

## Epidemio-Clinical Profile of Emergencies Received at the Maternity Unit of Saint-Louis Regional Hospital / Senegal

Ndiaye Papa<sup>1\*</sup>, Sylla B<sup>2</sup>, Thiam Ousmane<sup>3</sup>, Niang Khadim<sup>4</sup>, Mbaye Magatte<sup>5</sup> and Gning Maurice<sup>6</sup>

<sup>1</sup>Department of Preventive Medicine and Public Health, Gaston Berger University (UGB) of Saint-Louis, Senegal

<sup>2</sup>Doctorant, Department of Preventive Medicine and Public Health, Gaston Berger University (UGB) of Saint-Louis, Senegal

<sup>3</sup>Genecology and Obstetric service, Gaston Berger University (UGB) of Saint-Louis, Senegal

<sup>4</sup>Department of Preventive Medicine and Public Health, Gaston Berger University (UGB) of Saint-Louis, Senegal

<sup>5</sup>Genecology and Obstetric service, Gaston Berger University (UGB) of Saint-Louis, Senegal

<sup>6</sup>Department of English, Gaston Berger University (UGB) of Saint-Louis, Senegal

**\*Corresponding author:** Ndiaye Papa, Department of Preventive Medicine and Public Health, Gaston Berger University (UGB) of Saint-Louis, Senegal, Tel: +221775448831, E-mail: pndiayemp@gmail.com; pndiaye@ugb.edu.sn

**Citation:** Ndiaye Papa, Sylla B, Thiam Ousmane, Niang Khadim, Mbaye Magatte, et al. (2020) Epidemio-clinical profile of emergencies received at the maternity unit of Saint-Louis regional hospital / Senegal. J Gynaecol Womens Healthcare 2: 208

### Abstract

**Introduction:** The purpose of this work was to present the epidemiological and clinical profile of women received in emergency at the maternity unit of the regional hospital of Saint-Louis.

**Method:** The retrospective, cross-sectional and descriptive study was based on the archives for one year (July 1, 2017 - June 30, 2018). The data were entered with Excel software and then analyzed with EPI info 3 and 7. For each quantitative variable, the extremes, the average and its standard deviation were specified. For each qualitative variable, the absolute and relative frequencies were determined with confidence interval. Thus, were filled in: the socio-demographic profile of the woman, the conditions of evacuation, and the care.

**Results:** Out of 5822 collected files, there were 1364 evacuations (23.43%). The majority of women were under 25 years of age (42.53%), not provided with schooling (60.92%), married (97.73%), low-income (96.68%), first-time pregnant (37.91%), prim parous (38.57%), with a full-term pregnancy (85.28%) and less than 4 prenatal consultations (56.02%).

Evacuations were essentially from health posts (63.73%), decided by a midwife (98.24%), transported by ambulance (59.42%), with a reference bulletin (99.04%) and venous route (53.23%), and accompanied by a trained service provider (59.79%), without prior information of the hospital (98.96%).

The pathologies were predominantly dystocic (20.16%), hypertensive (18.40%), and hemorrhagic (8.65%). Medical treatment (72.87%) was dominated by vascular filling, administration of antibiotics and antihypertensive, blood transfusion and injection of magnesium sulfate. Gynaeco-obstetrical treatment concerned 42 abortions, 834 deliveries and 303 caesareans; for a total of 1179 cases (86.44%). The surgery involved 22 laparotomies (including 7 hysterectomies), 5 perineal recoveries, and 3 others; for a total of 30 cases (2.20%). Hospitalization, on average 2.34 days, resulted in maternal mortality for 14 cases (1.26%) and perinatal mortality for 157 cases (13.81%).

**Conclusion:** Improving the situation requires a more educated population and a better organized network of "obstetric and neonatal emergency care (SONU)" services (medical transport, sufficient and upgraded staff, more efficient maternity and neonatology, correct filled databases).

