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Janeen Marie Whitmore
University of San Francisco, janwhitmore@hotmail.com

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Newborn Umbilical Cord Care:

An Evidence Based Quality Improvement Project

Janeen M. Whitmore

Doctorate of Nursing Practice Project

University of San Francisco

Newborn Umbilical Cord Care:

An Evidence Based Quality Improvement Project

Section I: Introduction

Effecting evidence based change in policy on umbilical cord care in a suburban Western United States hospital was met with many challenges. This paper describes in detail the steps of the process.

The umbilical cord is a unique tissue consisting of two (2) arteries and one (vein) covered by a connective tissue called Wharton's Jelly which is thin and mucoid in nature (London, Ladewig, Ball, & Bindler, 2007; World Health Organization [WHO], 1998). During pregnancy, the placenta supplies all material for fetal growth and removes waste products. Blood flows through the umbilical cord from the placenta and brings all nutrients and oxygen to the fetus and carries away carbon dioxide and metabolic wastes (Association of Women's Health, Obstetric and Neonatal Nurses [AWHONN], 2007; London et al., 2007; McKinney, James, Murray, and Ashwill, 2007; WHO, 1998). After delivery of the infant and after the placenta has separated from the mother's womb, the umbilical cord is cut using a sterile technique, and the newborn must make the essential transition to extra-uterine life. The umbilical cord must be cut and clamped (or tied tightly) in order to keep the umbilical vessels occluded to prevent bleeding.

Once the umbilical cord is cut, the cord stump is deprived of its oxygen blood supply and it begins to dry, turning black and stiff in appearance. Drying and separation of the stump is facilitated by exposure to air (WHO, 1998). The umbilical vessels are still patent for a few days following birth which provides direct access to the bloodstream. The devitalized tissue of the cord stump can be an excellent medium for bacteria, especially if the stump is kept moist or if unclean substances are applied to it (Evens, George, Angst, & Schweig, 2004; London et al., 2007; McConnell, Lee, Couillard, & Sherrill, 2004; McKinney et al., 2009; Suliman, 2007;

Trotter, 2007; Vural & Kisa, 2006; WHO, 1998; Zupan, Garner & Omari, 2004). In developed countries, although rare, individual cases of cord infections continue to occur in hospitals and birthing centers (WHO, 1998). For this reason, umbilical cord care is an important issue that needs to be addressed. Keeping the umbilical cord stump clean and dry is important if infection is to be prevented. According to the World Health Organization (1998), newborn infants do not begin to develop their own protective flora until after the first twenty four (24) hours of life. The umbilical cord stump is colonized by bacteria from environmental sources such as the mother's vagina and skin flora, and the hands of care givers (AWHONN, 2007; Evens et al., 2004; London et al., 2007, Zupan et al., 2004; WHO, 1998).

Infections at the umbilical cord stump (omphalitis) first began to be noticed in the 1940s when hospitals began separating mothers and babies. With the increased use of newborn nurseries, increased cases of omphalitis and cross contamination infections among infants increased sharply (WHO, 1998). *Staphylococcal aureus* epidemics arose and the umbilicus was found to be a reservoir for this bacteria. Following the rise in infection rates, preventative cord treatments were introduced. Prophylactic routine application of antimicrobial agents to the cord stump helped control these epidemics. However, success in preventing colonization by one organism sometimes resulted in colonization by others of equal or greater pathogenic capacity (WHO, 1998).

Today, most infants who are born in hospitals are kept with their mothers and are encouraged to "room in". With the increasing number of infants rooming in with their mothers, the bacterial colonization the baby develops comes mainly from the mother's normal skin flora and is predominantly non-pathogenic (Evens et al., 2004; WHO, 1998). According to the World Health Organization (1998), colonization rates with pathogenic organisms and infections are

significantly lower in rooming in babies than in babies who are kept in nurseries. The rationale for introducing prophylactic antibiotic treatment to umbilical cords in newborns arose from the assumption that bacterial growth in the umbilicus is harmful. However, as other researchers have pointed out (Vural & Kisa, 2006; Zupan et al., 2004), the connection between bacterial colonization and infection is still unclear. As Evens et al., (2004) stated, "All wounds have some bacterial colonization, but not all wounds are infected" (p. 100). According to the WHO (1998), the factors that cause colonization of the cord stump to progress to infection are poorly understood. Common practice of applying drying agents or antibiotics to an infant's umbilical cord stump may be based on tradition rather than on scientific research and investigation.

Currently and throughout history, many different substances have been used on the umbilical cord stump to help hasten the drying process and lessen the chance of infection (Evens et al., 2004; London et al., 2007; McConnell et al., 2004; McKinney et al., 2009; Suliman, 2007; Vural & Kisa, 2006; WHO, 1998; Zupan et al., 2004). Some of the methods that have been used on umbilical cord stumps include; plant extracts, coins, olive oil, coconut oil, colostrum, triple dye, povidone-iodine (Betadine), various antibiotics, sterile water, alcohol (70 % isopropyl alcohol), and no treatment at all (AWHONN, 2007). According to the WHO (1998) and other researchers, (McConnell et al., 2004; Suliman, 2007; Vural & Kisa, 2006; Zupan et al., 2004) separation of the umbilical cord stump is mediated by inflammation of the junction of the cord and the skin of the abdomen with leucocytes infiltration and subsequent digestion of the cord. During the normal separation process, small amounts of cloudy mucoid material may collect at that junction, and may be misinterpreted as pus. Furthermore, as the cord is drying and separating from the stump, the cord may appear moist, sticky or smelly. AWHONN (2007) calls the normal healing process producing a "mucky appearance" (p. 23). This isolated presentation

of a “mucky” cord has not been associated with infection. Health care providers and parents need to understand the difference between the normal healing process and actual signs of infection.

To that end, the purpose of this paper was to report on the process of making change based on the literature. There are several different cord care treatments and recommendations being utilized in the health care profession. This inconsistency between facilities leads to confusion for nurses, physicians, and parents. The evidence clearly recommends dry cord care for newborn infants. The new change in practice will shorten the cord separation time and should not affect the current infection rate among infants.

Section II: Review of the Evidence

Several databases were searched to review the literature on umbilical cord practices. MeSH terms used for the literature review included: Newborn* and/or Infant*; Infection* and Umbilical Cord*. These databases included, PubMed, CINAHL, and the Cochrane Database of Systematic Reviews. Randomized clinical trials (Dore, Buchan, Coulas, Hambre, Stewart, Cowan, …Jamieson, L., 2006; Janssen, Selwood, Dobson, Peacock, & Thiessen, 2003; Suliman, 2007; Zupan et al., 2004), as well as a pilot study (Vural & Kisa, 2006), have been reviewed in order to determine the effectiveness of dry cord care in relation to the rate of infections in newborn infants and the length of time before the umbilical cord stump separates and falls off. The above mentioned studies examined different types of antimicrobials and/or topical solutions in comparison to dry cord care. The studies included in the review examined the length of time of complete cord stump separation and the incidence of infections in the newborns involved in the studies. The studies were grouped as to the different types of topical treatments that were

introduced to the umbilical cord. The studies were grouped by the type of topical umbilical cord treatment.

