Promoting Breastfeeding through the Use of a Unique Skin-to-Skin Intervention at an Urban Hospital

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Quality Improvement Research Study

Use of a video-ethnographic intervention (PRECESS immersion method) to improve skin-to-skin care & breastfeeding rates
Goal of Study

Improve skin-to-skin care after birth & exclusive breastfeeding rates at hospital discharge
Definitions

• **Skin-to-skin care**: mother cradles her naked newborn prone on her bare chest

  World Health Organization, 2011

• **Exclusive breastfeeding**: newborn fed only breastmilk from birth

  (no other liquids or solids except liquids with vitamins, minerals, medicines)

  The Joint Commission, 2010
Background

Exclusive breastfeeding

- New Joint Commission perinatal core measure: exclusive breast milk feeding at hospital discharge

- New U.S. Healthy People 2020 objective: reduce proportion of newborns supplemented with formula during first 48 hours of life (MICH-23)

The Joint Commission, 2010; Healthy People 2020
Background & Significance

• Improving breastfeeding rates has significant public health & economic implications for mothers, babies, & society
  Ip, 2007; World Health Organization & UNICEF, 2009; Bartick & Reinhold, 2010

• Breastfeeding is a time-sensitive relationship & maternity care practices, such as skin-to-skin care after birth, influence breastfeeding outcomes
  Moore et al., in print; World Health Organization & UNICEF, 2009; U.S. Department of Health and Human Services, 2011; U.S. Department of Health and Human Services Centers for Disease Control and Prevention, 2010
Background & Significance

Abundant evidence shows skin-to-skin care after birth improves both maternal & newborn outcomes & breastfeeding rates

(Moore, et al., 2011; Bramson et al., 2010; Soloojee, 2008)
Early Skin-to-Skin Care: Maternal Outcomes

Examples

• Improves scores on tests that measure strength of attachment to baby
• Promotes maternal responsiveness (enduring)
• Reduces maternal stress
• Improves breastfeeding outcomes

Bramson et al., 2010; Bystrova et al., 2009; Soloojee, 2008; Handlin et al; 2009; Moore, et al., in print
Early Skin-to-Skin Care: Newborn Outcomes

Examples

• Promotes physiologic stability (e.g., blood glucose, body temperature, cardio-respiratory function)
• Enhances self-regulation
• Improves breastfeeding outcomes

Bramson et al., 2010; Moore et al., in print; Mori et al, 2010; Ferber, 2004
Newborns Undergo 9 Instinctive Stages During Skin-to-Skin

1. Birth cry  
   Occurs after birth as newborn’s lungs expand

2. Relaxation  
   Exhibits relaxed hands without mouth movements

3. Awakening  
   Exhibits small movements of head & shoulders

4. Activity  
   Exhibits mouthing, suckling, & rooting movements

5. Rest  
   Has periods of resting between any stage

6. Crawling  
   Approaches breast with short periods of action, reaching breast & nipple

7. Familiarization  
   Licks nipple, touches & massages breast

8. Suckling  
   Attaches & suckles

9. Sleep  
   Falls into restful sleep

Widström et al., 2010
Pictures of the 9 stages from study
Therefore…
Evidence-Based Practice

**All** healthy women & babies should have immediate, uninterrupted skin-to-skin care for at least 1 hour…

& until after the first feeding for breastfeeding women

World Health Organization and UNICEF 2009; Baby-Friendly USA, 2010
Problem Statement

Skin-to-skin care often is absent, delayed, or interrupted for routine procedures, (e.g., repairing episiotomy, obtaining infant weights, or completing cesarean surgery) despite supporting evidence

U.S. Department of Health and Human Services Centers for Disease Control and Prevention, 2010)
Problem Statement

U.S. skin-to-skin rates for 2009 births

• 43% of mothers & newborns have skin-to-skin contact within 1 hour of uncomplicated vaginal birth, most of the time

• 32% of mothers & newborns have skin-to-skin contact within 2 hours of uncomplicated cesarean surgery, most of the time

U.S. Department of Health and Human Services Centers for Disease Control and Prevention, 2011
Purposes of Study

Part 1
Describe the rate of exclusive breastfeeding at hospital discharge in healthy mothers & babies who had immediate & uninterrupted skin-to-skin care after vaginal or cesarean birth, during a 5-day intervention (PRECESS)

Part 2
Assess for improvements & sustainability in monthly skin-to-skin & exclusive breastfeeding rates
Study Team

Primary investigator / team leader

Jeannette Crenshaw
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Study Team

PRECESS team
(expenses funded by Healthy Children Project, Inc)

• **Kajsa Brimdyr, PhD, CLC**, video-ethnographer & researcher, Healthy Children Project, Cape Cod, MA

