

POLICY BRIEFING PAPER – JUNE 2005

Impact of early initiation of breastfeeding on neonatal mortality: implications for meeting the millennium development goals for child survival

The latest research paper from the longstanding collaboration between Kintampo Health Research Centre (KHRC) and the London School of Hygiene and Tropical Medicine (LSHTM)

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KEY FINDINGS:

- 30% of the study population initiated breastfeeding after day 1 (late initiation) and 30% were not exclusively breastfed in the neonatal period
- Exclusive breastfeeding was associated with a 4 fold reduction in risk of death when compared to infants who were fed solids or other milk. This confirms previous findings.
- An additional 2.5 fold reduction in risk of death was demonstrated in babies who survived to day 2 who initiated breastfeeding on the first day of life (early initiation) compared to infants who initiated after the first day of life (late initiation). This type of effect of early initiation has never been reported.
- Translating these benefits to the whole population of neonates (breastfed and not breastfed) means that 16% neonatal lives can be saved if all babies were breastfed from day 1, and 22% if breastfeeding started within the first hour
- Neonatal mortality was also shown to increase markedly as delay in initiation increased.

KEY MESSAGES:

- Interventions to improve early infant feeding can save newborn lives in less developed settings.
- Exclusive breastfeeding is important in the neonatal period.
- Early initiation of breastfeeding has now been shown to have a major additional impact in reducing neonatal deaths. This type of effect has never been reported.
- In less developed settings, promotion of early initiation of breastfeeding should be a key component of neonatal survival programmes; in addition to the promotion of exclusive breastfeeding.
- More effective intervention programmes are needed. We need to understand more about the constraints to early initiation and appropriate delivery channels for intervention.

BACKGROUND:

- In 2002 almost 4 million infants died during the first month of life and neonatal deaths now account for 36% of deaths among children younger than 5 years of age.
- Although there is an extensive scientific basis for the impact of breastfeeding on post-neonatal mortality evidence is sparse for its impact on neonatal mortality and non-existent for the contribution of the timing of initiation
- Our primary objective was to evaluate the association between timing of initiation of breastfeeding and neonatal mortality.
- The secondary objective was to assess whether the different types of breastfeeding (exclusive, predominant, partial breastfeeding) were associated with substantially different risks of neonatal death.

STUDY DEFINITIONS:

- Neonatal deaths = infants who died from 2-28 days of age.
- Early initiation = breastfeeding that started on the first day of life
- Late initiation = breastfeeding that started after the first day of life
- Established breastfeeding = breastfeeding pattern in the 24 hours prior to the first interview (median 14 days)
- Exclusive breastfeeding = feeding of only breastmilk and nothing else, not even water, with the exception of vitamin supplements and prescribed medicines
- Predominant breastfeeding = feeding of breastmilk along with other non-milk fluids
- Partial breastfeeding = Infants who were offered breastmilk and animal milk, infant formula or solids

METHODS:

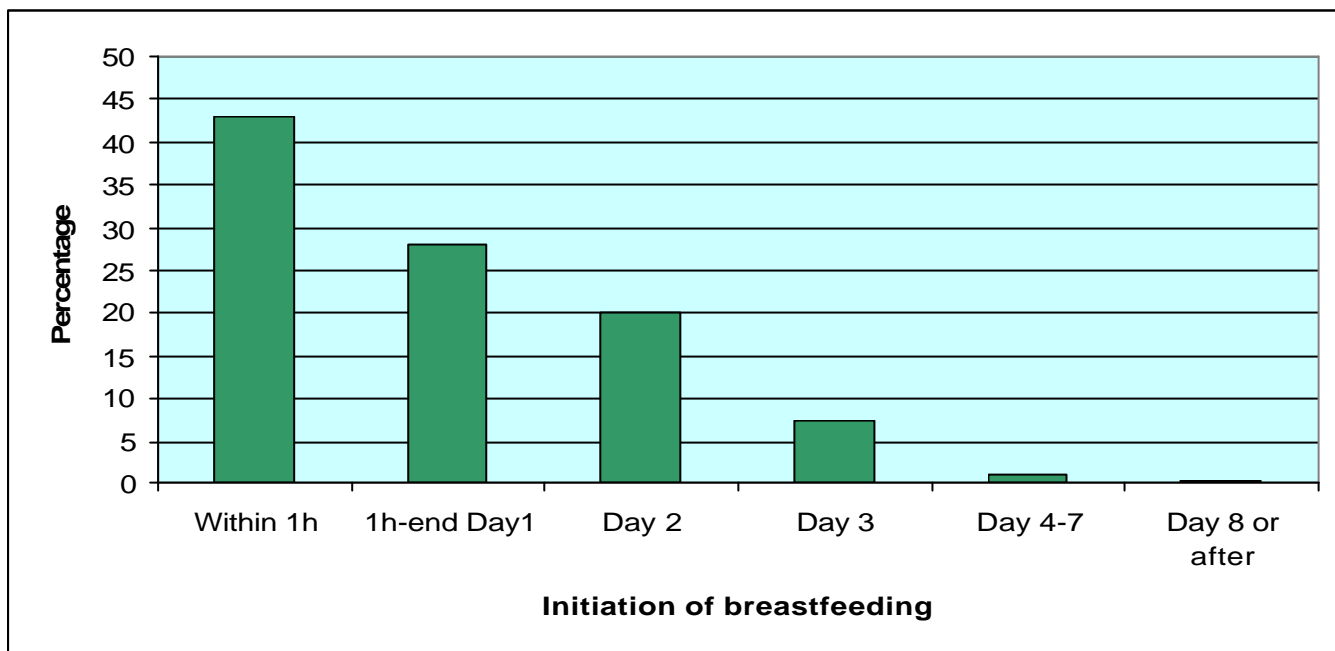
- This study took advantage of the 4-weekly surveillance system from a large ongoing trial in rural Ghana (ObaapaVitA trial) involving all women of childbearing age and their babies.
- The analysis is based on 10,947 breastfeeding babies born between July 2003 and June 2004.
- Multiple births, non breastfed infants, infants who died on day one and mothers visited outside the neonatal period were excluded

DETAILED FINDINGS:

Infant feeding patterns

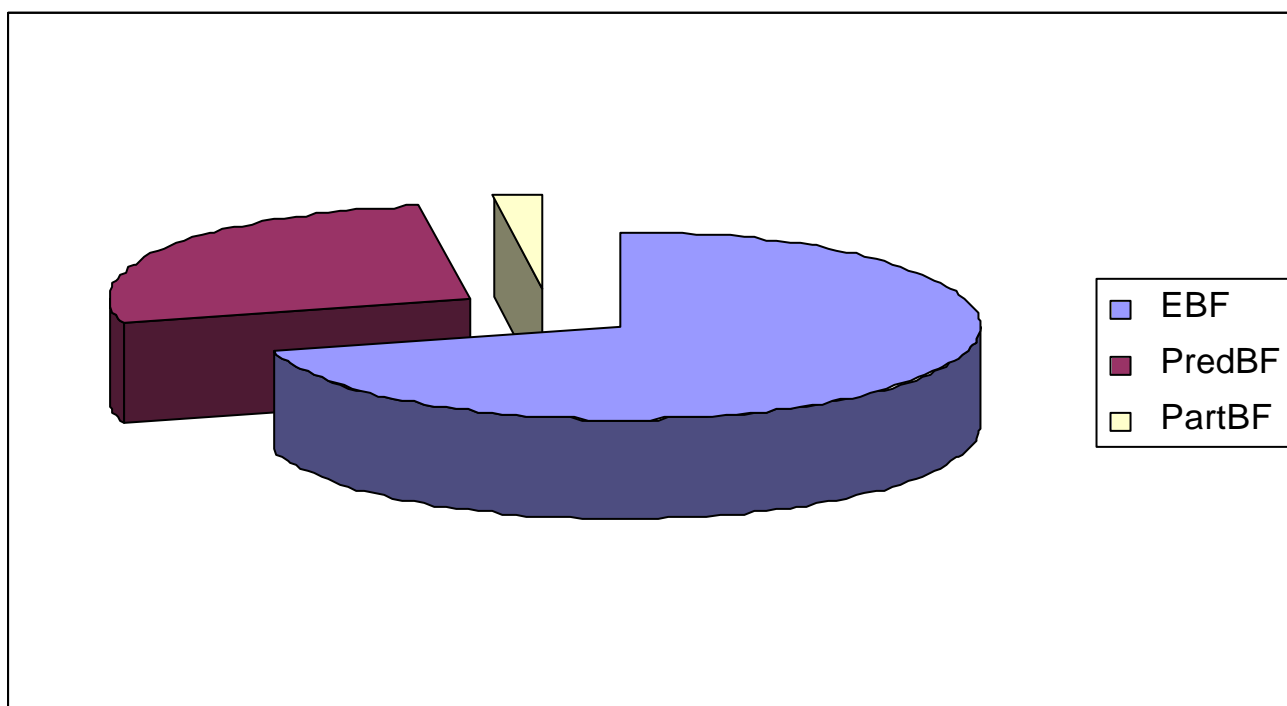
- Breastfeeding was initiated on the day of birth in 71% of infants (Box 1)