Alcohol (70% isopropyl alcohol) vs. Natural Cord Drying

Dore et al. (2006) compared the use of alcohol (70% isopropyl alcohol) to natural drying for umbilical cord care in a randomized clinical trial (n = 1876). The cords of the newborns in the 70% isopropyl alcohol group were cleaned at each diaper change. The diapers of the infants in the dry cord care group were folded down below the cord stump after each diaper change in order to enhance natural drying. In this study, no newborn in either group developed a cord infection. The average time of cord separation with alcohol was 9.8 days versus 8.16 days in the dry cord care group (p =.001). Mothers of the infants in both of the groups expressed similar levels of comfort with the cord care given to their babies and felt "relieved" with the cord separation. In conclusion, the investigators stated that "evidence does not support the continued use of alcohol for newborn care" (Dore et al., 2006, p.).

Triple Dye and 70%Isopropyl Alcohol vs. Dry Cord Care

Janssen et al., (2003) compared the use of triple dye (gentian violet, brilliant green and proflavine hemisulfate) and alcohol (70% isopropyl alcohol) with dry cord care. In their randomized controlled study (n = 766), the cord stumps were cleaned with triple dye and alcohol twice a day. The diapers of the newborns in the dry cord care group were folded down below the level of the umbilicus in order to facilitate drying. Only one infant in the dry cord care group developed an infection. The average time of cord separation was statistically significant, but, the researchers concluded that before dry cord care could be recommended for newborns, good hand hygiene must be followed by all health care personal and parents (p = <.05).

Meta-analysis.

Zupan et al. (2004) performed a meta-analysis of twenty-one (21) studies involving 8959 participants to assess the effects of topical cord care in preventing cord infection, illness and death. The researchers found that there were no advantages in terms of the use of antibiotics or antiseptics over simply keeping umbilical cords clean and dry. The selection criteria for inclusion in the meta-analysis included both randomized and quasi-randomized trials of topical cord medications. The review found that not enough randomized clinical trials have been done to reveal whether antiseptics or antibiotics are any better at keeping infants free from neonatal infection than natural cord drying.

The authors concluded that no systemic infections or deaths were observed in any of the studies reviewed. No differences were demonstrated between umbilical cords treated with antiseptics compared with those treated with dry cord care. The researchers stated that antiseptic use actually prolonged the time for cord separation.

Povidone Iodine vs. Human Milk vs. Dry Care

Vural and Kisa (2006) performed a pilot study that compared the use of povidone iodine (Betadine), human milk, and dry care. The newborns in the study group with povidone iodine received two applications of the solution twice a day. The newborns in the study group with human milk received two applications of their mother's milk twice a day. The edges of the diapers of the infants in the dry cord care group were simply folded down below the umbilicus after every diaper change to facilitate natural drying of the cord. A quasi-experimental design was used for this pilot study. It was the researchers' belief that, if the parents were given a choice in the method of cord care for their infants, there would be greater compliance.

The results of this study found no significant differences in the three groups. Two cases of infection were noted in the group with human milk and one case of infection was noted in the povidone iodine group. No infection occurred in the dry cord care group. In the povidone iodine group, the mean cord separation time was 9.9 days; in the dry cord care group, it was 7.7 days; in the human milk group, it was 7.9 days ($p = .001$).

Vural and Kisa (2006) concluded that dry cord care and topical human milk were associated with shorter cord separation times when compared with povidone iodine use. According to the World Health Organization (1998), povidone iodine, when absorbed in significant amounts, has been found to increase serum iodine levels to stimulate neonatal hypothyroidism (cited in Vural & Kisa, 2006).

In summary, evidence clearly supports the use of dry cord care or natural drying in newborns. The recommended practice leads to shorter cord separation times without an increase in the current infection rate.

Section III: Implementation Process

The idea of implementing a change in umbilical cord care practice came from observing the current practice and standard of care for newborns on the maternity unit at Salinas Valley Memorial Health Care System. The existing unit policy on umbilical cord care recommended cleaning the umbilical cord stump with sterile water while the infant is in the hospital and to teach the parents to keep the cord clean and dry at home. Contact with the peri-natal educator at the hospital was made to discuss the possibility of changing the current practice to natural drying of the cord based on the evidence. It was conveyed that several of the local pediatricians at this particular hospital had spoken with the peri-natal educator regarding the number of “wet” and moist cords that were being found on the newborns when they would return to the pediatrician’s

office in 3-5 days following discharge from the hospital. The pediatricians had recommended that the umbilical cord care policy be re-evaluated, and approval to move forward with the proposal was granted.

Prior to beginning the project, an application to the University of San Francisco Institutional Review Board for the Protection of Human Subjects (IRBPHS) was submitted (Appendix A). A permission letter from the Peri-natal Nurse Manager at Salinas Valley Memorial Hospital to conduct the project at this hospital was also submitted to the IRBPHS office at the University of San Francisco (Appendix B).

A proposal for the change of practice was given to the director of peri-natal services as well as to the peri-natal educator. They both agreed that a change in practice was warranted with the overwhelming evidence that was presented to them. After the proposal was approved by the unit manager and the peri-natal educator, the proposed policy change was presented at nursing staff meetings on the following nursing units: Labor and Delivery/Post Partum (4 meetings); Pediatrics (3 meetings) and the Neonatal Intensive Care Unit [NICU] (3 meetings).
A short power point presentation was made for the nurses to present the proposed policy change and to ask for feedback (Appendix C). The existing hospital policy on cord care was also reviewed with the nurses at the meetings. Additionally, the nurses were requested to complete a brief survey prior to the presentation (Appendix D) to determine their beliefs about umbilical cord care and their practices. (The results of this survey will be discussed later in Section IV of the paper.) After the nurses had completed the short pre-test/survey, an annotated bibliography supportive of dry cord care was distributed (Appendix E). The annotated bibliography was also sent electronically to the chief nursing officer and to all of the pediatricians and family practice physicians who have privileges at this particular hospital. The umbilical cord care policy was

put on the agenda to be discussed at the pediatric department meeting and the family practice departmental meeting in early October, 2010. The physicians were given essentially the same presentation as the nurses, but they were not given the survey on cord care practices and beliefs. There was an overwhelming positive response from all the physicians (pediatricians and family practice) to move forward with implementation of a natural drying/dry cord care policy.

Prior to implementation of a change in practice with the nurses, the peri-natal educator and the unit manger requested that a skills competency checklist be created to assess the individual nurse's understanding of the change in practice. A revised routine newborn assessment and care policy was created and sent as a draft to all committee members of the policy and procedure committee at the hospital (Appendix F). The newly created competency skills list that was devised at the request of the nurse manager was also sent electronically to all committee members for their feedback and approval (Appendix G). A SWOT Analysis (Strengths, Weaknesses, Opportunities and Threats Analysis) was then developed to help articulate the expected outcomes of the project (Appendix H). In addition, a Gantt chart was developed in order to develop a timeline for this project (Appendix I).

