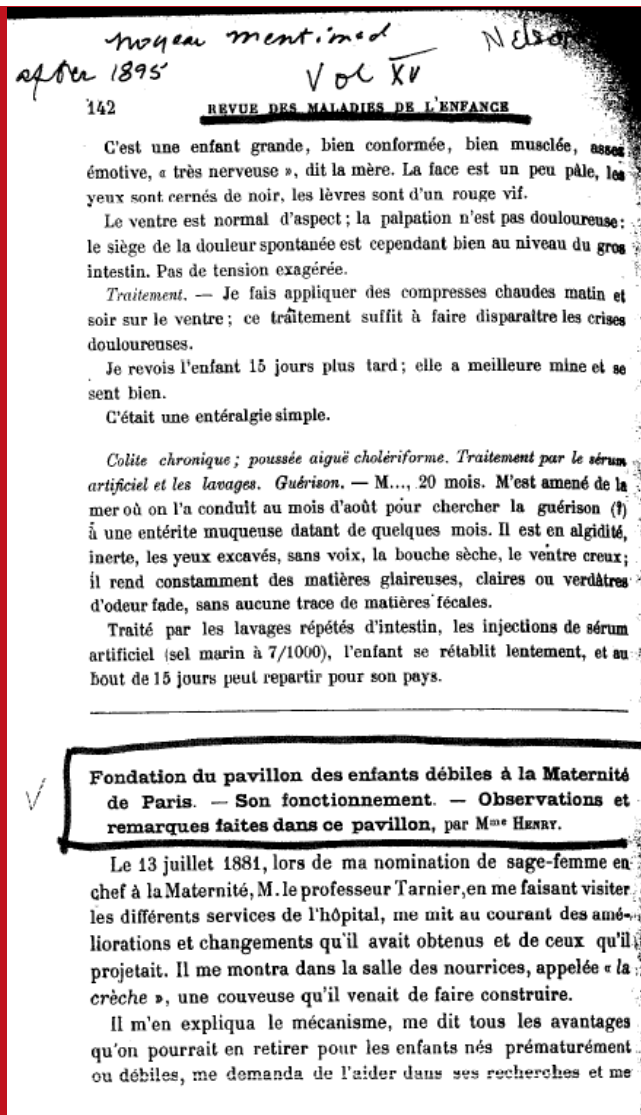


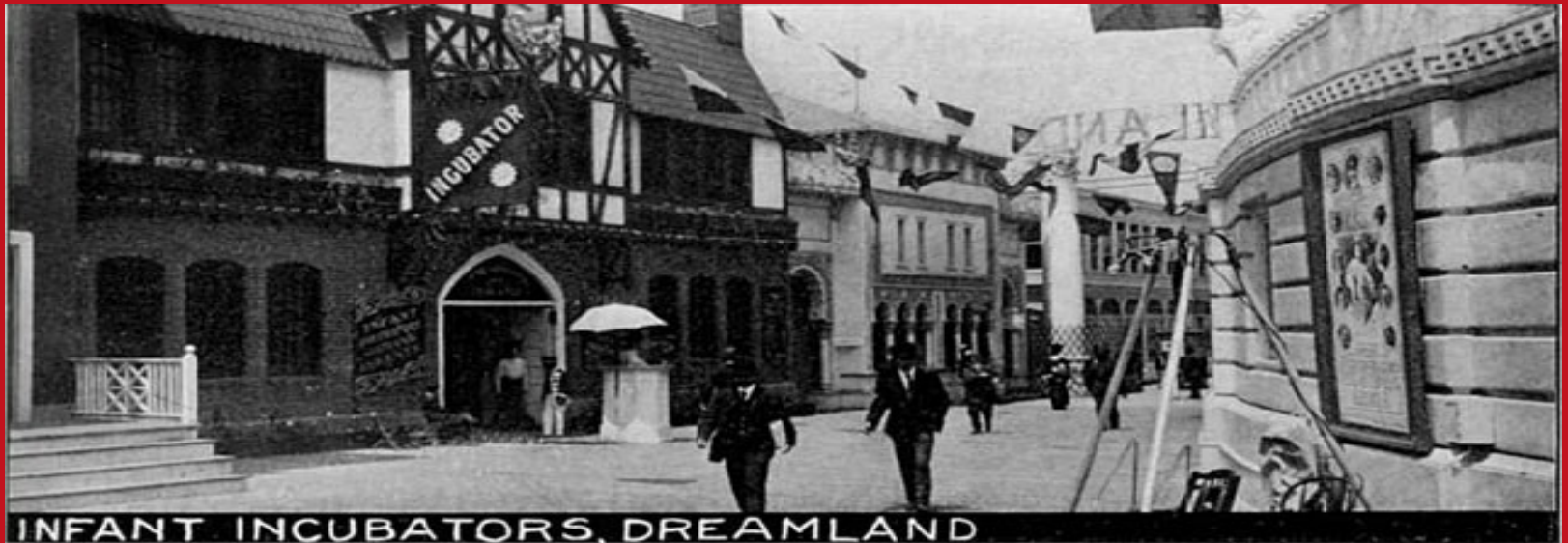
International Perspectives in Neonatal Nursing

