

Essential Newborn Care Practice in Selected Puerto Princesa City Government Health Facilities: The Birthing Attendants' Adoption of the Selected DOH AO 2009-0025 Protocol

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ARTICLE INFORMATION

Article History:

Received: December 27, 2018

Received in revised form: December 09, 2019

Accepted: December 21, 2019

Keywords:

AO 2009-0025, birthing practice, breastfeeding benefits, Essential Newborn Care, skin-to-skin

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ABSTRACT

This study used a descriptive observational method to objectively illustrate how Essential Newborn Care (ENC) of the Department of Health (DOH) Administrative Order 2009-0025 (AO 2009-0025) was practiced at the City Health Office (CHO) in 2012. The aims of the study were to determine if the four principles of ENC are met through the identification of the selected specific guidelines of DOH ENC in the first one and a half hours of the neonate's life. The time period was divided into 0 - 30 seconds, 31-90 seconds, 91 seconds to 3 minutes, 3 minutes to 90 minutes. During the first 30 to 90 seconds of the ten deliveries: 80% placed the neonate prone on mother's abdomen, 40% covered the neonate with a clean dry cloth; head with a bonnet and 100% did not wipe the cheesy-like substance and kept the mother and child together. In the first 3 minutes and 90 minutes of neonate's life, all steps of AO 2009-0025 were followed except for continuous mother and infant skin-to-skin contact. One hundred percent of the participants did not perform routine suctioning and did not give pre-lacteals. Based on the observations, the time-bounded interventions of the ENC of the DOH at the CHO were partially followed. Therefore, the four principles of ENC were partially met.

Introduction

Globally, neonatal mortality is recorded to be more than half a million each year, and the common cause is sepsis (Black et al., 2010).

Majority of the deaths happened in the first week and most were within two days of the newborn's life (Lawn, Cousens, Zupan & Lancet, 2005; National Health Demographic Health Survey, 2003). It was estimated that

birth infection develops during the first 72 hours after birth. Around 30% - 40% of births lead to sepsis and eventual death (Ganatra, Stoll & Zaidi, 2010; Leach et al., 1999). This means that the mortality was due to improper care of the newborns.

In the Philippines, there is a slow decline of less than five-year-old mortality, but neonatal mortality has not improved. Similarly, three out of four newborn deaths in the Philippines in 2000, also occurred in the child's first week of life. According to Dans (2008), a majority of these neonatal deaths was caused by stressful experience during labor and after delivery.

In 2006, the alarming increase of cases of neonatal sepsis in the Philippine hospitals prompted the government to conduct an observation. They used a standardized assessment tool to document the newborn care practices from the moment a baby was born up to the first 60 minutes of life in eleven selected hospitals all over the country in 2008. The study found that hospital practices inhibited newborns from benefiting from their mother's innate defense to protect them from sudden changes in their environment (Sobel Silvestre, Mantaring, Oliveros & Nyunt, 2011). Furthermore, the study reported that newborn care practices were below the World Health Organization's (WHO) standard. For instance, the thermoregulation and initiation of breastfeeding were delayed and newborns were observed to be at risk of hypothermia and bacterial invasion, during separation from the mother and immediate bathing (Sobel et al., 2011). There was no standard sequence in newborn care, and the birth attendants immediately clamped the neonates' umbilical cords.

In response to these, the technical working group and the local government conducted an analysis of available international and Philippine evidence-based newborn care protocols. This resulted in Philippine adoption of WHO

Essential Newborn Care Protocol referred to as the Department of Health (DOH Administrative Order (AO) 2009-0025, also called ENC Protocol.

