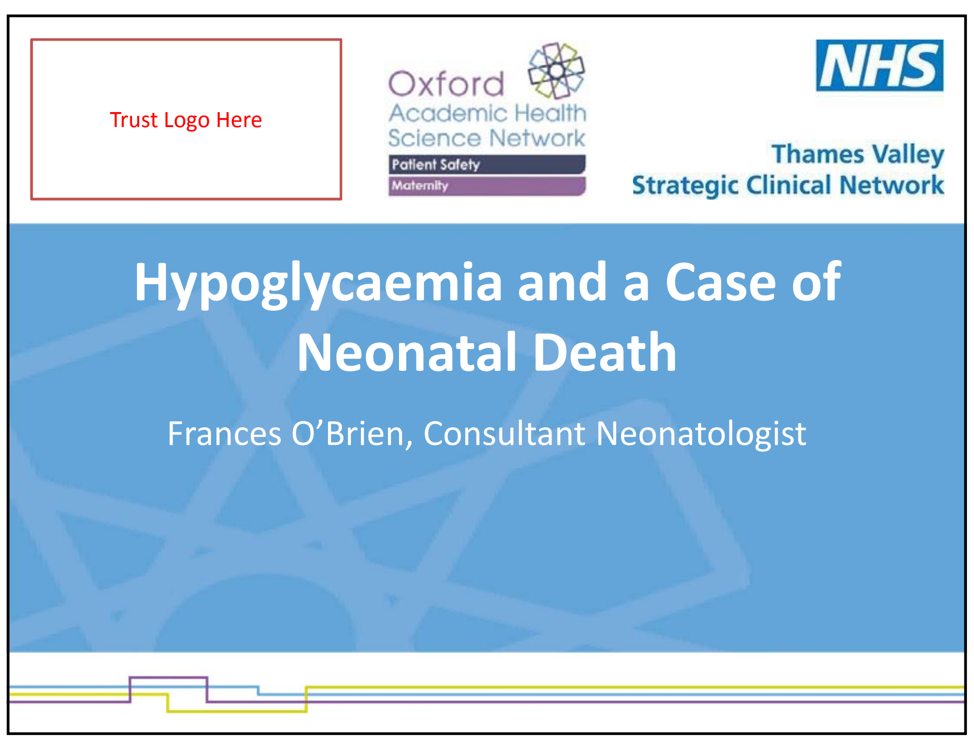
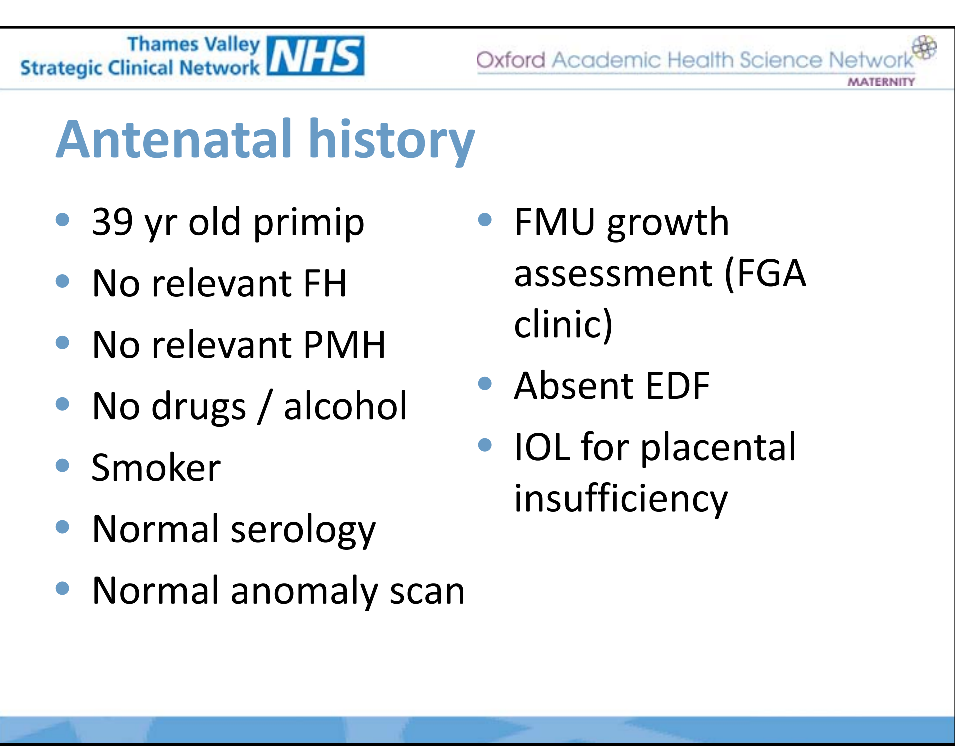

Trust Logo Here
Oxford
Academic Health
Science Network
Patient Safety
Maternity
NHS
Thames Valley
Strategic Clinical Network
Hypoglycaemia and a Case of
Neonatal Death
Frances O'Brien, Consultant Neonatologist


