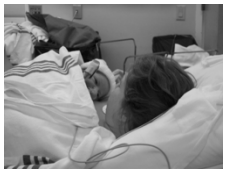
Best practices and perinatal procedures



From Miramichi hospital, New-Brunswick, with permission

Louise Dumas, RN, MSN, PhD
Université du Québec en Outaouais
Québec, Canada

Outline of this presentation

- Goal of this presentation
- What is evidence-based practice?
- How do we achieve evidence-based practice?
- Questioning common perinatal practices:
  - Epidurals
  - Infant bundling/swaddling
  - Prophylactic eye ointment
  - Procedural pain management for infants
- My beliefs about labor and birth, welcoming of newborns, role of nurses and doulas
- Questions, comments

Goal of this presentation

Literature review on actual available evidences, because I believe that

« Mothers can overcome barriers to their intentions for labor/ birth/bonding/breastfeeding experiences, but they should not have to face those barriers brought by non evidence-based healthcare interventions. »

I have no conflict of interests in this presentation

Evidence-based practice

What it is:
- Professional practice grounded on evidence, primarily research findings

Why is it needed:
- Optimal efficient quality care ensuring positive health outcomes
- Professional status requires professional accountability

Evidence-based practice

How to do it:

- Validate interventions by integrating proven strategies into practice
- Eliminate ineffective or harmful interventions based on intuition, myth, or rituals
- Query practices for which no evidence exists

What constitutes an evidence

Serious quantitative data are obtained from :

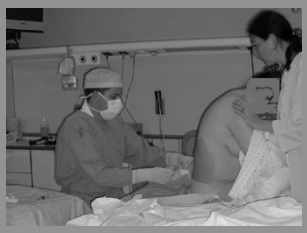
- RCT - randomized controlled trials
- Cohort studies, prospective or retrospective; observational; epidemiological
- Systematic review; Cochrane systematic review

In the next hour or so…

Question 4 common perinatal practices:

- Epidural during labor/birth
- Infant bundling/swaddling
- Prophylactic eye ointment
- Procedural pain management for infants

1. Epidural during labor and birth



Picture from Monaccouchement.com

Epidural during labor/birth

- Literature review ≥ 2000
- Any article reporting quantitative data
- Internationally
- In French, English, Spanish
- Search also included references from the retrieved articles

Literature review: difficulties

- rarely real control group; non-compliance
- very small samples; rarely described in details
- different medications/dosages; often combined
- type of labor, rhythm, hard or not… not described
- type of nursing support not explained
- baby's neurobehavioral status assessed with different tools
- rare definition of *initiation* of breastfeeding
- **breastfeeding assessment, subjective vs different tools**

What we know from this review : **effects on mother**

- ✓ ↑ labor duration
- ✓ ↑ oxytocin for augmentation
- ✓ ↑ intrapartum fever → ↑ antibio which → ↑ instrumentation
- ✓ ↑ posterior occiput position → ↑ instrumentation, caesarean
- ✓ ↑ instrumentation→ ↑ need episio → ↑ 3rd-4th degree tears
  Very strong association if epidural before 5cm dilatation

What we know : **effects on mother**

- ✓ ↑ hypotension
- ✓ ↑ pruritis
- ✓ ↑ urinary retention
- ✓ personality changes (very small N, non rando)
  - ↑ somatic anxiety
  - ↑ muscular tension
  - ↑ irritability
  - ↑ indirect agression

Inconclusive or only showing tendencies: **effects on mother**

- rate of caesarean section
- postpartum hemorrhage
- persistent low back pain

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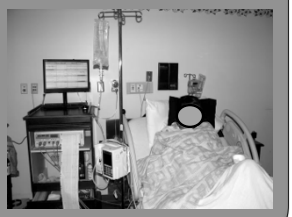
What we know as a fact…

Mother has to expect

labor and delivery

far from normalcy…



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What we know : **effects on baby**

- APGAR ≤ 7 at 1min. and 5 min.
- ↑ hypotonic baby
- ↑ needs for Naloxone
- ↑ need for neonatal resuscitation

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What we know : **effects on baby**

- ↑ convulsions
- ↑ fetal heart rate
  when mother has a fever ≥ 38 degrees
  → ↑ assessment and treatment
  for potential septicemia

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Inconclusive or only showing tendencies: **effects on baby**

- cord pH
- meconial amniotic fluid
- neurobehavioral status
- ↑ weight loss in the early postnatal days

