HEALTH FACILITIES – Northern Region

Name of District	Population	Expected No. Births	Actual Deliveries	No. Caesarian Sections	% Actual CS	% Expected CS
Tamale Metro	328,210	13,128	5,669	509	8.9	3.9
Yendi	145,888	5,836	1,787	203	11.3	3.5
Bole	56,930	2,277	450	17	3.7	0.7
East Gonja	200,336	8,013	1,739	85	4.8	1.1
East Mamprusi	102,368	4,095	1,435	192	13.3	4.7
West Mamprusi	132,056	5,282	966	23	2.3	0.4
Savelugu Nanton	103,292	4,132	1,529	-	0	0

4.14.2(vi) Newborn Health

Neonatal complications in Tamale Metro increased continuously over the period from 6 in 2000 to 54 in 2004. Birth asphyxia (99%) and sepsis (1%) are the leading causes of neonatal complications in the Metro. See table 38 below.

Table 38 Neonatal Complications – Tamale Metro

Complications	2000	2001	2002	2003	2004	Total	%
Birth asphyxia	6	11	22	49	54	142	98.6
Birth injuries	0	0	0	0	0	0	0
Neonatal tetanus	0	0	0	0	0	0	0
Sepsis	0	0	1	1	0	2	1.4
Pneumonia	0	0	0	0	0	0	0
Diarrhoea	0	0	0	0	0	0	0
Prematurity	0	0	0	0	0	0	0
Congenital anomalies	0	0	0	0	0	0	0
Others	0	0	0	0	0	0	0
TOTAL	6	11	23	50	54	144	100

In Tamale Metro, survey findings revealed that one neonatal death occurred as a result of pre-maturity over the period. See table 39 below.

Table 39 Neonatal Deaths – Tamale Metro

Neonatal Deaths	2000	2001	2002	2003	2004	Total	%
Birth asphyxia	0	0	0	0	0	0	0
Birth injuries	0	0	0	0	0	0	0
Neonatal tetanus	0	0	0	0	0	0	0
Sepsis	0	0	0	0	0	0	0
Pneumonia	0	0	0	0	0	0	0
Diarrhoea	0	0	0	0	0	0	0
Prematurity	0	0	1	0	0	1	100
Congenital anomalies	0	0	0	0	0	0	0
Others	0	0	0	0	0	0	0
TOTAL	0	0	1	0	0	1	100

From Table 39, the only cause of death recorded over the years is pre-maturity (100%). This is far from reality and is most likely the result of very poor recording keeping on newborns.

4.14.2(vii) Referral Mechanisms (radio/communication/transport)

All facilities in the Metro have good telephone and transport links that they use for referrals but have no radio links.

4.14.3 Yendi District

4.14.3(i) Amount of EmOC and ENC Services Available

Yendi District has 1 Comprehensive and 2 Basic EmOC facilities. These facilities are the Yendi Government Hospital (Comprehensive EmOC) and the Ngani and Adibo Health Centres (Basic EmOC). The remaining facilities do not provide the full range of Basic EmOC services but provide 4 or 5 out of the expected 7 key functions of Basic EmOC.

Table 40 provides the details.

Table 40 Health Facilities in Yendi District and EmOC Services

Signal Function	NAME OF FACILITIES IN DISTRICT					
	Yendi Hospital	Jimli HC	Ngani HC	Adibo HC	Sang HC	Bumbong HC
Parenteral antibiotics	X	X	X	X	X	X
Parenteral oxytocics	X	X	X	X	X	X
Magnesium sulphate/ parenteral sedatives/ anticonvulsants	X	X	X	X	X	X
Use of Partograph	X	X	X	X	X	
Manual removal of placenta	X		X	X		
Removal of retained products	X	X	X	X	X	X
Vacuum extraction	X		X	X		
Blood transfusion	X					
Caesarean section	X					
Anaesthetic services	X					
Total Score	10	5	7	7	5	4

From Table 40 above, Yendi Hospital has a 100% score (10 out of 10), followed by Ngani and Adibo Health Centres with scores 7 out of 10 respectively. Jimli and Sang health Centres scored 5 out of 10 respectively while Bumbong Health Centre scored 4 out of 10.

4.14.3(iii) Equipment, Drugs and Supplies

In Yendi district, the District Hospital which is a major referral point for the rest of the facilities is better equipped especially for ENC than the other facilities. For EmOC, the Hospital lacks the following equipment; bladder catheter, IV infusion set, cord scissors, emergency packs, weighing scale, gloves and fetal stethoscope. Others on the EmOC list are available. The following equipments are available for ENC; self inflating resuscitation bag, airways size 0,1,2, oxygen cylinder, face masks, stethoscope, BP monitoring equipment, pulse oximeter, mobile X-ray machine, thermometer, clock with seconds hand, radiant warmer, incubator, sharps container, sterile gloves, syringes,

needles, blades, glucometer and nasogastric tubes size 5-8. The rest of the equipments on the list are not available.

In Jimli Health Centre, the following equipments for EmOC are not available; vaccum extractor, bladder catheter, ovum forceps, vaginal speculum, sterilizer, cord scissors, emergency packs, stethoscope, gloves, fetal stethoscope, microscope, test tubes and slides. Others on the list are available. For ENC, the only equipment available include; stethoscope, thermometer, clock with seconds hand and sharps container. The rest on the ENC list are not are available.

In Ngani Health Centre, the following equipments for EmOC are not available; bladder catheter, sterilizer, weighing scale, gloves, microscope, test tubes and slides. Others on the list are available. For ENC, the following are available; endotracheal tubes, airways size 0,1,2, face mask, stethoscope, thermometer, clock with seconds hand, sharps container, sterilize gloves, syringes, needles, blades and clean dry linen. The rest of the equipments on the ENC list are not available.

Adibo Health Centre lacks the following equipment for EmOC; bladder catheter, cord scissors, stethoscope, weighing scale, gloves, fetal stethoscope, microscope, test tubes and slides. Others on the list are available. For ENC, the following equipments are available; airways size 0,1,2, stethoscope, thermometer, clock with seconds hand, sharps container, sterile gloves, syringes, needles and clean linen. The rest on the list are not available.

In Sang Health Centre, the following equipments for EmOC are not available; gloves, microscope, test tubes and slides. Others on the list are available. For ENC, the following equipments are available; airways size 0,1,2, stethoscope, self inflating resuscitation bag, pulse oximeter, thermometer, clock with seconds hand, sterile gloves, syringes, needles, blades and clean dry linen. The rest on the list are not available.

In Bumbong Health Centre, the following equipments for EmOC are not available; vacuum extractor, bladder catheter, cord scissors, emergency packs, microscope, test tubes and slides. Others on the list are available. For ENC, the following are available; self inflating resuscitation bag, stethoscope, thermometer, clock with seconds hand, sharps container, sterile gloves, syringes, needles and blades. The rest on the list are not available.

In Yendi District, drugs and supplies are fairly distributed among the facilities. The following drugs and supplies for EmOC are not available in all facilities in the district; magnesium sulphate, calcium gluconate and anti hypertensives. Procain penicillin is available only in Yendi Hospital and Bumbong Health Centre. For ENC, the following are not available in all the facilities; naloxone, 10% glucose, 1/5th saline 10% glucose, phenobarbitone, phenytoin, calcium gluconate, sodium bicarbonate and 70% alcohol. Chloramphenicol eye drops is only available in Yendi Hospital.

4.14.3(iv) Blood

In Yendi District, only the District hospital provides blood transfusion service. The hospital has a blood bank and some quantity of blood bags.

4.14.3(v) Staffing

In Yendi District, the following number of staff are available; 1 Paediatrician, 1 Obstetrician, 4 Medical Officers, 22 Midwives, 39 Nurses, 1 Nurse Anaesthetics, 1 Laboratory Technologist, 1 Pharmacist, 4 Dispensing Technicians and 4 Records Officers. None of the Midwives have benefited from LSS/ENC training.

4.14.3(vi) Infrastructure of Health Facilities

In Yendi District, all the health facilities surveyed lack toilet systems and are poorly supplied with water. Apart from the Yendi Hospital which has 24 hours electricity supply, the rest of the facilities do not have it and hence no 24 hour service.

4.14.3(vii) Maternal Health

Met Need

Met need for emergency obstetric care in Yendi District is 63%.

Maternal Deaths

The number of maternal deaths from both direct and indirect causes in the district has been erratic over the period. However, there is a reduction in deaths occurring from indirect causes. See Table 41

Table 41 Maternal Deaths – Yendi District

Direct Causes	2000	2001	2002	2003	2004
Haemorrhage	2	0	0	0	1
Obstructed/Prolonged labour	0	3	0	0	0
Ruptured uterus	0	0	0	3	0
Postpartum sepsis	0	3	0	0	0
Pre-eclampsia/Eclampsia/PIH	0	1	0	1	0
Induced/septic abortion	0	0	1	0	0
Ectopic pregnancy	0	0	0	0	0
Others	0	0	0	0	0
TOTAL	2	7	1	4	1
Indirect Causes					
Hepatitis	3	0	2	0	1
Malaria	1	0	1	0	0
HIV/AIDS	0	0	0	0	0
Anaemia	0	0	0	0	1
Sickle cell disease	0	0	0	0	0
Others	1	2	0	1	0
TOTAL	5	2	3	1	2

From Table 41, the number of maternal deaths from direct causes increased from 2 in 2000 to 7 in 2001 and reduced to 1 in 2002. In 2003, it increased again to 4 but declined to 1 in 2004. Maternal deaths from indirect causes also reduced from 5 in 2000 to 2 in 2001 and in 2002, it increased to 3. In 2003, it reduced again to 1 but increased to 2 in 2004.

