

Cord Clamping—**When?** **Why?** & **How?**



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Effect of Language on person

- An English woman from England coming to India to stay in Bihar
- She wrote a Letter to Schoolmaster in Bihar
- Her stay was booked at Guest house locally owned by a school master
- Worried about toilet she wrote to him whether WC is available there
- WC (Water closet) in England i.e Toilet

- School master not fluent in English asked the local priest about the letter and meaning of WC
- What they concluded that **WC** means **Wayside Church**
- School master wrote:
- Dear Madam,
- I take great pleasure in informing you that WC is located 9 miles from house.
- It is located in the middle of a grove of pine trees and surrounded by lovely grounds.
- It is capable of holding 229 people and is open on Sundays and Thursdays.
- As there are many people expected in Summer months I suggest to arrive early and there is plenty of standing room

- My wife is ill recently so was unable to go. It has been a year since she last visited, which pains her greatly.
- I look forward to escorting you there myself and seating you in a place where you can be seen by all.
- Woman fainted after seeing the reply and she never visited India

Delayed Cord clamping

How many of us Practice?

Why You Should
**DELAY
CORD
CLAMPING**





*an easy decision for the health of
your newborn*

www.feedmemama.net

Case Scenario...

- Primi
- 28 yrs IVF conceived
- 32 weeks of gestation
- Estimated weight of Fetus 1.2 KG
- PROM 2 days
- Having low grade fever
- Posted LSCS

Case Scenario...

- You are called for delivery
- Obstetrician is your spouse
- In your discussion with OBST.
 -  Ask provision of delayed cord clamping
 -  Should be discouraged as preterm
 -  High risk pregnancy so avoid
 -  High chances of PPH

Controversy / Myth

- Optimal time and whether to delay cord clamping , debate since centuries in literature
- Maternal mortality – PPH
- Nature’s provision
- Maternal and infant safety
- Many healthcare workers worldwide tend to clamp the cord and pass the baby off as quickly as possible

- Resource poor settings are the main victims of immediate clamping
- Cost-free means of small iron stores
- Infant anemia is associated with increased mortality and impaired mental and motor development
- Delaying clamping effective strategy to reduce anemia and improve child survival

Term infants >37 weeks

Delaying cord clamping for at least one minute

- Higher early hemoglobin concentration

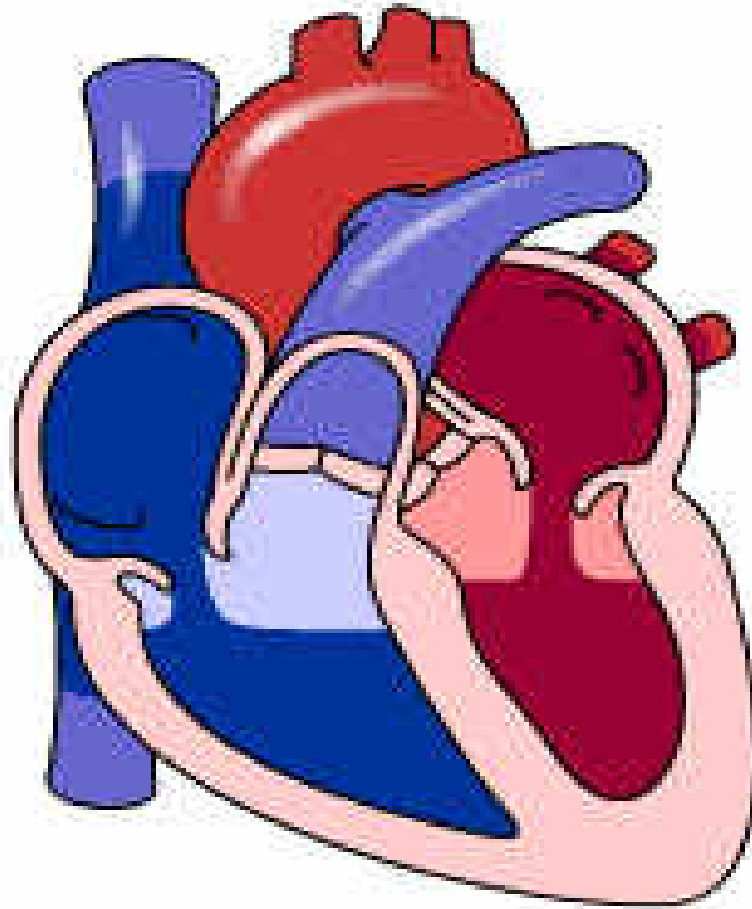
- Increased iron reserves up to 6 months after birth

- No difference in PPH rates

- Higher birth weight

- No statistically significant increase in jaundice or polycythemia

Hemodynamic...



From Placenta to Fetus...





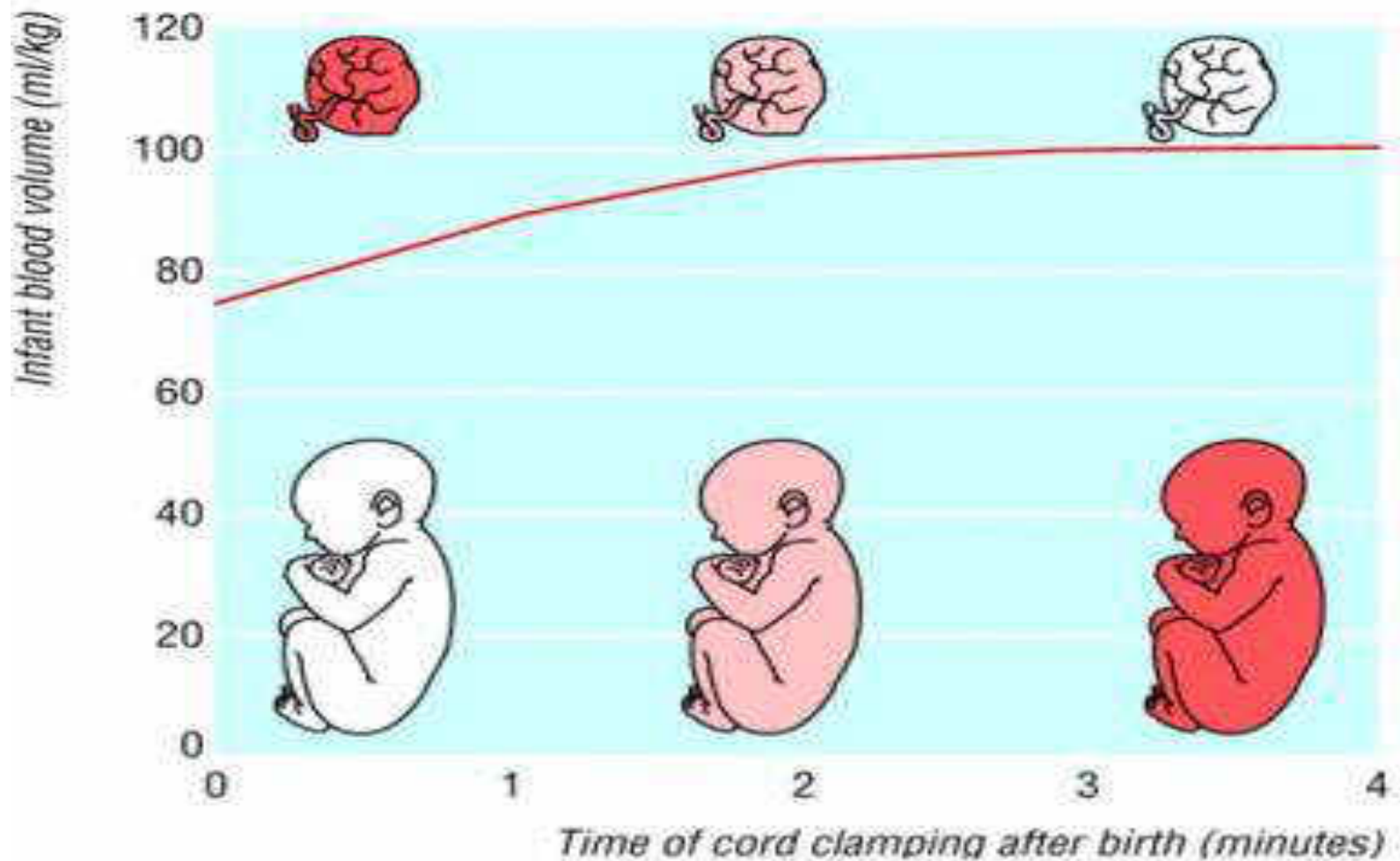
TIME AFTER CORD CLAMPING	PLACENTA	BABY
Instantly –15 seconds after delivery		
60 seconds after delivery		

