Preterm Birth Conference

Monday 18 November 2024, 09:00-16:00
Ramside Hall Hotel, Durham

Health Innovation
North East and North Cumbria

National Patient Safety
Improvement Programmes
Maternity
and Neonatal

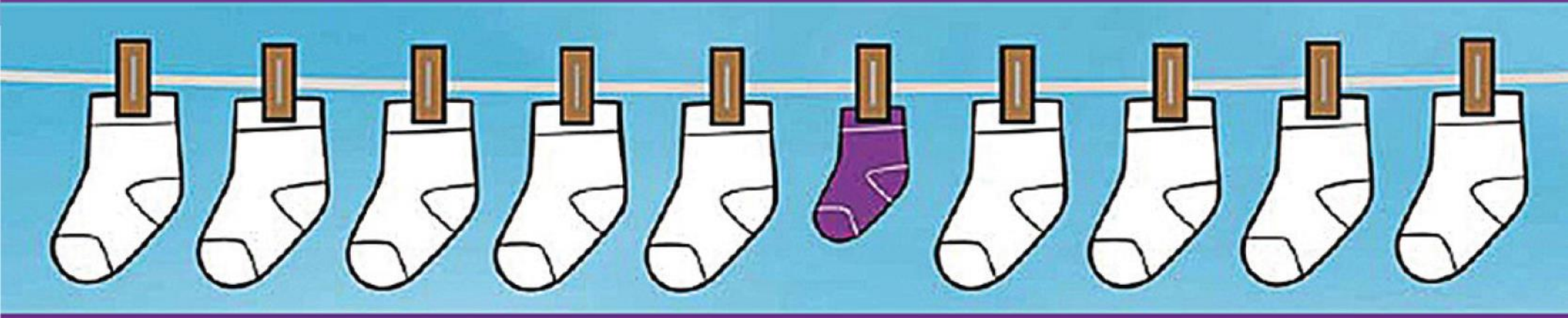
NORNET
northern neonatal network

North East and North Cumbria
Local Maternity and Neonatal System

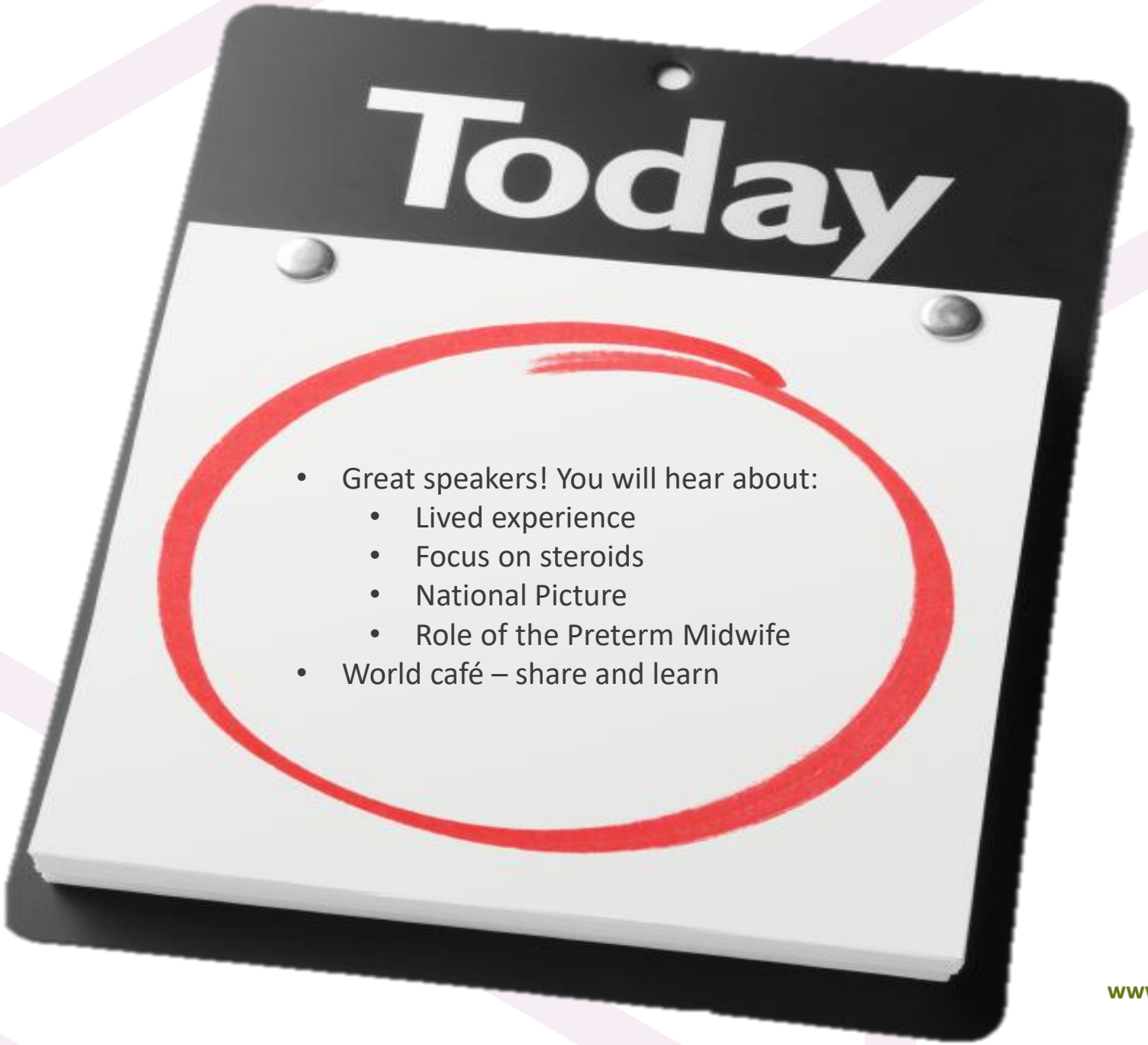

WELCOME

World Prematurity Day

November 17

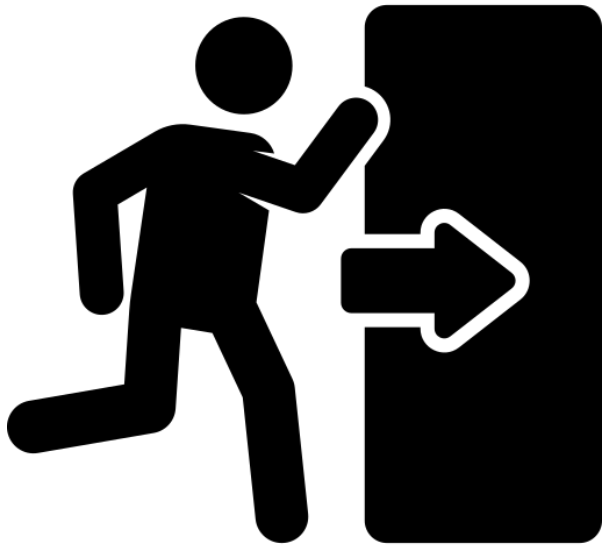


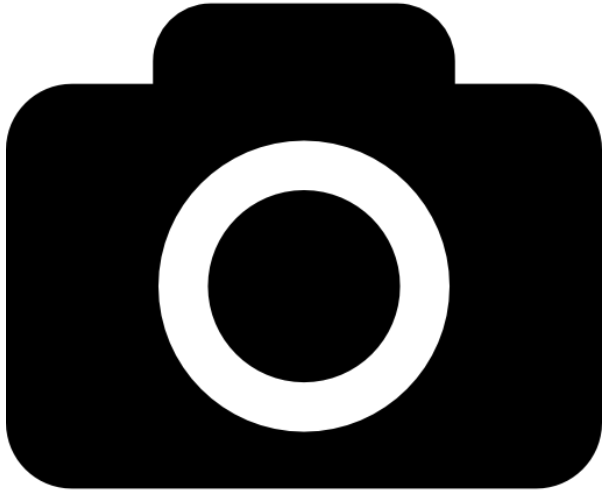
Around the world 1 in 10 babies are born prematurely



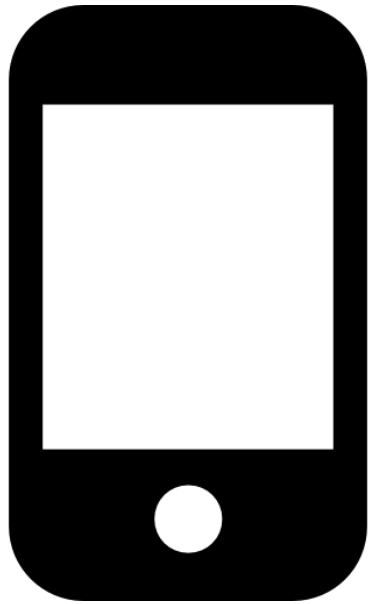
- Great speakers! You will hear about:
  - Lived experience
  - Focus on steroids
  - National Picture
  - Role of the Preterm Midwife
- World café – share and learn

General info





Breaks: 11.05 and 15:00
Lunch: 13:00
Dietary requirements – make yourself known to the serving staff



Spotlight

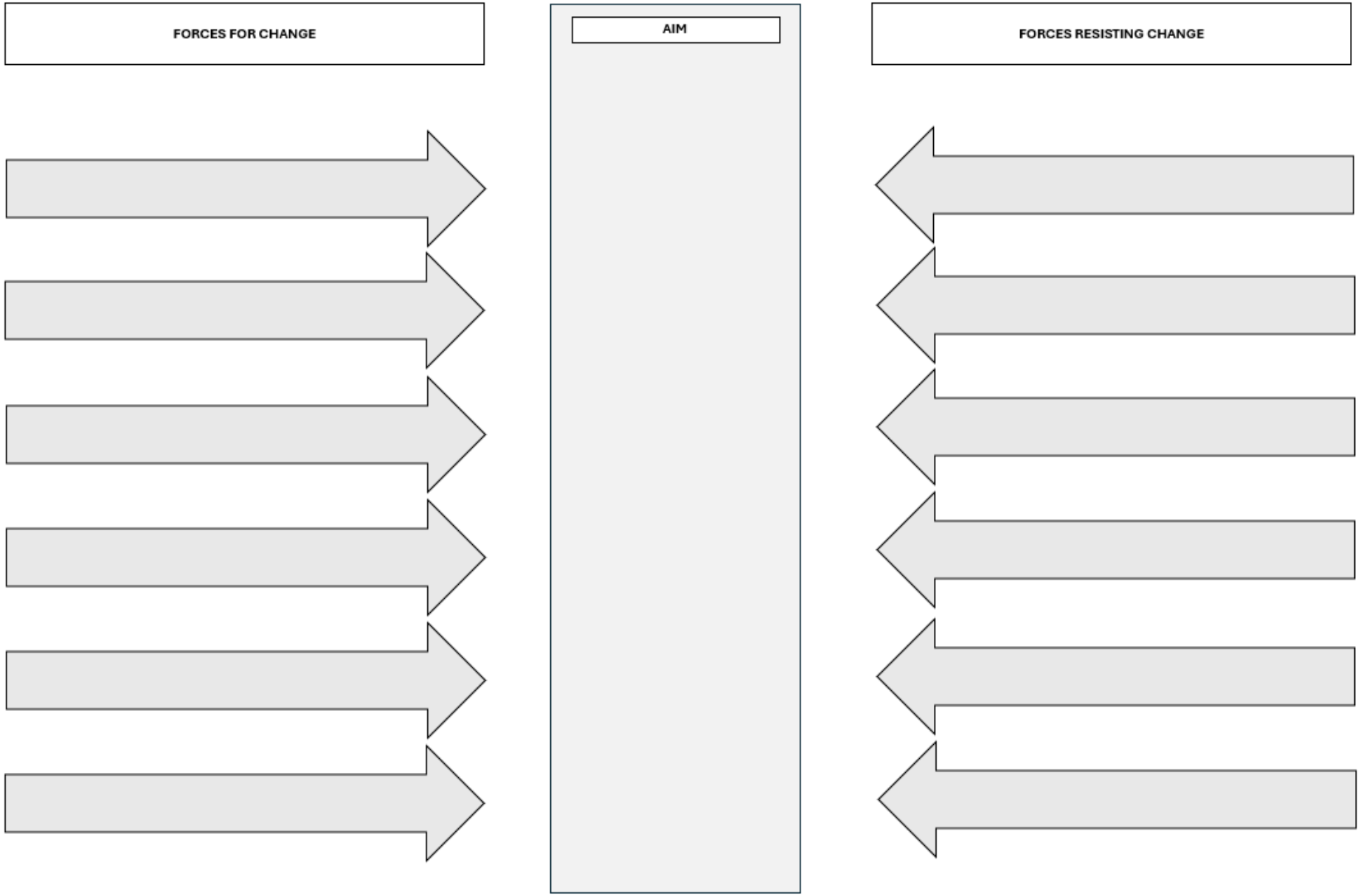
Working together to achieve great outcomes:

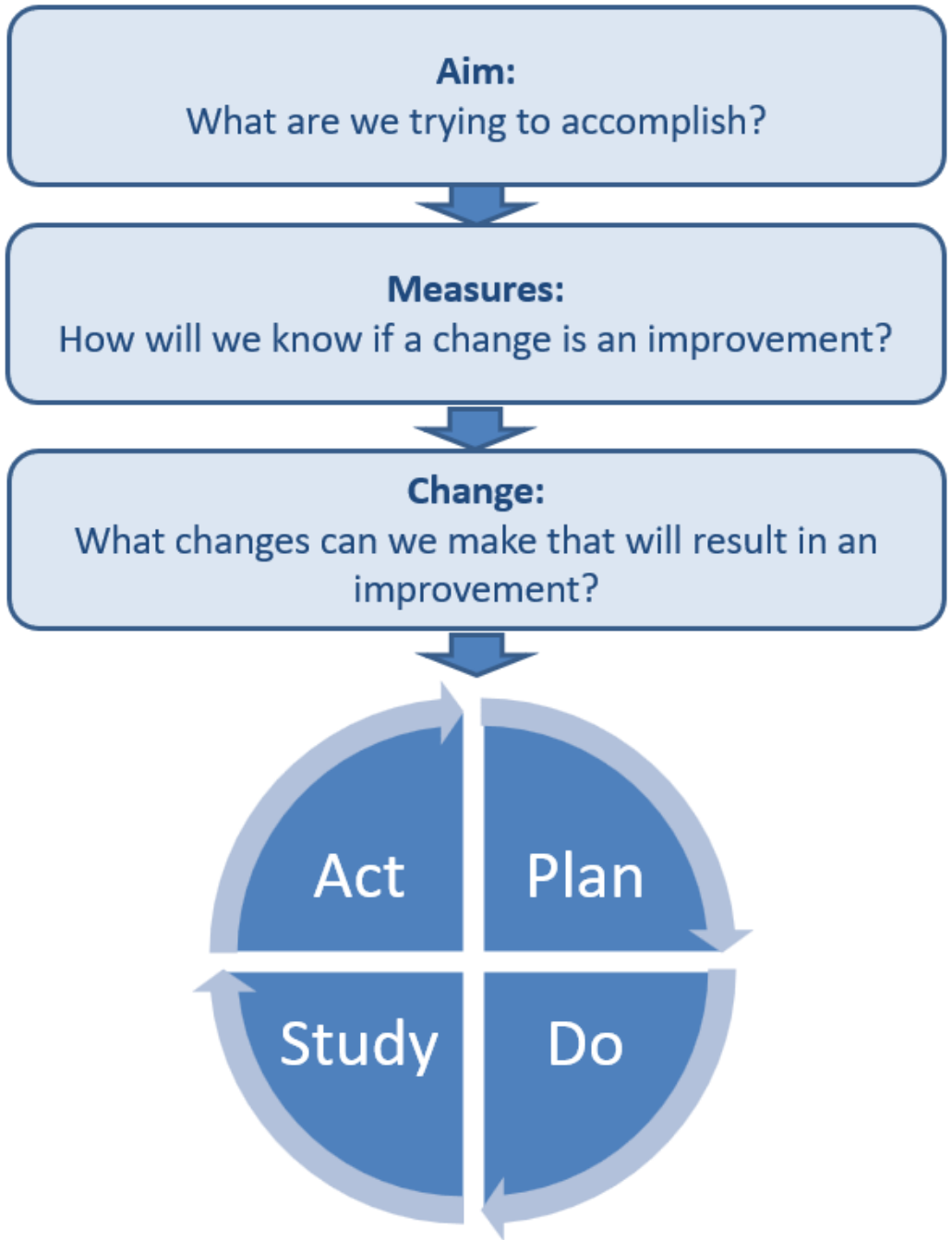
- Place of birth – best in the country!
- Magnesium sulphate, normothermia, and caffeine: stable processes
- OCM: continue to see progress – last three months average 75% (baseline 18%)
- Volume targeted ventilation: Training underway
- Steroids, breast milk, and antibiotics – areas for improvement

