Swedish perinatal practices in tertiary hospitals, based on evidences

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Plan for today

• Who are we?
• Swedish perinatal practices in tertiary hospitals/ complicity between parents and health care workers
• Linking skin-to-skin to BFI in Canada
• Kangaroo care versus skin-to-skin
• Evidence-based practice
• What we know: evidences about skin-to-skin
Who are we?
Organization of perinatal care in Sweden

- **Prenatal:** with nurses-midwives in the community for prenatal follow-up and prenatal classes

- **Hospital birth:** majority within hospitals vs home; with nurses-midwives; gynecologists/pediatricians in 2nd line only

- **Postnatal:** with nurses-midwives; home visits and in community centers
Nurses-midwives

- Nursing education at university level
- At least 2 years in nursing practice before specialization in midwifery
- Specialization: 1½ year at university level including 6 months internship
- Work on 8 or 12 hours shifts, in community centers, in hospitals
- Their work is very similar to Canadian nurses’s work within obstetrical or community perinatal nursing, with expanded role
Swedish hospitals we have visited

- Karolinska Sjukhuset on both sites: Solna and Huddinge
- Danderyds Sjukhuset
- Uppsala Sjukhuset
Karolinska Sjukhuset, Stockholm

- University hospital
- 1,600 beds
- 15,000 employees
- 2,100 researchers
- 1,4 millions visitors per year
- 7 surgeries per hour 365 days a year
- 9,600 births per year
- Two sites Solna and Huddinge (4 visits)
- Normal and high-risk pregnancies
Danderyds, Stockholm

- University hospital, associated with Karolinska institutet
- 536 beds
- 76 bed hotel for postnatal stay; nurses-midwives on a 24h basis
- 3,300 employees (1,200 nurses, 500 physicians and 800 RNAs)
- 10,000 births per year
- Highest birth rate in Sweden
- Normal and high-risk pregnancies
- 25% cesarean sections
- More and more cesarean sections for convenience
Karolinska Institutet

- Medical and paramedical university only
- Founded in 1810
- 3,600 employees
- 1,500 doctoral students
- One of the most important university and medical research centers in Europe
- Each year awards Nobel prizes in physiology and medicine
Uppsala University Hospital

- Public regional hospital
- Founded in 1302
- Associated with Uppsala University
- Largest trauma center
- 4,000 births per year
- 1,134 beds
Uppsala Universitet

- Internationally known university
- Founded in 1477
- Oldest university in Scandinavia
- 30,000 students including 2,400 doctoral students
- 6,000 employees including 3,800 members of teaching team
Pernatal

- Obstetrical triage
- Monitoring around 20 minutes at admission
- Birthing room if in active labor
- Medical material present in each room, hidden or apparent
- All birthing beds are placed vertically
- Always a bed in the birthing room for the partner
Pernatal

Pain relief during labor and birth

- Nitrous oxide gas
- Very little iv medication
- Hydrotherapy
- Epidural (around 40%)
Pernatal

- Ratio 1 to 2 or 1 to 1
- Electronic foetal monitoring, when indicated, is at nurses’ desk
- Frequently, complete computerization
- Electronic tables within obstetrics (dilatation, etc.)
- Induction and stimulation with oxytocin or misoprostol or urinary tube
Postnatal period in hospital

- Hospital stay is around 48 hours
- Transfers needed from birthing rooms to post-partum, hospitals are not new buildings
- Duration of stay depends on parents
Complicity between parents and health care workers

- Environment very much adapted to families and not only to parents
- All units have kitchens and living-rooms
- Parents appreciate leaving their rooms, and meeting other parents
- Environment is conceived for interaction between staff and families
- Fathers can eat on the unit for a small daily fee (around $16 a day)
Karolinska Sjukhuset

Pictures, Stockholm, with permission to Dumas and Lemire
Danderyds Sjukhuset

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Complicity between parents and health care workers

• Baby shares parents’ bed on the postpartum unit; safe environment

• Parents share same bed: two usual electrical hospital beds are locked together and baby sleeps in-between both parents, at head level, on his own mattress, on his back

• In Uppsala’ hospital, no baby bed whatsoever....