The order specifically directs the practice of the ENC Protocol in Philippine hospitals and all its attached agencies, other public and private provider of health care, development partners implementing Maternal, Neonatal Child Health and Nutrition (MNCHN) strategy, and all health workers directly involved in attending births. This new policy was launched in December 2009 with a campaign slogan "*Unang Yakap*" (the First Embrace). The DOH protocol provides a globally accepted evidence-based essential newborn care to be performed by licensed skilled birth attendants in assisting deliveries. The ENC protocol comprises a set of time-bounded steps to help newborns survive the first few hours outside the womb, starting before the expulsion of the babies up to the first week of their life. These periods are the first 30 seconds, 90 seconds, three minutes, 90 minutes of life up to the first six hours. The ENC steps included but are not limited to umbilical cord management, core body temperature control, latching of baby before the usual expected time for exclusive breastfeeding practice, and the routine non-immediate care such as eye prophylaxis, Vitamin K injection, and immunization (DOH AO 200-0025: Adopting Policies and Guidelines on Essential Newborn Care Protocol, www.doh.gov.ph).

The DOH AO 2009-0025 has four principles and time-bound actions that are divided into essential periods of newborn's transition from internal to an external environment. The steps in the protocol cover the following four principles: 1) prevention of hypothermia by immediate and thorough drying of the newborn and early skin-to-skin contact between mother and newborn; 2) prevention of intraventricular hemorrhage by properly-timed cord clamping and cutting;

3) prevention of hypoglycemia through early breastfeeding initiation; and 4) stimulation of autoimmune system.

The first principle allows the mother's natural warmth to help the neonate adjust to extrauterine life. Skin-to-skin contact not only provides heat to the child through conduction but also makes the very young child's cardio-pulmonary function in a more stable state (Moore, Anderson, Bergman, & Dowswell, 2012). Further, this practice may cause fewer episodes of apnea. Newborns when having hypothermia may also have respiratory distress (Nayeri, & Nili, 2006).

The second principle is the prevention of sudden stop of supply of blood from the mother to neonatal. Failure to do so may cause internal bleeding. To prevent such from happening, clamping must be done when pulsation of the cord stops or when waiting for three minutes before clamping. Delayed clamping of the cord also prevents anemia (World Health Organization, 2009; Department of Health, 2009).

The third principle considers that children who require more heat need more fuel to create energy, which is then converted to heat. Unregulated increased temperature may cause stress to the newborn. When this happens, the newborn's supply of glucose in the body is slowly being depleted which causes hypoglycemia. Increased oxygen demand to supply the neonate's tissues and vital organs may cause hypoxia or hypercapnia to other organs of the body (Jensen, 1999). During periods of mild asphyxia, adapted changes in the blood flow allow adequate oxygen supply to the brain, heart, and adrenal gland (Jensen, Ganier & Berger, 1999). This is accomplished through an increase in redistribution of the cardiac output. Supply of blood to skin, muscles, kidneys, and gastrointestinal tract is sacrificed to maintain blood flow to the vital organs. Aside from regulation of constant warmth, hypoglycemia can be prevented

through early breastfeeding. Breastmilk contains highly digestible glucose.

The fourth principle is the provision for the baby to direct uninterrupted skin-to-skin contact to the mother's skin for 90 minutes. This action not only prevents hypothermia but also enhances the neonate's growth of the endogenous bacteria which a mother has. The newborns have passive immunity from the mothers' antibodies through placental blood and breastmilk. When these children are exposed to their parents' skin bacteria, colonization starts, which triggers the autoimmune system activities (Maternal, newborn, child and adolescent health: Newborn care at birth, www.pro.int; DOH AO 200-0025: Adopting Policies and Guidelines on Essential Newborn Care Protocol, www.doh.gov.ph). Additionally, prolonged continuous skin-to-skin enhances practice of breastfeeding.

The Essential Newborn Care in the Philippines before the DOH AO 2009-0025

Prior to the implementation of DOH protocol, birth attendants would routinely suction neonate's nose and mouth whether the baby comes out spontaneously crying or cries after an umbilical cord has been clamped. Afterward, the child would be placed on the bassinet or working table.

Before the ENC protocol, the umbilical cord would be milked and would be immediately clamped or tied after applying antiseptic, such as alcohol or povidone iodine, and then the cord would be cut with surgical scissors or sharps, then an antiseptic of either povidone-iodine or alcohol would be applied to clean the umbilical stump and base. A few would apply surgical operating swab on a stump or tying cloth binder around the abdomen. Cord care is one of the important interventions in newborn care.

