

Practices of Maternity's Care Providers in the Municipality of Kozah 1 Regarding the Administration of Vitamin K1, Eye Care, and Umbilical Cord Care in Immediate Postpartum Newborns

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Abstract

Background: Neonatal mortality is a real public health problem in the world and particularly in countries with limited resources. Essential care remains an effective means of reducing this mortality. **Objective:** To evaluate the practice of administering of vitamin K1, ocular and cord care in maternity wards in the Kozah 1 municipality. **Method:** This is a cross-sectional study conducted from March 1st to June 30th, 2022 in all maternity wards in the Kozah 1 municipality. Socioprofessional aspects of providers and those related to the administration of vitamin K1, ocular and cord care were studied. **Results:** Eighty-five (85) maternity providers were included in this study. The average age of the providers was 36.2 years with extremes of 21 and 55 years. Providers were midwives (51.8%), childbirth attendants (35.3%), and matrons (12.9%). The average length of practice was 9.5 years with extremes of 1 and 28 years. For three out of four providers (75.3%), the postpartum period was defined as a period of 02 hours following delivery. The importance of cord, ocular care, and administration of vitamin K1 in postpartum was known respectively by 84.7%, 98.8%, and 92.9% of the providers. Chlorhexidine gel was used by

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81.2% of providers for umbilical cord care. For ocular disinfection, more than half of the providers (52.9%) reported using half-diluted povidone iodine. No center had displayed care protocol. **Conclusion:** This study highlighted the level of knowledge and practice of three essential postpartum care practices. The products used for the different care practices are consistent with recommendations but vary according to the care providers.

Keywords

Essential Care, Newborn, Immediate Postpartum, Maternity, Togo

1. Introduction

Neonatal mortality is a real public health problem worldwide. Limited resource countries are characterized by poorly equipped neonatal units where 99% of neonatal deaths occur [1]. In these countries, over two-thirds of newborns die during the first week of life, and approximately one million newborns die within the first 24 hours [2]. These deaths can be attributed to a small number of treatable and preventable diseases. The main diseases responsible for these deaths are neonatal infections (NNI), perinatal asphyxia, and low birth weight with 30%, 30%, and 25% of neonatal deaths, respectively [3] [4] [5]. Neonatal resuscitation and essential newborn care are two measures that can reduce this significant burden [6]. Care provided to newborns during the neonatal period by healthcare providers in healthcare facilities and by parents in the community is essential for their survival. The components of essential newborn care (ENC) include measures to combat hypothermia through immediate drying and wrapping of newborns after birth, skin-to-skin contact initiation and delayed bathing, hygiene measures like care of the cord, adequate feeding through immediate breastfeeding and exclusive breastfeeding, and seeking care for illness [7] [8].

In Togo, the infant-juvenile mortality rate was 89‰, and the neonatal mortality rate was 27‰ in 2013 [9]. Newborns represented 32.3%, or one-third, of deaths among children under the age of five [9]. Therefore, Togo undertook the implementation of preventive care strategies to significantly reduce neonatal mortality and, thus, reduce infant-juvenile mortality. As such, a cascade of post-service training on essential newborn care was undertaken to strengthen the skills of providers in maternity wards. In 2015, the assessment of care providers in Togo on essential care in the 6 regions of Togo showed that the care providers knew about it but the practice of this care had not been assessed [10].

Therefore, it seemed appropriate to evaluate the practice of essential care in immediate postpartum after this cascade of training to assess the impact on the daily practice of care providers in the Kozah 1 municipality of Kozah 1. As such, this work was undertaken to evaluate three practices of essential care in immediate postpartum, namely the administration of vitamin K1, eye care, and cord care.

2. Materials and Methods

2.1. Study Framework

Our study was conducted in the maternity wards of the Kozah 1 municipality, including the Kara University Hospital Center (CHU-Kara), the Kara Regional Hospital Center (CHR-Kara), the Kara Mother-Child Hospital SOS (HME/SOS Kara), the Kara Polyclinic, the medical-social centers (MSCs) (Adabawéré, Tchintchinda, and Sar Afrique), peripheral care units (PCUs) (Lama kpédah, Lassa bas, Soumdina haut, Soumdina bas, Landa, Lama djamdè, Lama Saoudè, Lassa houdè, and Kara Sud), and private clinics (clinique Tout est Grace, clinique saint Sauveur, dispensaire maternité Saint Luc Tchanadè, and dispensaire maternité de Don Bosco).

