

Good Morning and Welcome

Whose Blood is it Anyway?

Presenter: Amanda Burleigh

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Aristotle 300BC

Frequently the child appears to be born dead or it is feeble but before the tying of the cord, a flux of blood occurs into the cord and adjacent parts. Some nurses squeeze the blood back out of the cord, into the baby's body and at once the baby, who had previously been as if drained of blood, comes to life again.

Erasmus Darwin 1796

Another thing very injurious to the child is the tying and cutting of the navel string too soon, which should always be left till the child has not only repeatedly breathed but till all pulsation in the cord ceases. Otherwise the child is much weaker than it ought to be, a part of the blood being left in the placenta which ought to have been in the child.

At the same time the placenta does not so naturally collapse, and withdraw itself from the sides of the uterus, and is not therefore removed with so much safety and certainty.

History

- **1960-70's. Oxytocic drugs were introduced and Immediate Cord Clamping became routine practice.**
- **No thought was given to the effect of immediate cord clamping on the fetus.**
- **There is no evidence to support immediate cord clamping.**

Where it all started



2005



How the Cord Clamp Injures Your Baby's Brain (2002)

By George M. Morley, M.B., Ch. B., FACOG

- **Cerebral Palsy**
- **Learning Disorders and Mental Deficiency**
- **Respiratory Distress Syndrome**
- **Intra - Ventricular Haemorrhage (IVH) (Brain Haemorrhage)**
- **Necrotising Entero-Colitis (NEC)**

Who wants change? V Who wants to change?



50 Reasons Not To Change



Image copyright: <http://13c4.wordpress.com/2007/02/24/50-reasons-not-to-change/>