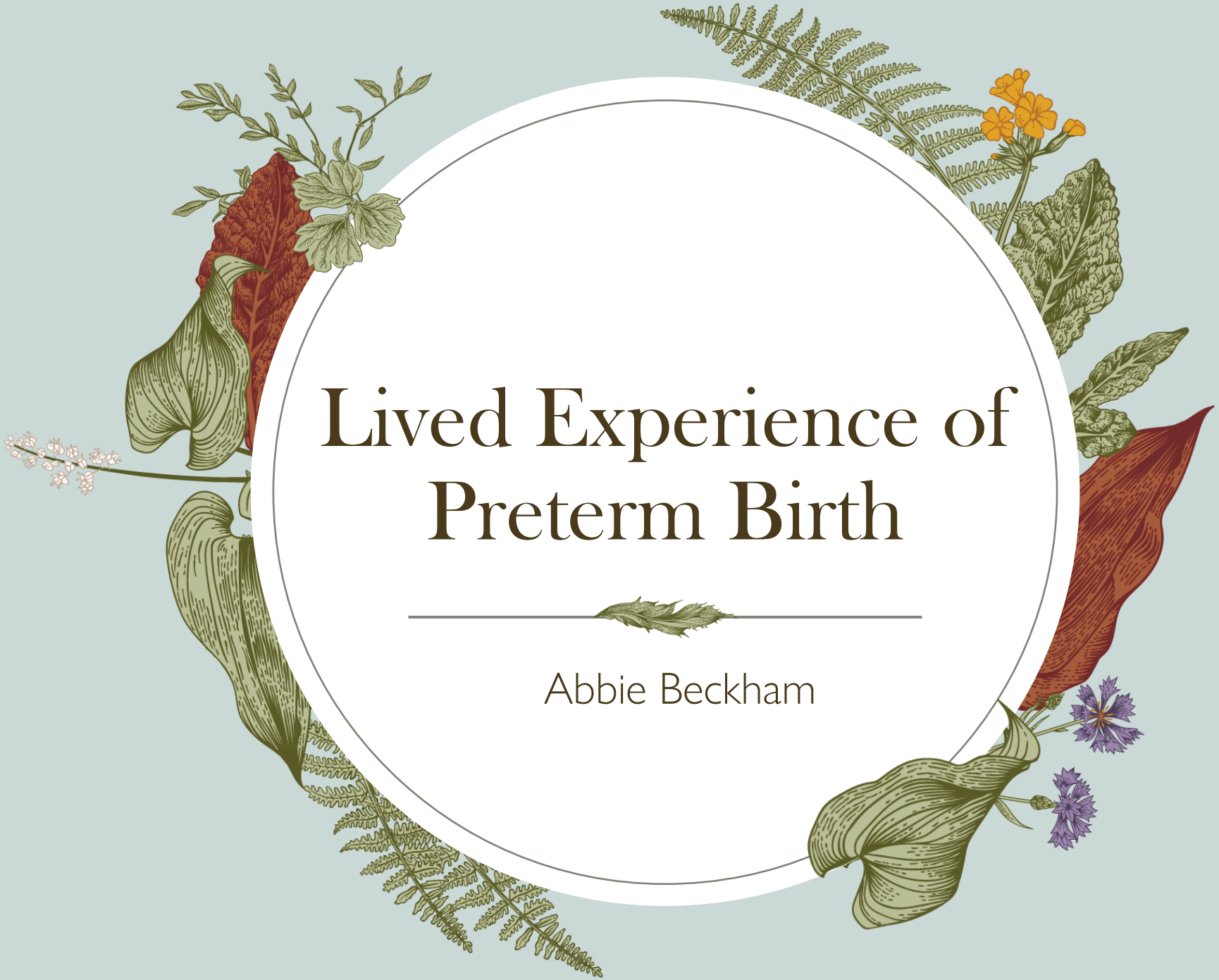
Action Plan

Trust:

WHAT AND WHERE?	WHY?	HOW?	WHO LEADS?	WHO NEEDS TO BE INVOLVED?	COMPLETION DATE?	NOTES


FORCES FOR CHANGE
AIM
FORCES RESISTING CHANGE

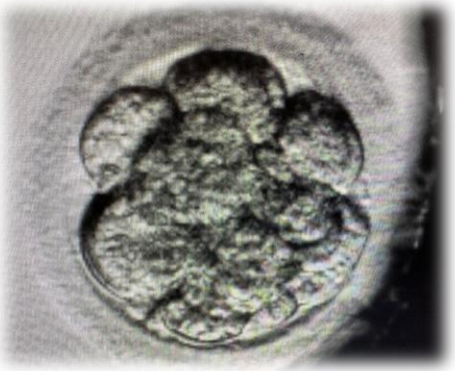

Aim:
What are we trying to accomplish?
Measures:
How will we know if a change is an improvement?
Change:
What changes can we make that will result in an improvement?
Act
Plan
Study
Do



Lived Experience of Preterm Birth

Abbie Beckham

About Me



Abbie Beckham

A&E Sister

Years of unexplained Infertility

Weight Loss Surgery -10st

IVF

Preterm Labour




My Pregnancy Timeline

March 30th 2024

Gestation 23 Weeks
Threatened Pre-Term Labour
Intrauterine transfer
Cervical Cerclage

2nd April 2024

Gestation 23+3
PPROM +AQ
Intrauterine Transfer

5th April 2024

Discharged with regular follow ups.
3 Hospitals.

26th April 2024

Admission to Hospital 1
Sudden onset back pain

27th April 2024

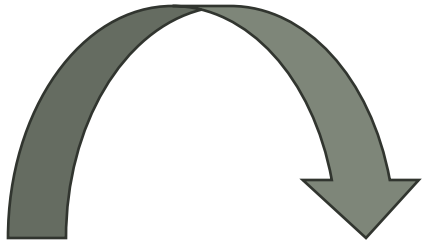
Admission to RVI
Reduced Foetal Movement
Frequent Tightening's

2nd May 2024

Cervical Suture Removal
Preterm Labour 27+5
RVI

23 Week Gestation

- Spontaneous bleeding
- Attend hospital 1 (not equipped)
- 3cm dilated, bulging membranes
- Doctors/Paediatric
- Cervical Suture (DECLINED)
- Transfer (Pleaded)
- Magnesium + Steroids
- Unwanted information
- Intrauterine transfer arranged



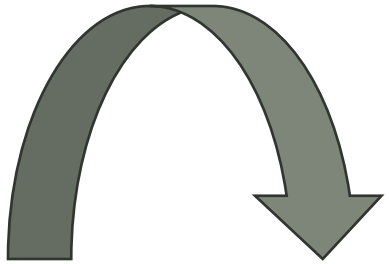
- Arrived at Hospital 2
- Progression on labour was expected
- Conversations with MDT had (positive approach)
- Care and compassion improved
- Introduced to duty consultant Dr Alex Patience
- Treatment options explained clearly and informative
- Cervical Stitch (success)
- Clear and robust plan in place for follow up and continued care

Feelings: lack of empathy, no expert knowledge on preterm birth, limited choices, no plan, negative views, scared, emotional, shocked, worried,

Feelings: distressed but felt more relieved, a lot more control of the situation, involved, positive outlook, cared for, person centred care, trust in the process

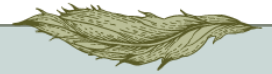
23+3 Week Gestation

- Routine antenatal appointment Hospital 1
- ??PROM
- Arranged to go to Hospital 2 myself however urged to remain Hospital 1 for intrauterine transfer
- Declined AQ until arrived at Hospital 2
- Delays and told I would be attending another hospital in the region (Hospital 3)



- Arrived at Hospital 3
- Delays in assessment
- Computer system down
- 6 hours later amnio quick performed and was positive - PROM
- Lack of knowledge on cervical stitch, information to be sought from hospital 2
- Difference in treatments (Progesterone)

26 Week Gestation



- Onset backpain, readmitted to hospital 1 overnight
- Advised to utilise Hospital 2 if any further complaints.
- RFM – reassured due to CTG

26+1 Gestation

- RFM and regular tightening – contacted MAU at hospital 2 advised to attend.
- Foetal Decelerations with tightening's.
- Magnesium and admission to labour ward
- No progression – antenatal ward admission
- Tightening's and backpain continued with + PV bleed and RFM
- Seen by new consultant – advised normal pregnancy symptoms and can be discharged home. Requested scan
- Scan aborted due to reduced movement
- Mental health assumption
- Seen by another new consultant

27+5 Gestation

- Seen in clinic by Consultant Dr Alex Patience (inserted cervical stitch)
- Thorough examination
- Confirmed minimal cervical length
- Confirmed cervix had opened
- Detailed and clear action plan in place.
- Plan was to obtain bloods and check for infection, if > CRP, remove the stitch and plan for delivery
- Clearly informed and involved in the process

Feelings: relieved? Listened to, reassured, safe, the most worrying time yet I felt comfortable and fully trusted the process.

Treatments

Cervical Suture – 23weeks

Cyclogest - Progesterone Suppositories 23 weeks onwards

Oral Clarithromycin - PROM

Intrapartum Intravenous Benzylpenicillin – 23 weeks and Labour

Intravenous Magnesium – 23 weeks, 27 weeks, 27+5weeks

Intravenous Steroids – 23 weeks 2 x doses + 27+ 5

What went wrong?

- Transferred between several hospitals in the region
- Different opinions and management plans
- Some poor standards of care
- Lack of compassion and empathy in some areas
- Not been listened to
- Mental Health Assumption
- Choices removed from me
- Given unnecessary information ie, nhs funding, unavailable hospitals during the time of need
- Delays in transfers

What went well?

- A consultant with expert knowledge on preterm labour
- Discussions were informative, inclusive
- Dignity and respect
- Consent obtained
- Person centred care, exception and compassionate, care and competence
- Recognisable commitment and dedication
- Empathy for both myself and family
- Clear and robust management plan
- Safe and controlled environment for delivery
- Appropriate medications
- Exceptional midwife at the most worrying time
- End goal was achieved

Ellis Brian Blackett

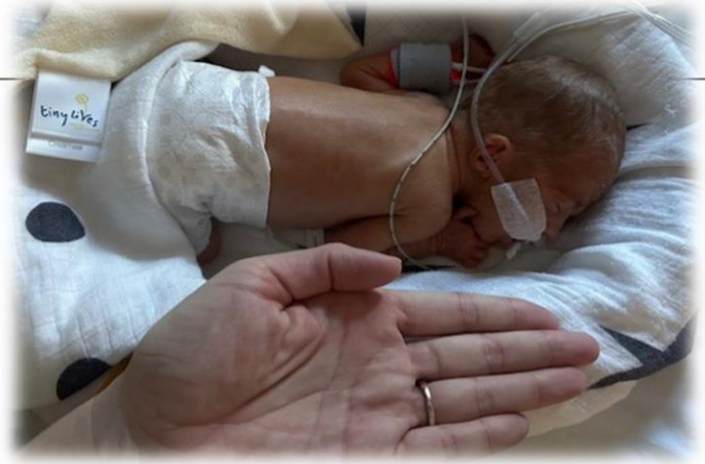
2nd May 2024

15:58pm

1060 grams

2lb 5oz

Ellis Brian Blackett



Ellis Brian Blackett

Any Questions?

Thank You

EMILY FRIER

Maternity and Neonatal

NHS

Optimisation of the Preterm Infant
Improving the timing and administration of antenatal corticosteroids

Professsor Lawrence Impey, Consultant in Obstetrics and Fetal Medicine, Oxford University Hospitals & Clinical Lead ,Maternity Network Health Innovation Oxford & TV

Michelle East, Director of Midwifery, Buckinghamshire Healthcare

Eileen Dudley MatNeo SIP Lead, Health Innovation Oxford & TV

Preterm Birth Conference NENC
18.11.2024

Maternity and Neonatal

Background

National ambition to reduce the rates of maternal and neonatal deaths, stillbirths and brain injuries by 50% by 2025

Optimisation and stabilisation of the preterm infant is one of the workstreams that supports delivery of this ambition

The Ambition :
To support an increase the proportion of women less than 34 +0 weeks with TPTL receiving a full course of antenatal corticosteroids within one week prior to delivery to 95% or greater by March 2023

The Challenge:

Gerard H. A Visser, Chair FIGO Committee Safe Motherhood & Newborn Health (2017)

‘ Antenatal corticosteroids: poison with some positive side effects’
‘So, only use it with wisdom and only if really indicated’

Maternity and Neonatal

NHS

National ambition

Benefits v harm

Maternity and Neonatal

Prediction of preterm birth

NHS

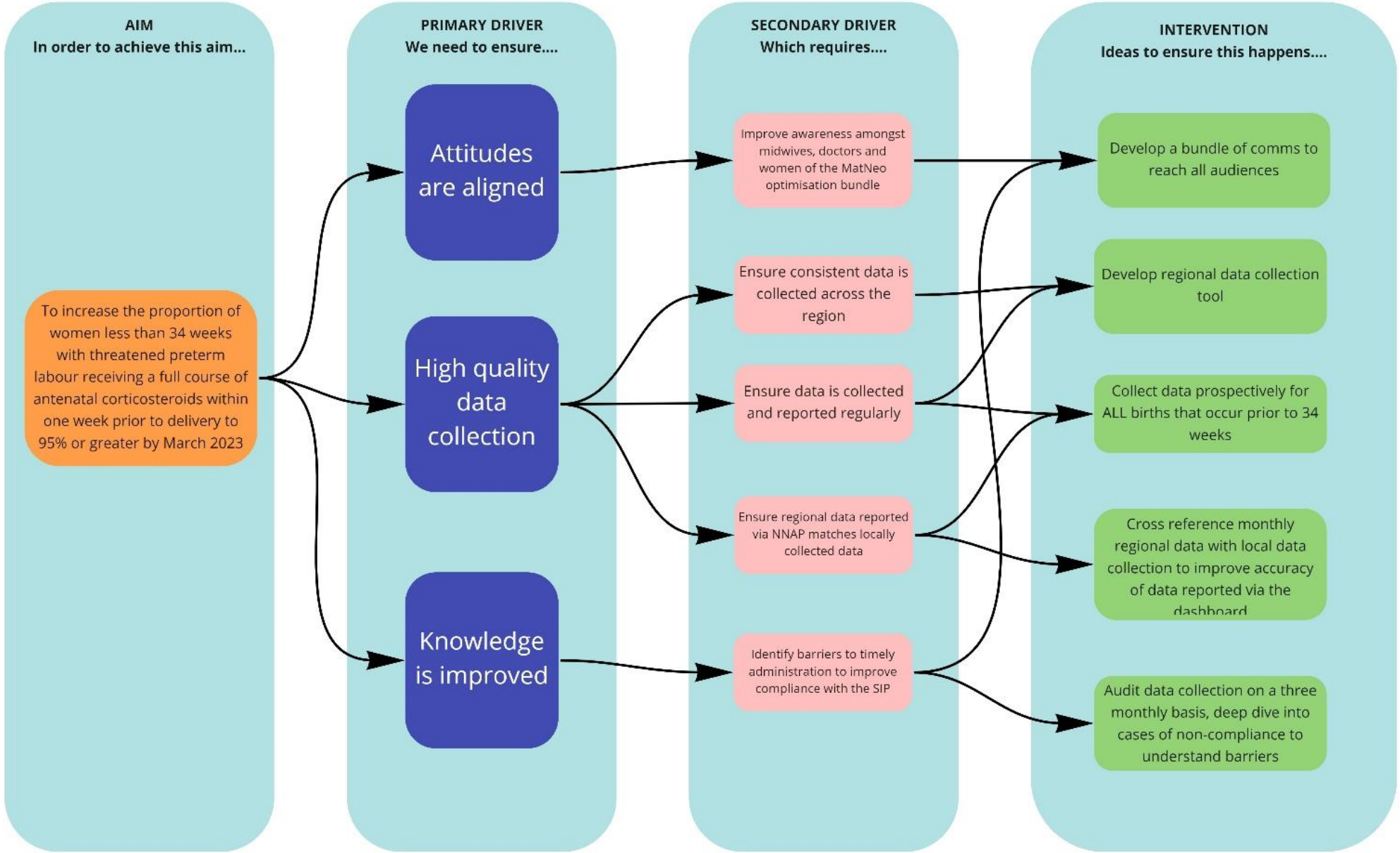
- Preterm birth history alone: 10-57% of pregnant women with a PTB history will give birth preterm. Most women who give birth preterm do not have a history of preterm birth.
- QUiPP App with cervical length: Using a 5% chance of birth, predicts PTB in next 7d in women <37w and avoids 90% of admissions
- Discontinuation of qfFN
- Actim Partus as an alternative

Maternity and Neonatal

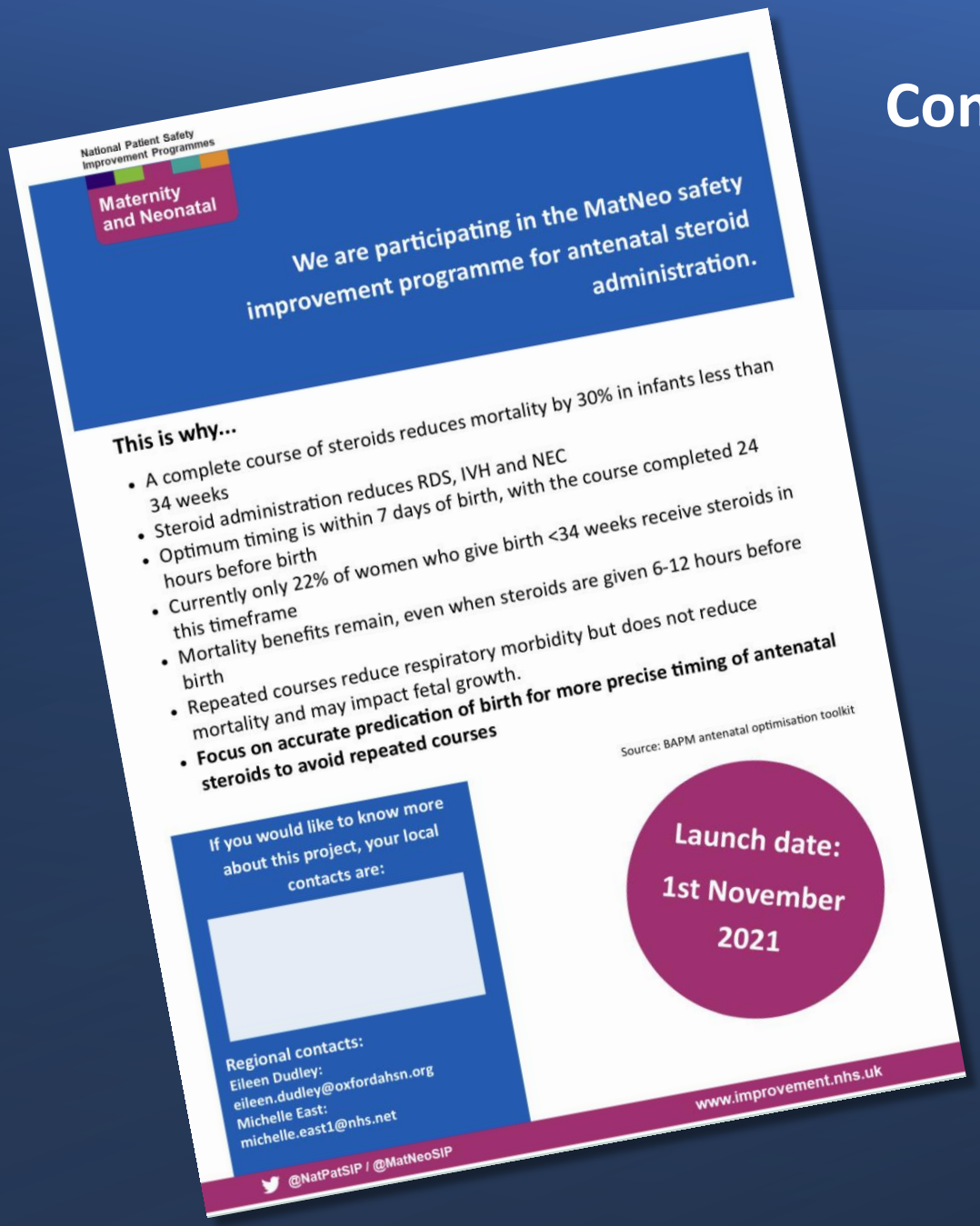
NHS

www.healthinnovationoxford.org
info@healthinnovationoxford.org @HealthInnovOx

Health Innovation Oxford & Thames Valley


AIM
In order to achieve this aim...
To increase the proportion of women less than 34 weeks with threatened preterm labour receiving a full course of antenatal corticosteroids within one week prior to delivery to 95% or greater by March 2023
PRIMARY DRIVER
We need to ensure....
Attitudes are aligned
High quality data collection
Knowledge is improved
SECONDARY DRIVER
Which requires....
Improve awareness amongst midwives, doctors and women of the MatNeo optimisation bundle
Ensure consistent data is collected across the region
Ensure data is collected and reported regularly
Ensure regional data reported via NNAP matches locally collected data
Identify barriers to timely administration to improve compliance with the SIP
INTERVENTION
Ideas to ensure this happens....
Develop a bundle of comms to reach all audiences
Develop regional data collection tool
Collect data prospectively for ALL births that occur prior to 34 weeks
Cross reference monthly regional data with local data collection to improve accuracy of data reported via the dashboard
Audit data collection on a three monthly basis, deep dive into cases of non-compliance to understand barriers

Communication Bundle



National Patient Safety Improvement Programmes

Maternity and Neonatal

We are participating in the MatNeo safety improvement programme for antenatal steroid administration.