2.2. Type and Period of Study

This was a cross-sectional study conducted between March 1 and June 30, 2022, which is a period of three months.

2.3. Study Population

The evaluation focused on providers offering care to newborns in the district of Kozah 1. Therefore, it involved all healthcare providers working in the maternity wards of health centers in the Kozah 1 municipality who were present on the day the investigators' visit.

2.4. Inclusion Criteria

All healthcare providers working in the maternity wards of the visited health facilities who were present during the investigators' visit were included in this study.

2.5. Non-Inclusion Criteria

Health care providers who were absent during the investigators' visit and personnel who don't work in the maternity ward were not included in this study.

2.6. Sampling

Sampling was random and non-probability.

2.7. Data Collection Technique and Tool

Individual interview was the technique used for data collection. A pre-established survey form was used to collect the data.

Parameters Studied

The following parameters have been studied:

- The socio-demographic aspects of care providers;
- The duration of practice of the profession and seniority in the service;
- The knowledge and practices of staff on umbilical cord care, eye care, and

administration of vitamin K1 in the immediate postpartum.

2.8. Ethical and Administrative Considerations

Authorization was obtained from the Director of the National School of Midwives in Kara. Information letters were addressed to the administrative and health authorities of the selected facilities to request their authorization. To respect confidentiality, the health care providers were identified by a number.

2.9. Data Analysis and Processing

The data was entered and analyzed using Excel 2007, Word 2007, and Epi Info software.

2.10. Definition of Concepts

- Auxiliary midwives: These are maternity healthcare providers who are recruited after completing secondary school and are trained for 3 years to support midwives in health facilities.
- Matrons: These are maternity healthcare providers who are trained on the job and recruited to support midwives and auxiliary midwives.
- The practice is considered appropriate when it meets the Ministry of Health's recommendations for essential care. These recommendations are based on World Health Organization's recommendations adapted to the country context.

3. Results

3.1. Overall Participation

Eighty-five (85) care providers out of the 90 expected responded to the survey, representing a participation rate of 94.4%.

3.2. Age

The average age of the care providers was 36.2 years with extremes of 21 and 55 years. The most represented age group was between 31 - 35 years (27.1%), followed by 26 - 30 years (24.7%).

3.3. Visited Health Facilities According to Health Pyramid

Personnel from public and private reference hospitals (CHU Kara, CHR Kara, and SOS-HME) represented 42.4% of the personnel (36). The rest of the personnel worked in the polyclinic (12.9%), private clinics (9.4%), medical-social centers (15.3%), and peripheral care units (20%).

3.4. Qualifications of Service Providers and Seniority in the Profession

Eighty-five (85) care providers participated to the study, including 44 midwives (51.8%), 30 auxiliary midwives (35.3%), and 11 matrons (12.9%). The average

years of practice was 9.5 years with extremes of 1 and 28 years. More than half of the care providers (56.5%) had a seniority in the profession between 5 and 14 years (**Table 1**).

3.5. Seniority in the Service

More than half of the personnel (56.5%) had spent less than 5 years in the service (**Table 2**).

3.6. Pre- and Post-Service Training on Essential Newborn Care

Among the respondents, the majority (97.7%) reported having received training on essential newborn care during their studies. In 67.1% of cases, respondents reported receiving post-service training.

3.7. Respondents' Knowledge of Immediate Postpartum

Sixty-four (64) or 75.3% defined the immediate postpartum period as the 2-hour period following birth (**Table 3**).

3.8. Umbilical Cord Care

Umbilical cord care was practiced in 98.8% of cases at birth and in 1.2% of cases within 2 hours of birth. For more than 8 out of 10 care providers, prevention of infections was the goal of umbilical cord care as shown in **Figure 1**.

