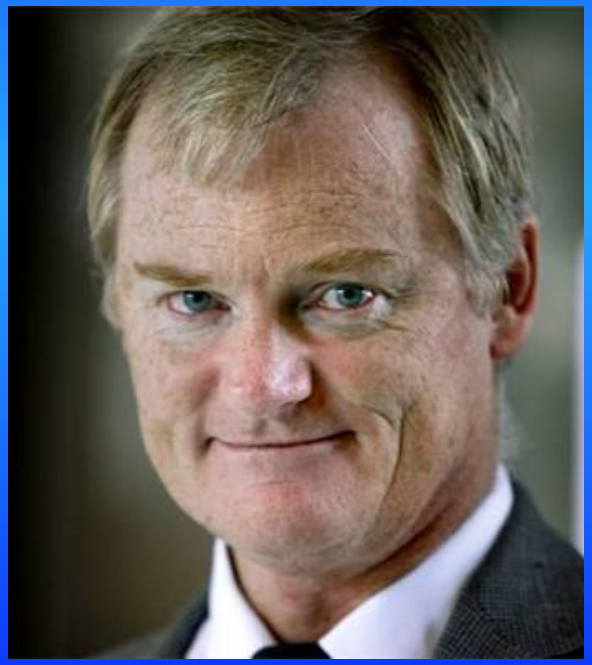
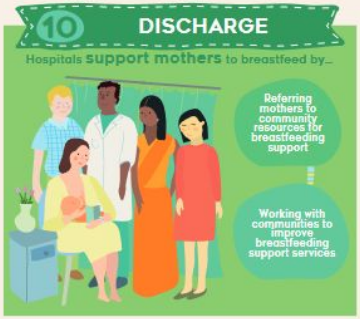
Immediate Skin-to-Skin Contact and Mother-Newborn Couplet Care: from science to practice



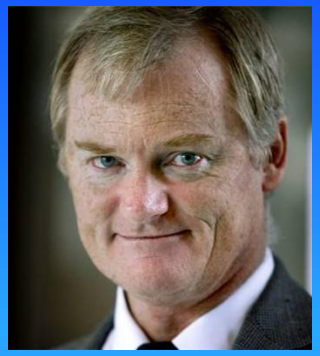
Nils Bergman

Stina Klemming

The TEN STEPS to Successful Breastfeeding



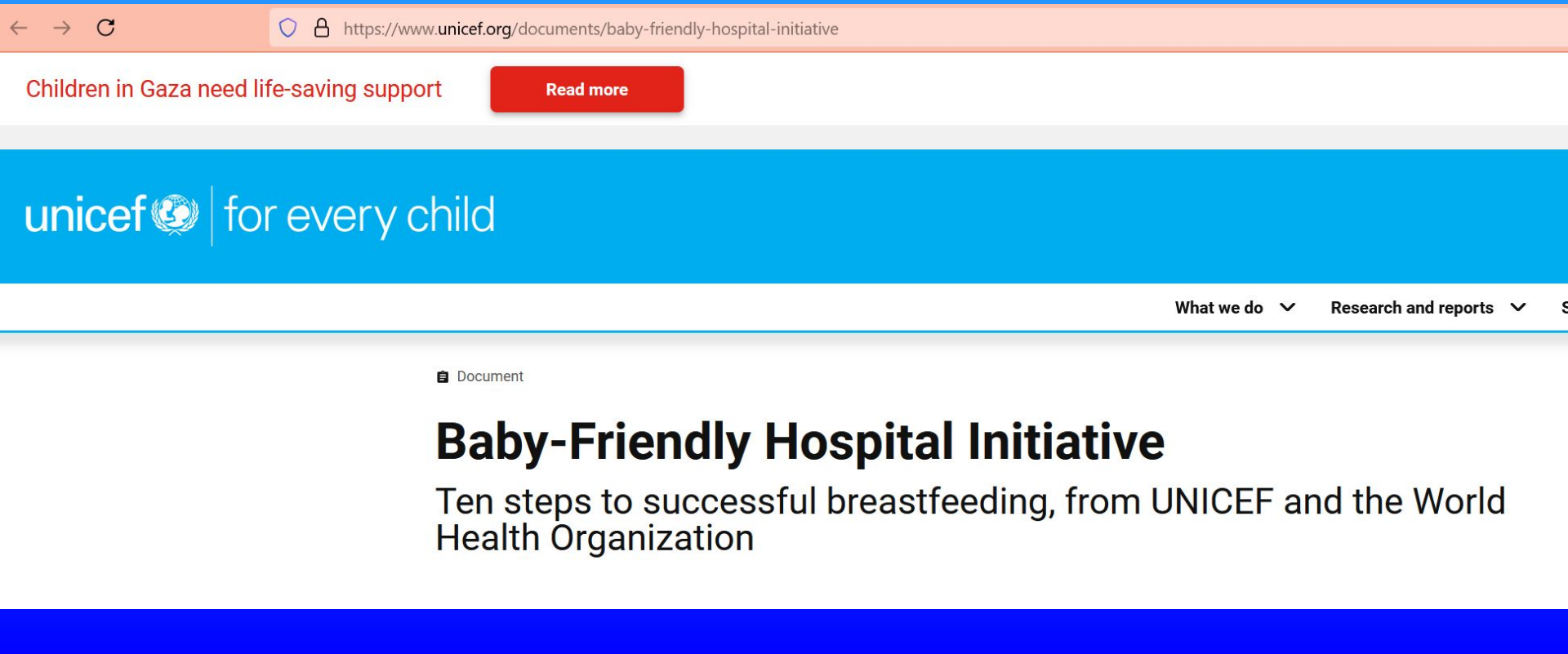
Immediate Skin-to-Skin Contact and Mother-Newborn Couplet Care:

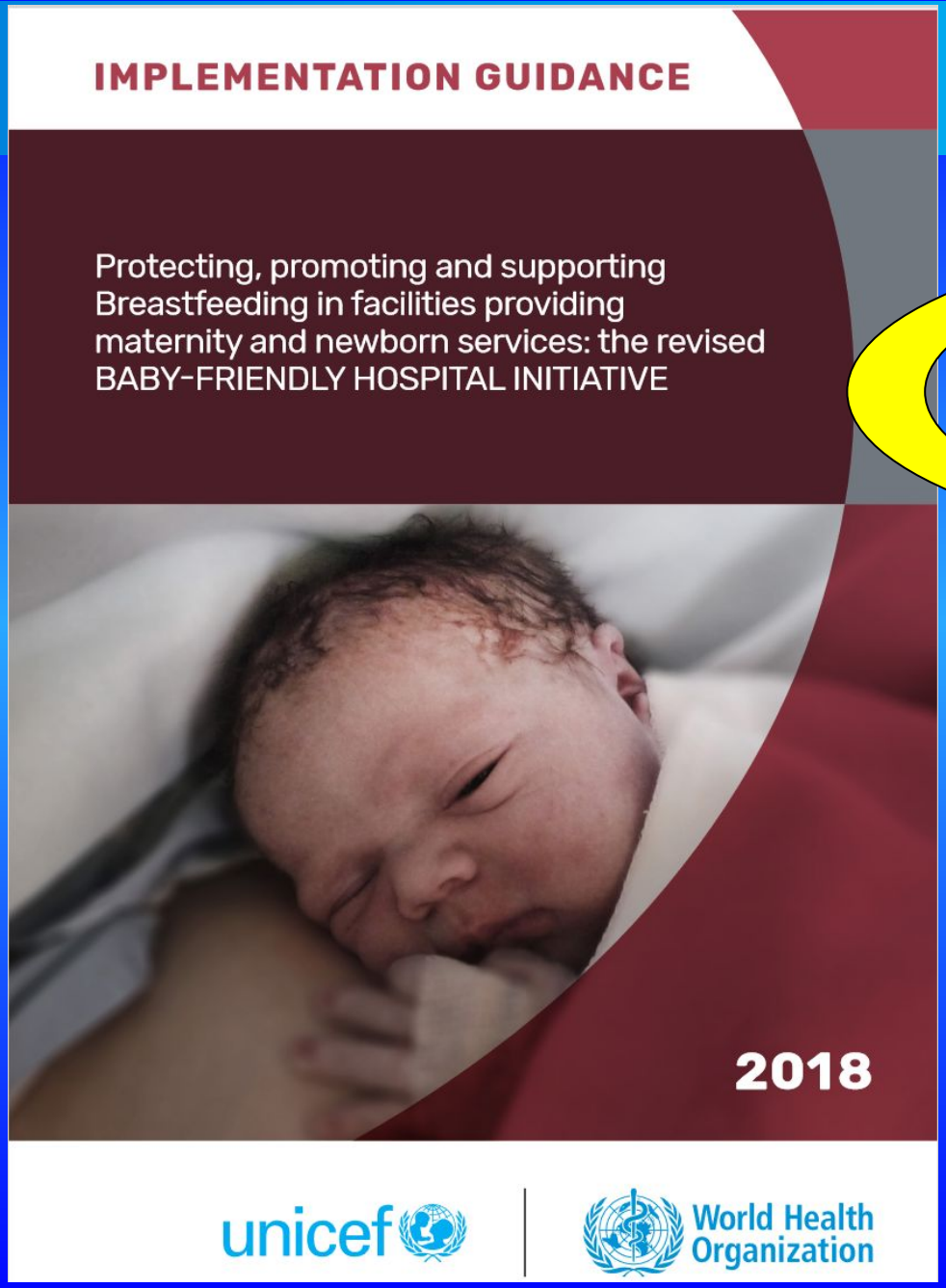


Step 4

Step 7

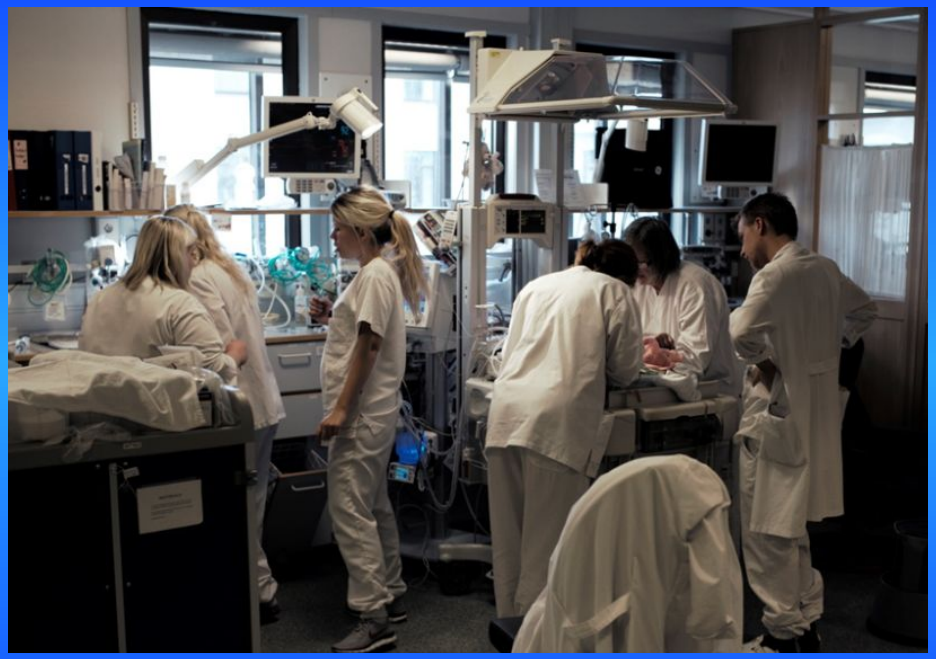
Immediate Skin-to-Skin Contact and Mother-Newborn Couplet Care: from science to practice





This updated guidance covers only those activities that are specifically [illegible] promotion [illegible] support of breastfeeding in facilities pro[illegible] maternity and newborn services. The care of small, sick and/or preterm newborns cannot be separated from that of full-term infants, as they both occur in the same facilities, often attended by the same staff. As [illegible] care for these newborns in neonatal [illegible] care units or in regular maternity or newborn wards is included in the scope of this document. However, since this document focuses on global standards and is not a clinical guide, it does not provide in-depth guidance on how to care for small, sick and/or preterm newborns but merely outlines the standards and key steps for breastfeeding and/or the provision of human milk to this group. More specific guidance on the feeding of small, sick and/or preterm newborns is available elsewhere *(5, 50)*.

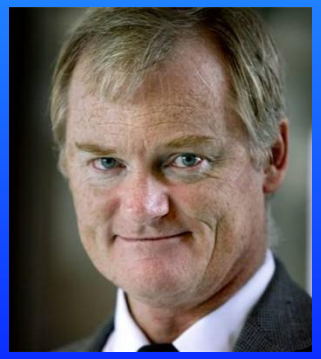
Procedures can be done skin to skin



Clinical care must be the same –
only place of care differs

Immediate Skin-to-Skin Contact and Mother-Newborn Couplet Care: from science to practice

And this applied specifically to small and sick / preterms



key steps for breastfeeding and/or the provision of human milk to this group. More specific guidance on the feeding of small, sick and/or preterm newborns is available elsewhere (5, 50).

Nils Bergman

Stavanger 1’39”

Baby is GA 29+4 Weight 1190g

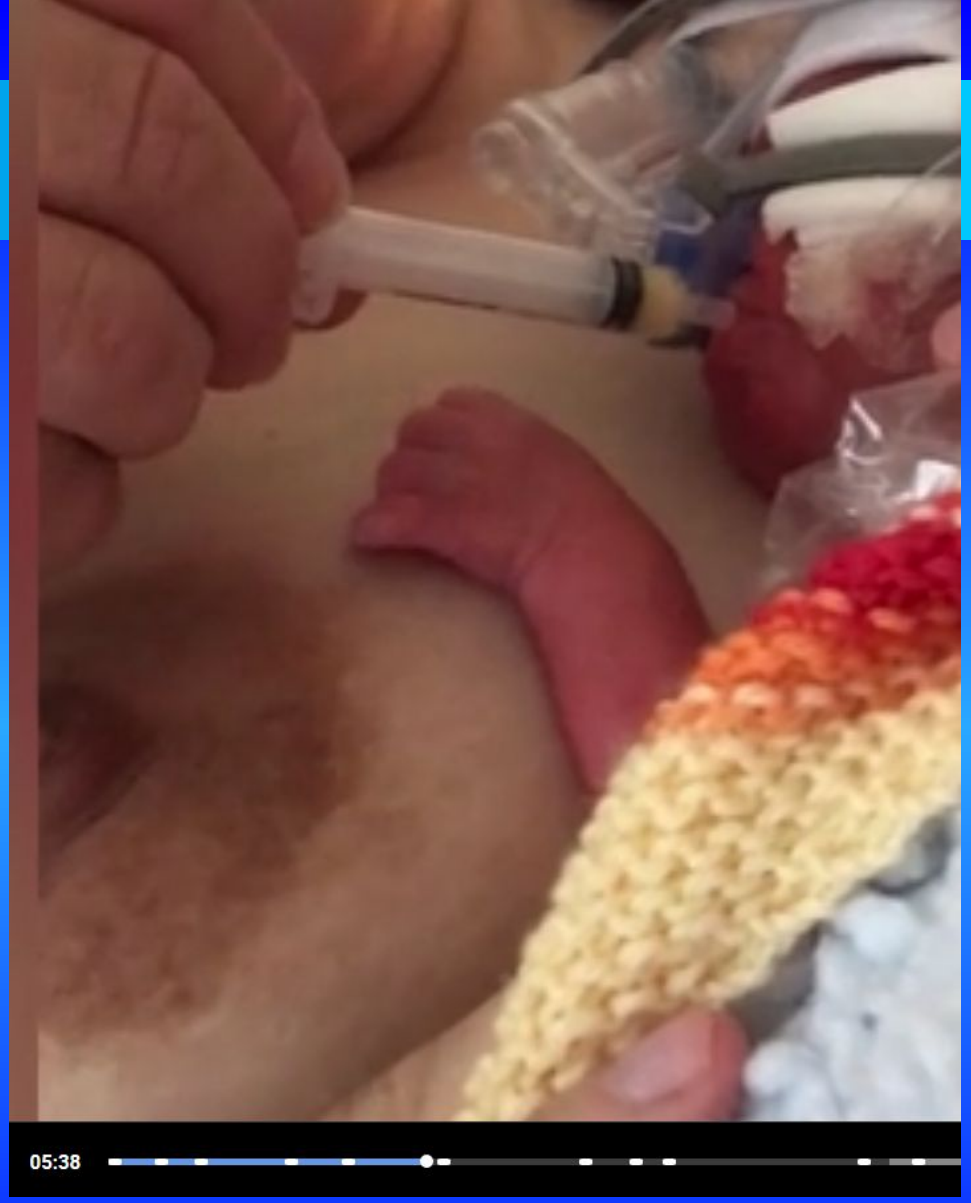
ZERO SEPARATION

Time sequence:

15 sec warmth ensured
20 sec CPAP provided
25 sec Father present
45 sec Auscultation
55 sec Condition good
75 sec Monitor attached
90 sec Maternal emotional connection

CORD HAS NOT BEEN CUT.

Baby is GA 29+4 Weight 1190g



Colostrum collected and given at 30 minutes

Procedures can be done skin to skin

Continuous

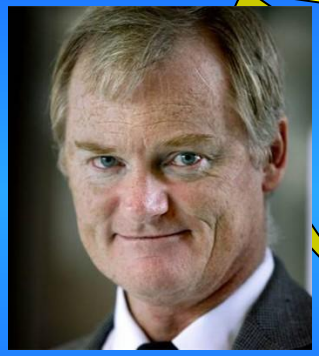
48h old

On CPAP,
Phototherapy,
IV lines
Trophic feeds
etc

The place is different, not the care

ZERO SEPARATION

Immediate Skin-to-Skin Contact and Mother-Newborn Couplet Care: from science to practice



… is called
NURTURESCIENCE

REVIEW ARTICLE

Birth Defects Research | The Teratology Society | WILEY

Nurturescience versus neuroscience: A case for rethinking perinatal mother–infant behaviors and relationship

Nils J. Bergman[1] | Robert Ludwig[2] | Björn Westrup[1] | Martha Welch[2,3,4]

Immediate Skin-to-Skin Contact and Mother-Newborn Couplet Care: from science to practice

Definition of *nurture* (Entry 1 of 2)

NURTURESCIENCE

2 : something that nourishes : FOOD

// ... fed him well, and nourished himself, and took *nurture* for the road ...

— R. D. Blackmore

NURTURESCIENCE

nurture noun

nur·ture | \ ˈnər-chər \

Definition of *nurture* (Entry 1 of 2)

1 : TRAINING, UPBRINGING

// With proper focus during early *nurture*, one can grow into a secure being ...
— Ella Pearson Mitchell

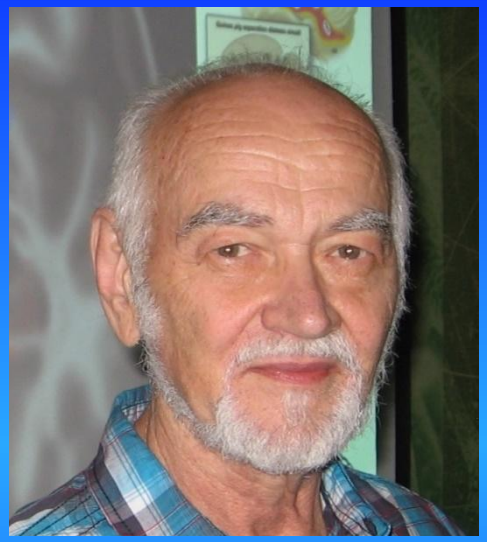
2 : something that nourishes : FOOD

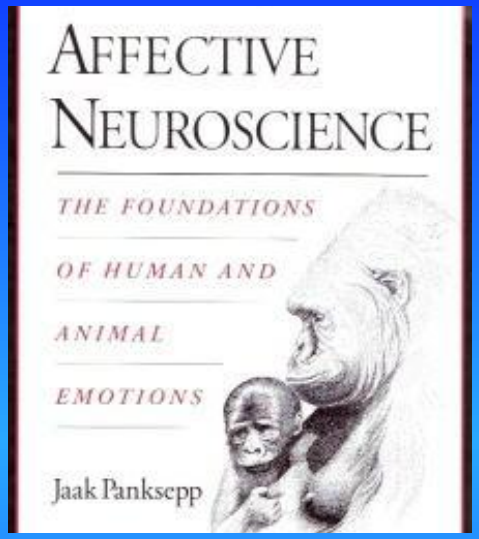
// ... fed him well, and nourished himself, and took *nurture* for the road ...
— R. D. Blackmore

3 : the sum of the environmental factors influencing the behavior and traits expressed by an organism

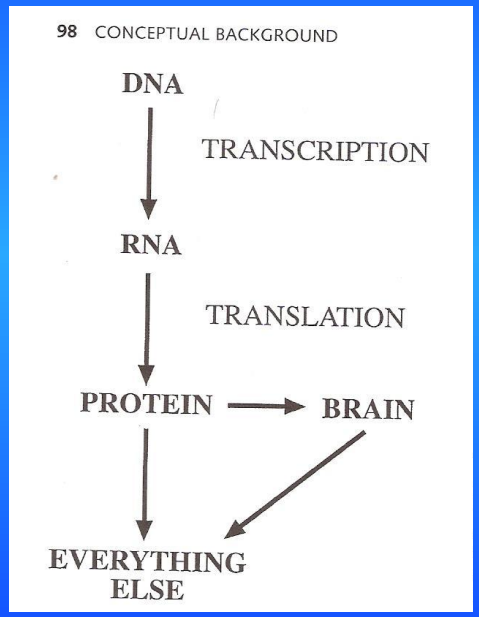
// Is our character affected more by nature or by *nurture*?

NURTURESCIENCE





Central dogma of psychobiology



processes. The only major concept missing from this schematic is the environment, and these influences permeate all phases of these transactions.

3 : the sum of the environmental factors influencing the behavior and traits expressed by an organism

// Is our character affected more by nature or by *nurture*?