Benefits of DCC/OCC

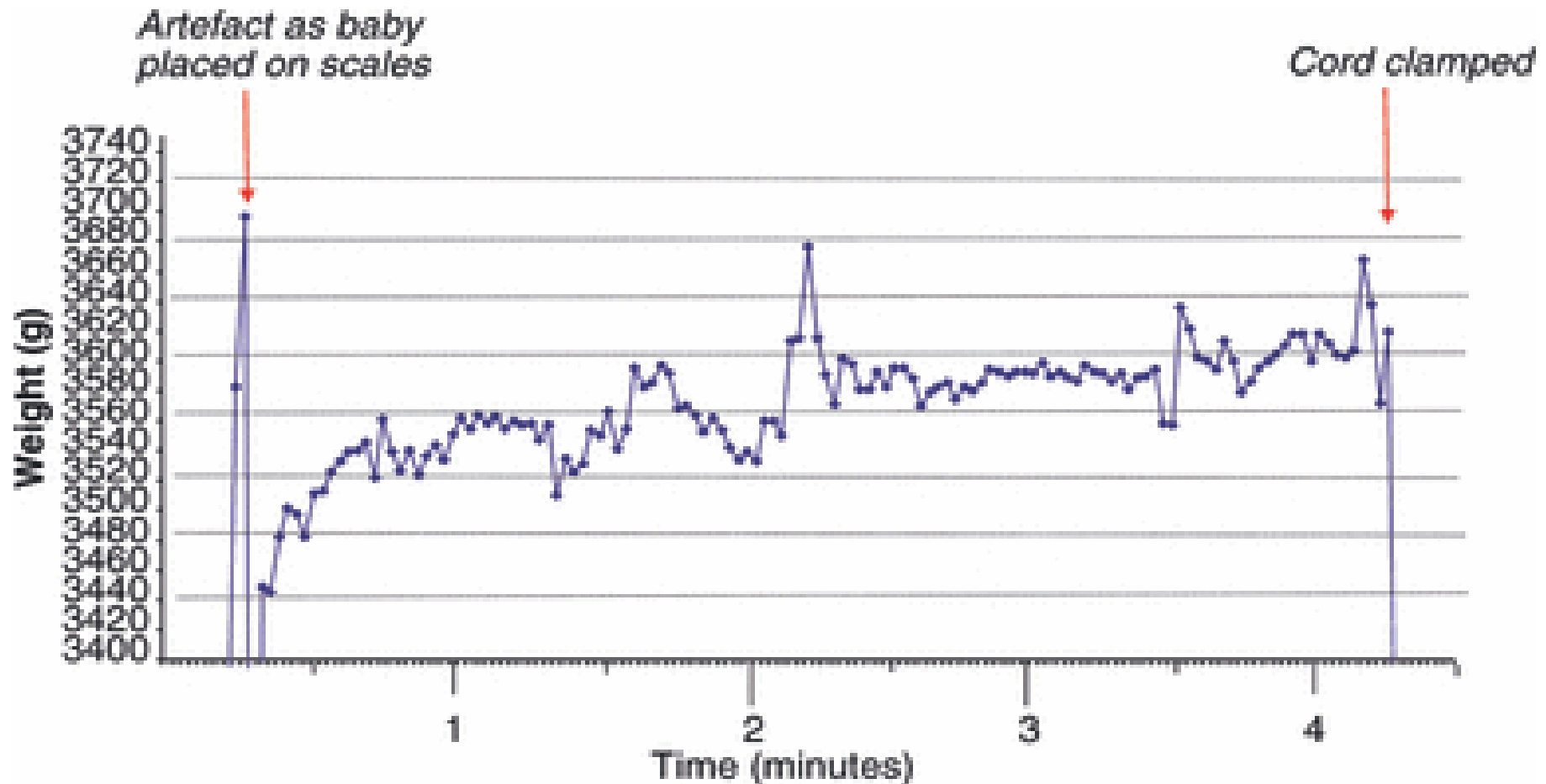


- Delayed clamping is associated with:
- Increased neonatal iron stores in the neonatal period.
- Increased organ perfusion and subsequent cardiopulmonary adjustment.
- Increased duration of early breast feeding.
- Decreased risk of fetal-maternal transfusion
- Decreased umbilical infections
- Increased white cells-infection prevention
- Less blood splatter-HIV protection
- May benefit neurodevelopmental outcomes, particularly in males



Diane Farrar et al 2010

Weighing babies to assess placental transfusion



Diane Farrar et al 2010

- **Placental transfusion was usually complete by 2-3 minutes. The amount of transfusion equates to 30-40%.**
- **For term infants, placental transfusion contributes between one-third and one-quarter of total potential blood volume at birth.**

Cord Clamping the Evidence



Professor Judith Mercer Emeritus Midwife and Lead expert OCC



Benefits of DCC for Prems.

Decreases risk of:

- **Intraventricular haemorrhage**
- **Necrotizing enterocolitis**
- **Late-onset sepsis**
- **Need for blood transfusions for low b/p or anaemia**
- **Need for mechanical ventilation**

Increases:

- **Haematocrit**
- **Haemoglobin**
- **Blood pressure**
- **Cerebral oxygenation**
- **Red blood cell flow**
- **Breast feeding duration**

Ola Andersson

2011 RCT: 382 full term infants.

- **DCC resulted in a reduction of iron deficiency anaemia with improved ferritin levels at 4 months of age.**
- **No increase in phototherapy or respiratory symptoms.**
- **Iron deficiency even without anaemia has been associated with impaired development among infants**