Table 1. Distribution of respondents by length of time in the profession.

	Number (n)	Percentage (%)
Less than 5 years	21	24.7
5 - 9 years	30	35.3
10 - 14 years	18	21.2
15 - 19 years	7	8.2
20 years and more	9	10.6
Total	85	100.0

Table 2. Distribution of respondents by number of years in current service.

	Number (n)	Percentage (%)
0 - 5 years	48	56.5
5 - 10 years	19	22.4
10 - 15 years	8	9.4
15 - 20 years	7	8.2
≥20 years	3	3.5
Total	85	100.0

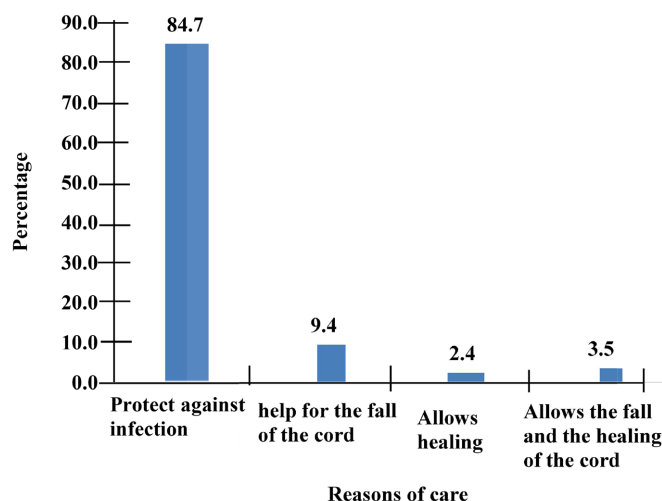


Figure 1. Distribution of respondents according to reasons for umbilical cord care.

Table 3. Distribution of respondents by definition of immediate postpartum.

	Number (n)	Percentage (%)
Within 2 hours of birth	64	75.3
Within 6 hours of birth	6	7.1
Within 12 hours of birth	1	1.2
Within 24 hours of birth	12	14.1
Within 48 hours of birth	2	2.3
Total	85	100.0

In 90.6% of cases (77), case providers reported that the center did not have a written protocol. Seven care providers (8.2%) reported having a written protocol but not displayed, and 1 care provider (1.2%) reported having a written and displayed protocol that the investigators saw. Seventy-six care providers (89.4%) reported providing cord care immediately after birth. The others reported providing care respectively after 2 hours (6), 6 hours (2), and 24 hours following birth. Cord care was administered once a day by 40 care providers (47.1%), twice a day by 42 care providers (49.4%), and three times a day by 3 care providers (3.5%). The products used for cord care were 4% chlorhexidine gel (69), alcohol (10), sodium hypochlorite (5), and eosin (1). Care was given to the entire cord (63), only to the base of the cord (11), only to the stump (9), and only to the body (2).

3.9. Administration of Vitamin K1

Out of 85 healthcare personnel surveyed, 98.8% (84) administered vitamin K1 to the newborn.

In 92.9% of cases (79), respondents knew that the administration of vitamin K1 prevented the occurrence of neonatal hemorrhagic disease. For 7.1% of respondents (6), vitamin K1 administration was to prevent infections in newborns.

In 88.2% of cases (75), providers reported administering vitamin K1 at birth, 10.6% (9) within two hours of birth, and 1.2% (1) within 24 hours of birth.

In 56.5% (48) of cases, respondents knew the appropriate dose (0.5 mg if weight is <1500 g or 1 mg if weight is \geq 1500 g) of vitamin K1 to administer to the newborn. On the other hand, 43.5% (37) did not know the appropriate dose of vitamin K1 to administer.

The intramuscular route was cited as the main route of administration of vitamin K1 by 84.7% of care providers (72), the intramuscular and oral route by 11.8% of care providers (10), and the oral route by 3.5% of care providers (3). For the site of administration, 95.3% (81), 3.5% (3), and 1.2% (1) of care providers reported administering vitamin K1 to the anterolateral thigh, the inner thigh, and the anterolateral face of the buttock, respectively.