The leading direct causes of maternal deaths in the district include; haemorrhage (20%), obstructed/prolonged labour (20%), ruptured uterus (20%), postpartum sepsis (13.3%) and induced/septic abortion (7%). Leading indirect causes include; hepatitis (46.2%), malaria (15.4%) and anaemia (8%).

4.14.3(vii) Obstetric Complication

In Yendi District, the leading causes of direct complications include; induced/septic abortion (50%), haemorrhage (16%), ruptured uterus (15%), postpartum sepsis (8%), obstructed/prolonged labour (4%), pre-eclampsia/ eclampsia (3%) and ectopic pregnancy (2%). Over the five years, induced/ septic abortion increased from 9.4% in 2000 to 13.2%, 37.3% and 55% in 2001, 2002 and 2003 respectively. In 2004, it reduced slightly to 50%. For haemorrhage, it reduced from 49% in 2000 to 14% in 2001 and in 2002 it increased slightly to 16.1%. In 2003, it reduced again to 9% and in 2004 it shot up to 16%. Ruptured uterus reduced over the period from 37% in 2000 to 15% in 2004. Postpartum sepsis also increased from 3% in 2000 to 7% in 2001 and remained the same in 2002. It reduced to 4.2% in 2003 and in 2004 it increased again to 8%. Obstructed/prolonged labour increased steadily from 2% in 2000 to 4% in 2004. Pre-eclampsia/eclampsia also fluctuated up and down over the period. It increased from 5% in 2000 to 23% in 2001 and in 2002, 2003 and 2004, it dropped to 14.4%, 8.4% and 3% respectively. Ectopic pregnancy also increased from 0.9% in 2000 to 2% in 2004.

For indirect causes, the leading ones are malaria (66%), anaemia (24.4%) and hepatitis (2%). Malaria increased from 67.3% in 2000 to 80% in 2001 and in 2002, it dropped to 72.4%. It again increased to 75% in 2003 and in 2004, it dropped to 66%. For anaemia, it reduced from 23.4% in 2000 to 14.2% in 2001 and increased steadily from 20.2% in 2003 to 24.4% in 2004. Hepatitis, however, reduced erratically from 8% in 2000 to 2% in 2004.

4.14.3(viii) Caesarian Sections

This should form between 5 – 15% of all expected births in a given population. In Yendi, it is 3.5% and 11.3% of actual births.

4.14.3(ix) Proportion of Births in Facilities

The survey findings also revealed that only 31% of all expected birth in Yendi District actually takes place in EmOC and ENC facilities.

4.14.3(x) Neonatal Complications

In Yendi District, neonatal complications increased initially but declined at the end of the five years. Table 42 provides the details

Table 42 Neonatal Complications – Yendi District

Complications	2000	2001	2002	2003	2004	Total	%
Birth asphyxia	0	81	112	81	86	360	86.9565
Birth injuries	0	0	0	0	0	0	0
Neonatal tetanus	0	0	0	0	0	0	0
Sepsis	0	5	13	10	5	33	7.97101
Pneumonia	0	1	6	2	1	10	2.41546
Diarrhoea	0	0	1	2	1	4	0.96618
Prematurity	0	0	0	0	0	0	0
Congenital anomalies	3	0	2	0	0	5	1.20773
Others	0	0	1	1	0	2	0.48309
TOTAL	3	87	135	96	93	414	100

From Table 42, neonatal complications increased from 3 in 2000 to 87 in 2001 and by 2002, it had reached 135. However, by 2003 and 2004, it declined to 96 and 93 respectively. The leading causes of neonatal complications are birth asphyxia (87%), sepsis (8%), pneumonia (2.4%), congenital anomalies (1.2%) and diarrhea (1%).

Neonatal Deaths

In Yendi District, neonatal deaths fluctuated over the period. However, no neonatal deaths were recorded for 2001 and 2004 (see Table 43 below), possibly due to poor record keeping. In table 43, 2002 had the highest record of neonatal deaths (5) in the

district. The leading causes of neonatal deaths are congenital anomalies (30%), sepsis (20%), birth asphyxia (20%), diarrhea (10%) and pre-maturity (10%).

Table 43 Neonatal Deaths – Yendi District

Neonatal Deaths	2000	2001	2002	2003	2004	Total	%
Birth asphyxia	0	0	2	0	0	2	20
Birth injuries	0	0	0	0	0	0	0
Neonatal tetanus	0	0	0	0	0	0	0
Sepsis	0	0	1	1	0	2	20
Pneumonia	0	0	1	0	0	1	10
Diarrhoea	0	0	0	1	0	1	10
Prematurity	0	0	0	0	0	0	0
Congenital anomalies	3	0	0	0	0	3	30
Others	0	0	1	0	0	1	10
TOTAL	3	0	5	2	0	10	100

4.14.3(xi) Low Birth Weight/Stillbirth

In Yendi, the proportion of low birth weight increased from 8.8% in 2000 to 16.8% in 2002. For the rest of the years the trend has been erratic. Stillbirths range from 1.3% and 6.2% over the period. However, interpretation of these figures should be done with caution.

4.14.3(xii) Referral Mechanisms

All facilities in Yendi are well linked to one another through good radio, telephone and transport links. Referral mechanisms in this district are not much of a problem.

4.14.4 Bole District

4.14.4(I) Amount of EmOC/ENC Services Available

In Bole health District, there is 1 District Hospital (Bole Hospital) and 3 other health facilities that provide EmOC/ENC services. The 3 facilities include; Tinga Health Centre,

Bamboi Health Centre and Jama Clinic. In this district, none of the facilities surveyed provide the full range of EmOC/ENC services. Table 44 provides the details.

Table 44 Health Facilities in Bole District and EmOC Services

Signal Functions	NAME OF FACILITIES IN DISTRICT			
	Bole Hospital	Tinga HC	Bamboi HC	Jama HC
Parenteral antibiotics	X	X	X	X
Parenteral oxytocics	X	X	X	X
Magnesium sulphate/ parenteral sedatives/ anticonvulsants	X	X		X
Use of Partograph	X	X		
Manual removal of placenta		X	X	X
Removal of retained products		X	X	X
Vacuum extraction				
Blood transfusion	X			
Caesarean section				
Anaesthetic services				
Total Score	5	6	4	5

From Table 44 above, Tinga Health Centre scored 6 out of 10, followed by Bole Hospital and Jama Health Centre who scored 5 out of 10 respectively while Bamboi Health Centre scored only 4 out of 10.

4.14.4(ii) Equipment

In Bole District, the District Hospital lacks the following equipment for EmOC; bladder catheter, ovum forceps, sterilizer, episiotomy scissors, cord scissors, stethoscope, gloves, weighing scale, fetal stethoscope, test tubes and slides. Others on the list are available. For ENC, the following equipments are available; mobile X-ray machine, bilirubinometer, thermometer, clock with seconds hand, radiant warmer, sharps container and sterile gloves, syringes and needles. The rest on the list are not available.

Tinga Health Centre lacks the following equipment for EmOC; vacuum extractor, bladder catheter, sutures, needles, cord scissors, emergency packs, stethoscope, weighing scale, gloves, fetal stethoscope, microscope, test tubes and slides. The rest on the list are available. For ENC, none of the equipment on the list is available.

Bamboi Health Centre lacks the following equipment for EmOC; bladder catheter, sutures, needles, cord scissors, emergency packs, stethoscope, weighing scales, gloves, fetal stethoscope, microscope, test tube and slides. The rest on the list are available. For ENC, the following are available; self inflating resuscitation bag, stethoscope, thermometer, clock with seconds hand, sterile gloves, syringes needles and blades. The rest on the ENC list are not available.

In Jama Health Centre, the following equipment for EmOC are not available; bladder catheter, ovum forceps, sutures, sterilizers, cord scissors, stethoscope, weighing scale, gloves, fetal stethoscope, microscope, test tubes and slides. The rest on the list are available. For ENC, only thermometers, clock with seconds hand, sterile gloves, needles and syringes are available. The rest on the list are not available.

4.14.4(iii) Drugs and Supplies

The Bole District has poor stock levels for drugs and supplies, especially for ENC service. In all the facilities in the district, the following drugs and supplies are not available for EmOC; magnesium sulphate, valium, gentamicin and antihypertensives. Oxygen, general anaesthetics and calcium gluconate are available only in Bole Hospital. Procain penicillin is also available only in Bamboi and Jama Health Centres. For ENC, the following are not available; adrenaline, naloxone, 10% glucose, 1/5th saline 10% glucose, phenobarbitone, phenyton, calcium gluconate, cloxacillin, chloramphenicol eye drop and 70% alcohol. Vitamin K and sodium bicarbonate are available only in Bole Hospital. Ampicillin and gentamicin are also available in only Jama and Bamboi Health Centres respectively.

