

Obstetric Sanitary Evacuations: Epidemiological Profile and Pronognostic at the Reference Health Center of the District of Bamako

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Abstract

Original Research Article

Introduction: Medical evacuation in general is characterized by the need for the rapid transfer of a patient from one medical centre to another more equipped or better specialized. Obstetric emergencies are multiple causes of maternal and neonatal death. **Purpose:** Was to study the reasons for reference / medical evacuation obstetrical at the Reference Health Center of Commune V of the District of Bamako. **Materials and Methods:** This was a descriptive study with a retrospective collection from January 1, 2017 to December 31, 2020. **Results:** We collected 4280 referrals/evacuations out of 28974 admissions; or 14.8% of admissions. The median age was 26.17 years. Housewives accounted for 45.4%. Dystocia was the main reason for references/evacuations with 41.1%. The reasons for referral/evacuation were consistent in 60.3% of cases. These evacuations were relevant in 21.8%. Maternal mortality was 0.8%. **Conclusion:** Evacuations accounted for 14.8% (4280) of deliveries. The most commonly cited reasons were dystocia, antepartum haemorrhage and high blood pressure and its complications. Dystocia, fetal asphyxia and high blood pressure and its complications were the main diagnoses.

Keywords: Evacuations, Sanitary, Obstetrics, epidemiology, Prognosis.

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INTRODUCTION

Medical evacuation in general is characterized by the need for the rapid transfer of a patient from one medical centre to another more equipped or better specialized [1]. Obstetric emergencies are multiple causes of maternal and neonatal death and are expressed by various clinical pictures that have in common the therapeutic emergency [2]. They have always posed a public health problem in the world, particularly in developing countries, both in terms of their scale and their care. Every minute a woman dies from complications due to pregnancy, childbirth and the postpartum period. However, 99% of these deaths occur in developing countries [2]. Maternal mortality can be controlled if pregnancy complications are managed properly and in a timely manner. The solution to the mortality problem is also organizational [2]. Thus, in 1978, in Alma Ata, developing countries opted for a pyramid-type system of health care to provide basic and community-based health care to the population. Linking the different levels of care has been an essential element

since the beginning of primary health care (PHC). In most developing countries, access to care in general and emergency care in particular remains a concern [3]. According to the 1996 World Report of the United Nations Development Programme (UNDP), of all human development indicators for health, maternal and infant mortality rates reflect the deepest disparities between industrialized and developing countries [3]. In the United States, France and other European countries, the maternal mortality index ranges from 1 to 10 per 100,000 live births [3], while it ranges from 500 to 2000 per 100,000 live births in several developing countries in sub-Saharan Africa [4]. We initiated this work to study obstetrical medical evacuations at the reference health center of commune V of the District of Bamako.

MATERIALS AND METHODS

This was a retrospective, descriptive study carried out at the Reference Health Center of Commune V of the District of Bamako. Our study ran from January 1, 2017 to December 31, 2020. The study

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population consisted of all births delivered at the Centre during the study period. We included in our study all evacuated parturients admitted to the service during the study period and whose mode of admission was evacuation. The following were not included in our study:

- All parturients evacuated for obstetric reasons whose management was not made in the Centre.
- Evacuated parturients who gave birth during the evacuation before arriving at the Centre.

Data collection was carried out from obstetric record, delivery register, reference register/evacuation register, caesarean section register, paediatric reference register, maternal death register and perinatal death register. Data was entered on Word 2007 software, analyzed on SPSS software version 16.0. Ethically, the confidentiality and anonymity of each parturient were respected.

RESULTS

During our study, we collected 28974 parturients including 4280 cases of obstetrical medical evacuations, a frequency of 14.8%.

Table I: Distribution of women in labour by age group

Age range	Actual	Percentage
≤19 years	482	11,3
20-34 years	3316	77,4
≥35 years	482	11,3
Total	4 280	100,0

The 20-34 age group was the most represented with a frequency of 77.4%.

The mean age was 26.17 years ± 6.2. Extreme ages were 14 and 47.

Table II: Distribution of women in labour by occupation

Profession	Actual	Percentage
Housewives	2004	46,8
Students	290	6,8
Domestic helpers	1149	26,8
Shopping	497	11,6
Teachers	193	4,5
Nurses	109	2,5
Police	30	0,7
Total	4 280	100,0

Housewives were the most represented with a frequency of 46.8%.