NURTURESCIENCE

Central dogma of psychobiology

ENVIRONMENT **ADAPTATION** ➡ **EXPERIENCE** ➡ **REPRODUCTIVE FITNESS**

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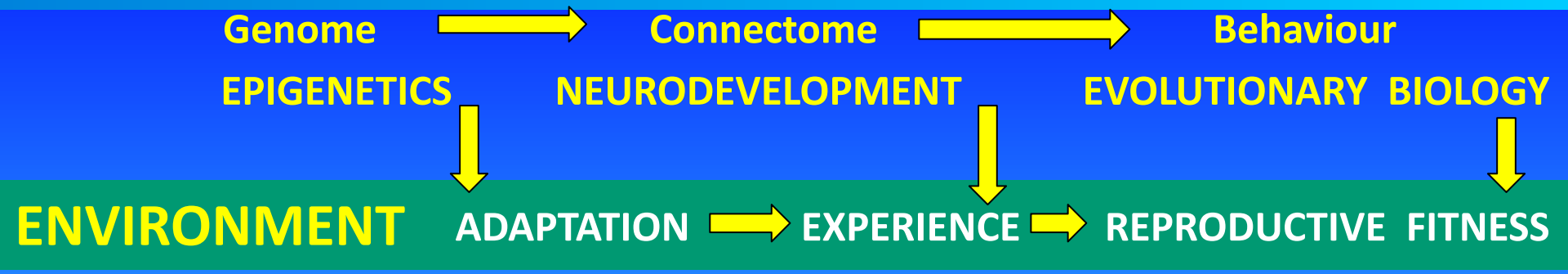

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NURTURESCIENCE

Genome → Connectome → Behaviour

EPIGENETICS NEURODEVELOPMENT EVOLUTIONARY BIOLOGY

ENVIRONMENT ADAPTATION → EXPERIENCE → REPRODUCTIVE FITNESS

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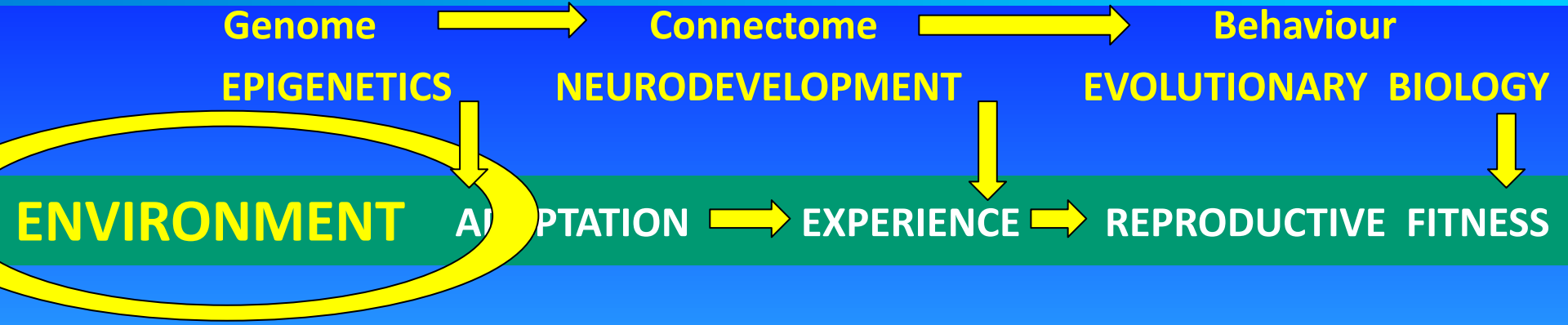
NURTURESCIENCE



"For species such as primates, the mother IS the environment."

Sarah Blaffer Hrdy, Mother Nature (1999)

Nothing an infant can or cannot do makes sense, except in light of mother's body

James McKenna

NURTURESCIENCE

Genome → Connectome → Behaviour

EPIGENETICS NEURODEVELOPMENT EVOLUTIONARY BIOLOGY

ENVIRONMENT A PTATION → EXPERIENCE → REPRODUCTIVE FITNESS

except in light of mother's body

NURTURESCIENCE

Immediate Skin-to-Skin Contact and Mother-Newborn Couplet Care:

ENVIRONMENT ADAPTATION ➡ EXPERIENCE ➡ REPRODUCTIVE FITNESS

except in light of mother's body

NURTURESCIENCE

Are ‘nurture’ and ‘science’ contradictory?

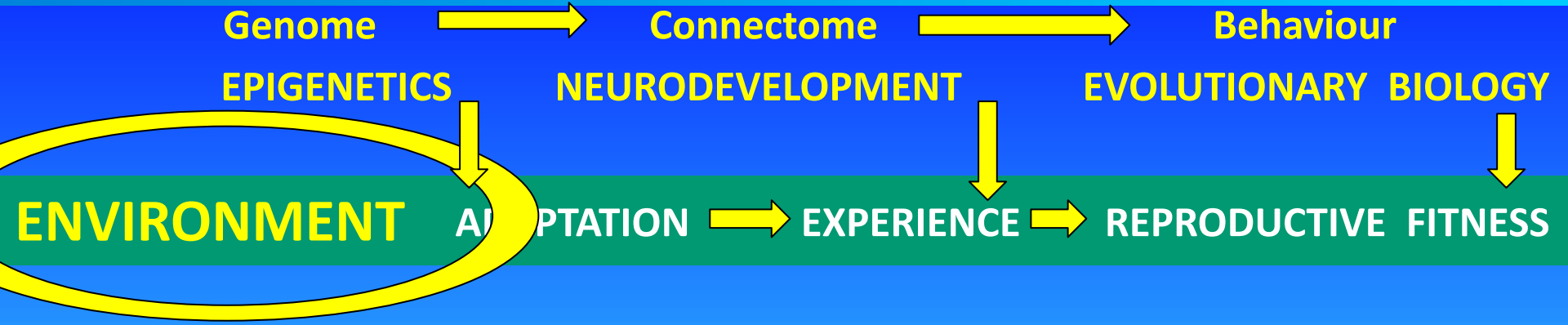
NURTURESCIENCE

CLINICAL SCIENCE

Are ‘nurture’ and ‘science’ contradictory?

The INTENSIVE care unit is not a place or time for nurture …

NURTURESCIENCE



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RIGHT PLACE

Immediate Skin-to-Skin Contact and Mother-Newborn Couplet Care: from science to practice

ENVIRONMENT ADAPTATION → EXPERIENCE → REPRODUCTIVE FITNESS

RIGHT PLACE

except in light of mother's body

Immediate Skin-to-Skin Contact and Mother-Newborn Couplet Care: from science to practice

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN™

Organizational Principles to Guide and Define the Child Health Care System and/or Improve the Health of all Children

POLICY STATEMENT

Early Childhood Adversity, Toxic Stress, and the Role of the Pediatrician: Translating Developmental Science Into Lifelong Health

Immediate Skin-to-Skin Contact and Mother-Newborn Couplet Care: from science to practice

WHY START IMMEDIATELY ?

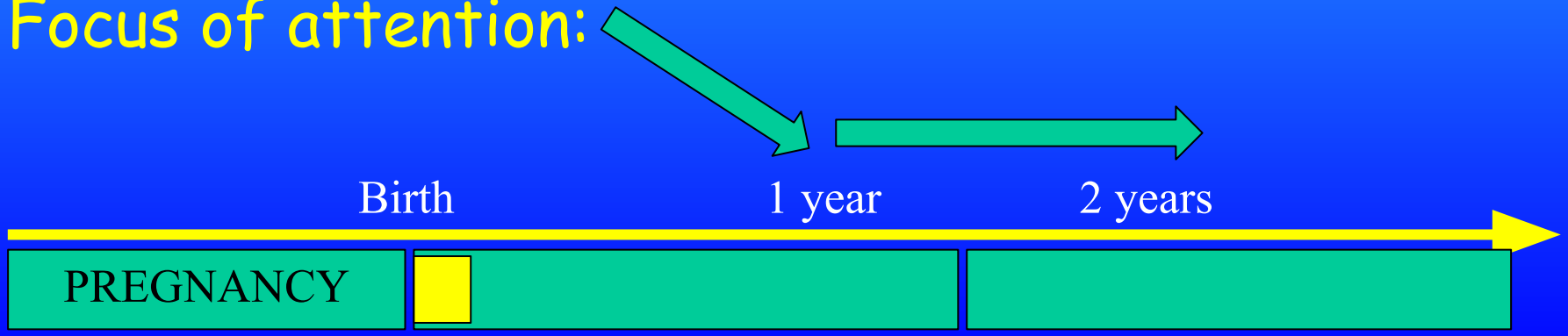
The first 1000 days

"ECD" Early Childhood Development

gestation	270		
year one	365		
year two	365	total	1000

days

Focus of attention:

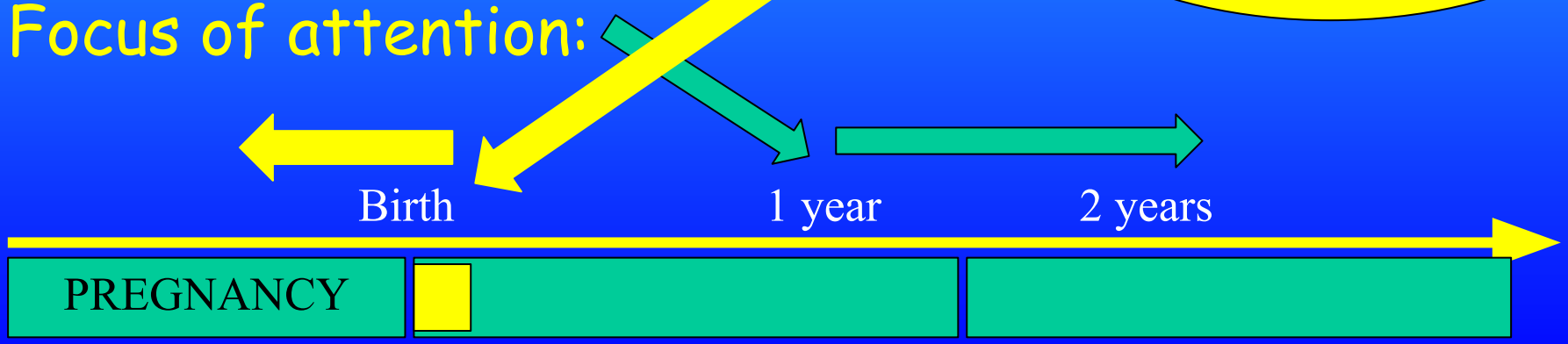


The first 1000 days begins with the first 1000 minutes

"Developmental programming"
is DETERMINING outcomes

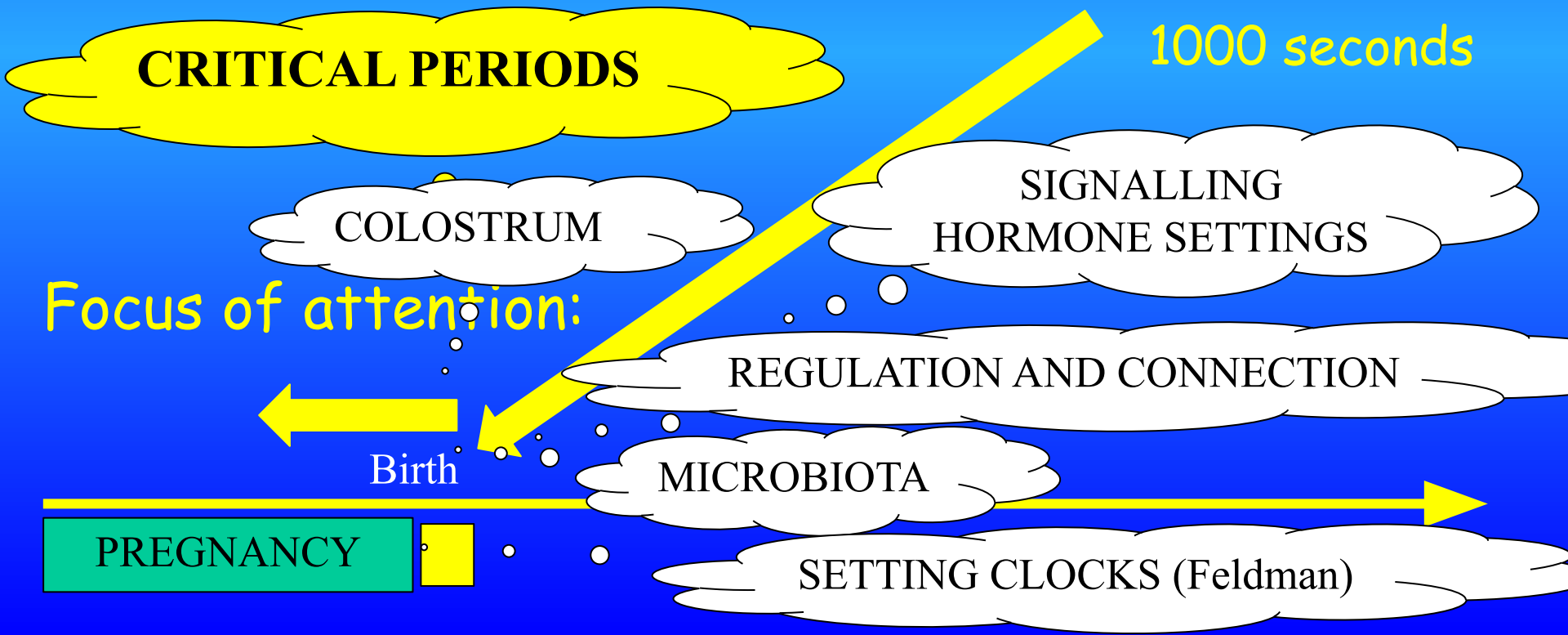
1000 minutes
16,6 hours =
First day of life

Focus of attention:



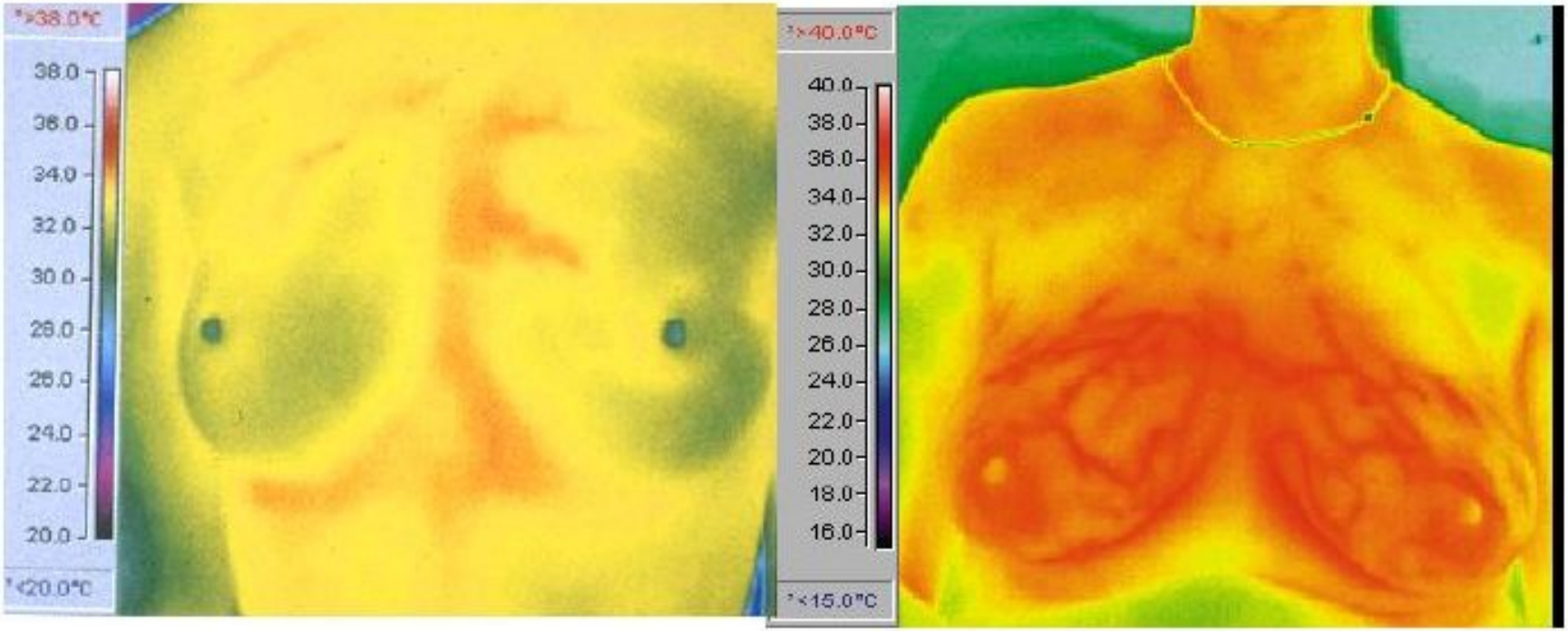
The first 1000 minutes begins with the first 1000 minutes

The first 1000 minutes begins with the first 1000 seconds



Non-lactating Breasts

Lactating Breasts

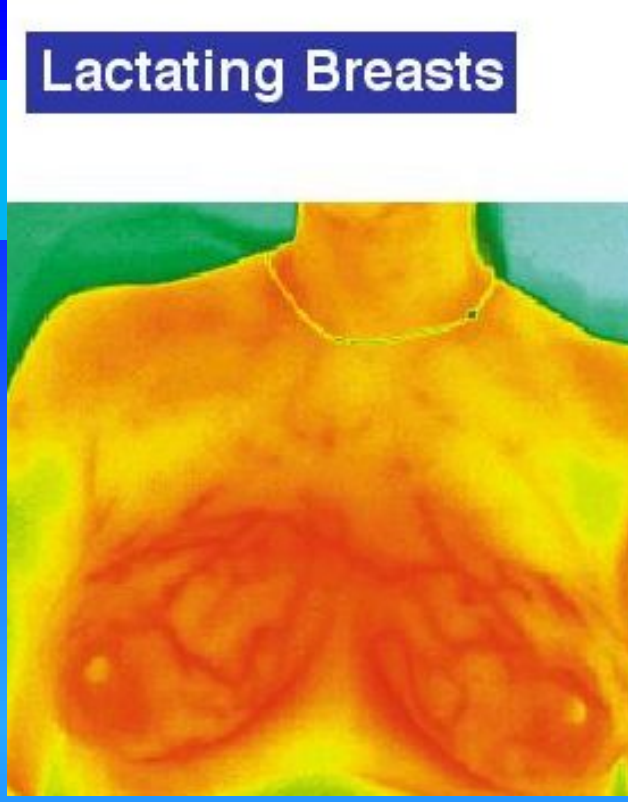


Images courtesy of Prof Peter Hartmann, UWA

the right place.

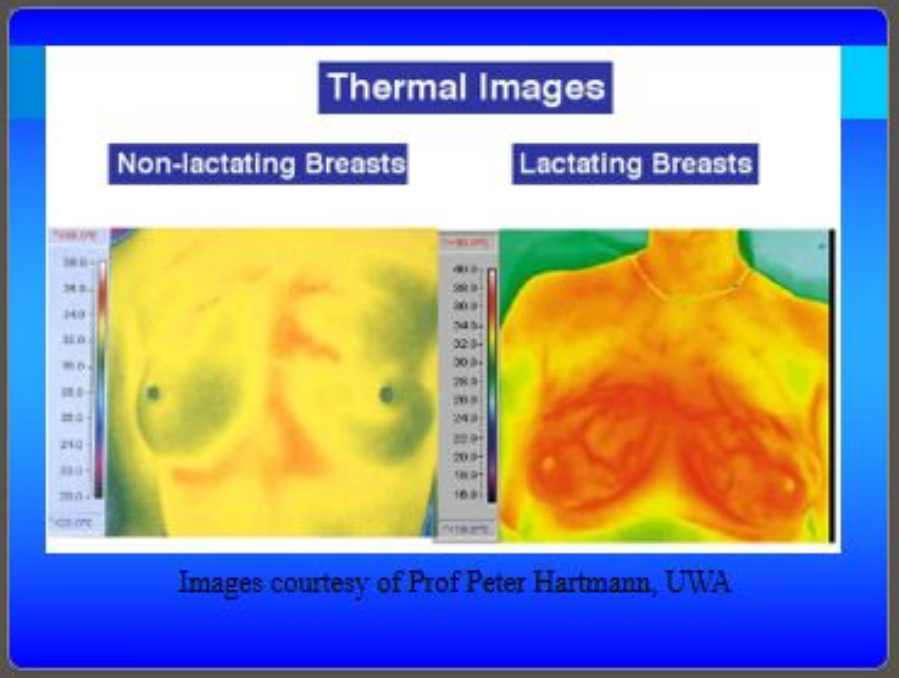
Warming, feeding and protection **behaviours** are intricately, inseparably linked to the right place.

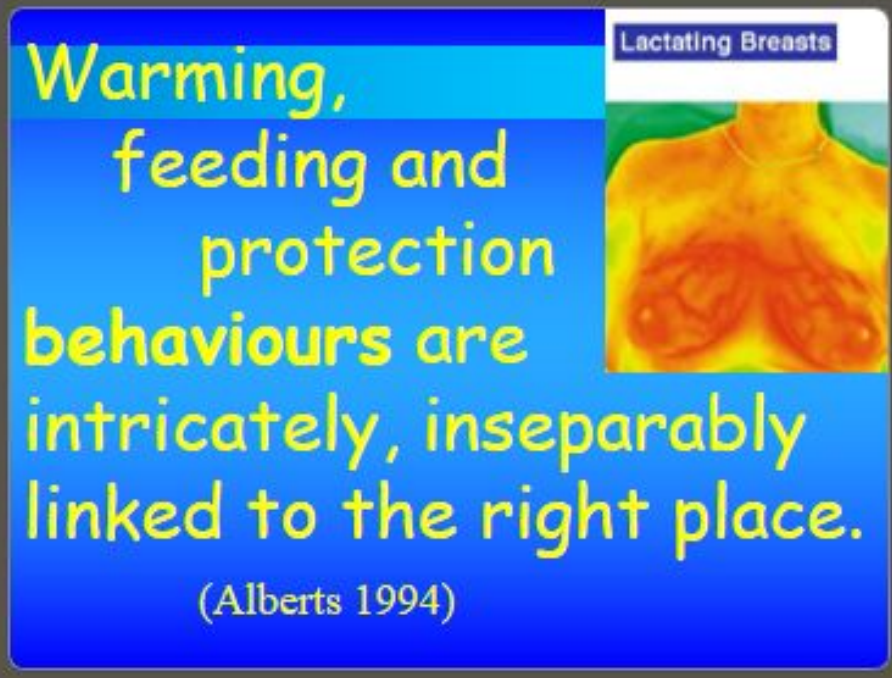
(Alberts 1994)



In the right place comes the right behaviour.

The baby is warming itself,
feeding itself and protecting itself.