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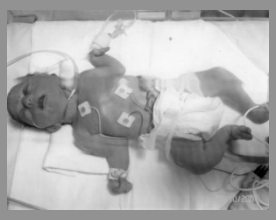
What we know as a fact…

Baby will come to life

not so easily

if his mother

has an epidural



www.skyrock.com

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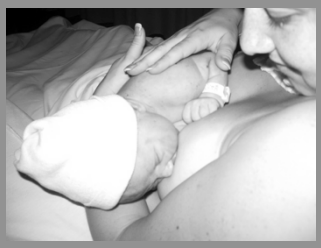
Studies linked to breastfeeding: information



Pictures by Dumas, with permission

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Effects on initiation of breastfeeding: hard to demonstrate

Very few studies with *non-medicated* control group

Many confounding variables linked to

- labor and delivery (induction; duration; rhythm; instrumentation; moment of administration of medications;…)
- sociodemographic factors (age; parity; schooling;…)
- intention to breastfeeding, intention of exclusivity (prenatal or intranatal; perceived support; culture;…)
- negative perinatal practices (delayed skin-to-skin; interrupted skin-to-skin; suctioning;…)
- lack of validated tool to assess breastfeeding

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And…no studies based on the innate non-medicated newborn sequence

Innate newborn sequence
(Widström et al., 1990;
video *Breastfeeding is...Baby's choice,* + article 2011)

- Relaxation (1minute)
- Awakening (5 to 17 minutes)
- Activity (17 to 32 min-massage of breast;
- 44 minutes-movements, of mouth , of hand to mouth)
- Cooing (54 minutes)
- Crawling (59 minutes)
- Familiarization (60 minutes-touches breast)
- Sucking (64 minutes)
- Sleeping (80 minutes)

From Widström, with permission

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What we know : **effects on breastfeeding**

- babies show less behaviors from the normal innate sequence
- babies take longer for their first suck
- babies show less sucks per feeding
- ↑ bf difficulties during first week of life
- ↓ exclusivity of breastfeeding

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Non significant or inconclusive data on epidural and breastfeeding

- effect on oxytocin level
- effect when compared to opiates
- score at LATCH and NCAS

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Interesting recent study on epidural and breastfeeding

- Recent: 2010, Toronto
- Prospective observational study
- Only mothers with epidural with high doses of bupivacaine and fentanyl
- Multiparas who breastfed before (*m* =11,5 months), with prenatal intention to breastfeed
- Tertiary hospital, high bf support (BFHI)
- Results: 95% were breastfeeding at one week

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My clinical suggestions

- ↑ information to future parents on known negative effects of epidurals
- significant professional nursing support for women in labor, using most natural possible means so to avoid or delay epidural
- encourage mother and baby uninterrupted skin-to-skin immediately from birth
- offer significant support for breastfeeding initiation

Picture from Dumas, with permission

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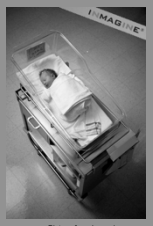
2. Infant bundling/swaddling

Picture by K.Jurkova, with permission to Dumas from K.Bystrova



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Infant bundling/swaddling

- Main results here from Russian-Swedish-Quebec research I am involved in (main researchers: Widström and Bystrova)
- North American bundling very often tight
  Almost = to swaddling except for the head

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Infant bundling/swaddling: USA-Canada

Results from USA-Canada informal survey (Dumas, Lepage & Grondin, 2007) show that:

- 61,8% of Canadian babies and 79,3% of American babies are swaddled at birth

Reasons given for swaddling:

- «We want to keep baby warm»
- «Many nurses don't believe skin-to-skin is better»
- «Bundling provides comfort for the babies»
- «Some mothers don't like their unbathed baby against their skin»
- «Mother doesn't want to breastfeed»

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Russian-Swedish-Quebec research team

- RCT; rigorous design
- In St.Petersburg, Russia
- Study of perinatal practices related to mother and baby on:
  - breastfeeding, breastmilk
  - skin-to-skin versus clothes versus swaddling
  - mother-infant separation
  - mother-infant early interaction

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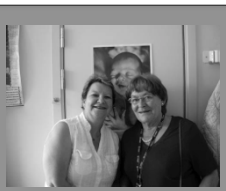
Dumas and Ksenia Bystrova, 2005



Dumas and Widström, 2008

Dumas and Lepage, 2009

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Results and importance up-to-date

Swaddled babies have worst results on:

- Baby's temperature: worst; swaddled babies had lowest foot temperature especially at foot
- Mother/baby's temperature: no reciprocity as no skin-to-skin contact
- Breastfeeding: later, longer to initiate, shortest duration
- Quantity of breastmilk: less is produced
- Engorgement: frequent
- Baby's weight: slower to return to birth weight
- Amount of supplements: more
- Babies supplemented: less weight gain
- Mother's feeling of « blues »: more
- Mother/infant interaction: mothers are rougher at day 4; less sensitive one year later

Other researchers **confirm detrimental effects of swaddling**

Physiological benefits of skin-to-skin vs swaddling:

- baby's temperature and oxygenation
- mother's temperature
- reciprocity of mother-baby temperature
- baby's glycemia
- baby's neuro-motor organization
- baby's decreased pain during painful procedures

Other researchers **confirm detrimental effects of swaddling**

Psychological benefits of skin-to-skin vs swaddling:

- baby cries less
- early mother-infant interaction
- less infant abandonment; less child abuse and neglect
- more en-face positions, more visual contacts
- more affectionate contacts from mother
- mother feels better, less feelings of "low-blues"
- less postnatal depression
- greater maternal satisfaction

Other researchers **confirm detrimental effects of swaddling**

Benefits of skin-to-skin vs swaddling on breastfeeding:

- innate pre-feeding behavior sequence
- bf initiation and tongue placement
- massage of the breast by baby's hands leads to increased oxytocin production
- recognition of mother's milk odor by the baby
- baby's weight
- bf exclusivity
- bf duration *ad* 6 months

A word on babies' deaths shortly after birth

- Reports in the recent literature about babies who died while skin-to-skin either in hospital or home shortly after discharge
- Scrutiny of those reports shows alarms not justified on skin-to-skin as such
- Factors linked to unexpected deaths within the first week of life (so NOT called SIDS) not taken into consideration
- Known risks: very tired mother, mother under influence of opiates, baby not well placed on mother, unsafe bed or bedding, smoking mother, obese mother
- Anticipatory guidance to parents + close observation

A word on babies' deaths shortly after birth

- Also reports of death when babies were swaddled
- Almost not heard of but real deaths from tight bundling or swaddling or wearable blanket or swaddle wrap
- As many cases as with skin-to-skin but often with older babies
- Known risks: warm environment, soft bed or bedding (blankets, pillows), bumper pads, stuffed animals, mother or father smoking, sharing bed with adults other than mother
- Again: anticipatory guidance to parents and close observation

Safe skin-to-skin practice

- Inform future parents of the safe practice of skin-to-skin, especially fathers
- Prepare mother's gown so to remove it completely at the time of birth
- Place baby on the mother's skin immediately at birth, without drying
- Try to expand baby's body as much as possible on mother's chest to avoid pressure on the thorax
- Make sure the baby's nose and mouth are free to secure free airways.
- Baby should always be free to lift the head
- Dry the baby's back and head thoroughly
- Wait to cut the umbilical cord shorter so that the baby doesn't lie on clamp
- Remove all wet blankets
- Cover baby with one dry blanket
- Avoid overheating
- Ask father to firmly hold the baby's bottom or leg to avoid fall
- When in mother's room or home, make sure mother is lying at 30-45 degrees to avoid having baby flat on belly.

Unpublished documents: Dumas, 2014; Widström & Svensson, 2014

My clinical suggestions : Anticipatory guidance

- = preventive information
- = responsibility of health professionals to share what is known with parents
- When?
  - Prenatally: public health initiatives, during prenatal check-up or classes, …
  - Postnatally: at hospital NO swaddling or bundling = show example, explain while in hospital and for home
  - Postnatally: at home during home visit, check when at a clinic, public health initiatives,…
- How?
  - Posters, publicity campaigns, magazines, tv, radio, webpages,….

My clinical suggestions : Close observation = professional accountability

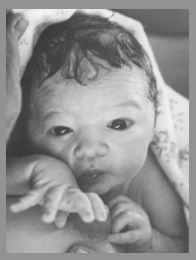
At hospital:
- Mother and baby assessed together
- Mandatory; the same as if baby was in nursery

Picture from merkur-online.de

At home:
- Check baby's bedroom organization
- Ask parents what they know about safe sleep
- Mandatory; the same as if baby was yours!

INFORM !!! INFORM !!! INFORM !!!!!!!!!!!!!!!!!!!!

