

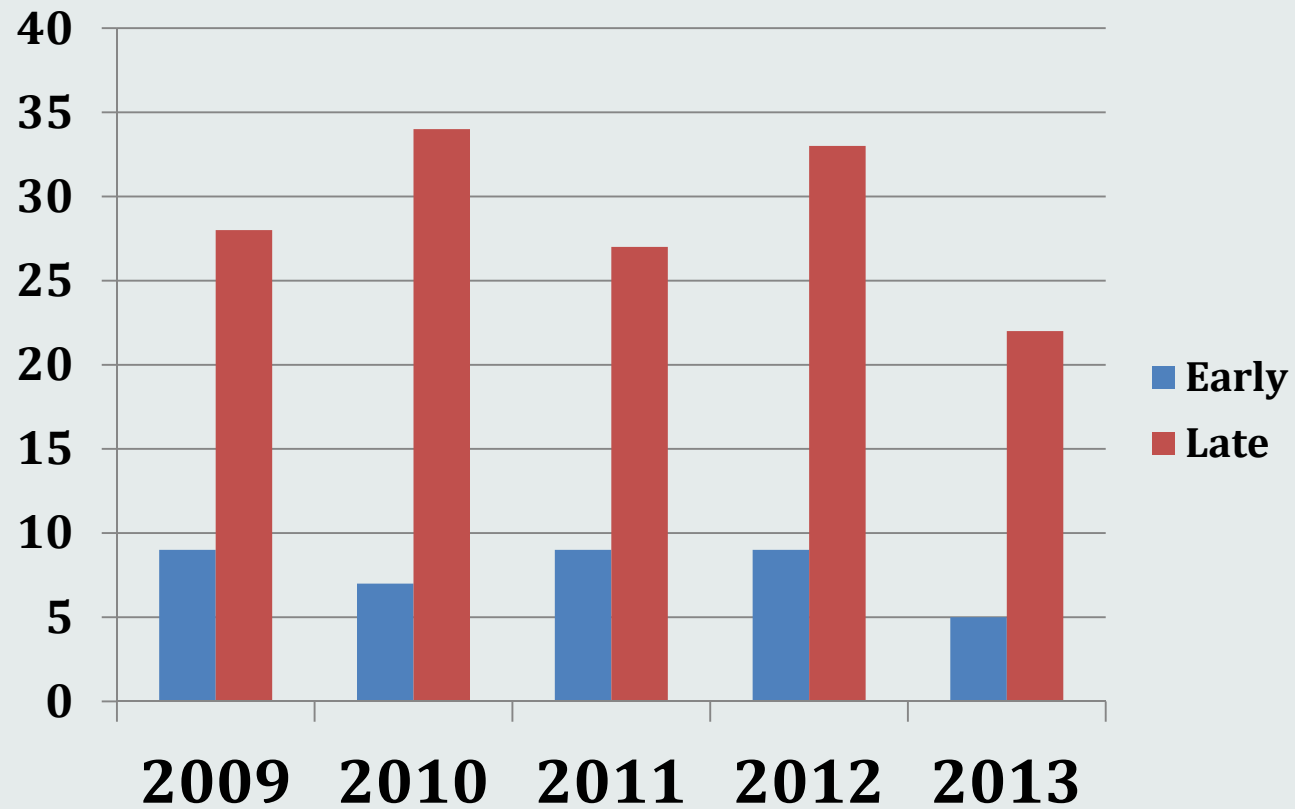
# **Sepsis in the Neonatal Unit**

**Mariam Buksh**  
**Newborn Services**

# Inborn Admissions to NICU

| Year         | 2009          | 2010          | 2011          | 2012          | 2013          |
|--------------|---------------|---------------|---------------|---------------|---------------|
|              | n<br>(%)      | n<br>(%)      | n<br>(%)      | n<br>(%)      | n<br>(%)      |
| <b>Total</b> | 820           | 791           | 839           | 872           | 831           |
| <b>20-27</b> | 57<br>(7.0)   | 58<br>(7.3)   | 43<br>(5.0)   | 40<br>(4.6)   | 39<br>(4.7)   |
| <b>28-31</b> | 91<br>(11.1)  | 110<br>(13.9) | 81<br>(9.7)   | 102<br>(11.7) | 88<br>(10.6)  |
| <b>32-36</b> | 315<br>(38.4) | 280<br>(35.3) | 305<br>(36.4) | 334<br>(38.3) | 308<br>(37.1) |
| <b>≥ 37</b>  | 357<br>(43.5) | 342<br>(43.5) | 410<br>(48.9) | 396<br>(45.4) | 396<br>(47.1) |

