

# North East North Cumbria Health Safety Collaborative Learning System Event

4 June 2019

North East and  
North Cumbria

**Patient  
Safety  
Collaborative**

**#MatNeoNENC #PReCePTNENC**

# Welcome and Introduction

**Martyn Boyd**

North East and  
North Cumbria

**Patient  
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# Maternal and Neonatal Health Safety Collaborative – why are we here?

Three year programme to support improvement in the quality and safety of maternity and neonatal units across England.

## AIM:

To reduce the rates of maternal deaths, stillbirths, neonatal deaths and brain injuries that occur during or soon after birth by 20% by 2020.

This national ambition requires all NHS Trusts (plus independent providers) who provide maternity and neonatal services in England to:

- make measurable improvements in safety outcomes
- exchange ideas and share best practice

# Maternal and Neonatal Health Safety Collaborative Learning System

*Aims of today:*

- 1) An update from the regional PReCePT project & programme
- 2) Hear about the progress to date from the Wave 3 Trusts
- 3) Think about the future! Where do we go from here and what's next?  
“Legacy” projects – hear a few initial ideas and get your feedback and votes
- 4) Network and share!

## Aim

To improve the safety and outcomes of maternal and neonatal care by reducing unwarranted variation and provide a high quality healthcare experience for all women, babies and families across maternity and neonatal care settings in England

Reduce the rate of stillbirths, neonatal death and brain injuries occurring during or soon after birth by 20% by 2020

## Primary Drivers

Improve the proportion of smoke free pregnancies

Improve the optimisation and stabilisation of the very preterm infant

Improve the detection and management of diabetes in pregnancy

Improve the detection and management of neonatal hypoglycaemia

Improve the early recognition and management of deterioration during labour & early post partum period

## Secondary Drivers

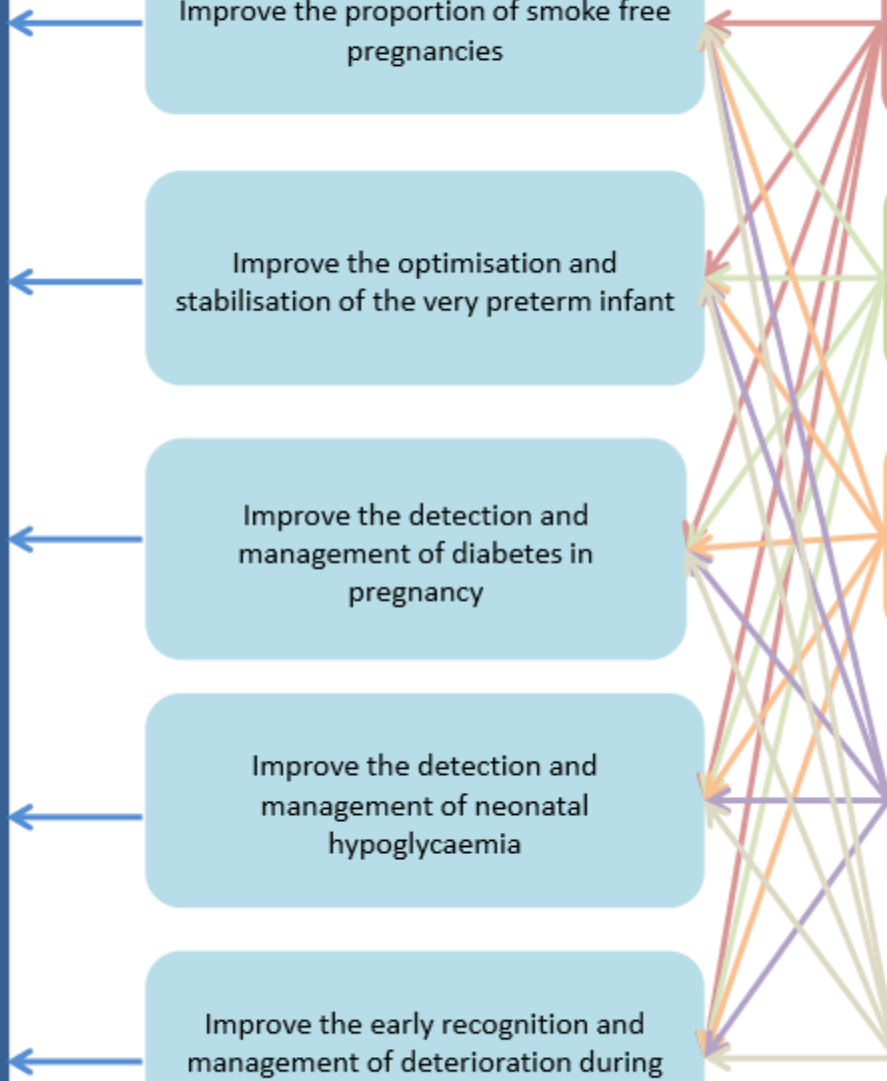
Creating the conditions for a culture of safety and continuous improvement

Develop safe and highly reliable systems, processes and pathways of care

Improve the experience of mothers, families and staff

Learn from excellence and error or incidents

Improving the quality and safety of care through Clinical Excellence



# Two approaches, working together

## Trust Improvement

- Trusts identify areas of focus which meet their needs (in line with National Driver Diagram)

## Learning Systems

- System improvement across North East and North Cumbria
- Evolve over time

Building on the great work currently going on in the region

# Trust Improvement: Who is involved?

| Wave 1 (from Apr 17)          | Wave 2 (from Apr 18)               | Wave 3 (from Apr 19)                         |
|-------------------------------|------------------------------------|--|
| North Tees & Hartlepool NHSFT | County Durham and Darlington NHSFT | North Cumbria University Hospitals NHS Trust |
|                               | South Tees NHS FT                  | South Tyneside and Sunderland NHS FT         |
|                               | Gateshead Health NHS FT            | The Newcastle Upon Tyne Hospitals NHS FT     |
|                               | Northumbria Healthcare NHS FT      |  |



**44 organisations**

**43 organisations**

**46 organisations**

Everyone is involved in the Learning Systems

## Aim

To improve the safety and outcomes of maternal and neonatal care by reducing unwarranted variation and provide a high quality healthcare experience for all women, babies and families across maternity and neonatal care settings in England

Reduce the rate of stillbirths, neonatal death and brain injuries occurring during or soon after birth by 20% by 2020

## Primary Drivers

Improve the proportion of smoke free pregnancies

Improve the optimisation and stabilisation of the very preterm infant

**PReCePT**

Prevention of Cerebral Palsy in PreTerm Labour

Improve the detection and management of diabetes in pregnancy

Improve the detection and management of neonatal hypoglycaemia

Improve the early recognition and management of deterioration during labour & early post partum period

## Secondary Drivers

Creating the conditions for a culture of safety and continuous improvement

Develop safe and highly reliable systems, processes and pathways of care

Improve the experience of mothers, families and staff

Learn from excellence and error or incidents

Improving the quality and safety of care through Clinical Excellence





# PReCePT Update

Karen Hooper

North East and  
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PReCePT  
(prevention of cerebral palsy in preterm labour)