3.10. Eye Care at Birth

Care providers in 98.8% (84) of cases reported practicing newborn eye care, while 1.2% (1) reported not practicing it. Regarding the importance of eye care, 84 care providers (98.8%) reported that eye care is meant to prevent eye infections, while 1.2% (1) did not know exactly what eye care was for. All care providers reported that newborn eye care was administered by healthcare personnel. Care providers reported that newborn eye care was administered immediately after birth and within 2 hours of birth in 89.4% (76) and 10.6% (9) of cases, respectively. In 52.9% of cases (45), care providers reported using half-diluted povidone iodine eye drops for newborn eye care, while 41.2% (35) used an antiseptic, 3.5% (3) used an antibiotic, and 2.4% (2) used both an antibiotic and an antiseptic.

The survey respondents reported administering newborn eye care once immediately after birth in 82.4% (70) of cases. In 3.5% (3), 11.8% (10), and 2.3% (2) of cases, care providers administered eye care for 24 hours, 7 days, and more than 7 days, respectively.

4. Discussion

This study evaluated three essential practices for immediate postpartum care in health centers in the Kozah 1 municipality. It allowed for the assessment of the level of application of these practices among maternity care providers, including 44 midwives, 30 auxiliary midwives and 11 matrons who work in public and private health facilities in the Kozah 1 municipality.

4.1. Difficulties Encountered and Limitations

The workload of some care providers, particularly those whose centers were busier, made data collection more laborious. Refusals from some health workers to respond to the questionnaire on the pretext of unavailability in some areas did not allow for more comprehensive data. In fact, no data were collected from doctors, whether obstetricians/gynecologists or generalists, practicing in the visited hospitals' maternity wards. This limitation does not allow to assess the level

of knowledge and application of essential postpartum care. Although it is known that they are not directly involved in this care, they remain supervisors and should therefore have a detailed understanding of the administration of care to accompany midwives and/or birth attendants in the correct completion of these tasks. Nevertheless, the data collected from midwives, auxiliary midwives, and matrons, who are the care providers in charge of essential care, allowed for a better evaluation of the level of application of postpartum care and thus provided data to enrich the scientific literature in the Kara region.

4.2. Socio-Demographic and Professional Characteristics of Service Providers

All care providers were women. Numerous studies conducted by several authors in maternity wards in Togo, Ouagadougou in Burkina Faso, and Cotonou in Benin found a strong female predominance in the healthcare workforce [11] [12] [13]. Indeed, almost all healthcare workers working in maternity wards are either midwives or auxiliary midwives, with the exception of male doctors.

More than half (51.8%) of the providers were midwives. These results are higher than the findings in the 06 health regions of Togo and in the Kara region, where 48% and 36.27% of providers were midwives, respectively [10] [11]. Conversely, a study in Burkina Faso found that midwives represented 92% of professionals involved in essential newborn care [14]. This result may be explained by the fact that our work covered both reference centers and peripheral care units that still use birth attendants, whereas the work in Burkina Faso only focused on the maternity wards of hospitals in Ouagadougou [14]. Indeed, in our country, almost all professionals working in maternity wards are either midwives or birth attendants. The predominance of midwives in our work may be explained by the fact that they are more sought after in reference centers and that their basic training enables them to properly perform childbirths and essential care for newborns.

The average length of experience was 9.5 years, with more than half of the care providers (56.5%) having been in service for between 5 and 14 years. These results are similar to those found in a study on cord care in the Kozah district in 2020, where the average length of experience was 10 years [13]. The length of time spent in the profession indicates acquisition of experience in practice and allows for preparation in handling delicate situations. However, it must be acknowledged that in practice, it is also difficult to change the behavior of personnel who have worked in a certain way for a long period. It will be necessary to combine the use of experience, useful for care, and to accept any changes related to inappropriate practices for everyday procedures.