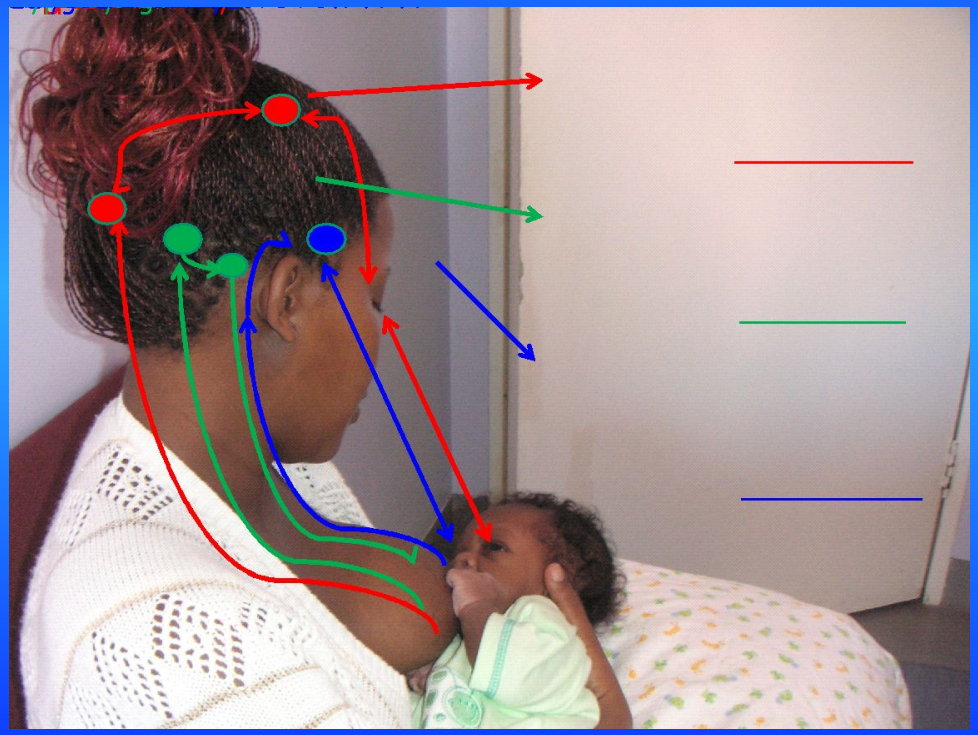


EPIGENETICS NEURODEVELOPMENT EVOLUTIONARY BIOLOGY

ENVIRONMENT → ADAPTATION → EXPERIENCE → REPRODUCTIVE FITNESS

MATERNAL NEUROPLASTICITY

The newborn re-wires – "hijacks" - the mother's brain so she **wants to care** …
ferocity of defence of young



Newborn triggers (or elicits) the EMOTIONAL CONNECTION

ENVIRONMENT ADAPTATION → EXPERIENCE → REPRODUCTIVE FITNESS

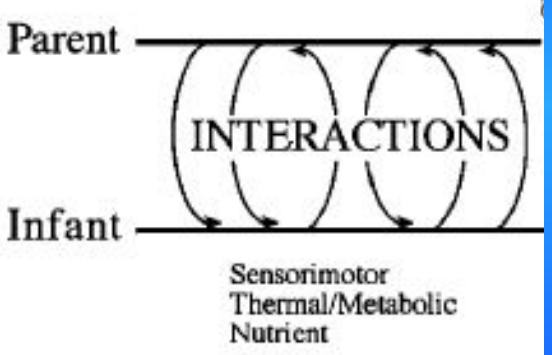
MYRON HOFER

ENVIRONMENT ADAPTATION

BABY

BIRTH

Regulation



REGULATION

OXYTOCIN

mother–infant relationship.

ENVIRONMENT ADAP REPRODUCTIVE FITNESS

Through "hidden maternal regulators" ...

We concluded from these surprising results that warmth provided by the mother normally maintained the pup's activity level and that her milk maintained her pup's heart rate. Maternal

BIRTH **Regulation**

" physiological set points "

internal working models

"thermostats"

warmth activity level

milk heart rate

ENVIRONMENT **ADAPTATION** → **EXPERIENCE** → **REPRODUCTIVE FITNESS**

MICROBIOTA

“A race for the skin”

Shin et al. Microbiome (2015) 3:59
DOI 10.1186/s40168-015-0126-1

Microbiome

RESEARCH Open Access

The first microbial environment of infants born by C-section: the operating room microbes

Hakdong Shin[1], Zhiheng Pei[1,2], Keith A. Martinez II[1], Juana I. Rivera-Vinas[3], Keimari Mendez[3], Humberto Cavallin[4] and Maria G. Dominguez-Bello[1*]

Delivery mode shapes the acquisition and structure of the initial microbiota across multiple body habitats in newborns

Maria G. Dominguez-Bello[a,1,2], Elizabeth K. Costello[b,1,3], Monica Contreras[c], Magda Magris[d], Glida Hidalgo[d], Noah Fierer[e,f], and Rob Knight[b,g]

EARLY CAREER PERSPECTIVE

Journal of Neuroendocrinology WILEY

Birth signalling hormones and the developmental consequences of caesarean delivery

William Kenkel

Colostrum oxytocin modulates cellular stress response, inflammation, and autophagy markers in newborn rat gut villi

Benjamin Y. Klein, MD [a, *], Hadassah Tamir [a, b, c], Robert J. Ludwig [a], Sara B. Glickstein [d], Martha G. Welch, MD [a, b, **]

Biochemical and Biophysical Research Communications 487 (2017) 47–53

Our findings show that colostrum oxytocin attenuates the impact of inflammation on postnatal gut villi during the colonization period.

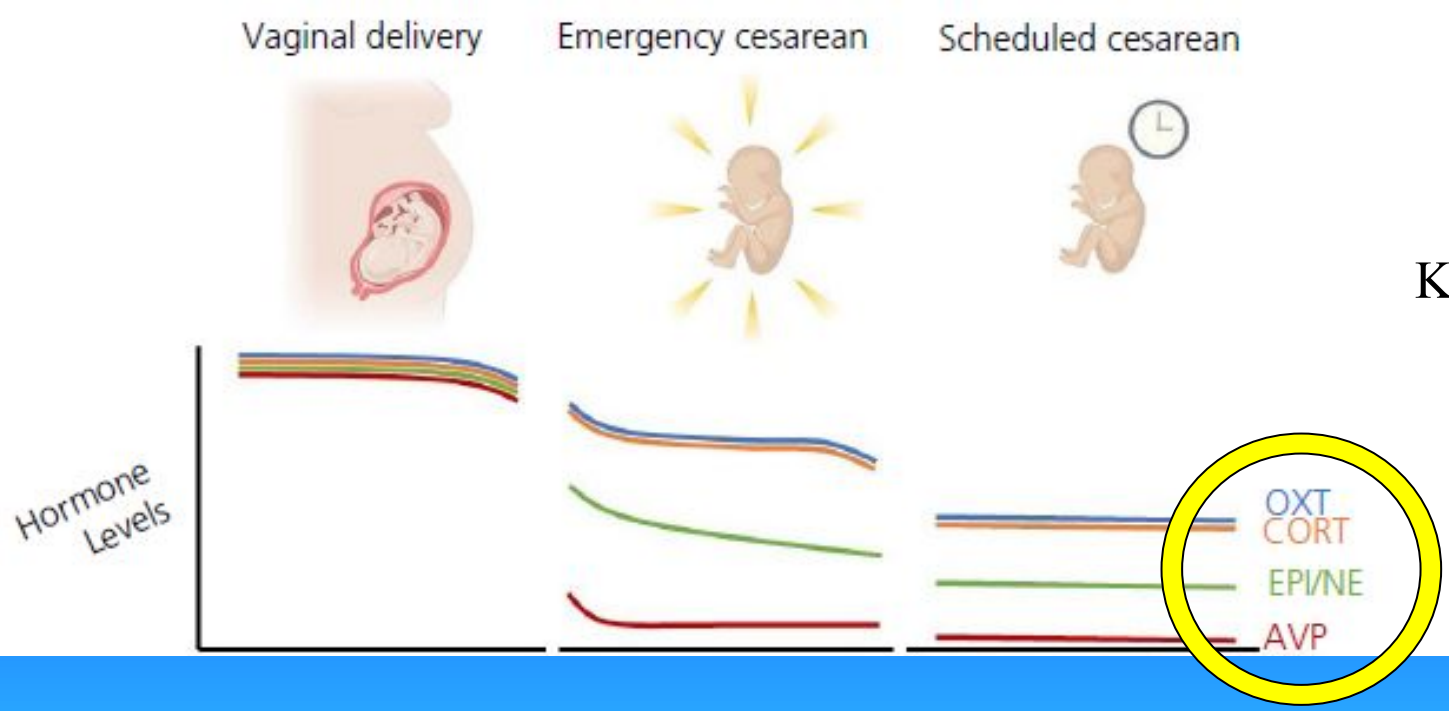
In addition, OT enhances autophagy to protect against amino acid insufficiency-induced stress during the interval between birth and the first feeding.

Maternal IgA2 Recognizes Similar Fractions of Colostrum and Fecal Neonatal Microbiota

Erick Sánchez-Salguero[1], Karina Corona-Cervantes[2], Hector Armando Guzmán-Aquino[1], María Fernanda de la Borbolla-Cruz[1], Víctor Contreras-Vargas[3], Alberto Piña-Escobedo[2], Jaime García-Mena[2] and Leopoldo Santos-Argumedo[1]*

Microbiota acquired during labor and through the first days of life contributes to the newborn's immune maturation and development.

Mother provides prebiotics and prebiotics factors through colostrum and maternal milk to shape the first neonatal microbiota.



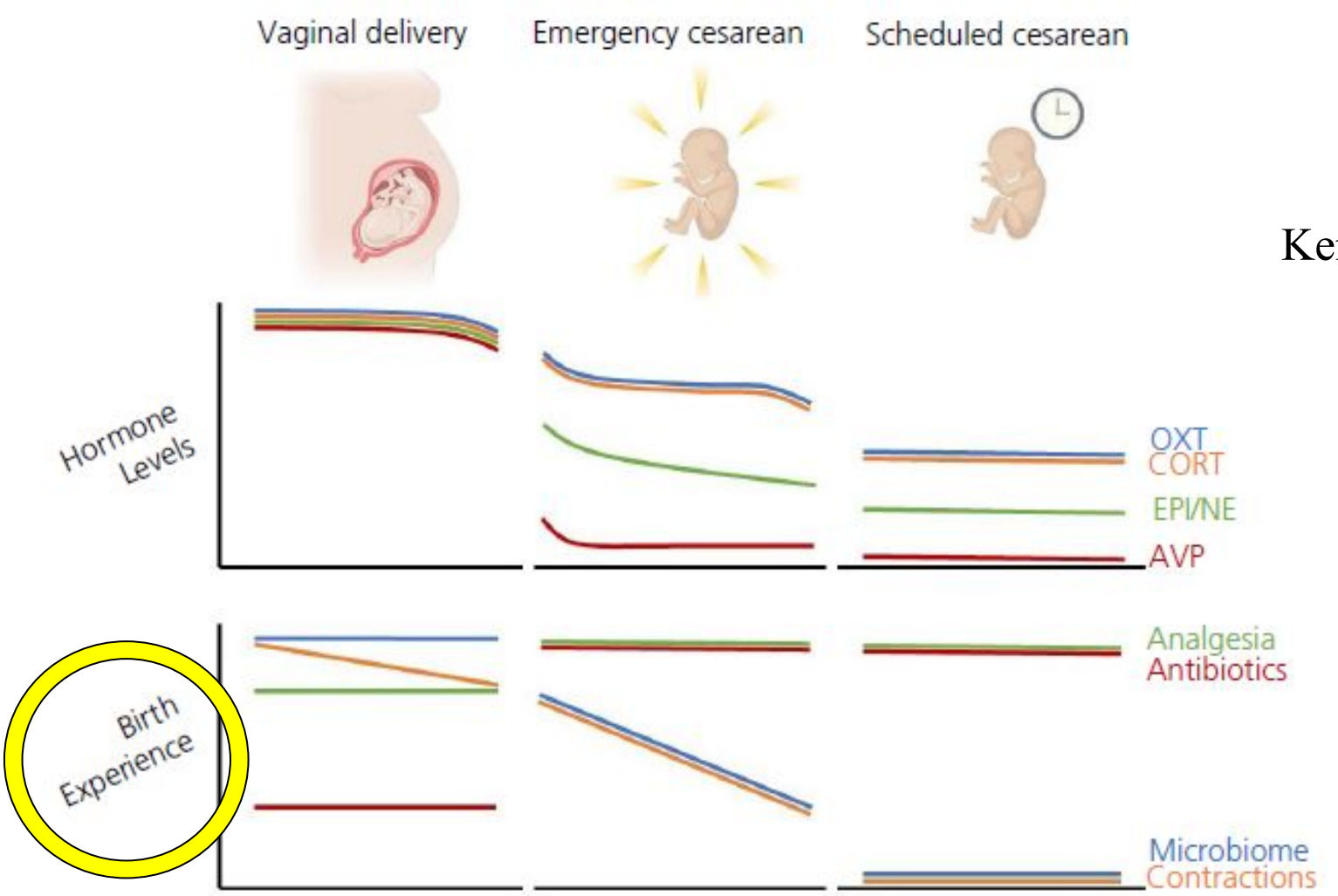
Kenkel 2021

EARLY CAREER PERSPECTIVE

Journal of Neuroendocrinology WILEY

Birth signalling hormones and the developmental consequences of caesarean delivery

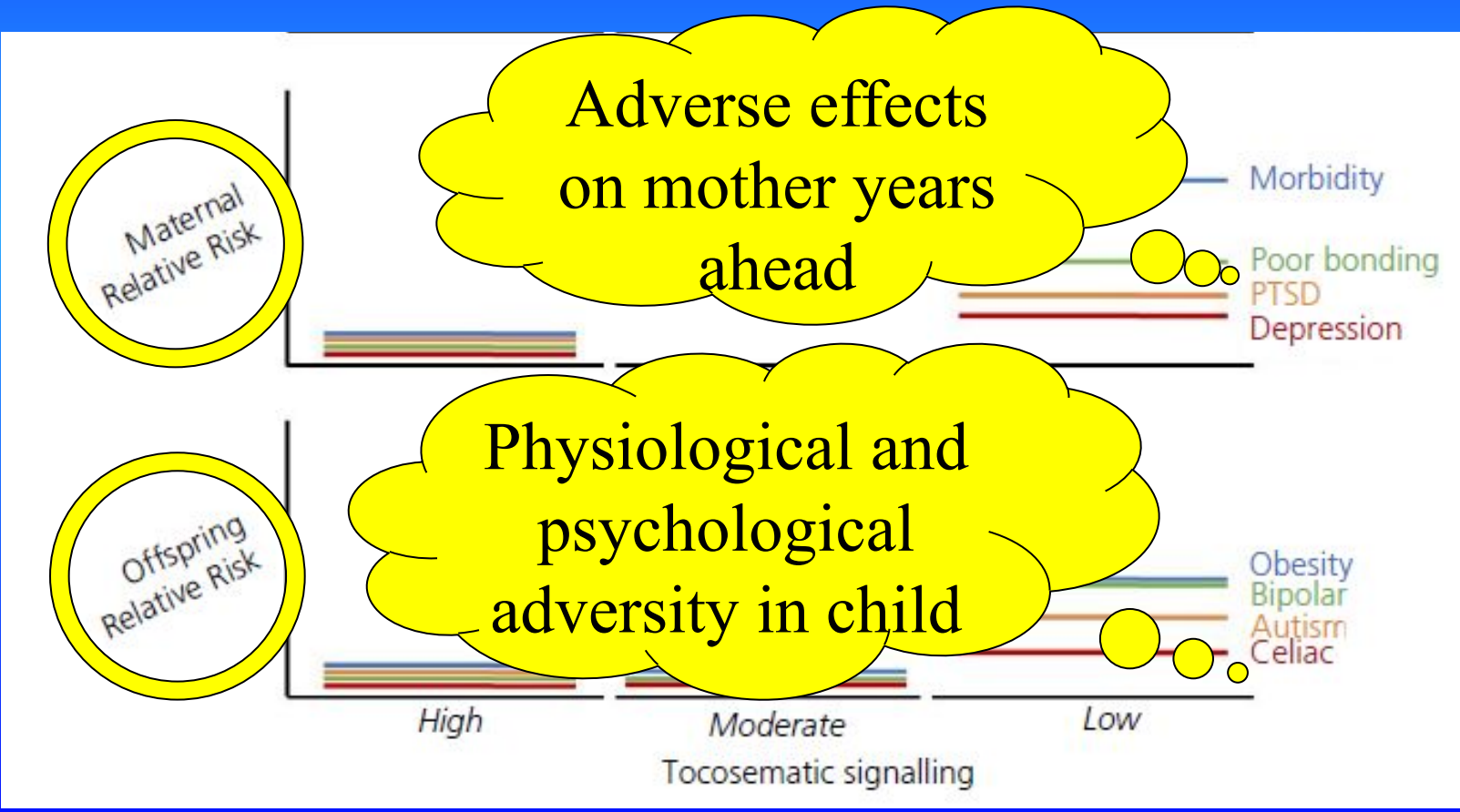
William Kenkel


Vaginal delivery
Emergency cesarean
Scheduled cesarean
Hormone Levels
OXT
CORT
EPI/NE
AVP
Birth Experience
Analgesia
Antibiotics
Microbiome
Contractions

Kenkel 2021


Vaginal delivery
Emergency cesarean
Scheduled cesarean

Kenkel 2021


Adverse effects on mother years ahead
Maternal Relative Risk
Morbidity
Poor bonding
PTSD
Depression
Physiological and psychological adversity in child
Offspring Relative Risk
Obesity
Bipolar
Autism
Celiac
High
Moderate
Low
Tocosematic signalling

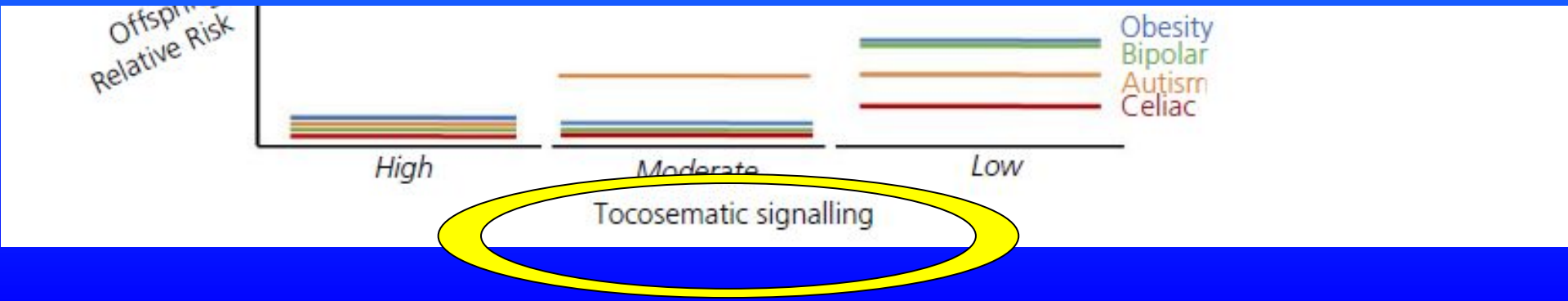
Maternal-Preterm Skin-to-Skin Contact Enhances Child Physiologic Organization and Cognitive Control Across the First 10 Years of Life

Ruth Feldman, Zehava Rosenthal, and Arthur I. Eidelman

AT BIRTH

Toxic stress signalling

Oscillators



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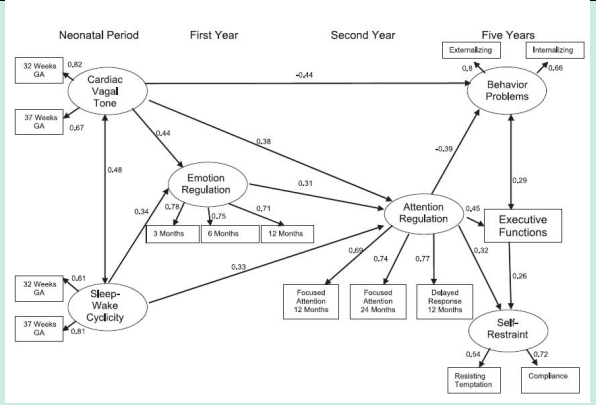
Ruth Feldman, Zehava Rosenthal, and Arthur I. Eidelman



SPECIFICITY

Intervention impacts **key process**
(does not affect other processes)

MATERNAL CONTACT MATERNAL REGULATION MATERNAL INTERACTION

Mechanism: continuity in small steps

SENSITIVE PERIOD

Intervention may be small
… but has major effect

LAST TRIMESTER

STABLE COMPONENT

Component key building block
Continuous process
Exerts long term effect

BIOLOGICAL CLOCKS (oscillators)

Newborn

10 years

HRV
Cardiac vagal tone

Milliseconds

Cortisol reactivity
Regulation of Emotion

Moments

State organisation
Sleep –wake cyclicity

Hours

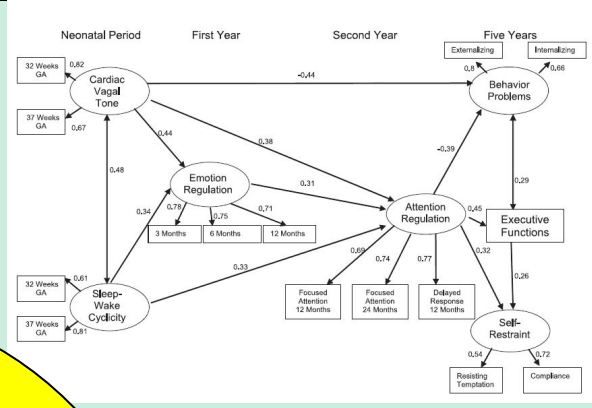
Synchronous exchanges

Physiological functions
(sleep, cortisol, ANS)

Cognitive development
Intelligence
Executive functions.

Emotional control

Dyadic reciprocity



These clocks control RESILIENCE

SENSITIVE PERIOD
Intervention may be small
… but has major effect

REGULA… INTERACTION

Mechanisms of continuity
small st…

Newborn

10 years

HRV
Cardiac vagal tone

Milliseconds

Cortisol reactivity
Regulation of Emotion

State organisation
Sleep –wake

Synchronous changes

Physiological functions
(sleep, cortisol, ANS)

Cognitive development
Intelligence
Executive functions.