Thames Valley
Strategic Clinical Network
NHS
Oxford Academic Health Science Network
MATERNITY
Antenatal history
39 yr old primip
No relevant FH
No relevant PMH
No drugs / alcohol
Smoker
Normal serology
Normal anomaly scan
FMU growth assessment (FGA clinic)
Absent EDF
IOL for placental insufficiency

Oxford Academic Health Science Network

Delivery 37+2

- Failure to progress
- EmLSCS, paediatricians present (abnormal CTG – active neonatal resuscitation anticipated)
- Born in good condition, no resuscitation required; Apgars 10, 10
- BWt 2945g, 50th centile
- Breast feed documented (no time)

Oxford Academic Health Science Network

Postnatal progress

- 18 hours – NIPE, low set ears noted
- Feeding – EBM then formula by bottle 25 mls 4 hourly (52ml/kg/day)
- 48 hours discharged home (5pm)
- 8am fed 15mls
- 11am HV visited
- 12-4pm slept, refused to feed, phoned MW
- 5pm (72 hours) MW visited

Oxford Academic Health Science Network

Admission

- MW found baby floppy & unresponsive
- Ambulance to ED
  - Temperature 38°C
  - BM 0.1mmol/L
- IV dextrose bolus – responded with cry
- BM 1.5mmol/L after 30 mins
- Hypoglycaemia screen

Diagnosis and management

- Hypoglycaemia secondary to prolonged period poor feeding
  - Rule out / treat sepsis
  - Consider other diagnoses
- Safeguarding concerns
- Sepsis screen & antibiotics
- Required > 15mg/kg/min glucose
- Seizures – required anticonvulsants

Progress

- MRI – extensive changes in parietal and occipital lobes consistent with severe hypoglycaemia
- 2 weeks on PICU / PHDU
- Commenced diazoxide for hyperinsulinism
- Poor weight gain, establishing feeds
- 5 weeks – unwell, febrile, diarrhoea, distended abdo, bilious aspirates

Oxford Academic Health Science Network

Surgery

- Laparotomy
  - Necrotic small & large bowel, perforated appendix, R hemicolectomy, jejunostomy
- 2 days later re-look laparotomy
  - Resected ileum
  - No ileo-caecal valve
  - 3 + 13 cm jejunum – insufficient gut for meaningful survival
- Decision made for palliative care

Oxford Academic Health Science Network

Summary

- 50th centile baby
- No risk factors for hypoglycaemia
- Bottle feeding
- Significant brain injury secondary to severe hypoglycaemia
- Hyperinsulinaemia
- Ischaemic bowel

Oxford Academic Health Science Network
MATERNITY

Learnings and Reflections

- *First case of IOL from FMU FGA clinic*
  - *Avoided IUD*
- *Delivered in good condition*
  - *Avoided NICU admission*
- *Decent weight*
- *Followed current guidance of time*

- *Perhaps we need new guidance………………*

Oxford Academic Health Science Network

British Association of Perinatal Medicine

Identification and Management of Neonatal Hypoglycaemia in the Full Term Infant – A Framework for Practice

April 2017

Term infants at risk of impaired metabolic adaptation and hypoglycaemia include infants of diabetic mothers, infants whose mothers have taken beta-blockers, and infants with intrauterine growth restriction (IUGR). IUGR should be defined using gestational age and sex specific 2nd centile values, and / or clinical wasting.

An operational threshold approach should be used to guide interventions intended to raise blood glucose:

- A value <1.0mmol/l at any time
- A single value <2.5mmol/l in a neonate with abnormal clinical signs
- A value <2.0mmol/l and remaining <2.0mmol/l at next measurement in a baby with a risk factor for impaired metabolic adaptation and hypoglycaemia but without abnormal clinical signs.

Blood glucose should be measured if reluctant / non-effective feeding follows a period of effective feeding or if there are any abnormal clinical signs in addition to reluctant feeding.

Oxford Academic Health Science Network

Planned changes…..

