“Keeping Mothers and Babies Together”
A Quality Improvement Project

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MCQIC Neonatal Networking Event 4th October 2017
Structure

• Background
  – NICE guidance for early onset sepsis
  – Existing process in QEUH
  – Influencers for Change

• Aims, measures and PDSA testing

• Results to date

• Hurdles and next steps
Background

• NICE Guidance 2012
  • Prevention and Treatment of Early Onset Neonatal Sepsis

• Antibiotic requirement
  – Based on risk factor assessment
  – Babies identified immediately after birth
# NHS GG&C NEWS Chart

## Risk Factors and Clinical Indicators

<table>
<thead>
<tr>
<th>Risk Factors for Early Onset Sepsis</th>
<th>tick</th>
<th>Clinical Indicators in the neonate</th>
<th>tick</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antibiotics indicated for <strong>ANY Red Indication</strong> or two or more other indications</td>
<td></td>
<td>Respiratory distress (tachypnoea or grunting) commencing, or continuing, more than 4h after birth</td>
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<tr>
<td>Parenteral antibiotics given to mother for suspected / confirmed invasive bacterial infection</td>
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<td>Within 24h before, or after, delivery.</td>
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<td>Suspected or Confirmed sepsis in a twin</td>
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<tr>
<td>Invasive GBS in a previous sibling</td>
<td></td>
<td>Altered responsiveness / reduced muscle tone **</td>
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</tr>
<tr>
<td>Maternal GBS colonisation / bacteriuria in current pregnancy</td>
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<td>Feeding difficulties or feeding intolerance **</td>
<td></td>
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<tr>
<td>Bradycardia / tachycardia</td>
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<tr>
<td>Prelabour rupture of membranes</td>
<td></td>
<td>Jaundice in first 24h</td>
<td></td>
</tr>
<tr>
<td>Preterm <strong>spontaneous</strong> onset of labour (&lt;37 weeks)</td>
<td></td>
<td>Hypoxia / Need for CPR at birth</td>
<td></td>
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<tr>
<td>ROM &gt; 18 hours before delivery in a preterm birth</td>
<td></td>
<td>Unexplained bleeding / thrombocytopenia or prolonged coagulation</td>
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<tr>
<td>Intrapartum fever &gt;38°C / suspected chorioamnionitis</td>
<td></td>
<td>Local signs of infection - skin / eyes</td>
<td></td>
</tr>
</tbody>
</table>

**note that sleepiness, minor vomiting and early reluctance to feed are common symptoms in the normal neonate in the first day of life. Clinical judgement must be used to determine whether these are more pronounced than usual for a baby of that gestation and age.**

NB – NICE also lists Red flags and clinical indicators which are only relevant to SCBU admissions including: seizures; need for mechanical ventilation in a term baby; signs of shock; signs of neonatal encephalopathy; persistent pulmonary hypertension (PPHN); oliguria persisting beyond 24 h; hypo/hyperglycaemia; metabolic acidosis or apnoea.
Baseline Audit

• iv Antibiotics and NEWS monitoring
  – recorded prospectively in QEUH PNW’s

• Results
  – due to risk factors 220-250 babies per annum require cannulation for iv antibiotics

• 1° Maternal Sepsis 6
  – generally positive experience of implementing NICE guidance in contrast to NHS England
Existing Process
Existing Process
Existing Process
Existing Process

Who’s this at the desk?
Existing Process
Existing Process

• When probed
  – “because it happens that way ...”

• What happens in other units?
  – April 2017
  – Telephone survey
  – Neonatal Units across NHS Scotland
    • all tertiary units similarly separate mother and babies
Other Influences for Change

• Unit Capacity
  – Recent merger of two Neonatal Units (June 2015)
    • 50 bedded NNU
    • Regional and national referral unit

• Infection Control
  – Episodes of infection
    • Outbreak meetings
    • Infection Control advice to limit “footfall” to the Neonatal Unit
Other Influences for Change (2)

• Impact of maternal separation
  – Early Years Collaborative
  – National Reports
    • Better Births, The Best Start ...
    • Powerful evidence on long lasting effects on both mother and baby following separation at birth
Light Bulb Moment
Cross-Specialty Agreement
Benefit of Change in Process

We can do it!
Project Group and Plan

• At conception
  – multi-disciplinary group vital to achieve change
  – process mapping with wider clinical team
• Project Scoping and Management
  – monthly meetings
    • 3 months before and since launch date
  – support from Clinical Effectiveness Team
• Roles identified
• Launch date agreed
• Wider staff engagement
  – cascading of information throughout project
Project Group: Aims

• Introduce a new Clinical Pathway
  – 95% of eligible babies to be cannulated in Labour Ward and remain with parents by December 2017

• Change in IT process and responsibilities
  – 95% of CHI numbers to be generated by time of first contact to NNU staff by December 2017
  – 95% of Trak™ Care “ward attender” status to be performed by LW staff by December 2017