• **Ann-Marie Widström, PhD, RN, MTD**, Professor Emeritus, Department of Woman and Child Health, Division of Reproductive and Perinatal Health Care, Karolinska Institutet, Stockholm, Sweden

• **Kristin Svensson, PhD, RN, MTD**, Department of Woman and Child Health, Division of Reproductive and Perinatal Health Care Karolinska Institutet, Stockholm, Sweden
Study Team

Hospital Staff

• Renee Jones, MSN, RNC-PB, WHCNP-BC, clinical education specialist, labor & delivery & high risk obstetrics

• Armara Dickey, BSN, RN, RNC, labor & delivery nurse

• Carol Gentry, BSN, RNC, labor & delivery nurse

• Nuala Murphy, RN, IBCLC, nurse/lactation
Study Team

Advisors / Expert Consultants

• Karin Cadwell, PhD, RN, FAAN, ANLC, IBCLC
  Lead Faculty, Healthy Children Project

• Richard E. Gilder, BSN, MS, RN-BC, CNOR, Nursing Analysis Champion, Office of Patient Safety, Baylor Health Care System

• Elizabeth Winslow, PhD, RN, FAAN, Nurse Research Consultant, Texas Health Presbyterian Hospital Dallas

• Jane Dimmitt Champion, PhD, MA, FNP, CNS, FAAN, Associate Dean for Research and Scholarship, Texas Tech Health Sciences Center, Anita Thigpen School of Nursing

• Elizabeth Winslow, PhD, RN, FAAN, Nurse Research Consultant, Texas Health Presbyterian Hospital Dallas
Research Design

Part 1
Descriptive, observational, non-experimental using PRECESS (August 13-17, 2010)

Practice
Reflection
Education and training
Combined with
Ethnography for
Sustainable
Success
PRECESS Immersion Method

• Educating clinicians & staff on skin-to-skin care & support of newborns’ 9 instinctive stages

• Expert mentoring in the routine work setting

• Video-recording during skin-to-skin care

• Interprofessional reflection & interactive analysis of recordings to identify practice barriers & solutions

• Continued application of skills
Research Design

Part 2

Testing for differences in monthly skin-to-skin & exclusive breastfeeding rates at hospital discharge after the PRECESS intervention

• Baseline – July 2010
• Post-intervention: August – December 2010
Conceptual Model for Practice Change
Setting

793 bed nonprofit private medical center in the Southwest US with 6,000 births per year
Sample

Part 1

• Convenience sample
• English speaking women $\geq$ 18 years
• Admitted to Labor & Delivery for vaginal birth or scheduled cesarean surgery
• Expected to give birth to healthy newborns
• Agreed to have skin-to-skin care immediately after birth
Sample

Part 2

Medical record review for monthly rates of skin-to-skin & exclusive breastfeeding rates at hospital discharge

- Skin-to-skin rate based on 60 medical records per month (30 vag & 30 ces)
- Breastfeeding rate based on all eligible* babies at discharge (average 360/month)

*Eligibility based on definition from the US Joint Commission (2011) perinatal core measure for exclusive breast milk feeding
Human Subject Protection

IRB approval: university & study site

• Written informed consent & written HIPAA consent obtained from mothers

• Written consent to be video-recorded obtained from all present during recordings
Data Analysis & Procedures

Part 1

Descriptive statistics; PRECESS Immersion Method; barriers & potential solutions identified by staff; comments about skin-to-skin experiences

Part 2:

Inferential statistics: Pearson Chi Square to test for significant differences between & among monthly rates of skin-to-skin care & exclusive breastfeeding

(95% confidence interval; $p < 0.05$)
Part 1 Results

Sample

• 11 mothers (mean age 29; SD 6 yrs; range 20-39) & babies

Birth

• 6 vaginal (2 elective inductions)
• 5 scheduled elective cesarean surgery

Breastfeeding choice on admission

• 9 (82%) planned to breastfeed
• 2 (18%) did not
Part 1 Results

Skin-to-skin care

• 10 (91%) received **immediate**
  (1 required initial assessment at warmer after cesarean surgery—skin-to-skin began after 10 min)

• 8 (73%) received **uninterrupted**
  (1 interrupted for assessment by NICU team; 2 interrupted to be held by father; all resumed skin-to-skin care & suckled before transfer)
Part 1 Results

Breastfeeding

6 (67%) of the babies whose mothers planned to breastfeed went through all 9 stages
Really! Our babies do this! I worked L&D for 15 years & never saw it before.”