Emotional control

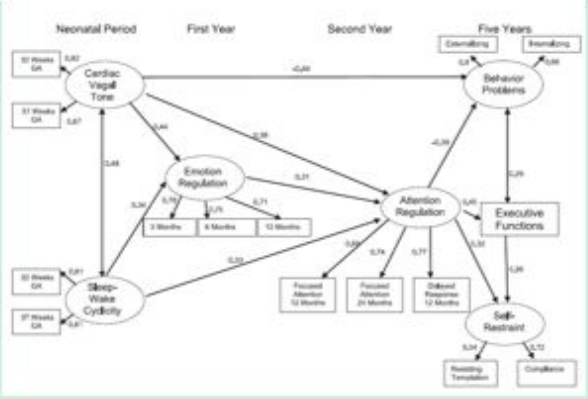
Dyadic reciprocity

This clock controls brain development, etc …

SETTING CLOCKS (Feldman)

Maternal-Preterm Skin-to-Skin Contact Enhances Child Physiologic Organization and Cognitive Control Across the First 10 Years of Life

Ruth Feldman, Zehava Rosenthal, and Arthur I. Eidelman



SPECIFICITY

Intervention impacts **key process** (does not affect other processes)

MATERNAL CONTACT → MATERNAL REGULATION → MATERNAL INTERACTION

SENSITIVE PERIOD

Intervention may be small

Mechanism: ntinuity in hall steps

Newborn — *10 years*

HRV

Cardiac vagal tone

Milliseconds

Sync

Physiological functions

(sleep, cortisol, ANS)

CRITICAL PERIODS

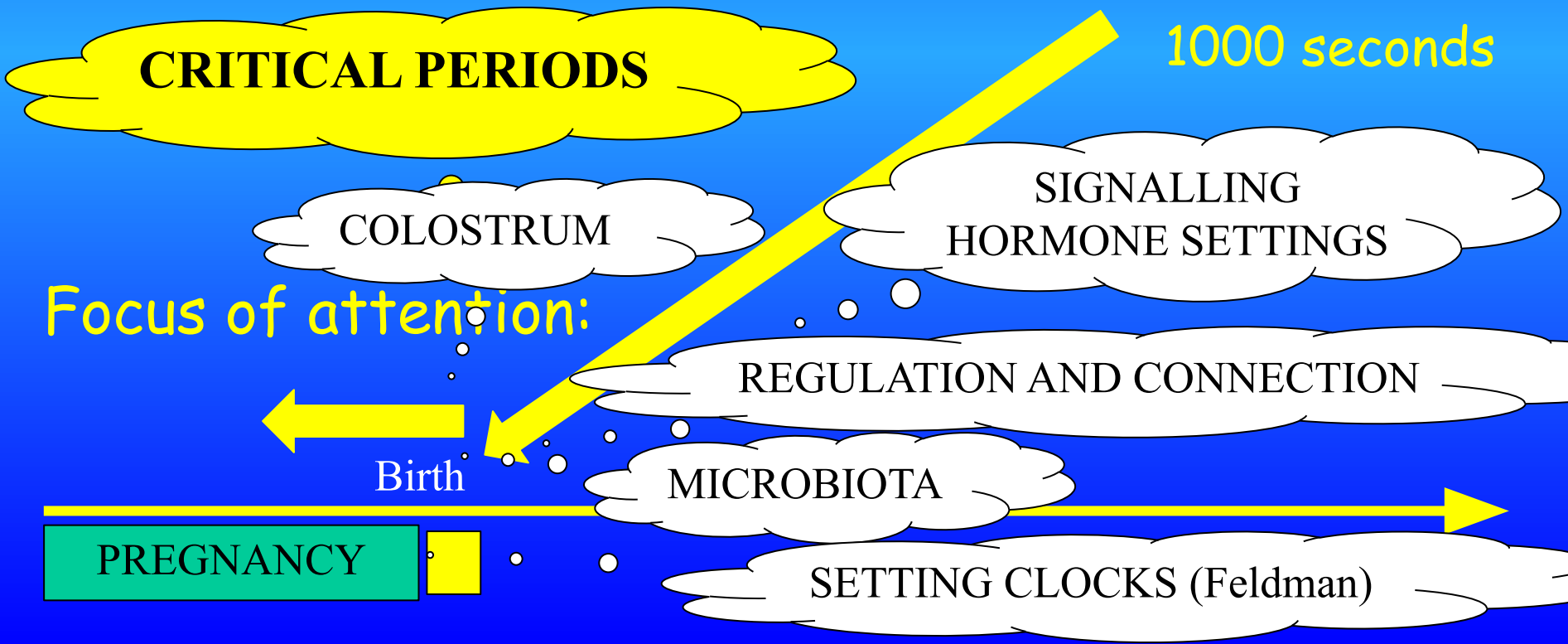
REGULATION AND CONNECTION

Birth

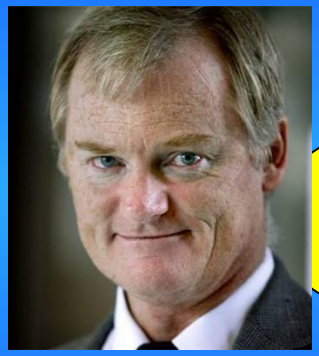
SETTING CLOCKS (Feldman)

WHY START IMMEDIATELY ?

The first 1000 minutes begins with the first 1000 seconds



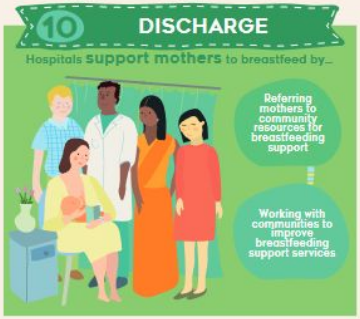
Immediate Skin-to-Skin Contact and Mother-Newborn Couplet Care: from science to practice

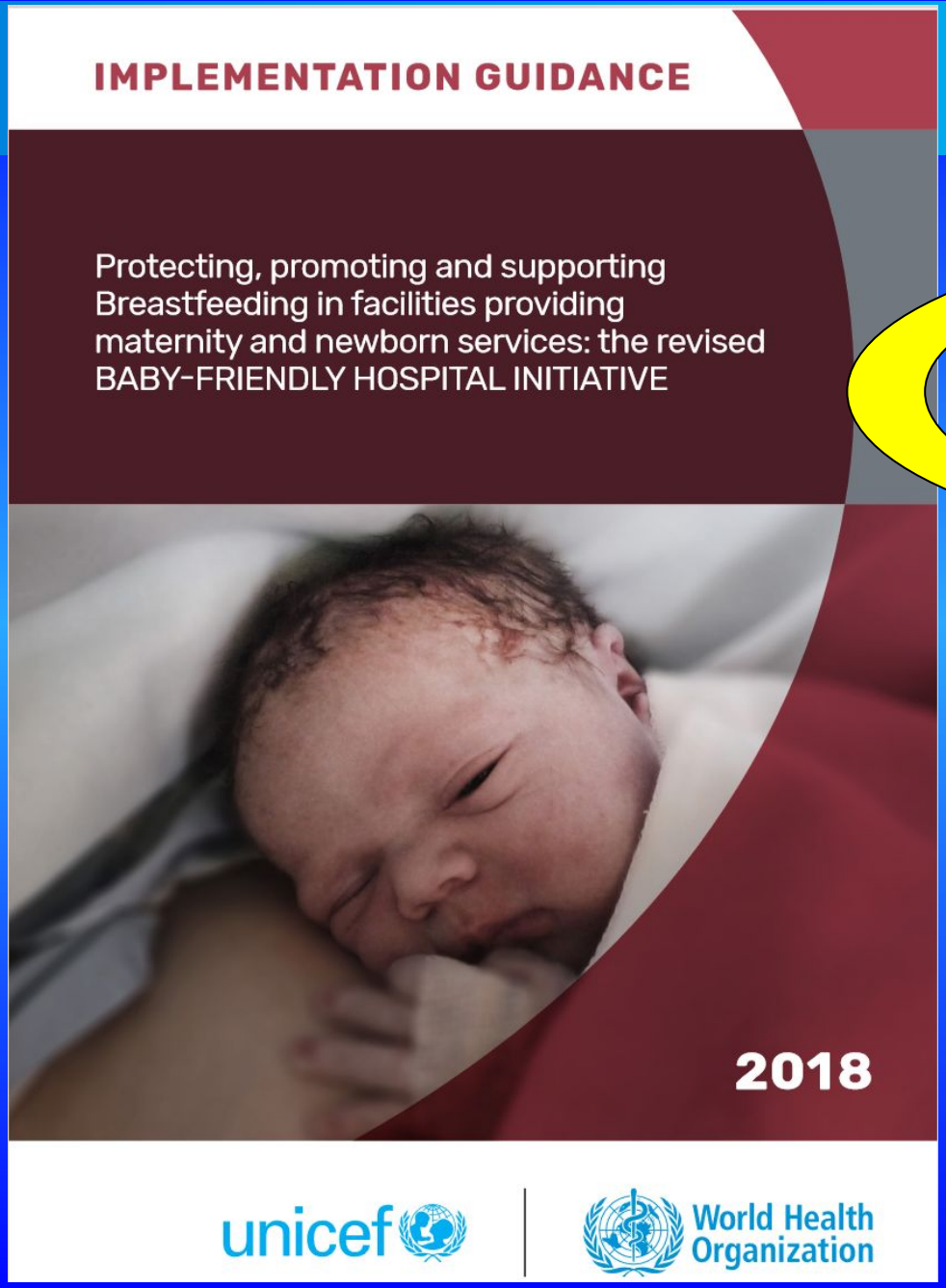


and breastfeeding of preterm

Nils Bergman

The TEN STEPS to Successful Breastfeeding





This updated guidance covers only those activities that are specifically [illegible] promotion [illegible] support of breastfeeding in facilities pro[illegible] maternity and newborn services. The care of small, sick and/or preterm newborns cannot be separated from that of full-term infants, as they both occur in the same facilities, often attended by the same staff. As [illegible] care for these newborns in neonatal [illegible] care units or in regular maternity or newborn wards is included in the scope of this document. However, since this document focuses on global standards and is not a clinical guide, it does not provide in-depth guidance on how to care for small, sick and/or preterm newborns but merely outlines the standards and key steps for breastfeeding and/or the provision of human milk to this group. More specific guidance on the feeding of small, sick and/or preterm newborns is available elsewhere *(5, 50)*.

UNICEF 2018 Guide

Skin-to-skin contact is particularly important for preterm and low-birth-weight infants. Kangaroo mother care involves early, continuous and prolonged skin-to-skin contact between the mother and the baby (66), and should be used as the main mode of ca~~as soon as the baby is stable (defined as the absence of severe apnoea, desaturation and bradycardia), owing~~ demonstrated benefits in terms of survival, therm protection initiation of breastfeedi~~g.~~ The infant is generally firmly held or supported on the mother's chest, often between the breasts, with the mother in a semi-reclined and supported position

IMPLEMENTATION GUIDANCE

Protecting, promoting and supporting Breastfeeding in facilities providing maternity and newborn services: the revised BABY-FRIENDLY HOSPITAL INITIATIVE

Table 1. WHO recommendations for the care of the preterm (< 37 weeks' gestation) or low-birth-weight (< 2.5 kg) infant

Domain	Recommendation	Status	Strength/ type
A. PREVENTIVE AND PROMOTIVE CARE			
A.1a Any KMC	Kangaroo mother care (KMC) is recommended as routine care for all preterm or low-birth-weight infants. KMC can be initiated in the health-care facility or at home and should be given for 8–24 hours per day (as many hours as possible). (*Strong recommendation, high-certainty evidence*)	Updated	Strong
A.1b Immediate KMC	Kangaroo mother care (KMC) for preterm or low-birth-weight infants should be started as soon as possible after birth. (*Strong recommendation, high-certainty evidence*)	New	Strong
A.2 Mother's own milk	Mother's own milk is recommended for feeding of preterm or low-birth-weight (LBW) infants, including very preterm (< 32 weeks' gestation) or very LBW (< 1.5 kg) infants. (*Strong recommendation, low-certainty evidence*)	Updated	Strong

Implementation: Early and uninterrupted skin-to-skin contact between mothers and infants should be facilitated and encouraged as soon as possible after birth (recommendation 1). Skin-to-skin contact is [illegible] the infant is placed prone on the [illegible] abdomen or chest with no clothing separating them. It is recommended that skin-to-skin contact begins immediately, regardless of method of delivery. ~~It should be uninterrupted for at least 60 minutes.~~

IMPLEMENTATION GUIDANCE

Protecting, promoting and supporting Breastfeeding in facilities providing maternity and newborn services: the revised BABY-FRIENDLY HOSPITAL INITIATIVE

”... at least 60 minutes.”

Where is the evidence for this?

Why should SSC stop after 60 minutes ???

4. Facilitate immediate and uninterrupted skin-to-skin contact and support mothers to initiate breastfeeding as soon as possible after birth.
5. Support mothers to initiate and maintain breastfeeding and manage common difficulties.
6. Do not provide breastfed newborns any food or fluids other than breast milk, unless medically indicated.
7. Enable mothers and their infants to remain together and to practise rooming-in 24 hours a day.

Improving breastfeeding can be a key driver for achievement of the Sustainable Development Goals (*21*). Breastfeeding can be linked to several of the goals, including goals 1 (end poverty in all its forms everywhere); 2 (end hunger, achieve food security and promote sustainable agriculture); 3 (ensure healthy lives and promote well-being for all at all ages) 4 (ensure inclusive and quality education for all and promote lifelong learning); 5 (achieve gender equality and empower all women and girls); 8 (promote sustained, inclusive and sustainable economic growth, employment and decent work for all); 10 (reduce inequality within and among countries); and 12 (ensure sustainable consumption and production patterns).

1.2 The Baby-friendly Hospital Initiative: an overview

The first few hours and days of a newborn's life are a critical window for establishing lactation and providing mothers with the support they need to breastfeed successfully. This support is not always provided, as illustrated by a review of UNICEF data showing that 78% of deliveries were attended by a skilled health provider, but only 45% of newborns were breastfed within the first hour after birth (*8*, *22*).

worldwide to implement the Ten Steps. Facilities that documented their full adherence to the Ten Steps, as well as their compliance with the *International Code of Marketing of Breast-milk Substitutes* (*25*, *26*) and

The first few hours and days of a newborn's life are a critical window for establishing lactation and providing mothers with the support they need to breastfeed successfully

relevant World Health Assembly (WHA) resolution (the Code) (*27*), could be designated as "Baby-friendly". WHO published accompanying evidence for each of the Ten Steps in 1998 (*28*).

Several global health-policy documents have emphasized the importance of the Ten Steps. WHA

Although breastfeeding is the biological norm, health professionals may perform inappropriate procedures that interfere with the initiation of breastfeeding, such as separation of the mother and infant; delayed initiation of breastfeeding; provision of pre-lacteal feeds; and unnecessary supplementation. These procedures significantly increase the risk of breastfeeding challenges that lead to early cessation.

UNICEF 2018 Guide

Implementation: Early and uninterrupted skin-to-skin contact between mothers and infants should be facilitated and encouraged as soon as possible after birth (recommendation 1). Skin-to-skin contact is [illegible] the infant is placed prone on the mother's abdomen or chest with no clothing separating them. It is recommended that skin-to-skin contact begins immediately, regardless of method of delivery. ~~It should be uninterrupted for at least 60 minutes.~~

IMPLEMENTATION GUIDANCE

Protecting, promoting and supporting Breastfeeding in facilities providing maternity and newborn services: the revised BABY-FRIENDLY HOSPITAL INITIATIVE

"... at least 60 minutes."

Where is the evidence for this?

Why should SSC stop after 60 minutes ???

KMC is different from the routine skin-to-skin contact recommended for all newborns in the first hour after birth.

KMC refers to skin-to-skin contact that is:

- **for preterm or LBW infants, both well and sick**
- **continuous and prolonged (at least 8 hours per day)**
- **accompanied by support for exclusive breastfeeding or breast-milk feeding**
- **closely monitored if the baby is sent home in KMC.**

This is a source of confusion

Definitions and terminology currently confused

KMC is used instead of SSC (skin-to-skin contact)

KMC should not be confused with routine skin-to-skin contact at birth, which is recommended for all newborns during the first hour after birth to ensure warmth and early initiation of breastfeeding *(8)*. On the other hand, KMC involves providing long-duration, sustained skin-to-skin contact for preterm or LBW newborns, along with support for exclusive breast-milk feeding (breastfeeding or feeding expressed breast-milk through a feeding tube, spoon or cup) *(5)*.

KMC is different from the routine skin-to-skin contact recommended for all newborns in the first hour after birth.
KMC refers to skin-to-skin contact that is:

- **for preterm or LBW infants, both well and sick**
- **continuous and prolonged (at least 8 hours per day)**
- **accompanied by support for exclusive breastfeeding or breast-milk feeding**
- **closely monitored if the ba[illegible] is sent home in KMC.**

Step 5: Support with breastfeeding

Step 5: Support mothers to initiate and maintain breastfeeding and manage common difficulties.

Rationale: While breastfeeding is a natural human behaviour, most mothers need practical help in learning how to breastfeed. Even experienced mothers encounter new challenges with breastfeeding a newborn. Postnatal breastfeeding counselling and support has been shown to increase rates of breastfeeding up to 6 months of age *(68)*. Early adjustments to position and attachment can prevent breastfeeding problems at a later time. Frequent coaching and support helps build maternal confidence.

Implementation: Mothers should receive practical support to enable them to initiate and maintain breastfeeding and manage common breastfeeding difficulties (recommendation 3). Practical support includes providing emotional and motivational support, imparting information and teaching concrete skills to enable mothers to breastfeed successfully. The stay in the facility providing maternity and newborn services is a unique opportunity to discuss and assist the mother with questions or problems related to breastfeeding and to build confidence in her ability to breastfeed.

A number of topics should be included in teaching mothers to breastfeed. It is essential to demonstrate good positioning and attachment at the breast, which are crucial for stimulating the production of breast milk and ensuring that the infant receives enough milk. Direct observation of a feed is necessary to ensure that the infant is able to attach to and suckle at the breast and that milk transfer is happening. Additionally, facility staff need to educate mothers on the management of engorged breasts, ways to ensure a good milk supply, prevention of cracked and sore nipples, and evaluation of milk intake.

Mothers should be coached on how to express breast milk as a means of maintaining lactation in the event of their being separated temporarily from their infants (recommendation 4). There is not sufficient evidence that one method of expression (hand expression, manual pump or electric pump) is more effective than another *(70)*, and thus any method(s) may be taught, depending on the mother's context. However, hand expression does have the advantage of being available no matter where the mother is and of allowing the mother to relieve pressure or express milk when a pump is not available. Pumps can potentially have more microbial contamination if they cannot easily be cleaned. Mothers also need to be supported for collection and storage of expressed milk.

The Ten Steps To Successful Breastfeeding

The BFHI promotes, protects, and supports breastfeeding through
The Ten Steps to Successful Breastfeeding for Hospitals, as outlined by UNICEF/WHO.
The steps for the United States are:

1 - Have a written breastfeeding policy ...

2 - Train all health care staff in skills necessary to implement ...

3 - Inform all pregnant women about the benefits ...

4 - Help mothers initiate breastfeeding within one hour of birth.

5 - Show mothers how to breastfeed and … maintain lactation ….

It is not mothers that breastfeed !!!!!


THE NEWBORN
INITITIATES
BREASTFEEDING


THE NEWBORN
MAINTAINS
BREASTFEEDING


BREASTFEEDING
IS A
BRAIN BASED
BEHAVIOUR

WHY START IMMEDIATELY ?

Genome → Connectome → Behaviour

EPIGENETICS NEURODEVELOPMENT EVOLUTIONARY BIOLOGY

ENVIRONMENT → ADAPTATION → EXPERIENCE → REPRODUCTIVE FITNESS

Newborn behaviour to locate the breast when skin-to-skin: a possible method for enabling early self-regulation

A-M Widström (ann-marie.widstrom@ki.se)[1], G Lilja[2], P Aaltomaa-Michalias[3], A Dahllöf[3], M Lintula[4], E Nissen[1,5]

DOI:10.1111/j.1651-2227.2010.01983.x

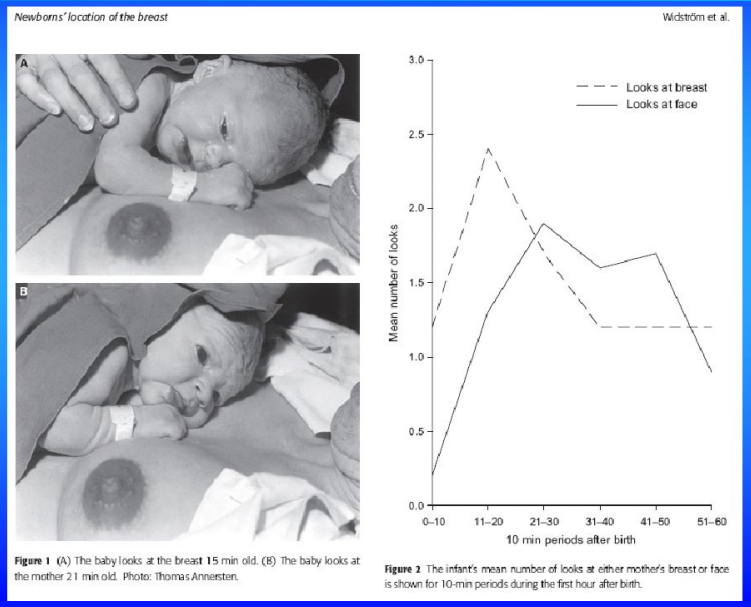


Figure 1 (A) The baby looks at the breast 15 min old. (B) The baby looks at the mother 21 min old. Photo: Thomas Annersten.

Figure 2 The infant's mean number of looks at either mother's breast or face is shown for 10-min periods during the first hour after birth.