4.14.4(iv) Blood

In Bole, only the District Hospital provides blood transfusion services. It has a blood bank and some quantities of blood bags.

4.14.4(v) Staffing

Bole District has the following number of staff; 2 Medical Officers, 2 Medical Assistants, 9 Midwives, 14 Nurses, 2 Dispensing Technicians, 3 Records Officers and 3 other staff. Only 2 of the midwives have had training in LSS and only 1 has had training in ENC.

4.14.4(vi) Infrastructure

Bole District is poorly supplied with water systems especially in the health centres. Staff accommodation is also a problem in the District Hospital.

4.14.4(vii) Maternal Health

The met need for emergency obstetric care is 56% at Bole district.

In Bole District, the number of maternal deaths from both direct and indirect causes stagnated over the period except for 2003 and 2004 for direct and indirect causes respectively. From Table 45, 1 direct maternal death occurred in each of the years 2000, 2001 and 2002. In 2003, no death occurred but in 2004, 1 death occurred again. For indirect causes, no death was recorded from 2000 to 2003. However, in 2004, 1 death was recorded.

The leading direct causes of maternal deaths in the district include; haemorrhage (25%), obstructed/prolonged labour (25%), postpartum sepsis (25%) and ectopic pregnancy (25%). The indirect cause is malaria (100%).

Table 45 Maternal Deaths – Bole District

Direct Causes	2000	2001	2002	2003	2004
Haemorrhage	1	0	0	0	0
Obstructed/Prolonged labour	0	0	0	0	1
Ruptured uterus	0	0	0	0	0
Postpartum sepsis	0	1	0	0	0
Pre-eclampsia/Eclampsia/PIH	0	0	0	0	0
Induced/septic abortion	0	0	0	0	0
Ectopic pregnancy	0	0	1	0	0
Others	0	0	0	0	0
TOTAL	1	1	1	0	1
Indirect Causes					
Hepatitis	0	0	0	0	0
Malaria	0	0	0	0	1
HIV/AIDS	0	0	0	0	0
Anaemia	0	0	0	0	0
Sickle cell disease	0	0	0	0	0
Others	0	0	0	0	0
TOTAL	0	0	0	0	1

4.14.4(viii) Obstetric Complications

For Bole District, the leading direct causes of obstetric complications include; induced/septic abortion (32%), haemorrhage (32%), obstructed/prolonged labour (18.2) and pre-eclampsia/eclampsia (9%). Haemorrhage reduced from 13% in 2000 to 8% in 2001 and increased sharply to 39.3% in 2002. In 2003 and 2004, it reduced again to 36% and 32% respectively. Induced/septic abortion increased from 25% in 2000 to 28% in 2001 and in 2002 it dropped to 9%. In 2003, it shot up to 42% and reduced to 32% in 2004. Obstructed/prolonged labour also increased from 31.5% in 2000 to 56% in 2001 and in 2002 it reduced to 36.4%. In 2003 it reduced further to 7.1% and increased again to 18.2% in 2004. Postpartum sepsis reduced from 19% in 2000 to 4% and 3% in 2001 and 2002 respectively. It again increased to 7.1% in 2003 and dropped to 0% in 2004. Pre-eclampsia/ eclampsia also dropped from 12.5% in 2000 to 0% in 2001 and in 2002 it increased to 9%. In 2003 it dropped again to 6% and increased to 9% again in 2004.

The leading indirect causes include; malaria (78%), anaemia (3.4%), hepatitis (2.2%) and HIV/AIDS (1.1%). Malaria reduced from 82% in 2000 to 64.2% in 2001, and in 2002 it increased to 86%. In 2003 it reduced to 74% and increased again to 78% in 2004. Anaemia reduced from 5.4% in 2000 to 0% in 2001 and in 2002 it increased to 5%. It dropped again to 3% in 2003 and increased slightly to 3.4% in 2004. HIV/AIDS also reduced erratically from 5.4% in 2000 to 1.1% in 2004.

4.14.4(ix) Caesarian Sections

This should be between 5 – 15% of all expected births in a given population. In Bole District, caesarian section is 0.7% and 3.7% for actual deliveries.

4.14.4(x) Proportion of Births in Facilities

Findings of the survey revealed that only 20% of all expected births in Bole District actually take place in EmOC and ENC facilities.

4.14.4(xi) Newborn Health

Neonatal complications

In Bole, neonatal complications increased erratically over the period from 2 in 2000 to 19 in 2004. From Table 46 below, number of complications increased from 2 in 2000 to 15 in 2001 and in 2002, it reduced to 9. In 2003, it further reduced to 7 but increased again to 19 in 2004. The leading causes of neonatal complications in the district include; birth asphyxia (63.4%), diarrhea (8%), pneumonia (6%), neonatal tetanus (2%) and congenital anomalies (2%).

Table 46 Neonatal Complications – Bole District

Complications	2000	2001	2002	2003	2004	Total	%
Birth asphyxia	1	6	4	5	17	33	63.46
Birth injuries	0	0	0	0	0	0	0
Neonatal tetanus	0	0	1	0	0	1	1.92
Sepsis	0	1	1	0	0	2	3.85
Pneumonia	0	1	1	1	0	3	5.77
Diarrhoea	0	3	1	0	0	4	7.69
Prematurity	0	0	0	0	0	0	0
Congenital anomalies	0	0	0	0	1	1	1.92
Others	1	4	1	1	1	8	15.38
TOTAL	2	15	9	7	19	52	100

Neonatal Deaths

In Bole, there was no neonatal death in 2003 but in 2004, three (3) were recorded. Figure for the rest of the years fluctuated. Table 47 provides the details.

Table 47 Neonatal Deaths – Bole District

Neonatal Deaths	2000	2001	2002	2003	2004	Total	%
Birth asphyxia	0	0	0	0	1	1	14.29
Birth injuries	0	0	0	0	0	0	0
Neonatal tetanus	0	0	0	0	0	0	0
Sepsis	0	1	1	0	0	2	28.57
Pneumonia	0	0	0	0	0	0	0
Diarrhoea	0	0	0	0	0	0	0
Prematurity	0	0	0	0	0	0	0
Congenital anomalies	0	0	0	0	1	1	14.29
Others	1	1	0	0	1	3	42.86
TOTAL	1	2	1	0	3	7	100

From table 47, the leading causes of neonatal deaths are sepsis (29%), birth asphyxia (14.3%) and congenital anomalies (14.3%).

4.14.4(xii) Referral Mechanisms

All facilities in Bole are also well linked to one another through radio, telephone and transport links.

4.14.5 East Gonja District

4.14.5(I) Amount of EmOC and ENC Services Available

Table 48: Health Facilities in East Gonja District and EmOC Services

Signal Functions	NAME OF FACILITIES IN DISTRICT										
	Salaga Hospital	Kpalbe HC	Makango HC	Loloto HC	Kpandai HC	Kitare HC	WEC Mission	Lonto HC	Blajai HC	Ekumdi HC	Nkanchina Clinic
Parenteral antibiotics	X	X	X	X	X	X	X	X	X	X	
Parenteral oxytocics	X	X	X	X	X	X	X	X	X	X	
Magnesium sulphate/ parenteral sedatives/ anticonvulsants	X	X	X	X	X	X	X	X	X	X	
Use of Partograph	X	X	X	X							
Manual removal of placenta	X	X	X	X	X	X	X	X	X	X	
Removal of retained products	X	X	X	X	X	X	X	X	X	X	
Vacuum extraction	X				X	X	X				
Blood transfusion	X										
Caesarean section	X										
Anaesthetic services	X										
Total Score	10	6	6	6	6	6	6	5	5	5	0

In East Gonja health district, there is 1 District Hospital (Salaga Hospital) and 10 other health facilities that provide EmOC/ENC services. The 10 facilities include; Kpalbe Health Centre, Makango Health Centre, Loloto Health Centre, Kpandai Health Centre, Kitari Health Centre, WEC Mission clinic, Lonto Health Centre, Blajai Health Centre Ekumdi Health Centre and Nkanchina Clinic.

Apart from Salaga Government Hospital that provides Comprehensive EmOC services, the rest of the facilities do not provide Basic EmOC services. However, 9 facilities provide 5 or 6 out of the expected 7 key functions of Basic EmOC. One (1) facility (Nkanchina Clinic) does not provide any of the expected 7 key functions of Basic EmOC. Table 48 above provides the details. Salaga Hospital scored 100% (10 out of 10) followed by Kpalbe, Makango, Lolotor, Kpandai and Kitare Health Centres, and WEC Mission with 6 scores out of 10 respectively. Blajai and Ekumdi Health Centres scored 5 out of 10 respectively. Nkanchina Clinic scored nothing.

4.14.5(ii) Equipment

In East Gonja District, the availability of equipment is encouraging in most of the facilities surveyed. This is especially true with EmOC equipment. Salaga Hospital which is a major referral point for the rest of the district, all equipment on the EmOC list is available. For ENC, the following equipment are available; self inflating resuscitation bag, thermometer, clock with seconds hand, sharps container, sterile gloves, syringes and needles, nasogastric tubes and clean dry linen. The rest on the ENC list are not available.