**Keywords:** Emergency; Delivery; Epidemiology; Clinics; Maternal Health and Wellness

### Introduction

Mortality, especially maternal and/or neonatal, is a disaster that must be fought everywhere with vigor, determination and perseverance [1]. Complications of pregnancy and its aftermath constantly threaten the health of women of childbearing age [2]. A large number of maternal deaths could be avoided by proper monitoring of pregnancy [2]. The struggle requires early identification and proper management of problems related to pregnancy and/or childbirth [1,2]. For this, the health system must be efficient, with fluid links between its levels. The health facilities that provide emergency obstetric and newborn care (SONU) must be equitably distributed and functional at all times, offer a sufficiently complete and accessible range of good quality services [3]. In developing countries, maternal mortality remains a concern due to the persistence of unfavorable socio-demographic and economic factors, but also, dysfunctions of the health system [2,4,5].

In Senegal, reducing maternal mortality is one of the main priorities of the National Health Development Plan. A roadmap has been drawn up to achieve the third Sustainable Development Goal (SDG 3). Three measures were taken: Emergency Medical Assistance Service (SAMU) in 2005; Universal Health Coverage (CMU) in 2013; Free Childbirth and Caesarean (PGAC) policy in 2015. These initiatives face great disparities in the availability of resources between regions. In the region of Saint-Louis, the benchmark which, in theory, should allow pregnant women to have access to more effective care and save their lives, does not seem to achieve its objectives. The lack of previous studies on the management of obstetric evacuations justifies our study which aims to draw up the epidemiological and clinical profile of pregnant women received in emergency at the regional hospital of Saint-Louis.

## Framework, Material and Method

### Study Framework

Senegal has 15,726,037 inhabitants for 196,712 km<sup>2</sup> distributed in 14 regions including that of Saint-Louis (1,036,003hbt / 19,241km<sup>2</sup>) which has three departments: Dagana, Podor, and Saint-Louis which houses the only regional hospital. Saint-Louis Regional Hospital has 280 beds and includes, among other services, the maternity hospital, which has three components: Consultation, Hospitalization (30 beds), and Operating theater. Activities are carried out by three teams: general service, prenatal consultation and family planning, and guard service. Two gynecologists manage the gynecological consultation, the operating program and the obstetric ultrasound. A morning staff coordinates the guard team, the day's team and the gynecologists. The maternity hospital receives, in addition to patients from the Saint-Louis region, those from neighboring regions (Louga and Matam) and areas bordering Mauritania [6] (Figure 1).