Table 1 Definition of phases/behaviours identified

Phases	Behaviours
Birth cry	Intense crying just after birth
Relaxation phase	Infant resting/recovering. No activity of mouth, head, arms, legs or body
Awakening phase	Infant begins to show signs of activity. Small thrusts of head: up, down, from side-to-side. Small movements of limbs and shoulders
Active phase	Infant moves limbs and head, is more determined in movements. Rooting activity, 'pushing' with limbs without shifting body
Crawling phase	'Pushing' which results in shifting body
Resting phase	Infant rests, with some activity, such as mouth activity, sucks on hand
Familiarization	Infant has reached areola/nipple with mouth positioned to brush and lick areola/nipple
Suckling phase	Infant has taken nipple in mouth and commences suckling
Sleeping phase	The baby has closed its eyes

NURTURESCIENCE

Genome → Connectome → Behaviour

EPIGENETICS → NEURODEVELOPMENT → EVOLUTIONARY BIOLOGY

ENVIRONMENT → ADAPTATION → EXPERIENCE → REPRODUCTIVE FITNESS

CRITICAL PERIODS

NURTURESCIENCE

Genome → Connectome → Behaviour

EPIGENETICS — NEURODEVELOPMENT — EVOLUTIONARY BIOLOGY

ENVIRONMENT → ADAPTATION → EXPERIENCE → REPRODUCTIVE FITNESS

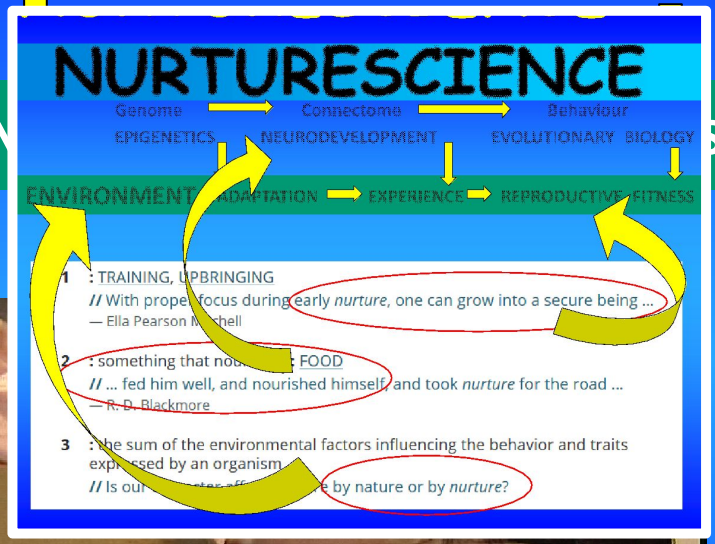
CRITICAL PERIODS

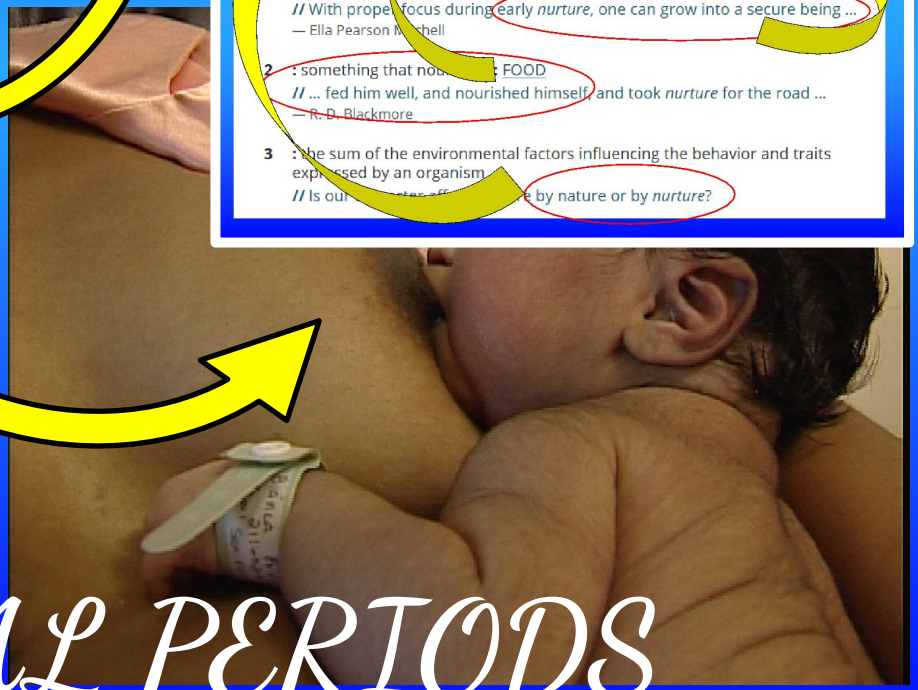
NURTURESCIENCE

Genome → Connectome → Behaviour

EPIGENETICS NEURODEVELOPMENT EVOLUTIONARY BIOLOGY

ENVIRONMENT ADAPTATION → EXPERIEN... S





CRITICAL PERIODS

NURTURESCIENCE

Genome → Connectome → Behaviour

EPIGENETICS NEURODEVELOPMENT EVOLUTIONARY BIOLOGY

ENVIRONMENT → ADAPTATION → EXPERIENCE → REPRODUCTIVE FITNESS

BABY

BIRTH — Regulation

BEYOND — BREASTFEEDING

Feed Sleep Cycling

SSC elicits suckling

SUCKLING precedes breastfeeding

Concepts:

The suckling of the baby in the first hour is NOT BREASTFEEDING

This is a ”pre-feeding behaviour”
(Widström 2010, 2018)

It is necessary to activate (or boot up) the hardwired (DNA) mammal program
(Alberts 1994)

The activation must be dyadic – mother and baby takes a minimum of 20 hours of togetherness


From Kim Luong Chi
29 week GA – zero separation
& skin-to-skin contact


Genome
Connectome
Behaviour
HIGHLY CONSERVED
NEUROENDOCRINE
BEHAVIOUR

GA 26+0, 800g – zero separation & SSC

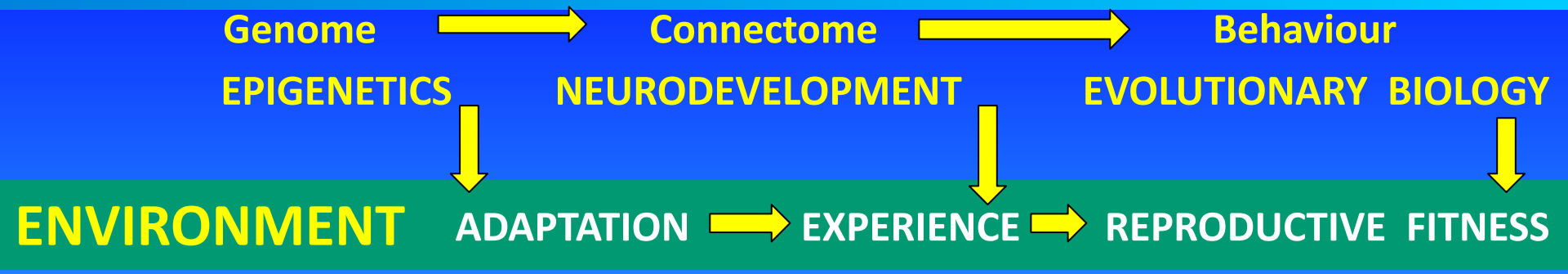
From Kim Luong Chi

GA 26+0, 800g – zero separation & SSC

HIGHLY CONSERVED NEUROENDOCRINE BEHAVIOUR

SUCKLING **SWALLOWING**

GA 26+0, 800g – zero separation & SSC



BABY MOTHER

BIRTH

Regulation ⟷ Sensitization

BEYOND

BREASTFEEDING

Feed Sleep Cycling

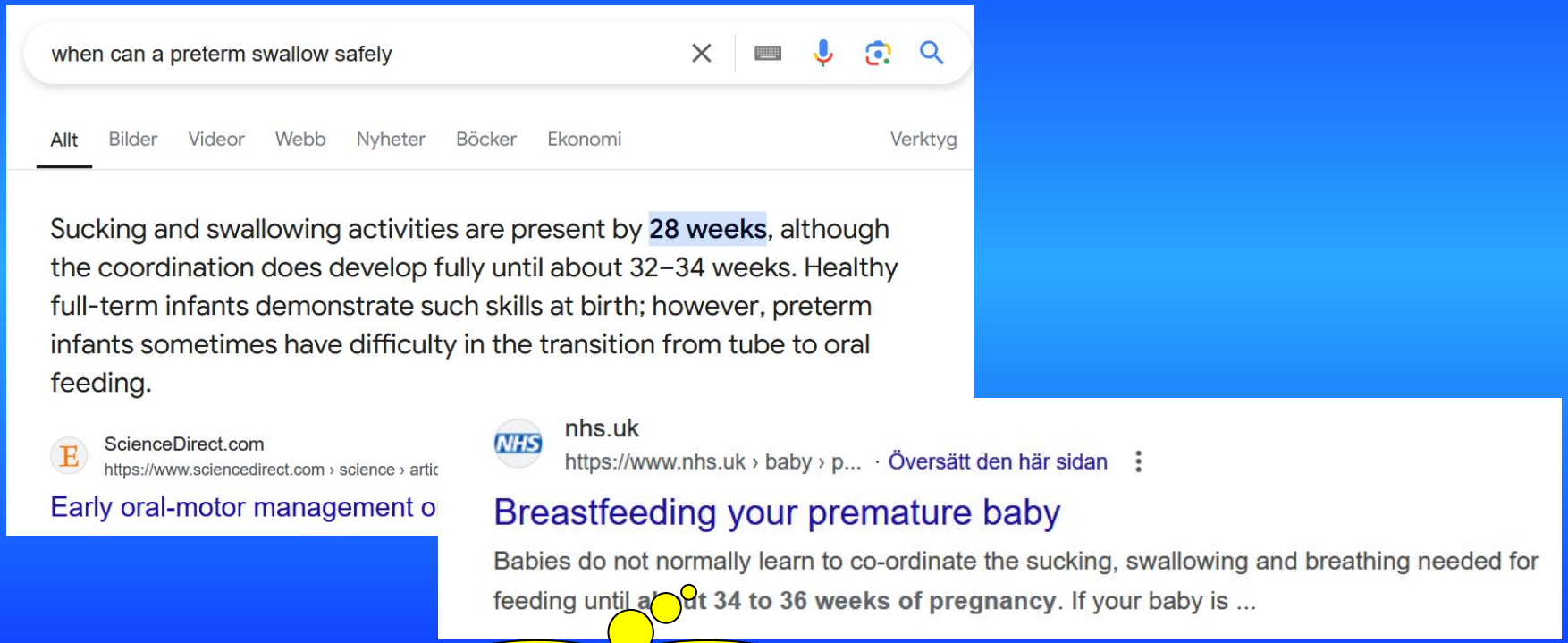
"SAFE PLACE"

HIGHLY CONSERVED
NEUROENDOCRINE
BEHAVIOUR

SUCKLING ⟶ SWALLOWING

GA 26+0, 800g – zero separation & SSC

To Google: ”when can a preterm swallow safely?”



SEPARATED – WRONG PLACE

Preterm infants may be able to root, attach to the breast and suckle from as early as 27 weeks' gestation (67). As long as the infant is stable, with no evidence of severe apnoea, desaturation or bradycardia, preterm infants can start breastfeeding. However, early initiation of effective breastfeeding may be difficult for these infants if the suckling reflex is not yet established and/or the mother has not yet begun plentiful milk

IMPLEMENTATION GUIDANCE

Protecting, promoting and supporting Breastfeeding in facilities providing maternity and newborn services: the revised BABY-FRIENDLY HOSPITAL INITIATIVE

29 week GA – zero separation
& skin-to-skin contact
 suckling at 60 minutes.

Preterm infants may be able to root, attach to the bre
and suckle from as early as 27 weeks' gestation (67). As
long as the infant is stable, with no evidence of sever
apnea, desaturation or bradycardia, preterm infants
can start breastfeeding. However, early initiation
of effective breastfeeding may be difficult for these
infants if the suckling reflex is not yet established
and/or the mother has not yet begun plentiful milk
secretion. Early and frequent milk expression is
critical to stimulating milk production and secretion
for preterm infants who are not yet able to suckle.
Transition to direct and exclusive breastfeeding should
be the aim whenever possible (50) and is facilitated by
prolonged skin-to-skin contact.

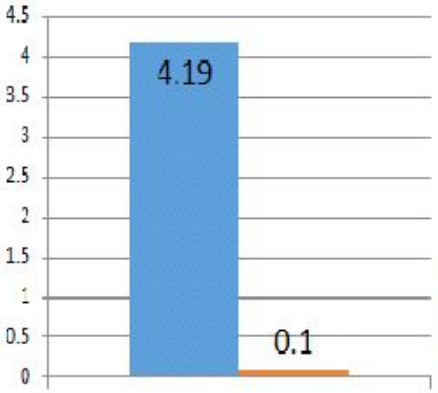
The suckling reflex is hard-wired, established

No need for plentiful: small amount colostrum enough

YES - first hour, two hourly

secretion. Early and frequent milk expression is critical to stimulating milk production and secretion

Mothers get more milk if they express in the first hour after birth



ORIGINAL ARTICLE

Effect of early breast milk expression on milk volume and timing of lactogenesis stage II among mothers of very low birth weight infants: a pilot study

LA Parker[1], S Sullivan[1], C Krueger[1], T Kelechi[2] and M Mueller[2]

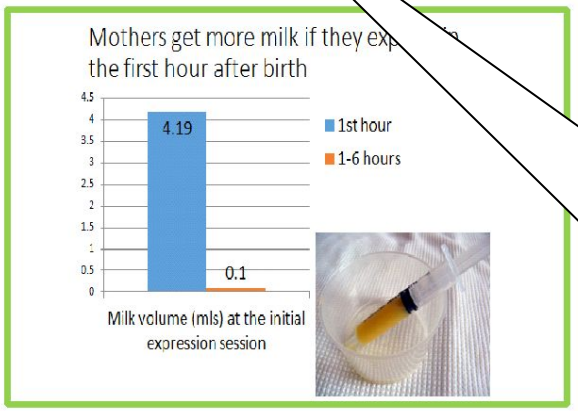
[1]University of Florida, Gainesville, FL, USA and [2]Medical University of South Carolina, Columbia, SC, USA

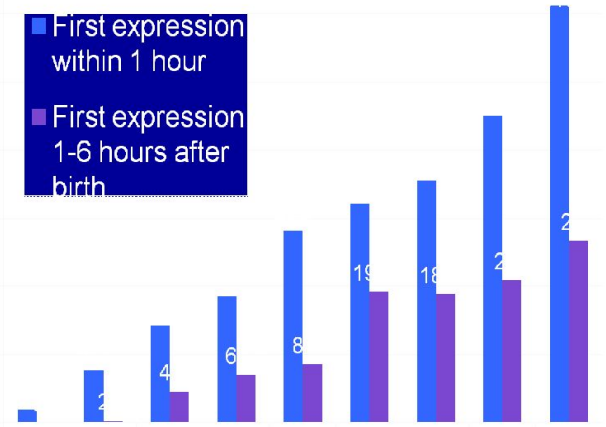
BREASTFEEDING MEDICINE
Volume 10, Number 2, 2015

DOI: 10.1089/bfm.2014.0089

Association of Timing of Initiation of Breastmilk Expression on Milk Volume and Timing of Lactogenesis Stage II Among Mothers of Very Low-Birth-Weight Infants

Leslie A. Parker,[1] Sandra Sullivan,[2] Charlene Krueger,[1] and Martina Mueller[3]



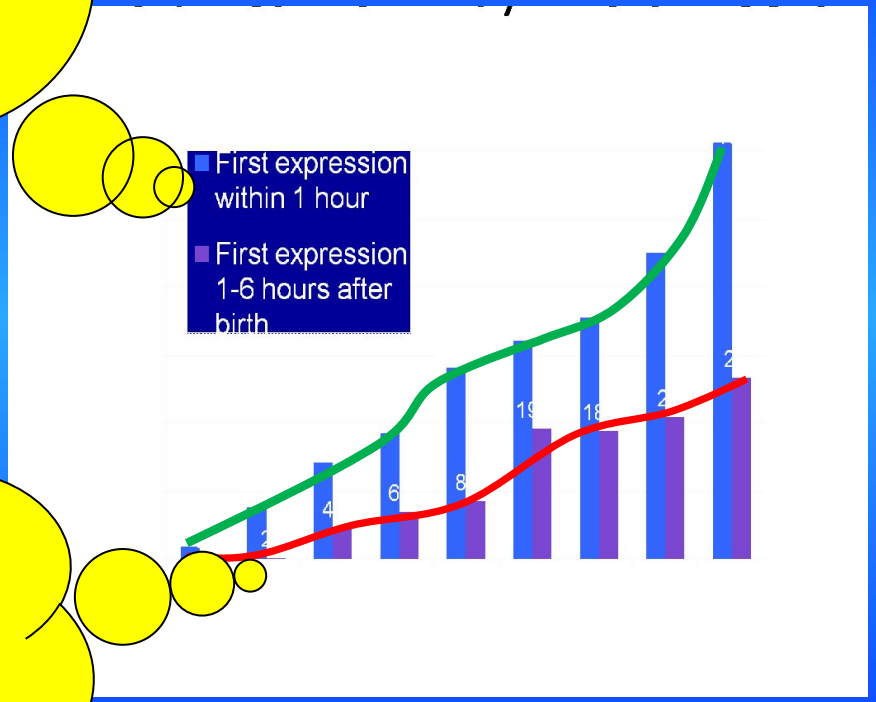


Slides thanks to Jane Morton

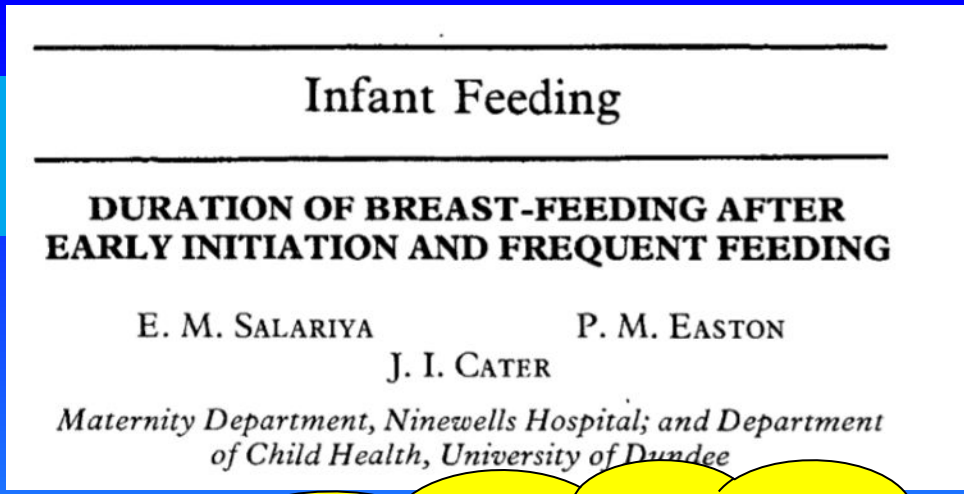
Suckling and expression should start very early!

The more early expression the higher the autocrine setting

This volume is not enough for 6 months



Salariya 1978



Infant Feeding

DURATION OF BREAST-FEEDING AFTER EARLY INITIATION AND FREQUENT FEEDING

E. M. Salariya P. M. Easton
J. I. Cater

Maternity Department, Ninewells Hospital; and Department of Child Health, University of Dundee

E Early SSC first hour
L Late contact next day
2 2 hourly feeds from birth
4 4 hourly feeds from birth

SSC first hour 2 hourly feed

Group	Brf at 12 w	Brf duration (days)
2E	64.3%	182 (14 - 392)
4E	55.6%	140 (14 - 322)
2L	55.6%	112 (10 - 294)
4L	46.2%	77 (11 - 280)

TABLE 4
Breastfeeding Outcome

Variable	Control Group N=15	Early-Contact Group N=15
Breastfeeding at discharge	14	15
Breastfeeding at two months		
partial or not at all	12	6
'successful'	3	9

TABLE 5
Postpartum Observations in Delivery Room

Variable	Control Group N=15	Early-Contact Group N=15
Skin-to-skin contact	0	14
Attempted breastfeeding	0	15
Infant sucked	0	13
Happy maternal reaction to infant	9	13

Thomson 1979

TABLE 4
Breastfeeding Outcome

Variable	Control Group N=15	Early-Contact Group N=15
Breastfeeding at discharge	14	15
Breastfeeding at two months		
partial or not at all	12	6
'successful'	3	9

TA
P

	Early-Contact Group N=15
	14
	15
	13
	13

CAN. FAM. PHYSICIAN Vol. 25: NOVEMBER 1979

SSC first hour:
At 2 months
60% breastfeed
(control 20%)

Thomson 1979

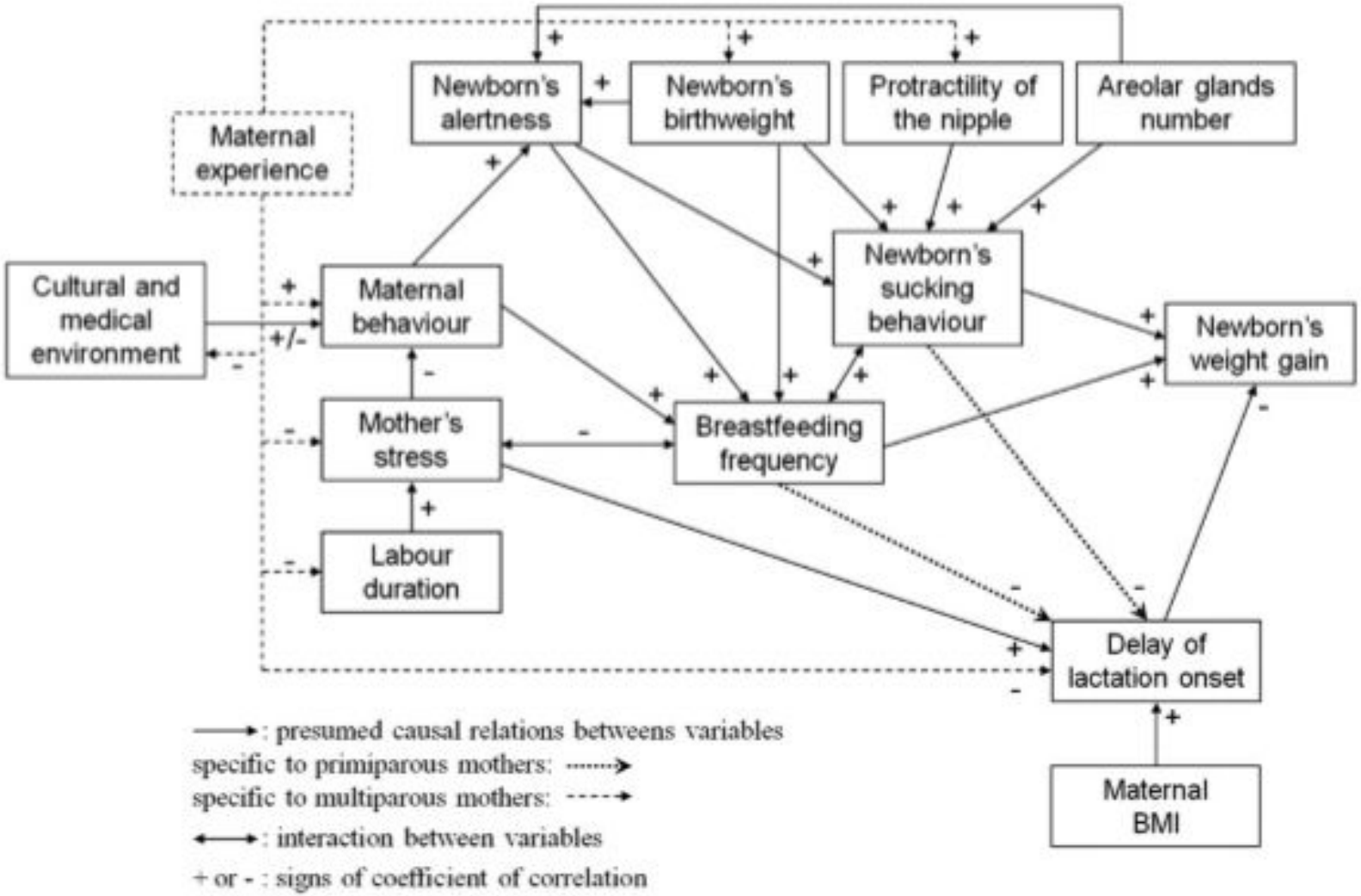
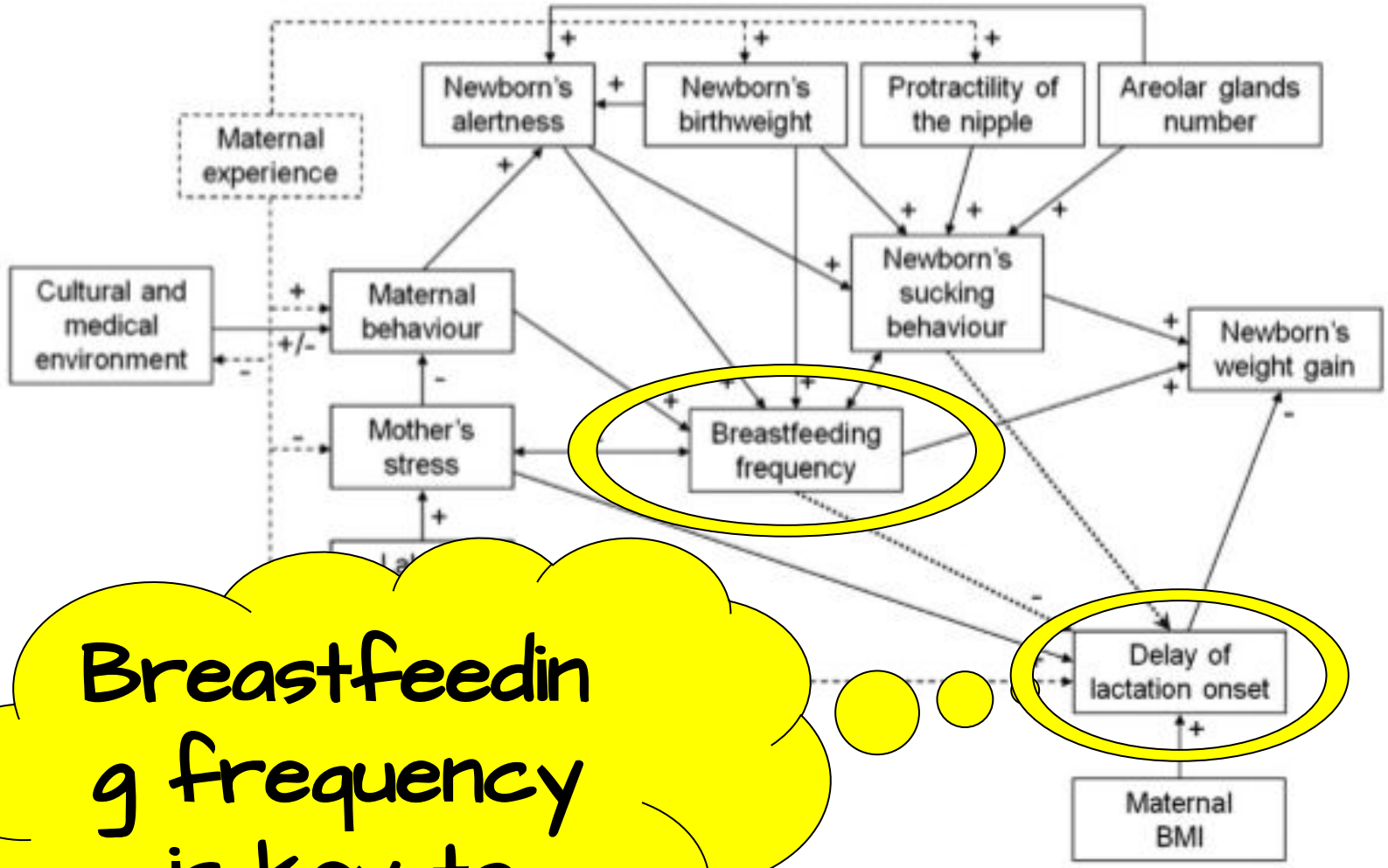


Fig. 5. Summary diagram of the inter-relationship among variables that may affect the initiation of breastfeeding during the first postpartum days (based on results of the present study and on data from: [3,10,31,34,47,57–60]). Abbreviation: BMI: Body Mass Index.