• Skin-to-skin and rooming-in is the norm unless major medical condition
Two hospital beds
baby in the middle, on his own mattress

Pictures, Stockholm, with permission to Dumas and Lemire
Skin-to-skin encouraged everywhere

Pictures, Stockholm, with permission to Dumas and Lemire
Complicity between parents and health care workers during C-section

- Warm and human environment in the OR
- No masks in the OR except if you need to stand less than one meter from the surgical site...or if you have respiratory infection.
- One nurse-midwife is dedicated to the infant
- Decreased light and noise in the OR. Temperature is between 19 and 22 C.
- Staff and physician speak softly
- Parents can bring their own music
- After birth, decreased light and noise. Only surgical site is well lighted.
- No interruption of skin-to-skin with mother even if she needs treatments (e.g. sudden major drop in blood pressure)
Fathers and ceasarean section

Fathers’ importance is well recognized, encouraged, and supported

• He is part of interventions:
  • He is brought along for infant’s resuscitation
  • He is asked to touch the baby and talk to him
  • He is the link between the emergency intervention and the mother

• Staff and physicians are very open to fathers and favours their presence:
  • Each introduces self and shakes hands with mother and partner when entering OR
  • Father is present from the very beginning, even during start of epidural
  • Father is well taken care of: very comfortable chair next to mother in the OR and then in recovery room
Pictures cesarean section

Pictures, Stockholm, with permission to Dumas and Lemire
Complicity between parents and health care workers

Interaction between parents and infant is encouraged from the start

- Immediate and uninterrupted skin-to-skin with mother, after vaginal birth or cesarean section

- No mother/infant/father separation: baby and father follow mother in recovery room after c-section
So, in Canada.....

Skin-to-skin and rooming-in....

Picture from Dumas, Maison de naissance Colette Julien, Québec
Linking skin-to-skin to BFI in Canada

- Skin-to-skin in Step 4....
  The new Canadian interpretation of Step 4

- Some definitions

- The little history of skin-to-skin

- The actual evidences for skin-to-skin

- Place baby in uninterrupted skin-to-skin contact with the mother immediately following birth for at least an hour or until completion of first feeding or as long as the mother wishes.

- Encourage mother to recognize when baby is ready to feed, offering help as needed.
Some definitions: Kangaroo care versus skin-to-skin care

- Kangaroo care: skin-to-skin contact between mom and her premature baby
- Skin-to-skin care: skin-to-skin contact between mom and her term baby
How to achieve skin-to-skin, after vaginal birth

(kangaroo or term baby)

- Nude newborn-not dried- on mother’s nude chest
- Newborn is either completely nude or with a diaper
- Newborn is placed vertically between mother’s breasts
- Newborn is then dried and covered with a warm blanket

Picture by Dumas, Gatineau, with permission
How to achieve skin-to-skin, after caesarean
(kangaroo or term baby)

- Nude newborn—not dried—on mother’s nude chest
- Newborn is either completely nude or with a diaper
- Newborn is placed horizontally between mother’s breasts
- Newborn is then dried and covered with a warm blanket

Picture by Dumas & Lemire, Stockholm, with permission
Evidence-based practice

What is it?

- Professional activities based on best available scientific proofs
- Clear reasons for clinical decision; know why we act

- Evidence = what has been demonstrated
- Care should never be based on tradition, personal opinion or experience, routine, or trial and error
Evidence-based practice

The important is to establish

a culture of reflection on one’s own practice

and based on

something else than

personal knowledge and experiences
What is an evidence?

Quantitative data from:
- randomised controlled trials (RCT)
- systematic reviews
- meta-analyses

No qualitative data such as impression, perception
The little history of kangaroo and skin-to-skin

1978: Bogota, Colombia

Not enough space, incubators, cots

→ nosocomial infections

Kangaroo 24 hrs/24, demonstrated effective to stabilize homeostatic parameters

Inspiration: kangaroo
What we know:
actual evidences for kangaroo care

• Physiological benefits for mother and baby
• Benefits pertaining to breastfeeding
• Psychological benefits for mother and baby

Following many RCT and systematic reviews; many times compared with warmers, incubators, cots, swaddling, parents’ arms

Picture by Dumas & Lemire, Stockholm, with permission
Links between Kangaroo care and skin-to-skin care

Evidences were so clear for kangaroo care and premature babies, it was thought that maybe it could also benefit the term infants.