Before the issuance of DOH AO 2009-0025, cord care was commonly done by

applying 70% isopropyl alcohol or hydrogen peroxide on the base, next to the skin, during diaper changes. (Potts & Mandleco, 2004, page 166). Bathing neonates immediately or washing them with warm water or oil were also practised.

The above practices of handling of newborns were found to actually contribute to the high incidence of neonatal mortality and morbidity in the country. Despite the trainings and efforts of the government, there are gaps in proper implementation of the order in public and private health facilities.

The Puerto Princesa City Government Birthing Facility

The Philippines' largest island province in terms of land area is Palawan, located in the western part of this nation. Its capital is Puerto Princesa City which comprised of close to 1 million in 2015 or 21.43% of the total province's population.

The City Health Office (CHO) is the main implementing arm of the DOH in the delivery of primary health care in the city. There are 51 Barangay Health Clinics (BHC) and seven satellite clinics, two of which contain birthing homes that are strategically located in the city. The clinics are the future Basic Emergency Maternal Obstetric Newborn Center (BEmONC) and the only accredited government delivery facilities nearest the city proper (with the exception of the provincial hospital managed by the national government). Midwives employed by the CHO in nearby barangays are allowed to use the said facilities.

Each birthing home is manned by two midwives and is supervised by a registered nurse. The five midwives aged from 25 to 56 years old were helped by volunteer health workers whose lowest education level was collegiate level. All of the licensed birth attendants have practiced midwifery for

more than 5 years. Among those midwives, twenty years is the longest experience. All of the nurses have been in the service for more than 10 years. The birthing home facilities were recently provided by the government to provide quality health care in 2011.

Essential newborn care in these birthing facilities has recently been introduced and the Health Office required their staff, who are involved in the implementation of their maternal and child health programs to undergo training of ENC for the full implementation of AO 2009-0025. The doctor who headed the Maternal and Children Healthcare Program (MCHN) integrated the ENC protocol in several seminars and workshops for midwives and nurses in the CHO.

Minor studies were published focus on how time-bound interventions were done after the AO 2009-0025 was mandated. It is significant to find out how the direction is being performed and if they meet the standard of care for newborns.

Purpose of the Research

This study focused on the ENC implementation by observing the birthing attendants' practice of selected minute-by-minute steps of the DOH AO 2009-0025. This is to evaluate if the four principles of the ENC were met. It also aims to determine if the discouraged actions by the guidelines are followed.

Methodology

The study used a non-experimental-observation approach in the assessment of AO 2009-0025 implementation. The respondents are the staff (8) employed by CHO for the two birthing homes, the midwives, the Barangay Health Workers (BHW) and administrative nurses of barangay health

stations near the city proper. Since handling of a neonate was the main purpose of the study, the choice of birth attendants who were observed relied on chance delivery. If there was a delivery, whoever was present was observed.

Fourteen (14) deliveries were observed but only ten (10) were included in the focus study. The other four deliveries were eliminated because the delivered three neonates had respiratory distress who needed resuscitation (which the attendants had no training based on the ENC protocol) and one was a still birth. The number of samples depended on the chance that a particular birth attendant would be assisting in the delivery. All attendants in the birthing facility were observed and the changes of attendants during rotation and pairing of the teams on duty were also observed. No teams were the same during observations.

The data gathering instrument used was a checklist based on DOH AO 2009-0025, and the time-bounded Essential Newborn Care protocol. The participants were keenly observed in their minute-by-minute action. In order to avoid subjective evaluation, only two choices were given, and the choices were exactly opposite to each other. Boxes marked done and not done in each procedure were provided. The researcher ticked the appropriate box that corresponds to each birth attendant's action. All enumerators who assisted in data collection are ENC trained from the national training centers.