3. Prophylactic eye ointment



Picture from Vivian Wahlberg's doctoral thesis, 1983

Prophylactic eye ointment

- Canadian and American recommendations are to apply eye ointment to ALL newborns within 1-2 hours from birth to prevent gonorrhea and Chlamydia
- Prophylaxis means prevention
- Antibiotics are meant for treatment
- Many industrialized countries have abandoned this practice for many years without any negative effect (Australia, Denmark, New Zealand, Norway, Sweden, UK, etc…)

Some history

- 1881- Crédé (Germany): original eye prophylaxis with silver nitrate to prevent gonorrhea
- At the time, serious consequences for newborns and no antibiotics
- But silver nitrate causes chemical conjunctivitis (Wahlberg, 1983) and has no effect on Chlamydia
- 1940s-Replaced by penicillin then erythromycin ointment **without research results**
- 1995-iodine-povidone; more effective clinically **(no research results);** no pain; stains eyes; not used in North America so much

My questions are…

Why to ALL newborns in USA and Canada?

Why within 1-2 hours from birth?

Picture from Credit Jupiter Images

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No evidences for prophylaxis…

- Good meta-analysis and master's thesis at Mc Master University in Ontario: Darling & MacDonald (2010)
- Showed there is not one solid research
- Research in Quebec: Dumas, Savoie & Landry (2001)
- Showed there is no evidence for the timing of administration
- **No reported negative effect in all industrialized countries where no prophylaxis**

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My clinical suggestions

Darling & MacDonald recommended:

- No need for further research of evidence
- Re-examine current North-American recommendations as they have limited or no benefit; cost is high without justification

Dumas, Savoie & Landry recommended:

- Lobby for the removal of any prophylaxis
- Cost containement in healthcare
- Teach parents about eye infection, origin, symptoms, over the counter treatment as in other industrialized countries

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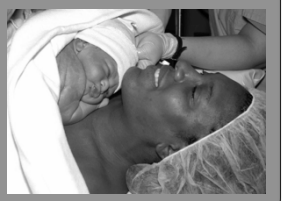
My beliefs

about

- labor and birth
- welcoming of newborns
- role of nurses/doulas

C-section, StMary's Hospital, Montreal, with permission



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Labor and birth = life experience

- This experience is always one in a life time…
- It can be positive/opening or disastrous…
-
- Lot's of it depends of persons present…
- It is a privilege to be part of this extraordinary moment

Picture by Dumas, VBC, Gatineau, with permission

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So…

- *Informed choices*/support for birth *least technicalized* as possible-more human-more respectful
- Many non-pharmacological means available; if epidural, at least *after* 5 cm and changes in position even so
- Respect parents' *informed* choices- be objective
- Guide partner to assist mother
- Support mother and partner: birthing of a family

BE PRESENT, REAL PRESENCE

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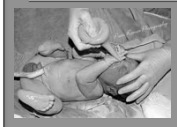
Welcoming of newborns

- Calm, unhurried
- Respectful of family rhythm
- Skin-to-skin for physiological and psychological adaptation to extra-utero life
- No routines that are not evidence-based
- Teachable moments…
- We are witnesses only….

Toronto Public Health, with permission

So…


Birthofanewearth-blogspot.com


Materneo.com

- No succion
- No separation mother-baby for at least one hour or until end of first feed
- Exams, all while skin-to-skin
- No weight, length,…
- Vit K after one hour of skin-to-skin and while still skin-to-skin
- Eye ointment…
- **Bath is not needed**
- No hands-on teaching
- Teach parents to observe their baby

Role of nurses and doulas


Picture by Dumas, LeGardeur, with permission


Picture during phototherapy, Hôpital George Dumont, Moncton, with permission

- Calm, unhurried
- Respectful of family rhythm
- Teachable moments
- Anticipatory guidance
- Be present

4. Procedural pain management for infants


Picture breastfeeding during PKU, Centre Hospitalier Régional de Trois-Rivières, Quebec, with permission

Doctoral candidate and clinical nurse specialist

Linda Lemire
linda_lemire@ssss.gouv.qc.ca

Do babies feel pain?

All anatomic structures for feeling pain are in place by 26th week of gestation
At birth, pain receptors are in place as at the same density as adults

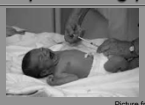
However, nervous system is immature at birth so pain threshold and tolerance are lower = feel pain more easily and for shorter periods
(Carbajal, 2003, 2005; Weisman et al., 1998)


Picture from Lennart Nilsson

How do we know baby is experiencing pain?