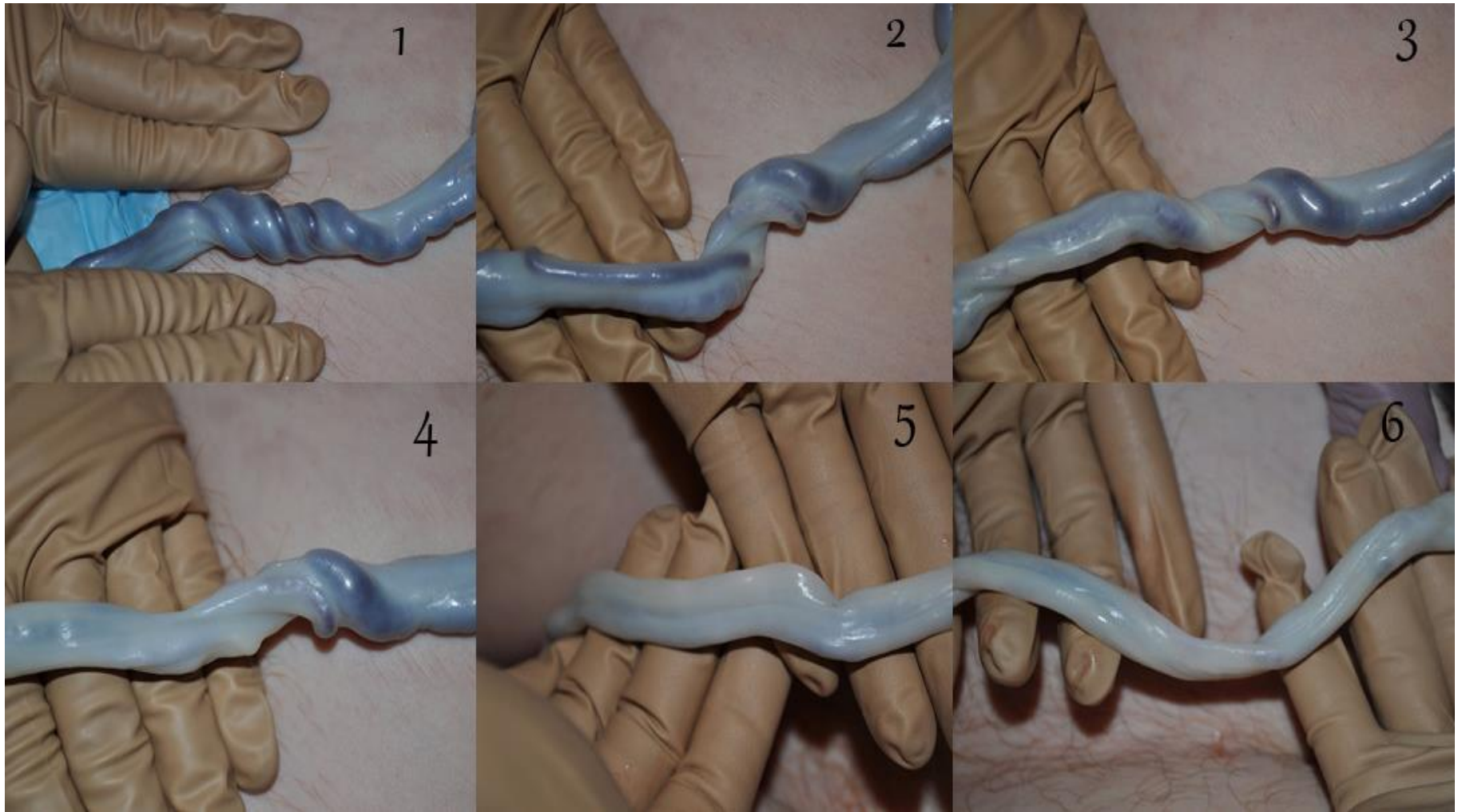
2015: 263 children from the initial study

- **Males in the DCC group had increased fine-motor and social domains at 4 years of age, especially in boys.**
- **Conclusion - Timing of CC may affect neurodevelopment in children born in a high-income country**

Hospitals who led the way **Delayed Cord Clamping**

- **Darlington (1 minute)**
- **Worcester (2 minutes)**
- **Liverpool Women's Hospital. (2 Minutes)**
- **St Thomas's London (2 minutes)**
- **Sunderland (2 minutes)**
- **Northumbria Health Authority (3mins inc CS. 95% compliance)**
- **Chesterfield (2 minutes)**
- **Bath (until the cord stops pulsating)**

#Wait for White



An unclamped cord




Changes in guidelines – Timeline

WHO 2007 (Updated 2012)

- **Delayed umbilical cord clamping should be performed during the provision of essential neonatal care.**
- **Recommendations for the optimal timing of umbilical cord clamping apply equally to preterm and term births.**
- **The guideline development group considered the benefits of delayed cord clamping for preterm infants to be particularly important.**

