

Primigravida, 23 years, BMI 18

- Labour at 40 weeks
- Admits at 5 cm cervical dilatation
- 4 hours later, severe bradycardia
- Forceps delivery, stillborn

Neonatal survival in a low resource setting - are we delivering ?

BJOG Oct 2009 ; 116 Suppl 1 : 49 - 59

- Half a million maternal deaths
- > 3 million stillbirths
- **One million die during labour**
- 3.8 million neonatal deaths
- **50% die on the first day**

The global network: a prospective study of stillbirths in developing countries

Elizabeth M. McClure, MEd; Linda L. Wright, MD; Robert L. Goldenberg, MD; Shivaprasad S. Goudar, MD; Sailajanandan N. Parida, MD; Imtiaz Jehan, MBBS; Antoinette Tshetu, MD; Elwyn Chomba, MBChB; Fernando Althabe, MD; Ana Garces, MD; Hillary Harris, MS; Richard J. Derman, MD; Pinaki Panigrahi, MD; Cyril Engmann, MD; Pierre Buekens, MD; Michael Hambidge, MD; and Waldemar A. Carlo, MD;
for the NICHD FIRST BREATH Study Group

**Stillbirths account for 50% of all perinatal
deaths - 4 million worldwide**

97% of these in developing countries

Am J Obstet Gynecol 2007; 97 : 247e1 – 247e5,
WHO 2006

No Cry at Birth :

Global estimates of intrapartum stillbirths & intrapartum related early neonatal deaths

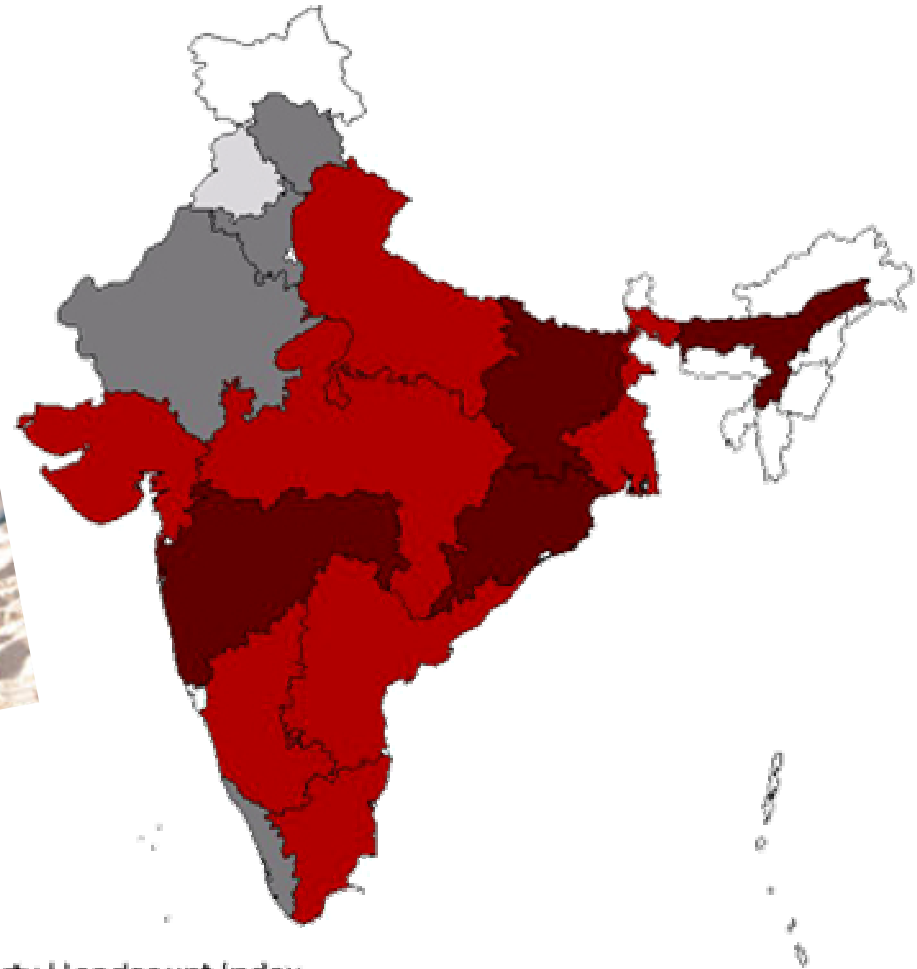
- Sub-Saharan Africa / SE Asia : > 30 / 1000
- United States : 3 - 5 / 1000
- South / Central America : 10 - 15 / 1000

