



Who is the late preterm?

- 34 weeks 0 days through 36 weeks 6 days after last menstrual period
- The lower limit used because it is a frequent cut-off point for obstetric decision making and as a criteria for admission to a level 2 or level 3 NICU

The Late Preterm

- Late preterm infants are ‘The Great Imposter’. Their size and shape make them deceptively innocent and much like a full term infant.
- Moreover, their physiologic manifestations may not manifest until 48-72 hours of life –often after they have left hospital
- Relatively neglected in an era characterised by diversion neonatal resources towards securing survival of increasingly immature preterm infants

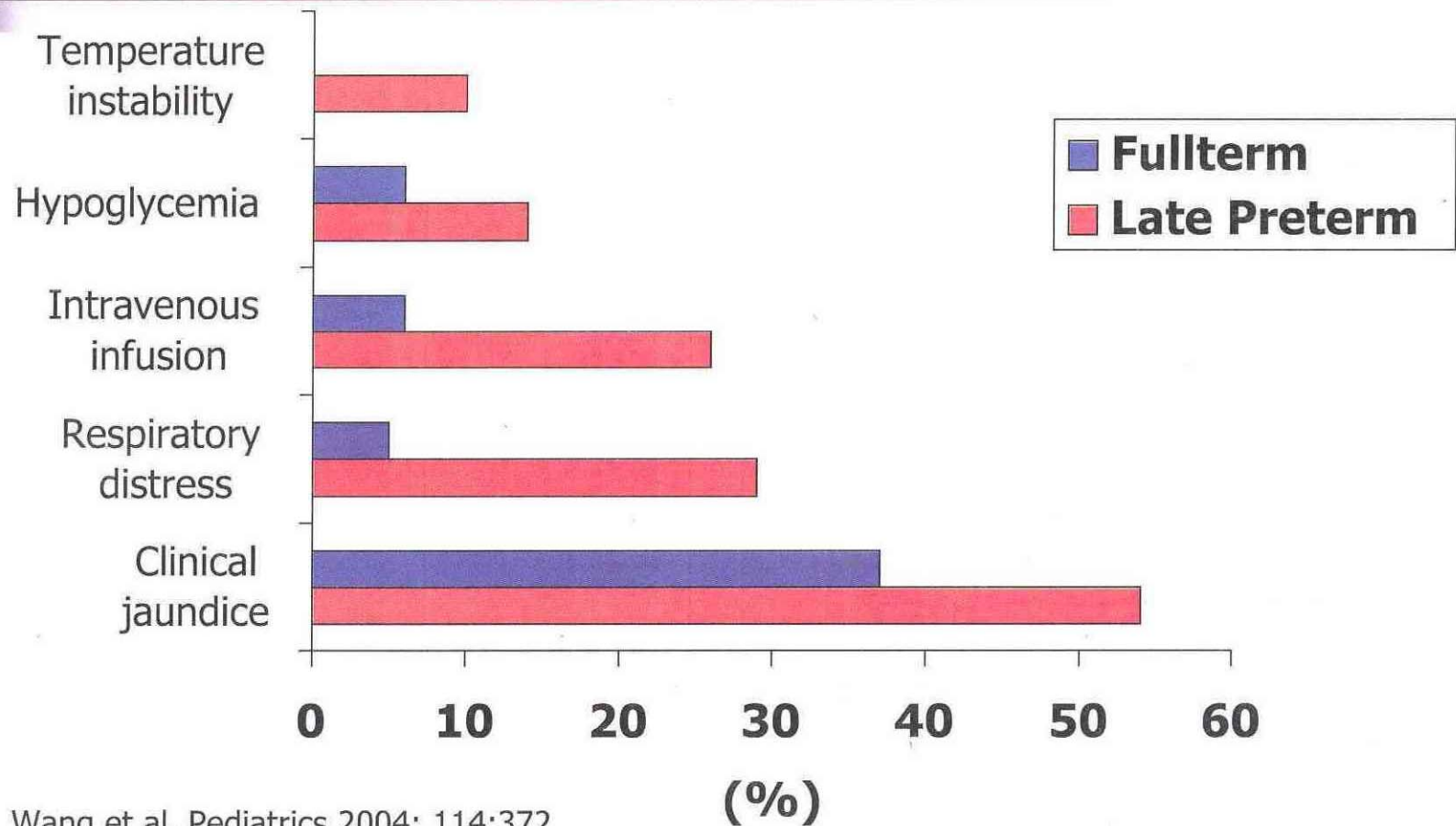
Increase in Late Preterm births

- Increased reproductive technology and multi-fetal pregnancies
- Advance in obstetric practice with increased surveillance and medical interventions in pregnancy
- electronic fetal monitoring increased between 1989-2003 from 68-85% and labour inductions and LSCS increased correspondingly
- Relaxed approach of some obstetricians to the late preterm infant as being similar to the term infant post-natally