In Kpalbe Health Centre, the following equipment for EmOC is not available; vacuum extractor, sphygmomanometer, fetal stethoscope, microscope, test tubes, slides and curette. The rest on the list are available. For ENC, the following are available; sharps container, sterile gloves, syringes and needles, and clean dry linen. The rest on the ENC list are not available.

In Makango Health Centre, the following equipment for EmOC is not available; vacuum extractor, ovum forceps, vaginal speculum, sterilizer, fetal stethoscope, and microscope, test tube, slides and anti- sera. The rest on the list are available. For ENC, the following are available; thermometer, clock with seconds hands and sterile gloves, syringes and needles. The rest on the ENC list are not available.

In Loloto Health Centre, the following equipment for EmOC is not available; vacuum extractor, ovum forceps, sterilizer, fetal stethoscope, microscope, test tubes and slides. For ENC, only clock with seconds hand is available. The rest on the ENC list are not available.

Kpandai Health Centre lacks the following equipment for EmOC; stethoscope, gloves, microscope, test tubes, slides and anti-sera. The rest on the list are available. For ENC, the following equipment is available; self inflating resuscitation bag, thermometer, clock with seconds hand, sharps container and sterile gloves, syringes and needles.

Kitare Health Centre lacks the following equipment for EmOC; bladder catheter, stethoscope, weighing scales, gloves, fetal stethoscope, microscope, test tubes and slides. The rest on the list are available. For ENC, the only equipment that is available is nasogastric tubes 5-8. The rest on the ENC list are not available.

In the WEC Mission facility, the following equipment for EmOC, are not available; sterilizer, sphygmomanometer, gloves and fetal stethoscope. The rest on the list are not available. For ENC, the following are available; self inflating resuscitation bag, thermometer, clock with seconds hand, sharps container, sterile gloves, syringes and needles, nasogastric tubes and clean dry linen. The rest on the list are not available.

In Lonto Health Centre, the equipment for EmOC is not available; vacuum extractor, bladder catheter, ovum forceps, vaginal speculum, sterilizer, sphygmomanometer, weighing scales, fetal stethoscope, microscope, test tubes and slides. The rest on the list are available. For ENC, none of the equipment on the list is available.

In Blajai Health Centre, the following equipment for EmOC is not available; vacuum extractor, ovum forceps, sterilizer, sphygmomanometer, weighing scales, fetal stethoscope, microscope, test tubes and slides. The rest on the list are available. For ENC, the following are available; self inflating resuscitation bag, sharps container, sterile gloves, syringes and needles.

In Ekumdi Health Centre, the following equipment for EmOC is not available; vacuum extractor, bladder catheter, ovum forceps, vaginal speculum, sphygmomanometer, weighing scales, gloves, fetal stethoscope, microscope, test tubes and slides. The rest on the list are available. For ENC, none of the equipment on the list is available.

Nkanchina Health Centre lacks the following equipment for EmOC; vacuum extractor, bladder catheter, IV infusion set, vaginal speculum, sterilizer, sphygmomanometer, weighing scales, gloves, fetal stethoscope, microscope, test tubes and slides. The rest on the list are available. For ENC, the following are available; self inflating resuscitation bag, thermometer, clock with seconds hand, sterile gloves, syringes and needles.

4.14.5(iii) Drugs and Supplies

In East Gonja District, calcium gluconate for EmOC is not available in all the facilities in the district. Procaine penicillin is unavailable in three facilities (Salaga Hospital, Lonto, Loloto and Nkanchina Health Centres). Amoxycillin and metronidazole, and gentamicin are also unavailable in Salaga Hospital and Lonto health centre respectively. Antihypertensives are available only in Salaga hospital. For ENC, naloxone, phenytoin and sodium bicarbonate are unavailable in all facilities in the district. Adrenaline is not available in 7 facilities (Salaga hospital, Loloto, Kitare, Lonto, Blajai, Ekumdi and Nkanchina). 10% glucose is available only in Makango and Loloto health centres. 1/5th saline 10% glucose and normal saline are also available only in Makango health centre. Calcium gluconate is available only in the WEC Mission facility.

4.14.5(iv) Blood

Only the District Hospital provides blood transfusion services in East Gonja District. It has a blood bank and some blood bags.

4.14.5(v) Staff

In the East Gonja District, the following number of staff are available; 4 Medical Officers, 3 Medical Assistants, 23 Midwives, 26 Nurses, 1 Nurse Anaesthetists, 2

Laboratory Technologist, 5 Dispensing Technologists, 5 Records Officers and 36 other staff. Only 8 of the midwives have had training in LSS while only 2 are in ENC.

4.14.5(vi) Infrastructure of Health Facilities

In East Gonja, all health facilities surveyed do not have water systems. Five (5) facilities (Loloto, Kpandai, WEC Mission, Kitare and Blajai) do not have toilet facilities. For electricity supply, Kpandai, Lonto, Ekumdi and Nkanchina do not have it at all. Staff accommodation is also poor especially in Salaga and Kpandai.

4.14.5(vii) Maternal Health

Met Need

The met need for emergency obstetric care is 30% in East Gonja District.

Maternal Deaths

In East Gonja, the occurrence of maternal deaths from direct causes is erratic over the period. For indirect causes maternal deaths remained the same over the period with no deaths at all in 2002 and 2003(see Table 49)

From the table 49, maternal deaths from direct causes reduced from 7 in 2000 to 2 and 1 in 2002 and 2002 respectively. In 2003, it increased rapidly from 1 to 16 but declined to 4 in 2004. 1 death each was recorded from indirect causes for 2000 and 2001. No death occurred in 2002 and 2003 but in 2004, 1 death was recorded again.

The leading direct causes of deaths include; haemorrhage (69.2%), pre-eclampsia/eclampsia (23.1%), postpartum sepsis (12%), induced/septic abortion (4%) and ectopic pregnancy (4%). Leading indirect causes are not captured because the deaths are attributed to other causes not specified.

Table 49 Maternal Deaths – East Gonja District

Direct Causes	2000	2001	2002	2003	2004
Haemorrhage	1	1	0	16	0
Obstructed/Prolonged labour	0	0	0	0	0
Ruptured uterus	0	0	0	0	0
Postpartum sepsis	1	0	0	0	2
Pre-eclampsia/Eclampsia/PIH	5	0	0	0	1
Induced/septic abortion	0	1	0	0	0
Ectopic pregnancy	0	0	1	0	0
Others	0	0	0	0	1
TOTAL	7	2	1	16	4
Indirect Causes					
Hepatitis	0	0	0	0	0
Malaria	0	0	0	0	0
HIV/AIDS	0	0	0	0	0
Anaemia	0	0	0	0	0
Sickle cell disease	0	0	0	0	0
Others	1	1	0	0	1
TOTAL	1	1	0	0	1

4.14.5(viii) Obstetric Complications

In East Gonja, the leading direct causes of obstetric complications are; induced/septic abortion (54.1%), haemorrhage (13.1%), postpartum sepsis (7.1%), obstructed/prolonged labour (1.4%) and pre-eclampsia/ eclampsia (0.4%). Induced/septic abortion increased from 61% in 2000 to 65.1% in 2001 and in 2002 it reduced to 53%. It increased again in 2003 to 59.1% and dropped to 54.1% in 2004. Haemorrhage reduced from 21% in 2000 to 11% in 2001 and short up again to 25% in 2002. In 2003 it dropped to 11% again and in 2004 it increased to 13.1%. Postpartum sepsis reduced steadily over the period from 13% in 2000 to 7.1% in 2004. Obstructed/prolonged labour remained stable (2%) in 2000 and 2001 but in 2002 it dropped to 0%. It increased again in 2003 to 4% and in 2004 it dropped to 1.4%. Pre-eclampsia/eclampsia also increased erratically over the period from 0% in 2000 to 0.4% in 2004.

For indirect causes of obstetric complications in the district, the leading ones identified are; malaria (46%) and anaemia (4.4%). Malaria increased from 87% in 2000 to 94% in 2001 but from 2002 to 2004 it reduced steadily from 79% to 46%. Anaemia has been very erratic over the period. It reduced from 12.3% in 2000 to 6% in 2001 and short up to 21% in 2002. In 2003, it reduced to 17% and in 2004 it reduced further to 4.4%.

4.14.5(ix) Caesarian Sections

This should be between 5 – 15% of all expected births in a given population. In East Gonja District, caesarian section rate is 1.1% and for actual deliveries it is 4.8%.

4.14.5(x) Proportion of Births in Facilities

The proportion of expected births occurring in EmOC and ENC facilities (Supervised deliveries) in East Gonja District is 22%.

4.14.5(xi) Newborn Health

Neonatal Complications

In East Gonja, neonatal complications increased continuously over the period from 132 in 2000 to 211 in 2004. Table 50 provides the details.