Breastfeeding frequency is key to success

Fig. 5. Summary diag… that may affect the initiation of breastfeeding during the first postpartum days (based on results of the present study and on data from: [3,10,31,34,47,57–… BMI: Body Mass Index.

Step 5: Support with breastfeeding

Step 5: Support mothers to initiate and maintain breastfeeding and manage common difficulties.

A number of topics should be included in teaching mothers to breastfeed. It is essential to demonstrate good positioning and attachment at the breast, which are crucial for stimulating the production of breast milk and ensuring that the infant receives enough milk. Direct observation of a feed is necessary to

More topics:

Colostrum as distinct from milk

Prefeeding behaviour = ingestion!

First hour expression if not suckled and giving to baby (even VPT)

Support "sleep feed cycle"

Step 5: Support with breastfeeding

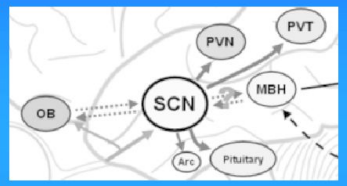
A number of topics should be included in teaching mothers to breastfeed. It is essential to demonstrate

RHYTHM:

The suckling continues frequently,
but is not determined by time or cues, but by
SLEEP-FEED CYCLING

SMELL

OB – Olfactory Bulb drives the SCN (primary clock)



Hunger & Satiety rhythms → Sleep & Awake rhythms

regulate all metabolic processes

regulate all neurological processes

BRAIN WIRING

The DNA → The Brain → Behaviour

EPIGENETICS NEURODEVELOPMENT EVOLUTIONARY BIOLOGY

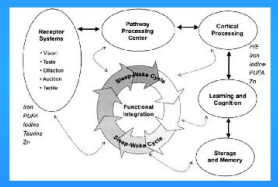
ENVIRONMENT ADAPTATION → EXPERIENCE → REPRODUCTIVE FITNESS

BABY

BIRTH BONDING

BEYOND BREASTFEEDING
Feed → Sleep Cycling

Secure attachment



Step 7: Rooming-in

Step 7: Enable mothers and their infants to remain together and to practise rooming-in 24 hours a day.

Rationale: Rooming-in is necessary to enable mothers to practise responsive feeding, as mothers cannot learn to recognize and respond to their infants' cues [illegible] if they are separated from them[illegible] the mother and infant are together throughout the day and night, it is easy for the mother to learn to recognize feeding cues and respond to them. This, along with the close presence of the mother to her infant, will facilitate the establishment of breastfeeding.

RHYTHM:
sleep 1h
wake
connect
feed

CONNECTING
BREASTFEEDING
SLEEPING

All have
different
cues !!

Step 7: Rooming-in

Step 7: Enable mothers and their infants to remain together and to practise rooming-in 24 hours a day.

Rationale: Rooming-in is necessary to enable mothers to practise responsive feeding, as mothers cannot learn to recognize and respond to their infants' cues for feeding if they are separated from them. When the mother and infant are together throughout the day and night, it is easy for the mother to learn to recognize feeding cues and respond to them. This, along with the close presence of the mother to her infant, will facilitate the establishment of breastfeeding.

RHYTHM:
sleep 1h
wake
connect
feed

HOWEVER – FOR ZERO SEPARATION / SSC
in small and sick preterms, mother is not enough!

Admit partner or other family member.

Mother is still primary: breastmilk!

Immediate Skin-to-Skin Contact and Mother-Newborn Couplet Care: from science to practice

science of separation

American Academy of Pediatrics

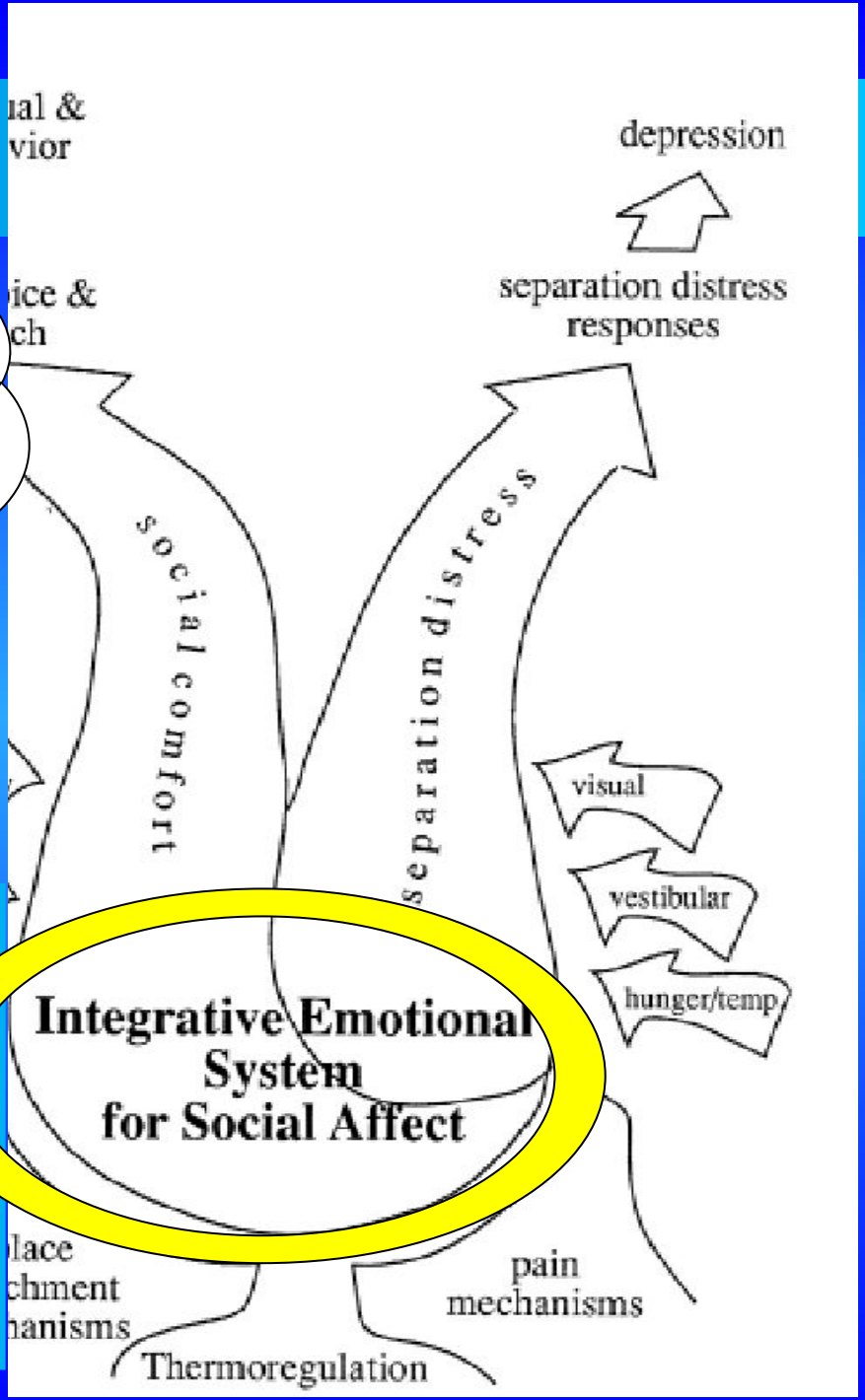
DEDICATED TO THE HEALTH OF ALL CHILDREN™

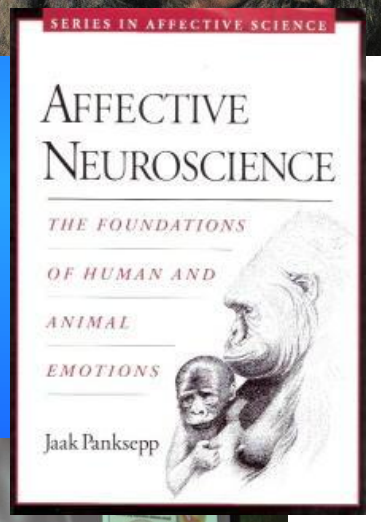
Organizational Principles to Guide and Define the Child Health Care System and/or Improve the Health of all Children

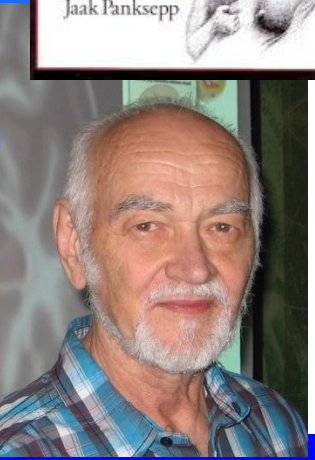
STATEMENT

Early Childhood Adversity, Toxic Stress, and the Role of the Pediatrician: Translating Developmental Science Into Lifelong Health

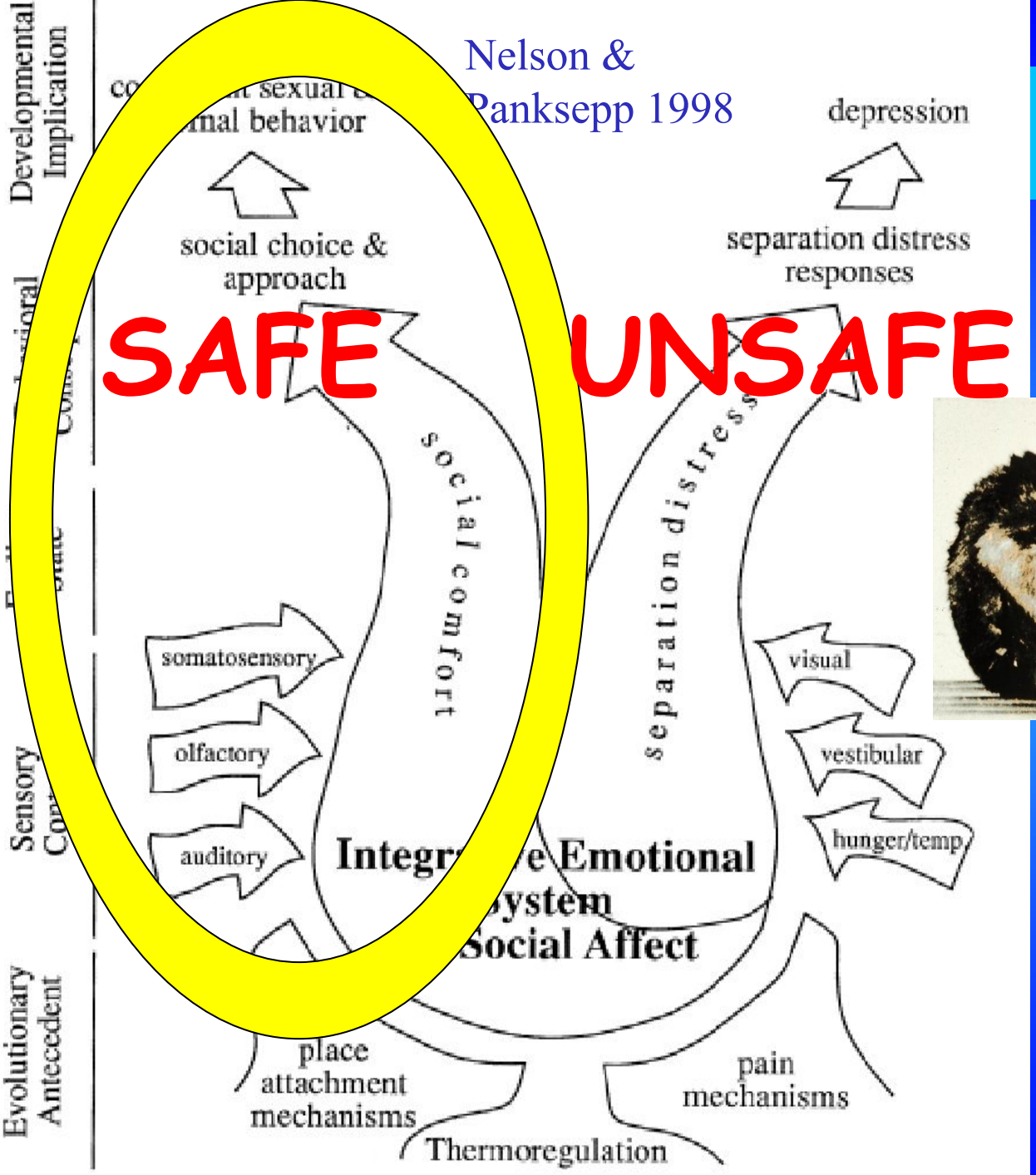
Separation is necessary, our technology saves lives.

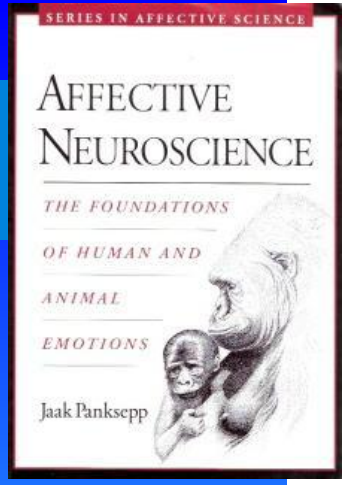


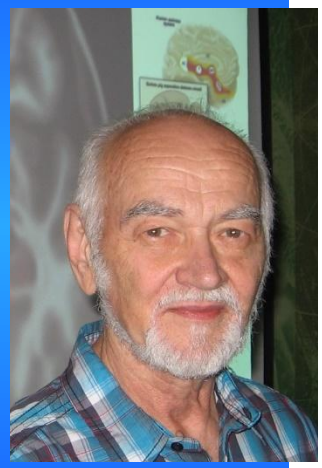




Nelson & Panksepp 1998







Levels of Analysis

Evolutionary Antecedent | Sensory Controls | Feeling State | Behavioral Consequence | Developmental Implication

Nelson & Panksepp, 1998

competent sexual & maternal behavior

social choice & approach

depression

separation distress responses

UNSAFE

somatosensory

olfactory

auditory

visual

vestibular

Integrative Emotional System for Social Affect

X

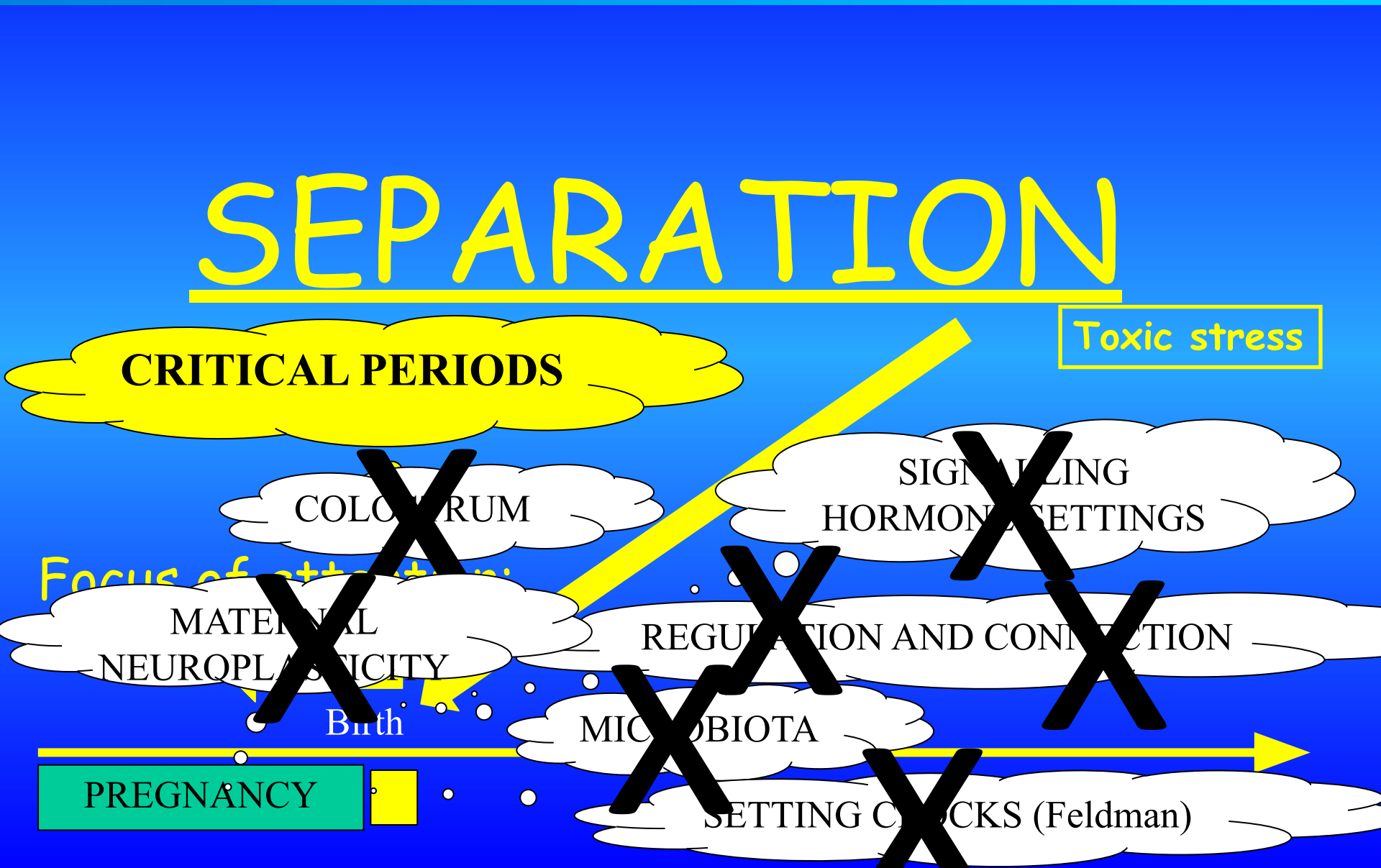
place attachment mechanisms

Thermoregulation

pain mechanisms

FEAR CONTROL CENTRE

WHY START IMMEDIATELY ?



WHY START IMMEDIATELY ?