Developmental and Physiological Immaturity of Late Preterm Infants

- From 34.0-36.9 weeks gestation
- Continued lung-alveolar and capillary growth and development and term surfactant pool size -RDS
- The brain at 34 weeks is approximately 2/3 size at term. Less cortical folding and reduced myelination. - developmental concerns
- Poor temperature control (less brown fat, greater SA/BW ratio)-hypothermia
- Impaired glucose homeostasis –hypoglycaemia
- Immature enzyme systems and enterohepatic circulation leads to more jaundice-hyperbilirubinaemia commonest cause for readmission. Increased risk of kernicterus.

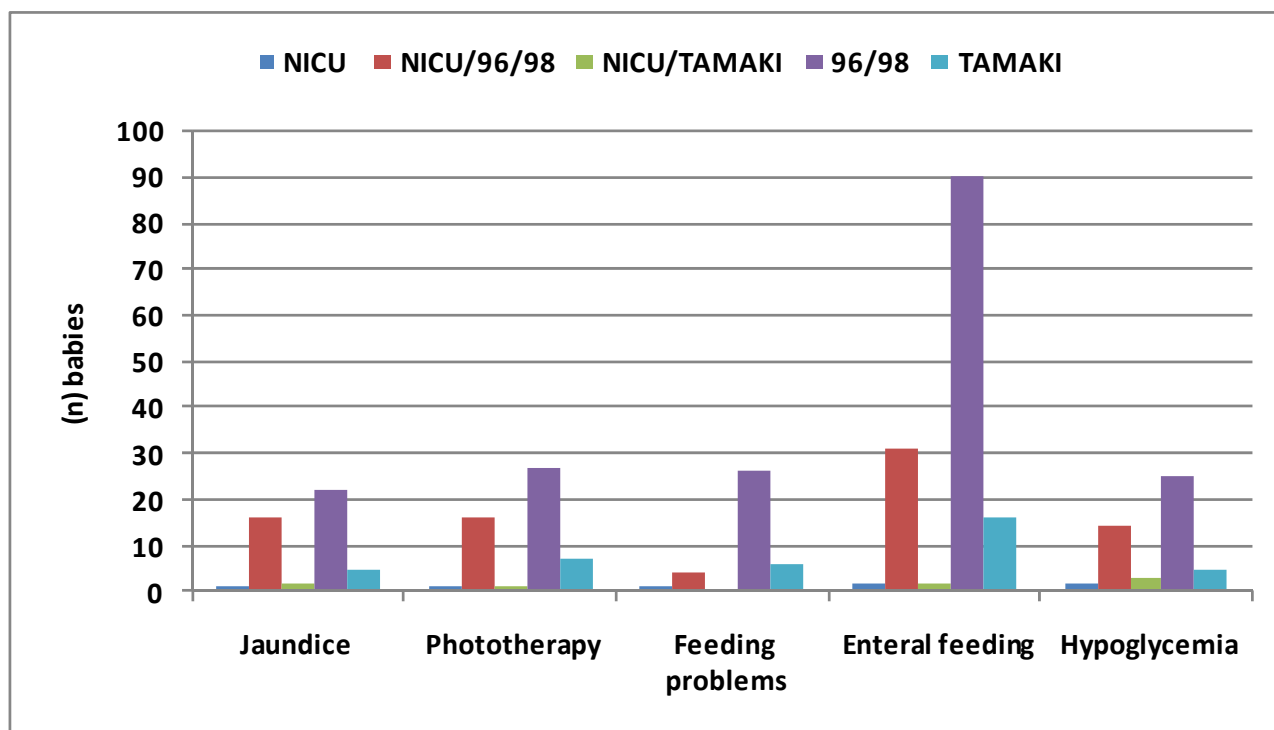
Clinical Outcomes of Late Preterms



Wang et al, Pediatrics 2004; 114:372

Clinical Outcomes –late preterm infants on post natal wards