Table 50 Neonatal Complications – East Gonja District

Complications	2000	2001	2002	2003	2004	Total	%
Birth asphyxia	8	12	68	66	71	225	25.78
Birth injuries	0	0	0	0	0	0	0
Neonatal tetanus	2	1	0	2	0	5	0.57
Sepsis	2	21	3	33	2	61	6.99
Pneumonia	52	32	34	21	11	150	17.18
Diarrhoea	2	21	12	7	31	73	8.362
Prematurity	1	1	0	4	3	9	1.03
Congenital anomalies	2	0	1	1	3	7	0.80
Others	63	53	72	65	90	343	39.29
TOTAL	132	141	190	199	211	873	100

From Table 50, there is a continuous increase in complications over the years from 132 in 2000 to 211 in 2004. The leading causes of neonatal complications are birth asphyxia (26%), pneumonia (17.2%), diarrhea (8.4%), sepsis (7.0%), neonatal tetanus (0.5%) and congenital anomalies (0.8%).

Low Birth Weight/Stillbirth

In East Gonja, low birth weight range from 7.2% and 10.8% over the period. That for 2001 (7.2%) and 2004 (9.4%) are exceptional low. Stillbirths range from 2.9% and 5.2% over the period. Interpretation should be done with caution.

Neonatal Deaths

In Gonja District, neonatal deaths have fluctuated over the period with the highest recorded in 2004. See Table 51 below. In table 31, the leading causes of neonatal deaths are; pneumonia (9%), diarrhea (7.3%), pre-maturity (7.3%), congenital anomalies (6.1%), sepsis (1.2%) and birth asphyxia (1.2%).

Table 51 Neonatal Deaths – East Gonja District

Neonatal Deaths	2000	2001	2002	2003	2004	Total	%
Birth asphyxia	0	0	0	1	0	1	1.22
Birth injuries	0	0	0	0	0	0	0

Neonatal tetanus	0	0	0	0	0	0	0
Sepsis	1	0	0	0	0	1	1.22
Pneumonia	0	0	2	3	2	7	8.54
Diarrhoea	1	0	1	1	3	6	7.32
Prematurity	1	1	0	1	3	6	7.32
Congenital anomalies	2	0	1	1	1	5	6.10
Others	16	11	9	10	10	56	68.29
TOTAL	21	12	13	17	19	82	100

4.14.5(xii) Referral Mechanisms

In East Gonja, all facilities except Lonto and Blajai have radio, telephone and transport links for referrals. They also have easy access to public transport. For Lonto and Blajai Health Centres, none of these facilities exist.

4.14.6 East Mamprusi District

4.14.6(I) Amount of EmOC and ENC Services Available

East Mamprusi health District has 1 District Hospital (Baptist Medical Centre) and 4 health centres that provide EmOC/ENC services. The health centres are; Gambaga, Langbinsi Sakogu and Gbintri health centres. Only the Baptist Medical Centre provides the full range of key EmOC/ENC services.

In East Mamprusi District, only the Baptist Medical Centre provides Comprehensive EmOC services. The rest of the facilities do not provide Basic EmOC but they do provide 3 to 6 of the expected 7 key functions of Basic EmOC as shown in Table 52 below.

Table 52 Health Facilities in East Mamprusi District and EmOC Services

Signal Function	NAME OF FACILITIES IN DISTRICT								
	Baptist Medical Centre	Gambaga HC	Langbinsi HC	Sakogu HC	Gbintri HC				
Parenteral antibiotics	X	X	X	X	X				
Parenteral oxytocics	X	X	X	X	X				
Magnesium sulphate/ parenteral sedatives/ anticonvulsants	X	X	X	X	X				
Use of Partograph	X	X	X	X					
Manual removal of placenta	X	X	X	X					
Removal of retained products	X	X	X						
Vacuum extraction	X								
Blood transfusion	X								
Caesarean section	X								
Anaesthetic services	X								
Total Score	10	6	6	5	3				

From Table 52 above, the Baptist Medical Centre scored 100% (10 out of 10) while Gambaga and Langbinsi Health Centres scored 6 out of 10 respectively. The remaining facilities (Sakogu and Gbintri Health Centres) scored 5 and 3 out of 10 respectively.

4.14.6(ii) Equipment

In East Mamprusi District, the Nalerigu Baptist Medical Centre is the major point of referral for the other facilities in the district. For EmOC, it lacks the following equipment; cord scissors, emergency packs, stethoscope, weighing scales, gloves and MVA Kit. Other equipment on the list is available. For ENC, all equipment on the list are available except the following; pulse oximeter, ventilator, blood gas analyzer, bilirunometer, umbilical catheterization set, exchange blood transfusion set, phototherapy unit and radiant warmer.

Gambaga Health Centre lacks the following equipment for EmOC; vacuum extractor, bladder catheter, cord scissor, emergency packs, stethoscope, gloves, test tubes and

slides. Others on the list are available. For ENC, the following equipment is available; self inflating resuscitation bag, stethoscope, thermometer, clock with seconds hands, sharps container, sterile gloves, syringes and needles, and clean dry linen. The rest on the list are not available.

Langbinsi Health Centre lacks the following equipment for EmOC; vacuum extractor, vaginal speculum, stethoscope, sterilizer, cord scissors, emergency packs, gloves, microscope, test tubes and slides. The rest on the list are available. For ENC, the following are available; self inflating resuscitation bag, stethoscope, pulse oximeter, sharps container, sterile gloves, syringes and needles, and clean dry linen. The rest on the list are not available.

Sakogu Health Centre lacks the following equipment for EmOC; vacuum extractor, bladder catheter, ovum forceps, vaginal speculum, sutures, sterilizer, cord scissors, stethoscope, weighing scales, gloves, microscope, test tubes and slides. Others on the list are available. For ENC, the following are available; stethoscope, sterile gloves, syringes and needles and blades. The rest on the list are not available.

Gbintri Health Centre lacks the following equipment for EmOC; vacuum extractor, bladder catheter, ovum forceps, vaginal speculum, cord scissors, emergency packs, stethoscope, gloves, microscope, test tube and slides. The rest are available. For ENC, the following are available; stethoscope, thermometer, sharps container, sterile gloves, syringes and needles, and clean dry linen. Others on the list are not available.

4.14.6(iii) Drugs and Supplies

Only two drugs (calcium gluconate and anti hypertensives) for EmOC are not available in all facilities in the district. Procaine penicillin is available in only Gambaga Health Centre and the Baptist Medical Centre. Magnesium sulphate, oxygen and general anaesthetics are also available in only the Baptist Medical Centre. For ENC, 1/5th saline 10% glucose calcium gluconate and sodium bicarbonate are not available in any of the facilities.

Vitamin K, adrenaline, 10% glucose, ampicillin and chloramphenicol eye drop are available in only the Baptist Medical Centre.

4.14.6(iv) Blood

In East Mamprusi, only the Baptist Medical Centre (District Hospital) provides blood transfusion services. It also has a blood bank.

4.14.6(v) Staffing

The following number of staff are available in East Mamprusi District; 2 Medical Officers, 5 Medical Assistants, 15 Midwives, 47 Nurses, 1 laboratory Technician, 1 Pharmacist, 5 dispensing Technicians, 13 Records Officers and 26 other staff. None of the midwives have had training in LSS and ENC.

4.14.6(vi) Infrastructure of Health Facilities

In East Mamprusi, all facilities surveyed do not have water and toilet systems. 24 hour electricity is also not available in all the facilities. Staff accommodation is a problem especially in the Baptist Medical Centre and Gbintri Health Centre.

4.14.6(vii) Maternal Health

The met need for obstetric care is 44% in East Mamprusi District.

From Table 53, maternal deaths from direct causes reduced from 7 in 2000 to 2 in 2001 and in 2002 it increased to 5. It further increased to 9 and 12 in 2003 and 2004 respectively. No deaths occurred from indirect causes.

The leading direct causes of maternal deaths in the district include; obstructed/prolonged labour (23%), pre-eclampsia/eclampsia (14.3%), induced/septic abortion (14.3%), haemorrhage (11.4%), ruptured uterus (11.4%) and postpartum sepsis (11.4%).

Table 53 Maternal Deaths – East Mamprusi District

Maternal Deaths – Direct Causes	2000	2001	2002	2003	2004
Haemorrhage	0	2	0	1	1
Obstructed/Prolonged labour	4	0	2	0	2
Ruptured uterus	0	0	2	1	1
Postpartum sepsis	0	0	0	1	3
Pre-eclampsia/Eclampsia/PIH	0	0	0	2	3
Induced/septic abortion	1	0	1	1	2
Ectopic pregnancy	0	0	0	0	0
Others	2	0	0	3	0
TOTAL	7	2	5	9	12
Maternal Deaths – Indirect Causes					
Hepatitis	0	0	0	0	0
Malaria	0	0	0	0	0
HIV/AIDS	0	0	0	0	0
Anaemia	0	0	0	0	0
Sickle cell disease	0	0	0	0	0
Others	0	0	0	0	0
TOTAL	0	0	0	0	0

4.14.6(viii) Obstetric Complications

In East Mamprusi, the leading direct causes of obstetric complications include; obstructed/prolonged labour (52%), haemorrhage (13.3%), pre-eclampsia/eclampsia (9%) and induced/septic abortion (7%). Obstructed/prolonged labour reduced from 21% in 2000 to 4% in 2001 and in 2002 it increased to 46.4%. From 2002 to 2004 it increased steadily from 46.4% to 52%. Haemorrhage increased from 15.3% in 2000 to 16% in 2001 and dropped rapidly to 6% in 2002. It increased again to 13.3% in 2003 and remained the same (13.3%) in 2004. Pre-eclampsia/eclampsia reduced from 13% in 2000 to 4% in 2001 and in 2002 it increased to 6.3%. It reduced again slightly in 2003 to 6% and in 2004 it increased to 9%. Induced/septic abortion also increased from 12.3% in 2000 to 16% in 2001 but it reduced to 11% in 2003 and remained at same level (11%) in 2004.