Introduction in industrialised countries, first

- to encourage early bonding (humanisation of care)
- to facilitate first contacts with mother and first sucklings

But...we found a lot more benefits!
What we know:
actual evidences for skin-to-skin care

• Physiological benefits for mother and baby
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Following many RCT and systematic reviews; many times compared with warmers, incubators, cots, swaddling, mother’s arms

Picture by Dumas, Gatineau, with permission
Skin-to-skin care:  
*Physiological* benefits for mother and baby

- Harmonizes baby’s physiology to safely transfer from life in utero to life outside the uterus
- Maintains baby’s energy
- Reduces the stress of birth  
  (expression «the stress of being born» from Dr Lagercrantz then used by Bystrova and colleagues, 2003)
Skin-to-skin care: *Physiological* benefits for mother and baby

- Baby’s temperature
- Mother’s temperature
- Reduction of vasoconstriction at feet
- Better oxygenation
- Better glycemia
- Better neuromotor organization
- Reduction of pain reaction during painful procedures

From Miramichi Hospital, NB, with permission to Dumas
Baby’s temperature

- Temperature: central, axillary, at foot
- ALWAYS within normal limits
- Temperature better than for
  - swaddled or bundled baby
  - baby with pyjamas in mother’s arms
  - baby on warmer
  - swaddled baby in cot
- For babies born vaginally or by caesarean
Baby’s temperature

Skin-to-skin re-warms cold babies better than incubator or warmer
(hypothermia ≤ 36.3 C)

From St.Mary’s Hospital, Montreal, permission to Dumas
Mother’s temperature

✓ Mother’s and baby’s temperatures are in reciprocity so no “over-heating”

✓ Mother’s axillary temperature stays linked directly to temperature of baby’s feet
Decreased vasoconstriction in baby’s feet

Skin-to-skin reduces the “stress of being born” (Bystrova, 2003)

More than if
- baby is swaddled
- baby is in mom’s arms
- baby is in cot in nursery
Placental expulsion

Skin-to-skin decreases time for placental expulsion

- so less bleeding
- so less maternal anemia
Better oxygenation

- Baby placed skin-to-skin has better oxygen saturation than bundled baby in incubator

- Baby placed skin-to-skin have better arterial gases at 90 minutes of life than bundled baby in incubator

From Miramichi Hospital, NB, with permission to Dumas
Baby’s glycemia

Baby placed skin-to-skin has better glycemia at 90 minutes of life than bundled baby in cot.
Neuromotor organisation

During first 4 hours of life
✓ More episodes of calm sleep
✓ Better scores for optimal flexion
✓ Less extension movements

So babies are more coordinated and more stable
Reduced pain reaction during painful procedures

Objectively demonstrated analgesia during invasive procedures such as vitamin K injection and heel lance for PKU

less crying, less grimacing, ↓ heart rhythm,...

From St. Mary’s Hospital, Montreal, with permission to Dumas
Skin-to-skin care: Benefits for breastfeeding

Picture by Dumas, Gatineau, with permission
Skin-to-skin care: Benefits for breastfeeding

- Innate sequence of the human infant
- Initiation of breastfeeding, placement of tongue
- Breast massage by baby, ↑maternal oxytocin
- Breast odours, baby’s recognition of mom’s milk
- Effective sucking, ↑milk production
- Baby’s weight and weight loss
- Exclusivity of breastfeeding
- Breastfeeding duration ad 6 months
Innate sequence of the human infant

- Widström and colleagues (1993, 8 minutes video and 2011, article):

  Baby wakes up slowly, creeps towards breast, turns head towards mom’s voice and breast, salivates when smelling nipple, licks nipple then attaches spontaneously

  *innate sequence of the human infant*

- This predictable behavior starts around 10 minutes of life when baby is placed in uninterrupted skin-to-skin with mother
Pictures from Widström, Stockholm, with permission to Dumas
Other practices also facilitate this innate behavior

They are so usual that we forget about them....

Do not interrupt skin-to-skin for at least one hour

Do not suction unless medically justified

Wait for eye prophylaxis at the end of the one hour
Initiation of breastfeeding

When baby is placed skin-to-skin with mother, uninterrupted:

* spontaneously attaches to breast
* sucking is more effective

Any interruption lengthens process significantly

From Miramichi Hospital, NB, with permission to Dumas
What has been demonstrated

Factors negative for initiation of breastfeeding:

- Lack of *immediate* skin-to-skin at birth
- Drying baby before skin-to-skin
- First suckling *after* 2 hours of life
- Force baby to the breast
Massage of breast by baby, ↑maternal oxytocin

Massage-touching of breast by baby (chin, hands) increases:

* oxytocin production
* number of suckings
* milk production

From Miramichi Hospital, NB, with permission to Dumas
Breast odours, baby’s recognition of mom’s milk

If immediate skin-to-skin at birth and uninterrupted for at least 50 minutes,

2 to 4 days old babies recognize their mother’s milk by movements of the mouth and tongue
Effectiveness of suckings, milk production