Project Outcomes

The specific expected measurable outcomes for this project included:

1. Nurses who work with newborn infants at the hospital will verbalize the rationale for natural drying of an umbilical cord in newborn infants.
2. Nurses who work with newborn infants at the hospital will verbalize and demonstrate the steps involved when providing dry cord care.
3. Nurses will verbalize and demonstrate the importance of clean technique prior to handling the infant's umbilical cord.

4. Nurses who provide discharge teaching, will teach the parents or designated care giver the importance of good hand washing at home prior to handling the umbilical cord and how to care for the cord stump at home.
5. Nurses will teach the parents about the signs and symptoms of infection at the umbilical cord stump and the parents will verbalize (prior to discharge) at least one sign of infection to the nurse.

Update on Project Progress

Implementation of the proposed cord care policy has not begun as of December 7, 2010 pending approval by the policy and procedure committee.

Section IV: Evaluation

Evaluation will be made of the progress thus far and the process of implementing change in a complex hospital system. The initial assessment revealed a need for change in cord care practice of newborns at Salinas Valley Memorial Healthcare System to reflect best practice recommendations, and was strongly supported by the physicians, nurse educators, nurse managers, and staff nurses who worked there. Given the multiple steps and numerous players involved in implementing a change in practice at this particular hospital, advanced progress in the project has taken longer than had anticipated. This was somewhat unexpected especially when taking in consideration the overwhelming initial support and enthusiasm expressed by the key players. Nonetheless, progress in a positive direction has been made supporting the success of the project thus far and the anticipated success once the official implementation begins.

Results of the Nurse Survey on Umbilical Cord Care

The nurse survey was given to the staff nurses, who attended the unit specific meetings during the month of September, 2010. In total, forty-two (n = 42) nurses completed the surveys (Appendix D). The results of the responses are listed:

1. How many different cord care techniques have you used in the past? (Select all that apply)

   Five (5) of the respondents had used Triple Dye in their practice and five (5) nurses stated that they had used dry cord care/natural drying in their practice. The majority of the nurses had used a combination of Alcohol (70% Isopropyl alcohol), povidine iodine (Betadine), and sterile water.

2. Which of these methods do you believe is most effective? (Please circle method)

   Povidine iodine (Betadine) = 1

   Alcohol (70% isopropyl alcohol) = 7

   Triple dye = 1

   Sterile Water = 5

   Dry Cord Care = 11

   None of these = 4

   The numbers do not add up to forty two (42) so it appears that several nurses did not answer this question or did not have an opinion. It was surprising that only five (5) nurses had answered that they had used dry cord care in the past; yet, eleven (11) respondents stated that they believe that dry cord care is the best method. Four (4) nurses stated that none of the

above mentioned cord treatments was most effective, but, did not write which method they thought was most effective.

3. Are you aware of, or have you ever used in the past, the current AWHONN (Association of Women's Health, Obstetric and Neonatal Nurses) recommendations for "dry cord care"?

   Yes = 15

   No = 17

   Aware of, but have never used = 8

   Have used in other hospitals = 2

   AWHONN (The Association of Women's Health, Obstetric and Neonatal Nurses) is the professional organization comprised of nurses who care for infants and children. It appears that the majority of nurses on these units are not aware of current evidence based research. The nurses seemed eager and interested to learn about best practices. They stated that they wanted to provide their patients with the best care possible. This information may provide an excellent opportunity to incorporate education, professional development, and informatics at a future staff nurse meeting.

4. Do you have any strong opinion either way regarding the use of dry cord care? Please write your answer in the space provided.

   "Latest EBP shows dry cord care is best"

   "Understand it is the EBP, but for occasions when cord has some drainage, feel cleaning with something is warranted"

   "No" (4 respondents)

"Dry cord is better, have not heard of any infection"

"No. What ever my hospital recommends, that's what I will do…."

"None except that when the umbilical cord needs to be cleaned (sometimes the diaper is not placed right by the parents and the umbilical cord has meconium on it)"

"Dry cord care promotes healing quicker than adding other application to the cord"

"Evidence suggests dry cord care, only clean if soiled, with water and dry cord"

"Dry cord care is the best"

"I agree that use of dry cord care would be the best treatment for the cord. Just keep it clean and dry!"

"I think this is the best way – clean and dry"

"Go to evidence base"

"Personal experience – 1st child had triple dye: I used alcohol, cord took 4 weeks to fall off. 2nd child did "dry cord care", no treatment, cord fell off in 5 days"

"Let's use whatever is evidence best care method! Thanks for looking into this"

"Prefer dry cord care (Evidence Based)"

"Sounds good!"

"Think it is a great idea. Thanks for working on this!"

"Do not intervene if no symptoms"

The above comments were transcribed as written by the nurses in regards to their thoughts and beliefs about umbilical cord care for newborn infants. Based on the nurses'

comments, it appeared the majority of them were open to the proposed new method and looked forward to using evidence based research for a new practice guideline.

After distribution of the nurse survey on the nurse's beliefs of cord care, the prepared annotated bibliography was handed out with the evidence based references listed for the nurses to review. It was obvious to the project manager by the comments received, that the majority of nurses were amazed at the number of research studies that had been done on umbilical cord care. For the majority of nurses, it was the first time that they had actually seen the AWHONN (2007) publication on neonatal skin care (2nd ed). The WHO (1998) guidelines were also made available to the nurses at the staff meetings, and again, it was surprising the number of nurses who had never heard of the WHO guidelines, or actually held a copy of the recommended guidelines in their hands. It was surprising since a majority of the nurses on this unit had worked in the perinatal areas for greater than ten (10) years; yet, they were unaware of what the professional organization recommendations are for basic newborn care. A power point presentation was given to the staff nurses (Appendix C). There was overwhelming positive feedback about a proposed change in practice by the staff nurses after listening to the presentation. When discussing the proposed change in practice, the current policy was also reviewed with the staff nurses. The existing policy (2007 edition) read:

Purpose: To keep the umbilical cord clean and dry

1. At the time of initial bath, clean the cord with soap and water. Wipe dry with clean gauze.
2. Subsequently, **while the baby is in the hospital**, with each diaper change, clean the cord with a sterile 2 X 2 moistened with sterile water and wipe dry

with clean gauze. If the cord is visibly soiled, clean with soap and warm water and wipe dry.

Parent Teaching:

1. Parents must understand that the purpose of cord care is to keep the stump **clean and dry.**

In reviewing the existing cord care policy with the staff nurses at these staff meetings, it became apparent that there had been some confusion regarding the policy since both wet and dry care had been emphasized This confusion may have resulted in inconsistent or conflicting information given to parents. New parents watch as nurses wash the cord with water, yet, they are being told in their discharge instructions to keep the cord clean and dry. New parents are in various stages of sensory overload at the time of discharge teaching (Mercer & Ferketich, 1995). According to the maternal role attainment theory (Mercer & Ferketich, 1995), experienced and inexperienced parents have different levels of competence following childbirth. An interesting fact from the meta-analysis aforementioned (citation), was that the anxiety levels of mothers, no matter of their experience, felt relieved when the umbilical cord had separated.