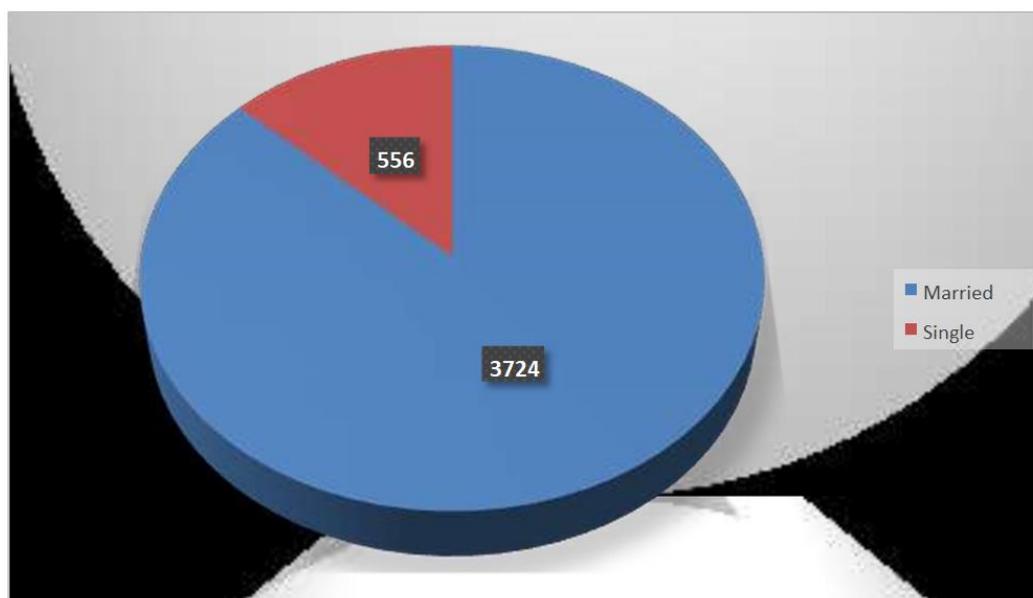


Figure 1: Distribution of patients by marital status

Women represented 87% of our sample.