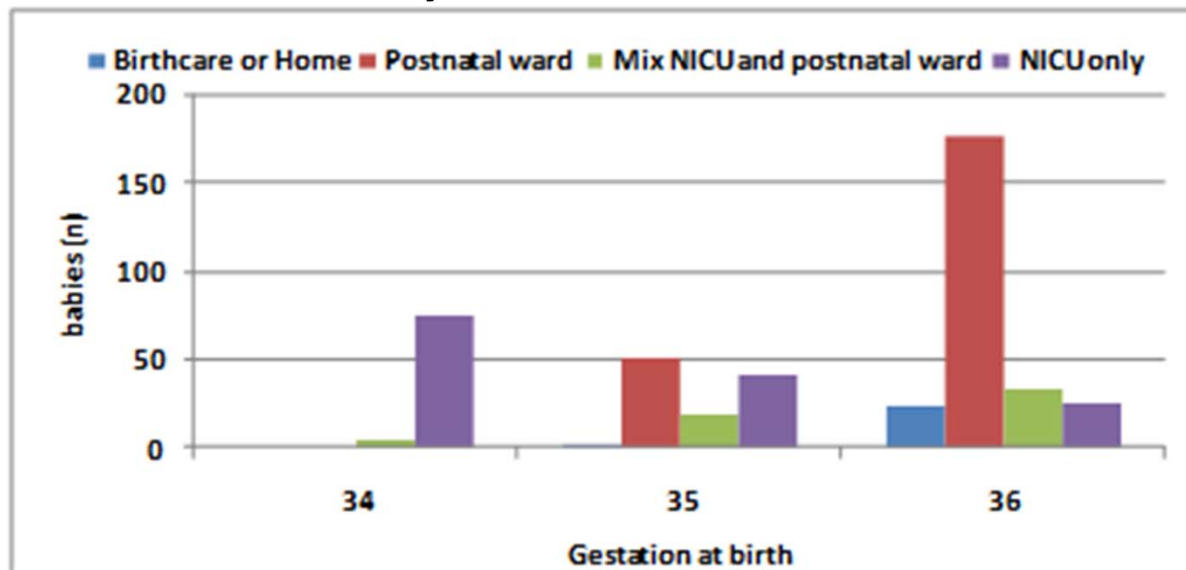
Figure 4: Specific conditions and provision of care for preterm babies cared for on postnatal wards by Ward stay 2013.



Late Preterm deliveries At NWH 2013

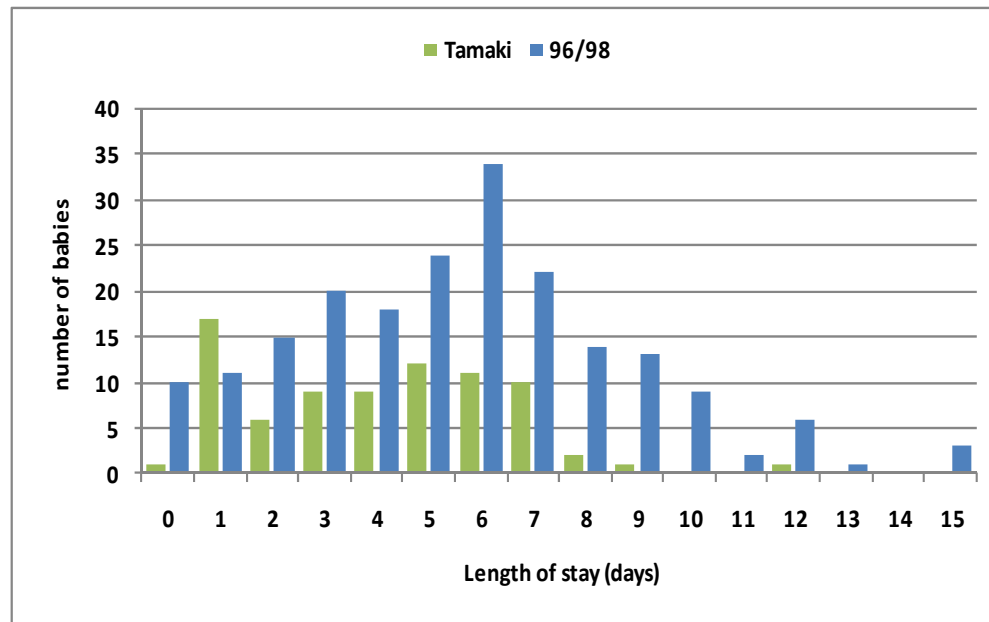
n=449 infants

- 5% went directly home or to Birthcare
- 50% had their stay entirely on postnatal ward
- 13% had mixed ward/NICU care
- 32% had solely NICU care



Length of Stay of preterm babies on post natal wards.

Figure 3: Length of stay of preterm babies while staying on the postnatal wards (includes only the 96/98 or Tamaki stay of babies who also spent time in NICU) 2013.



Average (mean) length of stay was 6.5 days, 4.3 days on Tamaki and 6.4 days on ward 96/98. Median length of stay was 6, 6, and 5 days, meaning that 50% of babies are on the ward for 5 or 6 days.