Update 4 June 2019

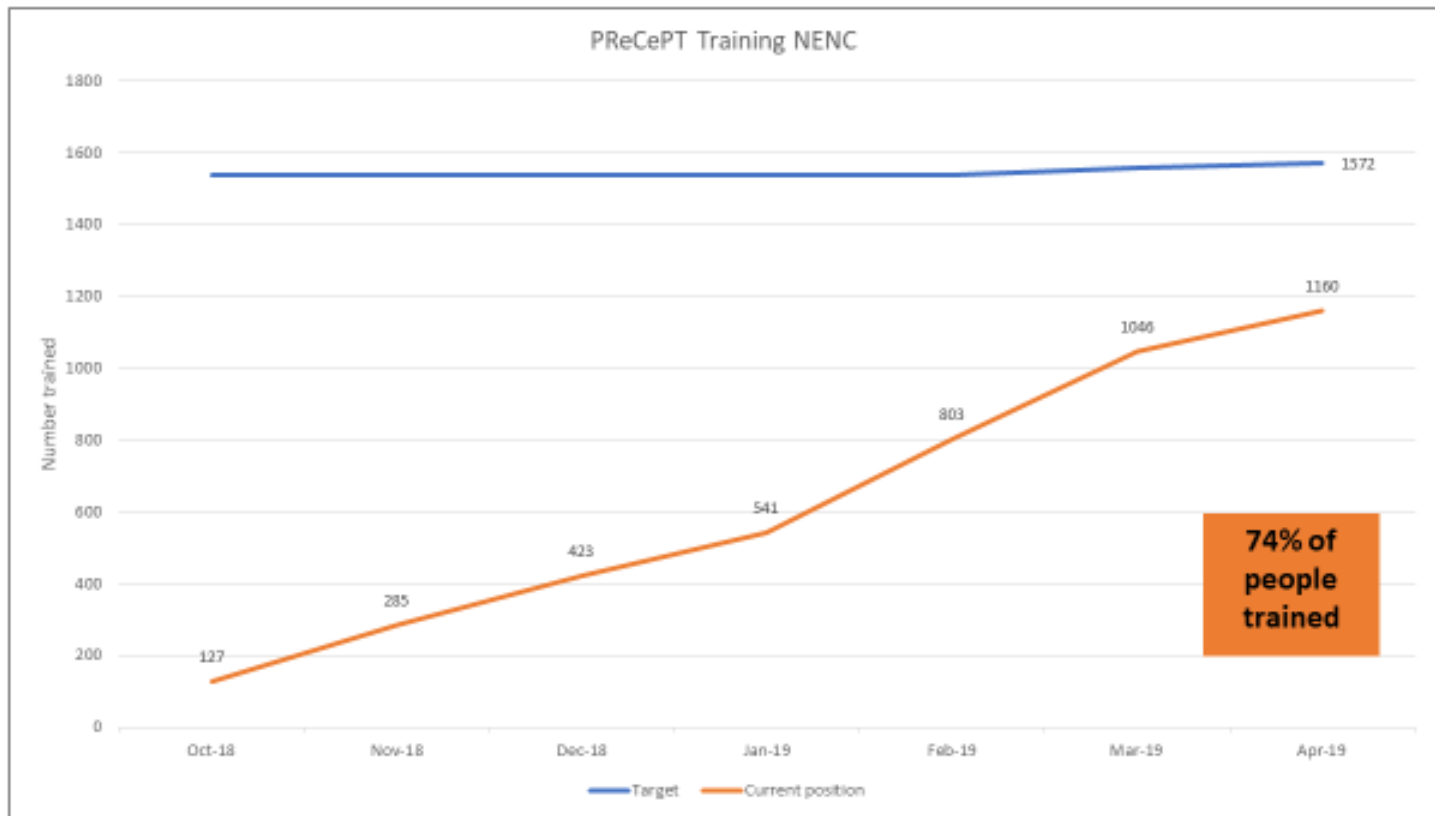


- Our aim – 85-95% eligible mothers receive MgSO<sub>4</sub>, by July 31<sup>st</sup> 2019, demonstrating 3 months at or above target



# What have we all been doing?

## 1. Training



Two teams at 100% training: South Tees & UHND



# What have we all been doing?

## 2. Compliance

|  | Jan-June 2018 | Sept-18    | Oct-18     | Nov-18     | Dec-18     | Jan-19     | Feb-19     | March-19   | Apr-19     |
|--|---------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Total eligible cases   | 116           | 18         | 18         | 21         | 12         | 11         | 14         | 15         | 22         |
| Mag sulph not given  | 19            | 4          | 2          | 4          | 1          | 5          | 4          | 3          | 1          |
| Mag sulph given  | 97            | 14         | 16         | 17         | 11         | 6          | 10         | 12         | 21         |
| <b>Compliance</b>  | <b>84%</b>    | <b>78%</b> | <b>89%</b> | <b>81%</b> | <b>92%</b> | <b>55%</b> | <b>71%</b> | <b>80%</b> | <b>95%</b> |
| Wrong data input (% of total eligible cases)                         | 9.5%          | 5.5%       | 11%        | 24%        | 27%        | 18%        | 0%         | 0%         | 0%         |
| Contraindicated/Cons decision not to give (% of non-compliant cases) | 21%           | 0%         | 0%         | 25%        | 0%         | 20%        | 0%         | 0%         | 0%         |
| Delivery imminent (% of non-compliant cases)                         | 42%           | 50%        | 50%        | 50%        | 100%       | 60%        | 50%        | 100%       | 100%       |
| Not offered (% of non-compliant cases)                               | 37%           | 50%        | 50%        | 25%        | 0%         | 20%        | 50%        | 0%         | 0%         |

\* May 2019 reports – 79% (awaiting 2 audits)



- Exceptions March/April
- March-19 – 2 BBA, 1 labour-delivery of 17 minutes
- Apr-19 – 1 class 1 delivery (decision to delivery of 21 minutes)



What have we all been doing?

### 3. Regional & national work

- PReCePT official 1<sup>st</sup> birthday – tweets, “thank you’s”
- Launch of NENC video



## What next?

- Funding agreed by AHSN for Julia & Karen to continue to support until 2020
- CNST year 2
- Saving Babies Lives version 2
- ?guideline review – re continuous ECG
- Smaller units to send in own data for IUTs – how?
- Make sure we have up to date names





# Keep going!!!

37 needed to  
treat to prevent  
1 case of CP –  
therefore – over  
5 cases could be  
prevented in  
NENC/year

## Thank you all for all your hard work & enthusiasm

# Wave 3 Teams Key Learning and Questions

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# Key learning from National Learning Set 1 & questions for Wave 1 & 2 teams

- North Cumbria University Hospitals NHS FT
- South Tyneside and Sunderland NHS FT
- The Newcastle upon Tyne Hospitals NHS FT

# Sustainability and Spread

Julia Wood

North East and  
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# Sustainability and the Sustainability guide

- Why is thinking about sustainability important?
  - A considerable amount of time, dedication and emotional efforts goes into setting up projects, but many are not sustained, for many reasons
  - Start thinking about sustainability at the beginning of your project and beyond
- Sustainability Guide:
  - Developed by the Institute for Innovation and Improvement
  - Helps teams:
    - self-assess against a number of key criteria for sustaining change
    - recognise and understand key barriers for sustainability, relating to the specific local context
    - identify strengths in sustaining improvement
    - plan for sustainability of improvement efforts
    - monitor progress over time
  - Great to do as individuals and then discuss as groups



What is your score?

Guide suggests that a score of 55 or higher offers reason for optimism

In your teams decide which project you are going to apply this to today

- Can be PReCePT or MatNeo project
- Can be in early stages of implementation or much further down the line
- Complete individually and then discuss scores with your colleagues
- If not with a team complete individually
- Add up scores

# Spread and the IHI's 7 spreadly sins

- Relates to:
  - if you have an idea you want to share with others (your idea)
  - if you want to adopt an idea you have heard about elsewhere (ideas of others)
- Why is thinking about spread important?
  - You cannot just take an idea and implement it exactly in the same way as where the idea came from, because unfortunately things are never that easy!