Changes in guidelines – Timeline

RCOG 2009

- **RCOG 2009 - states that the cord should not be clamped earlier than is necessary, based on a clinical assessment of the situation.**
 - **Delayed cord clamping (more than 30 seconds) may benefit the neonate in reducing anaemia, and particularly the preterm neonate by allowing time for transfusion of placental blood.**
 - **Delayed clamping does not increase the risk of postpartum haemorrhage.**
 - **The time at which the cord is clamped should be recorded.**
- 

Changes in guidelines – Timeline

Royal College of Midwives 2012

- **DCC is currently the recommended practice known to benefit the neonate in improving iron status up to 6 months with a possible risk of jaundice that requires phototherapy.**
- **Midwives should be competent in both active management and physiological management.**
- **When women are offered physiological third stage as a reasonable option, many will choose it.**

Changes in guidelines – Timeline

NICE Guidelines 2014

Hallelujah!!

- **Do not clamp the cord earlier than 1 minute from the birth of the baby unless cord or the baby has a heartbeat below 60 beats/minute that is not getting faster. (All babies)**
- **Clamp the cord before 5 minutes in order to perform controlled cord traction as part of active management.**
- **If the woman requests that the cord is clamped and cut later than 5 minutes, support her in her choice.**

Midwifery Practice!

**Safe and Autonomous Practice.
No resus, No bleeding, No rush!**

What's the rush?



Informed Choice

- **Physiological 3rd stage should be considered as default management in the absence of pregnancy complications,**
- **Delayed cord clamping as part of active or physiological management.**
- **Neonatal resuscitation with the umbilical cord intact whenever pos**



The Golden Hour after delivery - Best start in Life

- **Safe environment- warmth, privacy, dignity, respect, quiet and undisturbed. Slow, gentle and peaceful - Less problematic third stage.**
- **Raised Oxytocin**
- **Decreased Adrenaline.**
- **Optimal Cord Clamping –ideally the cord should be empty**
- **Immediate Skin to Skin.**
- **Breastfeeding.**
- **Time alone to bond**

Golden Hour



Active Management

- **Oxytocic drug following delivery of the baby.**
- **Immediate recommended by NICE but autonomous practice. Many midwives delay administration.**
- **Allow cord to pulsate (unclamped) for at least 1-5 minutes (or longer if the parents request/you prefer)**
- **Clamp and deliver with CCT.**
- **2010 –Cochrane review showed timing of oxytocic made no significant difference to risk of pph.**

Physiological Third stage.

- **No oxytocics.**
- **No clamping or cutting.**
- **Hands off. (completely)**
- **If the cord is pulsating, the placenta is still attached and functioning.**
- **If PPH or delay of >1 hour administer oxytocic and clamp and cut the cord.**

Waiting for White



Optimal Cord Clamping/#Wait for White



Cord Clamping the Evidence



African OCC!



Wait for White #Waitforwhite



Lotus Birth



Nuchal Cord



Somersault Manoeuvre



Cord Clamping the Evidence

Taking blood gases + Kleihauer Bloods

- **Cord Blood samples can still be taken from a pulsating Cord. There is no need to clamp and cut.**
- **After taking the samples, apply gentle but firm pressure to the needle entry site as you would if taking venous blood.**



Delayed Cord Clamping:

A review of its introduction within a medium-sized UK consultant-led maternity unit.



George Brooks, Shonag MacKenzie, Michelle Salem Wansbeck General Hospital, Northumberland NE63 9JJ contact: george.brooks@northumbria-healthcare.nhs.uk

Background

This tentative review was undertaken to identify issues which could be examined in further studies to determine the impact of introducing "Delayed Cord Clamping for all" within an obstetric service providing low/high risk care.

Delayed Cord Clamping (DCC) was introduced within our maternity unit in 2009. DCC is recommended for up to 3 minutes within our low risk intrapartum care guidelines. A minimum of 1-2 minutes of DCC is advised for infants born by instrumental delivery/LSCS regardless of indication for delivery. This audit was planned to determine if this was being put into practice.