Kernicterus in Late Preterm Infants Cared for as Term Healthy Infants. Bhutani, Semin Perinatol 2006; 30:89-97

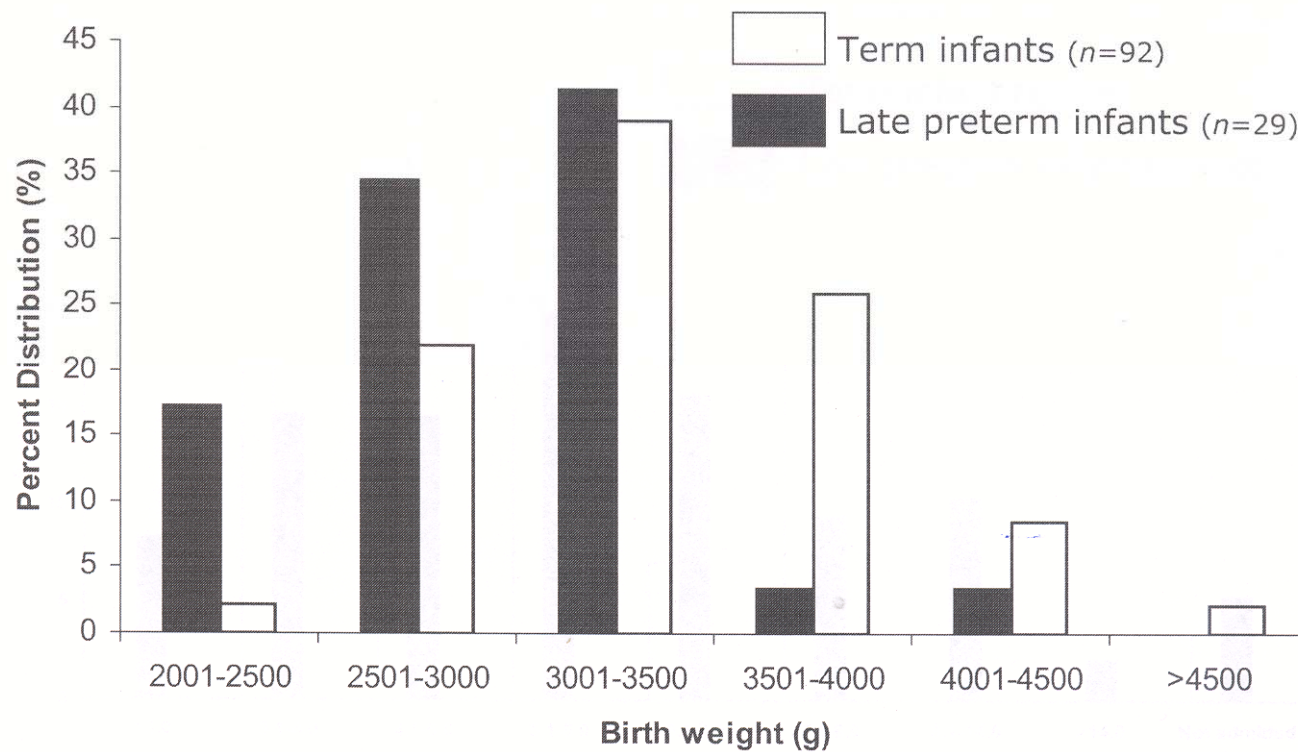


Figure 1 Percent distribution of the cases of kernicterus in whom birth weights and gestational ages were known ($n = 121$) for late preterm and term infants.

Long Term Preterm Outcomes

- McCormick. `Two possibilities require further elucidation. The first is that preterm delivery is as a result of, not a precursor to conditions resulting in significant disability.
-The second possibility, especially for less severe disability is the post-discharge environment of the preterm infant.

Perinatal Outcomes Associated with Preterm Birth at 33 to 36 Weeks' Gestation: A Population-Based Cohort Study :