Early sucking (< 2hrs) shows positive effect on milk production at day 3 and 4

- More suckings at day 3 and 4
- Less engorgement
- More milk ingested
Baby’s weight and weight loss

Babies who had skin-to-skin and were not separated from their mothers:

re-gain their weight loss 3 to 5 days faster than swaddled babies in nursery

even if babies in nursery received more supplements with formula
Exclusivity of breastfeeding

Babies who had skin-to-skin and were not separated from their mothers:

receive less supplement of formula than swaddled babies in nursery

Significative link between duration of skin-to-skin and exclusivity of breastfeeding at discharge
Duration of breastfeeding until 6 months

Babies who had skin-to-skin and were not separated from their mothers:

are breastfed longer

Picture from Dumas, StJérôme, Qc, with permission
Skin-to-skin care: *Psychosocial* benefits for mother and baby

Picture from Widström, Stockholm, with permission to Dumas
Skin-to-skin care: 
*Psychosocial* benefits for mother and baby

- Baby cries less
- Early mother-infant interaction: bonding
- Maternal well-being-attachment
- Less infant abandonment, maltreatment
- Mother-infant interaction at one year old
Baby cries less

Babies who had skin-to-skin at birth:

- cry less at birth
- cry less during the first 90 minutes of life
- cry less during first 3 days and first 3 months of life
Early mother-infant interaction: bonding

Mother:
- More visual contacts, more touching
- Looks at her baby in *en face* position
- More verbal communications
- Keep her baby with her longer, tends to follows whoever takes her baby away from her
- More affectionate during suckings; keeps baby closer to her

Baby:
- More alert after first cry
- Focuses on mother’s face and breast
- More vocalisations
Early mother-infant interaction: bonding

Dumas et al. (2010), RCT, 151 dyads videotaped at day 4 during breastfeeding session:

- Mothers are significantly softer and more patient
- if they have benefited from 2 hours uninterrupted skin-to-skin care at birth

Mothers
- are softer in their movements
- are softer in their attempts at latching
- speak softer
- look more at their baby in an en face position
- respond more softly to their cues
Maternal well-being-attachment

Skin-to-skin:
- Less maternal stress: reduce gastrin blood level
- Better maternal well-being: increased oxytocin

Breastfeeding:
- Significant less depressive symptoms
- Increased mother’s socialization
- Better maternal well-being: doubled plasma endorphins

✓ if well-being is repeated frequently → attachment by repeated activation of opioids and oxytocin
Less infant abandonment, maltreatment

- Significantly reduced parental negligence and maltreatment in socially vulnerable families
- Less infant early abandonment in postnatal period in Russia

? animals
Mother-infant interaction at one year

Positive influence on:

* mother’s sensitivity
* ability of child to calm himself
* mutual reciprocity (PCERA)

when child is one year old

when those children benefited from immediate uninterrupted 2 hours of skin-to-skin with their mothers, all confounding variables taken into account
Also important

A 2 hour separation at birth followed by reunion and rooming-in DID NOT compensate for the lack of skin-to-skin at birth

Sensitive period**
“we should respect baby and mother
instinctive
behavioral
and endocrine
interaction sequence”

(Widström, 1988 and 2011)
This is why ....

* DO NOT use eye prophylaxis before first sucking

* NEED to facilitate bonding with eyes also

* No silver nitrate (Wahlberg, 1983)

* Postpone erythromycin, vit K
  (Dumas, Savoie & Landry, 2001, 2002)

Skin-to-skin contact with the father???

NO EVIDENCE AT THE MOMENT

Christenssson et al. (1996):
“*In absence of the mother,* thermoregulation with the father is better than baby bundling and placement in an isolette.”

- Surely...familial bacterial colonisation
- Attachment.....

Picture by Dumas, Gatineau, with permission
Are those evidences important???

YESSSSSS!!!

We cannot talk about cultural or personal preferences anymore...

« it is not only nice to do »

There are demonstrated benefits for term babies to be placed skin-to-skin on their mothers immediately at birth and to keep them there for at least one hour...

« it must be done »
In Canada

Vaginal birth after C-section

In the OR, cesarean section

Picture from Dumas, Gatineau, with permission to Dumas

Miramichi hospital, New-Brunswick, with permission to Dumas
In Canada

Miramichi hospital, New-Brunswick, with permission

St, Mary's Hospital, Montreal, with permission

Poster at Women's Hospital, Vancouver
In Canada

St, Mary’s Hospital, Montreal, with permission

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