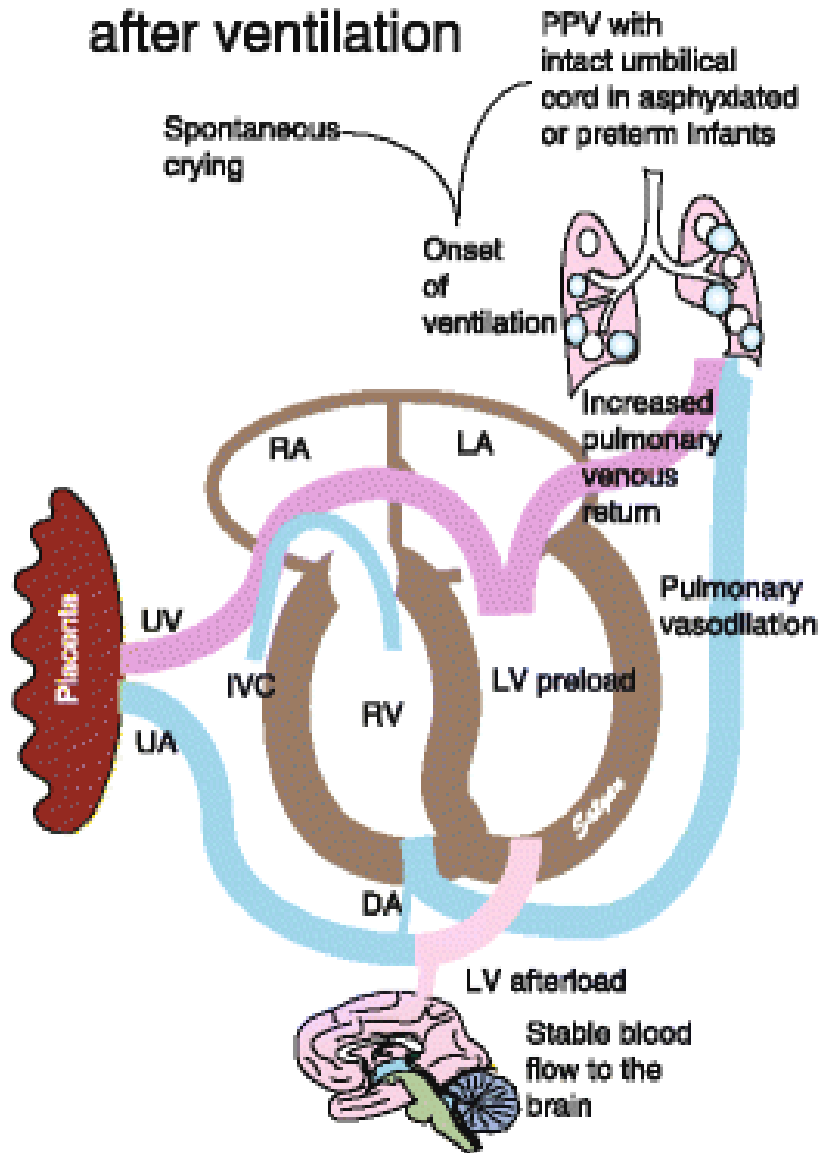
Figure 1: Delaying cord clamping means more blood for the baby and less for the placenta. ²



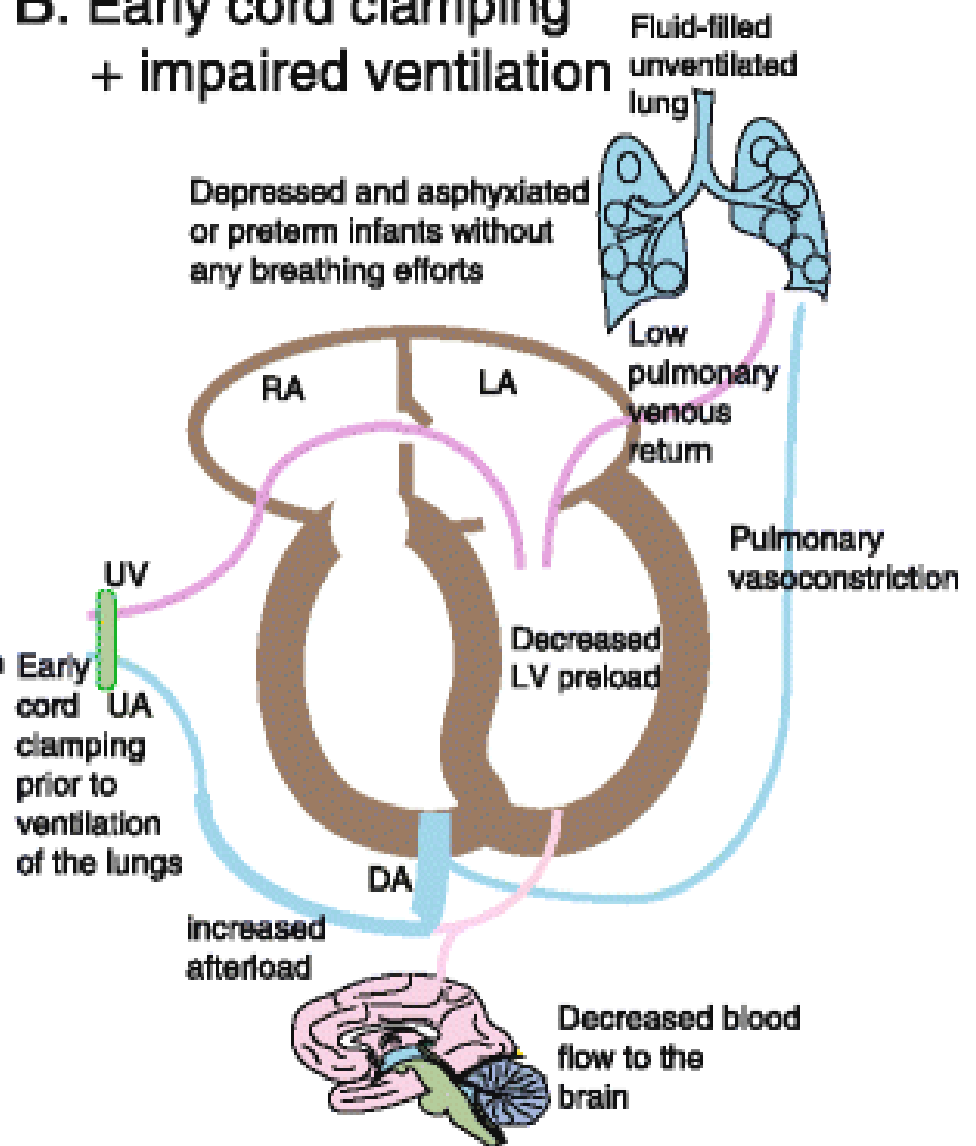
Delaying cord clamping allows more blood to leave the placenta and go to the baby.