SSC is the "RIGHT PLACE"

SEPARATION

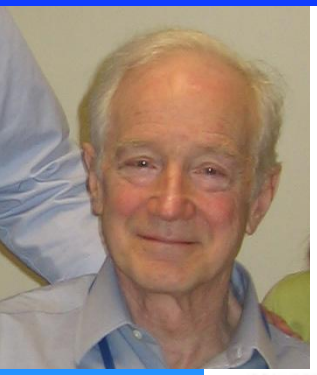
CAUSES HARM

Birth practices: Maternal-neonate separation as a source of toxic stress

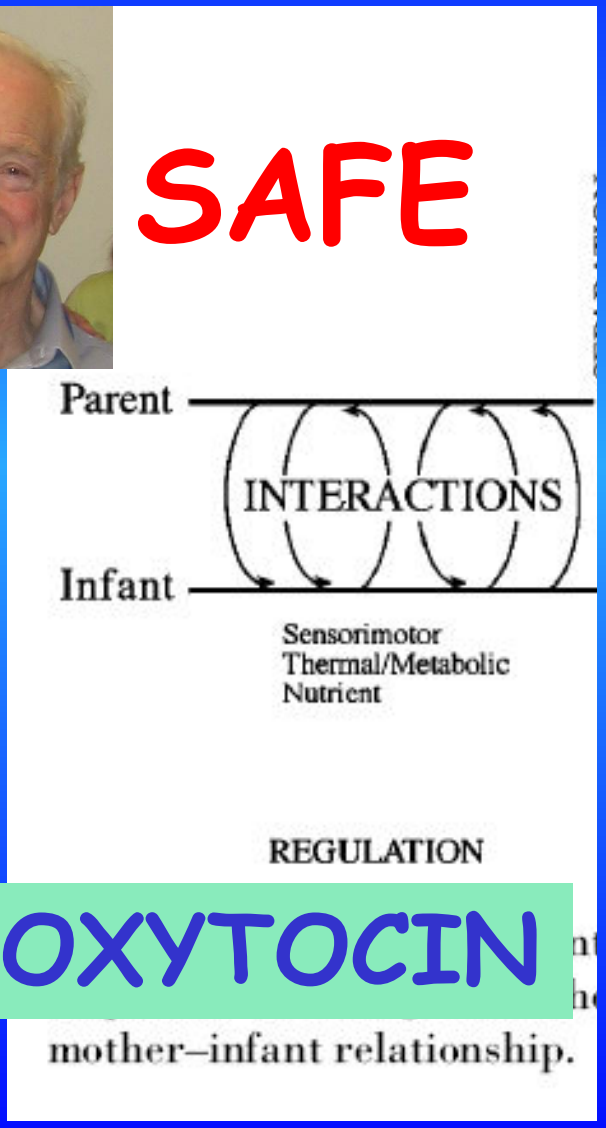
DOI: 10.1002/bdr2.1530

Nils J Bergman

REVIEW ARTICLE



SAFE



OXYTOCIN

UNSAFE

SEPARATION

Toxic stress

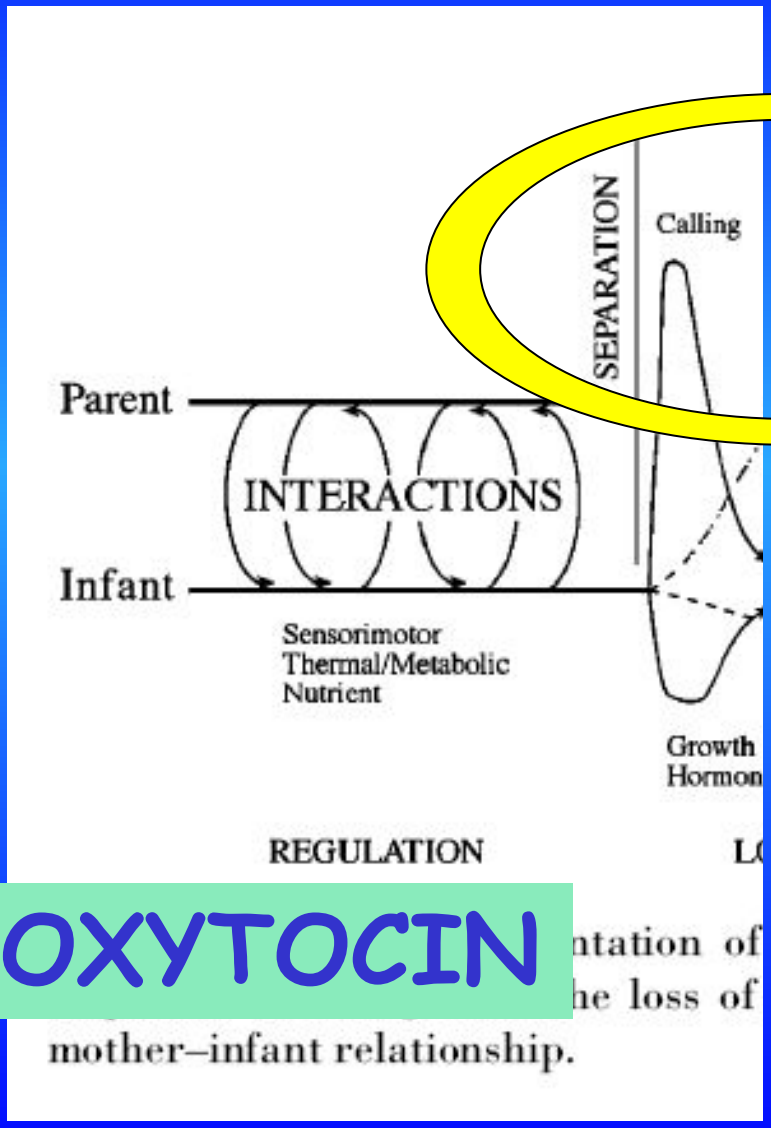
BABY

Regulation

Toxic Stress

- **Strong and prolonged activation of the body's stress management systems in the absence of the buffering protection of adult support.**

WHY IS EARLY MATERNAL SEPARATION STRESSFUL?



CRYING

UNSAFE

SEPARATION

Toxic stress

absence

regulation lost

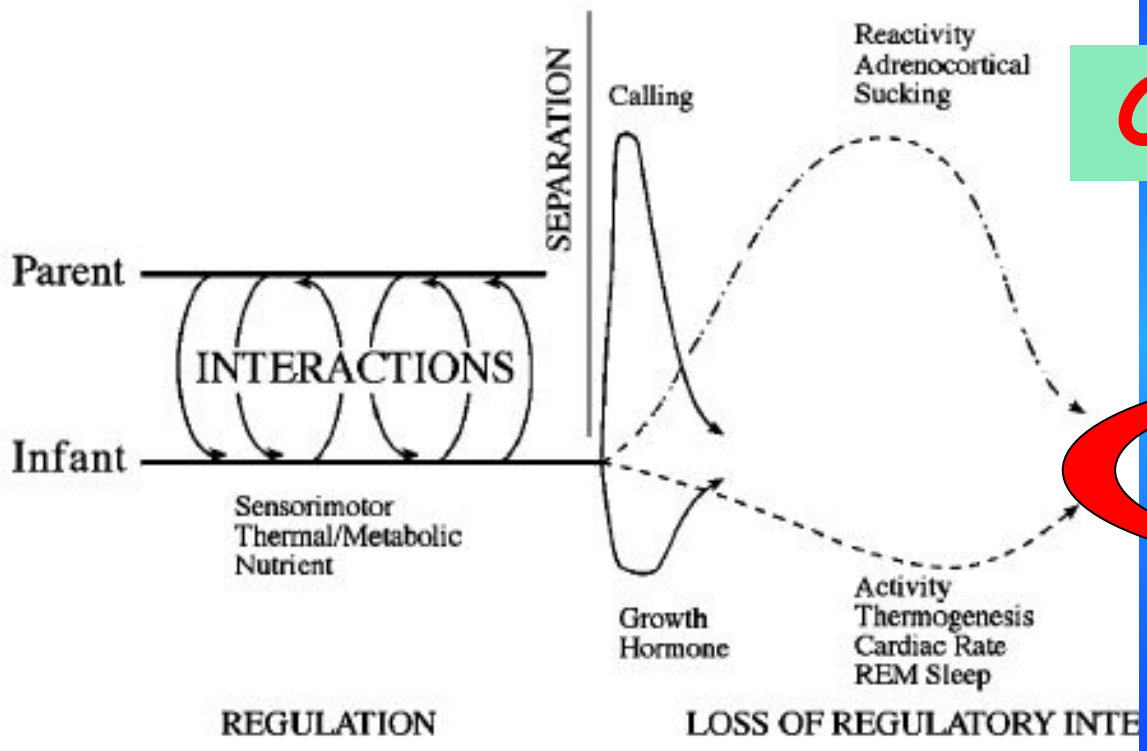
OXYTOCIN

Toxic Stress

- Strong and prolonged activation of the body's stress management systems in the absence of the buffering protection of adult support.

WHY IS EARLY MATERNAL SEPARATION STRESSFUL?

SEPARATION DYSREGULATES



ntation of the dynamics of ear
he loss of regulatory interactio
mother–infant relationship.

CORTISOL

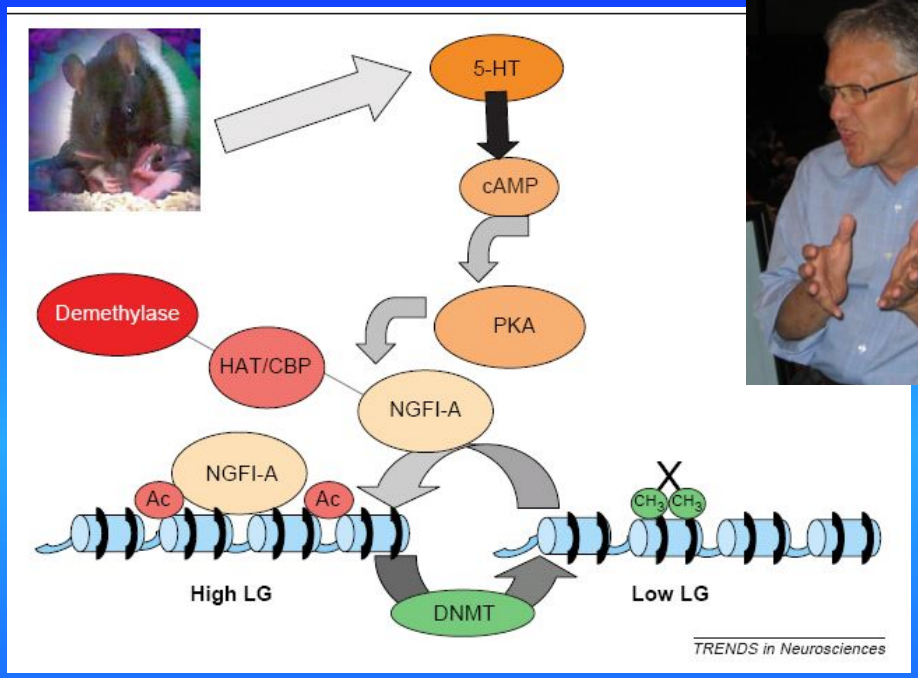
SEPARATION

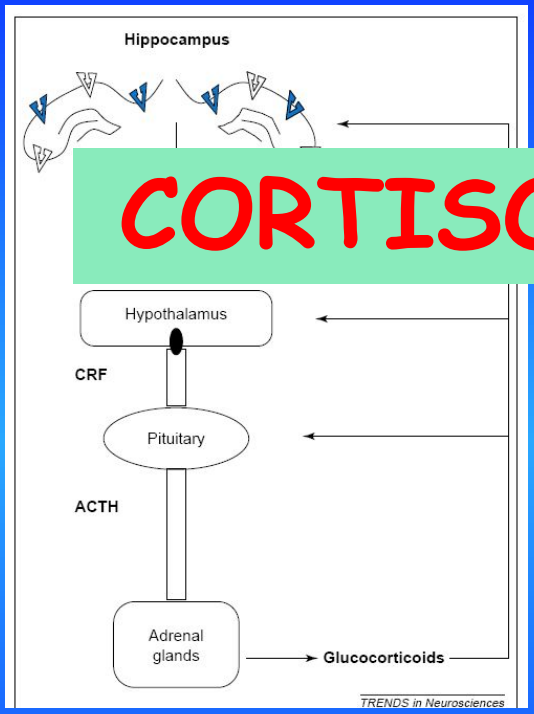
Toxic stress

absence

OXYTOCIN

MICHAEL MEANEY epigenetics





CORTISOL

Unsafe environment activates HPA axis (autonomic nervous system, ANS).

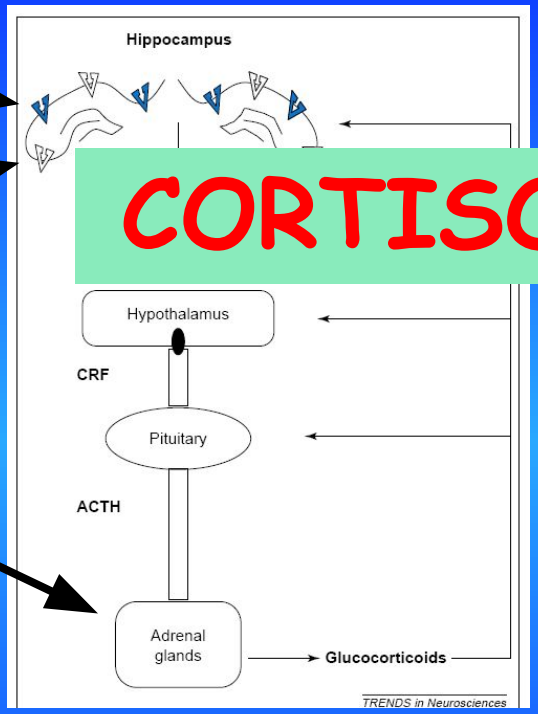
Toxic stress =

80% cortisol receptors in hippocampus

Not all possible receptors activated

Negative feedback loop

More receptors, sooner cortisol lowered



Unsafe environment activates HPA axis (autonomic nervous system, ANS).

JOGNN

CONTEMPORARY PERSPECTIVES

Implications of Epigenetics and Stress Regulation on Research and Developmental Care of Preterm Infants

Rosario Montirosso and Livio Provenzi

Preterm birth is an early adverse experience characterized by exposure to high levels of stress and altered buffering effects of maternal care.

Earliest care at birth matters: determines cortisol receptors

DNA MEMORIES OF EARLY SOCIAL LIFE

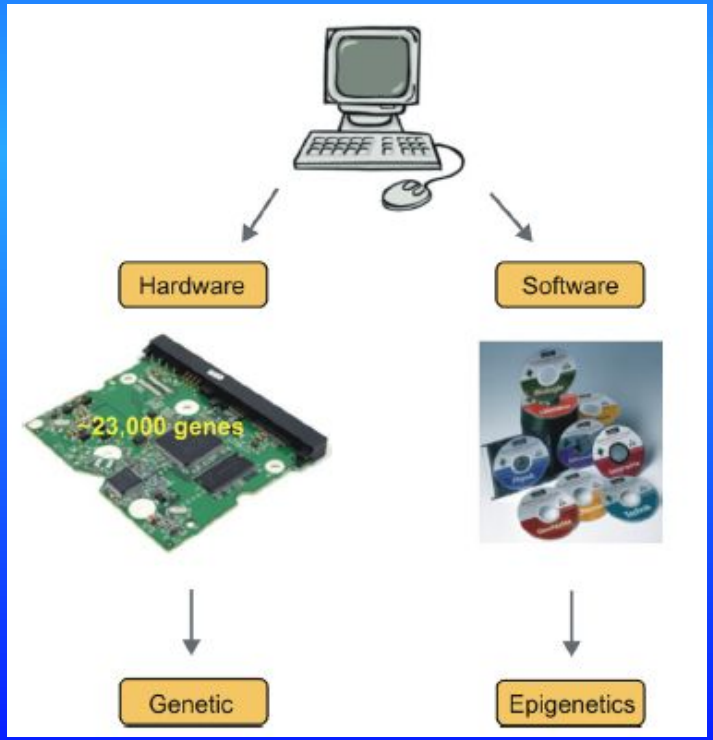
A. HOFFMANN AND D. SPENGLER *

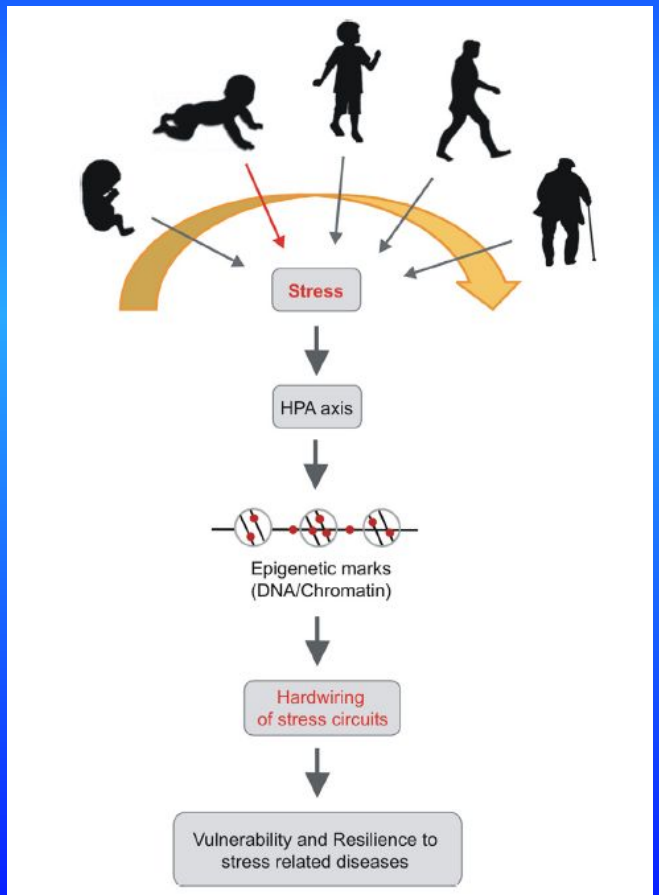
Max Planck Institute of Psychiatry, Molecular Neuroendocrinology, Kraepelinstr. 2-10, D-80804 Munich, Germany

Neuroscience 264 (2014) 64–75

Detailed description:

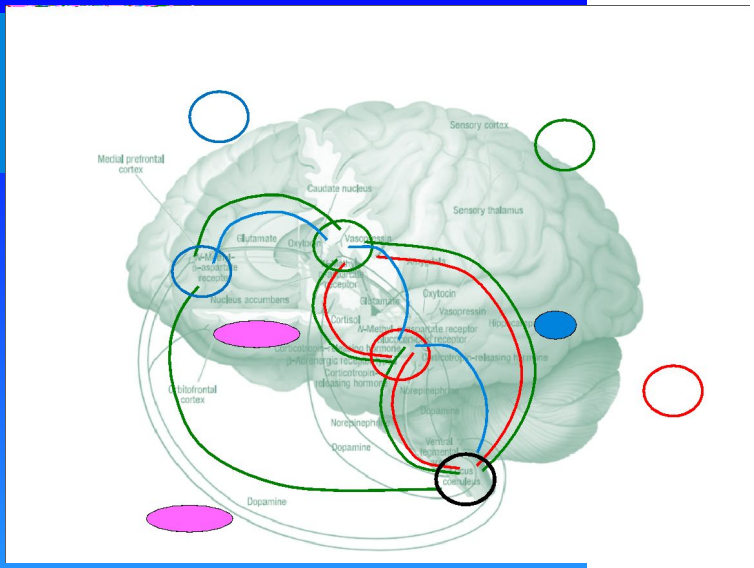
… ending with vulnerability and resilience



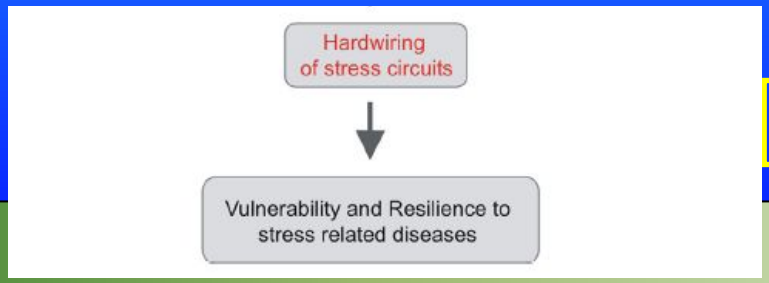


Dennis S. Charney, M.D.

Psychobiological Mechanisms of Resilience and Vulnerability: Implications for Successful Adaptation to Extreme Stress



… there is considerable overlap in the brain structures associated with these neural mechanisms … functional interactions among the circuits.



Resilience

Vulnerability

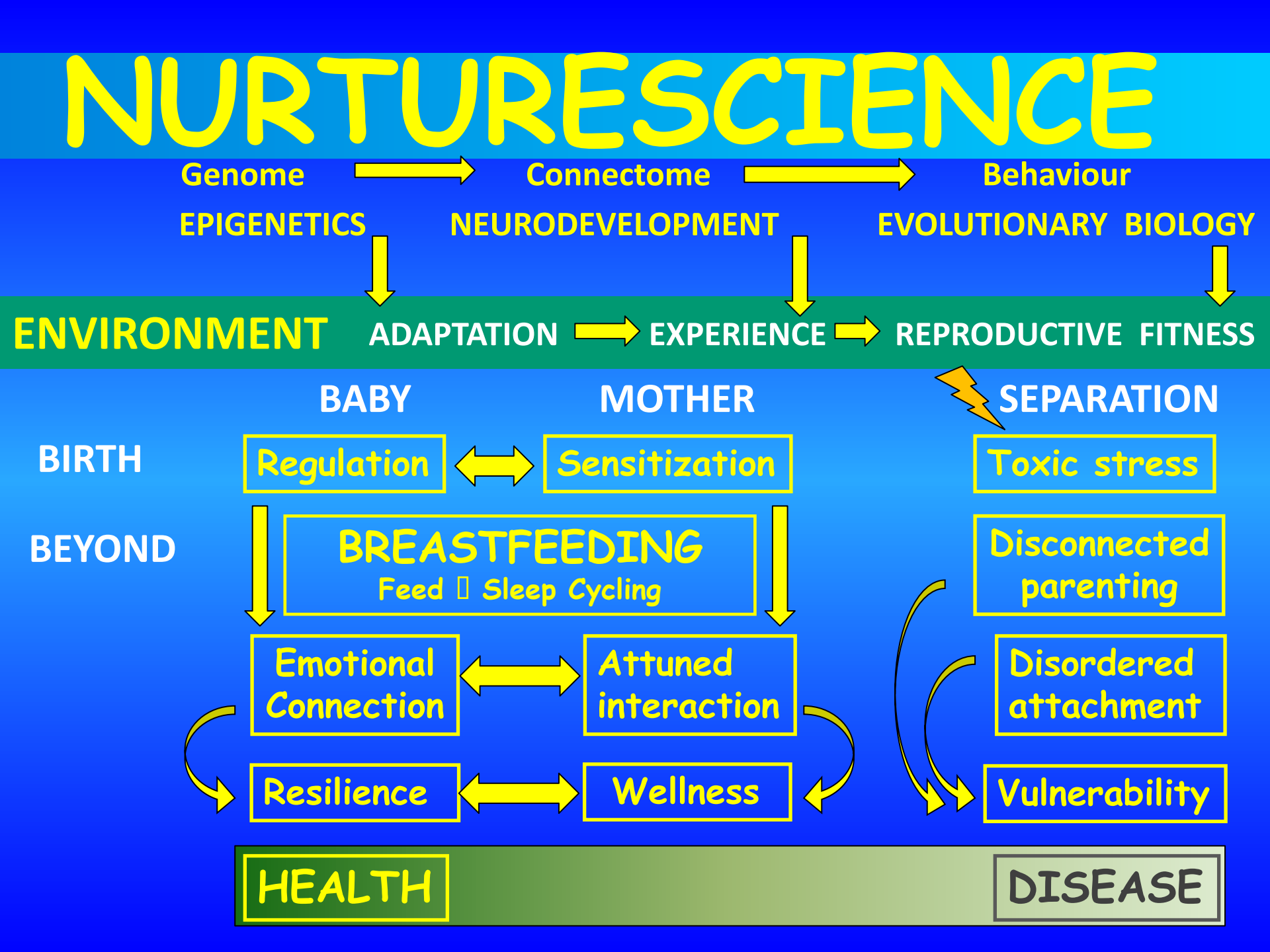
HEALTH

DISEASE

RESILIENCE

(= STRESS RESISTANCE)

"capacity to maintain healthy emotional functioning in the aftermath of stressful experiences"


NURTURESCIENCE
Genome
Connectome
Behaviour
EPIGENETICS
NEURODEVELOPMENT
EVOLUTIONARY BIOLOGY
ENVIRONMENT
ADAPTATION
EXPERIENCE
REPRODUCTIVE FITNESS
BABY
MOTHER
SEPARATION
BIRTH
Regulation
Sensitization
Toxic stress
BEYOND
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Feed Sleep Cycling
Disconnected parenting
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Attuned interaction
Disordered attachment
Resilience
Wellness
Vulnerability
HEALTH
DISEASE

WHY START IMMEDIATELY ?

SSC is the "RIGHT PLACE"

SEPARATION

Toxic stress

CAUSES HARM

VULNERABILITY

Vulnerability

DISEASE

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POLICY STATEMENT

Early Childhood Adversity, Toxic Stress, and the Role of the Pediatrician: Translating Developmental Science Into Lifelong Health

Ethical Principles

- Non-maleficence FIRST DO NO HARM

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Birth practices: Maternal-neonate separation as a source of toxic stress

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Nils J Bergman

REVIEW ARTICLE

Ethical Principles

- Non-maleficence FIRST DO NO HARM

Job descriptions are primarily focussed on this

EVIDENCE BASED MEDICINE is defined by **RISK REDUCTION**.