The permission to conduct an ENC implementation review was obtained from the Chief of the City Health Office. A copy of the checklist was used for observation. The birthing attendants were not informed that a research was being conducted in the delivery clinics to avoid influencing the participants' responses during interviews. After ten observations were made, results of each checklist were discussed with the birthing attendants. All the participants

gave permission to include their checklist in the study.

Results and Discussions

First Principle: The prevention of hypothermia by immediate and thorough drying of the newborn and early skin-to-skin contact between mother and newborn

The ENC actions for the first 30 seconds as stated in the AO DOH 2009-0025

The following are the recommended actions to meet the First principle:

- a. Wear double gloves just before the delivery
- b. Use clean dry cloth to wipe eyes, face, head, front, back, arms and legs to thoroughly dry the newborn.
- c. Remove the damp cloth, discard, and replace with a dry one
- d. Do a fast assessment of newborn's respiration while drying
- e. Place the newborn on a dry and warm surface
- f. Do not wash the newborn within six hours after delivery
- g. If the baby needs resuscitation or necessitates separation from the mother, the newborn is kept close to the mother on a warm safe surface

Figure 1 shows that in 10 deliveries conducted, seven birth attendants did not put on double gloves just before the delivery of the baby, and during the crowning of the head. The other pair of gloves that were prepared was worn by the assistant. In three instances the midwives changed

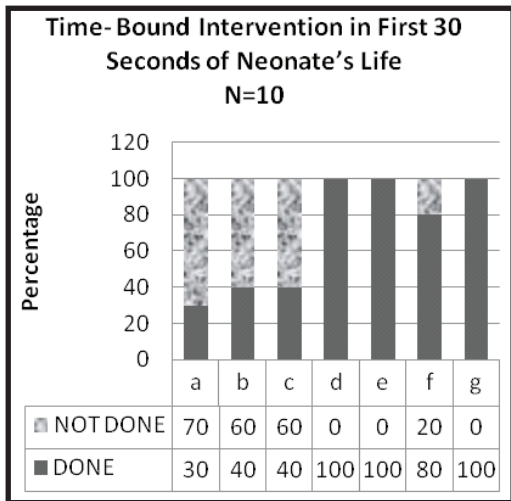


Figure 1. Percentage of Time - Bound Intervention in First 30 Seconds of Neonate's Life (N = 10)

their gloves before clamping the cord of the newborn. There was an occasion that instead of changing gloves, the participants washed their gloved hand with antiseptic then cut the cord. This washing of gloves is not recommended in the protocol.

Data showed that only 40% of the deliveries followed the procedure of wiping the eyes of the neonate then face, head, front, back, arms and legs as recommended by the DOH protocol. Most of the participants used dry cloth diaper to dry the newborn. However, the routine of wiping the eyes first was not done at times. There were two instances where the attendant wiped the nose first instead of wiping the eyes first. To avoid blindness called *ophthalmia neonatorum* fluid from the other parts of the newborn should not be introduced in the eyes thus, eyes are wiped first before the nose.

Majority (60%) of birth attendants changed the wet cloth after more than 30 seconds and although some followed the prescribed drying time. During a follow-up interview it was found out that they were not aware that the proper time for changing cloth should be at approximately within 30 seconds.

Most (80%) of the respondents did not wash the baby within six hours after birth. It should be recalled that there should be no bathing of the baby right after delivery because the action promotes hypothermia and may cause hypoglycemia and hypercapnia (Loughead, M., Loughead J., & Reinhart, 1997; Nayeri & Nili, 2006). Two deliveries can be technically called bathing. During the deliveries, the researchers observed that there were two neonates who were not breathing. The attending midwife after manual resuscitation let room temperature tap water run on the neonates' back then soaked them in lukewarm water, then let tap water run on their back again then soaked them again into the lukewarm water. The neonates then gasped and started to breathe. The sign neonates were breathing, such as gasping for air and crying, were observed.

All neonates were not separated from their mothers in this time band.