Prof Linda Johnston

Pavilions of the Weaklings, Paris 1893



Dreamland, Coney Island Amusement Park 1904



INFANT INCUBATORS, DREAMLAND



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Coney Island Babies circa 1935



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Courtesy Neonatology on the Web

Michael Reese Hospital, 1958



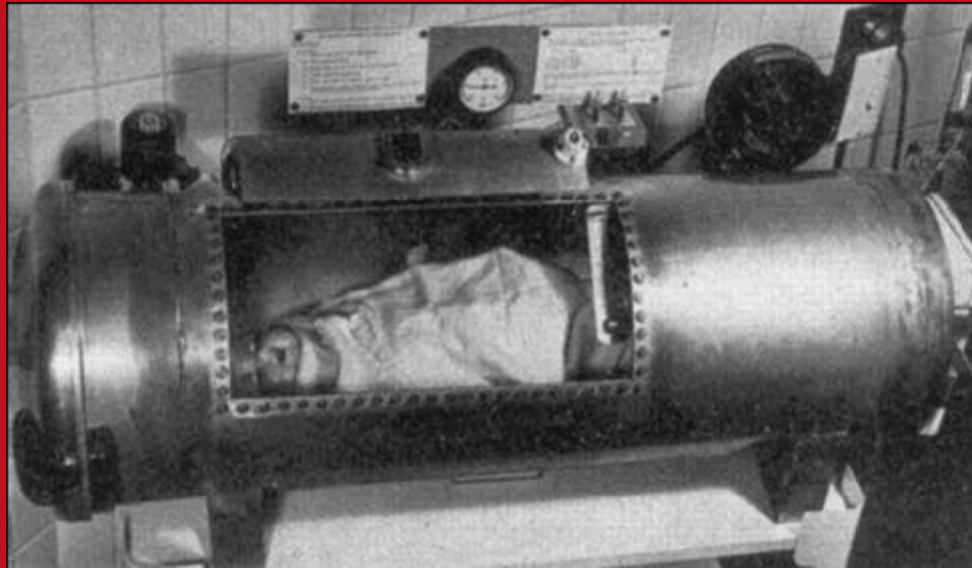
The “Hands Off Years” (1920-1950)

Lowered thermal environment	Increased mortality	Lack of understanding of physiology
Supplemental oxygen	ROP	The “more must be better” approach
Initial thirsting/starving	Neuro deficits	Small uncontrolled studies
Synthetic vitamin K	kernicterus	Case series
SMA formula	seizures	Case series

The Heroic Years (1950-1970)

Bloxsom air lock	Delayed resuscitation	Uncontrolled studies
Sulfa drugs	Kernicterus, death	RCT
Chloramphenicol	Gray baby syndrome, death	RCT
Hexachlorophene baths	Brain lesions	Case series
Epsom salts enemas	Magnesium toxicity	Observational studies
Gastrostomy feeds	Increased mortality	Observational studies