The medical profession is governed primarily by this ethical axiom

Risk reduction

Ethical Principles

- Non-maleficence FIRST DO NO HARM
- Beneficence MUST DO GOOD

It is NOT ENOUGH to reduce risk of harm, it is also necessary to **ACTIVELY DO GOOD**.

Health enhancement

Ethical Principles

- Non-maleficence FIRST DO NO HARM
- Beneficence MUST DO GOOD

It is NOT ENOUGH to reduce risk of harm, it is also necessary to **ACTIVELY DO GOOD**.

Risk reduction

Health enhancement

BOTH ARE NECESSARY

Ethical Principles

- Non-maleficence FIRST DO NO HARM
- Beneficence MUST DO GOOD
  - "A child's best interests are of paramount importance in every matter concerning the child." (CRC, Children's Act)

= The highest net benefit among the available options

BOTH ARE NECESSARY
BUT BENEFICENCE FIRST!!!

- Slide from Sharon Kling, TBH,

THE BEST INTERESTS OF THE CHILD ARE PARAMOUNT

The 'Best Interests' of the Child

- "A child's best interests are paramount importance in every matter concerning the child."
  (CRC, Children's Act)

= The highest net benefit among the available options

BUT BENEFICENCE FIRST!!!

THE BEST INTERESTS OF THE CHILD ARE PARAMOUNT

Implications of Children's Rights for Health Professionals

- Recognise that children **DO** have rights
- T[illegible]e rights impose **obligations** on adults
- Defines the role of health professionals as **advocates** for children by advocating for and advancing children's rights

BUT BENEFICENCE FIRST!!!

THE BEST INTERESTS OF THE CHILD ARE PARAMOUNT

Implications of Children's Rights for Health Professionals

Our current health system pays lip service to balancing benefit and risks for the good of mothers and babies, but the perinatal care system is in fact geared only to reducing risk.

BUT BENEFICENCE FIRST!!!

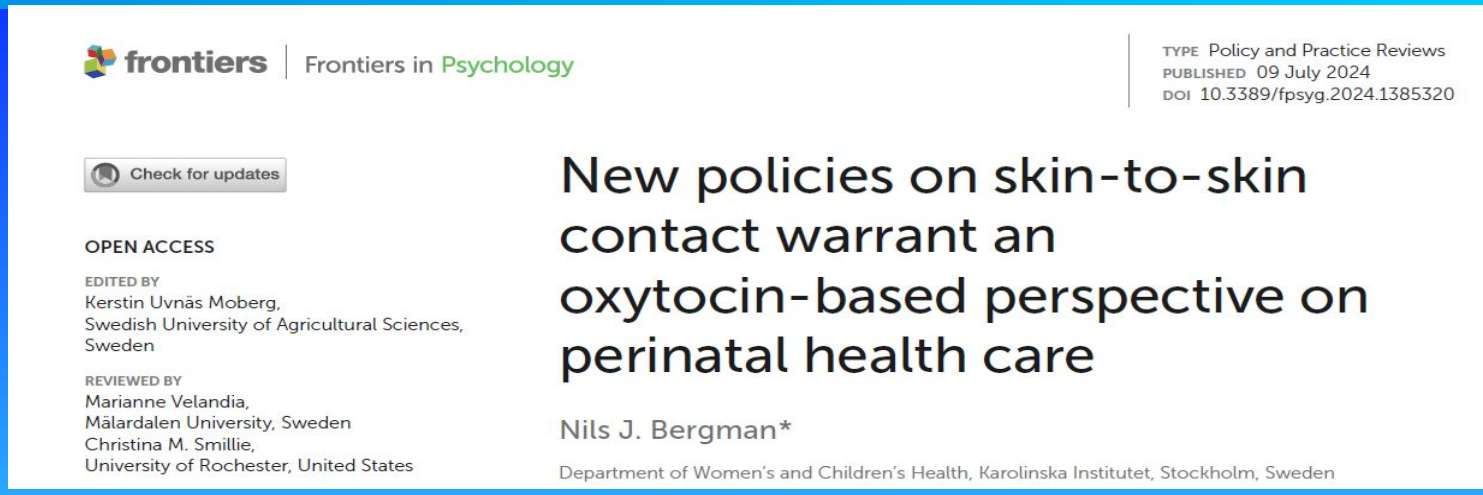
Implications of Children's Rights for Health Professionals

Our current health system pays lip service to balancing benefit and risks for the good of mothers and babies, but the perinatal care system is in fact geared only to reducing risk.

We are risk driven ... "YES" for decreasing risk
... BUT NOT AT THE EXPENSE OF BENEFIT

The fear of something bad that MIGHT happen, should not prevent the good that MUST happen

NURTURESCIENCE (ensure benefit, manage risk)



frontiers | Frontiers in Psychology

TYPE Policy and Practice Reviews
PUBLISHED 09 July 2024
DOI 10.3389/fpsyg.2024.1385320

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New policies on skin-to-skin contact warrant an oxytocin-based perspective on perinatal health care

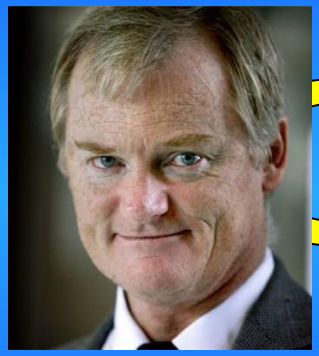
Nils J. Bergman*

Department of Women's and Children's Health, Karolinska Institutet, Stockholm, Sweden

... ethical axiom is PRUDENCE:
"a smaller present good is not to be preferred
to a greater future good."

The fear of something bad that MIGHT happen,
should not prevent the good that MUST happen

Immediate Skin-to-Skin Contact and Mother-Newborn Couplet Care: from science to practice and implications of that …



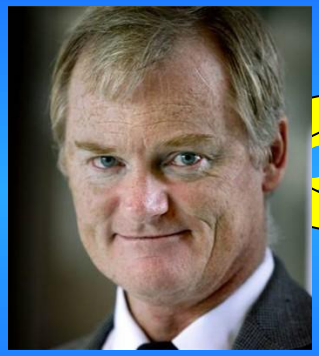
Nils Bergman

The fear of something bad that MIGHT happen, should not prevent the good that MUST happen

Immediate Skin-to-Skin Contact and Mother-Newborn Couplet Care: from science to practice via evidence

Stina Klemming

Immediate Skin-to-Skin Contact and Mother-Newborn Couplet Care: from science to practice via evidence



and more on evidence …

Nils Bergman

Slide from Stina Klemming

- RCT of 3211 preterm infants
- Birth weight 1000-1799 grams.
- Early/immediate and continuous KMC
- Mean SSC time 17 h SSC compared to 1,5h
- Implementation of Mother-Newborn Couplet Care

- Reduced neonatal mortality by 25%
- Lower rate of infections

From the IPISTOSS team:


Nils Bergman


Björn Westrup


Siren Rettedal


Agnes Linnér

Intervention training given:
to regular staff and research team.

Jill Bergman (Norway, Tanzania)

IPISTOSS and iKMC - same technique

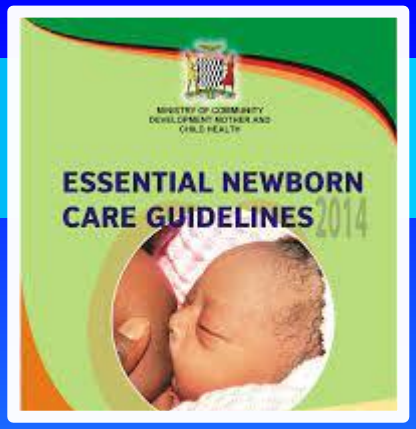
Link for KMC training video

http://ultra-early-intervention.creo.tv/i/AhC8hUX8DHljFXInaKLZiw

18 minute film of standardized operating procedure (SOP)

CONTROL GROUP CARE

BEST POSSIBLE !!!



Control got MORE KMC than any other study:

- 1.5 hours per day in the NICU (unstable)
- 19 hours per day after achieving stability

BOTH GROUPS GOT

- MAXIMUM KMC WHEN STABLE
- OPTIMAL BREASTFEEDING SUPPORT
- IDENTICAL NEWBORN CARE
- SAME DISCHARGE CRITERIA

INTERVENTION GROUP got immediate SKIN-TO-SKIN CONTACT while still being UNSTABLE

BOTH GROUPS GOT

- MAXIMUM KMC WHEN STABLE
- OPTIMAL BREASTFEEDING SUPPORT
- IDENTICAL NEWBORN CARE
- SAME DISCHARGE CRITERIA

ORIGINAL ARTICLE **May 2021**

Immediate "Kangaroo Mother Care" and Survival of Infants with Low Birth Weight

From enrolment to 28 days of age,

Intervention deaths 191 infants (12.0%)

Control group deaths 249 infants (15.7%)

p = 0.001

95% confidence interval [CI], 0.64 to 0.89;

Risk Ratio 0.75 (25% mortality reduction)

NNT (number needed to treat) to prevent one death was 27 (95% CI, 17 to 77).

Target 4200
Reached 3100
DSMB advised
stop recruitment

er Care"
Birth Weight

of age,

Inte 3 191 ants (12.0%)

hs 249 infants (15.7%)

[CI], 0.64 to 0.89;

25% mortality reduction)

Mortality
study:
UNETHICAL
TO CONTINUE

to treat) to prevent one death

(95% CI, 17 to 77).

Most deaths were caused by sepsis or preterm birth complications. Sepsis-associated mortality was 4.4% in the intervention group and 6.9% in the control group (risk ratio for death, 0.64; 95% CI, 0.48 to 0.86) (Table S5).

Results for secondary outcomes are shown in Table 3. The proportion of infants with suspected sepsis was 22.9% in the intervention group and 27.8% in the control group (adjusted risk ratio,

	iKMC	Control	*Reduction*
Death from sepsis	4,4%	6,9	*36%*
Suspected sepsis	22,9%	27,8%	*18%*
Hypothermia	5,6%	8,3%	*35%*

For 40 years, fear of sepsis has been a reason for denying KMC to small and sick newborns

The evidence is that KMC dramatically decreases sepsis !!!!

sepsis or pre
ssociated mo
group and 6
for death, 0.6
Results fo
Table 3. The
sepsis was 22
27.8% in the control group (adjus
yn in
ected
p and
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Separated babies (standard care)

More actually got sepsis

Separation increased mortality rate from sepsis

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VULNERABILITY

Vulnerability

DISEASE

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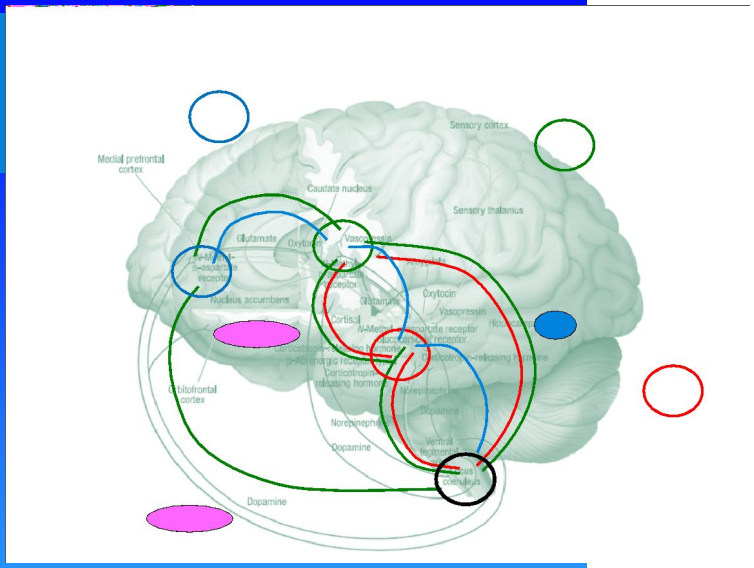

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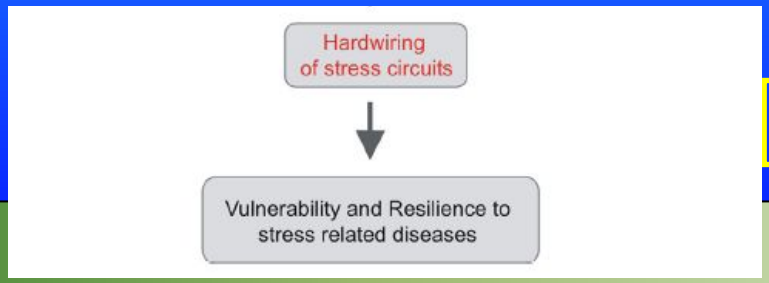

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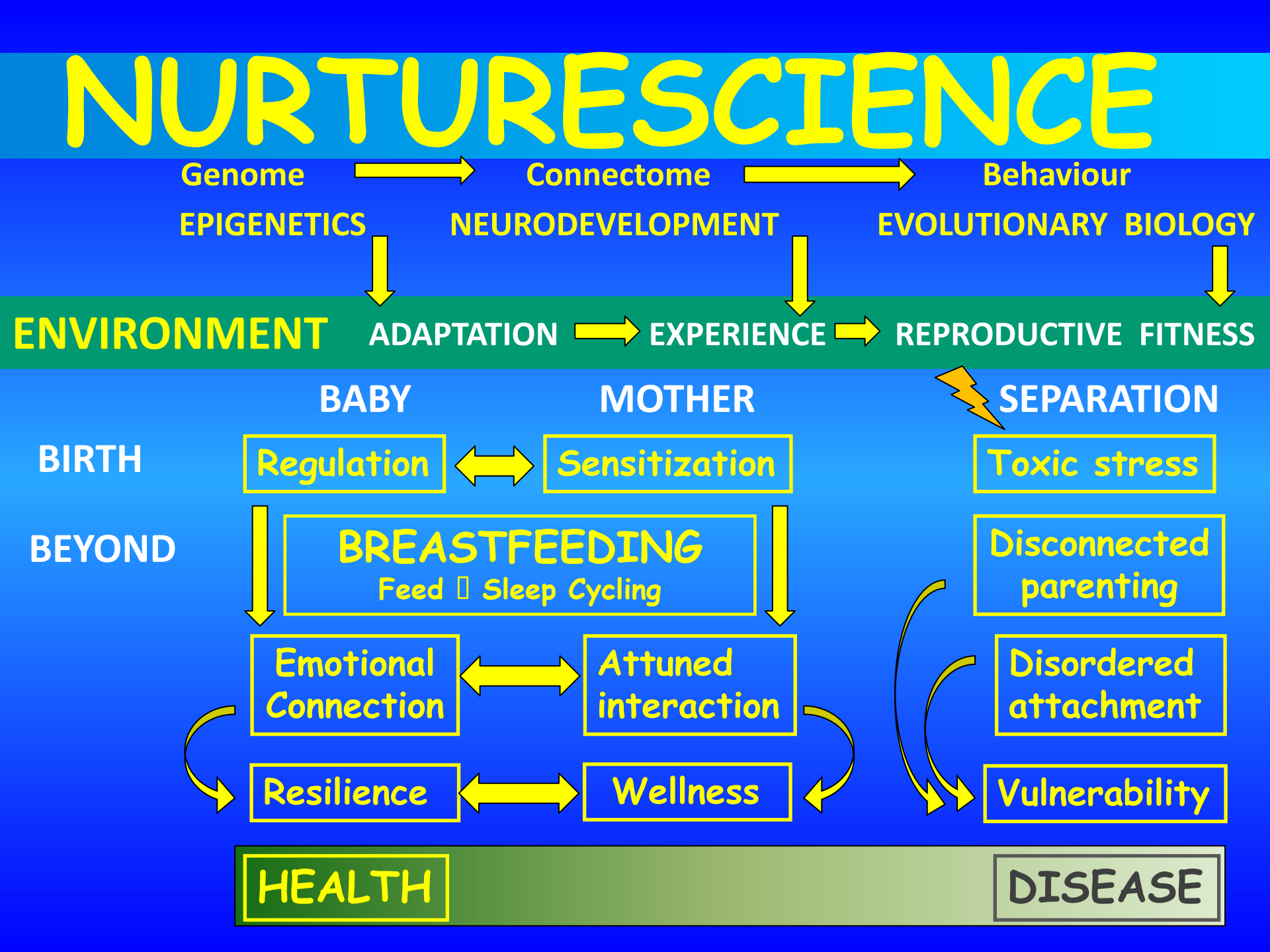
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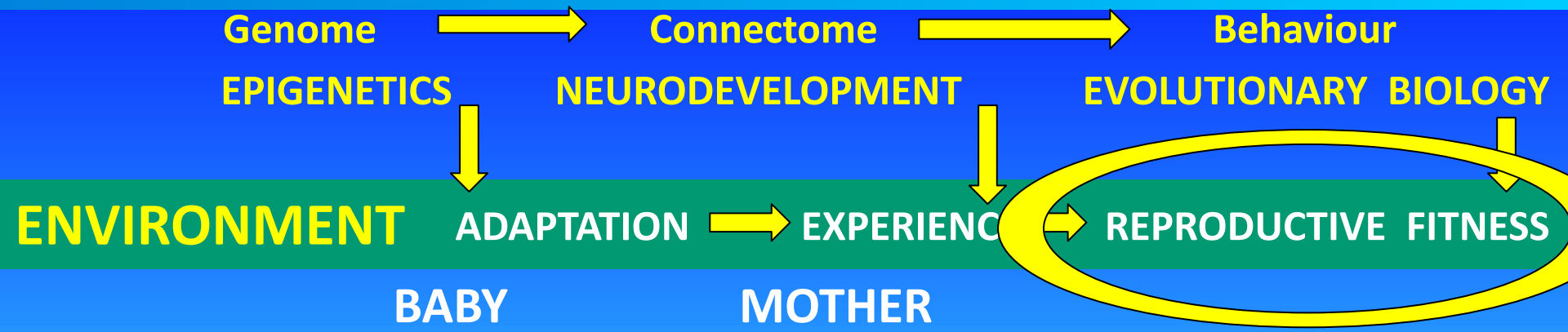


BABY MOTHER

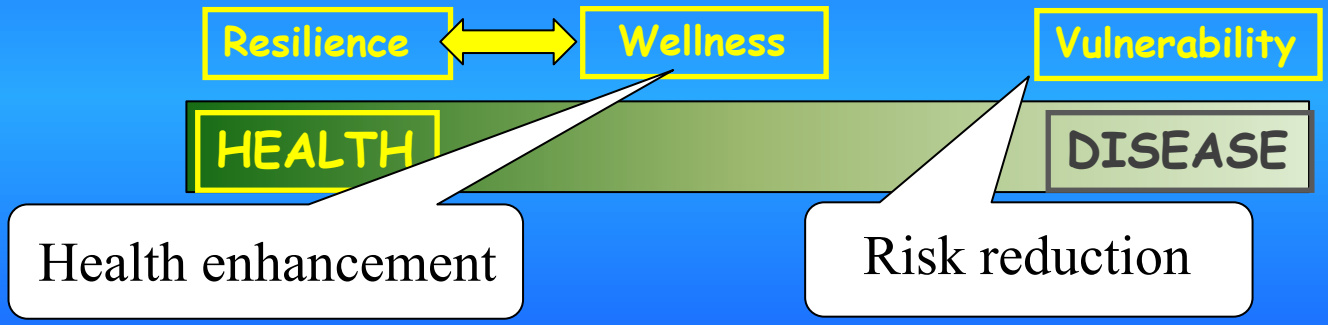
BIRTH

Regulation ⟷ Sensitization

THE BEST INTERESTS OF THE CHILD ARE PARAMOUNT

Mortality was decreased by ensuring HEALTH ENHANCEMENT

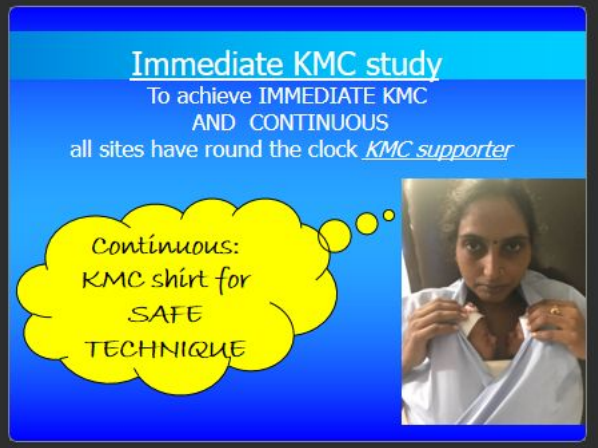
The iKMC control group had MAXIMAL RISK REDUCTION



Mortality was decreased by ensuring HEALTH ENHANCEMENT

WHY START IMMEDIATELY ?

Intervention was essentially non-medical



Mortality was decreased by ensuring HEALTH ENHANCEMENT

16% to 12%

Dr Anshu Banerjee

Director, Department of Maternal, Newborn, Child and Adolescent Health and Ageing, World Health Organization, Geneva, Switzerland

"Ensuring mothers and babies everywhere can stay together after birth will in many cases require a radical rethink of how newborn care is provided - these new publications aim to support this process."

Mortality was decreased by ensuring HEALTH ENHANCEMENT

Nurturescience, Zero Separation, and a radical rethink

"Ensuring mothers and babies everywhere can stay together after birth will in many [illegible]es require a radical rethink of how newborn care is provided - these new publications aim to support this process."

WHO Global Position Paper and Implementation Strategy on kangaroo mother care call for fundamental reorganisation of maternal–infant care

WHO recommendations for care of the preterm or low-birth-weight infant

World Health Organization

Conclusions

1. Immediate KMC for 1.0 and <1.8 kg infants significantly **reduces the risk of neonatal death by 25%**

2. Immediate KMC provided to every 27 babies saves a life which translates to **150,000 lives globally every year**

3. **M – NICU is a paradigm shift** in the care of the low birthweight infant

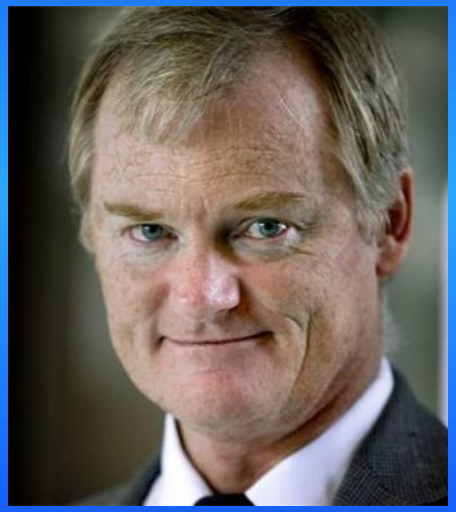
Immediate Skin-to-Skin Contact and Mother-Newborn Couplet Care: from science to practice

And this applied specifically to small and sick / preterms

MESSAGE TO B F H I

This applies to all newborn babies

Immediate Skin-to-Skin Contact and Mother-Newborn Couplet Care: from science to practice



THANK YOU

This applies to all newborn babies