Section V: Continuous Quality Improvement Process

It is recommended that unit managers and/or assistant head nurses review basic routine care policies with staff nurses on a regular basis to ensure understanding of current recommended practices. Frequent or routine review of polices and procedures must be included at unit staff meetings on a routine basis to increase compliance with the current standards of care. Additionally, once the revised/proposed cord policy is implemented, it will be important to keep abreast of on-going research on umbilical cord care in newborns and update the policy as needed.

Section VI: Implications for Advanced Systems Leadership

It was evident that staff nurses want to provide their patients with safe and effective care. Staff nurses need to be encouraged to become involved with policies and procedures. Staff nurses witness what is going on at the bedside and can attest to best practices firsthand; however, making changes takes time, persistence, and determination. Many obstacles may impede a timely policy revision and the length of time to implement a change in practice may be a deterrent to a staff nurse. Streamlining the process to make positive changes based on solid evidence is warranted in hospital systems. Moreover, it is imperative to encourage and empower staff nurses with the necessary tools in order for them to help make evidence based changes in their practice.

Lessons Learned

Although implementation of the project is not complete, expected positive outcomes from the change in policy are anticipated, especially given the overwhelming positive response from staff, medical personnel and administration. The importance of making thorough and prior inquiries about the unique process of implementing new policies at individual hospital systems is well appreciated as a result of this experience. Appropriate steps were made along the way: a need assessment was made; the peri-natal educator was identified as the essential person to begin the process for policy revision; frequent contact was maintained with the educator; and initial approval on everything that was submitted was gained before moving forward with each step. However, the assumption was made that the nurse educator would be the one to make the final approval for a policy change. It wasn't until much later in the process, that the realization occurred that there were several steps and multiple committees involved in obtaining policy approved status. The numerous committee members who were assigned to the policy and procedure committee were not content experts on the subject. This also contributed to the delay

of the process. There were several e-mails in correspondence with several members of the committees explaining and giving the rationale for words and references that these particular committee members were unfamiliar with.

Implementing change takes time. It is understandable why staff nurses do not become more involved in changing polices even though they may have many good ideas worth implementing. The process for implementation was slow and methodical, but, patient safety should always be the bottom line. Effecting change to reflect evidence based research created a sense of accomplishment regardless of the barriers that were confronted.

Dissemination Plan

A manuscript of the processes, the obstacles, and the information learned in preparing to change an existing practice will be submitted to a peer-reviewed journal for publication. Along with submission of the manuscript for publishing, the information will be presented to the pediatricians, the family practice physicians, the nurse managers, and all the staff nurses working in the peri-natal services area. It is the hope that the enthusiasm demonstrated will inspire other staff nurses to help implement more policies and practice guidelines that are based on scientific evidence.

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Appendix A

IRBPHS INITIAL APPLICATION

Name of Applicant: Janeen Marie Whitmore

USF Identification Number: 10-112

University Title: University of San Francisco

School or College: School of Nursing

Department or Group: Doctor of Nursing Practice Student

Home or Campus Address (please include full street or P.O. Box, City, and Zip):

227 18th Street Pacific Grove CA 93950

Home Phone: 831-869-0579
Work Phone: 831-770-6141

Electronic Mail Address(s): janwhitmore@hotmail.com; jwhitmore@hartnell.edu; or jmwhitmore@dons.usfca.edu

Name(s) and University Title(s) of Other Investigators:

Name of Faculty Advisor: Dr. Marjorie Barter, RN EdD, CNL

University Title: Professor of Nursing

Home or Campus Address: 2130 Fulton Street San Francisco CA

Home or Campus Phone:

Electronic Mail Address(s): barterm@usfca.edu

Project Title: Dry Umbilical Cord Care in Newborn Infants: A Quality Improvement Project

Respond to items 1 - 11 white paper, single-sided, typed in black ink and using standard 12 point font.

Responses to items 1 -11 should be stapled to this Initial Application form.

1. Background and Rationale

Following birth, the umbilical cord in a newborn is cut using a sterile technique. The cord immediately begins to dry with complete separation within 5 - 15 days (Vural and Kisa, 2006). Until the

cord stump falls off and the site of the umbilicus heals, it is recommended to keep this area clean and dry to prevent infection. Historically, umbilical cord care practices addressed concerns for bacterial colonization. McConnell, Lee, Couillard & Sherrill (2004), found that the relationship between bacteria colonization and infection is unclear. According to Vural and Kisa (2006), newborn umbilical cord infections are more common in developing countries than in Id countries. This decreased rate in infections in newborns is directly related to modern infection control precautions.

Umbilical cord care practices for newborns vary between facilities Ih can lead to confusion for both parent and nurses. It appears that the current standard of umbilical cord care may be based on historical practices and traditions rather than on scientific investigation and justification. Methods currently used nationwide Ie: daily cleaning of the cord with alcohol (70% isopropyl alcohol); various antimicrobial agents; sterile water; povidone iodine (Betadine); and, dry cord care. Randomized clinical trials as well as pilot studies have been reviewed in order to determine the effectiveness of dry cord care. The current standard of practice at Salinas Valley Memorial Health Care System is to clean the infant's umbilical cord with sterile water with each diaper change. It is the intent of this project to introduce evidence based research and implement dry cord care for newborns born at Salinas Valley Memorial Health Care System. Dry cord care will lead to a shorter cord separation time and be more cost effective for the hospital.

2. Description of Sample

All babies born at Salinas Valley Memorial Health Care System receive cord care after birth and until discharge and will receive the recommended evidence based dry cord care during the implementation period. Approximately 130-160 infants are born each month at Salinas Valley Memorial Hospital.

3. Recruitment Procedure

No recruitment will need to take place as all infants born at the hospital receive routine cord care. This project would be a unit approved change in policy and procedure incorporating the evidence based practice.

4. Subject Consent Process

All mothers of the newborns sign an informed consent as part of the routine conditions of admission upon admission to the hospital. This Ies consent for all routine care of the newborn after it is born until discharge. No additional consent will be needed to implement the new evidence based practice of dry cord care.

5. Procedures

Review of Literature: Evidence based practice and current national/international guidelines on umbilical cord practices reviewed using the CINHL database along with the Cochrane Database of Systematic Reviews.

Present findings to nursing administration at local hospital

Meet with nurses that currently work in labor and delivery, mother infant unit, pediatrics, and the

neonatal intensive care units to discuss current umbilical cord care practice. Evidence presented to the nurses via a 15 minute presentation

Draft of a policy to revise current practice to a new policy and standard of care. This draft was presented to perinatal education, nursing administration, pediatricians and family practice doctors.

Permission received from nursing administration and physicians to implement a change in practice based on evidence. Meeting with nurses on a one-to-one basis to implement change of policy.

Follow up with pediatricians and family practice physicians after one month of implementation to gather feedback and data on newly implemented umbilical cord care practice changes.

Dissemination of information via meetings at the hospital with physicians, nurses and nursing administration and publication in a nursing journal.

6. Potential Risks to Subjects

There is is a potential risk of infection to a newborn cord but research on dry cord care has identified decreased risk over current practice

7. Minimization of Potential Risk

Good hand washing by all staff will be enforced prior to implementation of dry cord care. Nurses, physicians, and staff, will be in-serviced on the project on a one to one basis prior to implementation.