Lancet 2006; 367 : 1487 – 94






Int J Gynecol Obstet 2006; 94 : 82 - 90

India

Poverty Headcount Index -2000



Poverty Headcount Index

-  Less than 10%
-  10 - 20.4%
-  20.4- 32.8%
-  32.8 - 48.3%
-  No Data

Data from "Poverty in India during the 1990s: A Regional Perspective"
World Bank Working Paper -2003

National Neonatal Perinatal Database

Human Reproduction Research
Centre Network

Year 2002 – 2003

Supported by

**Indian Council of
Medical Research**

Still Birth Rate	31 / 1000
Intrapartum Deaths	51 %

National Neonatal Perinatal Database

Human Reproduction Research
Centre Network

Year 2002 – 2003

Supported by

Indian Council of
Medical Research

Causes of Stillbirths

Asphyxia	20.7 %
Trauma	4.3 %
Anomalies	16.3 %
Infection	3.6 %
Unexplained	39.7%



Fernandez Hospital

2007 - 2008

Total Births	9139
Stillbirths > 28 weeks, >1000 g	84
Early Neonatal Deaths	51
Perinatal Mortality Rate	14.7 / 1000
Neonatal Mortality Rate	7.1 / 1000
Intrapartum Deaths	4 deaths

The rate
of intrapartum stillbirth is
particularly **sensitive to the
standard of intrapartum
management**

Kiely et al. Fetal Death during Labour:
An Epidemiological Indicator of Level of Obstetric Care.
Am J Obstet Gynecol, 1985; 153 : 721 - 6

Definition

An intrapartum fetal death is defined as any fetus weighing 500 gm or more who entered labour alive but died while under medical care

OBSTETRICS

Trends in intrapartum fetal death, 1979-2003

Colin A. Walsh, MRCPI; Moya B. McMenamin, MRCPI; Michael E. Foley, FRCOG;
Sean F. Daly, MRCOG; Michael S. Robson, MD; Michael P. Geary, MD

WHO Definition of Stillbirth

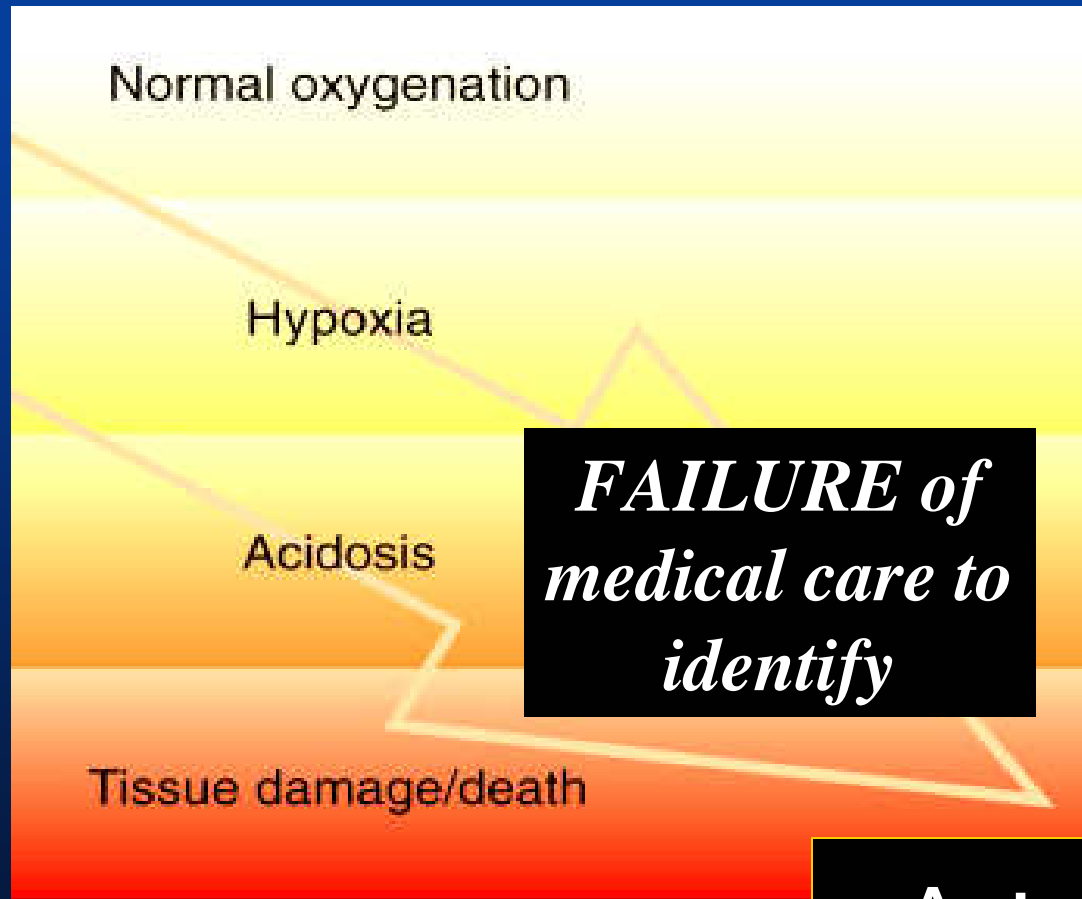
- More than 1000 gm
- 28 weeks of gestation