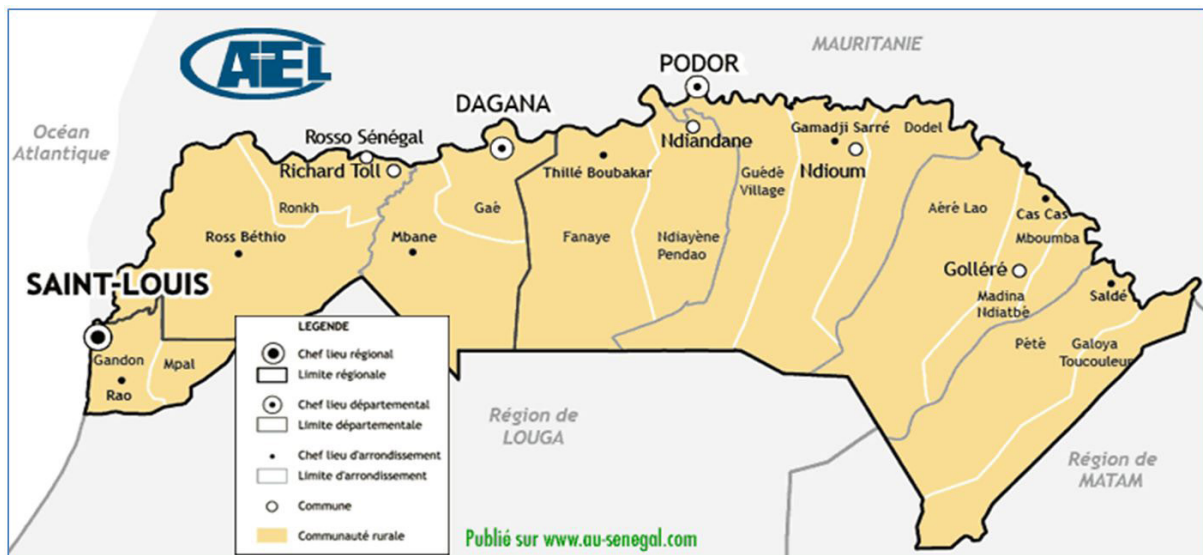


Figure 1: Administrative division of the Saint-Louis region

### Material and Method

The retrospective, cross-sectional, and descriptive study focused on the archives (registers, evacuation sheets, medical records, operating reports) for a period of one year (July 1, 2017 - June 30, 2018). The study population consisted of all cases of emergency evacuations for problems related to pregnancy or childbirth. The variables were organized into three entities: woman profile, evacuation, and care. The profile included eight variables: age, the number of previous pregnancies, parity, education, marital status, income level, prenatal follow-up, term of pregnancy. Evacuation had seven variables: original structure, authorizing officer, hospital information, and reason for evacuation, means of evacuation, venous route, and companion. The treatment had five variables: general state on arrival, diagnosis retained, treatment, result of pregnancy, and evolutionary term. The data collected using a model developed for this purpose, were entered with Excel software and then analysed with Epi info 3 and 7. For each quantitative variable, the extremes, the average and its standard deviation were specified. For each qualitative variable, the absolute and relative frequencies were determined with confidence interval.

### Results

Out of 5822 files collected, there were 1364 evacuations (23.43%).

#### Socio-Demographic Profile

The age, from 14 to 46, with an average of 26.83 ( $\pm$  7.19), was less than 25 years in 42.53%, and more than 34 years in 18.03%. The schooling level was: nil (60.92%), primary (20.97%), secondary (13.49%), higher (1.39%), and unprecise (3.23%). Women, 97.73% married, had three income levels: low (96.68%), medium (2.79%) and high (0.53%). The number of previous pregnancies, from 1

to 14, with an average of 2.92 ( $\pm$  2.22), was 1 in 37.91% and  $\geq$ 4 in 32.92%. The parity, from 0 to 13 with an average of 2.65 ( $\pm$  2.07), differentiated four groups: nulliparous (3.57%), prim parous (38.57%), pauci parous (28.80%), and multiparous (29.10%). The number of antenatal consultations, from 0 to 8, with an average of 2.99 ( $\pm$  1.23), was at least 4 for 43.98%. Pregnancies were in the 1st trimester (5.29%), 2nd trimester (7.38%), term (85.28%), and post-term (2.05%) (Table 1).

Socio-demographic Profile	Terms			
	Yes		No	
Age $\geq$ 35 years	245	18.03%	1 114	81.97%
First pregnancy	516	36.11%	913	63.89%
Multipar ( $\geq$ 4 deliveries)	396	29.10%	965	70.90%
unschooled	853	62.54%	511	37.46%
Marital status= married	1333	97.73%	31	2.27%
Low income level	1280	96.68%	44	3.32%
Prenatal consultations < 4	656	56.02%	515	43.98%
Third trimester	1172	87.33%	170	12.67%

Table 1: Conditions of evacuation of parturient women

### Evacuation Conditions

The origin of the patients was in order: a health post (63.73%), a health center (27.17%), and others (9.10%). Transportation was by ambulance (59.42%), taxi (39.91%), and others (0.67%). The hospital was only informed in 1.04% of the cases; and by phone every time. A complete reference bulletin was drawn up for 99.04%. The evacuation reasons were dominated by obstructed labor (29.76%), hypertension (16.64%) and hemorrhage (10.85%). The evacuations decided by a midwife (98.24%) and accompanied by a trained service provider (59.79%), left with a venous route (53.23%) (Table 2).