8. Potential Benefits to Subjects

Shorter cord separation time.

Less confusion for parents. (Peace of mind).

9. Costs to Subjects

There will be no cost to subjects. Dry umbilical cord care involves leaving the cord alone allowing the cord to dry and separate when it is ready. If the cord does become soiled with urine or stool, parents will be instructed similar home cord care handling and washing the cord with a mild pH balanced soap, and dry the cord with gauze. Gauze sponges will be sent home with each baby at the time of discharge. The cord generally falls off in 7 to 10 days.

10. Reimbursements/Compensation to Subjects

There is no reimbursement or compensation to the subjects for their participation in the project.

11. Confidentiality of Records

All charts will remain the property of the hospital and all rules from HIPAA and the Joint Commission will be enforced.

References

McConnell, T. P., Lee, C.W., Lorillard, M., & Sherrill, W.W. (2004). Trends in umbilical cord care: Scientific evidence for practice. *Newborn and Infant Nursing Review* (4), 211-222.

Vural, G. & Kisa, S. (2006). Umbilical cord care: A pilot study comparing topical human milk, povidone - iodine, and dry care. *Journal of Obstetrics, Gynecology and Neonatal Nursing (35),* doi: 10.1111?J.15526909.2006.00012

_____

Signature of Applicant Date

_____

Signature of Faculty Advisor* Date

*Your signature indicates that you accept responsibility for the research described, Iing work by students under your supervision. It further attests that you are fully aware of all procedures to be followed, will monitor the research, and will notify the IRPBHS of any significant problems or changes.

Appendix B

Pat Valenzano, MSN, RN
Director of Women's Children's Services
Salinas Valley Memorial Healthcare System
450 East Romie Lane
Salinas, CA 93901

October 18, 2010

Institutional Review Board for the Protection of Human Subjects
University of San Francisco
2130 Fulton Street
San Francisco, CA 94117

Dear Members of the IRB Committeee:

On behalf of Salinas Valley Memorial Healthcare System (SVMHS) and the Women's and Children's services, I am writing to formally indicate our awareness of the research project proposed by Ms. Janeen Whitmore, RN, MN, CNE, and a student at USF. We are aware that Ms. Whitmore intends to conduct her research by revising current practice at SVMHS and educating the nursing staff regarding evidenced based dry cord care for newborns.

I am responsible for the employees in the Women's and Children's departments and am a Clinical Director for SVMHS. I give Ms. Whitmore permission to conduct her research project in our hospital.

If you have any questions or concerns, please feel free to contact me at 831.759.3207.

Sincerely,

Pat Valenzano, MSN, RN
Director Women's/Children's Services

Cc: Irene Neumeister, MSN, RN
Vice President of Patient Care Services and CardioPulmonary Services

Appendix C

Dry Umbilical Cord Care Proposal

A presentation at Salinas Valley
Memorial Health Care System
September, 2010
Janeen Whitmore RN MN CNE

Umbilical Cord Care

- Historically, umbilical cord care practices addressed concerns for bacterial colonization.
- According to Vual and Kisa (2006), newborn umbilical cord infections are more common in developing countries than in developed countries.

Umbilical Cord Care

- Cord Care practices vary between facilities which can lead to confusion for nurses and parents.

- It appears that the current standard of cord care may be based on historical practices and traditions rather than on scientific investigation and justification.

Dry Cord Care

A proposal to introduce a Quality Improvement Project

- Dore et al., (2006) “Evidence supports the use of dry umbilical cord care in the newborn”.

AWHONN Recommendation

- Clean cord with neutral pH Cleanser (initial bath)
- Wash hands prior to handling cord
- Keep cord area clean and dry, cleanse with water if soiled with urine or stool
- Keep diaper folded under the cord
- Identify signs of abnormal healing
- Educate staff and families about normal mechanism of cord healing

Questions?

- Thank you!

Janeen Whitmore RN

Appendix D

Salinas Valley Memorial Health Care System
Umbilical Cord Care
Nurse Survey

1. How many different cord care techniques have you used in the past?
   (*Select all that apply*)
   Betadine (Povidine iodine)
   Alcohol (70% isopropyl alcohol)
   Triple dye
   Sterile Water
   Dry Cord Care
   Other _____
   Other _____

2. Which of those methods do you believe is most effective?
   (*Please circle method*)
   Betadine (Povidine iodine)
   Alcohol (70% isopropyl alcohol)
   Triple Dye
   Sterile Water
   Dry Cord Care
   Other _____
   Other _____
   None of these

3. Are you aware of, or have you ever used in the past, the current AWHONN recommendations – "dry cord care'?
   (Please circle answer)
   Yes
   No
   Aware of, but never have used
   Have used before in other hospital settings

4. Do you have any strong opinion either way regarding the use of dry cord care?
   (*Please write your answer in the space provided)*

_____

_____

_____

Thank you!
Janeen Whitmore RN

Appendix E

An Annotated Bibliography of Evidence Based Research on Natural/Dry Cord Care

Prepared by: JaneenWhitmore, RN

Dry Umbilical Cord Care Proposal for Newborn Infants born at
Salinas Valley Memorial Health Care System

Following birth, the umbilical cord in a newborn is cut using a sterile technique. The cord immediately begins to dry with complete separation within five to fifteen days (Vural and Kisa, 2006). Until the cord stump falls off and the site of the umbilicus heals, it is recommended to keep this area clean and dry to prevent infection. Historically, umbilical cord care practices addressed concerns for bacterial colonization. McConnell, Lee, Couillard, & Sherrill (2004) found that the relationship between bacteria colonization and infection is unclear. According to Vural and Kisa (2006), newborn umbilical cord infections are more common in developing countries than in developed countries. This decrease rate in infections in newborns is directly related to modern infection control precautions.

Umbilical cord care practices for newborns vary between facilities which can lead to confusion for both parents and nurses. It appears that the current standard of umbilical cord care may be based on historic practices and traditions rather than on scientific investigation and justification. Methods currently used nationwide include; daily cleaning of the cord with alcohol (70% isopropyl alcohol), various antimicrobial agents, sterile water; povidone iodine, and, dry cord care. Randomized clinical trials as well as pilot studies have been reviewed in order to determine the effectiveness of dry cord care. The current standard of practice at Salinas Valley Memorial Health Care System is to clean the infant's umbilical cord with sterile water with each diaper change. It is the intent of this project to introduce evidence based research and implement dry cord care for newborns born at Salinas Valley Memorial Hospital. Dry cord care will lead to shorter cord separation times and be more cost effective for the hospital.

Annotated Bibliography

Association of Women's Health, Obstetric and Neonatal Nurses. (2007). Evidence –based clinical practice guideline: Cord care. *Neonatal Skin Care: Evidence –Based Clinical Practice Guideline (2nd ed).* Washington D. C.: AWHONN.

The Association of Women's Health, Obstetric and Neonatal Nurses reviewed the

literature on evidence –based practice in regards to umbilical cord care in newborns and supports the findings of Dore et al., (2006), Zupan et al., (2004); and the World Health Guidelines, (1998). The Association recommends the use of natural drying for cord care in newborns.