# Sepsis Rates over 5 years



# Early Onset Sepsis

## 2013

- E. coli – 4 (2)
- Group B Streptococcus – 1
- (Streptococcus mitis -1)

## 2012

- E coli – 1
- Group B Streptococcus – 6
- Pseudomonas- 1, Group C Streptococcus - 1

# Early Onset Sepsis

## **E. coli Infection (1)**

- 30/40, 1290 g, male
  - Maternal type 2 DM, IUGR
  - PPRM 4 days prior, inpatient, on oral erythromycin, complete course of steroids, LSCS for fetal bradycardia
  - Baby extremely unwell with sepsis ?meningitis
  - Died at 36 hours of age

# Early Onset Sepsis

## **E. coli Infection (2)**

- 35/40, 2470 g, male
  - PPRM for 5 days, mother inpatient, on oral erythromycin
  - LSCS for fetal tachycardia, clinical chorioamnionitis
  - Baby's blood culture positive for E. coli, CSF clear
  - Treated with antibiotics, respiratory support

# Early Onset Sepsis

## **E. coli Infection (3)**

- 27/40, 660 g, male
  - Em LSCS for maternal preeclampsia and IUGR
  - Baby's blood initially negative
  - Blood culture positive for E. coli on day 10, CSF clear
  - Treated with antibiotics

# Early Onset Sepsis

## **E. coli Infection (4)**

- 34/40, 2390 g, male
  - Ex-utero transfer for surgical management
  - DCDA twins, preterm labour and birth
  - Mild RDS, CPAP for 5 hours; 48 hours antibiotics
  - Day 3 – evidence of bowel perforation on AXR
  - Transverse colon perforation, blood culture positive for E. coli



# Early Onset Sepsis

## Group B Streptococcus Infection (1)

- 26/40, 1060 g, male
  - 17 year old primigravid mother, limited antenatal care
  - In utero transfer at 26 weeks after PPRM 2 days
  - Given Nifedipine and steroids prior, no antibiotics
  - Febrile and ↑HR in WAU, Cat 1 emergency section
  - IV antibiotics 1.5 hours prior to birth

# Early Onset Sepsis

- **Group B Streptococcus Infection (1)**  
**(con't)**
  - Limited antenatal care
  - MSU and swabs positive for GBS
  - Swabs 3 days prior – no GBS (Chlamydia positive)