This is why...

- A complete course of steroids reduces mortality by 30% in infants less than 34 weeks
- Steroid administration reduces RDS, IVH and NEC
- Optimum timing is within 7 days of birth, with the course completed 24 hours before birth
- Currently only 22% of women who give birth <34 weeks receive steroids in this timeframe
- Mortality benefits remain, even when steroids are given 6-12 hours before birth
- Repeated courses reduce respiratory morbidity but does not reduce mortality and may impact fetal growth.
- **Focus on accurate predication of birth for more precise timing of antenatal steroids to avoid repeated courses**

Source: BAPM antenatal optimisation toolkit

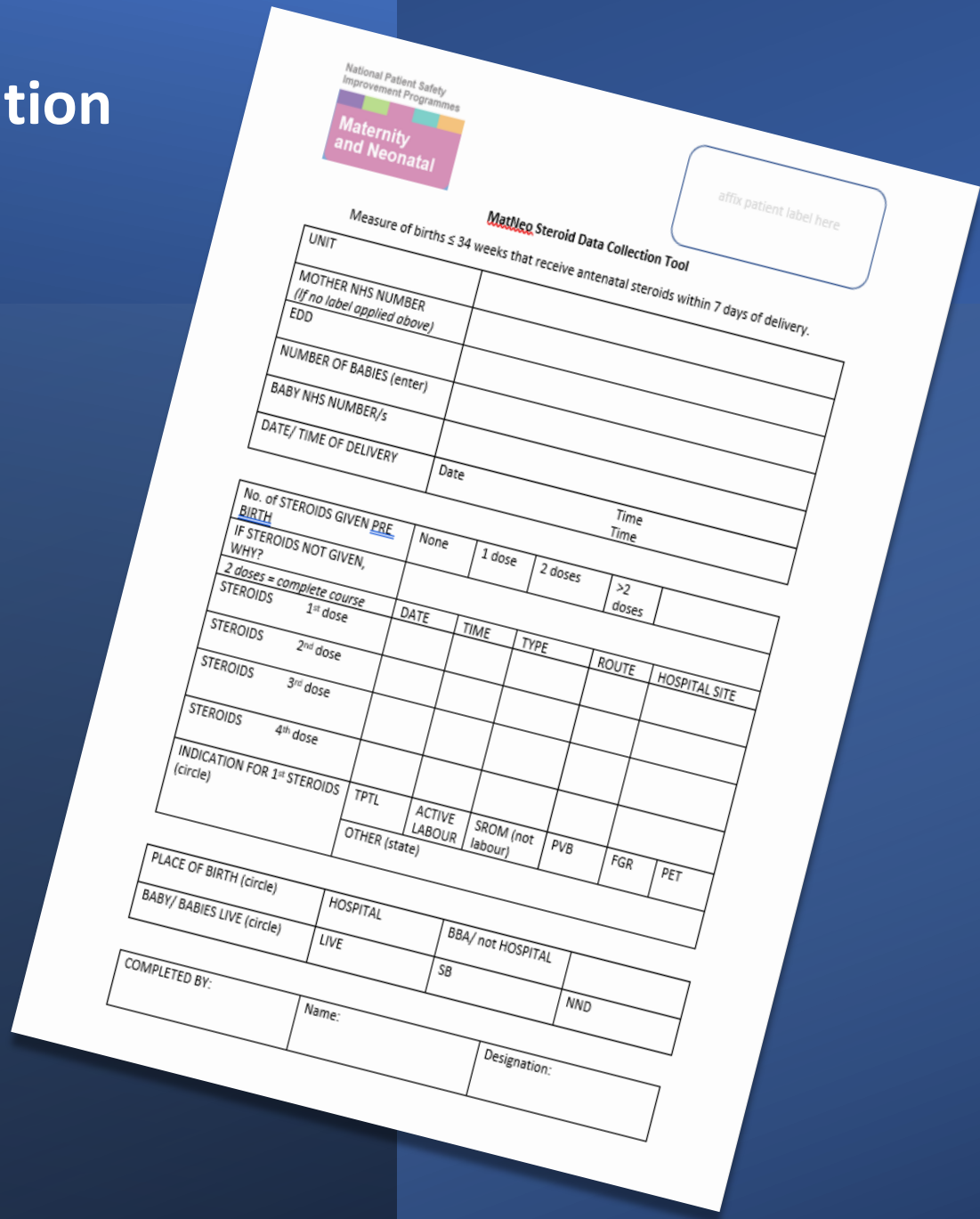
If you would like to know more about this project, your local contacts are:

Regional contacts:
Eileen Dudley:
eileen.dudley@oxfordahsn.org
Michelle East:
michelle.east1@nhs.net

Launch date: 1st November 2021

@NatPatSIP / @MatNeoSIP

www.improvement.nhs.uk



National Patient Safety Improvement Programmes

Maternity and Neonatal

affix patient label here

MatNeo Steroid Data Collection Tool

Measure of births ≤ 34 weeks that receive antenatal steroids within 7 days of delivery.

UNIT	
MOTHER NHS NUMBER *(if no label applied above)*	
EDD	
NUMBER OF BABIES (enter)	
BABY NHS NUMBER/s	
DATE/ TIME OF DELIVERY	Date Time Time

No. of STEROIDS GIVEN PRE BIRTH	None	1 dose	2 doses	>2 doses		
IF STEROIDS NOT GIVEN, WHY?						
2 doses = complete course						

	DATE	TIME	TYPE	ROUTE	HOSPITAL SITE
STEROIDS 1st dose					
STEROIDS 2nd dose					
STEROIDS 3rd dose					
STEROIDS 4th dose					

INDICATION FOR 1st STEROIDS (circle)	TPTL	ACTIVE LABOUR	SROM (not labour)	PVB	FGR	PET	
	OTHER (state)						

PLACE OF BIRTH (circle)	HOSPITAL	BBA/ not HOSPITAL	
BABY/ BABIES LIVE (circle)	LIVE	SB	NND

COMPLETED BY:	Name:	Designation:

Maternity and Neonatal

NHS

Regional Audit (Thames Valley) of antenatal corticosteroid administration against the MatNeoSIP ambition

- November-2021-March 2022
- 83 births
- 95% of women received steroids
- Only 73% a complete course
- Only 43% of all had steroids within 7 days of birth < 34 weeks gestation
- Steroids prior to planned iatrogenic preterm birth account for approx. 25% of all women
- Repeat courses unusual

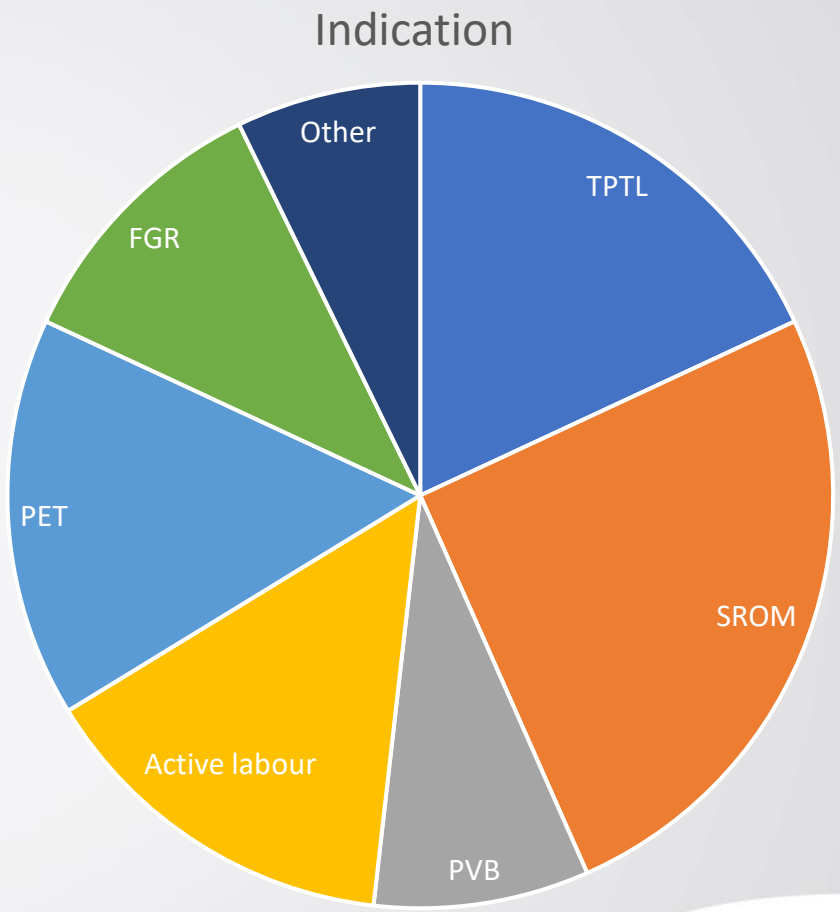
Maternity and Neonatal

NHS

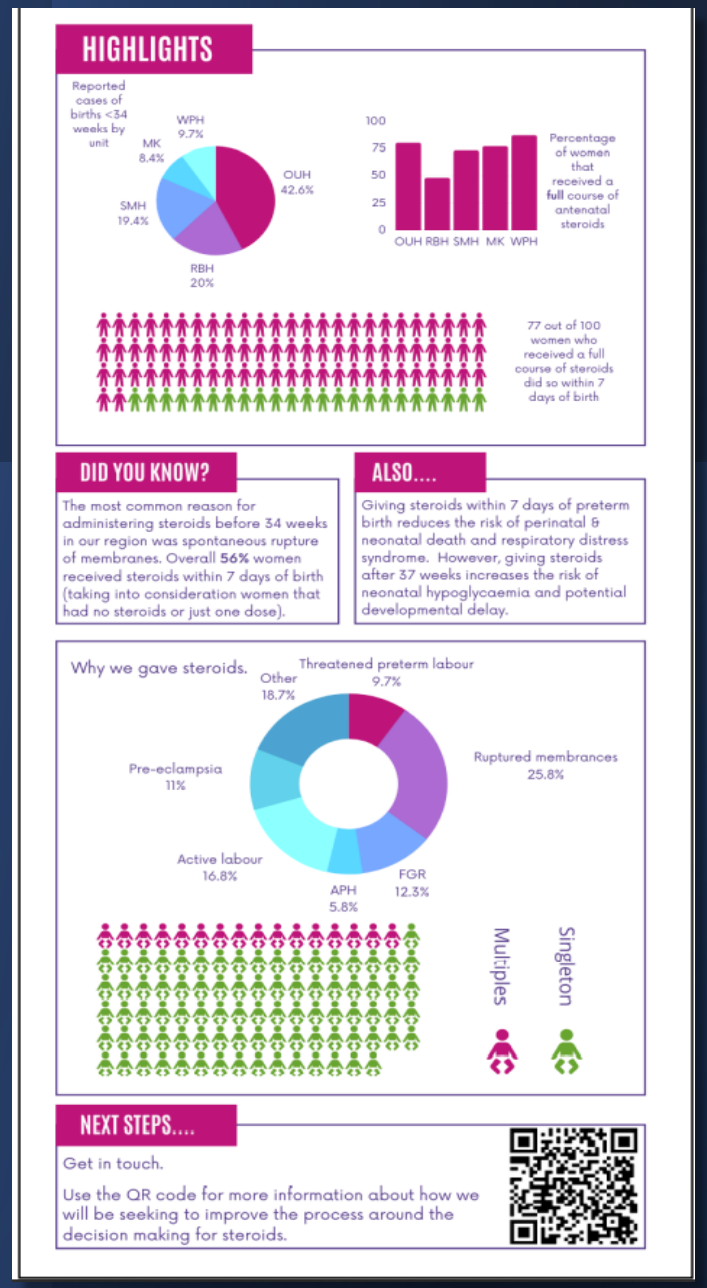
Findings

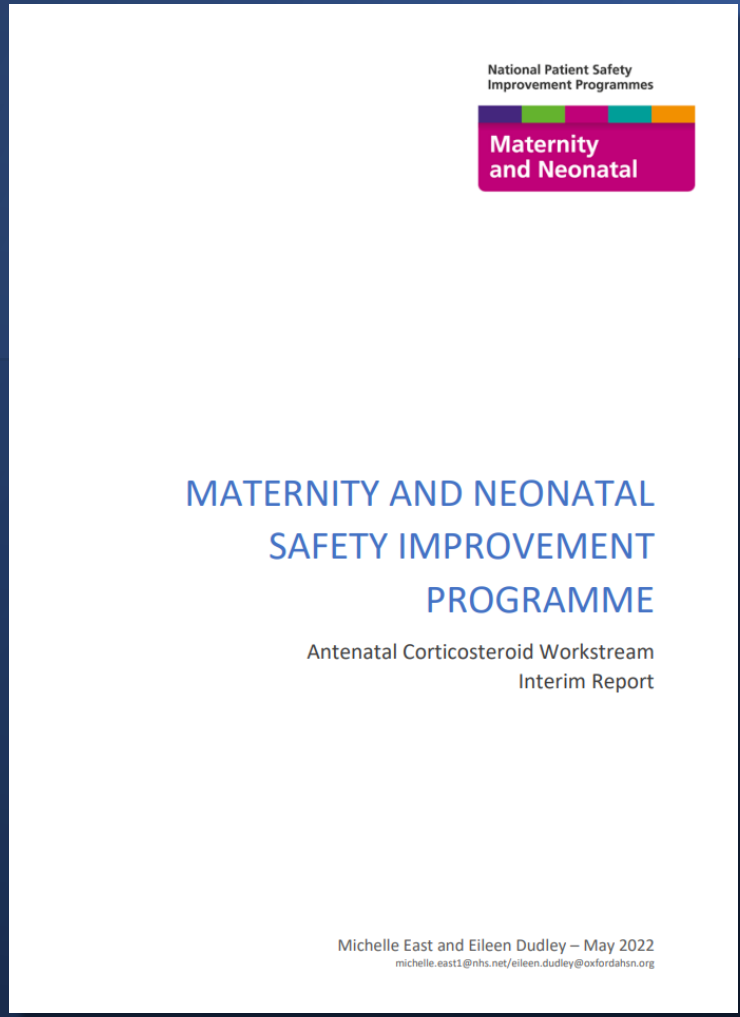
Inconsistent guidance across the network:

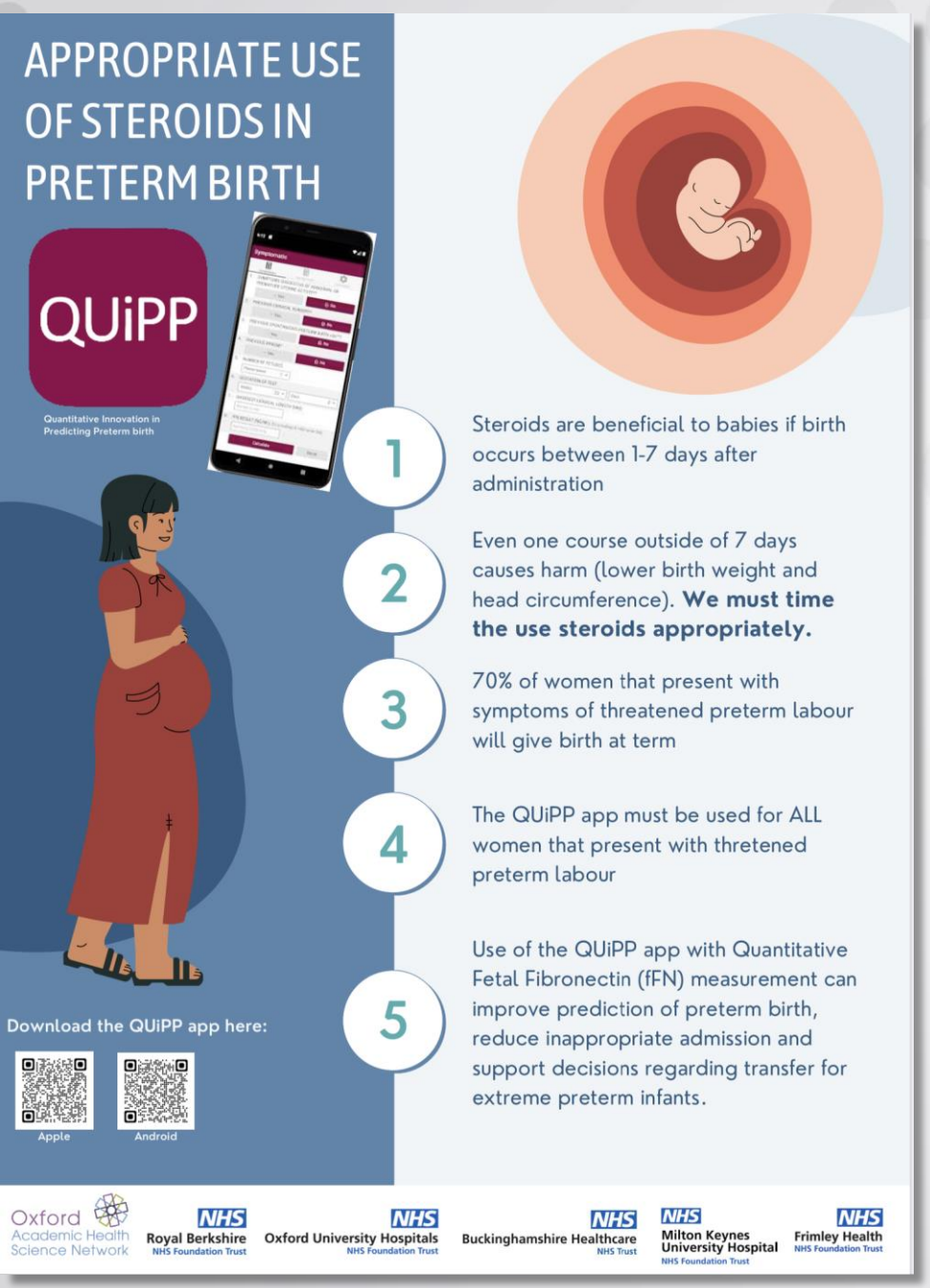
- Betamethasone vs Dexamethasone
- Route of administration