Natural drying involves keeping the cord clean and dry without the routine application of topical agents. Based on evidence, AWHOHNN recommends that if the newborn's cord stump becomes soiled, cleanse the area with water, and, then dry thoroughly with a clean absorbent gauze to remove excess moisture and then discard the gauze.

Dore, S., Buchan, D., Coulas, S., Hamber, L., Stewart, M., Cowan, D., et al. (2006). Alcohol versus natural drying in newborn cord care. *Journal of Obstetric, Gynecologic and Neonatal Nursing, 27*(6), 621-627.

Dore, Buchan, Coulas, Hamber, Stewart, Cowan, …Jamieson, L. (2006). Compared the use of alcohol (70% isopropyl alcohol) to natural drying for umbilical cord care in a randomized clinical trial. 634 infants were enrolled in the study. The cords of the newborns in the 70% isopropyl alcohol group were cleaned at each diaper change. The diapers of the infants in the dry cord care group were folded down below the cord stump after each diaper change in order to enhance natural drying. In this study, no newborn in either group developed a cord infection. The researchers found that cord separation time in the various two groups were statistically different. The average time of cord separation for the group treated with 70% alcohol was 9.8 days. The cords of infants in the dry cord care group separated after an average of 8.16 days. The costs of alcohol drying are also greater than those of natural drying. In conclusion, the investigators stated that "evidence supports the use of dry umbilical cord care in newborns" (Dore et al., 2006).

McConnell, T.P., Lee, C.W., Couillard, M., & Sherrill, W.W. (2004). Trends in umbilical cord care: Scientific evidence for practice. *Newborn and Infant Nursing Reviews* (4), 211-222.

The authors performed a literature review to study the evolution of umbilical cord care, to evaluate scientific evidence used to guide practice, and to make recommendations for current practice. McConnell et al., found that umbilical cord care practices vary from institution to institution.

According to McConnell et al., (2004) regardless of the cord care practice utilized, educating the healthcare providers and care givers is essential. Teaching should include the normal appearance of the umbilical cord stump, especially if a "drying" agent is not used.

Vural, G. & Kisa, S. (2006). Umbilical cord care: A pilot study comparing topical human milk, povidone – iodine, and dry care. *Journal of Obstetrics, Gynecology and Neonatal Nursing (35),* doi: 10.1111/J.15526909.2006.00012

Vural and Kisa (2006) chose a quasi-experimental design for their pilot study. It was the researchers' belief that if parents were given a choice in the method of cord care for their infants, there would be greater compliance. The results of this study found no significant differences in

the three groups. Two cases of infection were noted in the group with human milk and one infant in the povidone iodine group developed an infection. No cases of infections were noted in the dry cord care group. In the povidone iodine group, the mean cord separation time was 9.9 days; in the dry cord care group, it was 7.7 days; in the human milk group, it was 7.9 days. The umbilical cord stumps of the infants in the dry cord care group had the shortest cord separation time and none of the infants developed infections.

The researchers concluded that dry cord care is associated with shorter cord separation and is more cost effective for the health care facility.

World Health Organization. (1998). Care of the umbilical cord: A review of the evidence. *Reproductive Health (Technical Support) Maternal and Newborn Health: Safe Motherhood.* Geneva: World Health Organization.

The World Health Organization has made recommendations for newborn cord care based on evidence-based research. The WHO is recommending clean cord care following birth to prevent infections. In the postnatal period, clean cord care includes washing hands with clean water and soap before and after care and then exposing the umbilical cord to air or loosely covered with clean clothes. The World Health Organization recommends 24 hour rooming-in for institutions and skin to skin contact with the mother at birth to promote colonization of newborn with non-pathogenic bacteria from the mother's skin flora. Early and frequent breast feeding will also provide an infant with antibodies to help fight against infections and promote shorter cord separation times.

Zupan, J. Garner, P. & Omari, A. (2004). Topical umbilical cord care at birth. *Cochrane Database of Systematic Reviews (3)* doi: 10.1002/14651858CD001057.pub2

Zupan, Garner, and Omari (2004) performed a meta-analysis of twenty-one studies involving umbilical cord care practices in newborn infants. The researchers found that there were no advantages in terms of the use of antibiotics or antiseptics over simply keeping umbilical cords clean and dry. The selection criteria for inclusion in the meta-analysis included both randomized and quasi-randomized trials of topical cord medications.

The researchers concluded that no systemic infections or deaths were observed in any of the studies reviewed. No differences were demonstrated between umbilical cords treated with antiseptics compared with those treated with dry cord care. Antiseptic use actually prolonged the time for cord separation with an increased cost for the patient and the facility.

Appendix F

ROUTINE ASSESSMENT AND CARE – NEWBORN

I. **PURPOSE**

A. To provide appropriate, consistent routine assessment and care to newborn infants.

II. **POLICY**

A. All healthy newborns will receive the same standard routine care. Infants should be cared for in the mother's room or dependent on the mother's condition, care may be provided in the Newborn Nursery

B. **NICU patients:**

- Assessments of infants admitted to the NICU will be completed and recorded at intervals consistent with their acuity.
- When appropriate, routine care procedures may be postponed or modified for infants admitted to the NICU.
- Infants admitted to the NICU will be on continuous cardiorespiratory and oxygen saturation monitoring unless otherwise ordered by Physician.
- Refer as needed to Nursery/NICU/SRMC Policy and Procedure **Admission Assessment and Care – Newborn.**

III. **DEFINITIONS**

A. N/A

IV. **PROCEDURE**

A. Equipment

- Thermometer, stethoscope, non-invasive or invasive blood pressure monitor as appropriate.
- Cardiorespiratory monitor, oxygen saturation monitor, blood pressure transducer.
- Bedside blood glucose monitor.
- Scale with scale paper.
- Bath supplies: bath basin, non-medicated soap, baby shampoo, cotton wipes, security sensor, water (sterile water for extremely premature baby).
- Diapers (premature, newborn, infant size 1)
- Linen: T-shirts, hats, blankets, towels and washcloth.
- Bulb syringe.

B. Standard Precautions

C. Explain procedures and their purposes to parents.

D. Vital signs: **Newborn Nursery**.

- Axillary temperature, apical pulse and respiratory rate are obtained every shift and prn.
- Non-invasive blood pressure prn
- Parameters for physician notification
  1. Respiratory rate less than 30 or greater than 60
  2. Heart rate less than 100
  3. An axillary temperature less than 36.4ºC or greater than 37.6ºC.
     a. If an infant's temperature is outside these parameters, the assessment is otherwise normal and the judgment is the temperature is a result of environmental factors:
        i. Document the environmental conditions
        ii. Correct the environmental conditions.
        iii. Reassess the infant's temperature in one (1) hour.
        iv. Notify physician if infant's temperature remains below 36.4ºC or above 37.6ºC (after correction of environmental conditions).