The resident neonatal staff, a team of Advanced Neonatal Nurse Practitioners (ANNP), work with the midwifery/obstetric teams to ensure infants benefit from DCC. Practice changes such as sitting alongside the obstetrician at instrumental deliveries were introduced.

Methods

A review of the most recent cohort of deliveries was undertaken. This looked at:

- ❖ Was DCC practised?
- ❖ How many babies required resuscitative measures?
- ❖ What proportion of infants born at term were admitted to the Special Care Baby Unit (SCBU) for respiratory care?
- ❖ These data were reviewed in light of what is known about resuscitation practice before the introduction of DCC.

Results

- 1973 births were reviewed (born late 2012-13)
- 1904 (96.5%) received at least 1 minute DCC
- 1456 (73.8%) received 2-4 minutes DCC
- 141 (7.14%) infants had an Apgar score <5 at 1 minute
- 41 (2.07%) babies had Apgar score <7 at 5 minutes
- 81 infants were transferred to the resuscitaire for intervention (4.08%). Newborn resuscitaire measures in this instance were crudely identified as any action requiring transfer to a delivery room resuscitaire within the first 5 minutes of life.
- 50 (2.55%) were admitted to SCBU for respiratory care following delivery.
- Few (3.5%) of babies did not benefit from DCC
- Resuscitation incidence prior to introducing DCC was 15% (333/2470 births in 2006). At this time 4.5% of term infants were admitted to SCBU for respiratory problems.

Discussion

1. The introduction of DCC has resulted in a significant reduction in the number of babies born within our consultant-led unit receiving resuscitative measures at birth. Ashington now very much supports the practice of "assisted transition" from placental to pulmonary respiration. The act of delaying the separation of the infant from mother in itself appears to prevent infants *receiving* resuscitation that they don't *require*.

2. The only change in practice over the time period examined was DCC. In line with Kroll *et al* (1994) who demonstrated a dramatic reduction in resuscitation we also reduced the indications for ANNP attendance at birth over this time. However having an experienced midwife or ANNP attending births acting as an advocate for the baby (and DCC!) by holding their nerve in delaying the cord clamping of some compromised infants has also contributed to the decrease in intervention.

3. DCC is contraindicated if placental abruption was suspected or if an anteriorly positioned placenta was incised at caesarean section. Other reasons were cited such as cord snapping, PPH and a small number were attributable to non-compliance with the guideline.

4. DCC is explained and the women are reminded of this at the birth. Less separation from mother ensures our compliance with current requirement for facilitating skin-to-skin contact at birth.

Future Action

- ❖ Consultant obstetricians and senior midwives will continue to remind junior staff at induction.
- ❖ Duration of DCC is now included in neonatal documentation which will facilitate further audit. The reason for NOT doing DCC has to be documented.
- ❖ Senior nurses and midwives attending delivery will continue to advocate DCC and the notion that allowing for normal physiological transition most babies will resuscitate themselves.
- ❖ A more formal project will add validity and transferability to the findings of this audit.

References

- 1. Kroll, L. Twohey, L. Daubeney, P. *et al* Risk factors at delivery and the need for skilled resuscitation. *Eur J Obstet & Gynecol and Reprod Biol* 1994; **44**: 175-7.

Delayed Cord Clamping: Review in a UK Consultant led Maternity Unit.

(George Brooks, Shonag MacKenzie, Michelle Salem)

Background

- **DCC Introduced in 2009.**
- **Low risk – up to 3 mins.**
- **Instrumental/LSCS – minimum of 1-2 mins, regardless of indication.**
- **1973 babies audited.**
- **Team work – Neonatal/Midwifery/Obstetricians.**

Results

- 1973 babies were reviewed Late 2012/13
- 96.5% received at least 1 minute DCC (Compliance)
- 73.8% received between 2-4 minutes DCC
- 4.08% (15% before dcc) were transferred to the resuscitaire for intervention
- 2.5% (4.5% before) were admitted to SCBU for respiratory care following delivery.
- DCC has resulted in a significant reduction in the number of babies born receiving resuscitative measures at birth.