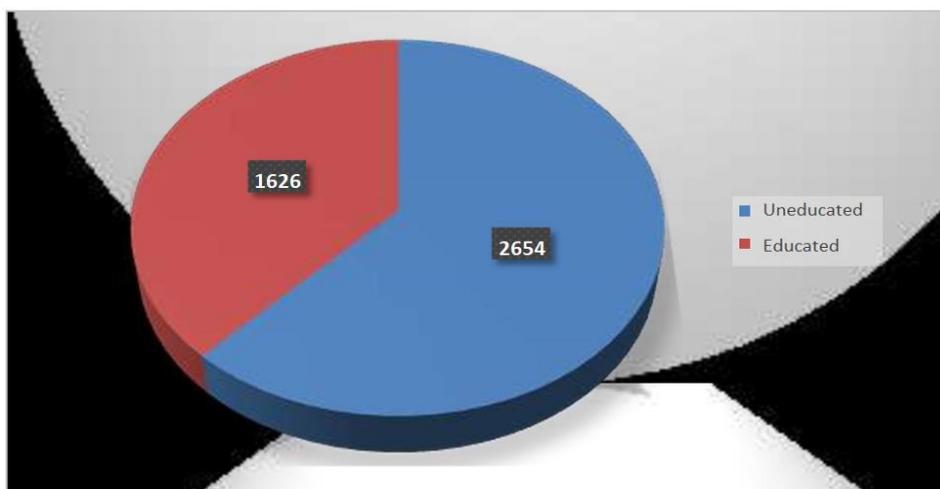


Figure 2: Distribution of populations by level of education

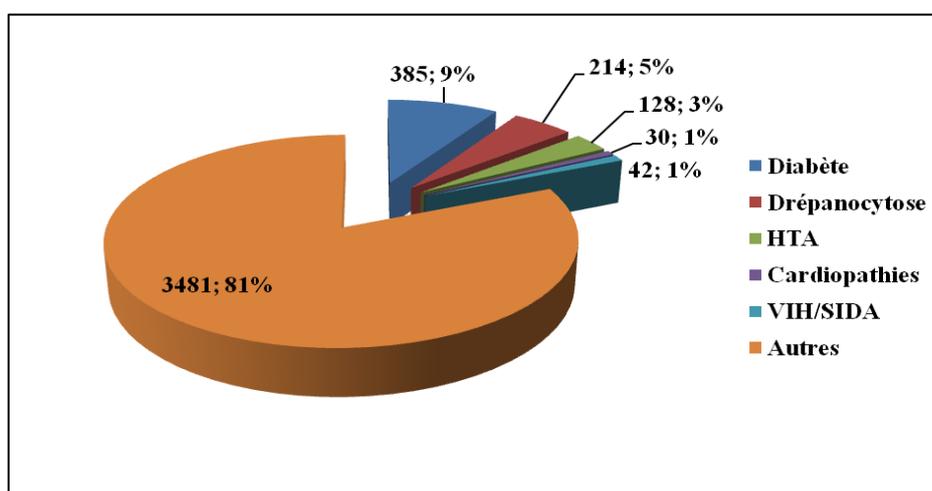


Figure 3: The distribution of patients according to medical status

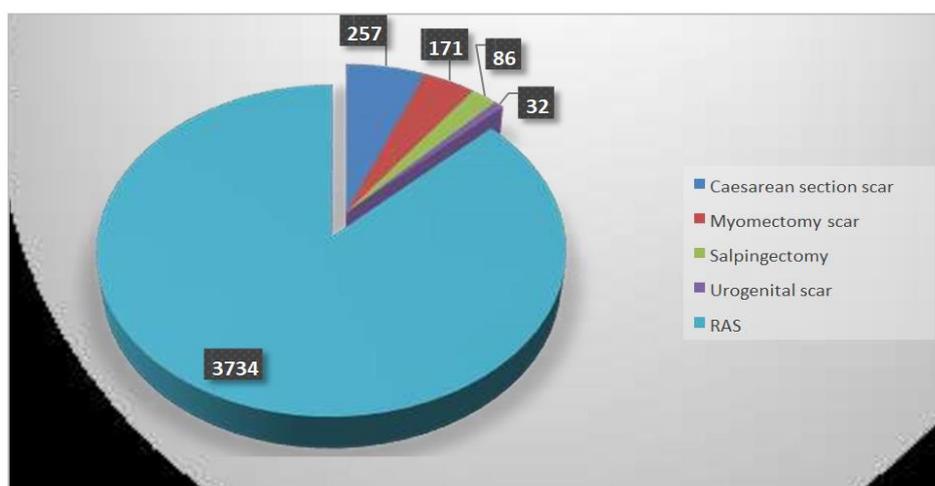


Figure 4: Distribution of patients by surgical history

Primigestes were the most represented with a frequency of 33.8%, followed by the first gestures with a frequency of 31.1%. In our series the primiparous were the most encountered with a frequency of 35.8%,

followed by the palms with 32.5%. In our study, 68.2% of women in labour had complications before evacuation.

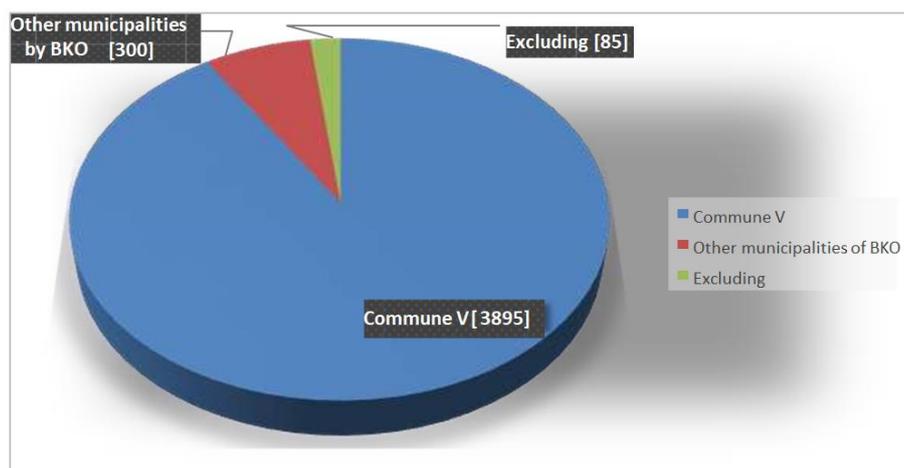


Figure 5: Distribution of parturient women by origin

In our series 3895 parturients (91%) came from commune V of Bamako. Women in labour were accompanied in 49% of cases by medical students, in 20% of cases by midwives, in 15% of cases by matrons/nursing assistants and in 1% of cases by doctors during their evacuation. Fifty-four percent of

parturient women had no escape supports. Evacuated parturients had not attended antenatal care in 68% of cases. Midwives had carried out 73.5% of antenatal consultations with evacuated parturients and doctors 12.6%.