4.3. Knowledge of the Immediate Postpartum in Terms of Essential Care

In 75.3% of cases, care providers reported that immediate postpartum care occurred within 2 hours following delivery. This definition is consistent given the

complexity of the definition of immediate postpartum in the literature. According to the World Health Organization, essential postpartum care covers the period of the first 2 hours following birth. However, for the French High Authority of Health (HAS), this period is defined based on the mode of delivery; 96 hours for a healthy newborn and in the absence of complications for the mother after a vaginal delivery, and 120 hours after a cesarean delivery [15]. However, it must be recognized that initial care must be administered within the first 2 hours of birth. This care should be continued throughout hospitalization to facilitate a smooth return home for the family.

4.4. Umbilical Cord Care in the Immediate Postpartum Period

Before the cord falls off, the necrotic tissue exposed to the open air is a possible pathway for bacterial infection from the vessels. The most relevant outcome criterion in the choice of an antiseptic remains the prevention of the occurrence of omphalitis, as this is the serious complication that has justified the use of antiseptics until today.

For 96.5% of care providers, cord care should be administered immediately after birth or within 2 hours following the birth, which is in line with recommendations. This good understanding allows the correct and timely administration of cord care.

Several antiseptics are used in centers depending on their protocol and the availability of inputs. Thus, in our study, we found that the products used by care providers differ from one center to another. The most commonly used antiseptic was 4% chlorhexidine gel (81.2%). This rate of use of 4% chlorhexidine gel is significantly higher than the 39.21% of care providers who used it in 2020 in the Kozah district [10]. Even in developed countries with a strong health system, the use of antiseptics differs from one district to another and even within the same district [16]. Indeed, Lucie in France found that the products used were: chlorhexidine in all its forms (78%), Dakin solution, and alcohol [16]. However, in 1999, in Lacour *et al.*'s work, chlorhexidine ranked third among the most cited antiseptics (18.2%) behind eosin (34.1%) and alcohol in all its forms (31.8%) among the products used for cord care [17]. Togo has adopted 4% chlorhexidine gel for cord care, and to prevent each center from using something that does not conform to national recommendations, chlorhexidine is included in the cesarean kit. The variability in antiseptics from one center to another in our study can be explained by the fact that for vaginal deliveries, no antiseptic is provided in the kit, thus giving each provider the choice to use whatever they want. This variability in the choice of antiseptics is also justified by the lack of a protocol for umbilical cord care. In fact, providers in 90.6% of cases stated that there was no written protocol for umbilical cord care in their facilities, 8.2% stated that the protocol existed but was not displayed, and 1.2% stated that the center had a written and displayed protocol. The harmonization of cord care in different health centers can be achieved by creating and display-

ing a protocol in each center.

4.5. Administration of Vitamin K1 in the Immediate Postpartum Period

The majority of the survey participants (92.9%) knew that the administration of vitamin K1 prevents newborns from hemorrhage. Our results are similar to those found in Mali in 2018, which found 91.7% of cases [18]. The administration of phytonadione (vitamin K1) in the anterolateral aspect of the thigh at birth or orally helps prevent neonatal hemorrhagic disease because the intestinal synthesis of vitamin K1 is very low to protect the newborn.

The majority of the surveyed personnel, 95.3%, knew that the site of administration for vitamin K1 is the anterolateral area of the thigh. In contrast, in the study in Mali in 2018, 71.76% of care providers knew that the site of administration for vitamin K1 is the anterolateral area of the thigh [18]. This difference can be explained by the fact that the majority of care providers in the health facilities surveyed used the intramuscular route much more as the main route of administration for vitamin K1.

4.6. Eye Care in the Immediate Postpartum

Newborn eye care was administered immediately at birth in 89.4% of cases. Our results are higher than those recorded in Mali in 2018, which were 60.2% [18]. The high rate in our study could be explained by the ongoing training of personnel on essential newborn care in recent times in order to better strengthen their competence. This strengthening of competence, particularly in eye care, is justified by the fact that in 2009, 47.3% of newborns delivered had suffered from conjunctivitis during the neonatal period [19].