Variables studied		Terms			
		Yes		No	
Origin = health post		868	63.73%	494	36.27%
Mean of evacuation = ambulance		801	58.72%	563	41.28%
Authorizing officer		1,336	98.24%	24	1.76%
Reference bulletin		1,235	98.96%	13	1.04%
Reasons for evacuation	Obstructed Labor	406	34.64%	766	65.36%
	Hypertension +Complications	227	16.64%	1,137	83.36%
	Hemorrhages	148	10.85%	1,216	89.15%
Venous route		726	53.23%	638	46.77%
Companion = Provider		803	59.79%	540	40.21%
Hospital previously Informed		14	1.03%	1,343	98.97%

Table 2: Conditions of evacuation of parturient women

### Hospital Care

Variables studied		Terms			
		Yes		No	
Alteration of the general state		23	1.69%	1,341	98.31%
Diagnosis retained in hospital	Normal work	306	22.43%	1,058	77.57%
	Obstructed labor	275	23.46%	897	76.54%
	HTA + Complications	251	18.40%	1,113	81.60%
	Hemorrhages	118	8.65%	1,246	91.35%
Treatment	Medical	994	72.87%	370	27.13%
	Gynaeco-obstetric	1,179	86.44%	185	13.56%
	Surgical	30	2.20%	1,334	97.80%
Result of pregnancy	Abortion	45	3.30%	1,319	96.70%
	Natural childbirth	729	53.45%	635	46.55%
	Instrumental delivery	105	7.70%	1,259	92.30%
	Caesarean	303	22.21%	1,061	77.79%
Evolutionary term	Maternal death	14	1.26%	1,093	98.74%
	Neonatal death (n= 1140)	157	13.81%	980	86.19%

Table 3: Care of parturient women

On arrival, the general condition was respectively good (94.80%), fairly good (3.52%), fair (0.44%) and poor (1.24%). The diagnosis found mostly obstructed labor (23.46%), normal work (22.43%), hypertension (18.40%), and hemorrhage (8.65%). The medical treatment was dominated by vascular filling (39.37%), blood transfusion (5.87%), injection of antibiotics (8.21%), antihypertensive drugs (6.09%), and/or magnesium sulfate (2.2%). Gyneco-obstetrical treatment involved 45 abortions, 834 deliveries (729 natural and 105 instrumental), and 303 caesareans; for a total of 1179 cases (22.21%). The surgery involved 22 laparotomies (including 7 hysterectomies), 5 perineal recoveries, and 3 others; for a total of 30 cases (2.20%). Hospitalization, 0-19 days, had an average of 2.34 days. Maternal deaths were 14 (1.03%): 9 (64.29%) direct and 5 (14.29%) indirect. There were 157 cases with perinatal death from hypertensive pathology (41.50%), retention of dead egg (33.33%), dystocia (10.20%), prematurity (7.48%), praevia placenta, second twin retention, anaemia, acute foetal distress (1.36% each), and others (2.04%) (Table 3).

## Discussion

### Limits of the Study

The main problem was the retrospective nature of recruitment. Thus, certain information's being incomplete or badly filled in, the cumulative frequencies have changed from one variable to another. Data on distance traveled were not specified, as was the exact age of pregnancy in weeks of gestation. Despite all, the size of our sample was suitable for drawing up the epidemiological and clinical profile of our cases.

### Socio-Demographic Profile

The average age of our patients (26.83 years) is close to that of Thiam (26.6 years) [7], Baldé (23.22 years) [8], Ouattara (26.1 years) [9], and Cissé (23.5 years old) [10]. Our predominance of prim parous (38.49%) is in line with that of Thiam (57.2%) [7], Traoré (26.7%) [11], Cissé (43%) [10] and Ouattara (30.9%) [9]. This could be explained by the rural and poor environment where marriage takes place early. Our proportion of married (97.73%), higher than that of Thiam (95.6%) [7] and Ouattara (89.8%) [9], may be linked to non-schooling. Our proportion of non-schooling (60.92%), higher than that of Baldé (57.27%) [8], Ouattara (35.2%) [9], and Saizonou (46%) [5] limits understanding links between health problems and socioeconomic reality. Income, low for 93.84% of our cases and 22.2% for Thiam [7], influences the use of care for women with limited autonomy to access health facilities. The health posts, the origins of most of the cases (63.73%), did not respect the reference/counter-reference standards by skipping the health centers. Prenatal consultations (CPN) rarely reach the number of four recommended by WHO. They do not start until the 4th month and the completion rate is very low as for Samb (37.76%) [12] and Thiam (33.3%) [7]. According to local beliefs, the pregnant woman, very vulnerable in the first trimester, needs discretion to protect herself from the evil spirits that can be used by co-wives in polygamous environment [2].