# Early Onset Sepsis

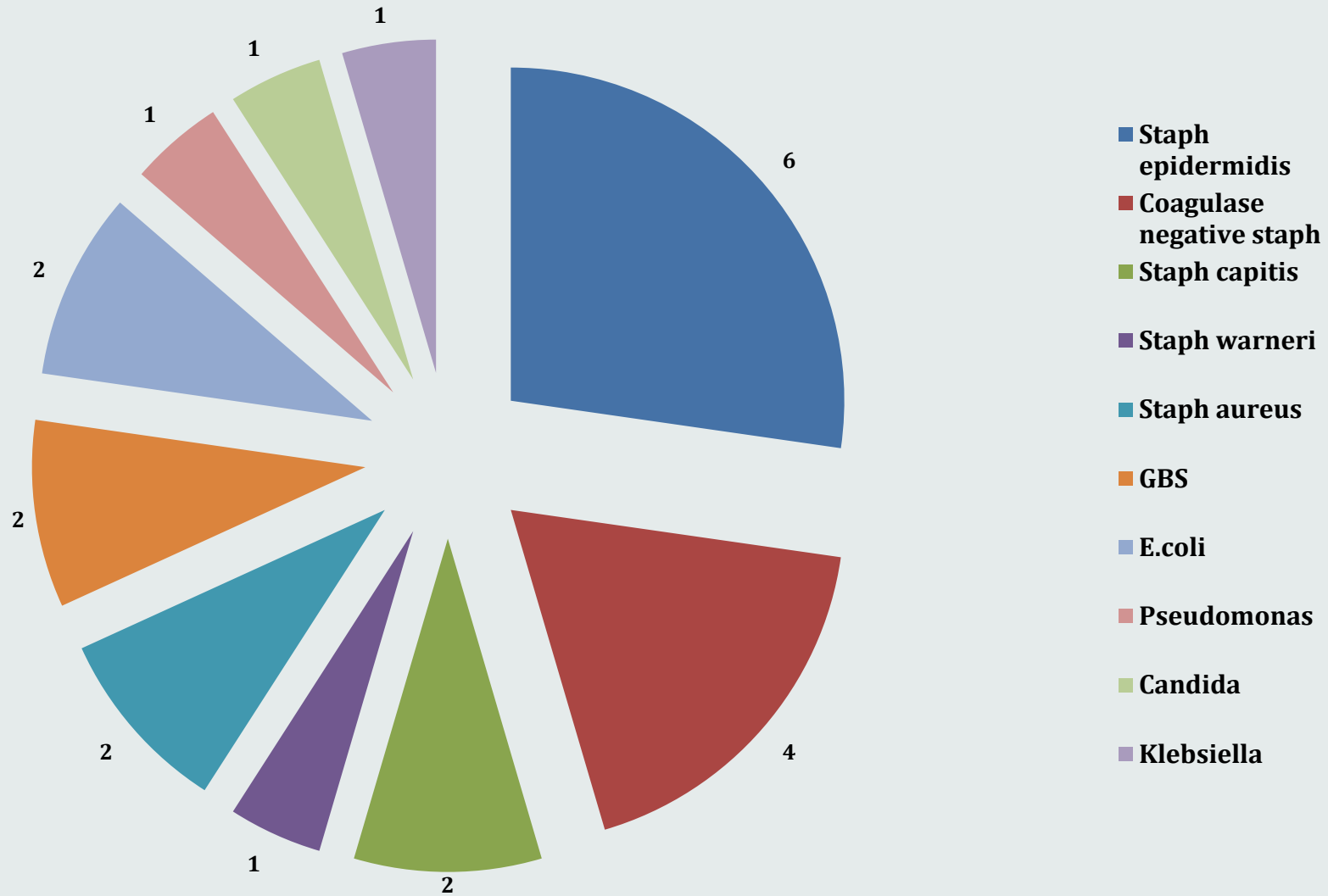
## **Streptococcus mitis**

- 29/40, 1280 g, male
  - PPRM for 4 days, in utero transfer
  - Clinical chorioamnionitis, on intravenous antibiotics, emergency section for chorio, pus in uterine cavity
  - Florid chorio and funisitis on placenta
  - Baby treated with 10 days of antibiotics

# Early Onset Sepsis

- Preterm premature rupture of membranes
- Clinical chorioamnionitis
- Oral antibiotics
- E. coli and GBS common causative organisms
- Can result in severe illness or death
- Review of GBS prophylaxis as QA activity