E. Vital Signs: **NICU**

- Vital signs checked and recorded at intervals consistent with condition or at least every three (3) hours.
- Cluster vital signs with assessments and other care when possible.
- Axillary temperature, apical pulse, respiratory rate and O_2 sat every 1 to 3 hours and prn. Guidelines:
  1. Oxygen therapy – Every 1 hour and prn
  2. Phototherapy – Every 3 hours and prn
  3. Sepsis – Every 1-2 hours and prn until stable
  4. Stable convalescing infant- Every 3 hours and prn
  5. Stable growing premie – Every 3 hours and prn
- Non-invasive blood pressures every shift and prn.
- Invasive blood pressure via transducer every 1-hour and prn.

F. Assessments:

- Admission assessments: Refer to Nursery/NICU-Policy and Procedure **Admission Assessment and Care – Newborn** and to Unit standards as needed.

- An RN will complete a systems assessment every shift including: general appearance, skin, head, cardiovascular, respiratory, GI/GU, neuromuscular and reflexes, nutrition and pain.
- Infants admitted to the NICU will have reassessments every 1 to 3 hours and prn according to their conditions. Reassessments should focus on an individual infant's problem areas.

G. Blood Glucose monitoring:

- Bedside blood glucose levels will be checked per policy: Refer to Nursery/NICU Policy and Procedure **Hypoglycemia – Blood Glucose Protocols and Guidelines** as needed
  1. Per established Physician Nursery Orders or individual Physician's written order.
  2. On infants at high risk for hypoglycemia.
  3. In response to observed signs and symptoms of hypoglycemia.

H. Weighing

- Daily weight on 2300 – 0700 shifts. Infants delivering on the 1500 -2300 shifts after 2000 are not reweighed until the following night unless otherwise ordered.
- Undress infant completely.
- Record weight in pounds and grams.
- NICU: measure head circumference and length every Sunday night.

I. Skin care:

- Routine baths:
  1. Bathe infants every 3rd night (2300 – 0700 shift) and prn. (NICU: cleanse infant's face every day and prn.)
  2. Baths will be postponed for infants in the NICU until their conditions are stable enough to tolerate the procedure. Extremely immature infants should be bathed only with sterile water and only when necessary.
  3. Routine baths of healthy infants will be given under a radiant warmer, in the Newborn Nursery bathing sink or the mother's room with a heat source.
  4. Use water only on infant's face. Cleanse eyes from the inner canthus to the outer canthus every day.
  5. For trunk, extremities and perineum, use ph neutral soap and rinse with water. Dry infant thoroughly and dress.
  6. Diaper rash: expose to air and apply ointment per Physician's Orders for Nursery. Document on e-MAR.
     - NICU: Apply ointment as ordered by physician. Document on e-MAR.

J. Umbilical Core Care

- Note: Umbilical cord care may be held and normal saline soaked gauze wrapped around the umbilical stump (per individual Physician's order) for an infant in the NICU in anticipation of possible umbilical line placemat.
- Purpose: To use natural drying for cord care. Natural drying involves keeping the cord clean and dry without routine application of topical agents.
- Wash hands before handling the umbilical cord
- Clean the cord and surrounding skin surface as part of the initial bath with the use of warm water and a neutral pH balanced cleanse. Dry the cord after washing and pat dry with gauze. Discard gauze after using

K. Cord clamp removal:

- Remove clamp when cord is dry and hard to the touch (usually after 24 hours of age).
- Tie cord with umbilical tape if cord is unclamped while still soft or if slight oozing is noted after clamp removal.

L. Clothing:

- Appropriate size diapers for weight (premature, newborn, infant size 1).
- T-shirt
- 1 – 3 blankets
- Hat and socks (optional, dependent on infant's thermal status).

M. Feeding:

- Before first feeding assess the palate and coordination of suck and swallow.
- Take into account risk factors for hypoglycemia to determine frequency of feedings. Refer to Nursery/NICU- Policy and Procedure **Hypoglycemia – Blood Glucose Protocols and Guidelines**.
- Breast fed infants will be fed on demand unless otherwise specified by the Physician or determined by the infant's condition. Refer to Nursery/NICU- Policy and Procedure **BREASTFEEDING POLICY**
- Bottle feeding:
  1. Formula is provided based on a mother's preference or a physician's order.
  2. Bottle-feeding infants will be fed every 3 to 5 hours unless otherwise specified by the Physician or determined by the infant's condition.
- Use appropriate nipple for infant's tolerance, condition and ability; i.e., standard or slow-flow.

- Gavage feeding may be appropriate when breast or bottle-feeding is contraindicated. Refer to Nursery/NICU/SRMC Policy and Procedure **Gavage Feeding**.
- Observe mother and infant during breast or bottle-feeding to assess quality of feeding, give support and answer questions.
- Burp infant approximately every ½ ounce or after each breast-feeding.
- Notify Physician of inability to retain feedings and any other feeding problems.
- Document feeding time, type, amount, quality and any emesis or problems. Minimal documentation of feeds is every 4 hours.

N. Output:

- Record all voids and stools.
- Notify Physician if no passage of urine and/or stool by 24 hours of age.

O. Safety:

- Bulb syringe available at head of bed at all times for suction as needed.
- Infant placed in a supine position for sleeping. Infants in the NICU on monitors with alarms set may be placed in other positions for comfort or as necessitated by their individual conditions.

P. Education/Support Services:

- Assist parents with infant care activities and provide teaching and support throughout hospitalization.
- Parent teaching to include routine newborn care and any special care required for an individual infant. Document teaching on the Teaching and Discharge Record Form: And/or the NICU Multidisciplinary Discharge Planning/ Teaching Form, and Newborn Education Documentation Screen as appropriate.
- Initiate referrals to appropriate support agencies, including, but not limited to: Social Services, CPS, VNA, Public Health Department, WIC, and California Children's Services (CCS).

Q. Preventive Care:

- Hepatitis immunization – refer to Nursery/NICU- Policy and Procedure: **Hepatitis B Immunoprophylaxis in the Newborn**.
- Newborn screening program – refer to Nursery/NICU- Policy and Procedure: **Newborn Screen** as needed.
- Newborn hearing screening – refer to Nursery/NICU- Policy and Procedure: **Newborn Hearing Screening Program** as needed.

- Other preventive care – on occasion infants admitted to the NICU will need to receive the first DTP immunization or Synagis. These medications will be given as ordered.

R. Discharge: Refer to Nursery/NICU Policy and Procedure: **Discharge Procedure – Newborn** as needed.

V. ORDER ENTRY

A. N/A.

VI. EDUCATION/TRAINING

A. Department Director or designee will provide education as indicated by staff needs.

VII. DOCUMENTATION

A. Document in the Meditech system.

B. Document on Newborn or NICU discharge forms as appropriate.

VIII. EVIDENCE BASED REFERENCES

A. Association of Women's Health, Obstetric and Neonatal Nurses. (2007). Evidence-based clinical practice guideline: Cord care. *Neonatal Skin Care: Evidence-Based clinical Practice Guideline (2nd ed).* Washington D.C. AWHONN.

B. Dore, S. Buchan, D., Coulas, S., Hamber, L., Steward, M. Dowan, D., …Jamieson, L. (2006). Alcohol versus natural drying in newborn cord care. *Journal of Obstetric, Gynecologic, and Neonatal Nursing, 27*(6), 621-627.