The ENC Implementation for the first 90 seconds of neonate's age

DOH AO 2009-0025 recommended the following ENC actions for the first 90 seconds:

- a. Place neonate faced-down, skin-to-skin on mother's abdomen or chest
- b. Cover newborn's back with warm dry clean cloth and cover head with a cap
- c. Keep the neonate and the mother together, as long as the neonate does not show respiratory problem
- d. Put the proper identification tag
- e. Keep *vernix caseosa* if present, by not wiping it off.

Figure 2 shows that the actions recommended in ENC protocol are partially done. The attendants' failure to

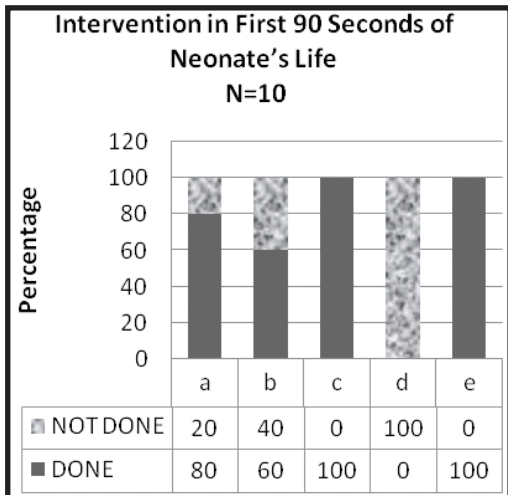


Figure 2. Provision of Time - Bound Intervention in First 90 Seconds of Neonate's Life (N=10)

immediately cover the neonate's head with a bonnet may put the neonate at risk of hypothermia. The head has a large surface area where heat can escape by evaporation and radiation.

All neonates delivered were not separated from their mothers for the first 90 seconds. Placement of identification band on the ankle was not applicable in the study since rooming-in was strictly followed in the two clinics, the use of identification band was not necessary hence, the study did not included this among the variables observed.

All of the participants retained the *vernix caseosa* - cheesy sticky substance on neonate's skin. Even the two newborns who were alternately immersed into the tap and lukewarm water still had their *vernix caseosa*.

The majority of birthing attendants' actions: facilitation of bonding between mother and her child through skin-to-skin contact from 30 to 90 seconds, and the facilitation of mothers' warmth and allowing neonates' *vernix caseosa* to remain, have promoted the reduction of the chance of hypoglycemia and increased the neonates'

protection against infection, for example, *E. Coli* bacteria from the mother.

Second principle: The prevention of intraventricular hemorrhage by properly-timed cord clamping and cutting

The ENC Implementation for the first 3 minutes of neonate's age as recommended by DOH AO 2009-0025 meeting the Second principle

The ENC actions are:

- Promptly remove the first set of gloves prior to umbilical cord management
- Clamp and cut the umbilical cord after pulsation has ceased
- Cut between clamps with sterile scissors or cutting instrument
- Observe the discharge of blood

Figure 3 shows that most (70%) attendants did not use double gloving at the start of the intrapartum procedure. One of the midwives washed her gloves with

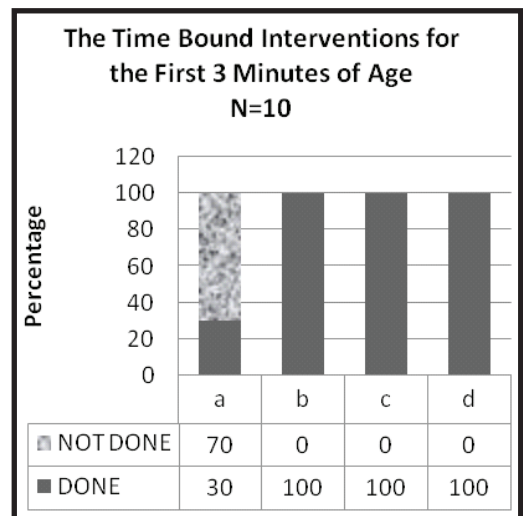


Figure 3. Provision of Time- Bound Intervention in First 3 Minutes of Neonate's Life (N=10)

alcohol before she did the cord clamping. One of the midwives was observed to change her gloves before cord clamping.