The Bloxsom Air Lock (1950)



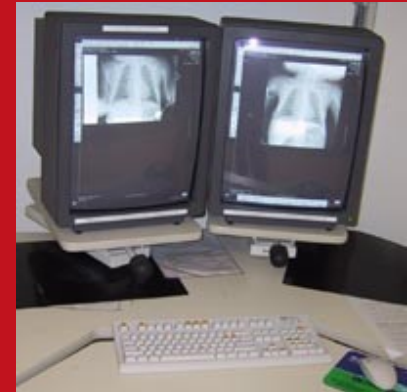
The Experienced Years (1970-2000)

Preterm infant formulas	Lactobezoars	Observational studies
Erythromycin	Pyloric stenosis	Cohort study
Propylene glycol	Seizures	Observational studies
Intravenous Vitamin E	Multi-organ damage	Case series
Steroids	?Cerebral palsy	RCTs

What were they thinking?

- Therapeutic creativity and risk-taking
- Lack of, or inadequate pilot studies
- “Practice creep”
- Publicity in lay media
- Authoritative opinions with unjustified credibility
- Reluctance (or enthusiasm) on the part of pharmaceutical companies

Today's nursery



Pediatrics (August 2009)

- Preterm resuscitation with low oxygen causes less oxidative stress, inflammation and chronic lung disease
- Early EEG findings in HIE predict outcomes at 2 years
- In utero valvuloplasty for pulmonary atresia with hypoplastic right ventricle: Techniques and outcomes

Advances in Neonatal Care (Aug 2009)

- Nonnutritive sucking and oral sucrose for analgesia
- Implementing developmental care
- Promotion of early infant feeding

Cochrane Library (2009)

- HSV antivirals in neonates
- Antistaph Ig in VLBW
- Steroids for post-extubation stridor
- Chlorhexidine skin care
- HFOV in preterm infants
- Granulocyte transfusions in neutropenia
- Hyper- or hypo-glycaemia in VLBW
- Light-emitting diode therapy for hyperbilirubinemia



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My own research (and perceptions)

- HCP beliefs about pain in babies
- Validation of the Pain Assessment Tool
- RCT of oral sucrose for procedural pain
- Salivary cortisol as a measure of stress
- Skin conductance as a measure of pain
- Prescribing patterns for Panadol in the NICU
- Prescribing patterns for Chloral Hydrate in the NICU
- National survey of oral sucrose in NICUs

My own research (and perceptions) cont....

- Parental stressors in the NICU
- Breastfeeding sustainability in the NICU
- Infant wellbeing beyond the NICU
- Emotional and social burden of caring for a baby with complex health needs
- What medicines do parents give their babies and why?