Table III: Distribution of parturient women according to the pathology discovered or occurred during the course of pregnancy

Pathologies	Actual	Percentage
HTA	121	12,9
Diabetes	87	2,0
Anaemia	58	1,4
Malaria	30	0,7
RAS	3552	83,0
Total	4 280	100,0

High blood pressure was the pathology frequently discovered during the course of pregnancies in our study.

In our series 54% of parturient women had been evacuated by ambulance, 33.9% by taxi and 12.1% by personal vehicle.

Table IV: Distribution of women in labour by reason for evacuation

Reasons for evacuations	Number of employees (n=4,280)	Percentage
Dystocia	1809	42,3
Antepartum hemorrhages	549	12,8
HTA/Complications	423	9,9
RPM	263	6,1
Fetal asphyxia	327	7,6
Rhesus negative woman	142	3,3
NPC not done	123	2,9
Non-grouped women	120	2,8
Cord process	110	2,6
Twin pregnancy	108	2,5
Large multiparous	103	2,4
Uterine/pathway scar Genitourinary	93	2,2
Term overrun	56	1,3
Refusal to cooperate	36	0,8
Stillborn ATCD	18	0,4

Dystocia was the most frequently found reason with 1809 cases (42.1%).

NB: Dystocia = stationary dilation (629), lack of expulsive effort (255), suspicion of large fetus (macrosomia) (170), prolonged labour (65),

presentation of the forehead (88), presentation of the face (122), presentation of the breech (132), limit pelvis

(120), hyperkinesia (150), height < 1.50 m (35), precious children (25), elderly primiparous (18).

Table V: Distribution of women in labour according to diagnosis at admission

Selected diagnosis	Staff (4280)	Percentage
Work of normal evolution	2007	46,9
Dystocia	774	18,1
Fetal asphyxia	390	9,1
Hypertension Arterial Complications/Complications	374	8,7
Antepartum hemorrhage	238	5,6
Premature Termination of Membranes	158	3,7
Uterine scars/history of prolapse	110	2,6
Presentation of the shoulder	90	2,1
Cord process	49	1,1
Term overrun	90	2,1

In our serial study, 46.9% of parturient women had a normal evolution job.

preeclampsia (74), chronic hypertension (32), eclampsia (10), HELLP syndrome (5).

NB: Antepartum hemorrhage = placenta previa (86), retroplacental hematoma (132), Benkiser's hemorrhage (20) HTA/COMPLICATIONS = gestational hypertension (63), preeclampsia (190), added

In 21.8% of cases evacuations were relevant and irrelevant in 78.2%. There was a concordance between the reason for evacuation and the diagnosis used in 60.3% of. In 18.5% of cases the evacuation was timely.

Table VI: Distribution of parturients according to the reason for evacuation and concordance with the diagnosis

Reasons for evacuations diagnosis	Concordance with				
	Yes (%)	No (%)	Total	P	OR
Dystocia	590 (32,6)	1 219 (67,4)	1,809	10-9	0,1[0,1-0,1]
Antepartum hemorrhages	262 (47,7)	287 (52,3)	549	10-9	0,6[0,4-0,6]
HTA/Complications	335 (79,2)	88 (20,8)	423	10-9	2,7[2,1-3,5]
.RPM	149 (56,7)	114 (43,3)	263	0,215	0,9[0,7-1,1]
NPC not done	243 (100)	0 (0)	243	10-9	-
Fetal asphyxia	288 (88,1)	39 (11,9)	327	10-9	5,2[3,5-7,8]
Rhesus negative mother	142 (100)	0 (0)	142	10-9	-
Cord process	59 (53,6)	51 (46,4)	110	0,149	0,8[0,5-1,1]
Twin pregnancy	108 (100)	0 (0)	108	10-9	-
Large multiparous	103 (100)	0 (0)	103	10-9	-
Uterine/pathway scars Genitourinary	93 (100)	0 (0)	93	10-9	-
Term overrun	30 (100)	0 (0)	56	10-5	-
Refusal to cooperate	0 (0)	36 (100)	36	10-9	-
Stillborn ATCD	18 (100)	0 (0)	18	0.0006	-

Fetal asphyxia was the consistent reason for diagnosis in 88.1% of cases.

During our study of 90.4% of cases there was no feedback.