Khasu et al Pediatrics 2009; 123

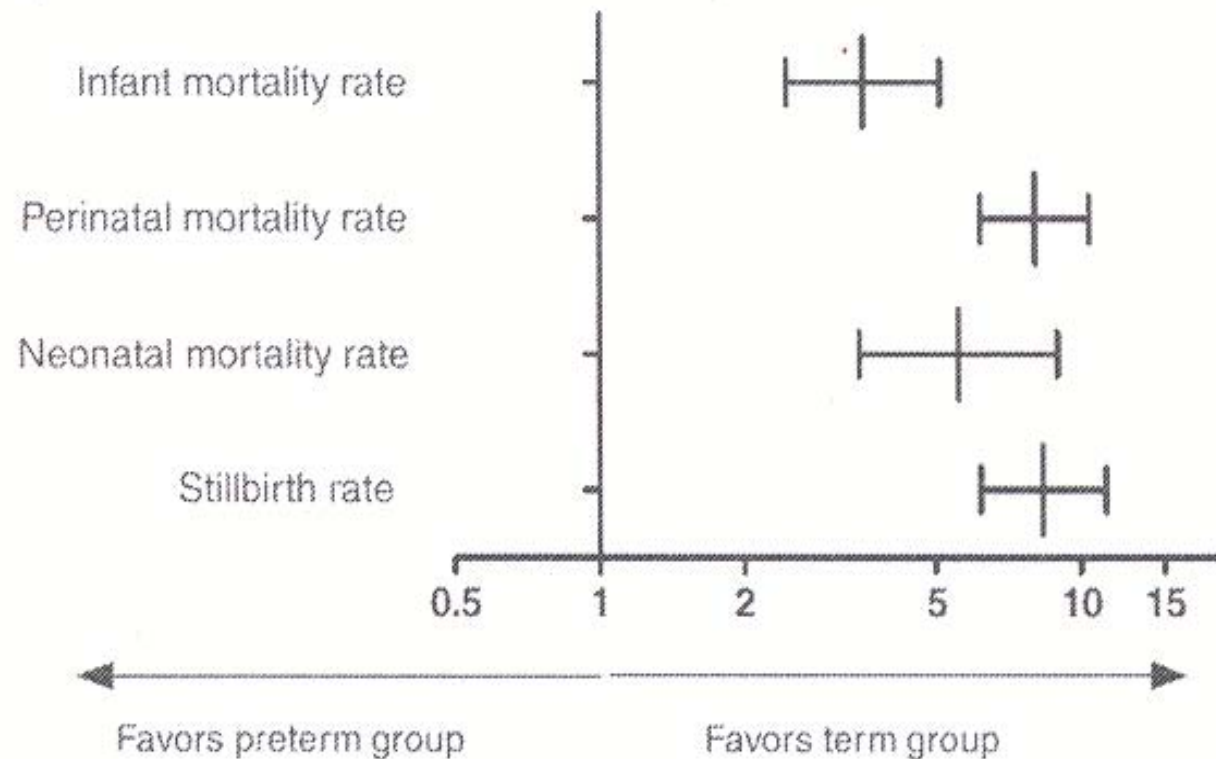


FIGURE 1

RR of mortality, preterm versus term. Error bars represent 95% CIs.

Cost of the late preterm

The Cost of Prematurity: Quantification by Gestational Age and Birth Weight.

Gilbert et al Obstet Gynecol Sept 2003

- Increasing length of stay and cost..
- At 34 wks LOS 5.9 days, cost \$7200
- At 35 wks LOS 3.9 days, cost \$4200
- At 36 wks LOS 2.8 days cost \$2600
- This trend continues with increasing gestation so that at 38 weeks, LOS is 1.8 days and cost is \$1100
- Frequency of complications
- Medical outcomes a hidden cost
- Hospital readmission rates 2-3 fold higher than full term

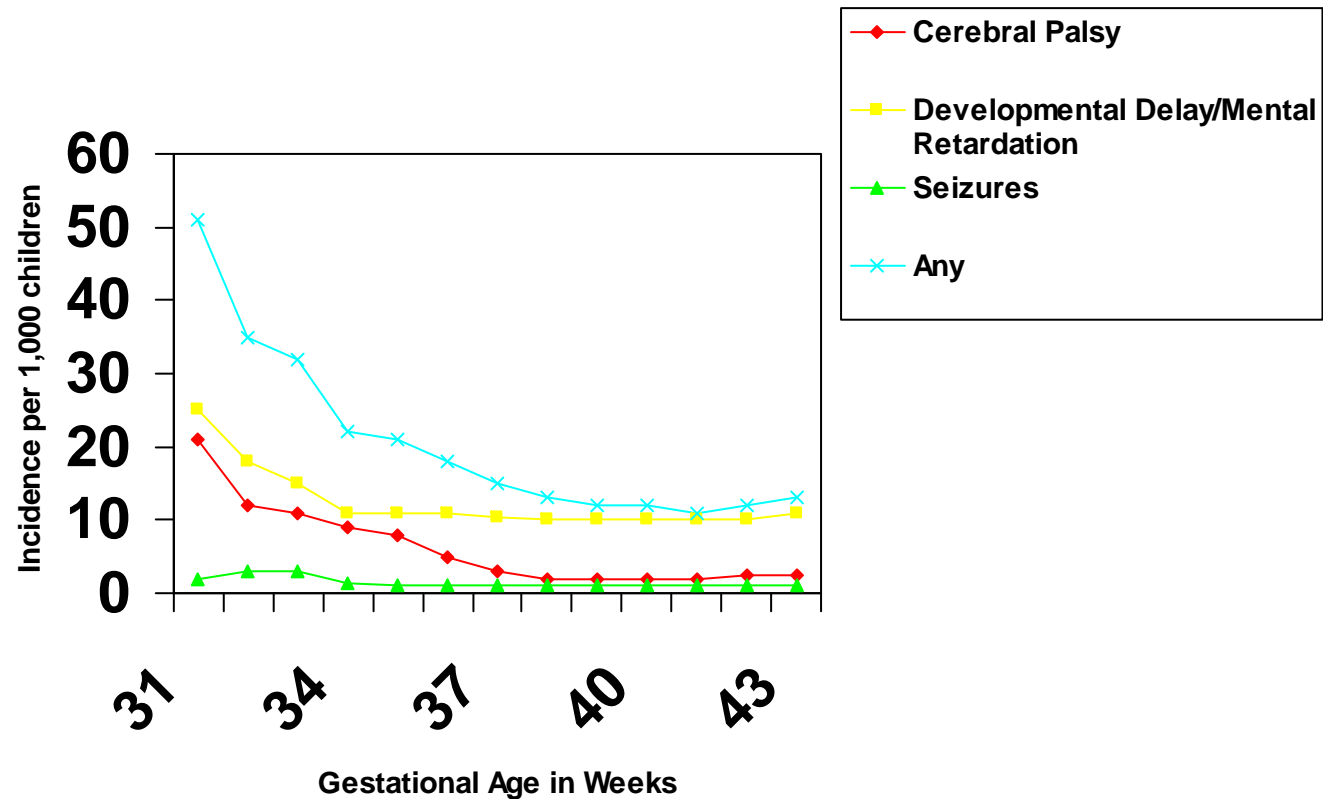
Costs :35 week gestation infant on NICU for 6 days.