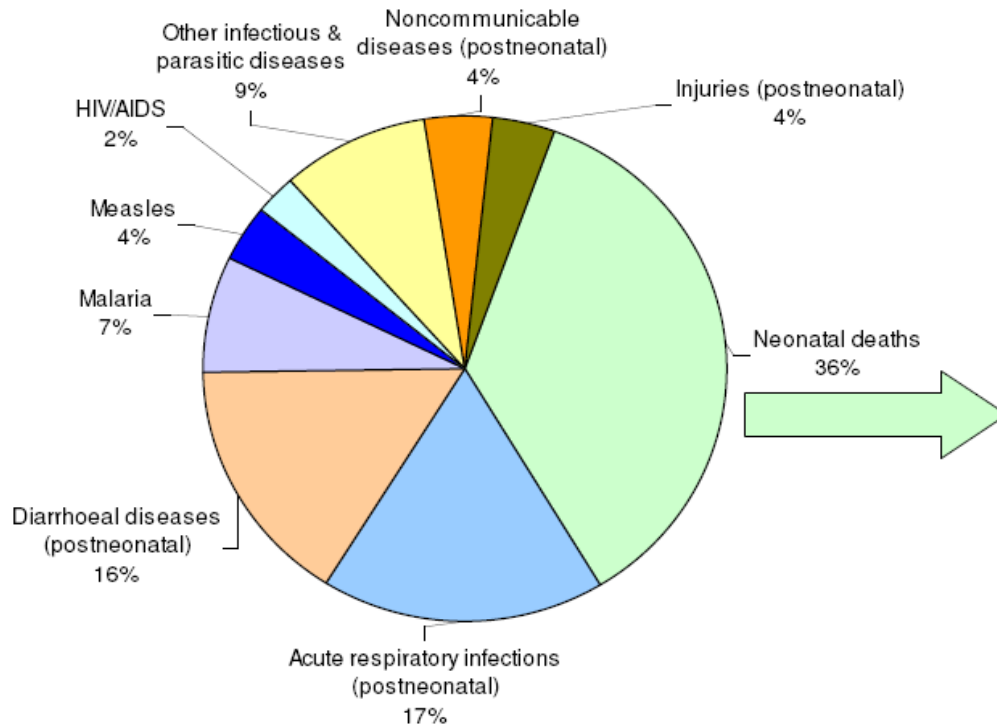
The other face of neonatal research

The Facts

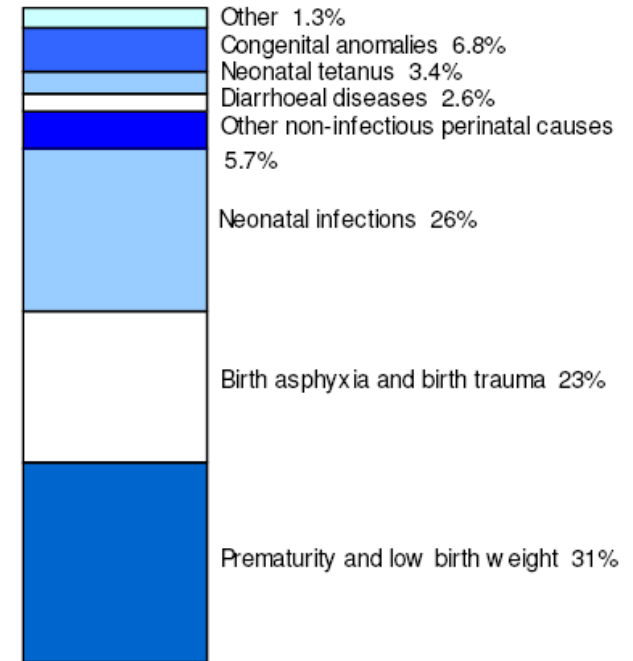
- Around the world 10 million children under the age of 5 die each year (3.9 million occur in the first 28 days of life)
- More than 1000 children under the age of five die every hour
- Most could survive with access to simple, affordable interventions

Causes of death in neonates and children under five in the world (2004)