# IHI's 7 spreadly sins

- **Sin:** Don't bother testing – just do a large pilot
- **Do this instead:** Start with small, local tests and several PDSA cycles
  
- **Sin:** Give one person the responsibility to do it all. Depend on “local heroes”
- **Do this instead:** Make spread a team effort
  
- **Sin:** Rely solely on hard work
- **Do this instead:** Sustain gains with an infrastructure to support them
  
- **Sin:** Spread the success unchanged. Don't waste time “adapting” because after all, it worked so well the first time
- **Do this instead:** Allow some customisation, as long as it is controlled and elements that are core to the improvement are clear



# IHI's 7 spreadly sins.....

- **Sin:** Require the person and team who drove the initial improvements to be responsible for spread throughout a hospital or facility
- **Do this instead:** Choose a spread team strategically and include the scope of the spread as part of your decision
  
- **Sin:** Check huge mountains of data just once every quarter
- **Do this instead:** Check small samples daily or frequently so you can decide how to adapt spread practices
  
- **Sin:** Expect huge improvements quickly then start spreading right away
- **Do this instead:** Create reliable process before you start to spread

# Refreshment Break

**#MatNeoNENC #PReCePTNENC**

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# Regional Project Ideas

**Tony Roberts**  
**Dr Sundeep Harigopal**  
**Stephen Sturgiss**  
**Karen Hooper**

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# Regional Project Ideas

- Antenatal steroids – *Sundeep Harigopal*
- Breast milk for preterm babes – *Sundeep Harigopal*
- Transitional care – *Sundeep Harigopal*
- Development of specialist preterm birth clinics – *Stephen Sturgiss*
- Early detection of deteriorating mothers – *Stephen Sturgiss*
- Regional fetal heart rate monitoring – *Karen Hooper*



# NENC MatNeo Collaborative

Sundeep Harigopal

Clinical Lead, Northern Neonatal Network

Consultant Neonatologist, RVI Newcastle

# Set areas of focus

1. Increase the proportion of smoke-free pregnancies
2. Improve the optimisation & stabilisation of the very preterm infant
3. Improve the detection & management of diabetes in pregnancy
4. Improve the detection & management of neonatal hypoglycaemia
5. Improve the early recognition & management of deterioration of either mother or baby during or soon after birth

# Ideas

- Antenatal steroids
- Breast milk in preterm babies
- Avoid term admissions to SCBU/NICU through transitional care

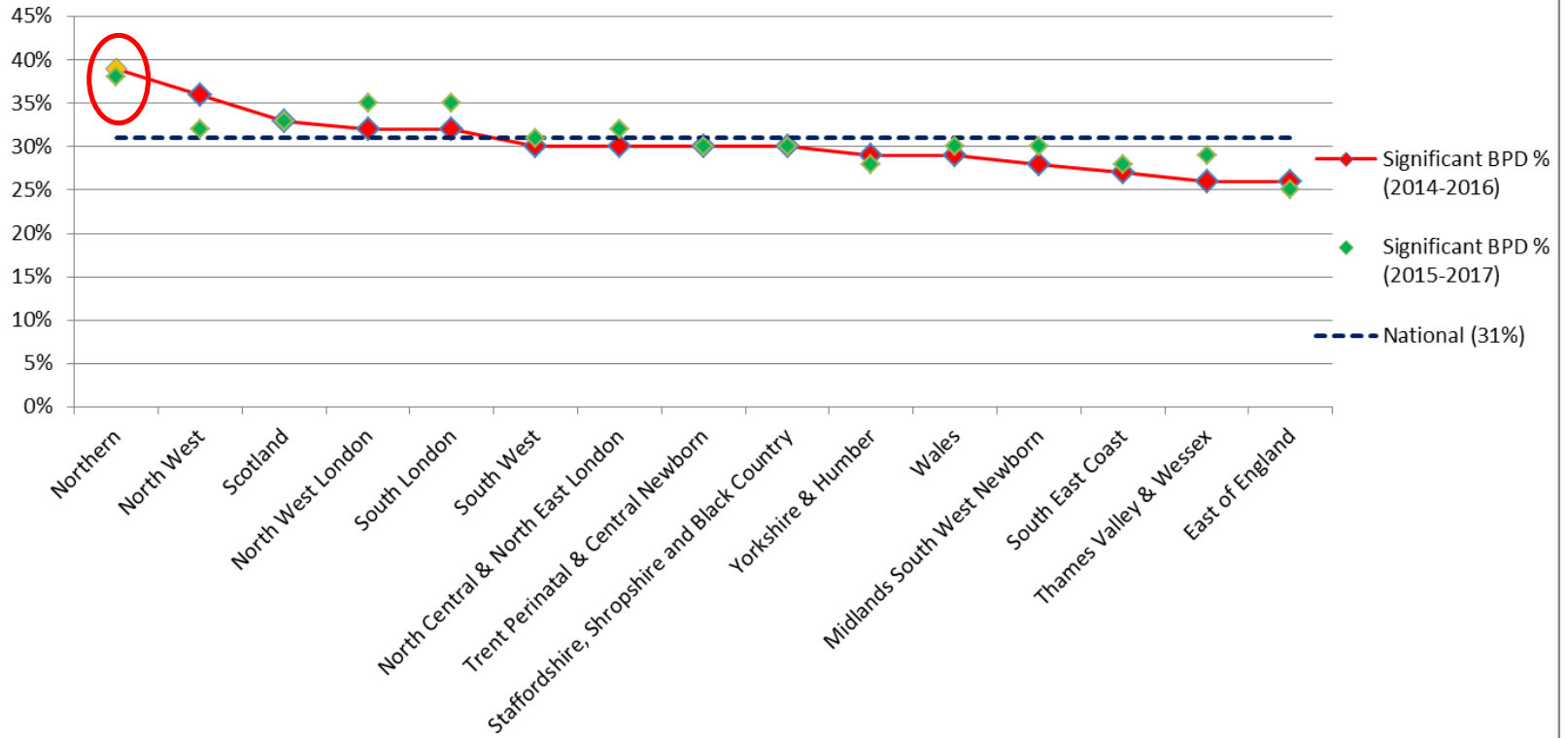


# Definition

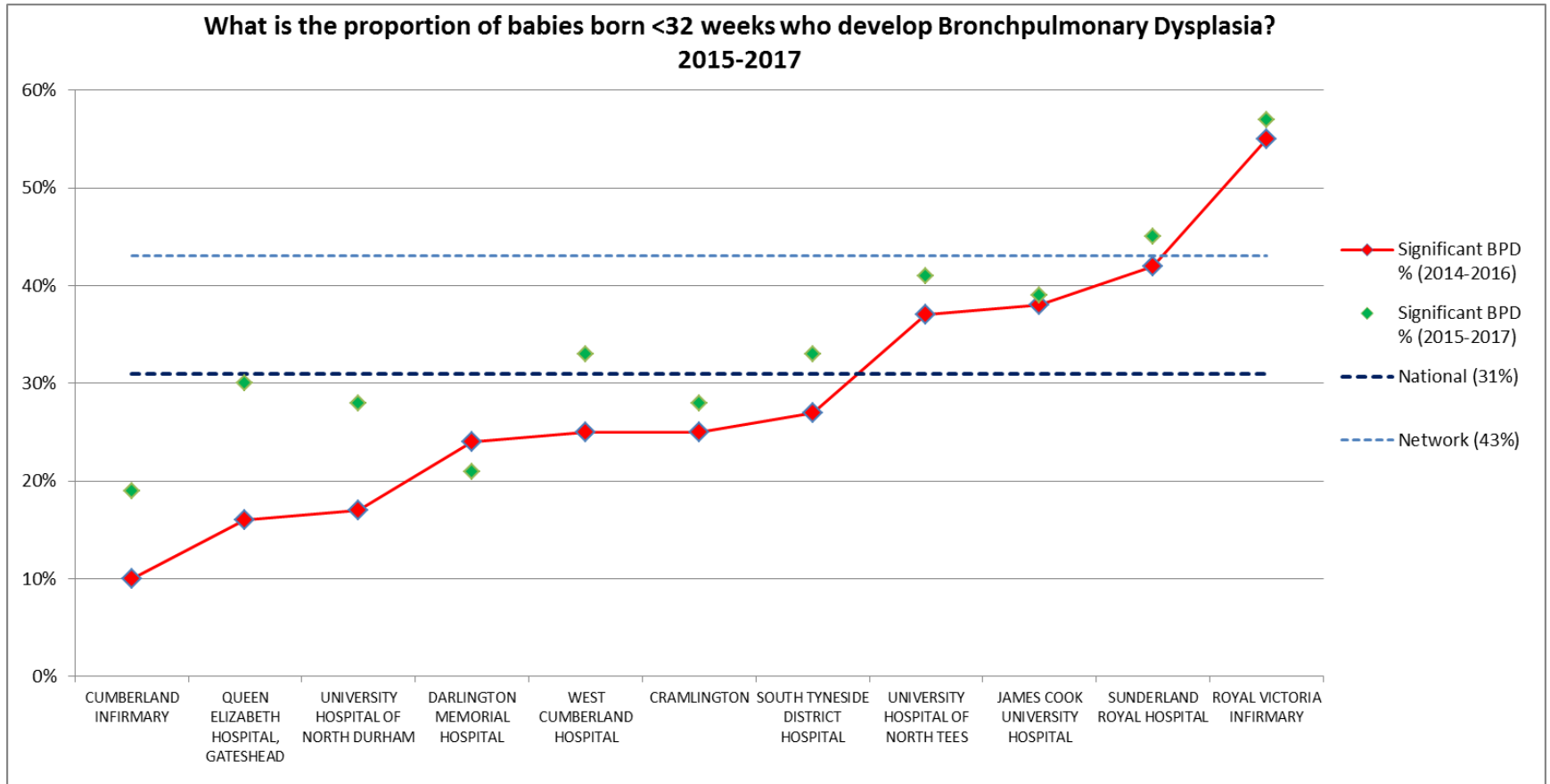
- Bronchopulmonary dysplasia is defined here as respiratory support at 36 weeks postmenstrual age.
- Daily data is being used to identify the level of respiratory support that babies born at less than 32 weeks were receiving at 36 weeks postmenstrual age.