In placentofetal circulation Total blood volume is 120ml/kg of Fetus

A. Physiological cord clamping after ventilation



B. Early cord clamping + impaired ventilation



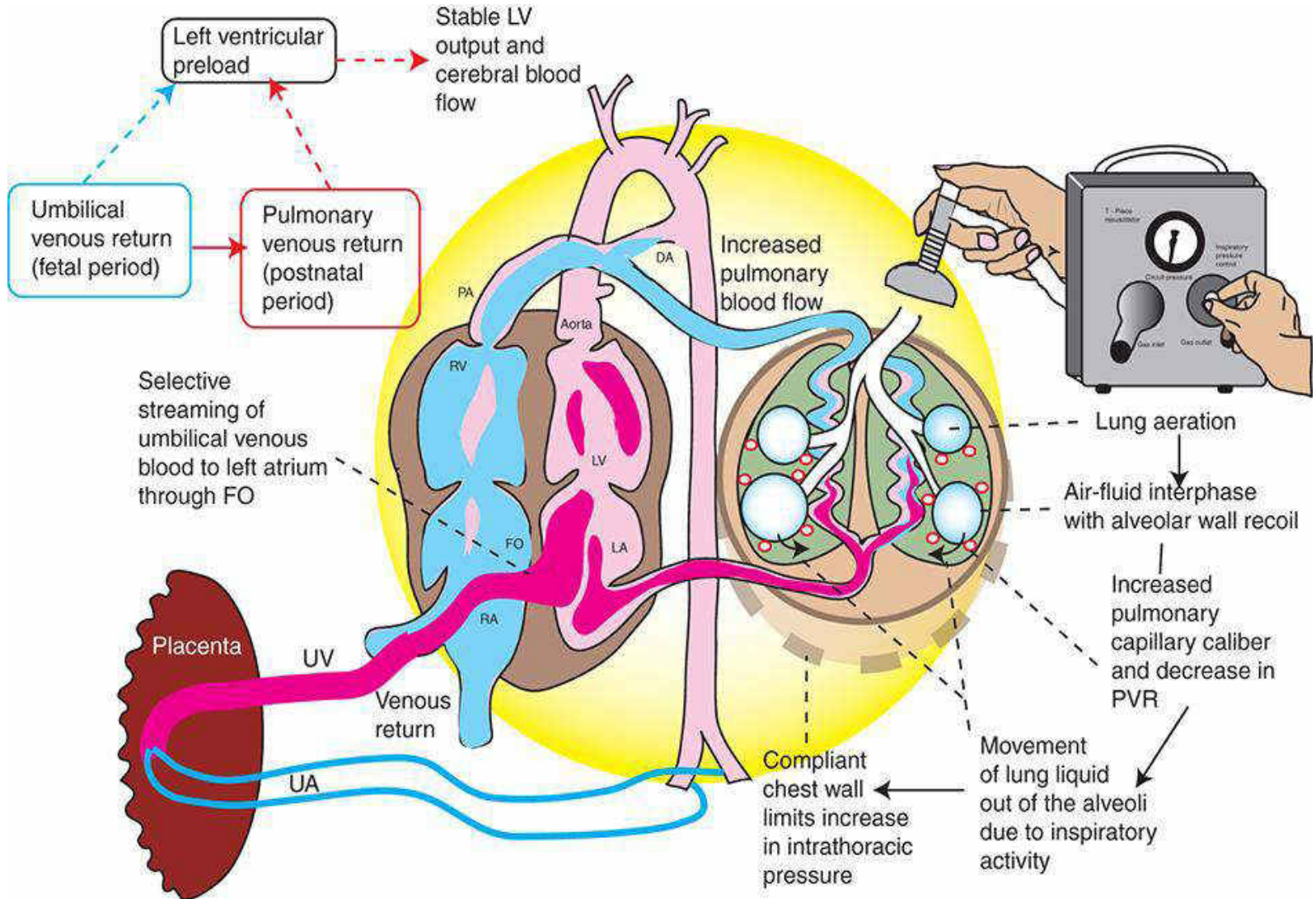
Case Scenario...

- 32 yrs G2P1L1
- Delivered by NVD
- Cried immediate
- Respiratory distress after birth
- May need delivery room CPAP
- Delay Cord clamping

 YES

 NO

Hemodynamic



Why delay cutting your baby's cord?



Keeps mother and baby together for bonding



Keeps baby oxygenated while they learn to breathe



Baby receives full blood volume

- Supplies extra iron
- Maintains oxygen
- Stem cells for healing

Traditional  Wisdom

Evidence...

Recommendation

- Delayed cord clamping should be considered in every infant born in a resource poor setting, regardless of gestational age

Grade of recommendation: Strong

DELAYED CORD CLAMPING



Late cord clamping (approximately one to three minutes after birth) is recommended for all births while initiating simultaneous essential newborn care.

-World Health Organization

Benefits



Higher birth weight/
Increased blood
volume, oxygen levels,
and nutrients

***32% Higher Blood Volume**



Increased red blood
cells, stem cells, and
immune cells



Increased iron stores/
decreased risk for
anemia

***50% Reduced Risk For Anemia**



"We must be very clear. This blood is not "cord" blood, it is baby blood! When we ask mothers to give away cord blood, they are under an illusion. This blood belongs to the baby, not the umbilical cord."