Deaths among children under five



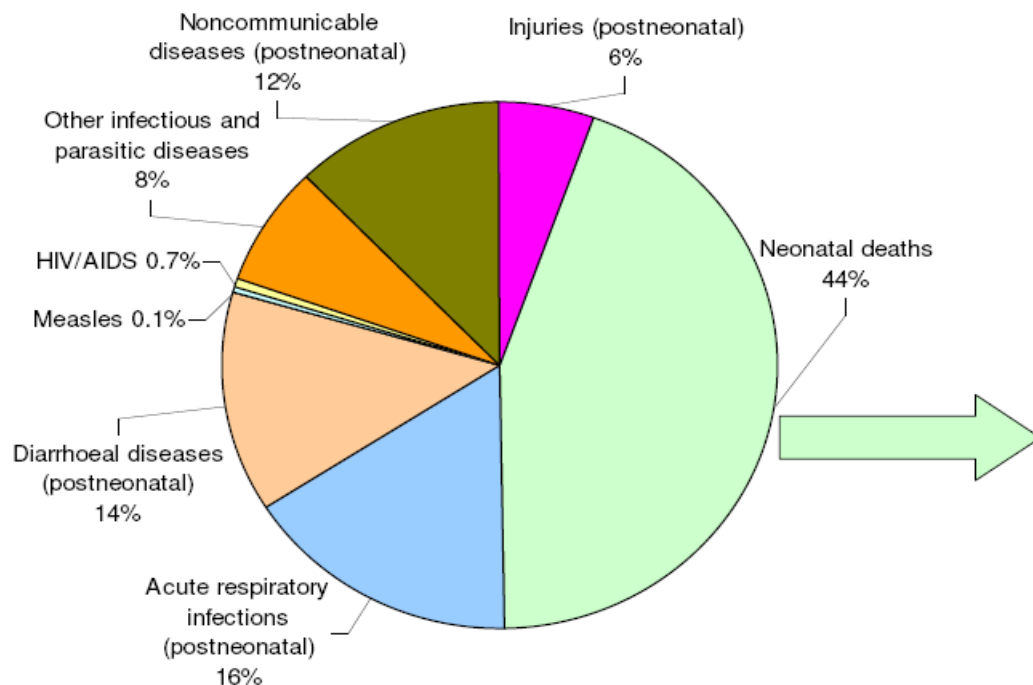
Neonatal deaths



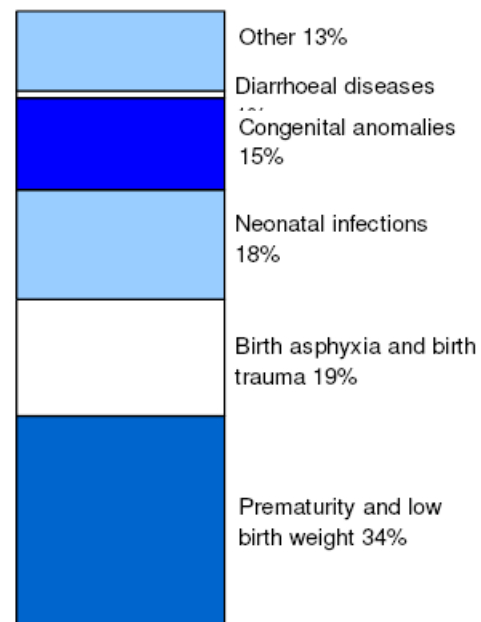
35% of under-five deaths are due to the presence of undernutrition⁽²⁾

Causes of death in neonates and children under five in the European Region (2004)