Box 1. Prevalence of initiation of breastfeeding



- 70% of infants established exclusive breastfeeding during the neonatal period, 27% were predominantly breastfed and 2% were partially breastfed (Box 2)

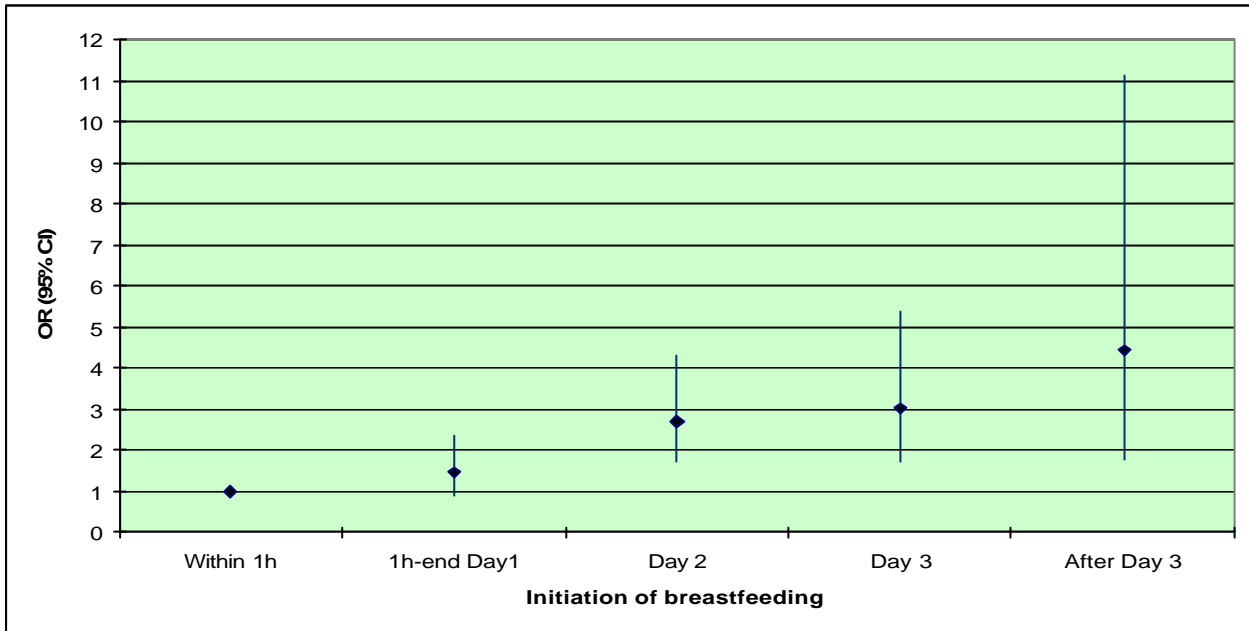
Box 2. Prevalence of established breastfeeding patterns