- Assume 2 days level 2 at \$2,500 per day and 4 days on PIN at \$1,600 per day =\$11,400
- plus mother 6 days at \$1,420 =\$8,500
- Total cost =\$19,900 (Not including the standard maternity package of \$5570)
- Figure obtained from Women's Health: Maternity related packages for ineligible women and babies
Updated 21st October 2013

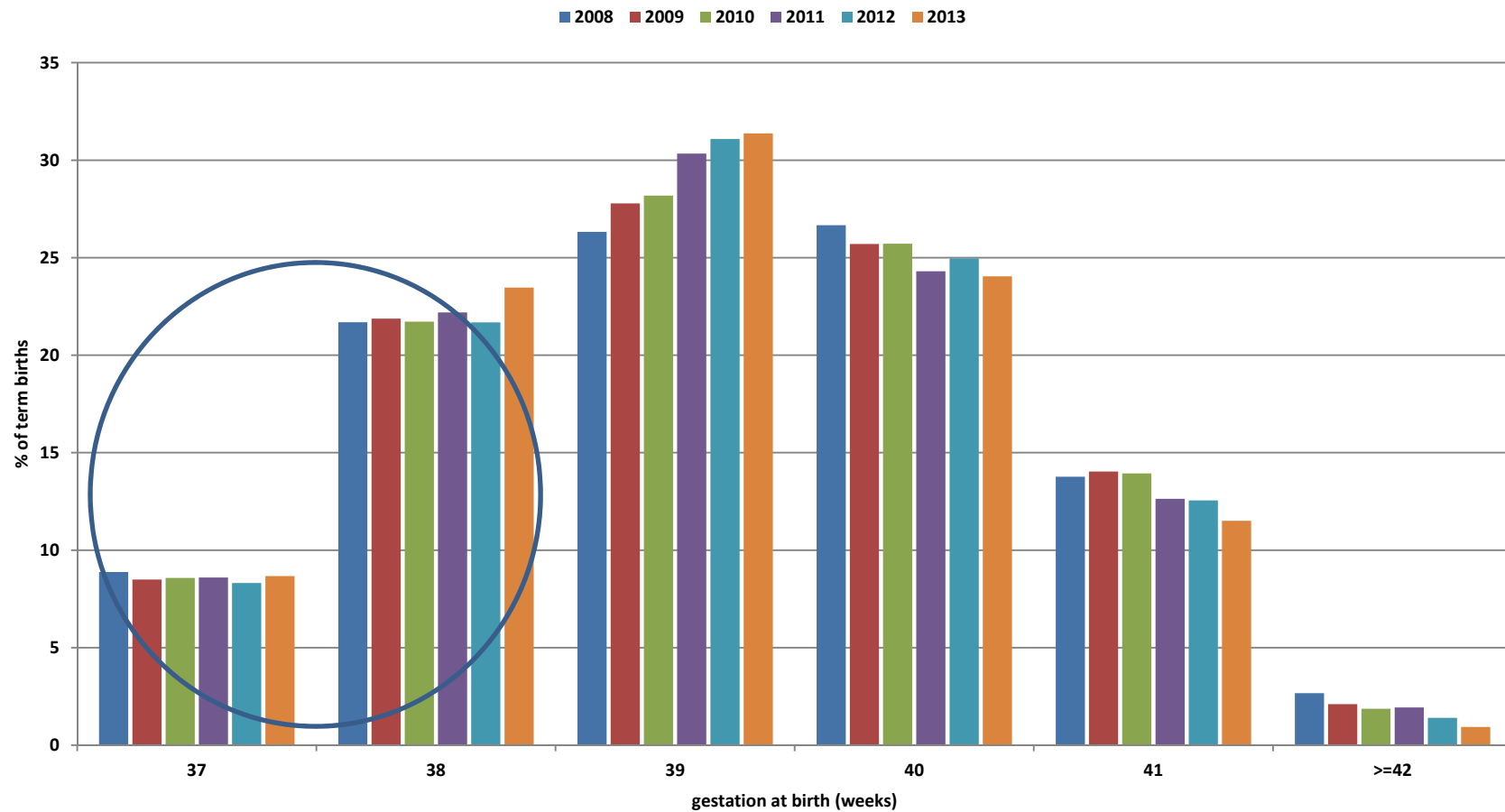
Long term Outcome of the Late Preterm 2 Petrini J.