PSN Information Bundle







Top tips

- Withhold steroids unless very likely to deliver soon (far more babies receive a therapeutic dose, and it will limit harm)
- Use clinical acumen and biomarkers to assist risk assessment (QUiPP APP uses medical history, quantitative Fetal Fibronectin result and /or cervical length)
- When possible, give no more than 48 hours in advance
- A single ‘repeat course’ should be considered if > 7 days since first course, and birth < less than 30 weeks is planned or *highly likely* to be < 7 days – (footnote 9 in guideline)
- Caution about use after 35 weeks (NNT high! Lifelong insult vs short term gain)
- WHO recommends against giving steroids where ‘chorioamnionitis’ is suspected. However, this is based on data from low/middle income countries. Given frequency of chorioamnionitis, usually subclinical, with preterm birth this appears to contradict data from populations more relevant to the UK
- Maternal sepsis: consider omission: ensure adequate resuscitation and IVABs given first. Birth must not be delayed to allow steroids ‘to work’
- Dose: 12mg betamethasone or dexamethasone , repeated 24 hours later. Only repeat earlier (at 12 hours) if birth likely < 24 hours of first dose

Health Innovation
Oxford & Thames Valley

Health Innovation Oxford & TV maternity network guideline to maximise the chance of steroids within 7 days of preterm birth: singletons & multiple births

1. 22+0[1]-34+6 weeks: indications for recommending [2]:

Threatened PTL:	If QUiPP [3] app suggests >5% risk of birth < 7days.	
	If clinically in active labour (cx effaced and regular, painful contractions)	
Preterm SROM:	If confirmed by speculum	
	If good history and POC test + (not if poor history [4] of SROM and POC test +)	
FGR/PET<34w:	If <32w:	at diagnosis of AREDF [5] (deliver by 32w)
		or abnormal antenatal CTG (decelerations or STV<4[6])
	If 32+0-34+6:	if umbA >95th c and EFW <3rd c [7]
		if birth planned <34+6 weeks
Other:	Maternal sepsis: ensure adequate resuscitation and IV antibiotics given first[8]. Birth must not be delayed to allow steroids 'to work'	
	Consider if other serious maternal illness, admitted for severe pre-eclampsia (beware pulmonary oedema)	
	Bulging membranes; significant PVB, severe abdominal pain etc	
	<1 week before any planned CS <34+6 weeks	
>7 days since steroids:	A single 'repeat course' should be considered if > 7 days since first course, if birth <30+0 is planned or *highly likely* to be <7 days [9]. The risks/ benefits should be discussed with the parents.	

Health Innovation Oxford & TV maternity network guideline to maximise the chance of steroids within 7 days of preterm birth: singletons & multiple births

2. >34+6 <37+0: recommend steroids if:[10]

Fetal lung issue:	Specifically, fetal lung abnormality/cardiac problem likely to cause lung issues. Give for all indications as above (i.e. if birth anticipated at <37+0 in <7 days)
Pre-labour CS, <37+0:	<1 week before any planned CS <37+0 weeks
Other indications:	(i.e. all above: section 1 and birth anticipated at <37+0 in <7 days.) Recommend RCOG based decision tool[8] for all above indications and *only give if* parents request.
>7 days since steroids	repeat not advised

3. >36+6<39+0 weeks: recommend steroids If [10]**:**

Fetal lung issue:	Specifically, fetal lung abnormality/cardiac problem likely to cause lung issues. Give for all indications (i.e. if birth anticipated at <39+0 in <7 days)
Other indications:	Not advised
>7 days since steroids	repeat not advised

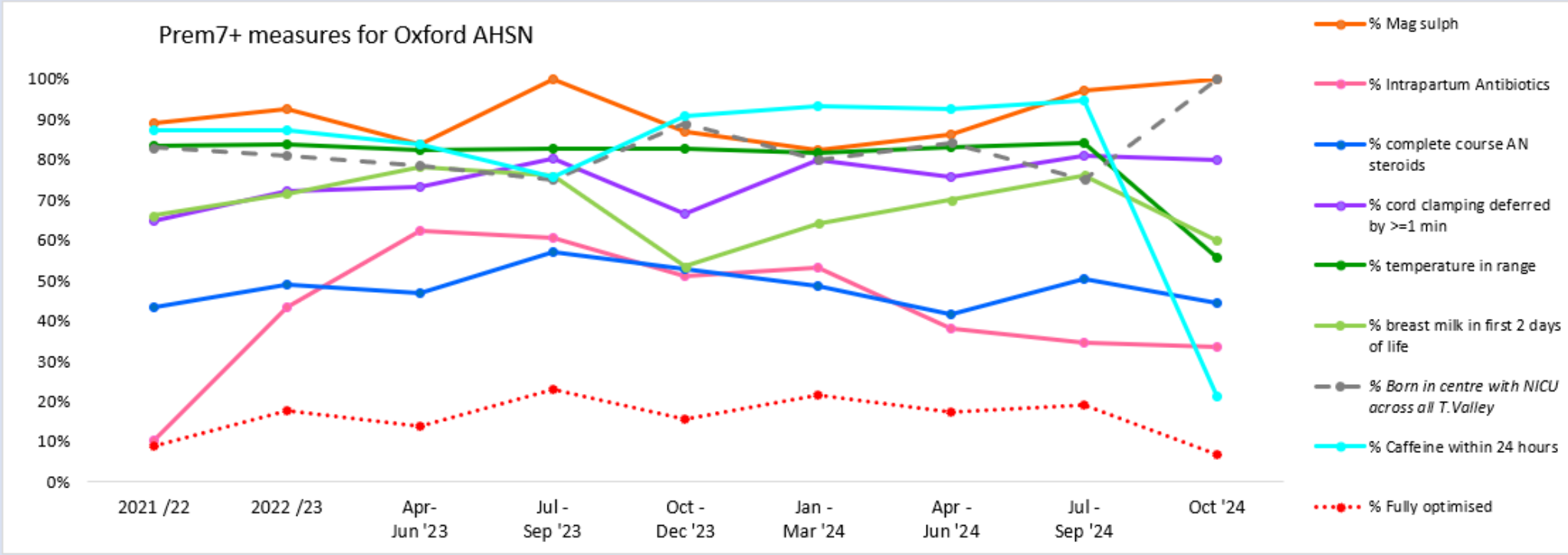
Health Innovation Oxford & TV maternity network guideline to maximise the chance of steroids within 7 days of preterm birth: singletons & multiple births

Notes:

1. Wait for 22+0
2. From 22+0 weeks-26+6 weeks (or twins 27+6 weeks or any EFW <800g) IUT to Level 3 NNU advised if criteria for steroids met/parents wish active intervention. Also consider MgSO4 if birth likely <12 hours.
3. QUiPP app ('symptomatic' part) has better sensitivity and specificity: meaning better timing. Unavailability of fFn means it can not be used, incl as part of QUiPP app. NHSE recommend Actim Partus instead, or using the QUiPP app integrating cervical length scan. Risk high= QUIPP app risk <7 days >5% OR Actim Partus positive
4. False positive rates of POC tests can be high.
5. AREDF usually lasts for several days before there is decompensation particularly in more preterm fetuses. Note steroids may be followed by temporary return of EDF
6. Delivery likely within 48 hours if present and AEDF not always present before decompensation. STV <3 a criterion for delivery <24 hours under most circumstances
7. At this gestation AREDF is indication for birth: these criteria suggest high risk of birth <7 days
8. WHO recommendation against giving steroids where 'chorioamnionitis'. Based on data from non-high income countries. Given frequency of chorioamnionitis, usually subclinical, with preterm birth this appears to contradict data from populations more relevant to the UK.
9. This is controversial but given increased mortality risk without steroids, benefits probably > risks, particularly at extreme preterm gestations. https://journals.plos.org/plosmedicine/article/file?id=10.1371/journal.pmed.1002771&type=printable. 30 weeks was chosen as corresponding to average gestation in most trials' participants.
10. At this gestation steroids reduces RDS but this should be set against the risk of hypoglycaemia and probable long term issues in the child. https://obgyn.onlinelibrary.wiley.com/doi/epdf/10.1111/1471-0528.17027.

Preterm Optimisation

Select Organisation AHSN Oxford



	Gest-ation	2021 /22	2022 /23	Apr-Jun '23	Jul - Sep '23	Oct - Dec '23	Jan - Mar '24	Apr - Jun '24	Jul - Sep '24	Oct '24
Babies <34 weeks admitted to nnu	<34	546	546	122	143	115	120	143	126	45
Prem7 Measures (charted above)										
% complete course AN steroids	<34	43%	49%	47%	57%	53%	49%	42%	50%	44%
% Mag sulph	<30	89%	93%	84%	100%	87%	83%	86%	97%	100%
% Intrapartum Antibiotics	<34[x]	10%	43%	62%	61%	51%	53%	38%	35%	33%
% cord clamping deferred by >=1 min	<34	65%	72%	73%	80%	67%	80%	76%	81%	80%
% temperature in range	<34[-]	83%	84%	82%	83%	83%	82%	83%	84%	56%
% breast milk in first 2 days of life	<34	66%	72%	78%	76%	54%	64%	70%	76%	60%
% Caffeine within 24 hours	<30[+]	87%	87%	84%	76%	91%	93%	93%	95%	21%
% elements met	<34	59%	67%	70%	73%	64%	68%	66%	70%	59%
% Fully optimised	<34+	9%	18%	14%	23%	16%	22%	17%	19%	7%
% Born in centre with NICU across all T.V	<27[+]	83%	81%	79%	75%	89%	80%	84%	75%	100%

2021 /22	2022 /23	2023 /24	2024 /25 to date
546	546	500	314
43%	49%	51%	46%
89%	93%	89%	92%
10%	43%	57%	36%
65%	72%	75%	78%
83%	84%	82%	80%
66%	72%	68%	71%
87%	87%	86%	84%
59%	67%	69%	67%
9%	18%	19%	32%
83%	81%	83%	84%

Maternity and Neonatal

Preterm Birth Optimisation Podcast

available to listen to:

Preterm Birth Optimisation on Apple Podcasts

Professor Andrew Shennan

The Use and Misuse of Antenatal Corticosteroids

Health Innovation Oxford & TV Regional Guideline

Antenatal corticosteroids for fetal lung maturation

NHS

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Health Innovation Oxford & Thames Valley

Maternity and Neonatal

NHS

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Health Innovation
Oxford & Thames Valley

Steroid Timing 12 or 24 hours?

Updated Evidence Review

Dr Louise Michie

Vice Chair NENC Preterm Group

November 2024

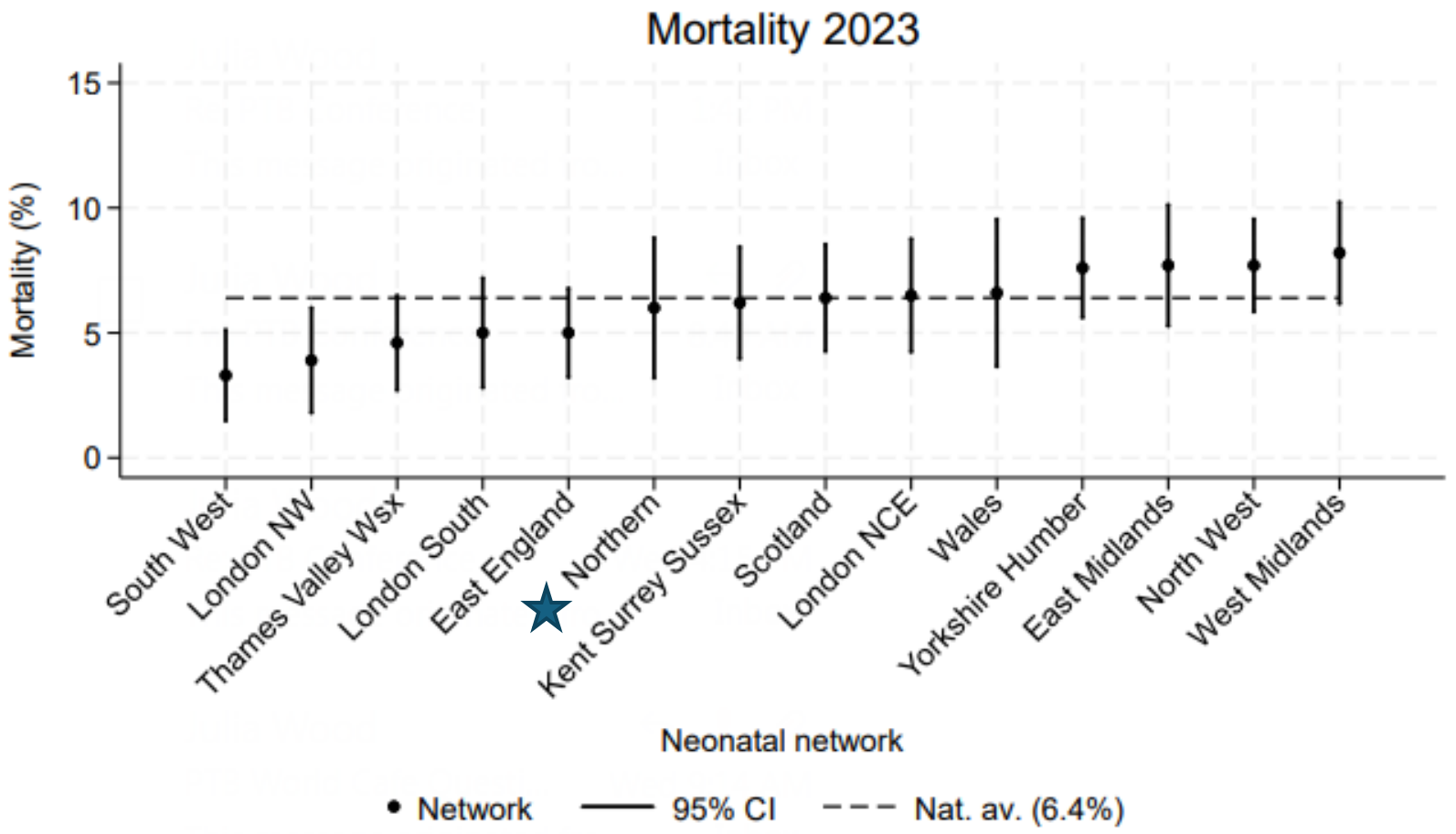
The big question...

Should we give the second dose of steroids at 12hrs when delivery is expected to be imminent?

What is best for the patient?

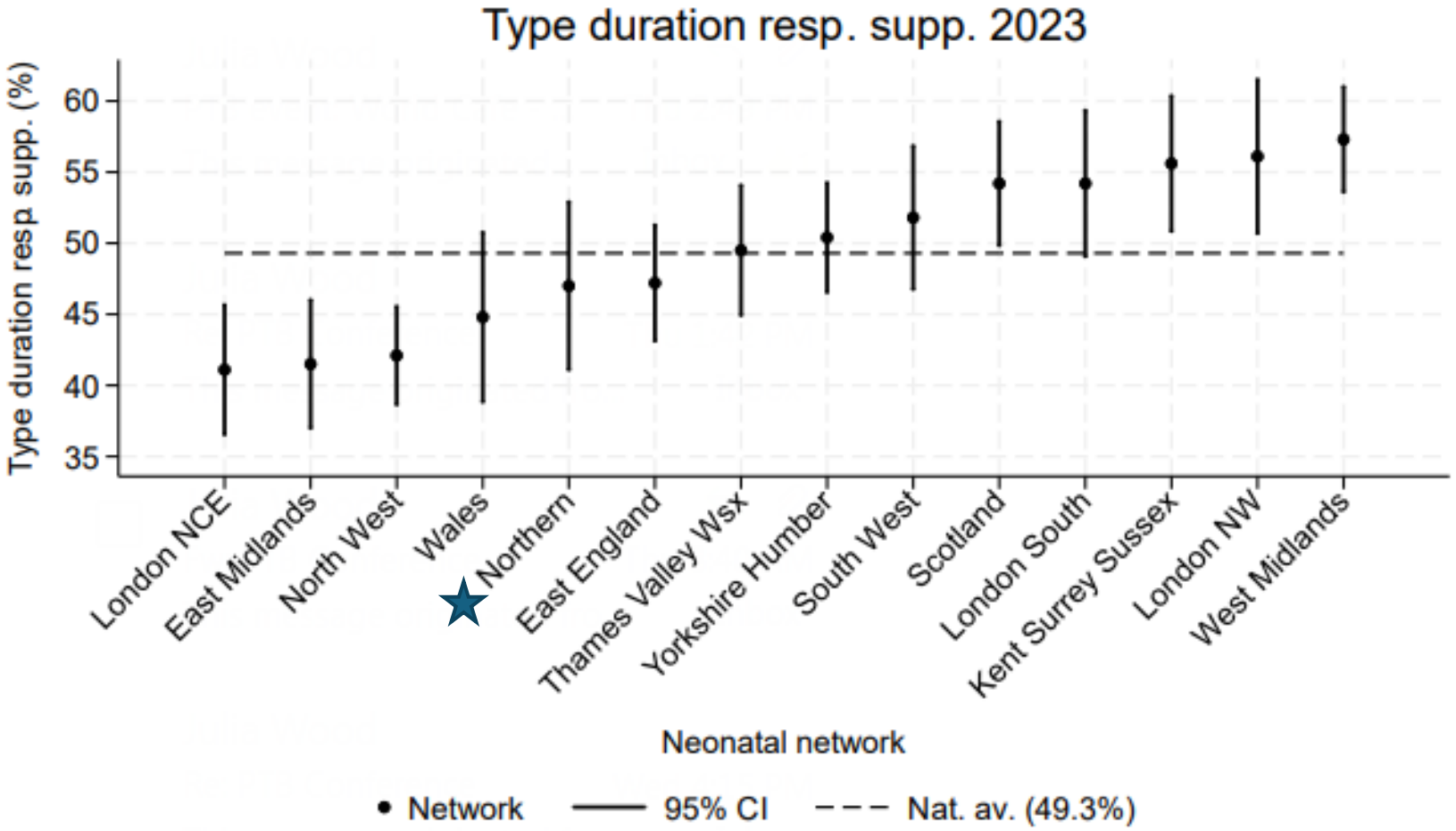
Neonatal Outcomes

NNAP Data



Neonatal Outcomes

Non-Invasive Ventilation



Guidelines

NICE (UK, updated 2022) mentions gestations, but not dosing / regime.