—L&D Nurse
Part 1 Results

Breastfeeding

5 (83%) of the 6 babies who went through all 9 stages were discharged as exclusively breastfed
Video of Skin-to-Skin Care after Vaginal Birth
Selected Interprofessional Solutions

- Staffed RN for mother & for newborn during skin-to-skin care (nurse manager)

- Placed IV pole on surgical side of arm boards to allow more room for skin-to-skin (nurse anesthetist-CRNA)

- Used nasal cannula vs mask & placed EKG leads away from breasts during cesarean to allow skin-to-skin care (CRNA)

- Directed father on how he could participate by holding baby’s thighs securely (L&D nurse)
Video of
Skin-to-Skin Care during
Cesarean Surgery
Selected comments during PRECESS intervention

• “During my other cesarean, I had to just lie there & stare at the ceiling. My mom held my daughter before I did! Holding my baby skin-to-skin made time go faster.”
  —mother

• “She needs her hands free for other things.”
  —CRNA, placing pulse oximeter on mother’s toe during recovery

• “Holding her baby skin-to-skin distracted mom from surgery & everything else going on in the OR. It made mom calm.”
  —L&D nurse
Part 2 Results

• Baseline rates of skin-to-skin & exclusive breastfeeding (July, 2010)

• Post-intervention rates of skin-to-skin care & exclusive breastfeeding at discharge (August – December 2010)
Test of Month to Month Skin-to-Skin Rates

Test of rates (Pearson Chi-Square 23.798, df=5) of skin-to-skin between & among months showed a significant difference in monthly rates ($p<0.000$)
Test of Skin-to-Skin Monthly Rates: Cesarean Surgery

Test of rates (Pearson Chi-Square 31.197, df=5) between and among months showed a significant difference in month-to-month rates in cesarean births ($p=0.000$)

Larger sample size required to test for differences in month-to-month rates among vaginal births
Tests of exclusive breastfeeding rates at discharge (Pearson Chi-Square 2.922, df=5) between and among months show no significant differences ($p=0.712$).

(Beginning 1/1/2011, rates of exclusive breastfeeding now collected by birth mode as a result of study)
Discussion

- Skin-to-skin care after birth awakens newborns’ breastfeeding reflexes (Widström et al., 2010)

- New international (2009) & national (2010) interpretation of early breastfeeding emphasizes support of skin-to-skin process after birth vs “rushing babies to breastfeed”

WHO & UNICEF, 2009; Baby-Friendly USA, 2010)
Discussion

• Nurse staffing affects skin-to-skin care practices

• New staffing guidelines


• Use may improve skin-to-skin care
Discussion: Other Outcomes  
(Serendipitous Finding)

- Staff concerned about maternal hypothermia during & after cesarean surgery

- Thermal stability while skin-to-skin not study variable

- Staff observed that the 5 cesarean mothers & their infants maintained body temperature while skin-to-skin

- Staff presented skin-to-skin care inservices to increase rate of skin-to-skin care after cesarean surgery ("booster shot") as a result
Limitations

Part 1

• Small sample size (consistent with pilot & ethnographic projects)
• Presence of experts & video-recording
• Novel process of skin-to-skin care during cesarean surgery

Part 2

• Monthly skin-to-skin rates obtained from a convenience sample of routinely collected quality improvement data
Implications for Practice

• **All** healthy women & their newborns should have skin-to-skin care after birth

• Skin-to-skin is a nurse-driven intervention; nurse staffing during birth affects skin-to-skin care

• Shift focus **from** “getting babies on the breast” **to** supporting skin-to-skin care & helping mothers to breastfeed when babies show signs of readiness
Recommendation

• Implement skin-to-skin care for all healthy women & their newborns

• Adopt AWHONN staffing guidelines

• Shift focus from “getting babies on the breast” to supporting skin-to-skin care & helping mothers to breastfeed when babies show signs of readiness

• Study effect of skin-to-skin care on maternal stress & satisfaction particularly during cesarean surgery
Recommendations

• Study effect of 9 stages on rate of exclusive breastfeeding at hospital discharge

• Educate clinicians, staff, & parents about immediate, uninterrupted skin-to-skin care & about newborns’ 9 instinctive stages during skin-to-skin care

• Education not sufficient for sustainable change—consider use of PRECESS immersion method for change
Conclusions

• PRECESS immersion method may rapidly improve skin-to-skin care

• Skin-to-skin care after birth may reduce maternal stress & improve satisfaction, particularly during cesarean surgery
Conclusions

• Babies who complete all 9 stages may be more likely to exclusively breastfeed

• Staff who are educated about 9 instinctive stages maybe more effective at providing evidence-based clinical care after birth

• Mothers need support during skin-to-skin care to recognize their baby’s readiness to breastfeed
References


References


References


U.S. Department of Health and Human Services Centers for Disease Control and Prevention. (2011). *CDC national survey of maternity care practices in infant nutrition and care (mPINC)*. Atlanta, GA: Centers for Disease Control and Prevention