Mortality risks:

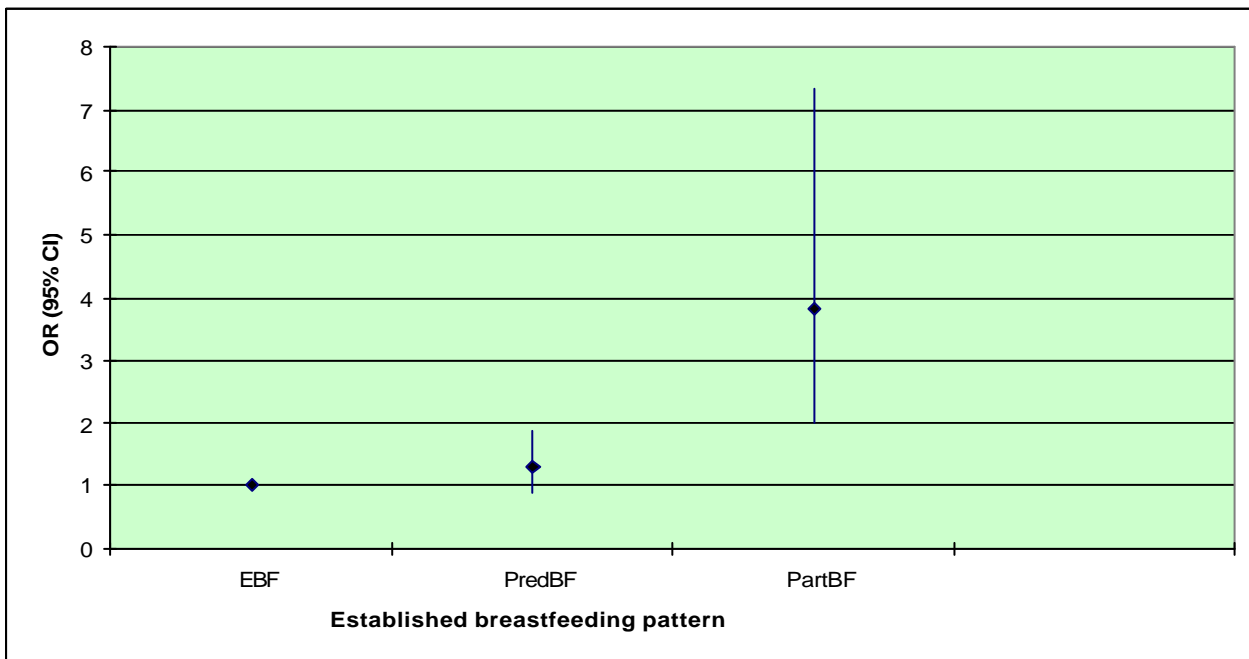
- Infants who initiated after day 1 had a 2 fold greater risk of death compared to early initiators
- Neonatal mortality increased markedly as delay in initiation increased. This dose response continued from 1 hour through to day 7 (Box 3).

Box 3. Neonatal mortality risk by timing of initiation of breastfeeding



- Both predominantly and partially breastfed neonates had higher risks of death than exclusively breastfed infants though the risk was much higher in the partially breastfed group. (Box 4).