### Evacuation Conditions

We had fewer evacuations (23.43%) than Thiam (31.2%) [7], Cissé (46.7%) [10], Imbert (50.5%) [13] and Tshabu Aguémon in Benin (30.4%) [14], but more than Baldé (7.05%) [8] and Diarra (7.9%) [15]. Indeed, the study areas are different, but evacuation, depending on distance, cost, quality of services, and socio-cultural orientation, has different reasons [16]. Our reasons for evacuation are dominated by dystocia (29.76%), hypertension (16.64%) and hemorrhage (10.85%) whose specialized care justifies the decision to evacuate. The decision to evacuate, taken mainly by qualified personnel (99.56%) predominantly midwives (97.94%), can be superimposed on that of Thiam (98%) [7] and Sépou (94.4%) [19]. This shows the predominance, in peripheral health units, of paramedical personnel who must use the evacuation bulletin.

The evacuation bulletin, established in 99.04% of our cases, gives the reception structure the information necessary for proper management, which may require a venous route. The venous route, less frequent for us (53.23%) than for Thiam (59%) [7], and Thera (86.70%) [18], poses a material problem and/or staff expertise who prepares the transport. The main form of transportation was the ambulance for us (58.72%), Thera (50.60%) [20], and Millogo-Traore (26.4%) [19], but public transportation for Diarra (58.9%) [15] and Sepou (65.2%) [20]. This proves the efforts of our authorities which must be extended to service providers. A trained service provider accompanied 58.87% of our evacuations, more than the 27.59% of Tshabu Aguémon because of the target (deceased women) [14] environment of the hospital. The hospital was previously notified more rarely for us (1.54%) than for Thiam (26.7%) [7], probably due to the unavailability of means; which hinders the preparation of therapeutic management.

### Therapeutic Care

The logic of primary health care: "treating people at the first level as close as possible to their home with the necessary skills" implies a permanent service [3] to preserve the general condition. The general condition was only affected in 1.68% of cases, may be related to the delay in evacuation, the duration of transport and the poor condition of the roads. Our proportion of term pregnancies (87.33%) was close to that of Thiam (83.6%) [7]. The high proportion of normal labor (22.43%), therefore wrongful evacuation, confirms Sepou for whom a certain number of evacuations could have been avoided by a well-conducted directed delivery [17]. This would have enabled hospital to focus on problems whose proportions vary from reasons for evacuation to admission diagnoses. These differences in proportion could be explained by the lack of competence of the referring service providers. Obstructed labor



was more important in our reasons for evacuation (29.75%) than in our admission diagnoses (20.16%), unlike Diarra Nama (53.6% for reasons for evacuation and 56.2% of diagnoses at admission) [15]. Hemorrhages were more important among reasons for evacuation (10.85%) than among admission diagnoses (3.59%); unlike Diarra Nama (9.9% of reasons for evacuation and 17.6% of admission diagnoses) [15].

The delivery on the road, noted for 9 cases, results from the fact that in rural area, far from a maternity, the parturient must show her bravery to bear the pain [21]. Vaginal delivery was more frequent for us (61.14%) than for Baldé (14.1%) [8] and Cisse (20%) [10]. The instrumental maneuvers had frequencies close for us (7.7%) and Thiam (8.5%) [7] but higher than that of Baldé (3.6%) [8]. Cesarean section was less frequent for us (22.21%) than for Sépou (30.4%) [17] and Tchaou (46.6%) [22]. Surgical treatment was less frequent for us (2.2%) than for Thiam (33% of laparotomy for uterine rupture and 25% of hysterectomy for hemostasis) [7]. Maternal death was more frequent for us (1.03%) than for Thiam (2%) [7], Cissé (8.80%), Tshabu Aguémon (4.55%), and Baldé (5.45%). Direct causes (69.29%) were dominated by hemorrhage, eclampsia and obstructed labor, as found by Baldé [8], Cissé [10], and Tshabu [14]. Neonatal deaths, although less frequent for us (7.92%) than for Thiam (18.8%) [7], Cissé (25.8%) [10], and Tshabu Aguémon (15.40%) [14], could be less with a more efficient neonatal service.