-Robin Lim

MEAN NEONATAL HB AT BIRTH

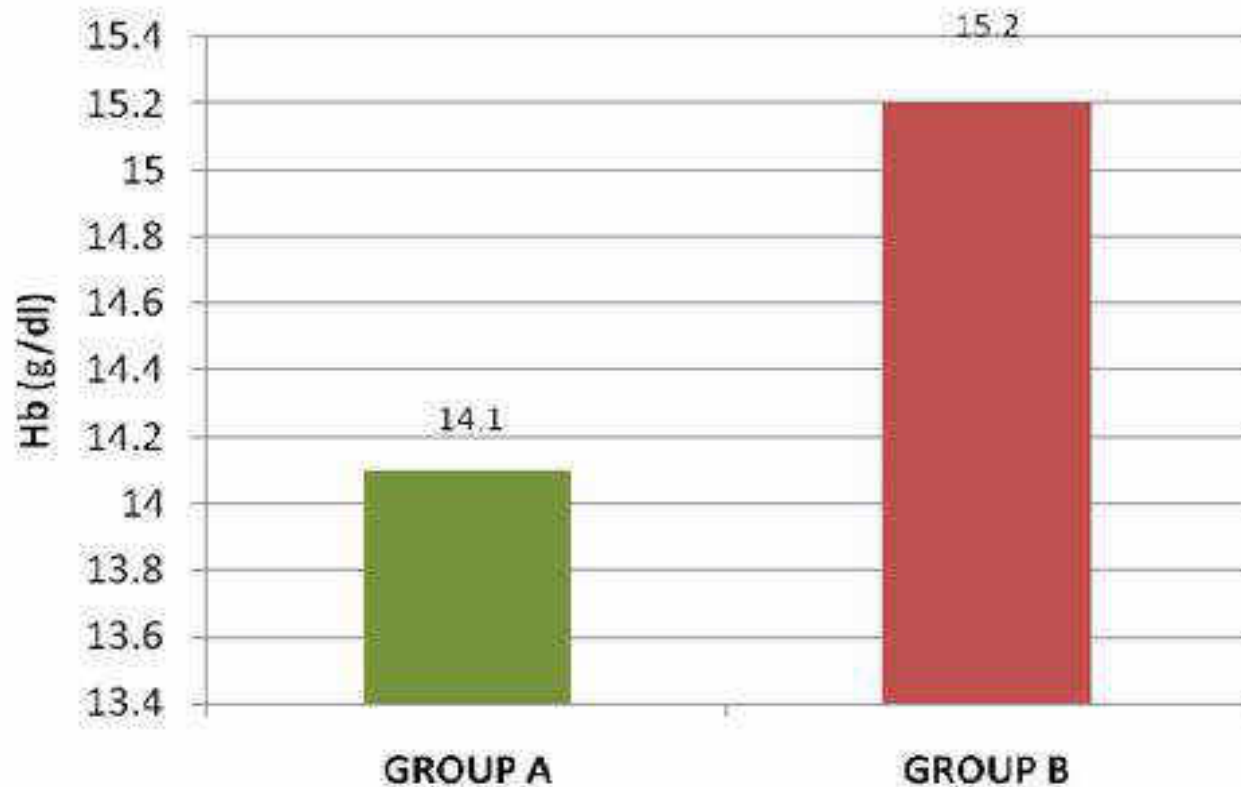


Figure 1: NB: $p = 0.008$.

Transfusions

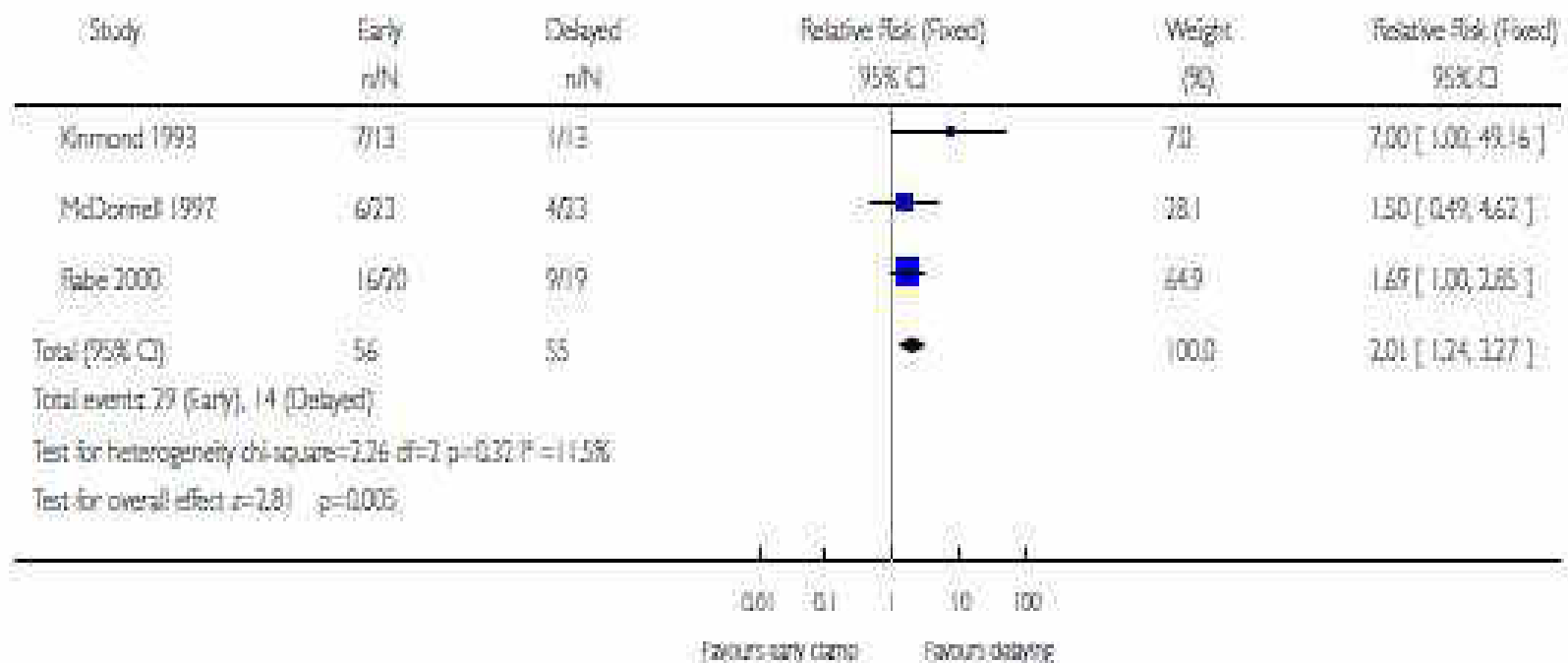


Analysis 01.02. Comparison 01 Early versus delayed cord clamping, Outcome 02 Transfused for anaemia

Review: Early versus delayed umbilical cord clamping in preterm infants

Comparison: 01 Early versus delayed cord clamping

Outcome: 02 Transfused for anaemia



Recommendations¹

From 2012 [WHO guidelines on basic newborn resuscitation](#):

- In newly born term or preterm babies who do not require positive-pressure ventilation, the cord should not be clamped earlier than 1 min after birth (*strong recommendation*).
- When newly born term or preterm babies require positive-pressure ventilation, the cord should be clamped and cut to allow effective ventilation to be performed (*conditional recommendation*).
- Newly born babies who do not breathe spontaneously after thorough drying should be stimulated by rubbing the back 2–3 times before clamping the cord and initiating positive-pressure ventilation (*conditional recommendation*).

From 2012 [WHO recommendations for the prevention and treatment of postpartum haemorrhage](#):

- Late cord clamping (performed approximately 1–3 min after birth) is recommended for all births, while initiating simultaneous essential neonatal care (*strong recommendation*).
- Early umbilical cord clamping (less than 1 min after birth) is not recommended unless the neonate is asphyxiated and needs to be moved immediately for resuscitation (*strong recommendation*).

In summary:

- Delayed umbilical cord clamping (not earlier than 1 min after birth) is recommended for improved maternal and infant health and nutrition outcomes.

Delayed cord clamping till 60 secs in
Term or Preterm, if infant is stable

Cord milking , still in research scenario

Updated guidelines 2015



Are we convinced?