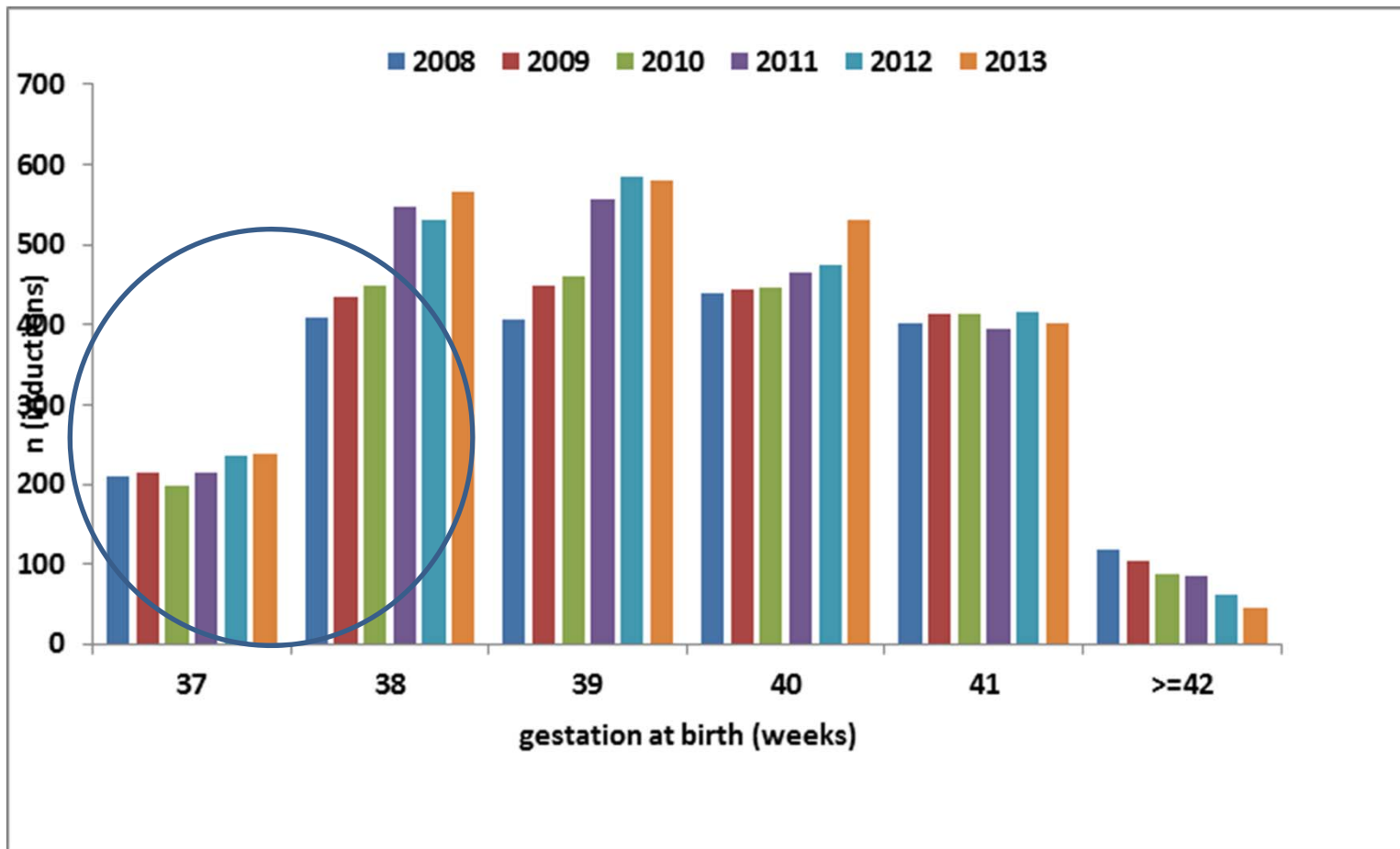
Increased risk of Adverse Neurological Development for Late Preterm Infants J Ped Feb 2009