Greentop Guideline: (UK, 2022) 2 x 12mg betamethasone IM 24hrly or 2 x 12mg dexamethasone IM 24hrly or 4 x 6mg dexamethasone IM 12hrly

Canada: (2018) 2 x 12mg betamethasone IM 24hrly or 4 x 6mg dexamethasone IM 12hrly

ACOG: (2017) 2 x 12mg betamethasone IM 24hrly or 4 x 6mg dexamethasone IM 12hrly.

"no additional benefit has been demonstrated for courses of antenatal corticosteroids with dosage intervals shorter than those outlined previously, often referred to as "accelerated dosing," even when delivery appears imminent "

RANZCOG: (2015) Betamethasone 24mg in divided doses, completed between 12 and 36hrs.

NENC Review 2021

Khandelwal M et al 2012

DOI: 10.1016/j.ajog.2012.01.025

- Prospective, randomised, open trial
- Singleton and multiples
- 260 fetuses
- 23-34 wks, at risk of preterm delivery
- Received 2 doses of betamethasone either 12hrly or 24hrly
- 2:1 ratio of 12hrly to 24hrly
- Conducted in America July 2006 – May 2009

Results

- 228 mothers (260 neonates)
- If all women were to receive 24hr dosing, 12% of women would not have received the full course of betamethasone. With 12hr dosing, this would be reduced to 5%.
- Incidence of RDS: no difference
- Increased incidence of NEC with 12 hour dosing 6.2% vs 0% ($p = 0.03$)

NENC Review 2021

Kashanian M et al 2018

doi.org/10.1080/01443615.2017.1413080

- RCT
- 201 women
- 26 – 34 weeks, women at risk of preterm birth
- Randomised to betamethasone 12hrly or 24hrly
- Conducted in Tehran Feb – Aug 2014

Results

- 201 women
- Multiple regression analysis required (as gestational age less in the 24hr group):
- 24hr group: Increased RDS (p= 0.022) and IVH (p= 0.013)
- 12hr group: Increased neonatal death (p=0.034) and NEC (p=0.038)

Second dose of steroids at 12hrs when delivery is expected to be imminent?

No difference in RDS
(Khandelwal)

Benefits

Reduced RDS
(Kashanian)

Reduced IVH
(Kashanian)

Risks

Increased mortality
(Kashanian)

Increased NEC
(Kashanian and
Khandelwal)

NENC position was to remain with 24hr dosing of betamethasone, even if delivery is imminent. More research is required.

New Evidence?

Cochrane Review 2022

Different corticosteroids and regimens for accelerating fetal lung maturation for babies at risk of preterm birth
DOI: 10.1002/14651858.CD006764.pub4

- Included 11 RCT trials (2494 women, 2762 infants)
- All high income countries
- Mainly comparing betamethasone vs dexamethasone
- Only one study included for 12hrly vs 24hrly betamethasone (Khandelwal 2012)
- Certainty of evidence is very low – small sample size and risk of bias. Unable to draw conclusions.

The Effect of Betamethasone Dosing Interval on Perinatal Outcomes: 12 Hours or 24 Hours Apart

Bulut AM et al (2021) https://doi.org/10.1055/s-0041-1735962

- Retrospective study: 423 preterm births 26+0 – 33+6
- Received either 12hrly or 24hrly betamethasone. Unclear why a particular choice was made.
- When evaluated together, no statistically significant difference for complications of prematurity, inc RDS.
- Some differences noted within particular gestational bands
  - 32+0-33+6: 24hr group lower Apgar score at 5 mins (p = 0.002)
  - 28+0 – 29+6: 24hr group duration of hospital stay longer (p = 0.048)

Antenatal Betamethasone Every 12 Hours in Imminent Preterm Labour

Saldana-Garcia et al 2022

Doi.org/10.3390/jcm11051227

- Retrospective cohort study – 275 neonates
- Preterm infants ≤ 34wks and ≤ 1500g admitted to NICU
- Tertiary hospital (Spain) 2015 – 2020
- Two cohorts:
  - Complete maturation (12mg betamethasone 24hrly) or
  - Advanced maturation (12mg betamethasone 12hrly – performed when birth thought to be imminent)
- Neurodevelopment at 2yrs evaluated (ASQ-3)

Results

- Complete maturation 224 pts; Advanced maturation **51** pts
- Advanced maturation cohort had a higher percentage of female babies and lower percentage of IUGR cases
- **Similar results re mortality and severe morbidity**
- Lower percentage of hypotension in the first week with AM ($p = 0.04$).
- Initially found lower peak FiO2 and shorter mechanical ventilation time with advanced maturation, but once adjusting for cofounding factors, significance was lost.
- No cases of NEC in advanced maturation, 2.2% in complete.
- No cases of intestinal perforation in advanced maturation, 5.8% in complete. (Neither statistically significant)

- 2 year FU: CM 101pts, AM **22** pts
  - No statistically significant difference in scores.

Association of Short Antenatal Corticosteroid Administration-to-Birth Intervals With Survival and Morbidity Among Very Preterm Infants

Results from the EPICE Cohort

JAMA Pediatrics 2017

DOI:10.1001/jamapediatrics.2017.0602

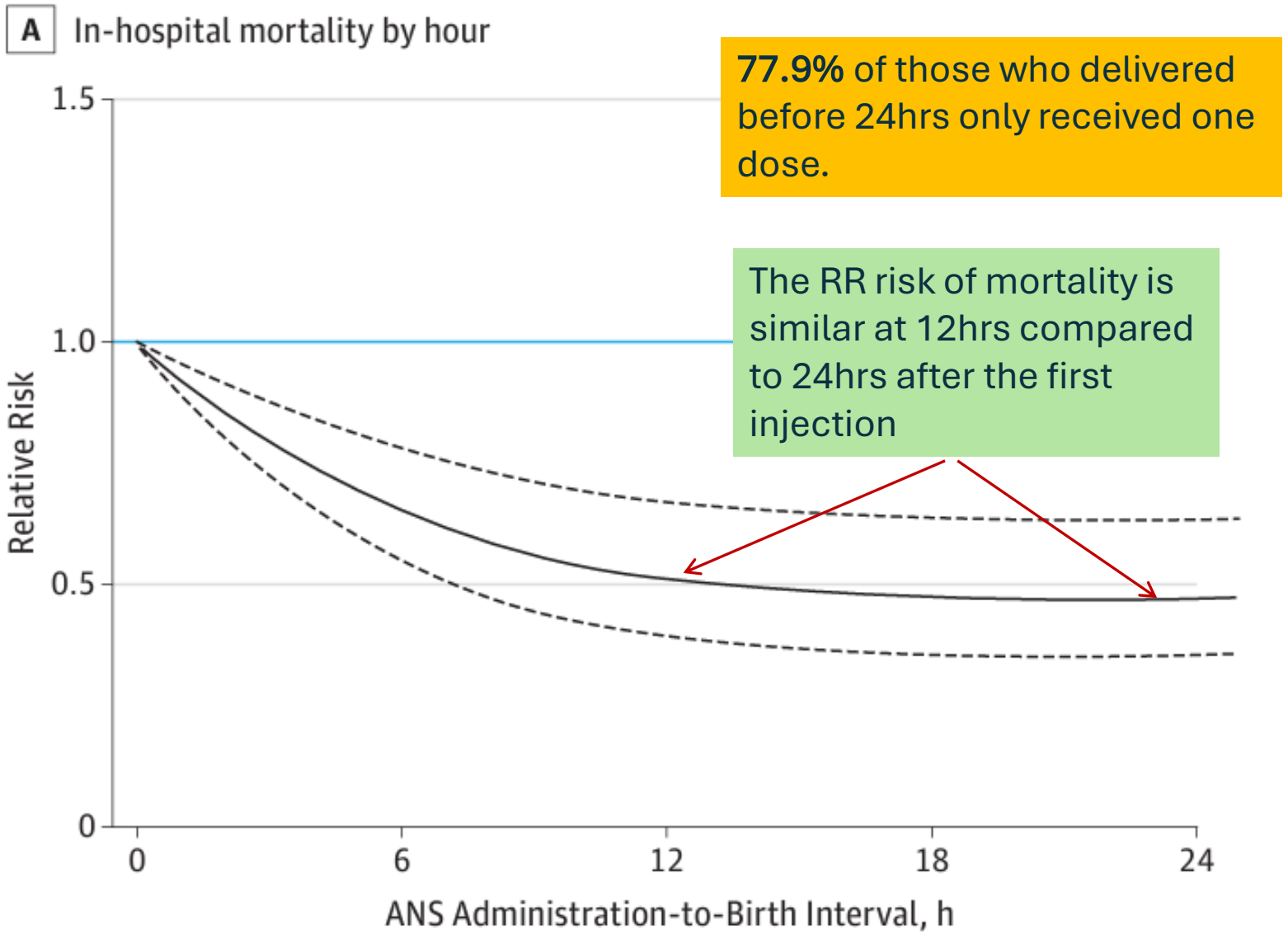
EPICE = Effective Perinatal Intensive Care in Europe

- Prospective cohort study
- 11 European contries in 2011 and 2012
- **4594** singleton infants between 24 and 31 wks
- No severe anomalies, no repeated courses of steroids.
- Analysed time from 1st steroid injection to delivery and outcomes.

4 groups:

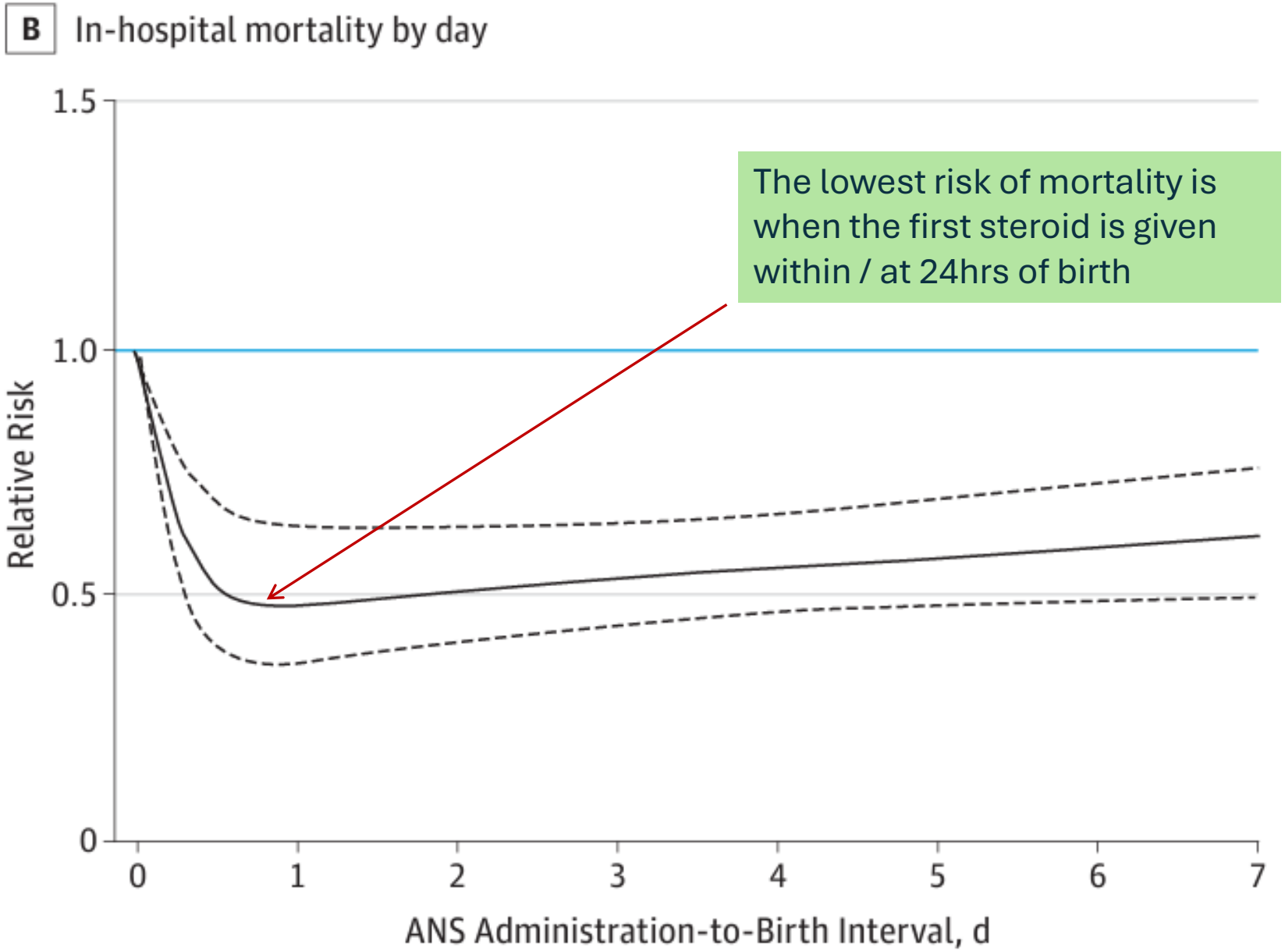
- **No steroid, steroid < 24hrs, steroid 24hrs – 7days, steroid > 7days.**
  - **24.2%** were in the group <24hrs
  - **40.7%** were in the group 24hrs – 7 days – considered ‘optimal’

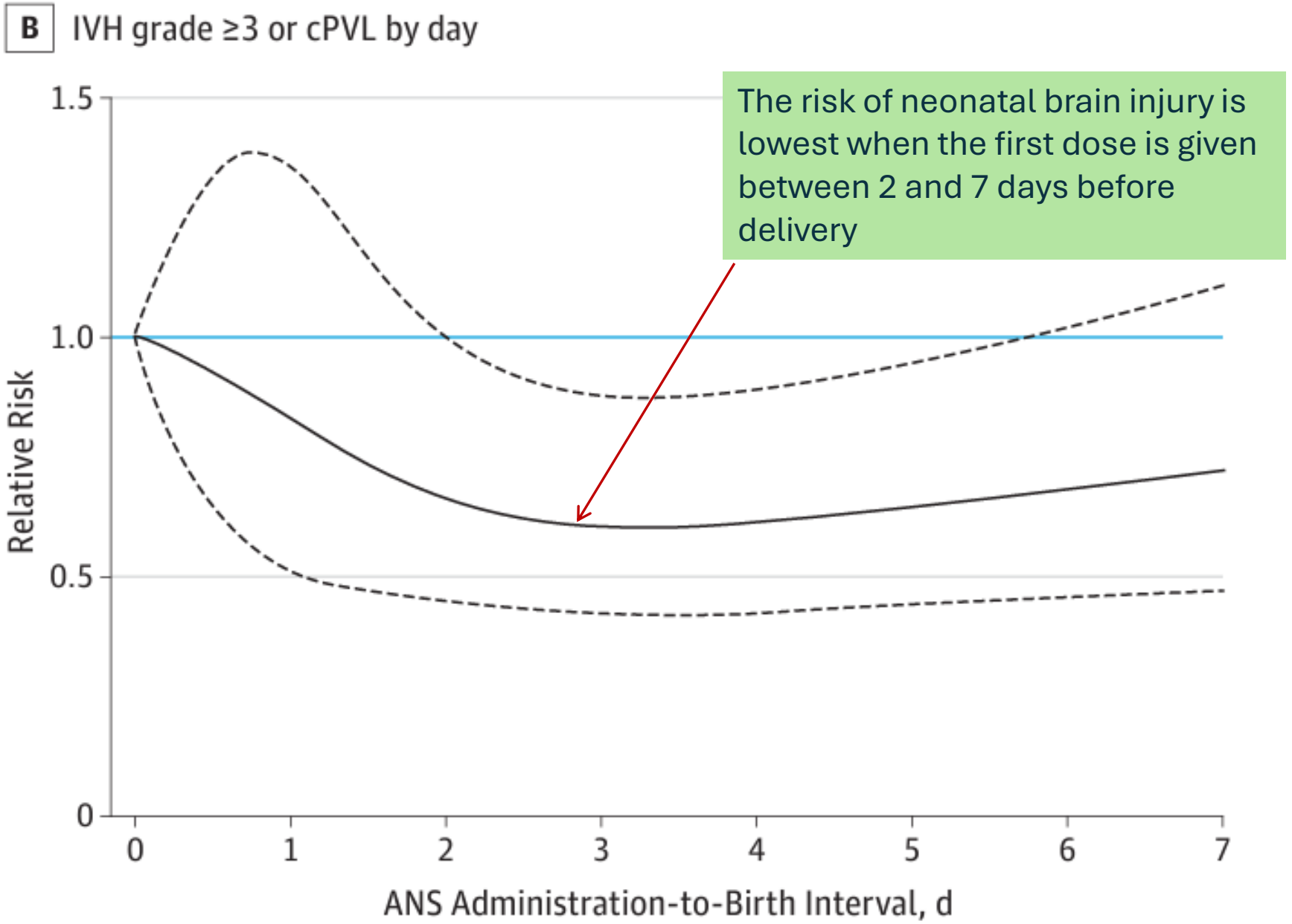
Figure 2. Association Between Timing of Antenatal Corticosteroids (ANS) and In-Hospital Mortality in 4594 Very Preterm Infants



77.9% of those who delivered before 24hrs only received one dose.

The RR risk of mortality is similar at 12hrs compared to 24hrs after the first injection


B
In-hospital mortality by day
1.5
1.0
0.5
0
Relative Risk
0
1
2
3
4
5
6
7
ANS Administration-to-Birth Interval, d
The lowest risk of mortality is when the first steroid is given within / at 24hrs of birth


B
IVH grade ≥3 or cPVL by day
The risk of neonatal brain injury is lowest when the first dose is given between 2 and 7 days before delivery
1.5
1.0
0.5
0
Relative Risk
0
1
2
3
4
5
6
7
ANS Administration-to-Birth Interval, d

So How Does the Balance Look Now?