The majority of providers (52.9%) used diluted 50% povidone iodine eye drops for the prevention of eye infections. In contrast, in the 2018 study in Mali, 30.58% of care providers used rifamycin and gentamicin eye drops for eye care [18]. The World Health Organization recommends the use of an antiseptic and not an antibiotic, but it is clear that this recommendation is not well understood in some countries where care providers engage in abusive use of antibiotic eye drops at birth [20].

5. Conclusion

The practice of essential newborn care (umbilical and eye care, and administration of vitamin K1) no longer needs to prove its beneficial effects. This study in the maternity wards of the Kozah 1 municipality allowed us to highlight a relative insufficiency in the practice of immediate postpartum care. However, the timing of care administration is respected. Even in the absence of written and displayed protocols, the recommended drugs for various care were used by the majority of providers. The availability and display of protocols will anchor these practices for essential harmonized care in the municipality. These practices

could be strengthened by ongoing training and regular supervision of care providers responsible for essential newborn care, as well as the display of protocols to ensure the sustainability of practices.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

- [1] Black, R.E., Cousens, S., Johnson, H.L., Lawn, J.E., Rudan, I., Bassani, D.G., *et al.* (2010) Global, Regional and National Causes of Child Mortality in 2008: A Systematic Analysis. *The Lancet*, **375**, 1969-1987. [https://doi.org/10.1016/S0140-6736\(10\)60549-1](https://doi.org/10.1016/S0140-6736(10)60549-1)
- [2] Organisation Mondiale de la Santé (2018) Nouveau-nés: Améliorer leur survie et leur bien-être. OMS. <http://www.who.int/fr/news-room/fact-sheets/detail/newborns-reducing-mortality>
- [3] World Health Organization (2015) Child Mortality and Causes of Death. World Health Organization. http://www.who.int/gho/child_health/mortality/neonatal/en/
- [4] Black, R.E., Victora, C.G., Walker, S.P., Bhutta, Z.A., Christian, P., de Onis, M., *et al.* (2013) Maternal and Child Undernutrition and Overweight in Low-Income and Middle-Income Countries. Maternal and Child Nutrition Study Group. *The Lancet*, **382**, 427-451. [https://doi.org/10.1016/S0140-6736\(13\)60937-X](https://doi.org/10.1016/S0140-6736(13)60937-X)
- [5] Roberfroid, D., Huybregts, L., Lanou, H., Henry, M.-C., Meda, N., Menten, J., *et al.* (2008) The MISAME Study Group Effects of Maternal Multiple Micronutrient Supplementation on Fetal Growth: A Double-Blind Randomized Controlled Trial in Rural Burkina Faso. *The American Journal of Clinical Nutrition*, **88**, 1330-1340.
- [6] Malhotra, S., Zodpey, S.P., Vidyasagan, A.L., Sharma, K., Raj, S.S., Neogi, S.B., *et al.* (2014) Assessment of Essential Newborn Care Services in Secondary-Level Facilities from Two Districts of India. *Journal of Health, Population and Nutrition*, **32**, 130-141.
- [7] Lawn, J.E., Blencowe, H., Oza, S., You, D., Lee, A., Waiswa, P., *et al.* (2014) Every Newborn: Progress, Priorities and Potential beyond Survival. *The Lancet*, **384**, 189-205. [https://doi.org/10.1016/S0140-6736\(14\)60496-7](https://doi.org/10.1016/S0140-6736(14)60496-7)
- [8] Bhutta, Z.A., Das, J.K., Bahl, R., Lawn, J.E., Salam, R.A., Paul, V.K., Sankar, M.J., Blencowe, D.M.H., Rizvi, A., Chou, V.B. and Walker, N. (2014) Can Available Interventions and Preventable Deaths in Mothers, Newborn Babies, and Stillbirths, and at What Cost? *The Lancet*, **384**, 347-370. [https://doi.org/10.1016/S0140-6736\(14\)60792-3](https://doi.org/10.1016/S0140-6736(14)60792-3)
- [9] République Togolaise (2014) Rapport préliminaire de l'Enquête Démographique et de Santé Togo 2013. Ministère de la Planification, du développement et de l'Aménagement du territoire, Rapport Final, 32.
- [10] Tchagbele, O.B., Azoumah, K.D., Segbedji, K.A.R., Kpegouni, M.T., Djadou, K.E., Balaka, B., Atakouma, Y.D. and Agbèrè, A.D. (2015) Évaluation des compétences des prestataires de soins exerçant dans les maternités en matière de réanimation néonatale au Togo. *Revue de Médecine Périnatale*, **7**, 245-253. <https://doi.org/10.1007/s12611-015-0334-8>
- [11] Tchagbele, O.-B., Segbedji, K.A.R., Takassi, O.E., Talboussouma, S.M., Agrigna, H.,