Many clinical and research tools

Easiest and validated internationally: NFCS

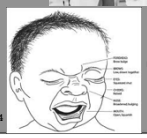


Picture from lovecofrealfood.com

Picture from Naître et grandir, 20130123

Neonatal Facial Coding System (Grunau, 2007; Grunau et Craig, 1987; Grunau et al., 1990)

- Easy to use at the bedside or for research purposes
- Validated for babies up to 18 months
- Score of 0 or 1 for each of these 4 factors: brow lowering; eyes squeezed shut; deepening of naso-labial fold; vertical mouth stretch



Picture from aap.org

55

Proven non-pharmacological measures to reduce pain in term infants

- Skin-to-skin
- Breastfeeding
- Expressed breast milk
- Sucrose
- Combination of methods

Picture from St.Mary's Hospital, Montreal, with permission

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Skin-to-skin

Skin-to-skin
alone
reduces pain
during PKU or vitamin K injection
or blood tests

(Chermont et al., 2009; Gray et al., 2000; Kashaninia et al., 2008; Okan et al., 2010; Saiedi et al., 2011; Sajedi et al., 2007)

Picture from Linda Lemire, Trois-Rivières, with permission

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Breastfeeding

Breastfeeding
alone
reduces pain during PKU or vitamin K injection or blood tests
(Blass, 1997; Carbajal et al., 2003, 2004; Efe & Özer, 2007; Gray et al., 2002; Phillips et al., 2005; Razek & El-Dein, 2009; Shah et al., 2012)

Picture from Linda Lemire, Trois-Rivières, with permission

Breastfeeding is superior to sucrose to reduce pain
(Codipietro et al., 2008)

Breastfeeding has similar results as sucrose
(Shah et al., 2012-systematic review)

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Expressed breast milk

Expressed breast milk
alone
reduces pain
during PKU or vitamin K injection or blood tests

(Blass et al., 1997; Shah et al., 2012; Upadhyay et al., 2004)

Picture of colostrum from mother2mother.com

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Sucrose, dextrose, and other sweet solutions

Sucrose (24%-25%-30%)
alone
reduces pain
during PKU or vitamin K injection or blood tests

Starts within 60-120 seconds
Duration : 5-7 minutes

(Blass et al., 1992, 1999; Carbajal et al., 1999; Chermont et al., 2009; Okan et al., 2007; Ors et al., 1999; Pediadol, 2006; Slater et al., 2010; Shah et al., 2012-equal to breastfeeding; Stevens et al. 2004-systematic review; Taddio et al., 2008-modest effect)

Picture from hobomama.com

Slater et al. (2010) demonstrated in a RCT that sucrose is not better than sterile water to reduce pain.

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Combination of methods

Best results

- Breastfeeding and skin-to-skin
(Bilgen et al., 2001; Gabriel et al., 2014-superior to sucrose and skin-to-skin; Ors et al., 1999; Shah et al., 2012-Cochrane)

- Sucrose and skin-to-skin
(Chermont et al., 2009)

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My opinion as researcher, clinician and BFI lead assessor

Simplest means with no known contradindications: skin-to-skin and breastfeeding

Cochrane reviews are in this same line:
« If available, breastfeeding or breast milk should be used to alleviate procedural pain in neonates undergoing a single painful procedure compared to placebo, positioning or no intervention. Administration of glucose/sucrose had similar effectiveness as breastfeeding for reducing pain. »
Shah et al. (2009, 2012)

We don't know long-term effects of sweet solutions: ?? link with obesity by developing sweet buds???

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My conclusions: easiest, most natural evidence-based practices


Picture from www.parentdish.co.uk


Picture from dehartdiaries.com


Picture from Linda Lemire, Trois-Rivières, with permission


Picture from www.nhs.uk

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My suggestion to be evidence-based…..

Hospitals and maternities should implement

The Ten Steps for the Success of Breastfeeding
(WHO/UNICEF)

It is:
Quality of care and services
Based on evidences
Respecting informed choices of all mothers
Encouraging continuum of care/services

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It includes…

- Education of all healthcare providers
- Prenatal information on known risks of medicated birth and on breastfeeding management
- Intranatal support with non-pharmacological means
- Immediate and uninterrupted skin-to-skin care with mother
- Delayed interventions to promote health and bonding
- Close support/promotion/encouragement of breastfeeding
- Anticipatory guidance to parents/partners
- Provision of care/services after discharge

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When I started this presentation… I said…

«Mothers can overcome barriers to their intentions for

labor/birth/bonding/breastfeeding experiences,

but they should not have to face those barriers brought

by non evidence-based healthcare interventions.»

This is my conviction as a woman, as a mother, as a nurse, as a BFI lead assessor, as a professor, and as a researcher….

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Thank you for your attention

Questions???

Comments???

Picture by Dumas, Gatineau, with permission

To reach me

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Picture by Dumas, Stockholm 2014

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