Second dose of steroids at 12hrs when delivery is expected to be imminent?

No difference in RDS (Khandelwal)

No difference in neurodevelopment at 2yrs (Saldana-Garcia)

Similar mortality and severe morbidity (Saldana-Garcia)

Cochrane Review 2022
- Certainty of evidence is very low
- Unable to draw conclusions

Benefits

Reduced RDS (Kashanian)

Reduced IVH (Kashanian)

Reduced hypotension 1st week (Saldana-Garcia)

Risks

Increased mortality (Kashanian)

Increased NEC (Kashanian and Khandelwal)
- But no cases with Saldana-Garcia

Conclusion

- There is considerable benefit to receiving only one dose of corticosteroid – EPICE study.

- There is no convincing new evidence that 2 doses of steroids given 12hrly is superior to receiving only one dose 24hrly when preterm birth is imminent.

- Giving betamethasone or dexamethasone 12mg 12 hourly is outside of UK (and international) guidance.

- Further research is required to inform practice.

Thank You

Any Questions?

Break

National Patient Safety
Improvement Programmes

NHS

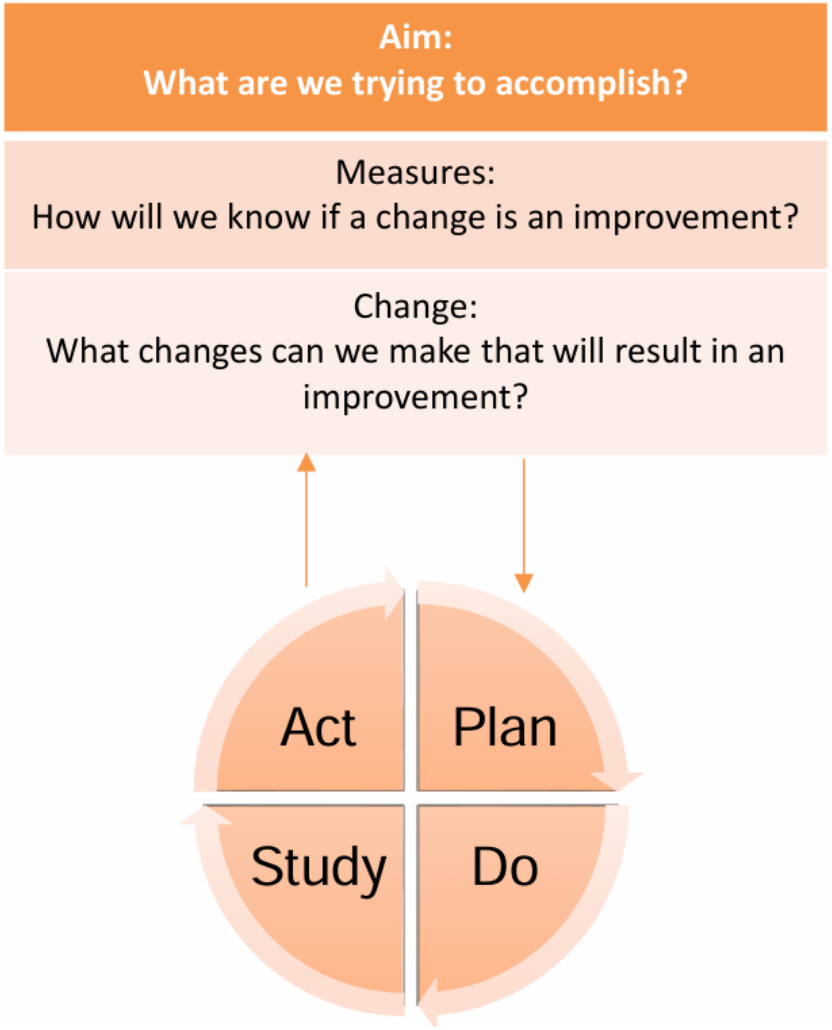
Maternity
and Neonatal

The Model for Improvement

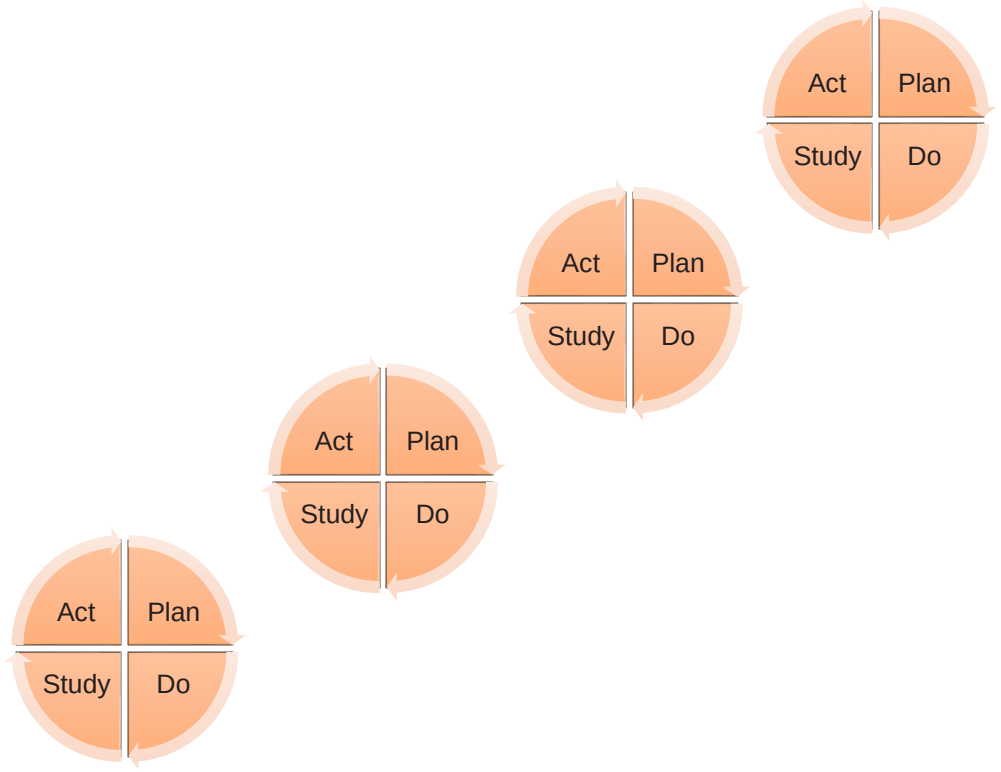
Julia Wood
MatNeoSIP Lead

The Model For Improvement

- Framework used to test out ideas and implement change
- Used in many countries around the world
- The Model consists of two parts
- Each PDSA should be a small test, refining your idea through each cycle



Success!



Aim:
What are we trying to accomplish?

Measures:
How will we know if a change is an improvement?

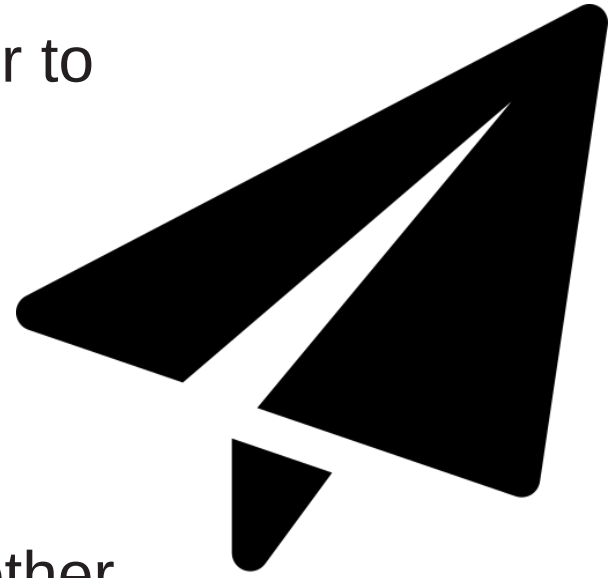
Change:
What changes can we make that will result in an improvement?

Most people just plan and do!

Plan and Do	Plan, Do, Study, Act
• Large steps • Abrupt, volatile • Few champions • Often need to rebuild • Large investment in time • Costs!	• Continuous and incremental • Learn along the way • Undramatic • Often group efforts – champions • Low investment

Let’s put it into practice – paper planes challenge

- Aim: Flies their **last** paper plane the furthest
- Each team (in groups of four) gets five pieces of paper to test
- Use The Model for Improvement to test your ideas
  - Advice:
    - Spend a few minutes planning before you start
    - Measure each test: **study** and then **act**



- Share the tape measure
- I will tell you when we are all going to come back together and you are going to do your final fly and share the distance
- Prizes are at stake!

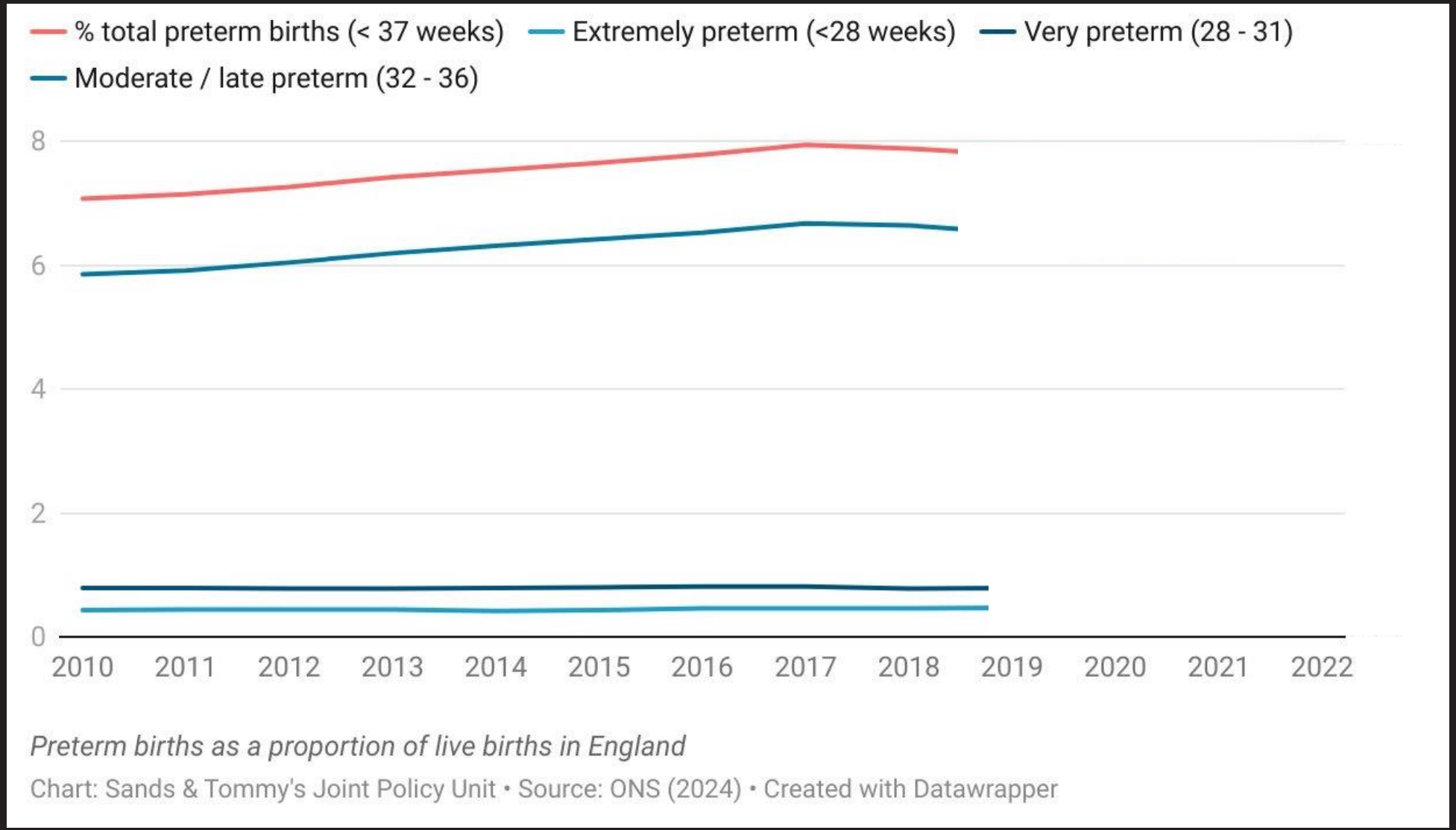
What did you learn?

- Did you get better each time?
- Did you see what others were doing?
- Did you have different throwers?
- Can this be applied in healthcare?

Preterm birth: the national picture

Nigel Simpson
University of Leeds/Leeds Teaching Hospitals

NENC Preterm Birth Conference
November 2024



Preterm births as a proportion of live births in England

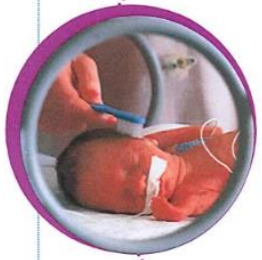
Chart: Sands & Tommy's Joint Policy Unit • Source: ONS (2024) • Created with Datawrapper

Harris-Wellbeing
Inaugural Preterm Birth Conference

Including UK Preterm Clinical Network Meeting

HARRIS-WELLBEING PRETERM BIRTH CENTRE
WELLBEING OF WOMEN
In collaboration with University of Liverpool and Liverpool Women's Hospital

18-19 SEPTEMBER 2015
Liverpool, UK



The Blair Bell Education Centre,
Liverpool Women's Hospital,
Crown Street, Liverpool, L8 7SS

www.harris-wellbeingptbcentre.co.uk

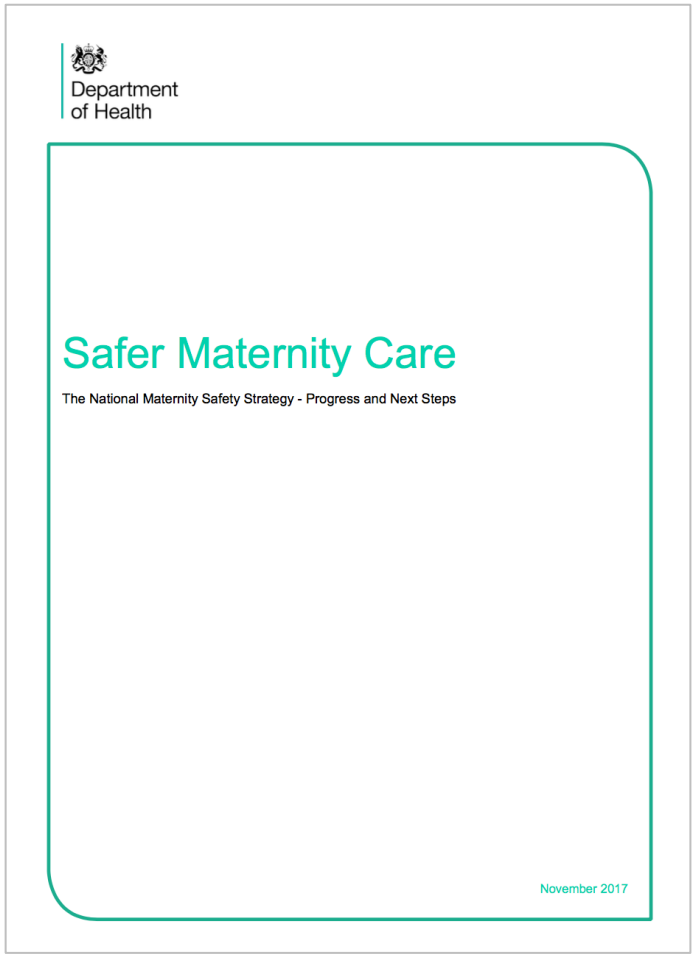
FINAL Programme

Liverpool Women's NHS Foundation Trust

UNIVERSITY OF LIVERPOOL


Gabrielle Bourke
Royal College of Midwives

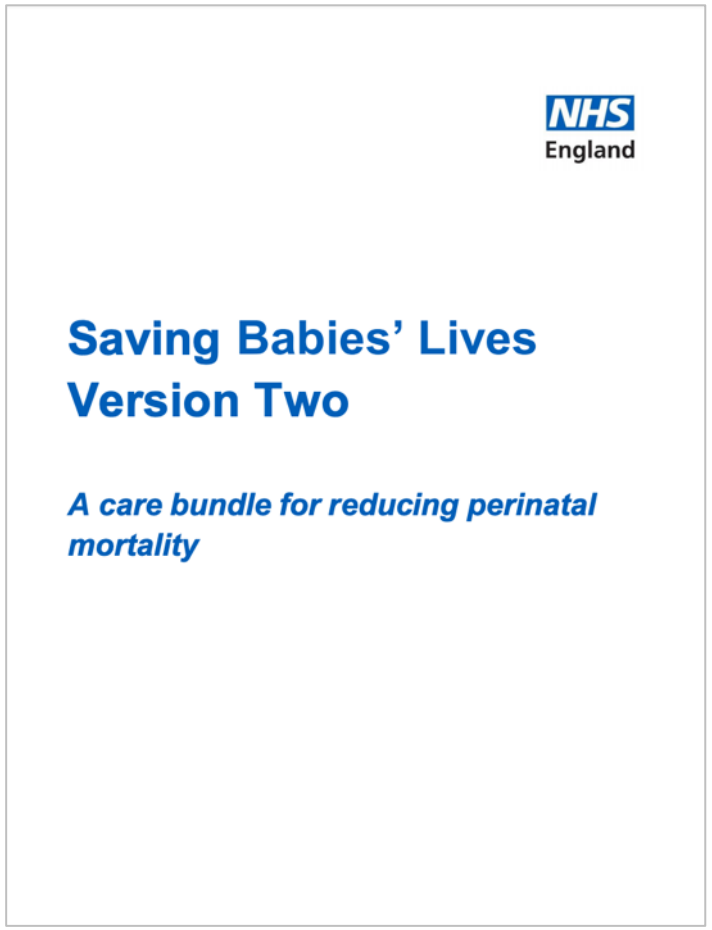
Safer Maternity Care



'…we will not achieve the national Maternity Safety Ambition [to halve the rates of stillbirths, neonatal … and brain injuries that occur during or soon after birth by 2025] unless the rate of preterm births is reduced…'

Safer Maternity Care (2017)