- IVH
- NEC
- PDA
- Cardiac failure
- CLD
- Hyperbilirubinemia
- Polycythemia
- Mortality

Hyperbilirubinemia

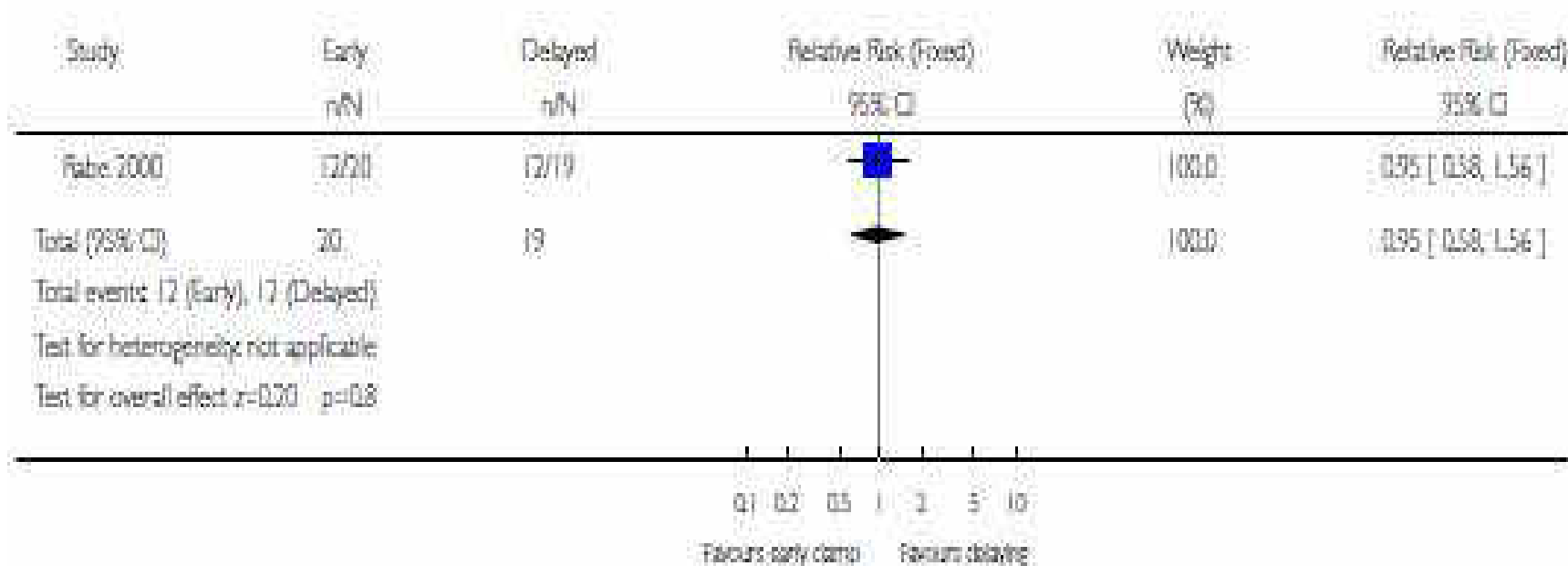


Analysis 01.09. Comparison 01 Early versus delayed cord clamping, Outcome 09 Hyperbilirubinemia (treated)

Review: Early versus delayed umbilical cord clamping in preterm infants

Comparison: 01 Early versus delayed cord clamping

Outcome: 09 Hyperbilirubinemia (treated)



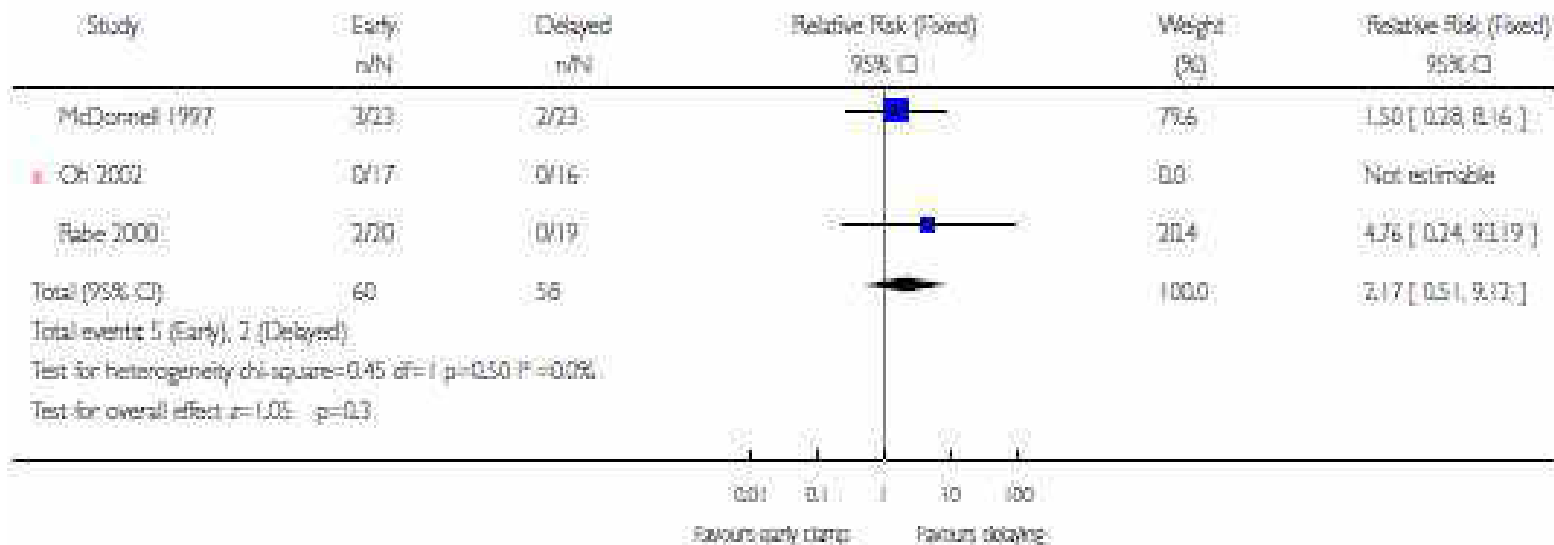
Inotropes requirement

Analysis 01.11. Comparison 01 Early versus delayed cord clamping, Outcome 11 Inotropes for low blood pressure

Review: Early versus delayed umbilical cord clamping in preterm infants.

Comparison: 01 Early versus delayed cord clamping

Outcome: 11 Inotropes for low blood pressure.



