Hot Topics in Neonatal Nursing

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Disclosure

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Office in professional organisations: Treasures & webmaster Swedish Paediatric Pain Society

Courtesy of some pictures: Marsha Campbell-Yeo, KJS Anand, Ricardo Carbajal

KFC – Kangaroo Father Care

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Who is Mats Eriksson?

Neonatal nurse for 33 years (staff nurse, head nurse, IT-nurse, night-nurse...)
Still working clinically
PhD 2004
Associate Professor 2011
Professor 2016 – nursing science with special focus on paediatric nursing

FAMN - The child, the family, the caring system, the society

What are we going to talk about?

Where are the nurses?
Controversies and challenges
Networking

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Where are the nurses?
Opening ceremony at European Academy of Paediatric Societies 2016
6 distinguished speakers

= 6 white male middle-aged physicians

What does a nurse look like?
Stereotypes in new Swedish TV-show

- Injects morphine in the locker room
- Wants to be a physician
- Tries to smooth over arrogant physician behaviour
- Prostituting herself after hospital shift

What does a NICU-nurse look like?
And then comes the doctor

From hierarchy to teamwork – are we there yet?

Who is missing on the picture?
Is nursing only a nurses’ concern?

Development of neonatal intensive care

World Exhibition Buffalo 1901

1983

1990 NIDCAP

2000 Kangaroo Mother Care

2016: Family as incubator

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We know breastfeeding is superior – yet it is decreasing

A turn towards partial breastfeeding

Ericson et al. 2016

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Controversy #1
KFC – Kangaroo Father Care vs. breastfeeding

The magical hour – early skin-to-skin contact

Colonization – immune system

Bonding & attachment

36% mortality reduction in LBW-infants (Boundy et al. 2016)

Is there a price to pay for equality?

Infants whose fathers did not take paternity leave during the infant’s first year were significantly less likely to be breastfed at 2 (p < 0.001), 4 (p < 0.001), and 6 months (p < 0.001)

/Flacking et al. 2010
Controversy #2

Single patient / family rooms vs. breastfeeding

Open bay NICU design

Lactation room

Family room

18 month follow-up

Kangaroo and maternal care predicted better Bayley Cognitive and Language scores
Infants with ≥1 symptom of autism were more likely to be in the open-bay low maternal involvement group vs the SFR high maternal involvement group

High maternal involvement is associated with improved 18-month neurodevelopmental outcome, especially in infants cared for in a SFR-NICU

/Lester et al. 2016
Controversy #3
Early home-going / home care vs. breastfeeding

New nursing models imposes new challenges!

Controversy #4
Fortification of breastmilk vs. breastfeeding

Testing of nutritional content of EBM > fortification

Focus on quality of milk rather than quality of contact

Alan Lucas
Is focusing (too much?) on nutritional content the reason?

Ericson et al. 2016

n=29.445
**Procedural Pain and Brain Development in Premature Newborns**

Susanne Brummele, PhD,1,2 Ruth E. Grunau, PhD,1,2 Vann Chau, MD,1,2
Kenneth J. Poskitt, MDCM,1,2,3 Rollin Brant, PhD,4 Jillian Vinall, BA,1,2 Ayala Gover, MD,1,2
Anne P. Sunnar, MDCM,1,2 and Steven P. Miller, MDCM,1,2

**Neonatal Pain-Related Stress Predicts Cortical Thickness at Age 7 Years in Children Born Very Preterm**

Manon Ranger1,4, Cecil M. Y. Chau2,5, Amanmeet Garg6, Todd S. Woodward1,5, Mirza Faisal Beg7,
Bruce Bjornson1,8, Kenneth Poskitt2,9, Kevin Fitzpatrick2, Anne R. Synnes8,10, Steven P. Miller1,10,11,
Ruth E. Grunau1,2,7,12

**Invasive Procedures in Preterm Children: Brain and Cognitive Development at School Age**

Jillian Vinall, BA1,9 Steven P. Miller, MDCM,1,9
Bruce H. Bjornson, MD1,9 Kevin P. Fitzpatrick, MD1,9
Kenneth J. Poskitt, MDCM,2,9 Rollin Brant, PhD,4 Anne R. Synnes8,10 Goksan E. Sunnar, MDCM,1,9
Ruth F. Grunau, PhD,9

**Same pain experience as adults?**

Goksan eLife 2015;4:e06356

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Painful procedures in neonates admitted to NICUs

*during the first 14 days of admission (Epipapin Region of Paris)
Carbajal et al, JAMA 2008;300:60-70

Why is pain assessment so hard to implement?