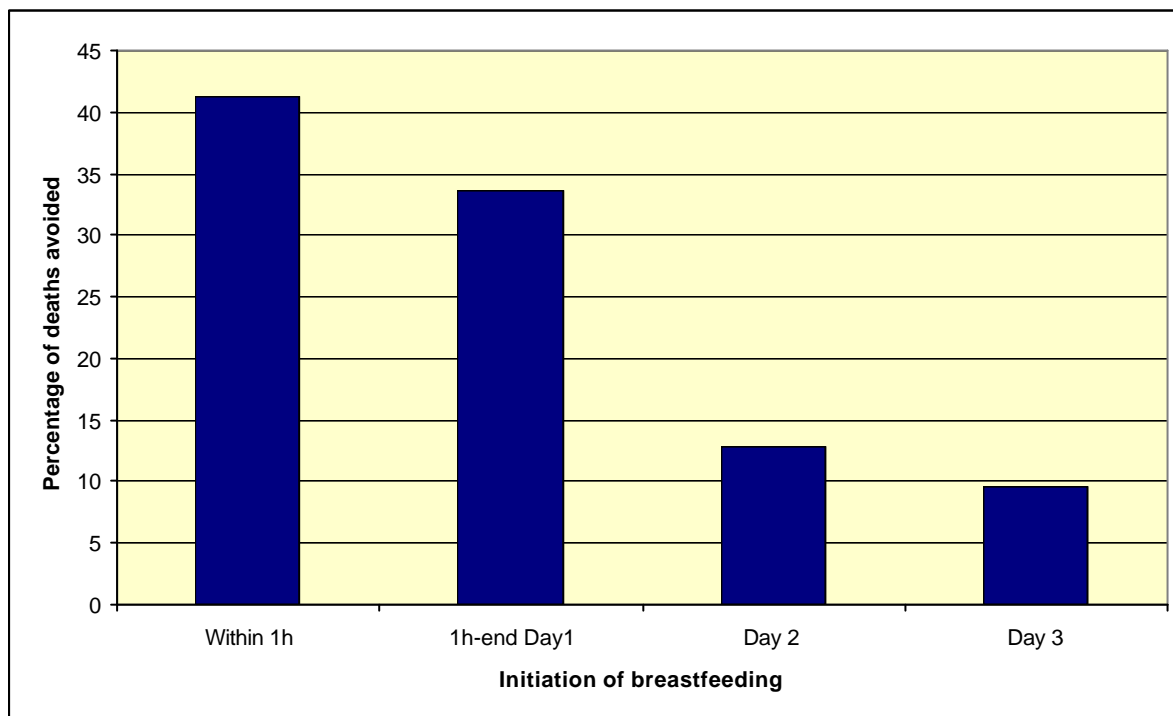
Box 4. Neonatal mortality risk by established breastfeeding pattern



Overall population impacts:

- For the study population of infants who died from day 2-28:
 - 34% of neonatal deaths could be saved if all babies were breastfed from day 1,
 - and 41% if breastfeeding started within the first hour (see Box 5)

Box 5. Percentage of deaths avoided by timing of initiation of breastfeeding



- For the whole neonatal population of breastfed and non breastfed infants who died from day 1-28:
 - 16% of neonatal deaths could be saved if all babies were breastfed from day 1,
 - and 22% if breastfeeding started within the first hour

Strengths and relation to other studies

- This paper presents the risks of neonatal mortality associated with early breastfeeding practices from a large cohort study of over 10,000 infants in rural Ghana.
- The protective relationship between early initiation of breastfeeding and neonatal mortality risk was demonstrated after controlling for factors known to be associated with earlier onset of breastfeeding, lower rates of perinatal and infant mortality, and established breastfeeding practices.
- To our knowledge this is the first study that has examined the impact of initiation of breastfeeding on mortality during the neonatal period.

Potential mechanisms

Early initiation of breastfeeding could affect neonatal mortality risk by at least four mechanisms.

- Firstly, the lower rate of mortality in early initiators may have occurred because mothers who suckle their offspring shortly after birth have a greater chance of successfully establishing and sustaining breastfeeding throughout infancy. However, the effect of early initiation persisted after controlling for established neonatal breastfeeding patterns.
- Secondly, early feeding with non human milk proteins may severely disrupt normal gut function
- Thirdly, early human milk is rich in a variety of immune and nonimmune components that are important for early gut growth and resistance to infection.
- Finally, promotion of warmth and protection may reduce the risk of death from hypothermia.