C. *Guidelines for Perinatal Care*. (6th ed. 2007). A joint publication of the American Academy of Pediatrics and the American College of Obstetricians and Gynecologists.

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E. London, M.L., Ladewig, P.W., Ball, J.W., & Bindler, R.C. (2007). *Maternal & Child Nursing Care (2nd ed).* Upper Saddle River: Pearson.

F. McConnell, T.P., Lee, C.W., Couillard, M. & Sherrill, W.W. (2004). Trends in umbilical cord care: Scientific evidence from practice. *Newborn and Infant Nursing Reviews,* (4), 211-222.

G. McKinney, E.S., James, S. R., Murray, S.S. & Ashwill, J.W. (2009). *Maternal – Child Nursing* (3rd ed). St. Louis: Elsevier.

H. Suliman, A. (2007). *Triple dye plus alcohol versus triple dye alone for newborn umbilical cord care.* Pennsylvania State Milton S. Hershey Medical Center, Clinical Trials.gov identifier: NCT00127699

I. Vural, G. & Kisa, S. (2006). Umbilical cord care: A pilot study comparing topical human milk, povidone – iodine, and dry care. *Journal of Obstetrics, Gynecology and Neonatal Nursing (35),* doi: 10.1111/J.15526909.2006.00012

J. World Health Organization. (1998). Care of the umbilical cord: A review of the evidence. *Reproductive Health (Technical Support) Maternal and Newborn Health Safe Motherhood, Geneva: World Health Organization.*

K. Zupan, J. Garner, P. Omari, A. (2004). Topical umbilical cord care at birth. *Cochrane Database of Systematic Reviews (3),* doi: 10.1002/14651858CD001057,pub2

Signature on file **Not Approved Yet**
Irene Neumeister, MSN, RN Date
Vice President/ Patient Care and Cardiovascular Services

Signature on file **Not Approved Yet**
Janeen Whitmore, RN Date
Author

FORMULATION DATE:	2/77
REVIEWED:	ANNUALLY
DISTRIBUTION:	RN, LVN
ORIGINATING DEPARTMENT:	NURSERY, NICU
LEGAL REVIEW:	N/A

Appendix G

Newborn Umbilical Cord Care
Skill Checklist

RN, LVN **Unit**: _____

Performance Criteria: The (RN, LVN) is able to integrate required skills independently into his/her daily nursing practice.

Directions: Trainee initials the "initial" column when independently able to perform, under the supervision of a trainer / preceptor / AHN / SNIII, the following:	**Initial When Completed**
1. Verbalize the rationale for natural drying of an umbilical cord in newborn infants Verbalize AWHONN and WHO recommendations	
2. Verbalize the steps involved when providing cord care: • Keep cord clean and dry • Maintain clean technique to minimize contamination by pathogens • Wash hands and don gloves before handling umbilical stump • Keep umbilical stump exposed to air or loosely covered with clean clothes • Keep diaper folded down and away from umbilical stump to prevent contamination with urine/stool. • If the cord stump becomes soiled with urine or stool, cleanse the area with warm water • After cleansing with water, dry thoroughly with clean absorbent gauze to remove excess moisture, then discard this gauze • Assure that the umbilical cord clamp is secure	
3. Differentiate normal cord healing from potential problems including infectious and noninfectious conditions. • (Small amounts of cloudy mucoid material normally collect at the junction of the necrotic cord stump and abdominal skin and should not be misunderstood as purulent discharge). Contact the primary care provider if signs of a potential problem are present	

4. Patient education and discharge teaching.
• Teach the infant's care giver(s) to keep umbilical cord clean and dry at home:
  • Wash hands before handling umbilical stump
  • Keep umbilical stump exposed to air or loosely covered with clean clothes
  • Keep diaper folded down and away from the umbilical stump to prevent contamination with urine/stool
  • If the cord stump becomes soiled with urine or stool, cleanse the area with water
  • After cleansing with water, dry the cord thoroughly with clean absorbent gauze to remove excess moisture, then discard gauze (gauze to be sent home with infant)
  • Teach care giver about normal cord healing and the "mucky" appearance of the normal healing process
  • Advise care giver to notify primary care provider if the cord stump area shows signs of infection i.e., odor, bloody drainage, redness or if the infant has in increase in temperature	

Trainee (**Print**): _____ Trainee Initials: _____

Trainee (**Signature**) _____

****Note: My signature verifies I have completed this checklist and understand the content.**

References:

Association of Women's Health, Obstetric and Neonatal Nurses. (2007). Evidence –based clinical practice guideline: Cord care. *Neonatal Skin Care: Evidence –Based Clinical Practice Guideline (2nd ed).* Washington D. C.: AWHONN.

Dore, S., Buchan, D., Coulas, S., Hamber, L., Stewart, M., Cowan, D., …Jamieson, L. (2006). Alcohol versus natural drying in newborn cord care. *Journal of Obstetric, Gynecologic and Neonatal Nursing, 27*(6), 621-627.

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TRAINER/PRECEPTOR/AHN/SNIII (**Signature**): _____

SKILL DEMONSTRATED: ☐ YES/DATE: _____ ☐ REVIEW NEEDED

REVIEWED	BY	DIRECTOR	/	DESIGNEE	(**Signature**):	DATE:
_____						_____

Appendix H

SWOT Analysis

Strengths	**Weaknesses**
Evidence based Nurse driven Physician endorsed	Low census Based on consistency and continuity
Opportunities	**Threats**
Publication Improved patient satisfaction results on patient exit surveys Increased compliance Cost effective	Lack of “buy in” by staff nurses Nurses changing practice prior to implementation of revised policy Lack of aseptic technique by nurses and caregivers

Appendix I

Time Line for Implementation of Revised Cord Care Policy

Number	Task	Resource	Start	End	Duration	2010						2011	
						July	August	September	October	November	December	January	February
1	Meet with Perinatal Educator and Nurse Manager to discuss project proposal. Proposal sent to Chief Nursing Officer. Meet with Unit Practice Council to Present Proposal	** *	7/26/2010	8/10/2010	11								
2	Prepare Annotated Bibliography, Power Point Presentations, and Surveys. Approval received from CNO to move forward	*	8/10/2010	9/10/2010	21								
3	Attend Staff Nurse Meetings to present project proposal and Power Point Presentation, distribute nurse Surveys	*	9/11/2010	9/29/2010	12								
4	Proposal Packet Sent to IRB at USF. Revise current Routine Assessment and Care - Newborn Policy. Prepare a Skills Competency Checklist.	*	9/11/2010	10/15/2010	23								
5	Present project proposal to Medical Staff; Pediatricians and Family Practice Physicians	*	10/18/2010	10/20/2010	2								
6	Approval received from Medical Staff to move forward with proposal	*	10/18/2010	10/20/2010	2								
7	Draft form of Revised Routine Assessment and Care - Newborn Policy and Draft of Skills Checklist/Competency sent to Committees at Salinas Valley Memorial Hospital.	** *	10/20/2010	12/4/2010	30								
8	Implementation of Revised Policy once approval has been received from all committee members	**	1/1/2011	1/28/2011	19								

Legend: * = Responsible Person
** = Support Person(s)