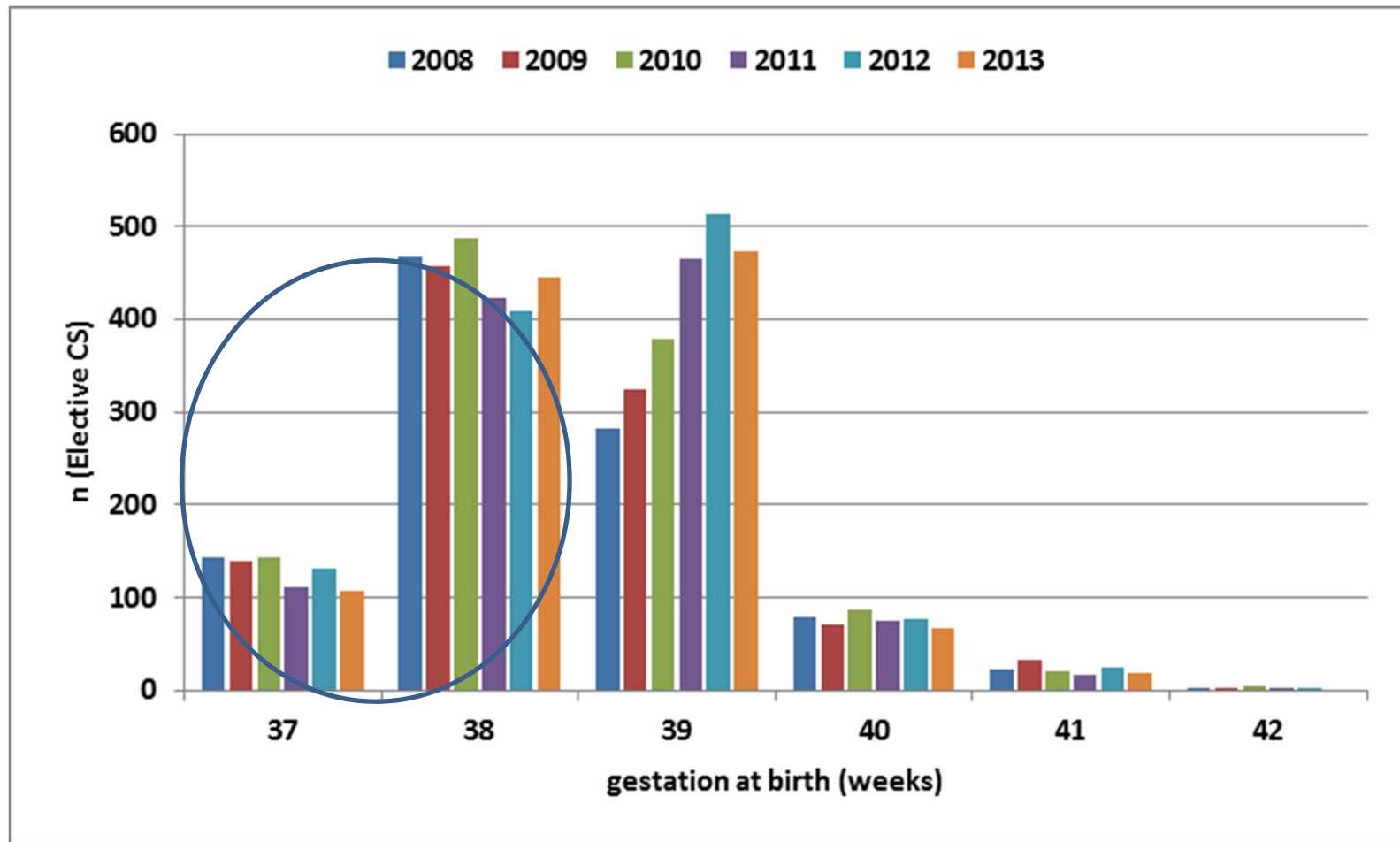
Incidence of neurodevelopmental outcomes by gestational age (3-week average incidence)



What about early term infants? 37- 38 weeks versus 39-41 weeks gestation







Adverse Neonatal Outcomes Associated with Early Term (38-39weeks)Birth

Sengupta et al. JAMA Pediatrics 2013

- 3 year birth cohort, 33,488 births
- 27% early term births (12% admission rate)
- Hypoglycaemia -adjusted OR =1.92
- Need for Resp support -adj OR =1.93
- NICU/neonatal admission –adj OR =1.64
- Need for intravenous fluids –adj OR= 1.68
- mechanical ventilation –adj OR= 4.57

What about early term infants?

- 37- 38 weeks versus 39-41 weeks gestation