Leeds Audit 2014
Charlotte Kear + Rebecca Jancis

- **471 births**
- **70.5% (332) babies had DCC of 1 minute +**
- **27.4% had ICC (reasons not recorded)**
- **55% had DCC of 1-3 minutes**
- **41% had >3 minutes**
- **Declining pph in both DCC groups.**
- **No babies were recorded as having phototherapy.**

Gentle Sections



Not so Gentle Section



Lotus Sections



Facilitating delayed cord clamping in anticipated complex cases

- **Delaying cord clamping may confer significant benefits to babies at high risk of poor outcome.**
- **Delaying the onset or resuscitation in sick or preterm babies may increase adverse outcomes.**
- **ERC 2010**
“Delay in umbilical cord clamping for at least 1 min is recommended for newborn infants not requiring resuscitation. A similar delay should be applied to premature babies being stabilised. For babies requiring resuscitation, resuscitative intervention remains the priority.”

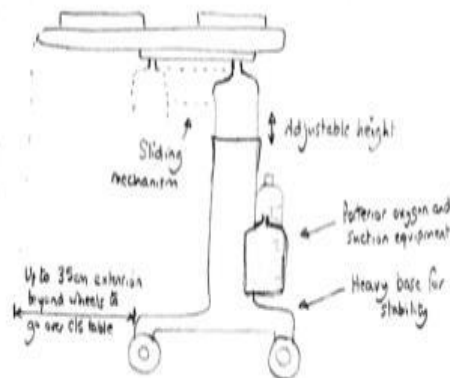
Development of the 'Bedside Assessment, Stabilisation & Initial Cardiorespiratory Support' (BASICS) Trolley

AD Weeks, P Watt, D Hutchon, CW Yoxall, D Odd,
A Burleigh, AM Heuchan, A Gallagher, S Bewley, L Duley.

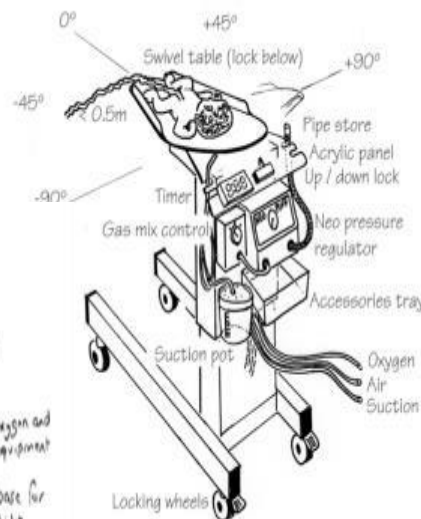




2006



2010



2011



2012

Bedside Assessment, Stabilisation and Initial Cardiorespiratory Support (BASICS) Trolley (LIFESTART)