Deaths among children under five



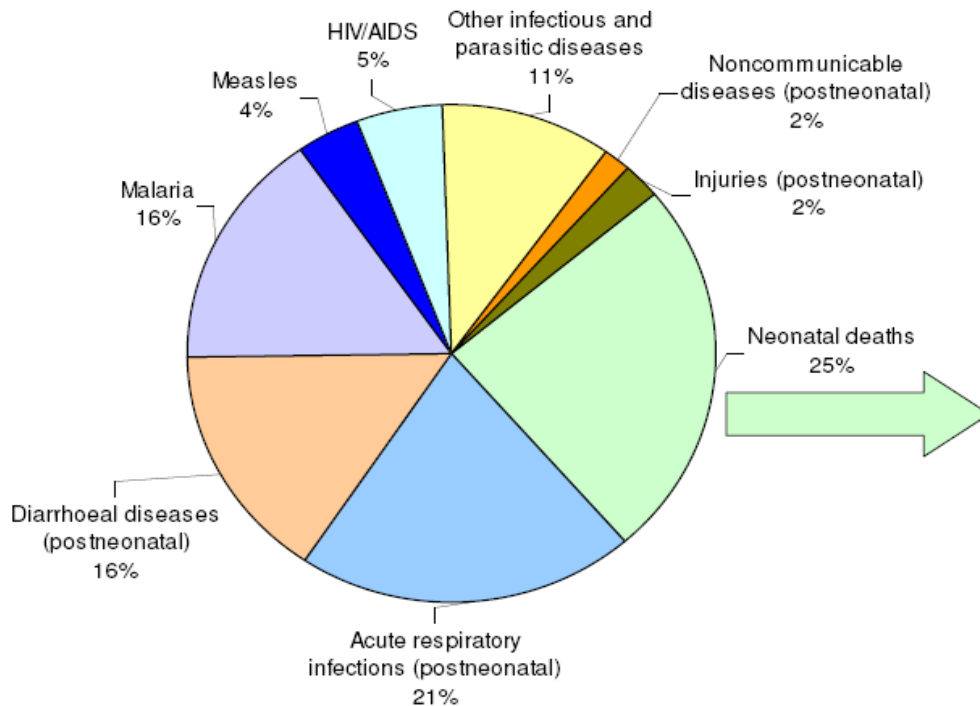
Neonatal deaths



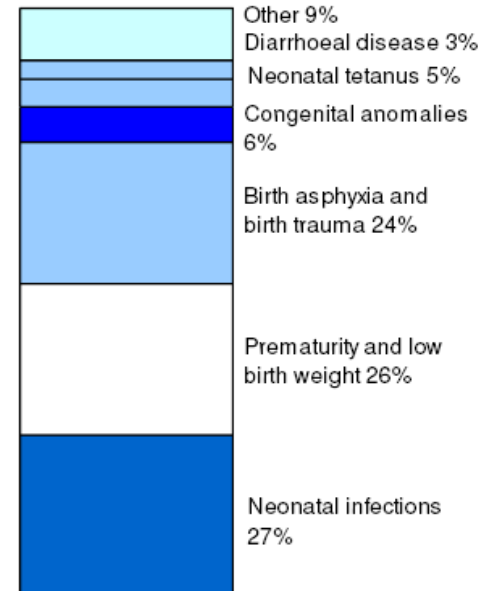
Source: WHO. The Global Burden of Disease: 2004 update (2008)

Causes of death in neonates and children under five in the African Region (2004)

Deaths among children under five



Neonatal deaths



Source: WHO. The Global Burden of Disease: 2004 update (2008)

Pneumonia

- 75% of cases occur in 15 countries
- Major risk factors are malnutrition, indoor air pollution, lack of vaccination, low breastfeeding rates
- Antibiotics and oxygen therapy

Diarrhoeal diseases

- Leading cause of sickness and death in developing countries
- Breastfeeding helps prevent diarrhoea in young children
- ORS is safe, cost-effective and saves lives

Malaria

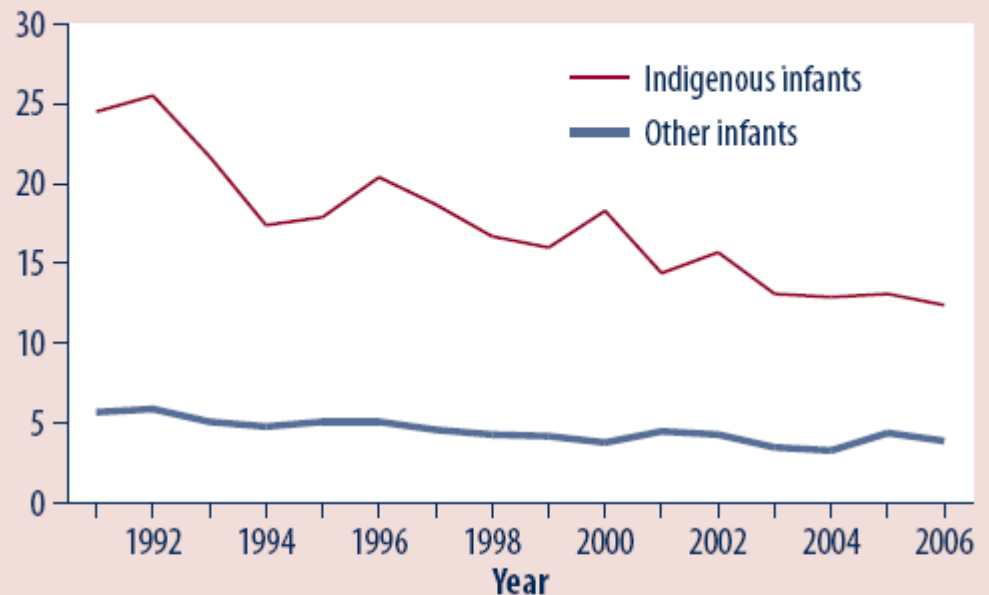
- One child in Africa dies of malaria every 30 seconds
- Insecticide-treated nets prevent transmission, are cost-effective and save lives