# Late-Onset Sepsis

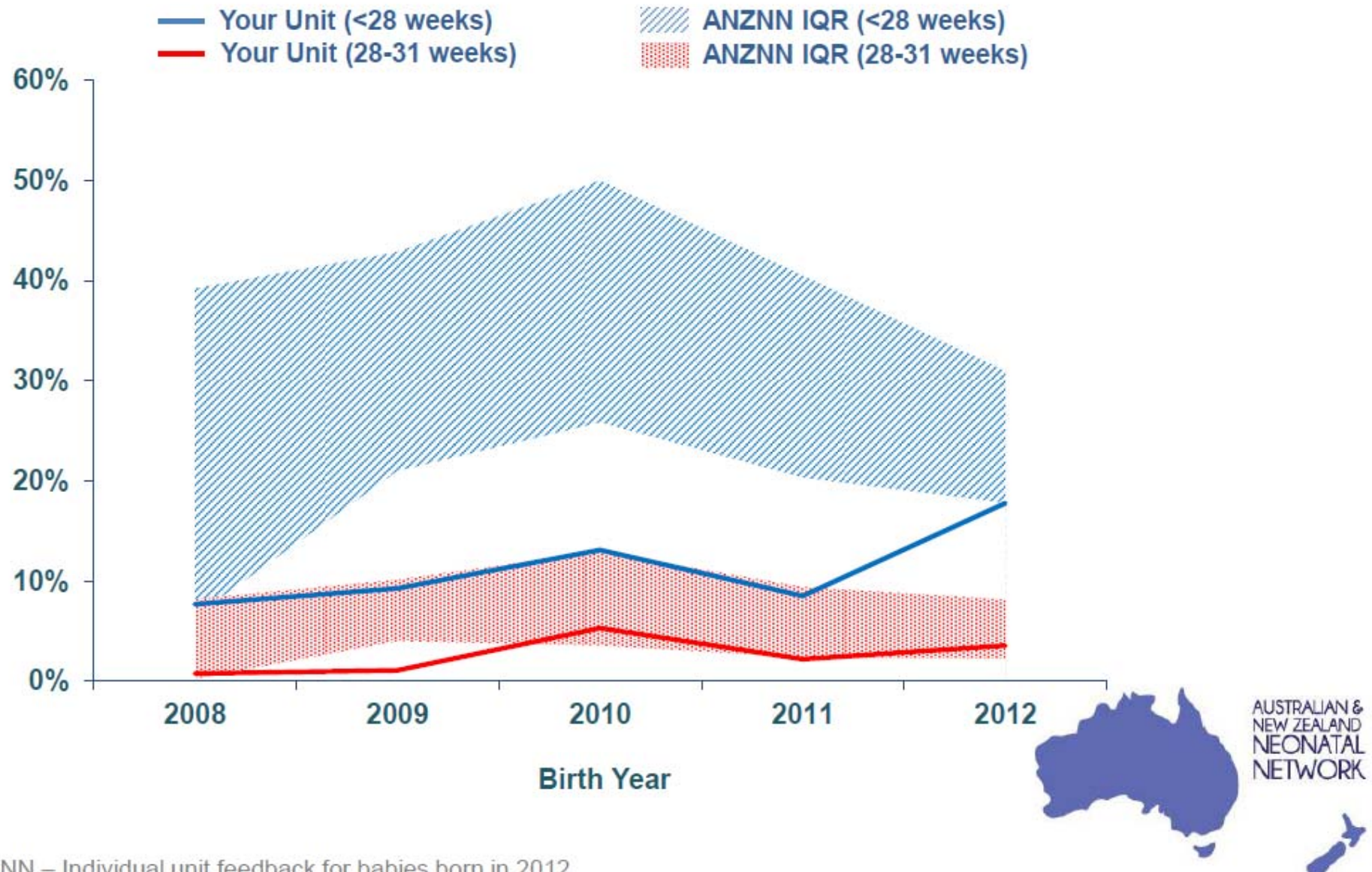


# Late Onset Sepsis

- Coagulase negative staphylococcus/  
staphylococcus epidermidis etc.
  - 13/22 (59%)
  - Usually with a central line in situ
- Late GBS, Staphylococcus aureus, E. coli
  - 2/22 (9%) - each
- Others – Klebsiella, Pseudomonas, candida