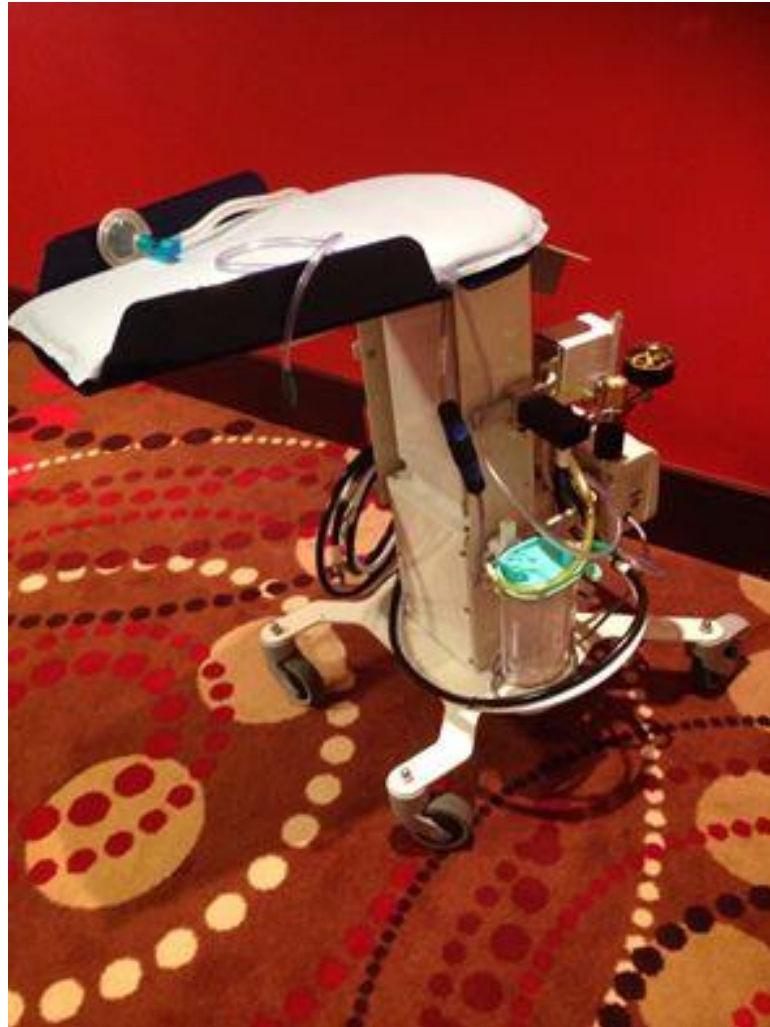
Bewley (London), Burleigh (Leeds), Duley (Nottingham), Gallagher (Worcester),
Heuchen (Edinburgh), Hutcheon (Darlington), Odd (Bristol), Watt (Liverpool),
Weeks (Liverpool), Yoxall (Liverpool)

Basics/Lifestart Trolley



Basics/Lifestart Trolley





Medical Futures Innovations Award 2011

Best service redesign in Cardiovascular Innovations



Built and CE marked by:



INDITHERM plc

Case study

- **37⁺² twin, IOL, NVD, 2920gm, male**
- **Antenatal diagnosis complex congenital cardiac malformation (Twin 1 NAD)**
- **Cyanotic, weak cry, intermittent resp effort, HR >100**
- **Dried & wrapped, basic airway management on LifeStart trolley**
- **Umbilical cord clamped at 2 min**

Case study (cont'd)

- **Parents watched resuscitation**
- **Mum touched & helped to dry her baby**
- **Transferred to NICU at approx 5 mins age**
- **Died at 3 hours age**
- **Very positive parental feedback**
 - **seeing and touching baby**
 - **2 minutes of 'normal baby'**
 - **communication**
 - **experience less frightening as anticipated**

Conclusions

- **Intact cord resuscitation is possible**
- **Bedside resuscitation is acceptable**
- **LifeStart trolley allows formal evaluation of deferred cord clamping**

With very premature babies, resuscitation and deferred cord clamping are not mutually exclusive options

Whose blood is it anyway?

Cord Blood Donation

- **Ethical? Whose blood is it anyway?**
- **Do parents get real informed choice on cord blood donation and deferred cord clamping?**
- **A good sample is the largest possible! (Saving lives v research)**
- **Theoretically it is possible to do both!**
- **Ethically parents should get informed choice about both Cord Blood Donation and Optimal cord clamping.**

Donate your umbilical cord blood Give life twice in one day

- **Are you pregnant?**
- **Then you could save someone's life.**
- **How? Simply by donating the blood from your umbilical cord and placenta after you give birth.**
- **It's totally risk-free for you and your baby. And it won't interfere with your delivery, afterbirth or birth plan in the slightest.**
- **We can currently collect cord blood in four hospitals in Manchester, King's College London, Leicester Royal + General Infirmary. (Anthony Nolan)**

Umbilical Cord Blood Stem Cell Storage & Donation Services

Cells4Life

Precious Cells

**We fully support parents' choice if they wish to have
deferred
(formally called delayed) clamping. It will not affect
your choice to store
or donate your baby's stem cells.**