For indirect causes, the leading ones are; malaria (23%), anaemia (1.4%) and sickle cell disease (0.4%). Malaria reduced from 86% in 2000 to 84% in 2001 and in 2002, it increased to 93%. From 2003 to 2004 it remained stable at 95%. Anaemia also reduced steadily from 9% in 2000 to 3.4% in 2002 and in 2003 it increased to 4%. In 2004, it reduced again to 3%. For sickle cell, it increased from 2% in 2000 to 3.1% in 2001 and dropped to 2% in 2002. In 2003, it further dropped to 0% but in 2004 it increased again to 1.4%.

4.14.6(ix) Caesarian Sections

This should be between 5 – 15% of all expected births in a given population. In East Mamprusi, it is 4.7% of all expected births and 13.3% of actual births.

4.14.6(x) Proportion of Births in Facilities

The survey findings revealed that only 35% of all expected births in East Mamprusi actual take place in EmOC and ENC facilities.

4.14.6(xi) Newborn Health

Neonatal Complications

Neonatal complications in East Mamprusi showed a declining trend over the years from 152 in 2000 to 143 in 2004. Table 54 provides the details.

Table 54 Neonatal Complications – East Mamprusi District

Complications	2000	2001	2002	2003	2004	Total	%
Birth asphyxia	20	23	23	19	25	114	17.12
Birth injuries	3	6	3	1	4	17	2.55
Neonatal tetanus	2	2	2	3	2	11	1.65
Sepsis	23	21	28	21	24	117	17.57
Pneumonia	13	6	4	0	17	40	6.01
Diarrhoea	7	6	9	8	10	40	6.01
Prematurity	27	27	28	28	40	150	22.52
Congenital anomalies	10	7	7	4	7	36	5.41
Others	47	43	27	10	14	141	21.17
TOTAL	152	141	131	94	143	666	100

From table 54, neonatal complications reduced from 152 in 2000 to 141 in 2001 and in 2002, it reduced further to 131. It reduced even more to 94 in 2003 and in 2004, it increased rapidly to 143. The leading causes of neonatal complications are pre-maturity (23%), sepsis (18%), birth asphyxia (17.1%), pneumonia (6%), diarrhea (6%), congenital anomalies (5.4%), birth injuries (3%) and neonatal tetanus (2%).

Low Birth Weight/Stillbirth

In East Mamprusi, low birth weight range from 9.9% and 13.8% over the period. The trend is erratic. For stillbirths, the range is from 2.5% to 6.1%. Interpret with caution.

Neonatal Deaths

Neonatal deaths in the East Mamprusi District increased over the period from 51 in 2000 to 73 in 2004. However, the increase was not continuous. See Table 55 below.

Table 55 Neonatal Deaths – East Mamprusi District

Neonatal Deaths	2000	2001	2002	2003	2004	Total	%
Birth asphyxia	8	5	7	8	7	35	12.59
Birth injuries	1	4	1	1	1	8	2.88
Neonatal tetanus	1	2	1	3	2	9	3.24
Sepsis	8	8	11	10	10	47	16.91
Pneumonia	5	0	1	0	6	12	4.32
Diarrhoea	0	3	3	4	5	15	5.39
Prematurity	11	17	15	16	24	83	29.86
Congenital anomalies	3	3	4	3	7	20	7.19
Others	14	6	12	6	11	49	17.63
TOTAL	51	48	55	51	73	278	100

From Table 55, the leading causes of neonatal deaths in the district include; pre-maturity (30%), sepsis (17%), birth asphyxia (13%), congenital anomalies (7.1), diarrhea (5.3%) and pneumonia (4.3%).

4.14.6(xii) Referral Mechanisms

In East Mamprusi, all the facilities lack referral mechanisms (radio, telephone and transport links).

4.14.7 West Mamprusi District

4.14.7(i) Assessment of Amount of EmOC and ENC Services Available

West Mamprusi district has 1 District Hospital (Walewale Hospital) and 4 other health facilities that provide EmOC/ENC services. The 4 other facilities include; Kpasenkpe Health Centre, Janga Health Centre, Kubore Health Centre, Fame Loagri Clinic and PPAG clinic. Only Walewale Government Hospital provides Comprehensive EmOC services. The remaining facilities do not provide Basic EmOC but provide 3 to 6 of the expected 7 key functions of Basic EmOC. Table 56 provides the details.

Table 56 Health Facilities in West Mamprusi District and EmOC Services

Signal Function	NAME OF FACILITIES IN DISTRICT					
	Walewale Hospital	Kpasenkpe HC	Janga HC	Kubore HC	PPAG	Fame Loagri Clinic
Parenteral antibiotics	X					X
Parenteral oxytocics	X	X	X	X	X	X
Magnesium sulphate/ parenteral sedatives/ anticonvulsants	X					
Use of Partograph	X		X	X		
Manual removal of placenta	X	X	X	X	X	X
Removal of retained products	X	X	X	X	X	X
Vacuum extraction	X			X		
Blood transfusion	X					
Caesarean section	X					
Anaesthetic services	X					
Total Score	10	3	4	5	3	4

From table 56 above, Walewale Government Hospital scored 100% (10 out of 10) followed by Kubore Health Centre with a score of 5 out of 10. The remaining facilities scored 3 and 4 out of 10 respectively.

4.14.7(ii) Equipment

In West Mamprusi District, the Wale Wale Hospital which is a major referral point in the district is the most equipped compared to other facilities in the district. The Hospital lacks the following equipment for EmOC; vacuum extractor, ovum forceps, cord scissors, anti-sera and laparotomy set. Others on the list are available. For ENC, the following equipment is available; self resuscitation bag, oxygen cylinder, stethoscope, thermometers, clock with seconds hand, sharps containers, sterile gloves, syringes and needles, and clean dry linen. Other equipment on the list is not available.

Kpesenkpe Health Centre lacks the following equipment for EmOC; vacuum extractor, bladder catheter, ovum forceps, sutures, syringes, sterilizer, cord scissors, stethoscope, gloves, fetal stethoscope, microscope, test tubes and slides. Others on the list are available. For ENC, the following are available; BP monitoring equipment, thermometer, clock with seconds hand, sharps container, sterile gloves, syringes needles and scissors. Others on the list are not available.

The following equipment for EmOC is not available in Janga Health Centre; vacuum extractor, ovum forceps, sterilizer, cord scissors, fetal stethoscope, microscope, test tubes and slides. The rest on the list are available. For ENC, the following equipment is available; stethoscope, BP monitoring equipment, sharps containers, sterile gloves, syringes, needles and blades, and clean dry linen. The rest on the list are not available.

In Kubore Health Centre, the following equipment for EmOC is not available; vacuum extractor, bladder catheter, ovum forceps, artery forceps, needles, cord scissors, emergency packs, stethoscope, weighing scales, gloves, fetal stethoscope, microscope, test tubes and slides. Others on the list are available. For ENC, the following are available; stethoscope, thermometer, clock with seconds hand, sharps containers, sterile gloves, syringes, needles and blades. Others on the list are not available.

The following equipment are not available for EmOC in PPAG; vacuum extractor, bladder catheter, ovum forceps, sutures, syringes, episiotomy scissors, cord scissors, emergency packs, gloves, microscope, test tubes and slides. Others on the list are available. For, ENC, the following are available; stethoscope, thermometer, sharps containers, sterile gloves, syringes and needles, and clean dry linen. Others on the list are not available.

In Fame Loagri Clinic, the following equipment for EmOC is not available; vacuum extractor, bladder catheter, ovum forceps, sterilizer, cord scissors, emergency packs, stethoscope, gloves, microscope, test tubes and slides. Others on the list are available. For ENC, the following are available; stethoscope, BP monitoring equipment, clock with seconds hand, sharps containers, sterile gloves, syringes, needles and scissors, and clean dry linen. Others on the list are not available.

4.14.7(iii) Drugs and Supplies

In West Mamprusi, apart from Kpasenkpe Health Centre where only 0.5% chlorine solution is available, the rest of the facilities have some basic drugs for EmOC and ENC. Drugs that are not available for EmOC in all the facilities include; magnesium sulphate, calcium gluconate, valium, anti hypertensives and general anaesthetics. Crystalline penicillin, gentamicin and metronidazole are available in only Kubore Health Centre and Fame Loagri Clinic. Procaine penicillin is also available in only Fame Loagri Clinic. For ENC, the following drugs are not available in all the facilities; naloxone, phenytoin, sodium bicarbonate and cloxacillin. 1/5th saline 10% glucose, phenobarbitone and calcium gluconate are available in only Kubore. Gentamicin is also available in Kubore and Fame, and antiseptics in only Walewale and Fame.

4.14.7(iv) Blood

Only the District Hospital in West Mamprusi provides blood transfusion services. It has a blood bank.