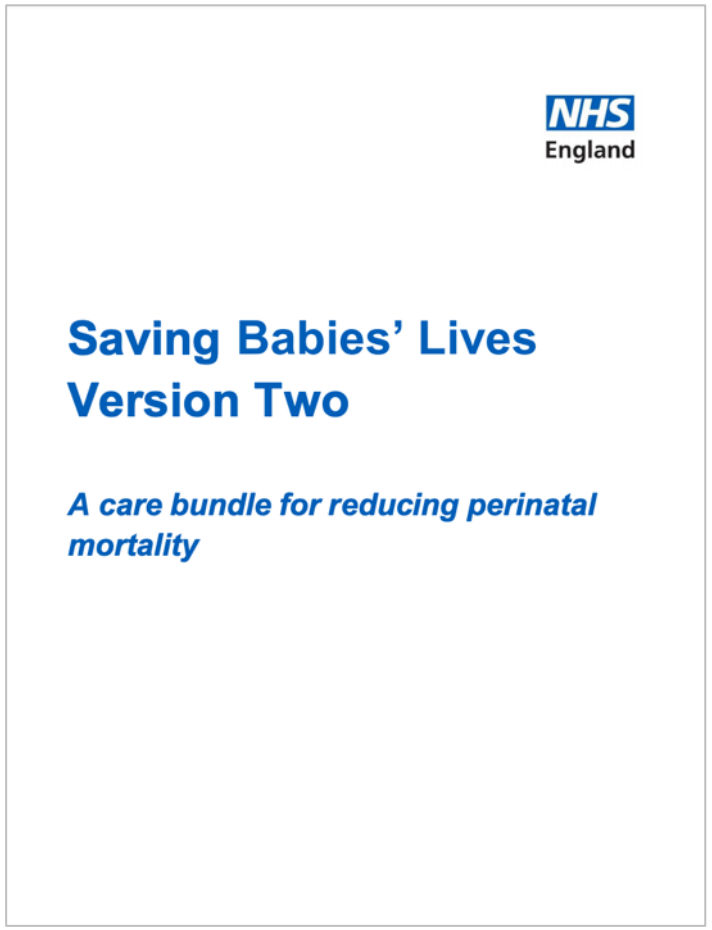
Saving Babies' Lives 2



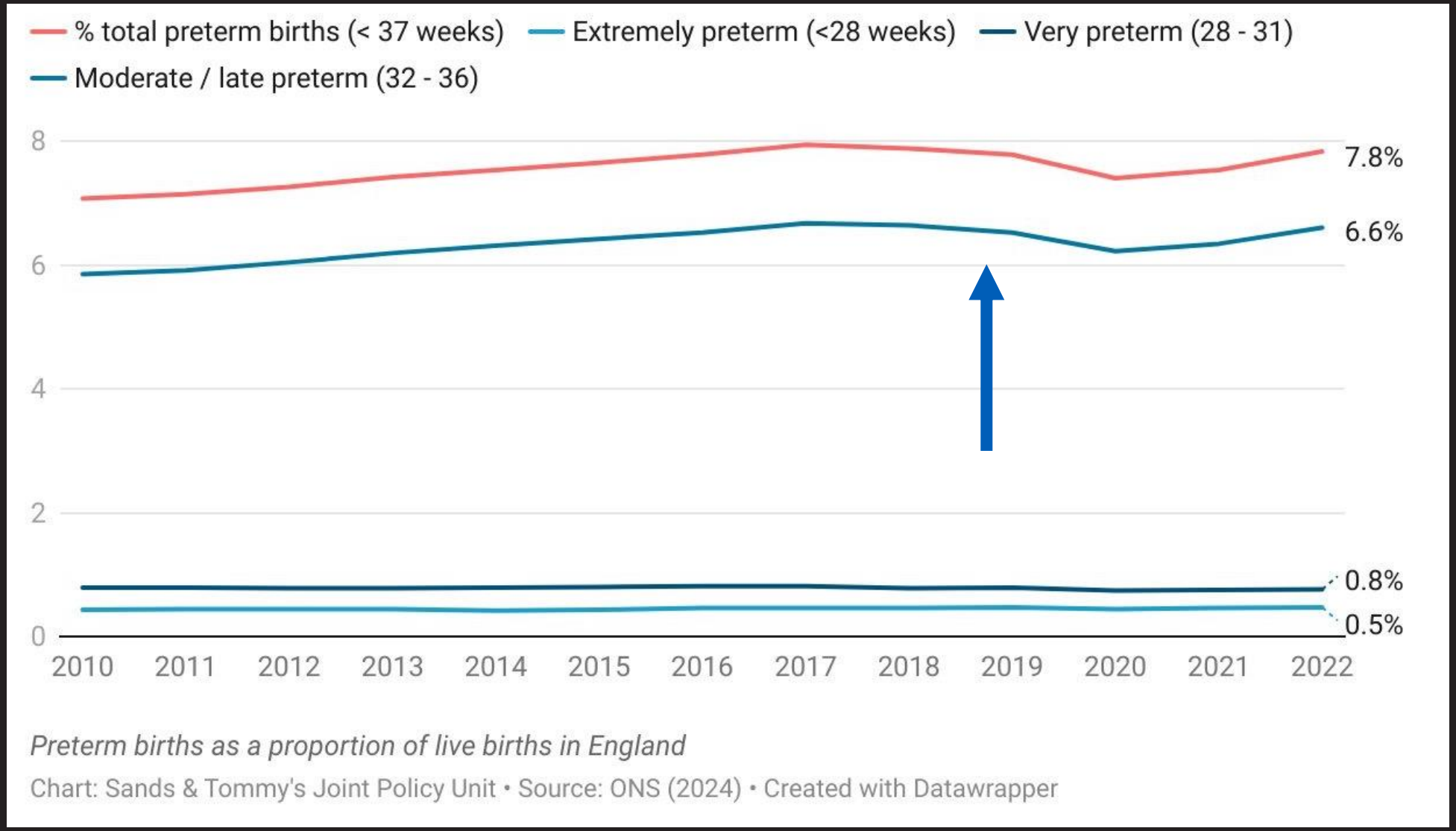
- smoking
- fetal movements
- growth restriction
- intrapartum monitoring
- **preterm birth**

Saving Babies Lives 2 (2019)

Saving Babies' Lives 2



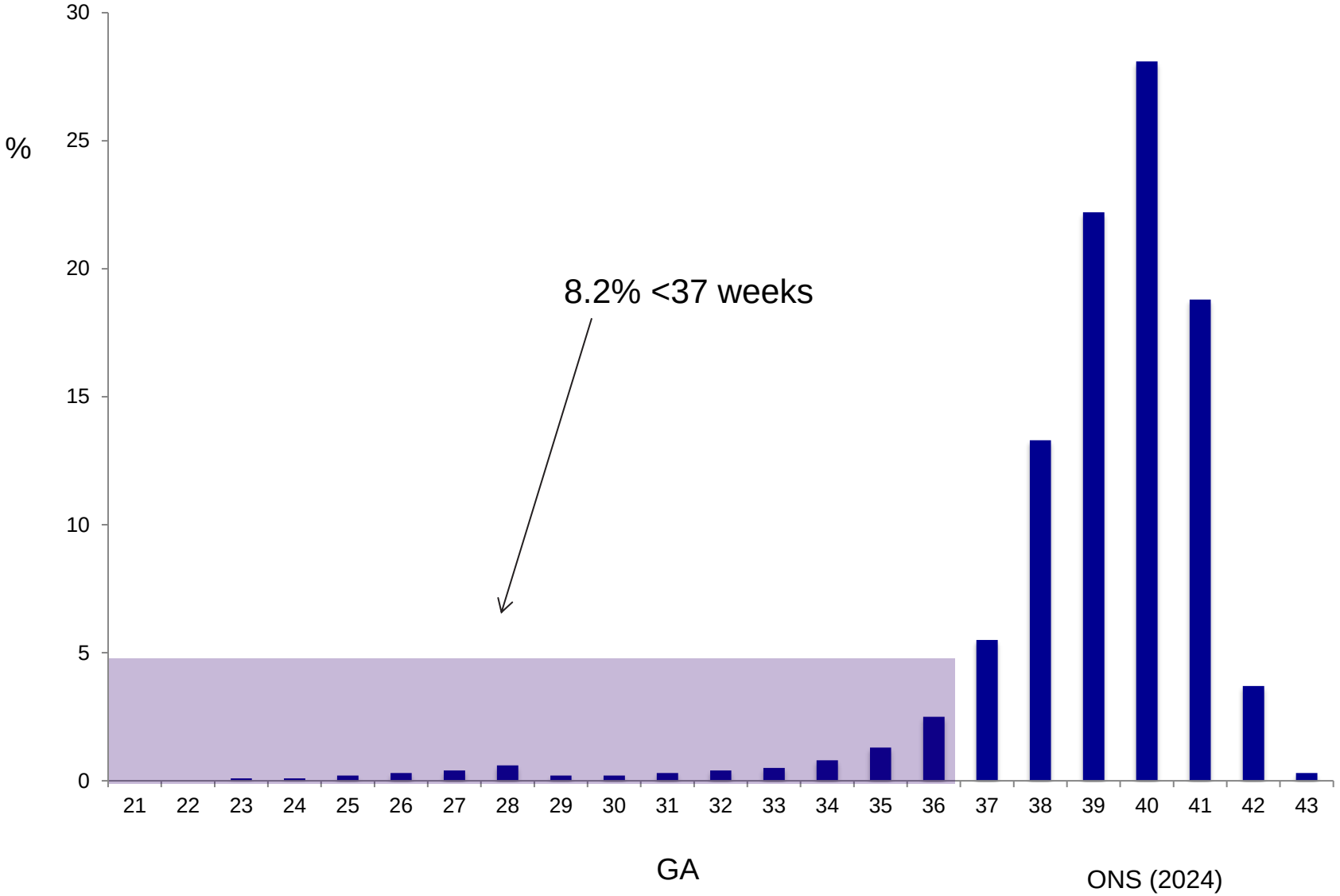
Saving Babies Lives 2 (2019)



Preterm births as a proportion of live births in England

Chart: Sands & Tommy's Joint Policy Unit • Source: ONS (2024) • Created with Datawrapper

Gestational age at delivery (UK)



ONS (2024)

Why?

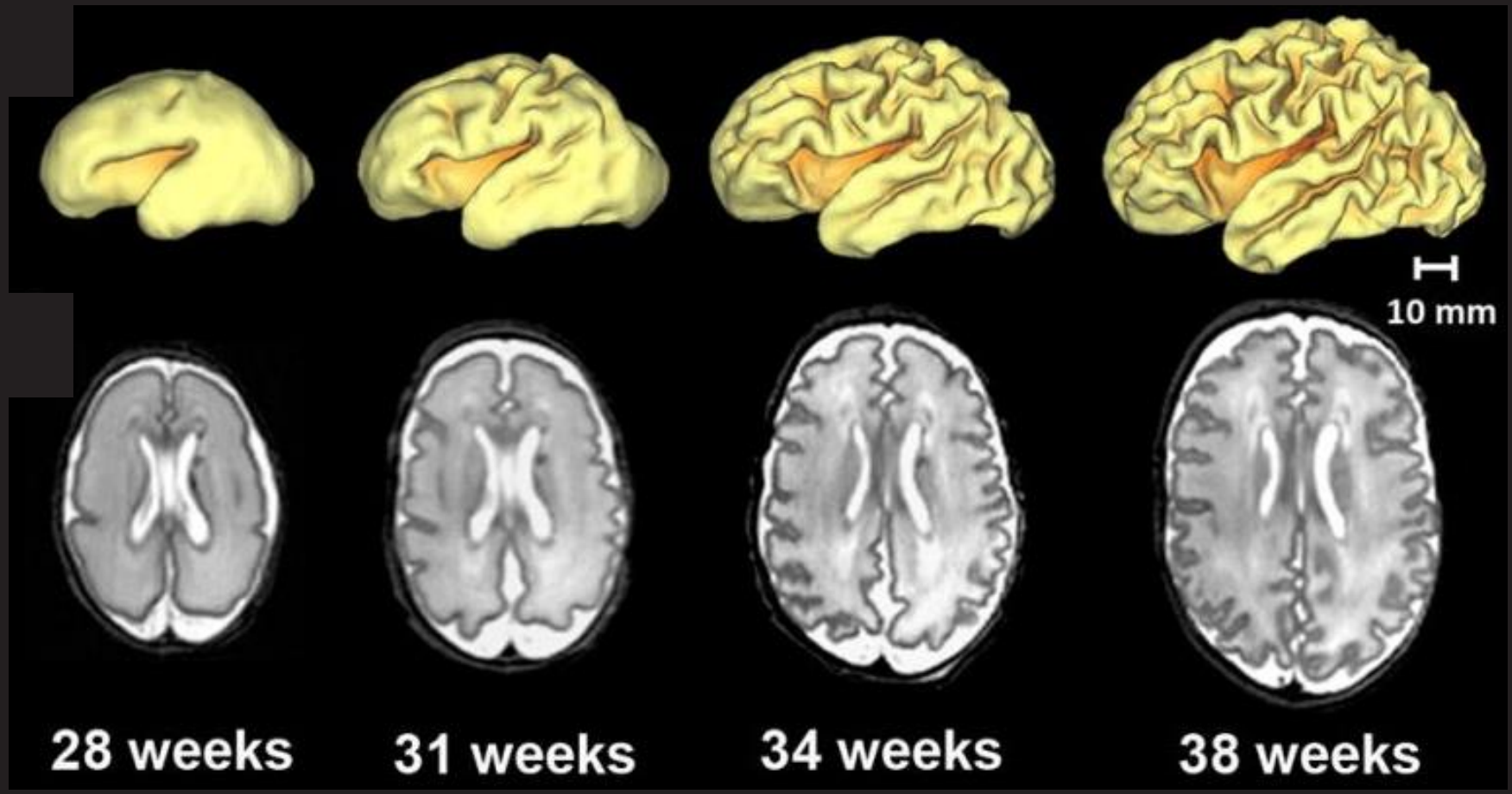
- preterm birth is still not thought to be a problem
  - public/political disinterest
  - medical/midwifery schools
  - RCM/RCOG curriculum
- no focus on skills to predict and/or prevent
- no visible metrics
- fragmented strategy