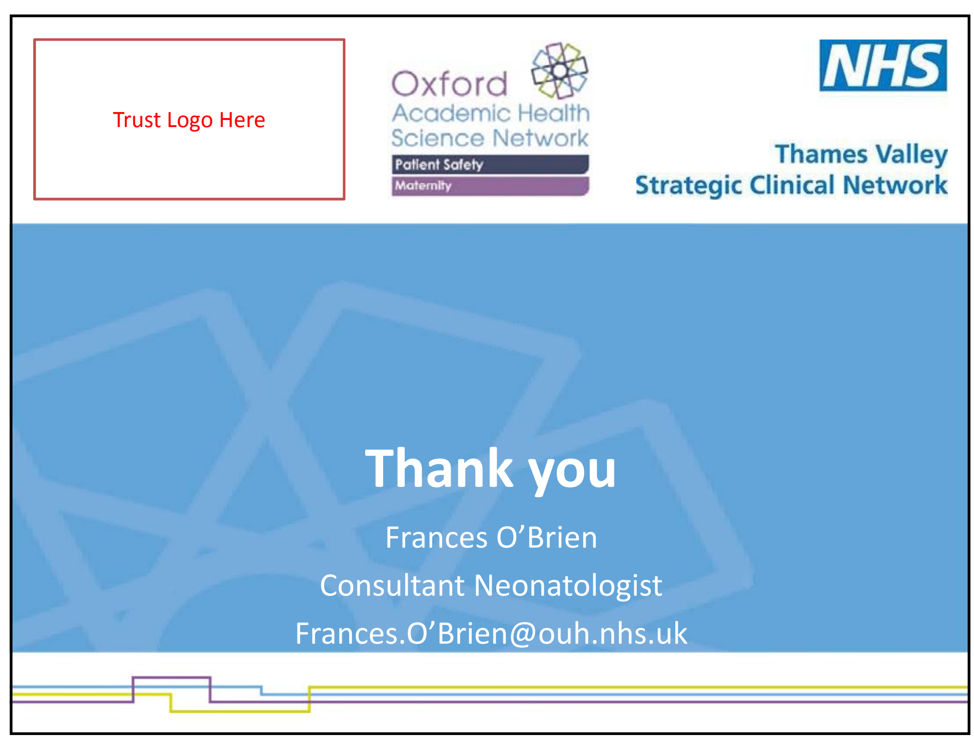
- Implement BAPM guidance

British Association of Perinatal Medicine

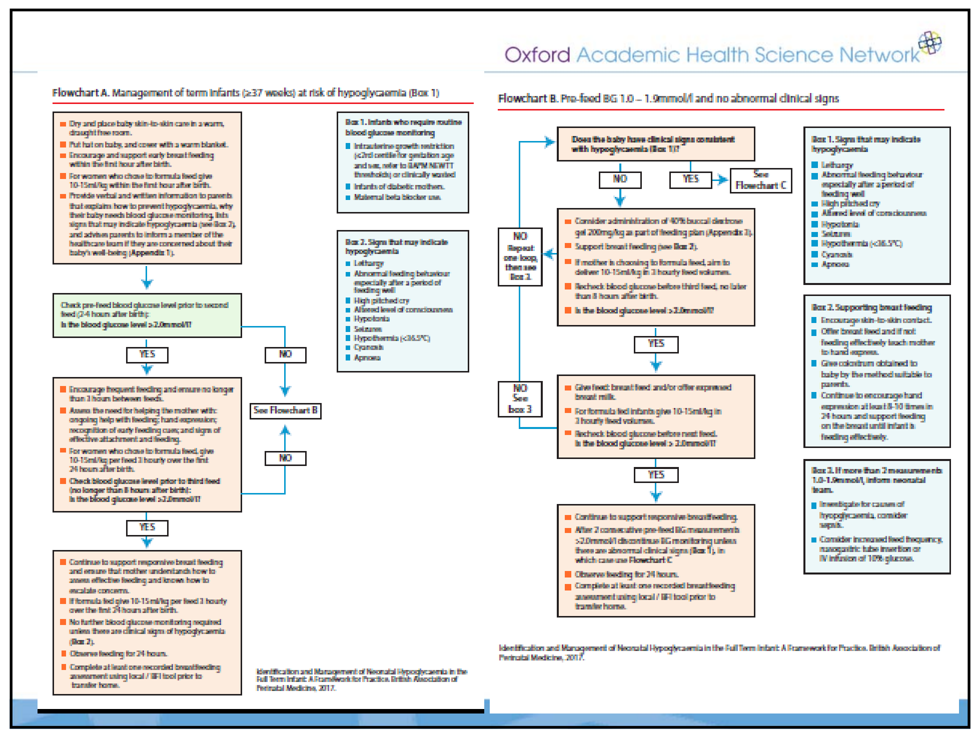
Identification and Management of Neonatal Hypoglycaemia in the Full Term Infant – A Framework for Practice

April 2017

- Identification of infants at risk
  - IUGR <3rd centile
  - Clinically Wasted
  - ***Expedited delivery by FMU FGA clinic before 40 weeks***



Trust Logo Here
Oxford Academic Health Science Network
Patient Safety
Maternity
NHS
Thames Valley
Strategic Clinical Network
Thank you
Frances O'Brien
Consultant Neonatologist
Frances.O'Brien@ouh.nhs.uk



Oxford Academic Health Science Network
Flowchart A. Management of term infants (≥37 weeks) at risk of hypoglycaemia (Box 1)
YES
NO
See Flowchart B
Identification and Management of Neonatal Hypoglycaemia in the Full Term Infant: A Framework for Practice. British Association of Perinatal Medicine, 2017.
Flowchart B. Pre-feed BG 1.0 – 1.9mmol/l and no abnormal clinical signs
See Flowchart C
Identification and Management of Neonatal Hypoglycaemia in the Full Term Infant: A Framework for Practice. British Association of Perinatal Medicine, 2017.