4.14.7(v) Staffing

West Mamprusi District has the following number of staff; 1 Medical Officer, 4 Medical Assistants, 14 Midwives, 16 Nurses, 1 Nurse Anaesthetist, 1 Laboratory Technician, 2 Dispensing Technician, 1 Blood Bank Technician, 6 Record Officers and 2 other staff. 13 of the midwives have had training in LSS and ENC.

4.14.7(vi) Infrastructure of Health Facilities

In West Mamprusi, 24 hour electricity and toilet systems are absent in all the facilities. Water supply system and staff accommodation are problems in Kpasenkpe and Walewale respectively.

4.14.7(vii) Maternal Health

Met Need

The met need for emergency obstetric care is 24% in West Mamprusi District.

Maternal Deaths

In West Mamprusi, maternal deaths from direct and indirect causes increased during the period but reduced to zero at the end of the period. See Table 57 below.

From Table 57, maternal deaths for direct causes increased from zero (0) in 2000 and 2001 to 2 in 2002 and 2003. It dropped again to zero (0) in 2004. For indirect causes, no deaths occurred from 2000 to 2002. However, in 2003 2 maternal deaths occurred.

The leading direct causes of maternal deaths in the district include; haemorrhage (50%), pre-eclampsia/eclampsia (25%) and induced/septic abortion (25%). The leading indirect cause is malaria (50%).

Table 57 Maternal Deaths – West Mamprusi District

Maternal Deaths – Direct Causes	2000	2001	2002	2003	2004
Haemorrhage	0	0	1	1	0
Obstructed/Prolonged labour	0	0	0	0	0
Ruptured uterus	0	0	0	0	0
Postpartum sepsis	0	0	0	0	0
Pre-eclampsia/Eclampsia/PIH	0	0	1	0	0
Induced/septic abortion	0	0	0	1	0
Ectopic pregnancy	0	0	0	0	0
Others	0	0	0	0	0
TOTAL	0	0	2	2	0
Maternal Deaths – Indirect Causes					
Hepatitis	0	0	0	0	0
Malaria	0	0	0	1	0
HIV/AIDS	0	0	0	0	0
Anaemia	0	0	0	0	0
Sickle cell disease	0	0	0	0	0
Others	0	0	0	1	0
TOTAL	0	0	0	2	0

4.14.7(vii) Obstetric Complications

In West Mamprusi, the leading direct causes of obstetric complications include; induced/septic abortion (15%), haemorrhage (3%), postpartum sepsis (3%), pre-clampsia / eclampsia (2%) and obstructed/prolonged labour (0.8%). Induced/septic abortion reduced steadily from 80% in 2000 to 46.2% in 2004. Haemorrhage increased from 0% in 2000 to 15.1% in 2001 and in 2002 it reduced to 14%. In 2003, it dropped again to 10.3% but increased to 15% in 2004. Postpartum sepsis also increased from 10% in 2000 to 11% in 2001 and remained the same (11%) in 2002. In 2003, it reduced to 8.1% but increased again in 2004 to 12.3%. Pre-eclampsia/eclampsia increased from 0% in 2000 to 4.2% in 2001 and 9.2% in 2002. It reduced to 8.1% in 2003 but increased to 16.2% in 2004. Obstructed/prolonged labour also increased erratically from 0% in 2000 to 4% in 2004. Leading indirect causes include; malaria (16.2%), anaemia (2%) and hepatitis (0.2%). Malaria increased from 0% in 2000 to 81% in 2001 and reduced to 75% in 2002. It

increased again to 80.4% and 87% in 2003 and 2004 respectively. Anaemia increased from 0% in 2000 to 12% in 2002 and reduced steadily to 5% in 2004. Hepatitis also increased erratically from 0% in 2000 to 1.2% in 2004.

4.14.7(viii) Caesarian Sections

This should be between 5 – 15% of all expected births in a given population. In West Mamprusi, it is 0.4% and for actual births, the caesarian section is 2.3%. It can safely be concluded that women and their newborns are not receiving adequate EmOC and ENC services in the district.

4.14.7(ix) Proportion of Births in Health Facilities

The survey findings revealed that only 18% of all expected births in West Mamprusi actual take place in EmOC and ENC facilities.

4.14.7(x) Newborn Health

Neonatal Complications

Neonatal complications in West Mamprusi though erratic, increased over the five years from 3 in 2000 to 11 in 2004. Table 58 provides the details.

From Table 58, neonatal complications reduced from 3 in 2000 to 2 in 2001 but increased to 3 again in 2002. It increased further to 9 and 11 in 2003 and 2004 respectively. The leading causes on complications are sepsis (71%), birth asphyxia (11%) and pre-maturity (4%).

Table 58 Neonatal Complications – West Mamprusi District

Complications	2000	2001	2002	2003	2004	Total	%
Birth asphyxia	0	0	0	1	2	3	10.71
Birth injuries	0	0	0	0	0	0	0
Neonatal tetanus	0	0	0	0	0	0	0
Sepsis	3	2	2	5	8	20	71.43
Pneumonia	0	0	0	0	0	0	0
Diarrhoea	0	0	0	0	0	0	0
Prematurity	0	0	0	1	0	1	3.57
Congenital anomalies	0	0	0	0	0	0	0
Others	0	0	1	2	1	4	14.29
TOTAL	3	2	3	9	11	28	100

Low Birth Weight/Stillbirths

In West Mamprusi, low birth weight range from 2.5% to 11.1% and stillbirths from 1.2% to 3.5% over the period. The trend is erratic. Interpretation should be with caution.

Neonatal Deaths

In West Mamprusi, no neonatal death was recorded in 2000 and 2001. However, in 2003, 4 deaths were recorded. From Table 59 below it can be seen that the leading causes of neonatal deaths are sepsis (63%), birth asphyxia (25%) and pre-maturity (13%).

Table 59 Neonatal Deaths – West Mamprusi

Neonatal Deaths	2000	2001	2002	2003	2004	Total	%
Birth asphyxia	0	0	0	1	1	2	25
Birth injuries	0	0	0	0	0	0	0
Neonatal tetanus	0	0	0	0	0	0	0
Sepsis	0	0	1	2	2	5	62.5
Pneumonia	0	0	0	0	0	0	0
Diarrhoea	0	0	0	0	0	0	0
Prematurity	0	0	0	1	0	1	12.5
Congenital anomalies	0	0	0	0	0	0	0
Others	0	0	0	0	0	0	0
TOTAL	0	0	1	4	3	8	100

4.14.7(xi) Referral Mechanisms

In West Mamprusi District all facilities, except PPAG have no access to radio, telephone and transport links. Even with PPAG the access is limited to transport only.

4.14.8 Savelugu – Nanton District

4.14.8(I) Assessment of Amount of EmOC and ENC Services Available

Savelugu-Nanton health District has 1 District Hospital (Savelugu Hospital) and 7 other health facilities that provide EmOC/ENC services. The 7 facilities include; Pong-Tamale Health Centre, Diare Health Centre, Zoggu Health Centre, Nanton Health Centre, Tampion Health Centre and Janjavikuku Clinic.

Apart from the district Hospital, none of the facilities surveyed provide Basic EmOC services. However, they provide 3 to 6 of the expected 7 key functions of Basic EmOC. Janjavikuku does not provide any of the key functions. Table 60 provides the details.

Table 60 Health Facilities in Savelugu-Nanton District and EmOC Services

Signal Function	NAME OF FACILITIES IN DISTRICT							
	Savelugu Hospital	Pong Tamale HC	Diare HC	Zoggu HC	Monglaa HC	Nanton HC	Tampion HC	Janjavikuku
Parenteral antibiotics	X	X	X	X	X	X		
Parenteral oxytocics	X	X	X	X	X	X	X	
Magnesium sulphate/ parenteral sedatives/ anticonvulsants	X	X	X	X	X	X	X	
Use of Partograph	X	X	X	X	X	X	X	
Manual removal of placenta	X	X	X	X	X	X		
Removal of retained products	X	X						
Vacuum extraction	X							
Blood transfusion	X							
Caesarean section								
Anaesthetic services								
Total Score	8	6	5	5	5	5	3	

From table 60 above, X represents 100% availability in practice for 24 hour service. The scores are as follows; Savelugu Hospital 8 out of 10, Pong Tamale Health Centre 6 out of 10, Diare, Zoggu, Monglaa and Nanton 5 out of 10 respectively, and Tampion 3 out of 10. Janjavikuku scored nothing.

4.14.8(ii) Equipment

Though the Savelugu Hospital has no theater equipment, it is well equipped in relative terms than the other facilities in the district. In terms of equipment for EmOC, it lacks the following; vacuum extractor, ovum forceps, emergency packs, sphygmomanometer, stethoscope, C- section set, laparotomy set and curette. Others on the list are available. For ENC, the following are available; self inflating resuscitation bag, stethoscope, thermometer, sharps containers, sterile gloves, syringes, blades and needles, and clean dry linen. Others on the list are not available.

In Pong Tamale Health Centre, the following equipment for equipment for EmOC is not available; vacuum extractor, bladder catheter, ovum forceps, vaginal speculum, emergency packs, stethoscope, gloves, microscope, test tubes and slides. The rest on the list are available. For ENC, the following are available; thermometer, clock with seconds hand, sharps containers and sterile gloves, syringes and needles. The rest on the list are not available.