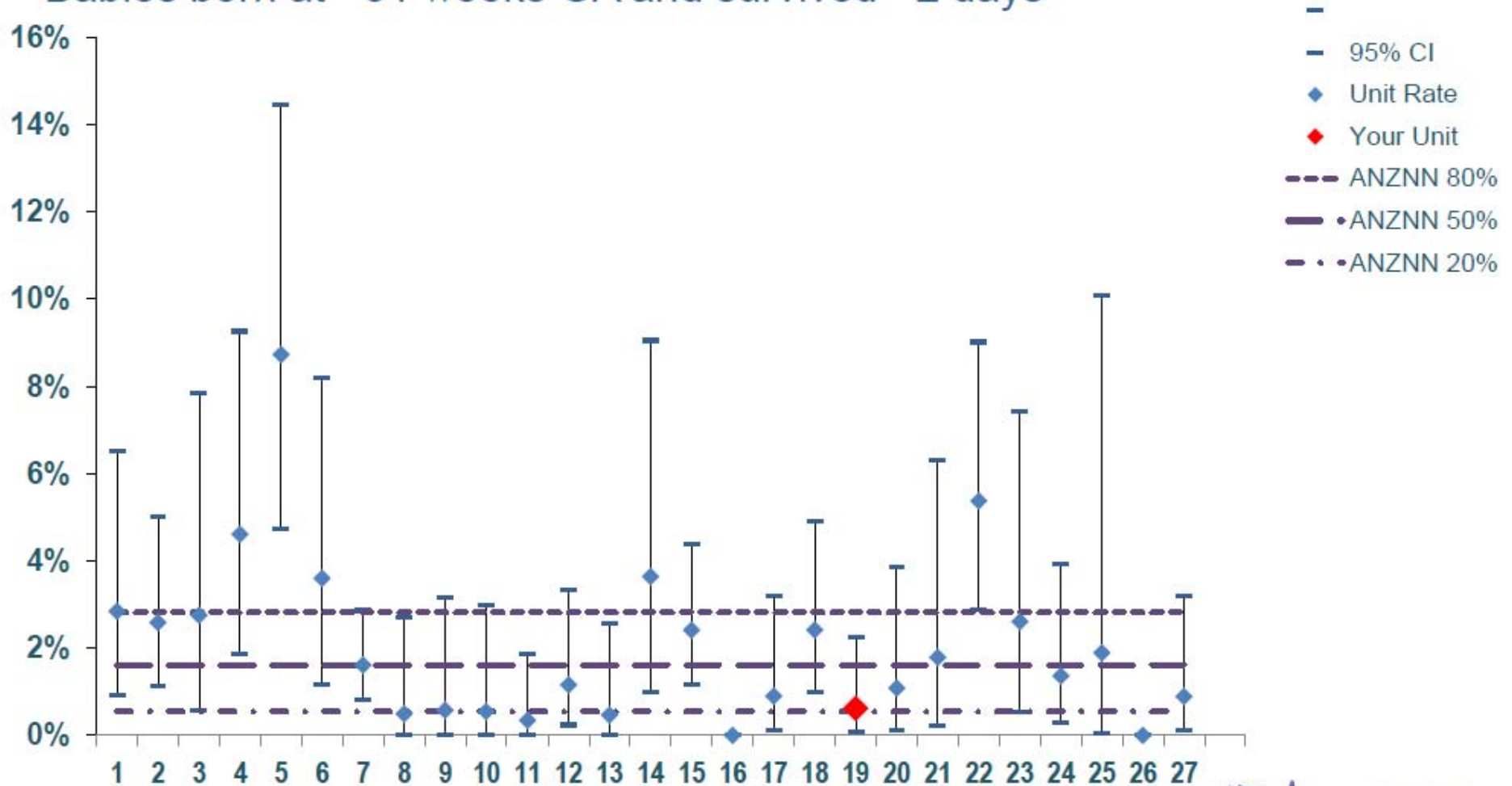
# Late-onset Sepsis 2008-2012

Babies born at <32 weeks and survived to day 2



# Late-onset Sepsis

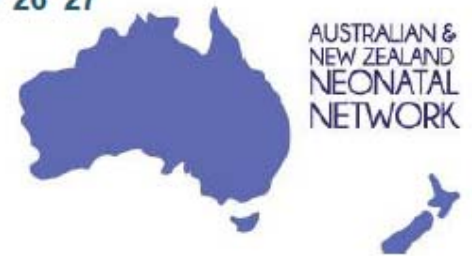
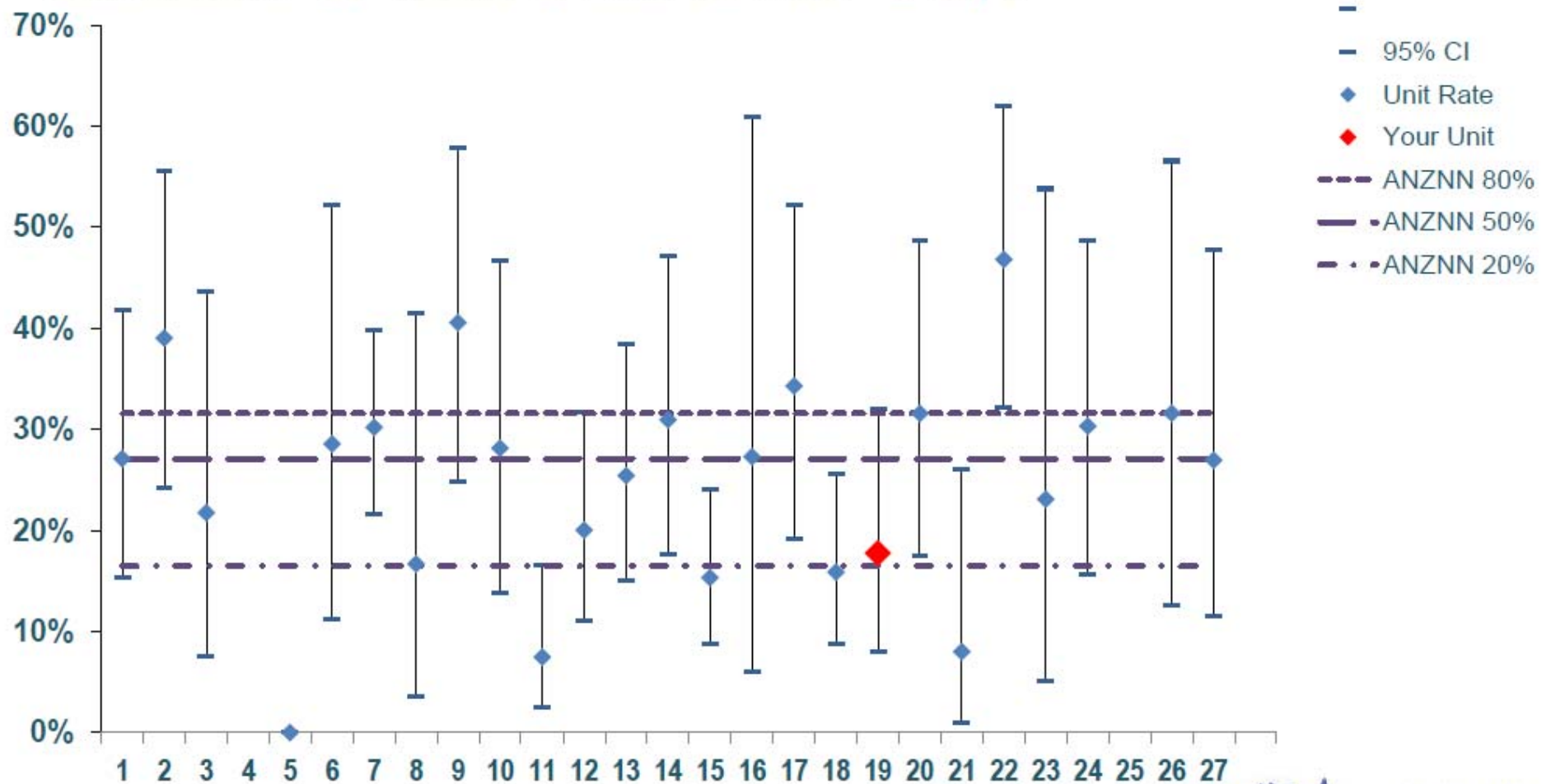
Babies born at >31 weeks GA and survived >2 days





# Late-onset Sepsis

Babies born <28 weeks GA and survived >2 days



# Sepsis in the Neonatal Unit

- Neonates at high risk of sepsis
- Fatal in some cases
- Some episodes of sepsis may be preventable
- Overall rates at lower end of range for ANZNN but there is always room for improvement