# BPD

What is the proportion of babies born <32 weeks who develop Bronchopulmonary Dysplasia?  
2015-17

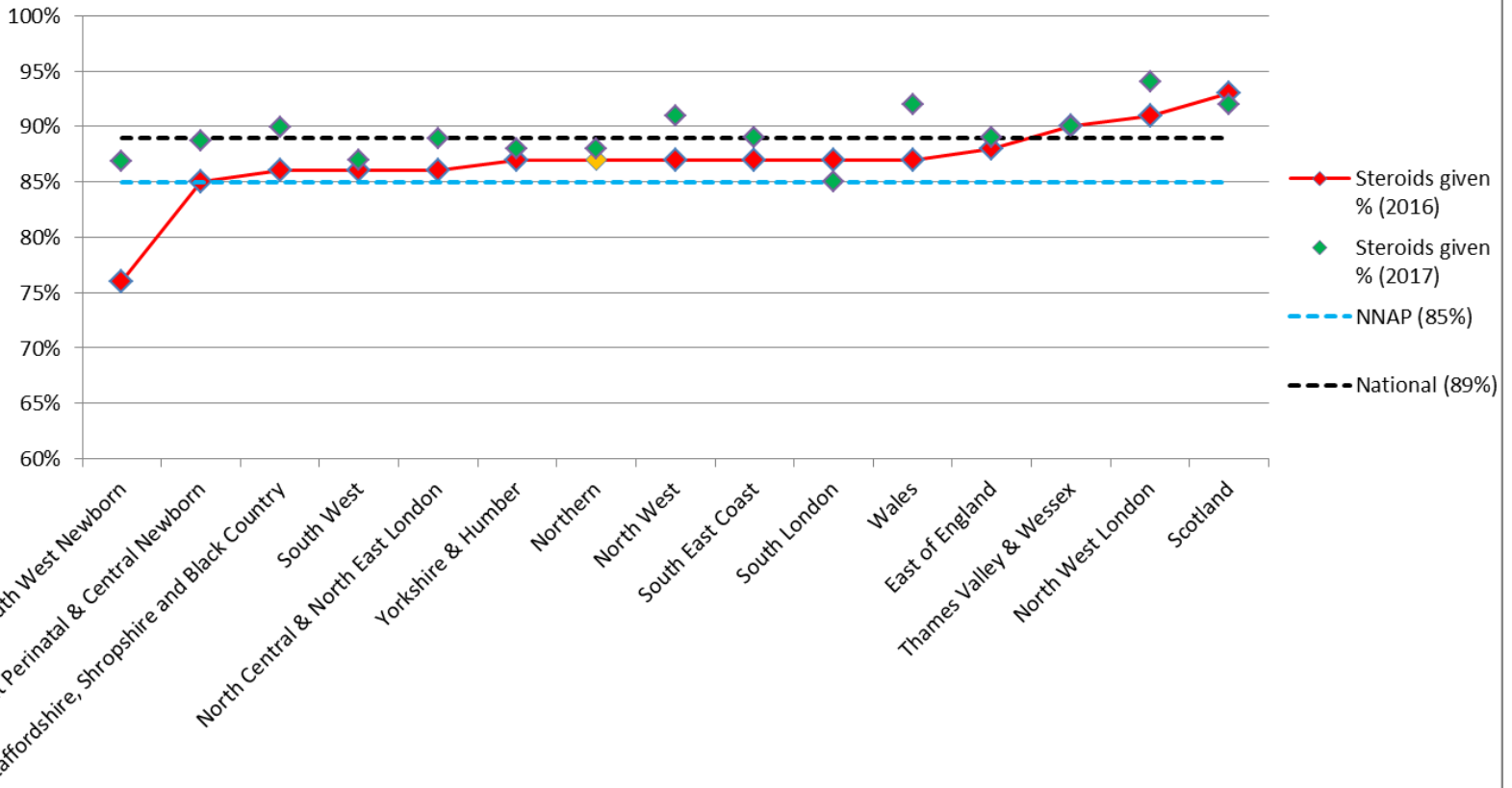


# BPD

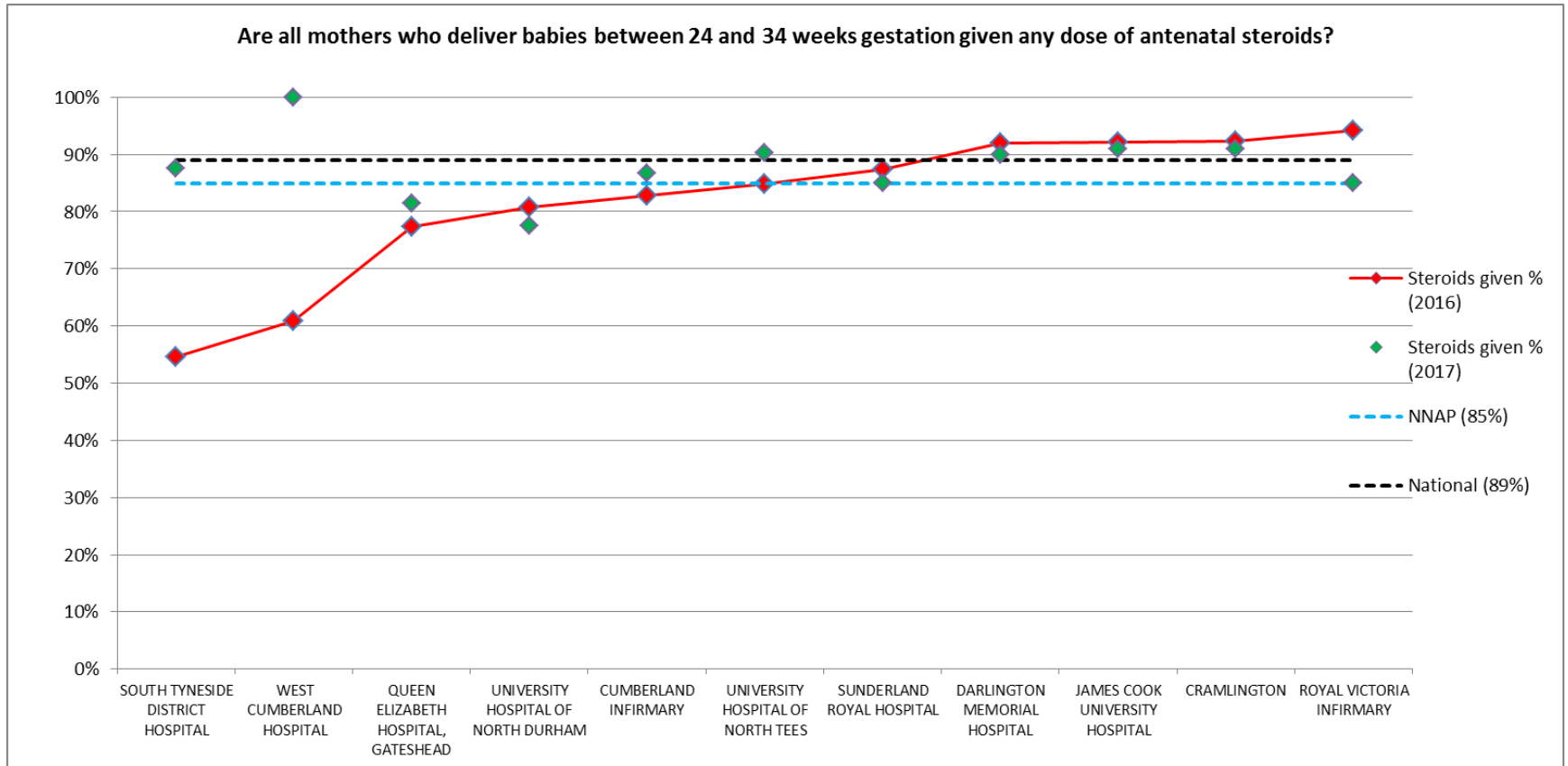


# Antenatal steroids

Mothers in England, Scotland and Wales who delivered their babies between 24 and 34 weeks and received any dose of antenatal steroids by neonatal ODN of birth