• 2° aim
  – to increase to 95% the proportion of antibiotics administered within 1 hour of ‘decision to treat’ by December 2017
    • baseline audit identified only 40% met criteria
Proposed Modified Pathway

- **ANTIBIOTICS REQUIRED**
  - **LABOUR WARD STAFF PHONE NNU**
    - **NNU DOCUMENT**
      - TIME INFORMATION GIVEN
      - FOLLOWING INFORMATION
    - **CANNULATE WITHIN 1 HOUR OF DECISION TO TREAT**
    - **TAKE CEFOTAXIME 125MG IF < 3.5KG**
    - **TAKE CEFOTAXIME 175MG IF > 3.5KG**
  - **LABOUR WARD STAFF-WARD ATTENDER**
    - **PARENTS WISH CANNULATION IN ROOM**
      - USE DESIGNATED TROLLEY AND ASSISTANCE IF REQUIRED
    - **PARENTS DO NOT WISH CANNULATION IN ROOM**
      - **TRANSFER TO ALTERNATIVE ROOM IN LABOUR WARD (Observation)/LEVEL 2 IF NONE AVAILABLE**
  - **MAXIMUM 3 X ATTEMPTS**
  - **SENIOR MEDICAL STAFF SHOULD CANNULATE IF UNSUCCESSFUL**

- **KEEPING MOTHER AND BABY TOGETHER PROJECT**
  - INDICATION
  - GESTATION
  - WEIGHT
  - TIME OF BIRTH
  - BABY CHI NUMBER
  - ROOM NUMBER
  - PARENTS Y/N
PDSA Cycle

Testing and refining ideas
Version 1 -8 of proforma

Implementing new procedures & systems
-Prompts on IT process
-Fact of fortnight

Bright idea!

Accumulating information, data and knowledge
Feed back to wider staff group notice board to celebrate
success sharing at meetings
Modified Process
Modified Process
Results

• Timescales
  – launched 1\textsuperscript{st} December 2016

• Results
  – 117 infants cannulated in Labour Ward by end of July 2017
  – > 99% of babies remained in Labour Ward with parents
  – n=1 transferred to NNU due to difficult cannulation

• Outcomes
  – 14 - 20 babies per month avoided transfer to NNU
  – no baby required admission to NNU prior to or after LW cannulation due to poor clinical condition
1. No. of babies where an attempt was made to keep them on the labour ward
Measure 2

2. No. of first dose antibiotics given within 1 hour of decision to treat

- Staff change over
- Highlighted to medical staff

Compliance

Month

Dec-16, Jan-17, Feb-17, Mar-17, Apr-17, May-17, Jun-17, Jul-17, Aug-17, Sep-17, Oct-17, Nov-17, Dec-17
Measure 3

3. No. of babies with timely generation of CHI

- Fact of fortnight
- Reminder to all staff
Hurdles and Issues

- Large staff group
  - Information cascaded to 160 staff members
    - Across two departments
  - Communication and engagement has been key

- IT training and support
  - Clinical activity/acuity reported as a barrier
  - Support from NNU clerical staff
    - Invaluable in training and creating prompts
Hurdles and Issues

• Encouraging data completeness
  – particularly as new process became embedded into normal clinical routine

• Data collection and shift timings
  – Influence of handover times
    • time-to-first-dose of antibiotics
Hurdles and Issues

• Staff availability to leave NNU and impact of this on NNU workload
  – Not been an issue at QEUH
  – NNU staff at all levels supportive of change

• Antibiotic preparation
  – pre-existing policy included pre-made dose banded Cefotaxime
  – 2-person check on preparation therefore not required
Feedback
Parents

“My partner felt very involved. We had been very worried about the risks of sepsis. We were pleased treatment was started so quickly and my partner was able to take photographs of the cannula to let the rest of the family see what was happening”
Newly delivered mother

“... my time with my baby was so precious. I was glad I could keep my baby with me”
Newly delivered mother

“I was very tired after my delivery but the Doctor asked my husband if he would help. My husband really appreciated this. It meant special dad and daughter time”
Newly delivered mother
“Keeping mothers and babies together whenever possible supports uninterrupted early skin contact, breastfeeding and promotes early close and loving relationships”

Infant Feeding Advisor

“It has been really good to be able to keep mothers and babies together at this time and see dads so involved. I am very supportive”

Labour Ward Midwife
The Team
Change Embedded into Clinical Practice

Yes, I did it!
I WILL DO IT
I CAN DO IT
I’LL TRY TO DO IT
HOW DO I DO IT?
I WANT TO DO IT
I CAN’T DO IT
I WON’T DO IT

WHICH STEP HAVE YOU REACHED TODAY?
Learning and Discussion Points

- Engaging such a large group of Staff is challenging but achievable.
- Challenge “that’s how it is done ...”
- Feedback from families universally positive
- Potential for other Maternity Units to consider implementing a similar change in process?
Next Steps

• Now reporting on cannulation quarterly rather than monthly

• Project group emphasis on further improving CHI and Trak ‘ward attender’ status

• Antibiotics within 1-hour of decision to treat
Thank you