All observed attendants correctly practiced the clamping of the cord after the pulsation has stopped. They cut the cord with sterile surgical scissors between sterile Kelly clamps and properly observed oozing of blood. Among the birth attendants, none of them milked the cord before severing it. Delaying the clamping of the cord is believed to reduce the incidence of anemia of newborns and intraventricular hemorrhage. Since 100% of the observed birth attendants did the non-immediate clamping of the cord and use of sterile equipment, the ENC protocol in this area of possible anemia reduction was strictly followed.

Third and fourth principle: The prevention of hypoglycemia through early breastfeeding initiation and the stimulation of autoimmune system

The ENC Implementation for the first 90 minutes of neonate's age

The following are the step-by-step procedure of management of the neonate which should have been performed within the 90 minutes of neonate's age based on DOH AO 2009-0025 protocol.

- a. Left the neonate on mother's chest for skin-to-skin contact
- b. Observed the newborn. Advised the mother to start feeding the newborn once the newborn shows feeding cues (e.g. opening of the mouth, tonguing, and licking)
- c. Suggested to the mother to encourage her newborn to move toward the breast (e.g. nudging)
- d. Counseled on baby's position and sucking

- e. Advised the mother to position and attach her newborn when newborn is ready
- f. Advised mother not to throw away the colostrum
- g. If the attachment is not good, tried to counsel again and reassess.
- h. Advised mother that a small amount of breast milk may be expressed before starting breastfeeding to soften the nipple area so that it is easier for the newborn to attach (DOH AO 2009-0025).
- i. Baby is referred for special treatment/evaluation if available.
- j. Helped mother to breastfeed or taught mother alternative feeding method if the neonate has breastfeeding difficulties because of injury or malformation.

Figure 4 presents the birth attendant's provision of time-bound intervention in first ninety minutes of neonates' life (DOH AO 2009-0025).

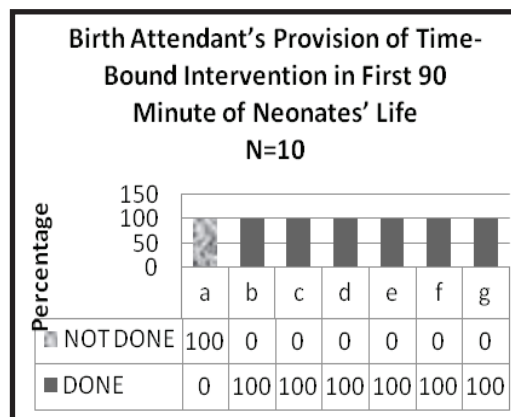


Figure 4. Birth Attendant's Provision of Time-Bound Intervention in First 90 Minute of Neonates' Life (N = 10)

Firstly, none left the neonate on mothers' chest to have uninterrupted skin-to-skin contact. It was noted however, that the mothers were not wearing hospital gown or dress that was ideal for this intervention. The participants and the mothers were unaware that the skin-to-skin contact must be for 90 minutes and not 3 minutes.

According to Moore, and colleagues (2007), longer skin-to-skin contact has possible good effect on regulating the infant's body temperature. Mothers have bodies that may serve as a natural incubator for their infants. Carfoot, Williamson, and Dickinson (2005) explained that the infant's mother's autonomic thermal control is adjusting her body temperature thus, conduction regulates the body heat of the newborn during a skin-to-skin contact. This is also affirmed by the study of Acolet, Sleath and Whitelaw, (1989) and Moore, and colleagues (2012). Infants in skin-to-skin contact have stable body temperatures.