# Antenatal steroids



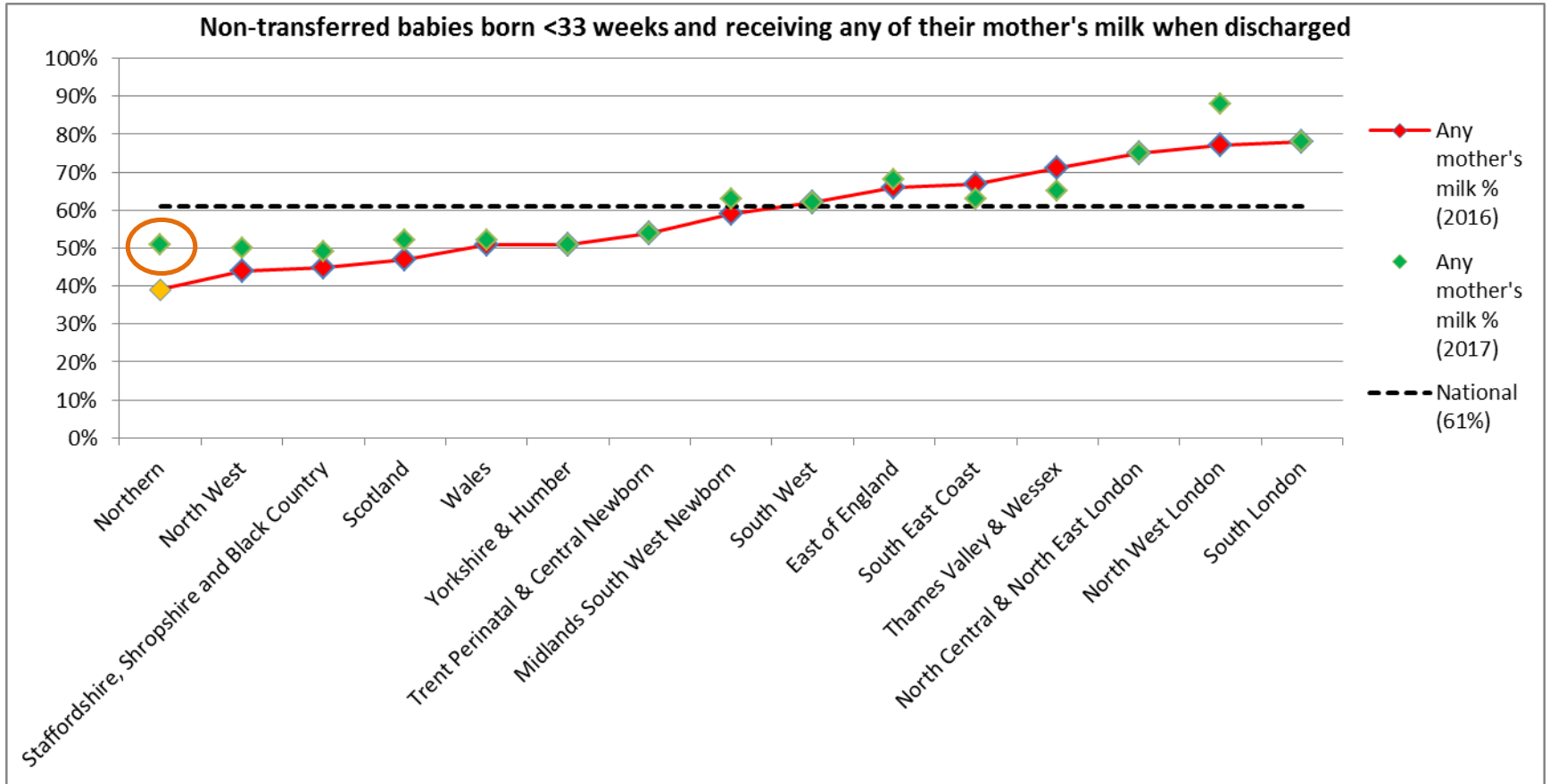
# AN Steroids and BPD - 2018

| NU level | NU name  | Eligible mothers | Steroids given (% of eligible mothers) | Missing Unknown Data |
|----------|--|------------------|--|----------------------|
| SCU      | CUMBERLAND INFIRMARY                           | 19               | 17 (94.4%)                             | 1                    |
|          | DARLINGTON MEMORIAL HOSPITAL                   | 30               | 28 (93.3%)                             | 0                    |
|          | NORTHUMBRIA SPECIALIST EMERGENCY CARE HOSPITAL | 30               | 28 (93.3%)                             | 0                    |
|          | QUEEN ELIZABETH HOSPITAL, GATESHEAD            | 23               | 20 (95.2%)                             | 2                    |
|          | SOUTH TYNESIDE DISTRICT HOSPITAL               | 5                | 4 (100%)                               | 1                    |
|          | UNIVERSITY HOSPITAL OF NORTH DURHAM            | 41               | 35 (85.4%)                             | 0                    |
|          | WEST CUMBERLAND HOSPITAL                       | 18               | 14 (87.5%)                             | 2                    |
| NICU     | JAMES COOK UNIVERSITY HOSPITAL                 | 116              | 110 (95.7%)                            | 1                    |
|          | ROYAL VICTORIA INFIRMARY                       | 173              | 112 (68.7%)                            | 10                   |
|          | SUNDERLAND ROYAL HOSPITAL                      | 78               | 74 (94.9%)                             | 0                    |
|          | UNIVERSITY HOSPITAL OF NORTH TEES              | 40               | 35 (87.5%)                             | 0                    |

| NU name  | Eligible babies | BPD | %  |
|--|-----------------|-----|----|
| CUMBERLAND INFIRMARY                           | 9               | 1   | 11 |
| DARLINGTON MEMORIAL HOSPITAL                   | 10              | 1   | 10 |
| NORTHUMBRIA SPECIALIST EMERGENCY CARE HOSPITAL | 12              | 2   | 17 |
| QUEEN ELIZABETH HOSPITAL, GATESHEAD            | 6               | 2   | 33 |
| SOUTH TYNESIDE DISTRICT HOSPITAL               | 1               | 0   | 0  |
| UNIVERSITY HOSPITAL OF NORTH DURHAM            | 16              | 2   | 13 |
| WEST CUMBERLAND HOSPITAL                       | 8               | 1   | 13 |
| JAMES COOK UNIVERSITY HOSPITAL                 | 91              | 37  | 41 |
| ROYAL VICTORIA INFIRMARY                       | 122             | 61  | 50 |
| SUNDERLAND ROYAL HOSPITAL                      | 53              | 12  | 23 |
| UNIVERSITY HOSPITAL OF NORTH TEES              | 21              | 6   | 30 |