PDA

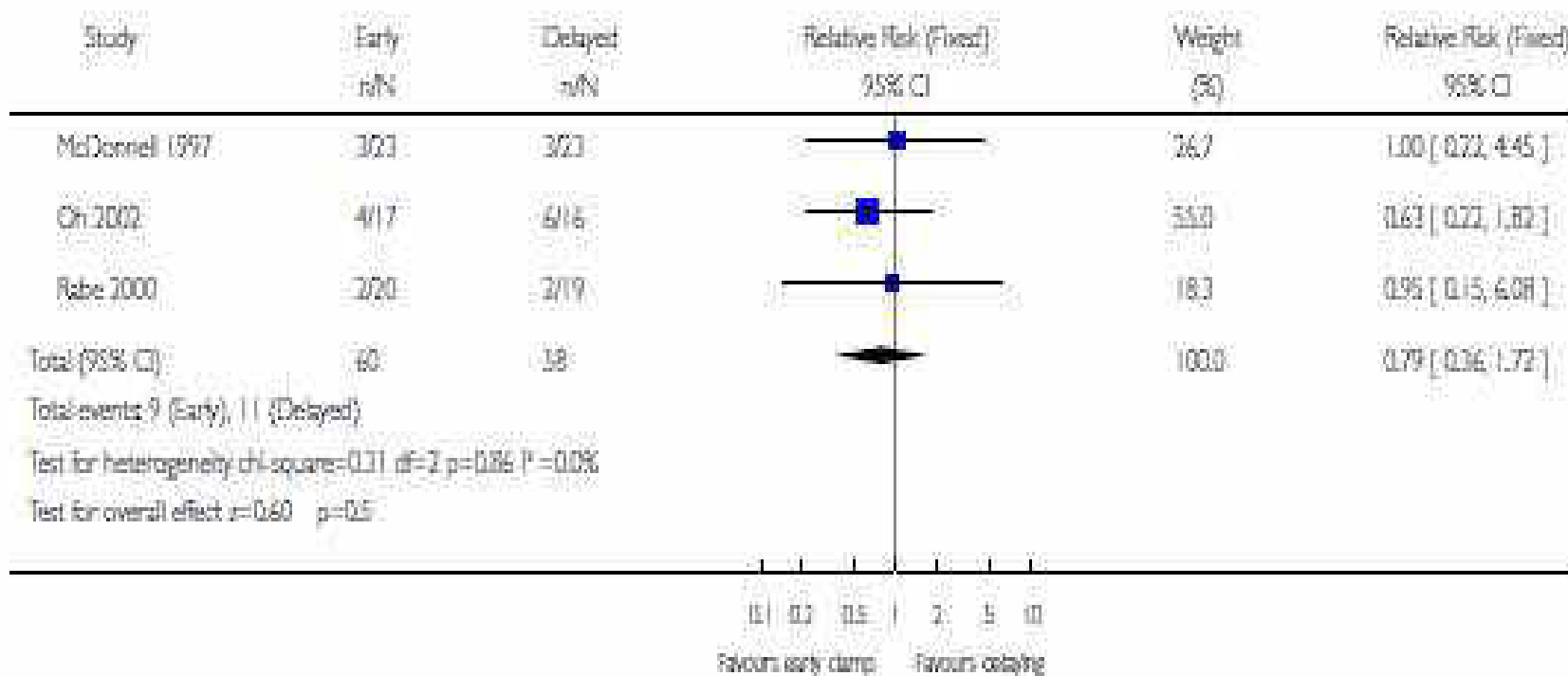


Analysis 01.12. Comparison 01 Early versus delayed cord clamping, Outcome 12 Patent ductus arteriosus

Review: Early versus delayed umbilical cord clamping in preterm infants

Comparison: 01 Early versus delayed cord clamping

Outcome: 12 Patent ductus arteriosus



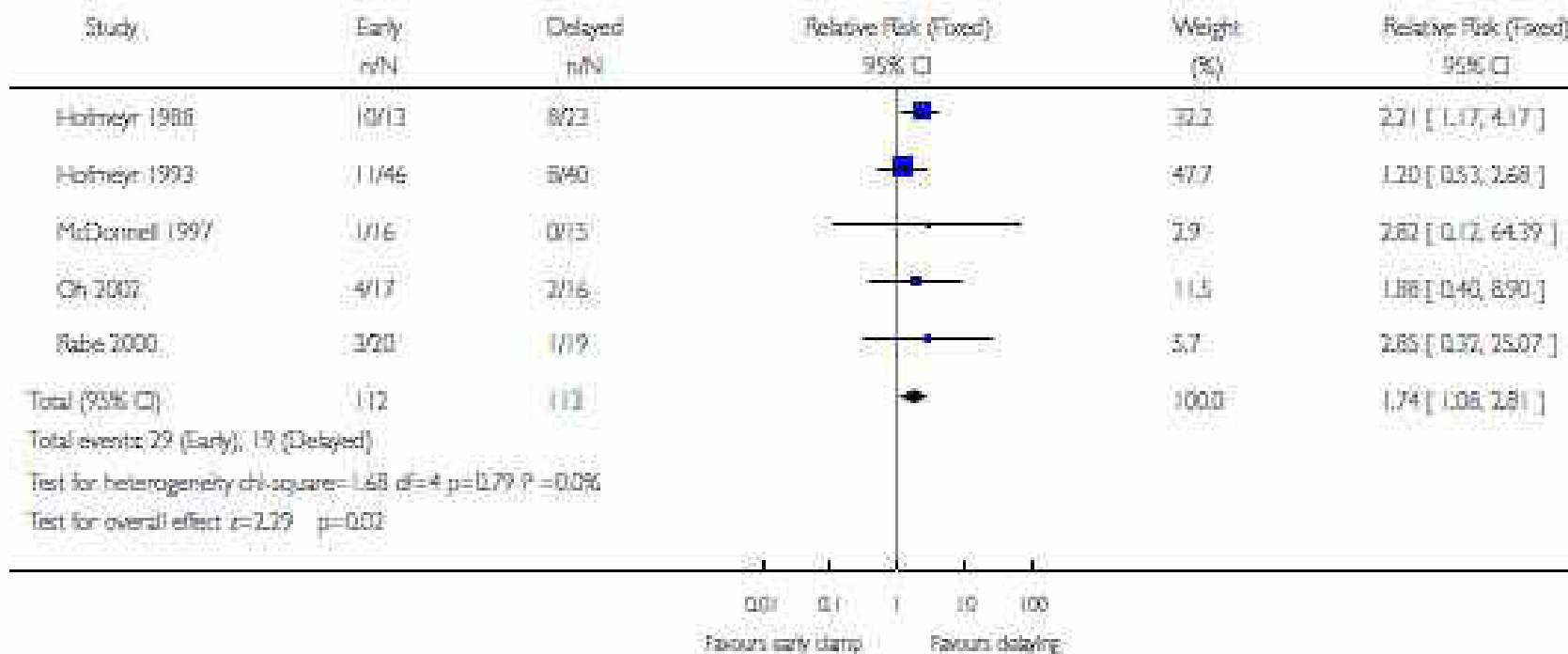
IVH

Analysis 01.13. Comparison 01 Early versus delayed cord clamping, Outcome 13 Intraventricular haemorrhage