Neonatal and Perinatal Mortality, Country,
Regional and Global Estimates, WHO, 2006

Burden of Impact

- Emotional
- Financial
- Health care delivery systems
 - * Resource settings

Etiology



- Antenatal factors
- Intrapartum events
- Resuscitation at birth

Antepartum Related Causes

- Fetal growth restriction
- Placental insufficiency

Intrapartum Events

- Intrapartum hypoxia
- Obstructed labour
- Maternal pyrexia ?

Other Intrapartum Events

- Abruptio : 20%
- Cord accidents : 10%
- Infection : 7%
- FGR : 6%
- **Unexplained : 10%**

Trends in Intrapartum Fetal Death, 1979-2003, Walsh et al.
Am J Obstet Gynecol 2008; 198 : 47.e1 - 47.e7

Are There Any Risk Factors ?



Higher Stillbirth Rates

- Less prenatal care
- Deliveries by TBA
- Out of hospital births
- Lower rates of Cesarean delivery

Ronsmans et al. Socioeconomic differentials in CS Rates
in developing countries. A retrospective analysis.

Lancet 2006; 368 : 1516 - 23

Influencing Factors

- Rates of Cesarean delivery
- Vaginal breech maneuvers
- Gestational age
- Out of hours delivery

Trends in Intrapartum Fetal Death, 1979-2003, Walsh et al.
Am J Obstet Gynecol 2008; 198 : 47.e1 - 47.e7

The Risk Factors

- Nulliparity, multifetal gestation
- **Intrauterine hypoxia**
 - **Principal cause, 42%**

Trends in Intrapartum Fetal Death, 1979-2003, Walsh et al.
Am J Obstet Gynecol 2008; 198 : 47.e1 - 47.e7

Can We Reduce the Risks ?



Reducing Risks by Improving Standards of Intrapartum Fetal Care

70 % of intrapartum deaths had
avoidable factors

Young et al, Journal Royal Society of Medicine
Vol. 94 May 2001

Reducing Risks

- SBR : 36 / 1000, CSR : 20 %
- > 50 % were fresh term stillbirths

**Suggesting better intrapartum care would
have made a difference**

Imtiaz Jehan et al.

Am J Obstet Gynecol 2007; 197 : 257.e1 - 257.e8

Risk Stratification



The Concepts

High Risk
Mother with
High Risk Baby

High Risk
Mother with Low
Risk Baby

Low Risk
Mother with
Low Risk Baby

Low Risk
Mother with
High Risk Baby

Admission Evaluation

- Fetal wellbeing
- Double checking
 - The notes
 - Risk assignment
 - Plan of management



DOI: 10.1111/j.1471-0528.2009.02269.x

www.bjog.org

Intrapartum care

Metabolic acidosis at birth and suboptimal care – illustration of the gap between knowledge and clinical practice

M Jonsson,^a S Nordén-Lindeberg,^a I Östlund,^b U Hanson^a

BJOG October 2009; 116 : 1453–1460

Admission Test - Outcomes

Table 4. Neonatal outcome according to the admission test in the case group

	Reassuring admission test (<i>n</i> = 140)	Non-reassuring admission test (<i>n</i> = 20)	<i>P</i> value
pH < 7.0	78 (55.7)	13 (65.0)	ns
Apgar < 7 at 5 minutes	26 (18.5)	10 (50.0)	0.002
Apgar < 4 at 5 minutes	6 (4.3)	1 (5.0)	ns
NICU > 2 days	39 (27.8)	8 (40.0)	ns
HIE	8 (5.7)	6 (30.0)	<0.001
Grade II	5	3	
Grade III	3	3	

Values are given as *n* (%).