HIV

- Over 90% of children HIV infected through mother:infant transmission
- Antiretrovirals, safe delivery and feeding practices can prevent

Mortality for Indigenous infants 3 times that of non-Indigenous (12.5 vs 4.3 per 1000 livebirths)

Infant deaths per 1,000 live births



Notes

1. Deaths are based on year of registration and state of usual residence.
2. The average of births over 1993–1995 in Western Australia was used as the denominator for infant mortality rates for 1991 and 1992 to correct for errors in births recorded for 1991 and 1992.

Source: AIHW 2009a.

Figure 43.4: Infant mortality by Indigenous status, WA, SA and NT, 1991–2006

Leading Causes of Infant Death

Table 43.3: Leading causes of infant death by Indigenous status, Qld, WA, SA and NT, 2002–2006

Cause of death	Indigenous		Non-Indigenous		Rate ratio
	Number	Number per 1,000	Number	Number per 1,000	
Perinatal conditions	211	5.7	954	2.1	2.7
Symptoms, signs and abnormal findings	100	2.7	216	0.5	5.6
Congenital anomalies	56	1.5	445	1.0	1.5
Respiratory conditions	35	0.9	49	0.1	8.6
Injury and poisoning	22	0.6	61	0.1	4.4
Other	37	1.0	186	0.4	2.4
Total	461	12.5	1,911	4.3	2.9

Cochrane Library (2009)

- Inservice training in care of critically ill newborn in developing countries (protocol)
- Neonatal vitamin A for prevention of morbidity and mortality in neonates in developing countries (protocol)
- Maternity waiting facilities for improving outcomes in low-resource countries (Review, no studies)

It's not all bad news.....

- Reduce child mortality by two-thirds (MDG 4)
- 12.5 million in 1990
- 9 million in 2007
- Pneumonia and diarrhoea continue to kill 3.8 million children under 5 years each year

It's not all bad news.....

- Combat HIV/AIDS and other diseases (MDG 6)
- Significant increases in children living under insecticide-treated nets
- Reduction of up to 50% of malaria cases between 1990 and 2006

We can still do better.....

- Improve maternal health (MDG5)

- 400 maternal deaths per 100 000 live births in 1990

- No change in 2005

- 1-in-26 lifetime risk of death in pregnancy and childbirth (Africa) versus 1-in-7300 in developed regions



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We must do better

- There are interventions that are feasible for implementation in low income countries and at high levels of population coverage
- We have highly effective interventions and well-designed implementation strategies (eg Integrated Management of Childhood Illness)

Has the child survival effort lost focus?

- Eg new, complex expensive interventions for the relatively small numbers of child deaths due to AIDS versus cheap interventions such as ITMs, breastfeeding etc that could save millions

The recent identification of deaths in the neonatal period as a global priority

- Limited evidence for the interventions:
 - Temperature management
 - Antibiotics for PROM
 - Newborn resuscitation
- Urgent need for further research in this area

The challenge for today

- To transfer what we already know works, into action,
- To deliver the safe, effective and cheap interventions to babies and families who need them, and
- To achieve MDG 4 by 2015

Changing perceptions

- Gaps in knowledge on neonatal care continue to exist
- The gaps in knowledge aren't confined to the NICU
- Research efforts need to be partnered by advocacy if we are to make a difference

7th International Conference of Neonatal Nursing
Sunday 24 October - Wednesday 27 October 2010

7th ICNN
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