Review: Early versus delayed umbilical cord clamping in preterm infants

Comparison: 01 Early versus delayed cord clamping

Outcome: 13 Intraventricular haemorrhage



Death

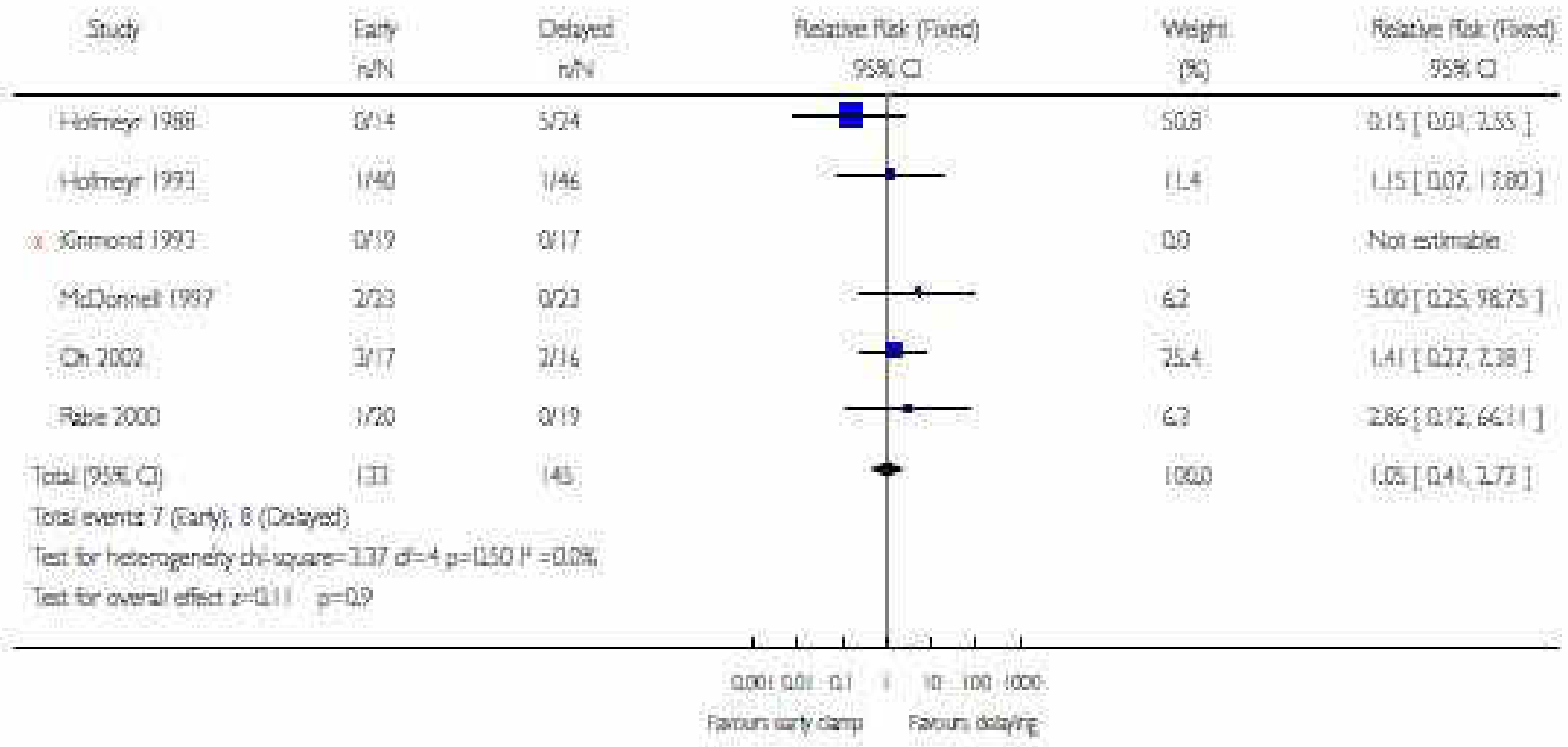


Analysis 01.01. Comparison 01 Early versus delayed cord clamping, Outcome 01 Death of the baby

Review: Early versus delayed umbilical cord clamping in preterm infants

Comparison: 01 Early versus delayed cord clamping

Outcome: 01 Death of the baby



When?

Recommendation

- Cord clamping should be delayed for at least three minutes for the optimal volume of placental transfusion, regardless of fetal weight

Grade of recommendation: Weak

Recommendation

- When the state of the infant does not allow a clamping delay of three minutes, aim for a delay of at least 60 seconds with the infant placed between the mother's legs

Grade of recommendation: Weak

How?

7. When immediate neonatal resuscitation is required, place the child between the legs of the mother, start positive pressure ventilation with the umbilical cord intact and delay clamping for at least 60 seconds.

Level of evidence: Very low.

How?

Recommendation

- Delayed cord clamping should be combined with the administration of oxytocin immediately after delivery of the infant to reduce maternal blood loss in the third stage of labour

Grade of recommendation: Strong

Adequate transfusion within +10 to -10 cm/ nothing >40cm above/ and in a minute if 40 cm below

Position of infant in relation to timing of cord clamping in trials that studied vaginally born, healthy, term infants

Position of infant in relation to placenta	Time to cord clamping (minutes)			
	1-2	3	5	>5
>10 cm above	Ceriani Cernadas et al ¹⁶	Nelle et al ¹³⁻¹⁴ ; Ceriani Cernadas et al ¹⁶	—	—
0-10 cm below	Chaparro et al ⁵	Linderkamp et al ¹¹	Grajeda et al ² ; van Rheenen et al ⁶ ; Pao-Chen et al ²²	Gupta et al ³ ; Lanzkowsky et al ⁴ ; Geethanath et al ²¹
30 cm below	Saigal et al ¹⁵	—	Saigal et al ¹⁵	—