Table VII: Distribution of women giving birth by route and modality of delivery

Path of delivery	Actual	Percentage
Low track	2878	65,7
Simple	1890	43,1
Instrumental childbirth	906	20,7
Obstetric maneuvers	82	1,9
High track	1502	34,3
Caesarean section	1400	32,0
Hysterorrhaphy for uterine rupture	63	1,4
Hysterectomy for uterine rupture	39	0,9
Total	4 380	100,0

In our 65.7% of evacuated parturients had given birth by simple vaginal route.

Table VII: Distribution of parturients according to caesarean section indications.

Indication	Number of employees (n=1,417)	Percentage
Dystocia	778	54,9
HTA/complications	222	15,7
Antepartum hemorrhage	196	13,8
Acute fetal asphyxia	137	9,6
Uterine scar/history of Prolapse cure	49	3,5
Flapping cord procdence	35	2,5

Dystocia accounted for 54.9% of caesarean section indications in our study.

In our series we noted that 95.7% of newborns were alive, 4.3% were stillbirths. Live infants had an APGAR score between 1 and 7 at the first minute in

7.9% of cases and in 92.1% between 8 and 10 at the first minute. Live newborns had an APGAR score between 1 and 7 in 23.7% of cases and in 76.7% of cases between 8 and 10 at the 5th minute. We observed that 31.6% of newborns were referred to paediatrics. On Day 8, 4.4% of newborns had died.

Table IX: Distribution of women in labour by maternal morbidity.

Morbidity	Actual	Percentage
Malaria	301	7,0
Postpartum endometritis	252	5,9
Anaemia	1804	42,1
HTA and its complications	661	15,4
Blood transfusion	324	7,6
Thrombophlebitis	13	0,3
None	925	21,6
Total	4 280	100,0

Anaemia was the main morbidity observed with a frequency of 42.1% followed by hypertension and its complications 15.4%.

Table X: Distribution of women in labour by maternal mortality

Mother's condition	Actual	Percentage
Deceased	35	0,8
Living	4245	99,2
Total	4 280	100,0

We recorded 35 maternal deaths or 0.8%.

Table XI: Distribution of women in labour by cause of death

Cause of death	Actual	Percentage
Haemorrhage	21	0,5
Anaemia	7	0,2
Infection	4	0,1
HTA/complications	3	0,1
Total	35	100,0

Immediate postpartum haemorrhage was the leading cause of maternal death with 21 cases or a frequency of 0.5%.

DISCUSSION

During our study, we collected 28,974 admissions, including 4280 obstetric evacuations, a frequency of 14.8%. Dembele, B. S. [17], Traoré, A. T. [5], Doumbia, S. [6], in the same center 4 had respectively reported 17%, 13.38%, 24.6%. Balde M. *et*

al., [8] in Guinea Conakry had found a frequency of 5.86%, Sepou, A. *et al.*, [9] in Bangui had reported a frequency of 17.3%, Boni, S. *et al.*, [10] and Camara, S. [11] had found in Abidjan a frequency of 55% for obstetric evacuations. In developed countries, medical evacuations are exceptional because there is always a substantial technical platform in maternity wards that allows immediate emergency action. In our sample, the 20-34 age group was the most represented with a frequency of 77.4%. The mean age was $26.17 \pm 6,214$ years with extremes ranging from 14 to 47 years.

Dembele, B. S. [17] had found the same age range with a frequency of 72% and an average age of 24 years \pm 9.22 years. Sidibe, M. [12] and Diarra, B. [13], had found an age range of 20-35 years with the respective frequencies of 78.7% and 62%. Uneducated women were the most represented with a workforce of 2,645 (61.8%), housewives were the most represented profession with a frequency of 46.8%. In our series 87% of parturient women were married. Fal, G. [14] in Senegal had reported 92.8% of housewives. In our series, 9% of parturient women had a history of diabetes, 5% a history of sickle cell disease and 3% a history of high blood pressure. In our series 6% of women in labour had a uterine scar (caesarean section), 4% a myomectomy scar and 2% a history of salpingectomy. Primigestes were the most represented in our study with a workforce of 1446 or a frequency of 33.8%. The primiparous were the most represented also with a workforce of 1531 or a frequency of 35.8%. Evacuees in 91% of cases came from the health areas of commune V of the District of Bamako, in 7% of cases from other communes of Bamako and in 4% of cases outside the city of Bamako. This could be explained by the ease of access of the Reference Health Centre of Commune V to other communes in the District of Bamako and other cities in Mali.