## Conclusion

At the regional hospital of Saint-Louis, the majority of the women received in emergency care are elderly, schooled, poor, married, multiparous, with a poorly followed pregnancy complicated by hypertension, haemorrhage and/or obstructed labour. The evacuation is mainly decided by a midwife, made by ambulance, accompanied by a trained provider, with a venous route, without prior information of the hospital. The improvement of the situation requires a more educated population and a better organized network (medical transport, sufficient and upgraded staff, more efficient maternity and neonatology, correct filling of databases).

## References

1. Ndiaye P, Niang K, Diallo I (2013) Dystocia risk score: A decision making tool to combat maternal mortality. (Le score de risque dystocique (SRD): un outil d'aide à la décision médicale pour combattre la mortalité maternelle). *CR Biologies* 336: 301-4.
2. Ndiaye P, Tal Dia A, Diediou A, Dieye EHL Dione DA (2005) Sociocultural determinants of the delay of the 1st prenatal consultation in a health district in Senegal. (Déterminants socioculturels du retard de la 1re consultation prénatale dans un district sanitaire au Sénégal). *Sante Publique* 17: 531-8.
3. OMS, UNFPA, UNICEF, AMDD (2020) Monitoring of emergency obstetric care. User Manual. (Surveillance des soins obstétricaux d'urgence. Manuel d'utilisation) 6: 1-15.
4. Haddad S, Fournier P (1995) Quality, cost and developing of health services in developing countries. A longitudinal study in Zaire. *Social Sci Med* 40: 743-53.
5. Saizonou J, Godin I, Ouendo EM, Zerbo R, Dujardin B (2006) The quality of care for obstetric emergencies in referral maternity hospitals in Benin: The point of view of the "Echappées Belles" and their expectations. (La qualité de prise en charge des urgences obstétricales dans les maternités de référence au Bénin: Le point de vue des «Echappées Belles» et leurs attentes). *Trop Med Int Health* 11: 672-80.
6. Senegal /ANSD (2018) The population of Senegal.
7. Thiam O, Cisse ML, Mbaye M, Niang MM, Gueye M, et al. (2013) The problem of parturients evacuated in rural Senegalese areas: example of the Ndioum hospital center. (La problématique des parturientes évacuées en zone rurale sénégalaise: exemple du centre hospitalier de Ndioum). *Rev Cames Sante* 1: 51-6.
8. Baldé IS, Diallo FB, Diallo Y, Diallo A, Diallo MH, et al. (2011) Intrapartum obstetric evacuations: socio-demographic, clinical and prognostic aspects in Conakry, Guinea. (Évacuations obstétricales intrapartum : aspects sociodémographique, clinique et pronostique à Conakry, Guinée). *Med trop* 71: 626-9.
9. Ouattara A, Ouedrago CM, Ouedrago A, Lankoande J (2015) Obstetric referrals and evacuations in the context of subsidizing emergency obstetric and neonatal care: epidemiological, clinical and prognostic aspects over a period of 34 months at the Yalgado University Hospital in Ouagadougou. (références et évacuations obstétricales dans le contexte de la subvention des soins obstétricaux et néonataux d'urgence: aspects épidémiologiques, cliniques et pronostiques sur une période de 34mois au CHU Yalgado de Ouagadougou. *Médecine et santé tropicales*) 25: 403-7.
10. Cisse M L, Raad B, Diouf A, Wade F, Moreau JC (2015) Assessment of obstetric evacuations at Kolda hospital. *Medicine Black Africa*. (Bilan des évacuations obstétricales à l'hôpital de Kolda. *Médecine Afrique Noire*) 57: 37-43.
11. Ndiaye Traore A (1992) Statistical and epidemiological assessment of obstetric and gynecological emergencies at the Aristide Le Dantec university hospital. Thesis Méd, Dakar, 1992, n°6. (Bilan statistique et épidémiologique des urgences obstétricales et gynécologiques au centre hospitalier universitaire Aristide Le Dantec. Thèse Méd, Dakar, 1992, n°6).
12. Samb ND, Sakho P (2012) Determinants of the use of reproductive health (RH) services by pastoral transhumant populations in the Matam region. (Déterminants de l'utilisation des services de santé de la reproduction (SR) par les populations de transhumants pastoraux de la région de Matam). *Antropo* 27: 97-154.
13. Imbert P, Berger F, Diallo NS (2003) Maternal and pediatric prognosis of emergency cesarean sections: prospective study at the Principal Hospital in Dakar (Senegal). (Pronostic maternel et pédiatrique des césariennes en urgence : étude prospective à l'hôpital Principal de Dakar (Sénégal)). *Med Trop* 63: 351-7.
14. Tshabu-Aguemon C, Denakpo J, Adisso S, Mampassi E, DE Souza J (2012) Maternal and perinatal mortality linked to obstetric referrals to C.U.G.O. of the CNHU-HKM in Cotonou. (Mortalités maternelle et périnatale liées aux références obstétricales à la C.U.G.O. du CNHU-HKM de Cotonou). *SARAF* 17(1).
15. Diarra Nama AJ, Angbo O, Koffi MN, Koffi MK, Yao TK, et al. (1999) Morbidity and mortality linked to obstetric transfers in the Bouaflé health district of Ivory coast. (Morbidity et mortalité liées aux transferts obstétricaux dans le district sanitaire de Bouaflé en Côte d'Ivoire). *Sante publique* 11: 193-201.
16. Magnin G (1999) Maternal morbidity and mortality related to childbirth. (Morbidity et mortalité maternelles liées à l'accouchement). *Rev Prat* 49: 173-7.
17. Q Sepou A, Goddot M, Ngbale R, CE Gaunefet, Z Domande-Modanga (2009) Evolution of the frequency and problems associated with medical evacuations to the gynecology-obstetrics department of the BanguI community hospital. (Evolution de la fréquence et des problèmes liés aux évacuations sanitaires vers le service de gynécologie-obstétrique de l'hôpital communautaire de BanguI). *Clin Mother Child Health* 6: 1507-12.
18. T Thera, Traore Y, Kouma A, Diallo B, Traore ZO, et al. (2015) Problem of the referral-counter-referral system for obstetric emergencies and the involvement of communities in the district of Bamako. (Problématique du système de référence-contre-référence des urgences obstétricales et l'implication des communautés dans le district de Bamako). *Mali Med* 3: 34-5.