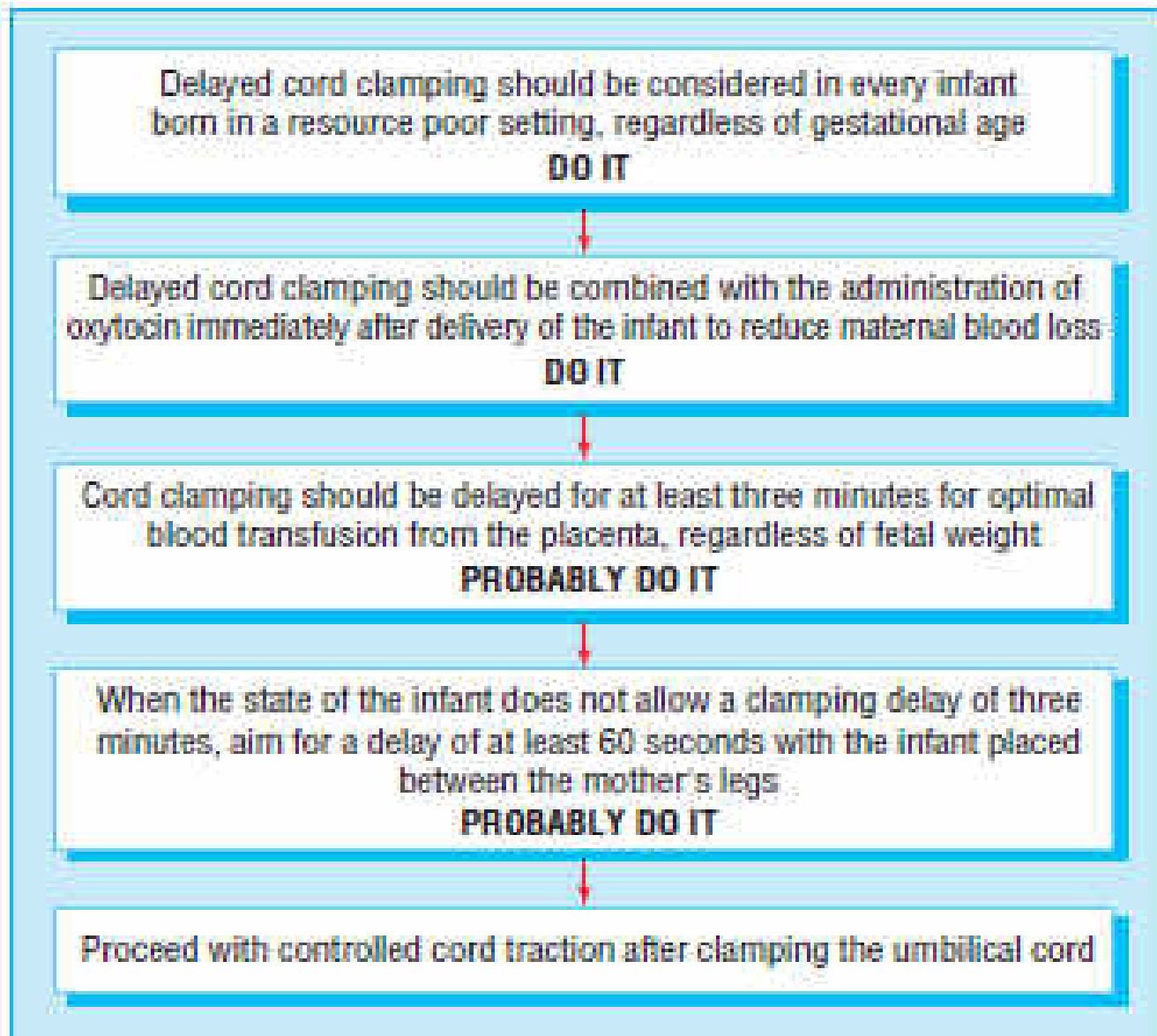


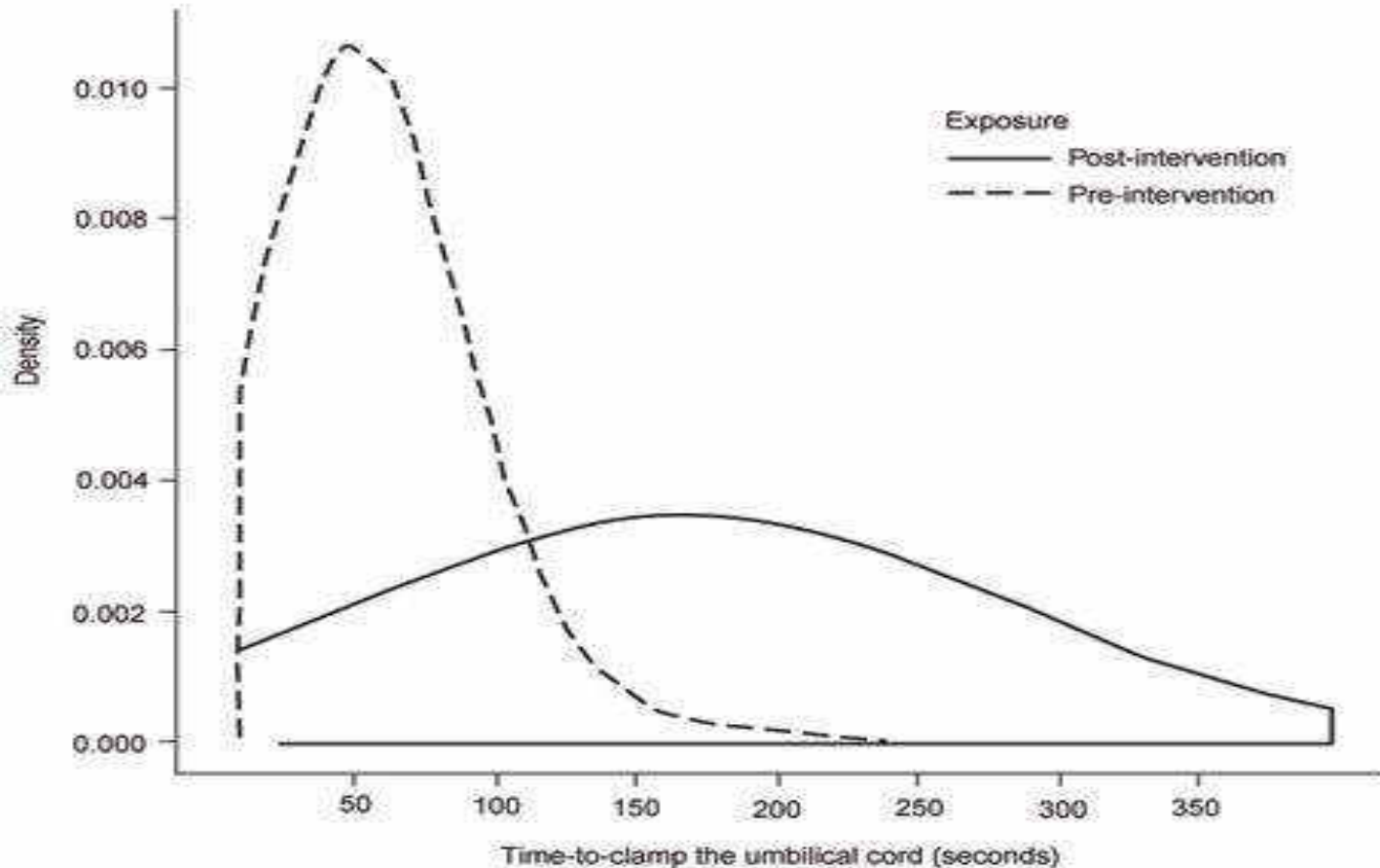
Fig 2 Guidelines for cord clamping in resource poor settings

Cord clamping



Training update

FIGURE 3. Density plots demonstrating distribution of the timing of umbilical cord clamping (in seconds) before and after an intervention to change hospital practice from early to delayed cord clamping, Iquitos, Peru, May–July 2009



If this benefits babies,



Immediate drying,
delayed cord clamp



Skin-to-Skin Contact



Why is this so common?



Immediate cord clamp,
delayed drying,
suction

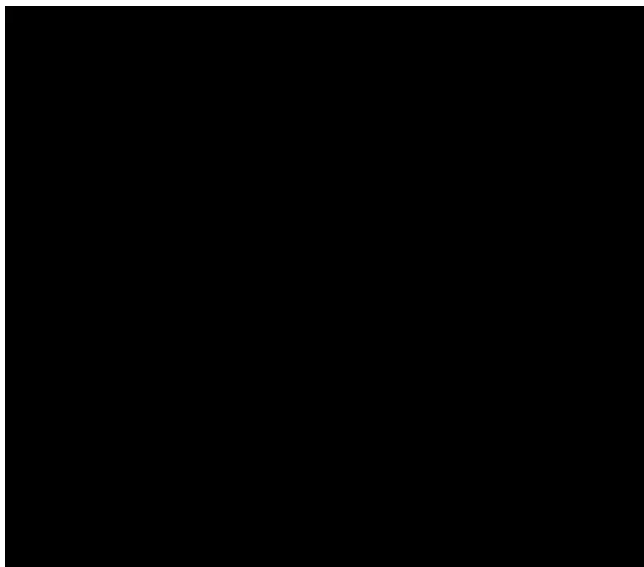


Separated from mother

Take Home

TABLE 2 State of the science on delayed umbilical cord clamping

	Term Neonate	Preterm Neonate
Main Benefits	<ul style="list-style-type: none"> • Lower risk of iron deficiency at age 6 months 	<ul style="list-style-type: none"> • Decreased need for transfusion • Lower risk of needing inotropic medications • Lower risk of intraventricular hemorrhage • Lower risk of necrotizing enterocolitis
Main Drawbacks	<ul style="list-style-type: none"> • Increased risk of hyperbilirubinemia requiring phototherapy 	<ul style="list-style-type: none"> • Increased risk of hyperbilirubinemia
Length of Delay	<ul style="list-style-type: none"> • Typically 2–3 minutes; range 1–5 minutes 	<ul style="list-style-type: none"> • Typically 30–45 seconds; range 25 seconds–3 minutes
Positioning of Infant	<ul style="list-style-type: none"> • Understudied • Position of term neonate before umbilical cord clamping does not affect volume of placental transfusion 	
Cautions	<ul style="list-style-type: none"> • Significant maternal anemia • Meconium stained fluid • Repetitive decelerations, fetal bradycardia, or other concern for fetal well-being • Known maternal infectious diseases (ie, HIV, hepatitis) 	
Situations in Which Risks Likely Outweigh Benefits	<ul style="list-style-type: none"> • Absent- or reversed-end-diastolic umbilical artery cord Dopplers on prenatal ultrasound • Neonate with severe depression at birth (ie, heart rate <60 beats per minute, suspected severe asphyxia) • Placental abnormalities: severe abruption, accreta, percreta, vasa previa • Multiple gestations • Fetal anomalies that require immediate resuscitation (eg, congenital diaphragmatic hernia) 	





एक कदम स्वच्छता की ओर

Thanks