- Agbeko, F., Koumoï, T., Douti, K., Gbadoé, A.D., Atakouma, Y.D. and Azoumah, K.D. (2021) Pratique des soins du cordon ombilical du nouveau-né dans les maternités et les unités de néonatalogie des centres de santé du district de la Kozah (Togo). *Périnat*, **13**, 37-42. <https://doi.org/10.3166/rmp-2021-0111>
- [12] Yé, D., Tall, F.R., Sanou, F., Kam, K.L., Akontionga, M., Dao, F., *et al.* (2005) Prise en charge des nouveau-nés en maternité en Afrique subsaharienne: Un défi dumillénaire. *Archives de Pédiatrie*, **12**, 1275-1280. <https://doi.org/10.1016/j.arcped.2005.04.082>
- [13] Ayivi, B., Badirou, F. and Alihonou, E. (1999) Prise en charge du nouveau-né à Cotonou. État actuel et difficultés. *Archives de Pédiatrie*, **6**, S272-S274. [https://doi.org/10.1016/S0929-693X\(99\)80437-0](https://doi.org/10.1016/S0929-693X(99)80437-0)
- [14] Tougma, A.P. (2017) Connaissance et pratiques des prestataires sur les soins essentiels et la surveillance de l'accouchée dans les hôpitaux de Ouagadougou. Ph.D. Thesis, Bobo-Dioulasso, 102p et annexes. <https://beep.ird.fr/collect/upb/index/assoc/INSSA-2017-TOU-CON/INSSA-2017-TOU-CON.pdf>
- [15] Haute Autorité de Santé (HAS) (2014) Sortie de maternité après accouchement: Conditions et organisation du retour à domicile des mères et de leurs nouveau-nés, HAS, Paris, 36.
- [16] Lucie, N. (2009) Etude sur le soin du cordon ombilical dans les maternités de Lorraine. Sciences Pharmaceutiques. <https://hal.univ-lorraine.fr/hal-01732072/document>
- [17] Lacour, J.P., Castanet, J., Boutté, P. and Ortonne, J.P. (1999) Antisepsie sur cordon du nouveau-né: Enquête et recommandation. *Archives de Pédiatrie*, **6**, 631-634. [https://doi.org/10.1016/S0929-693X\(99\)80293-0](https://doi.org/10.1016/S0929-693X(99)80293-0)
- [18] Diakaridia, M. (2018) Connaissances relatives aux soins essentiels du nouveau-né (SENN) du personnel du centre de Santé référence de la commune VI. Thèse Faculté des Sciences des Techniques et des Technologies de Bamako (FSTTB). FSTTB, Bamako 93p et annexes. <https://www.keneya.net/fmpos/theses/2018/med/pdf/18M142.pdf>
- [19] Ayena, K.D., Amedome, K.M., Diallo, J.W., Dzidzinyo, K.B., Azoumah, K.D., Aboubakari, A.S., Salou, M., Koffi, S.K., Tchassi, N. and Balo, K.P. (2012) Que reste-t-il aujourd'hui des conjonctivites néonatales dans la prefecture de la Kozah au Togo? *Journal Français d'Ophtalmologie*, **35**, 432-436. <https://doi.org/10.1016/j.jfo.2011.10.006>
- [20] Organisation Mondiale de la Santé (2017) Premiers soins essentiels au nouveau-né: Guide de poche de pratique clinique. OMS, 108. <https://apps.who.int/iris/bitstream/handle/10665/260404/9789290618355-fre.pdf?sequence=1&isAllowed=y>