Detecting Asphyxia Related Mortality and Morbidity



Detecting Asphyxia Related Mortality and Morbidity



**Intermittent
Auscultation**

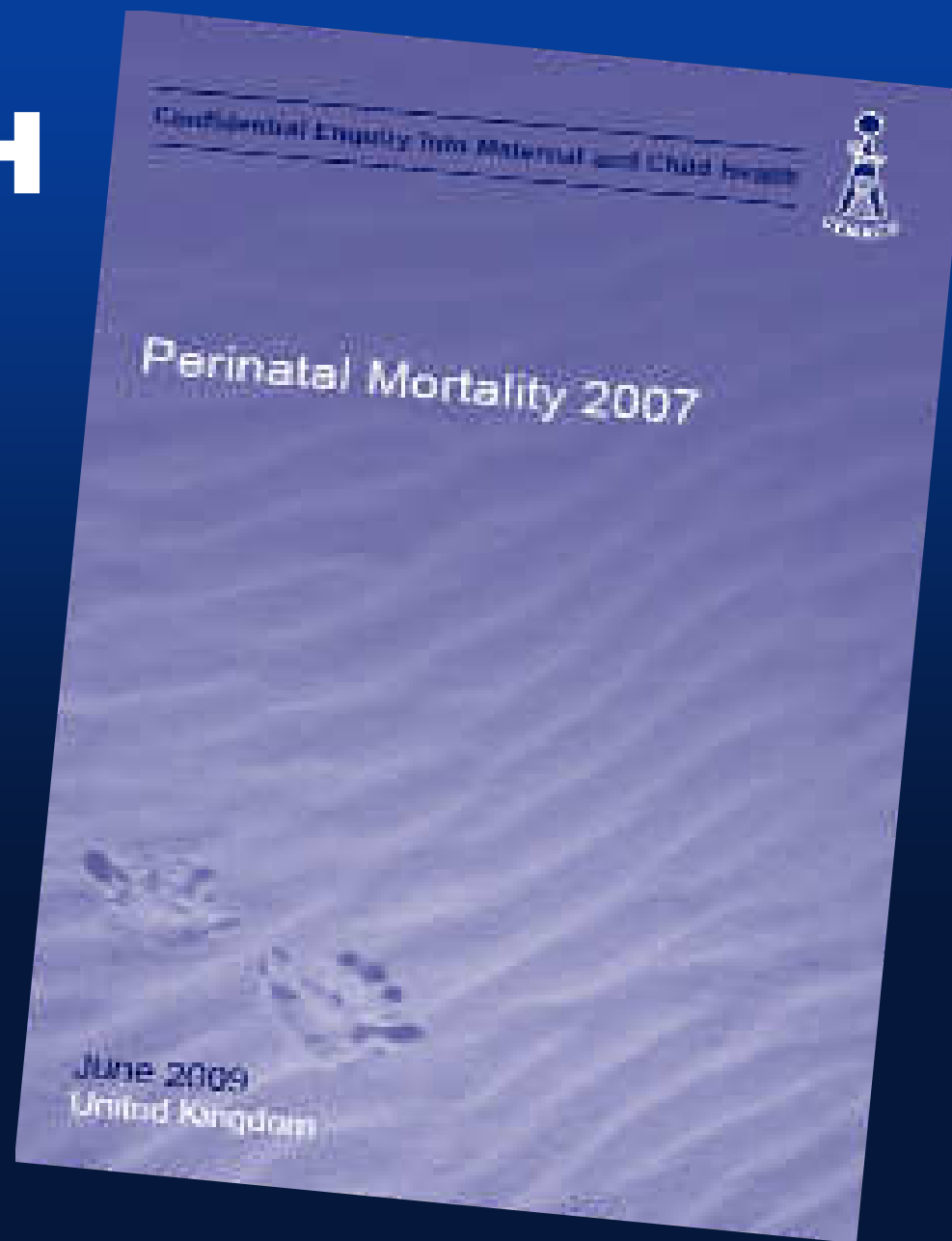
**Electronic
Fetal Monitoring**



CESDI Report - 1999

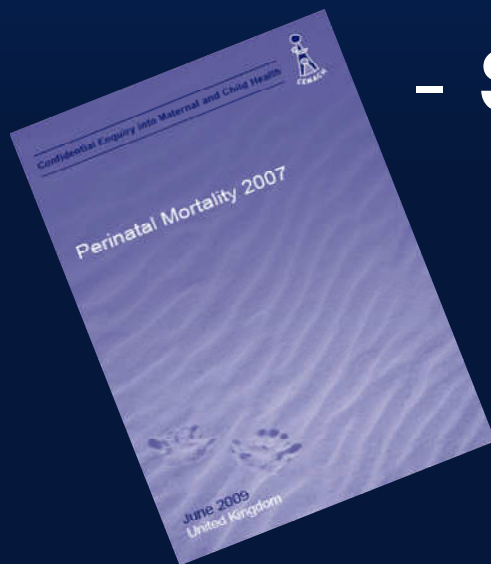
- Misinterpretation of tracings
- Communication delay
- Failing to respond to overall situation

CEMACH



Trends in Intrapartum Related Deaths since 2000

- No statistically significant change
- National / regional audits
 - Sub-standard care 40 - 75 %



Metabolic acidosis at birth and suboptimal care – illustration of the gap between knowledge and clinical practice

M Jonsson,^a S Nordén-Lindeberg,^a I Östlund,^b U Hanson^a

- Suboptimal care
- Misuse of Oxytocin
- Pathological CTG response
- Suboptimal vacuum delivery

Factors affecting Fetal Monitoring

- High volumes
- Low staffing
- Inadequate training
- Inadequate response



Selected papers from the 71st Annual Meeting of the
SOUTH ATLANTIC ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS

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Next annual meeting: January 10-13, 2010, Naples, FL



PRESIDENTIAL ADDRESS

**The future of intrapartum care: navigating
the perfect storm—an obstetrician's odyssey**

Lawrence D. Devoe, MD

American Journal of Obstetrics & Gynecology JULY 2009

Proposals

- Focus on teaching / training
- Ensure availability
 - Skilled / competent staff
- Delivery practices
- Communication

Training

- **Trained Birth Assistants**
- **Decreased stillbirths**
- **71 to 50 / 1000**

Jokhio et al, An Intervention Involving TBAs and
Perinatal & Maternal Mortality in Pakistan,