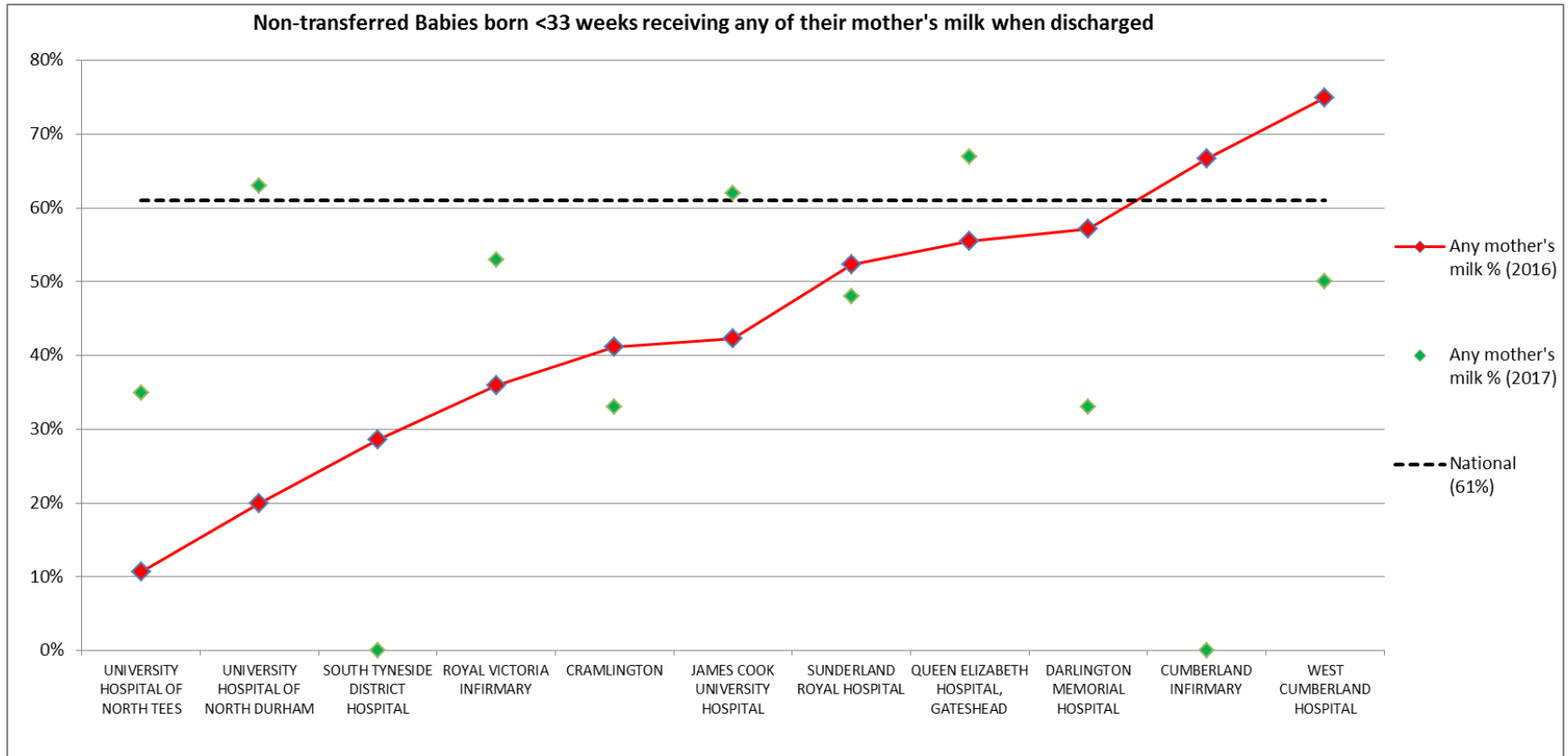
# Breast milk for preterm babies

# Mother's milk



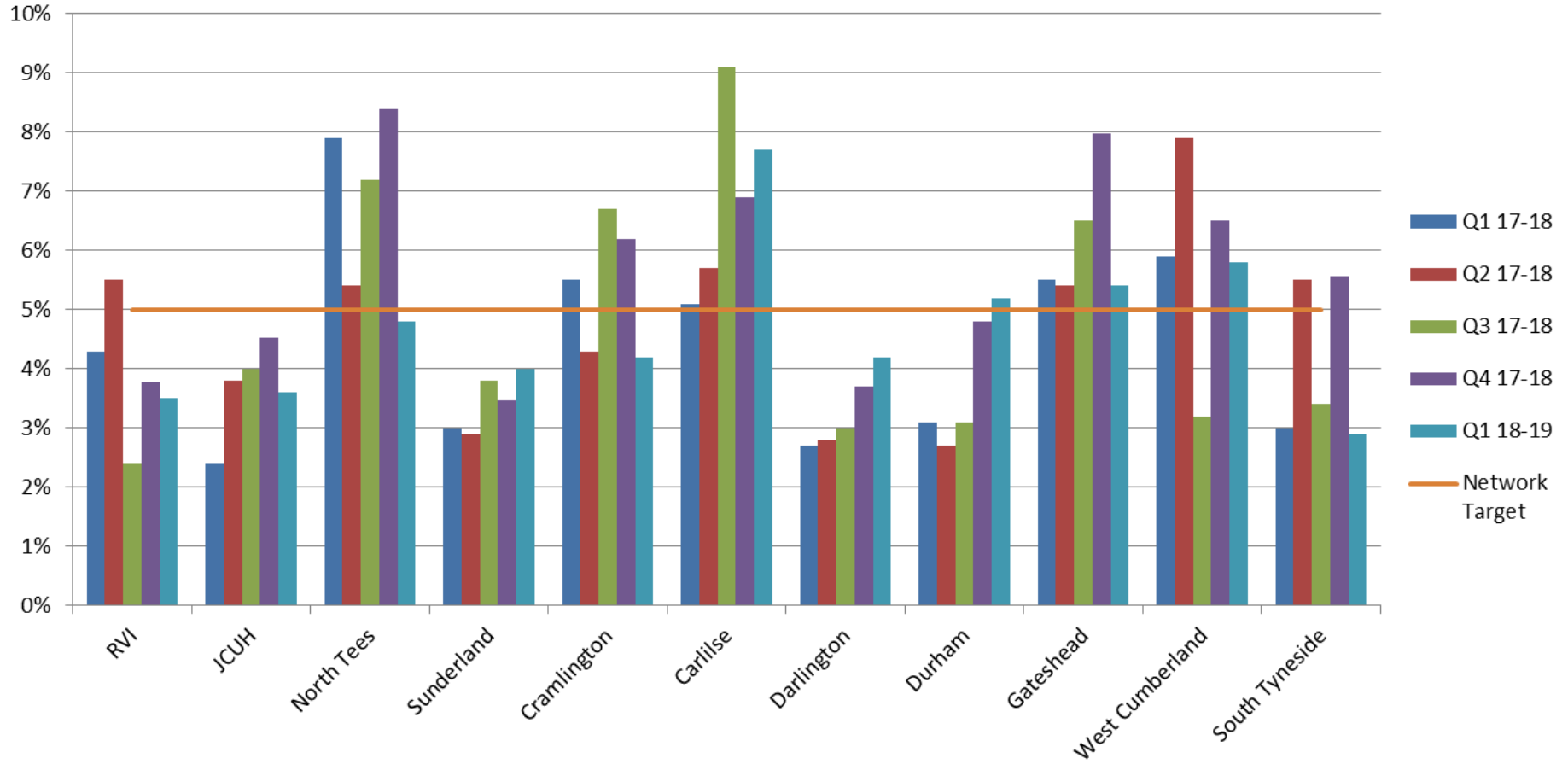


# Mother's milk

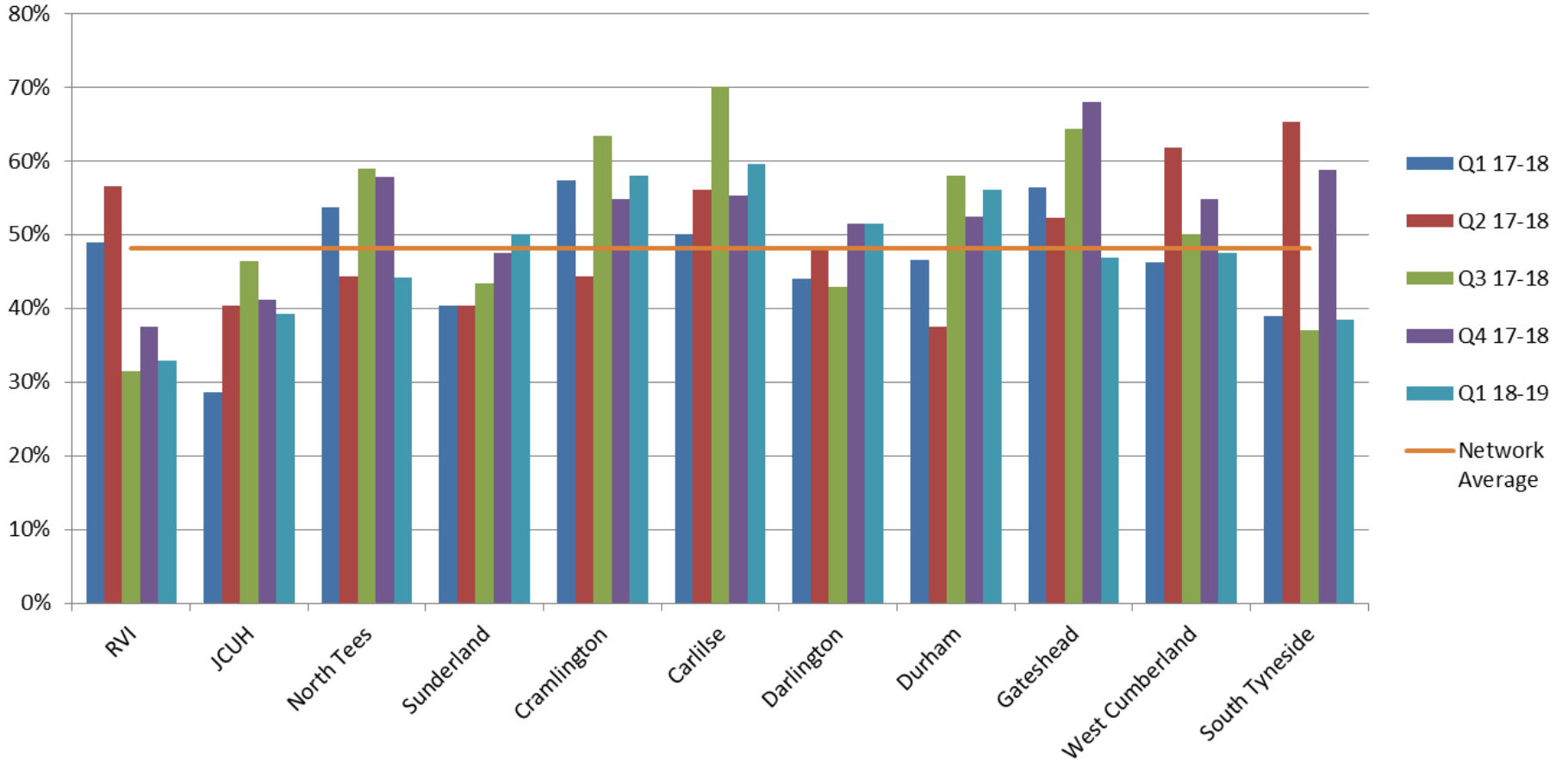


# Transitional Care

Term admissions as a percentage of births by quarter



### Term admissions as a percentage of all admissions



National average 60% (2013) and climbing

# Transitional care

- Mother and baby together – tube feeds
- More closer observation than ‘normal care’ – eg- phototherapy, antibiotics, NAS etc
- Avoid admission to SCBU/NICU –
  - psychological impact, better breast feeding
- Clear guidance available
- National drive – linked to maternity incentive scheme

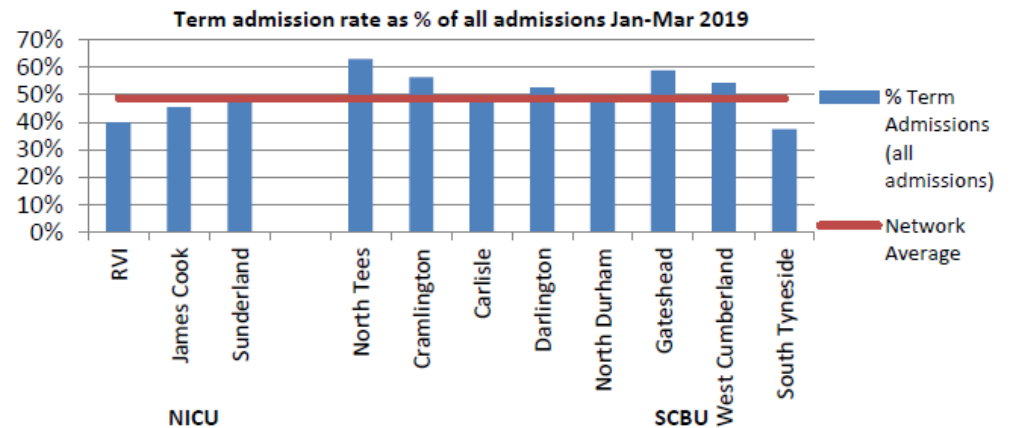
# Transitional care

- Does it fit with with MatNeo aims
  4. Improve the detection & management of neonatal hypoglycaemia
  5. Improve the early recognition & management of deterioration of either mother or baby during or soon after birth – possibly

# Term admission Jan – Mar 2019

Term Admissions<sup>2</sup>

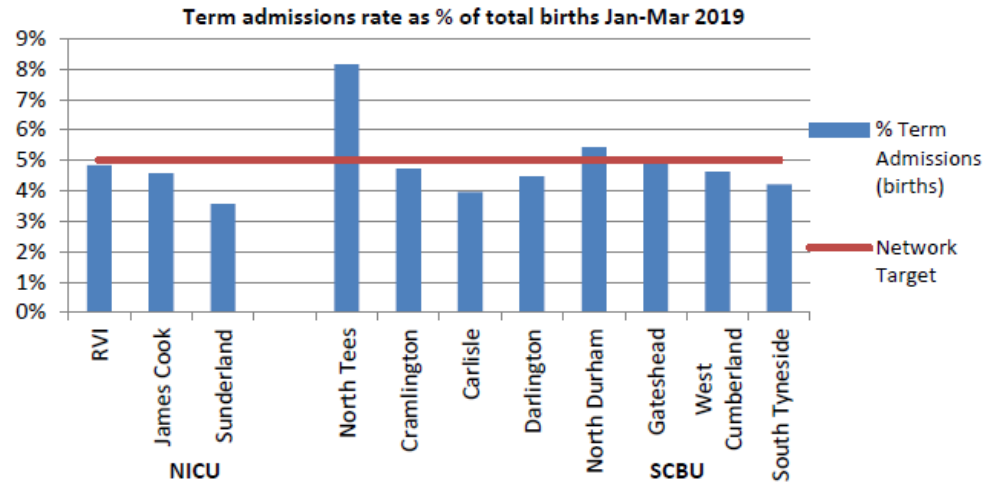
| Unit                   | Jan          | Feb          | Mar          | Average      |
|------------------------|--------------|--------------|--------------|--------------|
| RVI**                  | 40.6%        | 48.1%        | 32.8%        | 40.0%        |
| James Cook             | 58.3%        | 45.5%        | 35.5%        | 45.5%        |
| Sunderland             | 27.3%        | 50.0%        | 57.9%        | 47.9%        |
| North Tees             | 59.3%        | 57.9%        | 70.4%        | 63.0%        |
| Cramlington            | 66.7%        | 52.6%        | 50.0%        | 56.4%        |
| Carlisle               | 57.1%        | 44.4%        | 37.5%        | 48.4%        |
| Darlington             | 47.4%        | 54.5%        | 62.5%        | 52.6%        |
| North Durham           | 57.1%        | 37.5%        | 56.7%        | 50.0%        |
| Gateshead              | 63.6%        | 100.0%       | 44.4%        | 58.8%        |
| West Cumberland        | 62.5%        | 33.3%        | 60.0%        | 54.2%        |
| South Tyneside         | 50.0%        | 33.3%        | 33.3%        | 37.5%        |
| <b>Network Average</b> | <b>51.4%</b> | <b>48.4%</b> | <b>46.5%</b> | <b>47.5%</b> |