It's my Blood



Blood to Baby Hannah Tizzard



Hannah Tizzard – www.bloodtobaby.com

Optimal/Delayed Cord Clamping

by Hannah Tizzard #BloodToBaby



Birth plan

Let your birth attendants know your wishes, include optimal/delayed cord clamping



To birth the placenta you can choose either to let nature take its course **physiological** OR have an injection **active management**



Baby's birth

Baby will be placed with the cord still attached onto mummy's tummy



Baby's immediate and long term **health will benefit** speak to your midwife for more information



Whilst you are busy cuddling baby, he/she will receive its full circulating blood volume from the **placenta**



Bonding

Baby will be gently rubbed dry. Skin to skin contact will comfort your baby



Fathers/birth partners are welcome to cut the cord, ideally once it has **stopped pulsating** but not <1 minute following birth

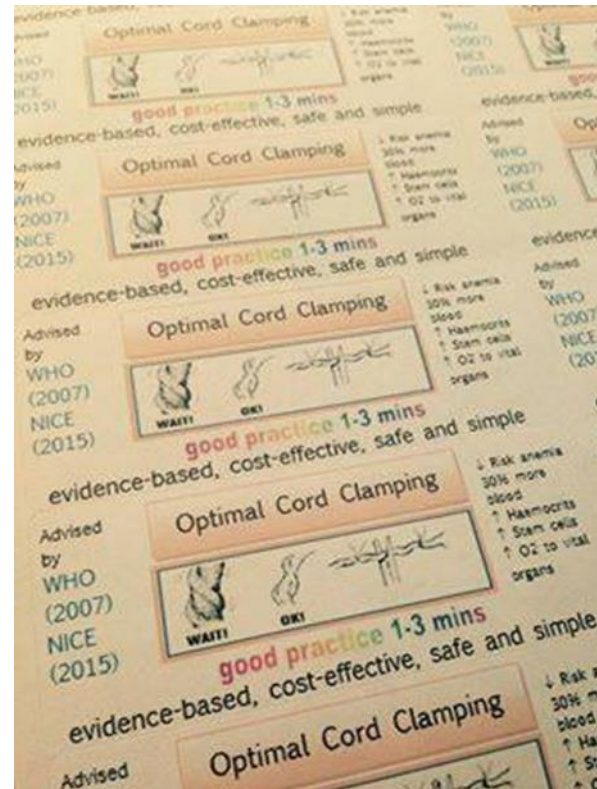


When baby is weighed (usually after 1 hour skin to skin) baby will benefit from a higher birth weight due to the greater blood volume, **giving baby a better start**



Finally rest well, keep distractions to a minimum and enjoy this time making a **close and loving** bond with your baby

www.bloodtobaby.com
sponsored by Inspiration Healthcare



Belly Belly Kelly: Australia

Don't cut my cord too soon!

Waiting at least 2 minutes:

- Gives me around 32% more blood volume
- Increases my iron reserve 27-47 mg
- Reduces my risk of anaemia and blood transfusions
- Reduces my risk of intraventricular haemorrhage
- Supplies me with oxygen

more info on
delayed cord clamping
at BellyBelly.com.au



Photo: Mockingbird Photography

Cord Clamping the Evidence

Global Net/Team Working

- **United Kingdom:**
- **Australia:** **Norway:**
- **Sweden:**
- **Canada:** **Turkey:**
- **USA:**
- **Tunisia:**
- **Pakistan:** **India:** **Israel:**
- **Palestine:**
- **South Africa:**

TED talk by Dr Alan Greene



www.youtube.com/watch?v=Cw53X98EvLQ

Ticc Tocc 90 seconds to change the world.

Tall Poppy Syndrome



Tall Poppy Syndrome



Undermining bullying and behaviours



Success of campaign by Leeds Midwife to influence change



Optimal Cord Clamping/#Wait for White

Contacts and Information

- **amanda.burleigh@ntlworld.com**
- **Optimal Cord Clamping/#Waitforwhite**
(Facebook page)
- **@optimalclamping**