NEJM 2005 ; 352 : 2091 - 9

Reducing Risks Instrumental Deliveries

Operator's skills / Experience / Training

Head Trauma after Instrumental Births.

S Doumouchsis, S Arulkumaran ; Clin Perinatol 35 (2008) 69 - 83

Reducing Risks

- A Labourist / Consultant Cover



Feedback Meetings

- Regular monthly audits
- Low Apgar babies - past 2 months

Young et al, Journal Royal Society of Medicine
Vol. 94 May 2001



THE OFFICIAL NEWSMAGAZINE OF THE AMERICAN ACADEMY OF PEDIATRICS

AAP News

Volume 30 • Number 5
May 2009
www.aapnews.org

PEDIATRICIANS AND THE LAW

Neonatal resuscitation

Working with obstetricians for patient safety: preparation, training and communication

- 10% of newborns need help at birth
- 1% - vigorous intervention
- Collaboration & communication

Unexpected Flat Babies



**A Competent
Neonatal
Resuscitation Team
24 x 7**

All births attended

Management of Acute Events

Drills

- Simulations
- Drills
- Regular workshops

Clinical Risk Management



A key
component of
clinical
governance

Clinical Governance, Making it Happen, RSM, 1999

Reducing the Risk of Intrapartum Event Related Stillbirth and Neonatal Death

**Requires action
at all levels of health care
system**

Reducing the Risk of Intrapartum Event Related Stillbirth and Neonatal Death

- Antenatal care risk factors
- Improving intrapartum monitoring
- Training / Skills
- Audits / Reviews / CRM

Reducing Stillbirths : Interventions during Labour

Safe comprehensive essential and emergency obstetric care is particularly needed and can make the greatest impact on SB rates, in low resource settings

Darmstadt GL et. al.
BMC Pregnancy Childbirth, 2009 ; 9 Suppl 1