# Term admission Jan – Mar 2019

## Term Admissions<sup>1</sup>

| Unit                   | Jan         | Feb         | Mar         | Average     |
|------------------------|-------------|-------------|-------------|-------------|
| RVI**                  | 5.2%        | 5.8%        | 3.8%        | 4.8%        |
| James Cook             | 4.1%        | 6.2%        | 3.4%        | 4.6%        |
| Sunderland             | 1.3%        | 4.8%        | 4.7%        | 3.6%        |
| North Tees             | 8.5%        | 5.9%        | 10.2%       | 8.2%        |
| Cramlington            | 5.6%        | 4.5%        | 4.1%        | 4.7%        |
| Carlisle               | 5.4%        | 3.5%        | 2.6%        | 4.0%        |
| Darlington             | 5.4%        | 4.2%        | 3.6%        | 4.5%        |
| North Durham           | 3.8%        | 4.6%        | 7.7%        | 5.4%        |
| Gateshead              | 5.3%        | 4.0%        | 5.8%        | 5.0%        |
| West Cumberland        | 7.6%        | 1.6%        | 6.6%        | 4.6%        |
| South Tyneside         | 4.2%        | 2.9%        | 5.3%        | 4.2%        |
| <b>Network Average</b> | <b>5.4%</b> | <b>5.3%</b> | <b>5.4%</b> | <b>5.4%</b> |



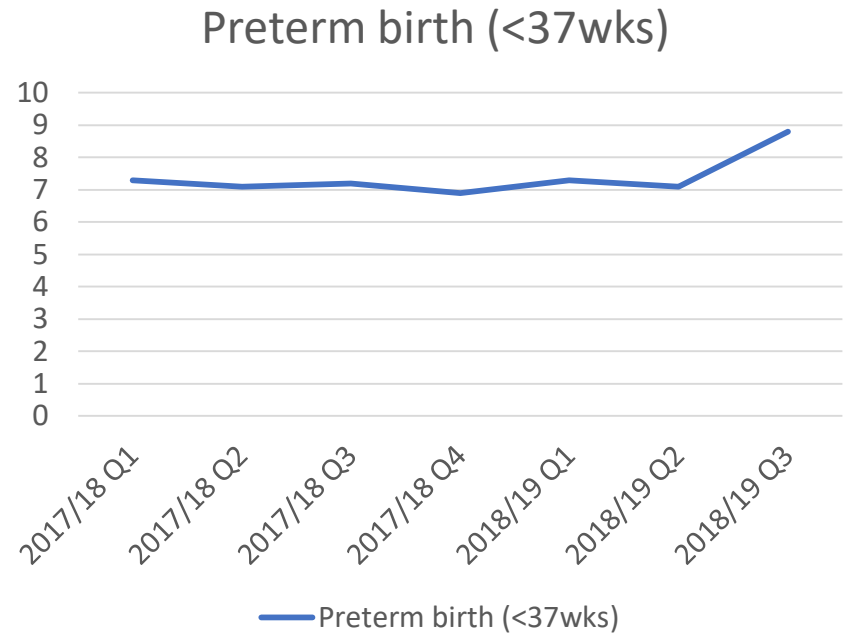


# Regional Project Ideas

- Development of specialist preterm birth clinics – *Stephen Sturgiss*
- Early detection of deteriorating mothers – *Stephen Sturgiss*

# Preterm birth in the NE & NC (2017-present)

- UK average about 7-8%
- NE & NC similar (see over)
- UK currently about 134<sup>th</sup> (out of 184)
- **Single most important determinant of adverse infant outcome.**
- PTB costs health services in (Ew) about £3.4bn / yr.
- *Primary driver – ‘Improve optimization and stabilization of very preterm infant’*
- *Secondary driver – ‘Develop safe and highly reliable systems, processes and care pathways*



Data from NE & NC Maternity Network Dashboard

# *Saving Babies Lives v2 – Reducing preterm births*

## Prediction of preterm birth

| Risk factor  | Pathway   |
|--|---|
| <p>High risk</p> <ul style="list-style-type: none"><li>• Previous PTB or mid-trimester loss</li><li>• PRoM &lt; 34 weeks</li><li>• Uterine variant</li></ul> | <p>Surveillance</p> <ul style="list-style-type: none"><li>• Refer to local or tertiary PP clinic by 12 wks</li><li>• Assess need for referral to tertiary clinic</li><li>• TV scan every 2-4 wks from 16-24</li><li>• Consider quantitative fibronectin</li></ul> |
| <p>Intermediate risk</p> <ul style="list-style-type: none"><li>• Previous CS at full dilatation</li><li>• Significant cervical excisional event</li></ul>    | <p>Surveillance</p> <ul style="list-style-type: none"><li>• Refer to PP clinic by 12 wks</li><li>• Further assessment +/-</li><li>• A single TV scan at 18-22 wks</li><li>• Quantitative fibronectin</li><li>• Reassess at 24 wks</li></ul>                       |

# *Saving Babies Lives v2 – Reducing preterm births*

## Prevention of preterm birth

- General measures

- Assessment of smoking status
- Risk assessment compliant with NICE for multiple pregnancies
- Assessment of risk for placentation disorders +/- LDA
- Screening for asymptomatic bacteriuria
- Every provider to have
  - Clinician with an interest in preterm birth
  - Provision for women at risk of PTB, ideally within a PTB prevention service
  - Access to TV cervical scanning, quantitative fFN + interventions incl cerclage
  - Referral pathways to tertiary prevention clinics
  - Regional capacity for high vaginal / laparoscopic abdominal cerclage

**Outcome indicators**

Incidence of PTB  
Incidence of 2<sup>nd</sup> T loss

# Care of the critically ill woman in childbirth; enhanced maternal care (August, 2018)

- Recent increase in the numbers of women becoming unwell around the time of childbirth
- Reasons - increasing maternal age, obesity + co-morbidities
- Overall rates for admission to critical care: 2.4 per 1000 maternities (but probably an underestimate)
- MDT from several colleges recently updated guidance (from 2011)

## *Care of the critically ill woman in childbirth (2018)*

### Section 2: An Early Warning Score modified for obstetrics

| Section | Recommendation – EW system modified for obstetrics                            |
|---------|---|
| 2.1     | An EWS modified for obstetrics should be used in care of pregnant women       |
| 2.2     | EWS should include resp, O2 sat, HR, SBP, DBP, temp + urinary output          |
| 2.3     | Additional observations recorded separately                                   |
| 2.4     | Clinical concern should remain an important criterion for seeking help        |
| 2.5     | Reduced level of consciousness should prompt urgent senior clinical attention |
| 2.6     | Where aggregate scores are used, adjust to align with RCP London EWC          |
| 2.7     | Clear instructions about frequency of observations                            |
| 2.8     | Response should be clearly described – with only one intermediate step        |
| 2.9     | Use of SBAR tool should be considered for escalation                          |

## *Care of the critically ill woman*

### Regional modified EWS to enhanced earlier detection

- Primary driver – Improve the early recognition and management of deterioration during labour & early post partum period
- Secondary driver – Develop safe and highly reliable systems, process and pathways of care
- Outcome measures – audits of compliance

# Regional Project Ideas

- Regional fetal heart rate monitoring – *Karen Hooper*



# Fetal heart rate monitoring

- Driver – 

Improve the early recognition and management of deterioration during labour & early post partum period
- Regional enthusiasm for moving away from NICE CTG guidance & utilise the babylifeline/FIGO recommendations
- Need for agreed CTG training & competency tool
- Need for antenatal CTG guidance & support
- In conjunction with “labour ward leads” group & “saving babies lives” leads
- Possible measures of success –
  - training/competency numbers
  - Audit/data – incidents involving CTG mis-interpretation, stillbirth/neonatal death/HIE data, additional associated measures – IOL/LSCS/FBS rates
  - Compliance with SBL/CNST



**Wrap Up**

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