Data also showed that mothers generally, did not practice breastfeed to the maximum. Although all of the participants advised the mother to start breastfeeding; counselled on the position of the attachment and encouraged the mother to let her child have her colostrum, newborn's best benefit is to lengthen skin-to-skin contact to initiate breastfeeding and bonding. Early breastfeeding initiation and longer duration of skin-to-skin contact result in neonate's improved pulmonary function (Acolet et al., 1989) and cardiovascular stability (Moore, et al., 2012). Skin-to-skin enhance motivation for exclusive breastfeeding, and longer duration of breastfeeding after discharge (Chiou, Chen, Yeh, Wu & Chein, 2014; Gabriel, 2010; Mikiel-Kostyra, Mazur & Boltruszko, 2002; Moore, Anderson, & Bergman, 2007a).

Hanson (1999) reported that breastmilk can stimulate the growth of the

antibodies of the newborns. In the long run this event results to fewer asthma attacks and other allergies. Edmond, Kirkwood, Amenga-Etego, Owoso-Agyei, and Hurt (2007) established in their study that there is a causal-association of early breastfeeding to the reduction of sepsis due to neonatal mortality in less than a week-old infant.

Autoimmune response of the newborn is also triggered by longer duration of skin-to-skin contact not only by passive antibodies from breast milk and placenta. Mother's normal flora on the skin is believed to trigger early activities of the newborn's autoimmune system (DOH, 2009 WHO, 2009). Maternal bacterial colonization is believed to protect a child from the diseases where the mother has antibodies and also reduces pain experienced by the infant (Dabrowski, 2007; Gray, Watt, Blass, 2000).

The Unnecessary Actions in Newborn Care

The DOH AO 2009-0025 listed unnecessary interventions. The actions are discouraged because these were proven to be harmful or does not give any benefit to the neonate. These are described as follows:

- a. Routine suctioning
- b. Early bathing/washing
- c. Giving sugar water, formula or other pre-lacteals and use of pacifiers and bottles
- d. Foot printing
- e. Administering alcohol, medicine and other substances on the cord stump
- f. Using binder around the abdomen to cover the umbilicus.

Data showed that all birth attendants did not perform routine suctioning and did not give pre-lacteal which are good. In

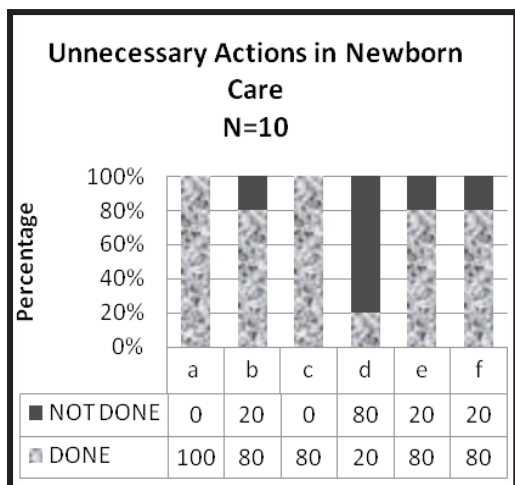


Figure 5. Distribution of Birth Attendants' Unnecessary Actions in Newborn Care (N= 10)

addition, 80% of the respondents kept the baby warm and dry, did not wash them within six hours after birth. In two deliveries, (20%) of the midwives attending the birth where the neonates were not breathing let room temperature, tap water ran back then soaked them in lukewarm water then repeated the process until the neonates started to show breathing signs such as gasping for air and crying were observed.

However, about 80% of the respondents applied alcohol on the cord stump and applied a bandage. These unnecessary actions are prohibited in the ENC protocol because these are the previous procedures that were routinely done during management of neonates, before the issuance of AO 2009-0025. These practices have shown to have no benefits but instead harm on the newborns.

One hundred percent (100%) observed that item d was not done which indicates that the EO 51 (Milk Code) is being implemented in two CHO birthing homes.

All neonates delivered were not separated from their mothers. Even the two babies who had apnea before were

not separated from their mother's sight. The mothers saw how their children were resuscitated and revived. All neonates had their *vernix caseosa* when they were clothed. All of the attendants did not wipe off the cheesy substance the newborns had.