Figure 1 The proportion of units reporting that they tried to assess pain in neonates (white bars) and that they used a structured scale for pain assessment (black bars).
Gradin 2010
EUROPAIN: Pain assessment in neonates in the tracheal ventilation group

EUROPAIN: Pain assessment tools
- EDIN: 42.3%
- COMFORT-B: 14.7%
- N-PASS: 9.8%
- COMFPRT: 7.5%
- PIPP: 4.9%
- NIPS: 4.0%
- PAT: 3.6%
- CRIES: 1.6%
- Others: <1%

Finding the objective painometer – are we searching for the Holy Graal?

Heart Rate Variability – HRV
Galvanc Skin Response / Skin Conductance – GSR
Cerebral haemodynamics – Near Infrared Spectroscopy – NIRS
Cry acoustics – Sound spectrogram
Computerised facial movements
New and improved assessment scales
JACK, 24 w GA WAS EXPOSED TO:

118 days in the NICU
1152 procedures
528 hours of fentanyl exposure
852 exposures to 24% sucrose
  2 general anesthesia
1960 hours of extreme lighting
2296 hours of excessive noise
2346 hours of maternal separation

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Prolonged Maternal Separation

Less mature motor development
  Reynolds 2013

Poorer ability to regulate stress
  Vinall 2013

Higher reactivity
  Jahromi 2004

Higher mortality
  Ray 2012

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Skin-to-skin contact for pain relief

Near Infrared Spectroscopy – changes in HbO2 on the contralateral side

Olsson et al. 2015

Is mother best for SSC-pain relief?

Premature Infant Pain Profile

Johnston, 2011

Johnston, 2012
Skin-to-skin w. siblings

TIME TO RECOVERY

* P<.001 95% CI 25.6 to 103.4

Crying time, sec

Always use sweet solution

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**Succrose or glucose?**

**Maximum Pain Score**

<table>
<thead>
<tr>
<th>No treatment</th>
<th>Placebo (sterile water)</th>
<th>30% Glucose</th>
<th>30% Sucrose</th>
<th>Pacifier</th>
<th>30% Sucrose and pacifier</th>
</tr>
</thead>
<tbody>
<tr>
<td>No pain</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</table>

*Carbajal 1999*

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**Redefining PCA > Parent Controlled Analgesia**

Parents as primary caregivers – including pain management

Communication instead of distraction

*Photo: Ann-Cathrine Berg*

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Infant-directed lullaby singing as pain relief

Figure 1. Roles parents have described themselves in infant pain care in the NICU (Franck et al. 2012).
Parents role in pain management - according to nurses

Figure 1. Three different ways nurses described working with parents in infant pain management. 
Axelin et al. 2015

The power of a parent’s touch in reducing needle pain for your baby.

Watch the video at pediatric-pain.ca/power-of-a-parents-touch
Touching is good

Event-related potentials (ERP)

Premature infants have weaker response to light touch than full-term

But if they have had “supportive touch” - skin-to-skin-care and breastfeeding they responded more like the full-term infants

Controversy # 5

Is Skin-to-Skin contact / Kangaroo Mother Care always positive?

WHO guidelines
Societies and networks

European Society of Paediatric and Neonatal Intensive Care

28th Annual Meeting June 6-9 2017, Lisbon, Portugal

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Societies and networks

COiNN 2019 CONFERENCE
The 10th Council of International Neonatal Nurses Conference (COiNN2019) will take place in Auckland, New Zealand, from May 5 to 8, 2019.

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EFCNI – strong voice of parents

EFCNI: European Foundation for the Care of Newborn Infants

Ensure high-quality treatment and care for preterm and newborn infants and their families.
World Prematurity Day Nov. 17

Socks for Life

1 in 10 is born premature, worldwide.

Building a six-language web-site

Welcome in!

PEARL - Pain in Early Life
We are dedicated to help children to a life without pain

 FOR PARENTS
See what you can do to help your child

 FOR PROFESSIONALS
Here you can find educational material, training courses, useful tools and downloads

 OUR RESEARCH
Read about the researchers in PEARL, and about our projects
Take home message:

To being a neonatal nurse is to being an equal part of a multiprofessional team
Parents are the primary caregivers
Do research – read research – use research