19. Millogo-Traore TFD, Sawadogo RCA (2014) Assessment of the implementation of the national strategy for subsidizing deliveries and emergency obstetric and neonatal care within the gynecology-obstetrics department of CHU YO. (Évaluation de la mise en œuvre de la stratégie nationale de subvention des accouchements et des soins obstétricaux et néonataux d'urgence au sein du service de gynécologie-obstétrique du CHU YO). *Annales de la SAGGO* 9: 5-12.
20. Sepou A, Yanga M C, Nguembi E (2003) Epidemiological and clinical aspects of 116 cases of GEU at the Bangui community hospital. (Aspects épidémiologiques et cliniques de 116 cas de GEU à l'hôpital communautaire de Bangui). *Med Afr Noire* 50: 405-11.
21. Schmidt N, Abelsen B, Oian P (2002) Deliveries in maternity homes in Norway: results from a 2-year prospective study. *Acta Obstet. Gynecol. Scand* 81: 731-5.
22. Tchaou BA, Salifou Nfmhk, Chobi EZM (2015) Obstetrical emergencies at the PARAKOU university hospital in BENIN: clinical, therapeutic and evolutionary aspects. (Les urgences obstétricales à l'hôpital universitaire de PARAKOU au BÉNIN: aspects cliniques, thérapeutiques et évolutifs). *Europ Sci J* 11: 1857-81.