Based on the data gathered, breastfeeding is encouraged by the CHO personnel-respondents and all of the mother-respondents practiced breastfeeding. The none immediate interventions such as administration of eye ointment, vitamin K, Hepa B, and BCG were properly completed. For the newborn with respiratory distress, the birth attendant-respondents did manual resuscitation. Overall, it can be derived that except the application of alcohol on the cord, the birth attendants in general, did not perform the unnecessary actions on the neonates within the first 90 minutes of their life.

Conclusions

To reduce the neonatal mortality by half in the Philippines from the 2009 level, as a policy change, birthing attendants were ordered to implement the DOH AO 2009-0025. This paper evaluated the implementation of the selected steps of this policy update in two government clinics. Further, it analyzed if the four principles of this new protocol were met. After two years of policy updates, campaigns, workshops and seminars conducted by the government health agencies, there was no data available that shows how this newborn care protocol was done in birthing clinics. The result of this study showed that workshops and seminars were not enough to educate the birth attendants to render the best quality neonatal care.

The study found that one-out-of-four principles of the DOH AO 2009-0025 were met. The second principle was done properly probably because of the sign that

the birth attendants had to observe, i.e. the stopping of the pulse of the umbilical cord.

The three other principles were partially met due to incorrect (shorter) durations of skin-to-skin contact between the mothers and the newborns as suggested by the protocol. No neonate got the full 90-minute mother to baby skin-to-skin contact. The evidence showed that the longest duration was three minutes. This proper duration of the contact is very crucial to the achievement of the three principles of the ENC, first, third and fourth.

For the first principle, the prevention of hypothermia, this study showed all babies had three minutes of skin-to-skin contact. The newborns of this study did not have the benefits of the continuous warm body from the mother that will stabilize the neonates' body temperature as intended by the ENC protocol. Ninety-minutes skin-to-skin contact is imperative. Neonate's immature thermoregulatory system is vulnerable to death due to sudden changes in their body temperature. Longer duration of skin-to-skin contact can warm a newborn's body thus can help the baby to have a good early adaptation to their new environment. This contact will result in a baby's improved pulmonary function and steady cardiovascular output by reserving their energy source, (glucose).

The third principle is the prevention of newborn's low blood sugar level. The longer a newborn stay naked on the mothers' skin the higher their chance to be exclusively breastfed. It also shortens the waiting period for the baby's initial sucking. Breastmilk contains high glucose that the neonate needs to produce heat. Also, warm baby uses less energy to produce heat, thus, they consume less glucose.

The fourth principle is the early stimulation of the baby's immune system. The mother's first milk, colostrum, is also

rich in antibodies which results in passive immunity. The mother's normal flora will stimulate the neonates' immune system to function. This early start of antibody production can be easily achieved by prolonged skin-to-skin contact. This stimulation of the baby's active immune system will serve the child throughout their life, for example, fewer allergy attacks.

In summary, the proper duration of the mother and newborn skin-to-skin contact must not be neglected because it has a great impact on the achievement of the three principles of the DOH AO 2009-0025.

Recommendation

For the DOH AO 2009-0025 to have a positive impact on the newborn's health and help reduce the risk of child death in their 0-5 years of their life, it must be completely done so it will have ENC protocol full benefit as the policy intended. This study was limited to two birthing homes with eight respondents. It is recommended that the government must conduct nationwide research in the implementation of ENC protocol in birthing clinics and include the newborn resuscitation, aseptic technique, and handling of twin gestation that were not included in this study. Also, determine the effect of this new neonatal care protocol to morbidity and mortality of the Filipino children through a longitudinal study.

City Health officers, as the DOH implementing arm of the government, has to conduct a comprehensive four-days hands-on-retraining of their licensed birthing attendants in the birthing clinics or partner hospitals. It was proven in Sri Lanka, in a pre-test and post-test research, that a four-day comprehensive training significantly improves skin-to-skin contact of the mother and newborn by 1.5 times and exclusive breastfeeding of the mothers

by 3.5 times (Upul, Fernando, & Rodrigo, 2007).

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