Diare Health Centre lacks the following equipment for EmOC; vacuum extractor, bladder catheter, ovum forceps, episiotomy scissors, emergency packs, stethoscope, gloves, fetal stethoscope, microscope, rest tubes and slides. For ENC, the following equipment are available; thermometer, sharps containers and sterile blades. The rest on the list are not available.

In Zoggu Health Centre, the following equipment for EmOC is not available; vacuum extractor, vaginal forceps, ovum forceps, episiotomy scissors, emergency packs, stethoscope, gloves, fetal stethoscope, microscope, test tubes and slides. Others on the list

are available. For ENC, the following are available; stethoscope, thermometer, clock with seconds hand and sharps container. Others on the list are not available.

For Mongla Health Centre, the following equipment for EmOC is not available; vacuum extractor, ovum forceps, vaginal speculum, sterilizer, emergency packs, stethoscope, microscope, test tubes and slides. Others on the list are not available. For ENC equipment, the following are available; stethoscope, thermometer, clock with seconds hand, sharps containers, sterile gloves, syringes and needles, and clean dry linen. The rest on the list are not available.

In Nanton Health Centre, the equipment for EmOC is not available; vacuum extractor, bladder catheter, IV infusion set, ovum forceps, emergency packs, stethoscope, gloves, microscope, test tubes and slides. Others on the list are not available. For ENC, the following equipment is available; self inflating resuscitation bag, face mask, thermometer, clock with seconds hand, sharps containers, sterile gloves, syringes, needles and scissors, and clean dry linen. The rest on the list are not available.

The following equipment for EmOC is not available in Tampion Health Centre; vacuum extractor, bladder catheter, ovum forceps, vaginal speculum, needles, syringes, sterilizer, episiotomy scissors, emergency packs, stethoscope, gloves, microscope, test tubes and slides. Others on the list are not available. For ENC, the following equipment is available; thermometer, sterile gloves, syringes and needles, and clean dry linen. The rest on the list are not available.

In Janjavikuku Health Centre, the following equipment is not available for EmOC; vacuum extractor, ovum forceps, emergency packs, stethoscope, gloves, microscope, test tubes and slides. Others on the list are available. For ENC, the following equipment is available; self inflating resuscitation bag, stethoscope, thermometer, clock with seconds hand, sharps containers, sterile gloves and clean dry linen. The rest on the list is not available.

4.14.8(iii) Drugs and Supplies

In Savelugu- Nanton, the following drugs for EmOC are not available in all the facilities in the district; magnesium sulphate, calcium gluconate, general anaesthetic and oxygen. Anti hypertensives is available in only Nanton Health Centre. For ENC, the following drugs are not available in all the facilities; 1/5th saline 10 % glucose, phenyton, calcium gluconate and sodium bicarbonate. Cloxacillin and 10 % glucose are also available in Nanton only and naloxone in Tampion only.

4.14.8(iv) Blood

In Savelugu-Nanton, only the District Hospital provides blood transfusion services. It has no blood bank but has some quantity of blood bags in stock.

4.14.8(v) Staffing

The following number of staff are available in Savelugu- Nanton; 17 Midwives, 24 Nurses, 4 Medical Officers, 4 Medical Assistants, 1 Dispensing Technician, 2 Records Officers and 14 other staff. Only 9 of the midwives have had training in LSS and ENC and 1 each of the Medical Officers and Medical Assistants have had such training.

4.14.8(vi) Infrastructure of Health Facilities

In Savelugu – Nanton, the district hospital lacks a theatre. All facilities surveyed do not have toilet systems. Only Savelugu Hospital and Tampion Health Centre have water supply systems. Staff accommodation is a problem in all the facilities.

4.14.8(vii) Maternal Health

Met Need

The met need for emergency obstetric care is 42% in Savelugu-Nanton District.

Maternal Deaths

In Savelugu –Nanton District, 1 maternal death occurred over the period for direct causes and 0 deaths for indirect causes. See Table 61 below.

Table 61 Maternal Deaths – Savelugu-Nanton District

Direct Causes	2000	2001	2002	2003	2004
Haemorrhage	0	0	0	0	1
Obstructed/Prolonged labour	0	0	0	0	0
Ruptured uterus	0	0	0	0	0
Postpartum sepsis	0	0	0	0	0
Pre-eclampsia/Eclampsia/PIH	0	0	0	0	0
Induced/septic abortion	0	0	0	0	0
Ectopic pregnancy	0	0	0	0	0
Others	0	0	0	0	0
TOTAL	0	0	0	0	1
Indirect Causes					
Hepatitis	0	0	0	0	0
Malaria	0	0	0	0	0
HIV/AIDS	0	0	0	0	0
Anaemia	0	0	0	0	0
Sickle cell disease	0	0	0	0	0
Others	0	0	0	0	0
TOTAL	0	0	0	0	0

From Table 61, one (1) death from direct causes (Haemorrhage) occurred in 2004 and no deaths from other direct and indirect causes.

4.14.8(viii) Obstetric Complications

In Savelugu-Nanton, the leading direct causes of obstetric complications include; obstructed/prolonged labour (6.4%), postpartum sepsis (4.4%), haemorrhage (3.2%), pre-eclampsia/eclampsia (2.2%) and induced/septic abortion (1.4%). Obstructed/prolonged labour remained at 0% in 2000 and 2001 but short up rapidly to 45% in 2002. In 2003, it increased further to 53.2% and in 2004 it reduced to 29.2%. Postpartum sepsis reduced from 78% in 2000 to 0% in 2001 but increased again to 1.3% in 2002 and 2003. In 2004, it increased to 9.2%. Haemorrhage also remained at 0% in 2000 and 2001 but increased

to 24% in 2002. In 2003, it dropped to 17.1% but increased again to 22% in 2004. Pre-eclampsia/ eclampsia reduced from 11.1% in 2000 to 0% in 2001 but in 2002, it short up to 14%. In 2003, it reduced again to 6% and in 2004 it increased to 14.2%. Induced/septic abortions remained at 0% in 2000 and 2001 but increased to 5% in 2002. In 2003, it dropped again to 0% but in 2004 it increased to 23%.

For indirect causes, the leading ones are malaria (12.5%) and anaemia (1.2%). Malaria increased rapidly from 16% in 2000 to 84% in 2004. Anaemia remained at 0% in 2000 and 2001 but increased to 19.3% in 2002. It reduced to 3.5% and 2.1% in 2003 and 2004 respectively.

4.14.8(ix) Caesarian Sections

This should form between 5 – 15% of all expected births in a given population. It is 0% in Savelugu –Nanton. 0% because the District Hospital has no theatre and all caesarian sections are usually referred to the Tamale Teaching Hospital.

4.14.8(x) Proportion of Births in Health Facilities

The survey findings revealed that only 37% of all expected births in Savelugu -Nanton actually take place in EmOC and ENC facilities

4.14.8(xi) Newborn Health

Neonatal Complications

Neonatal complications also increased over the period in Savelugu –Nanton though the trend was erratic. See Table 62 below.

From table 62, neonatal complications reduced from 20 in 2000 to 12 in 2001 and increased again to 22 in 2002. In 2003, it reduced to 19 but increased to 31 in 2004. The leading causes of complications from the table include; sepsis (17.3%), pre-maturity (7%), diarrhea (3%) and birth asphyxia (1%).

Table 62 Neonatal Complications – Savelugu –Nanton District

Complications	2000	2001	2002	2003	2004	Total	%
Birth asphyxia	0	1	0	0	0	1	0.96154
Birth injuries	0	0	0	0	0	0	0
Neonatal tetanus	0	0	0	0	0	0	0
Sepsis	6	2	8	1	1	18	17.3077
Pneumonia	3	1	3	0	0	7	6.73077
Diarrhoea	2	0	1	0	0	3	2.88462
Prematurity	0	0	0	0	0	0	0
Congenital anomalies	0	0	0	0	0	0	0
Others	9	8	10	18	30	75	72.1154
TOTAL	20	12	22	19	31	104	100

Low Birth Weight/ Stillbirths

In Savelugu-Nanton, low birth weight ranged from 9% to 14.6% and stillbirths from 2.8% to 4.1% over the period. The trend is erratic. Due to poor record keeping at the facilities, caution should be exercised when interpreting these figures.

Neonatal Deaths

No neonatal death was recorded over the years in Savelugu – Nanton District as outlined table 63 below.

4.14.8(xii) Referral Mechanisms

For Savelugu –Nanton, all the facilities are well integrated through the use of radio, telephone and transport links.

Table 63 Neonatal Deaths – Savelugu –Nanton District

Neonatal Deaths	2000	2001	2002	2003	2004	Total	%
Birth asphyxia	0	0	0	0	0	0	0
Birth injuries	0	0	0	0	0	0	0
Neonatal tetanus	0	0	0	0	0	0	0
Sepsis	0	0	0	0	0	0	0
Pneumonia	0	0	0	0	0	0	0
Diarrhoea	0	0	0	0	0	0	0
Prematurity	0	0	0	0	0	0	0
Congenital anomalies	0	0	0	0	0	0	0
Others	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0