In our study, 49% of evacuees were accompanied by medical students in the thesis phase, 20% by midwives, 15% by obstetrician nurses, 15% by matrons/orderlies and 1% by doctors. Of all evacuations, 54% or 2313 cases were carried out by ambulance with a health worker; 33.9% or 1449 cases by taxi without medical assistance and 12.1% or 518 cases by personal vehicle. Patients evacuated by ambulance had evacuation support in 54% of cases. In our study, dystocia was the main reason for evacuation with a frequency of 42.3%, followed by antepartum hemorrhage and high blood pressure and its complications with 12.8% and 9.9% respectively. The high frequency of dystocia in our study could be the result of a deficit in the management of parturient women during antenatal consultations at peripheral structures related in part to the lack or insufficiency of early detection of risk factors for childbirth, especially during the last trimester of pregnancy during antenatal consultations. A study conducted at the Reference Health Center of Commune IV had reported 10% of dystocia and 7.2% of hemorrhages [13]. On the other hand, Sangare, I. [17] found that medical evacuations were dominated by delayed expulsion 13.6%, fetopelvic disproportion 12.9% and third trimester hemorrhage 11%. The reasons for evacuations were consistent with the diagnosis of entry in 60.3%. These were mainly fetal asphyxia (88.1%), high blood pressure and its complications (79.2%), and premature rupture of membranes (56.7%). In 39.7%, there was a mismatch between the reason for evacuation and the diagnosis of entry. This could be explained by the insufficient

qualification of health providers in the care of women in labour at the level of Community Health Centers.

The reasons for evacuation were relevant in 60.3% of cases. Evacuating practitioners were more aware of fetal asphyxia ($p=10^{-9}$; OR = 5.2), and high blood pressure and its complications ($p = 10^{-9}$; OR = 2.7). Dystocia were the most discorpotous diagnoses ($p=10^{-9}$; OR = 0.1). This misdiagnosis of dystocia is linked to the lack of adequate equipment and qualified personnel. In our study, the reasons for evacuation were relevant in 78.2% of cases.

Arifari, B. N. *et al.*, [18] had found in a study on evacuations experienced by women in Africa, that the irrelevance of the reasons were the result of the psychological pressure exerted by some patients and their companions to be referred to the next level; and also, the result of the sanction of "recalcitrant" patients or companions deemed "invasive" by health personnel.

During our study, we recorded 2,778 (64.9%) vaginal deliveries and 1,502 (35.1%) caesarean deliveries. Other studies reported 46% of vaginal deliveries to the Reference Health Center of Commune IV and 55.4% to the Reference Health Center of Commune I [15, 16].

Studies conducted in Commune I and IV had found respectively 20.1% and 28.8% of caesarean section cases on evacuations [15, 18]. The main indications for caesarean sections were dystocia with 54.9%, arterial hypertension and its complications with 15.7% and antepartum haemorrhage with 13.8%. This high rate of emergency caesarean section could be related to the fact that a very large number (68%) of evacuated women in our study had not done antenatal follow-up and the lack of awareness of risk factors by health providers at the peripheral level. In our study 3355 evacuees had complications or 78.4% and anemia had represented the main complication with a frequency of 42.1% followed by high blood pressure and its complications with 15.4%. Maternal deaths accounted for 0.8% (35 cases). Sidibe, M. [12], Diarra, B. [13] reported 2.4%, 2.79% maternal deaths, respectively. Among these deaths, immediate postpartum hemorrhage was the leading cause with a frequency of 0.5% followed by anaemia 0.2%. During our study, we counted 4191 (95.6%) live infants and 189 (4.4%) stillbirths of which the majority were fresh stillbirths (54.0% and 23.9% of newborns had morbidity with an Apgar score between 1 and 7 and had been resuscitated and referred to the neonatal department.

CONCLUSION

In the course of our study, obstetric medical evacuations accounted for 14.8% of deliveries. The main reasons given were dystocia, antepartum haemorrhage and hypertension and its complications. Dystocia, foetal asphyxia, arterial hypertension and its

complications were the diagnoses most often retained upon admission to the Reference Health Center of Commune V of the District of Bamako. The study found that these evacuations are not only a medical problem but also and above all a public health problem because of the high rates of maternal, foetal and neonatal morbidity and mortality associated with these evacuations.

Irrelevant evacuations and lack of feedback increase workloads at the Centre de Santé de Référence and delay the management of proven emergencies.

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