National
Improven

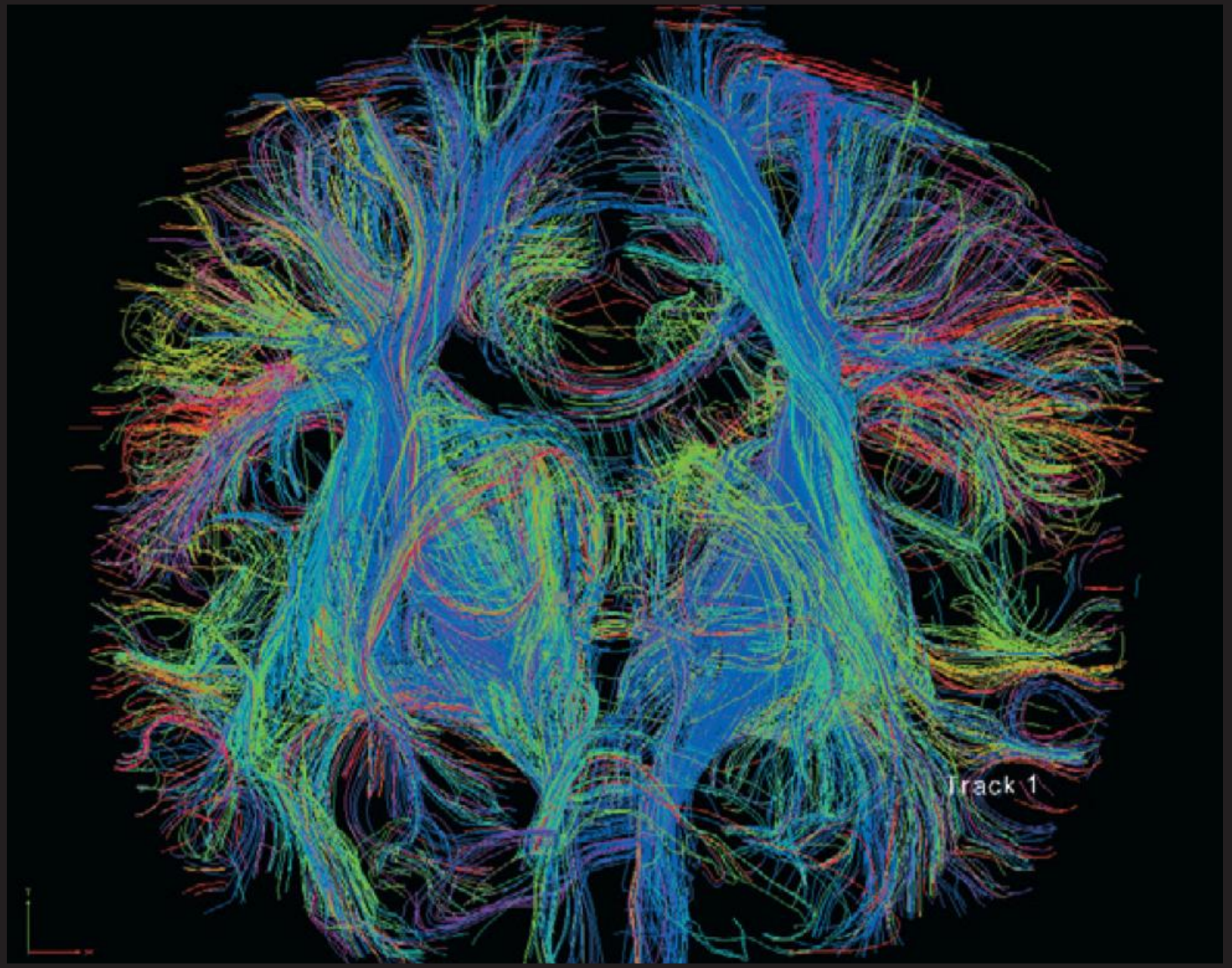
Mate
and M

NHS

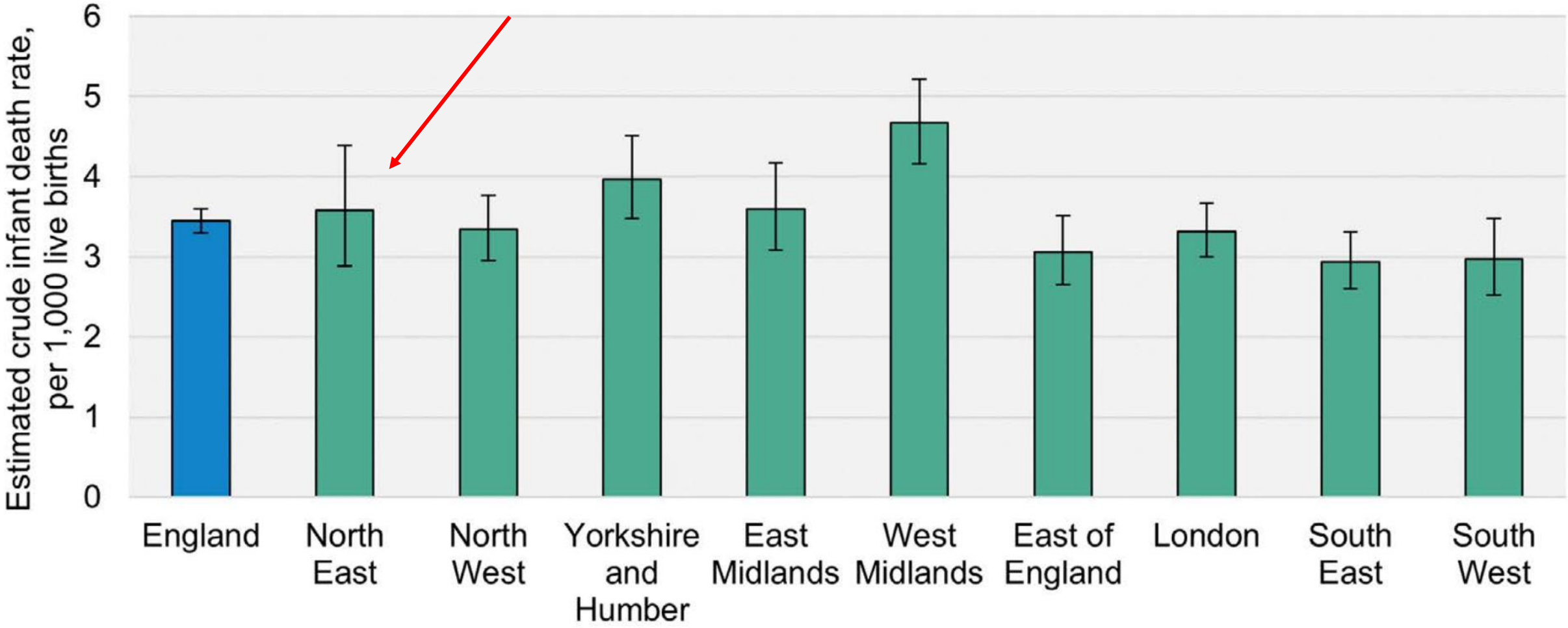
@HI_



Smyser CD et al *J Paediatr Child Health 48:794-800 (2012)*

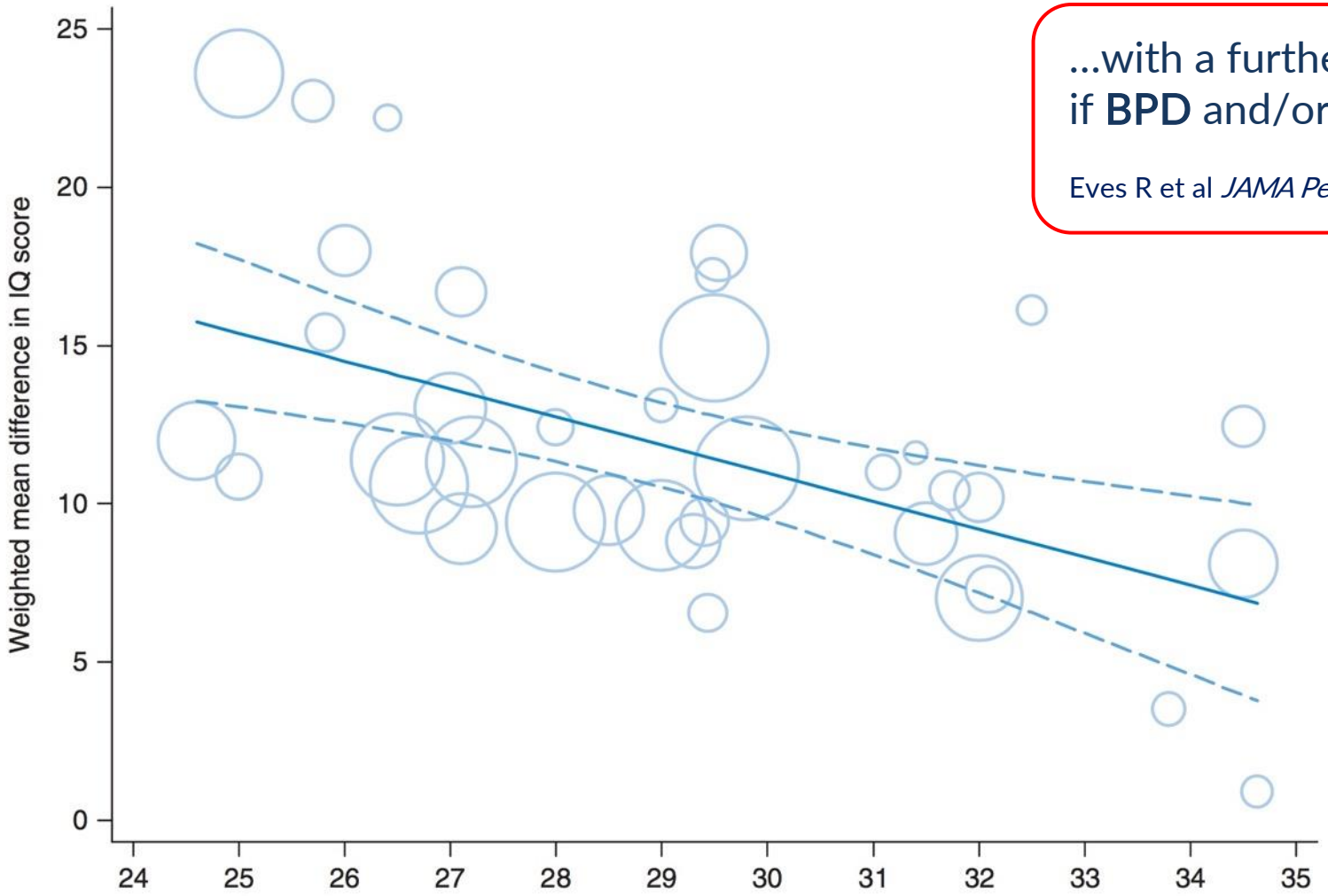

Track 1

National Child Mortality Database report 2021



53% of deaths under one month were born <28w
69% of deaths under one year were born <37w

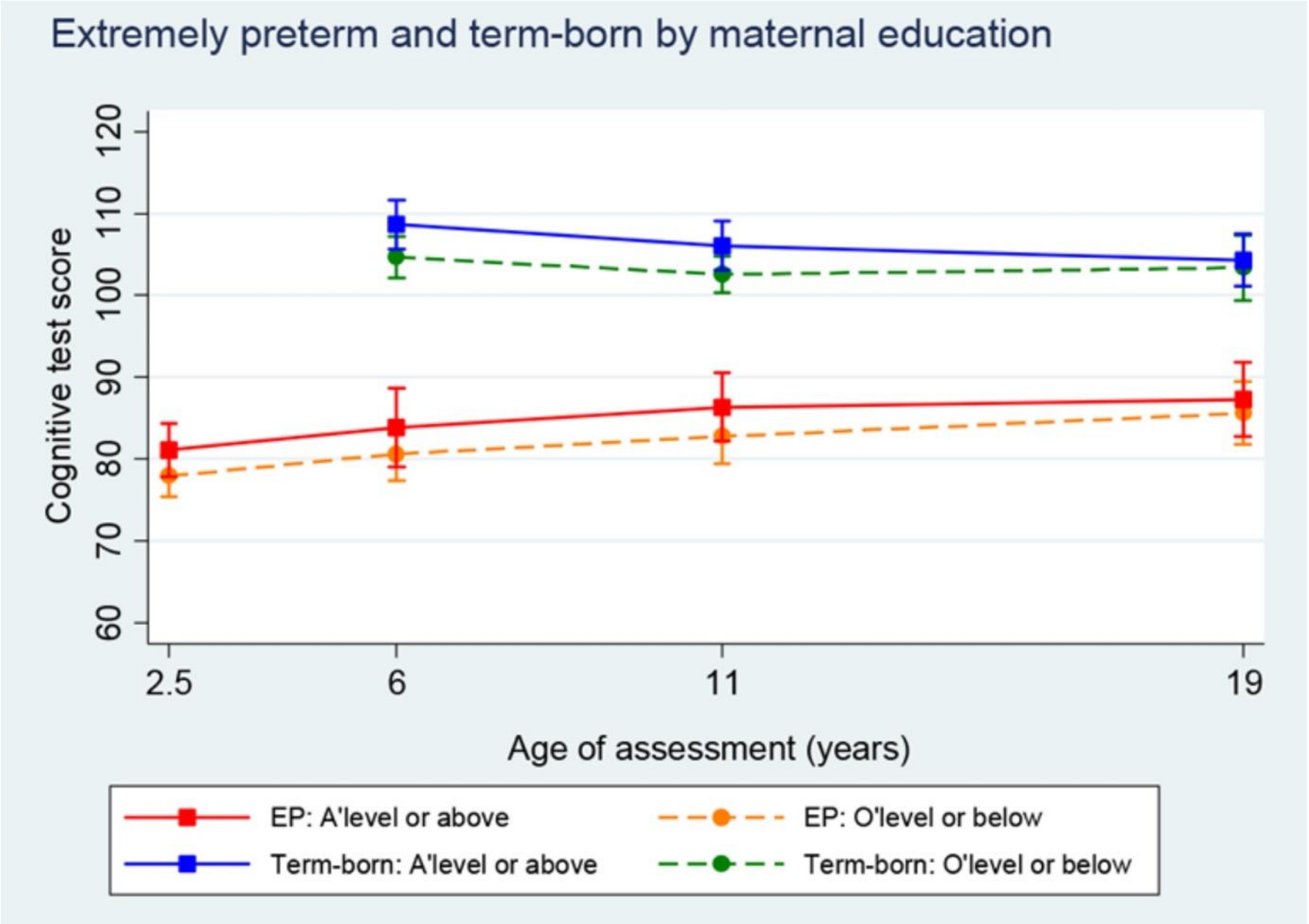
https://www.ncmd.info/2021/06/10/2nd-annual-report/



…with a further reduction in IQ if **BPD** and/or **IVH** present

Eves R et al *JAMA Ped* (2021)

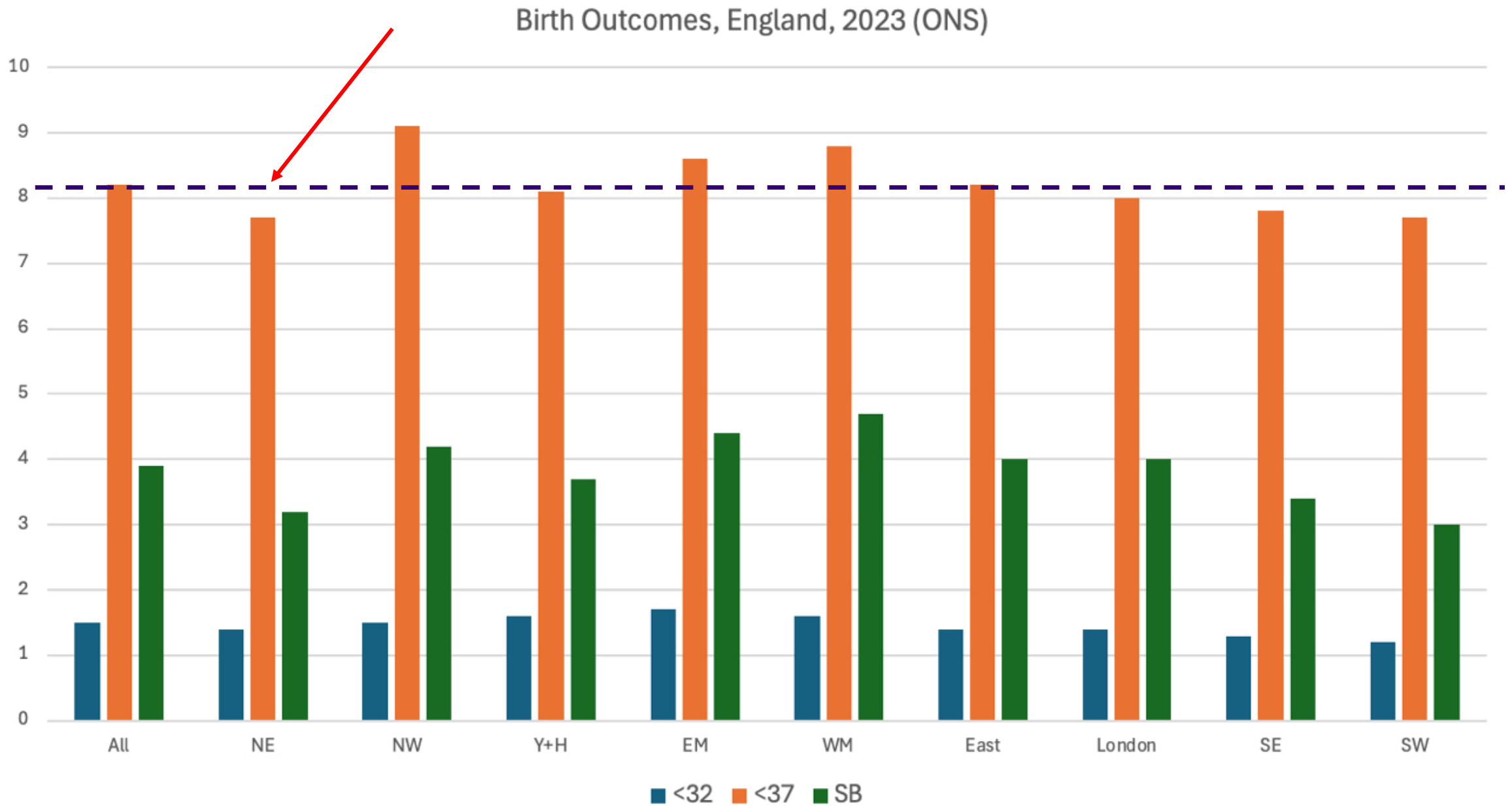
Kerr-Wilson CO et al *J Public Health* 34:209-16 (2011)



Linsell L et al *Arch Dis Child* 103:363-70 (2018)

How can we succeed…?

- vision
- leadership
- teamwork
- culture


Birth Outcomes, England, 2023 (ONS)
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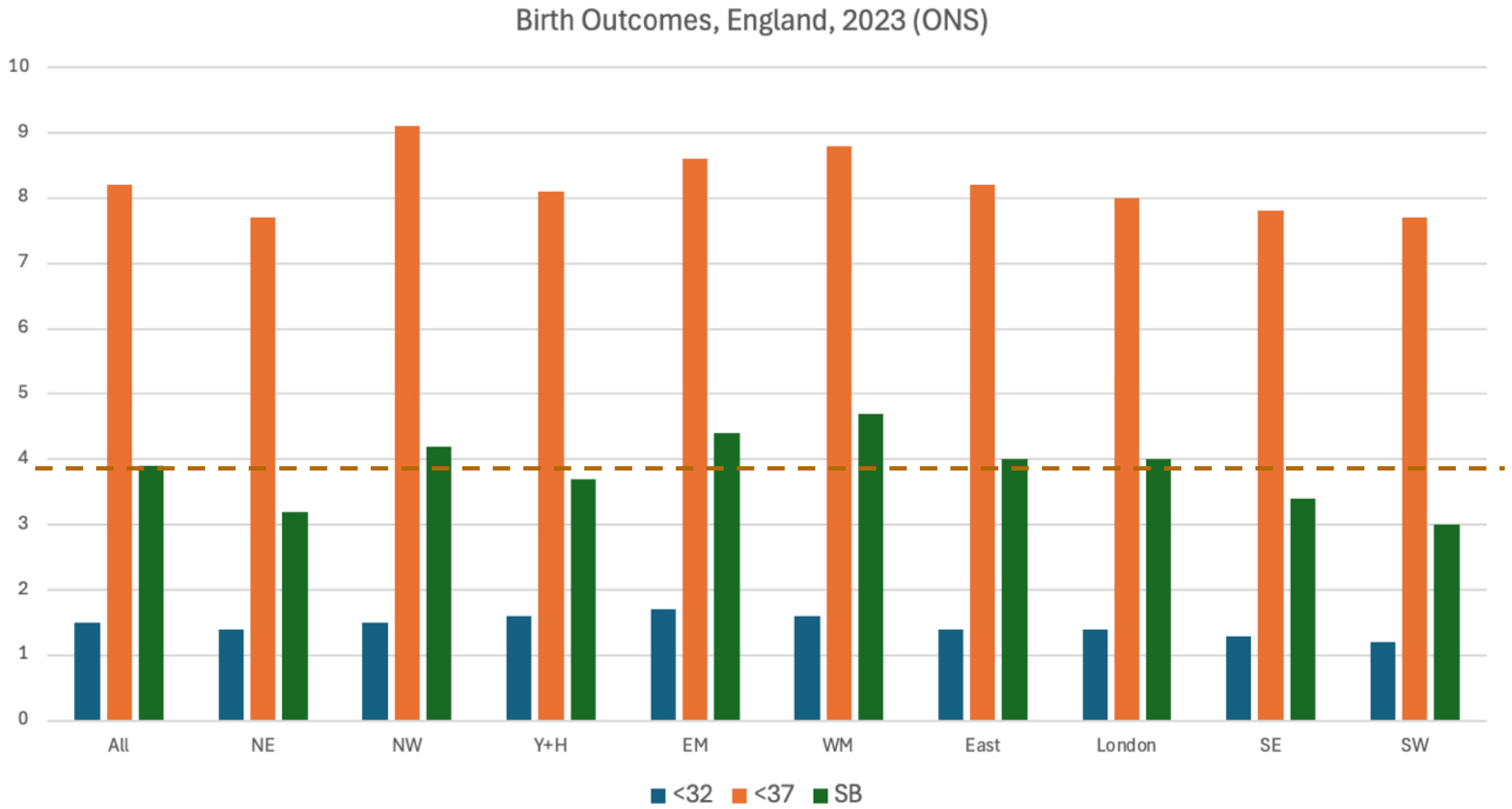
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East
London
SE
SW
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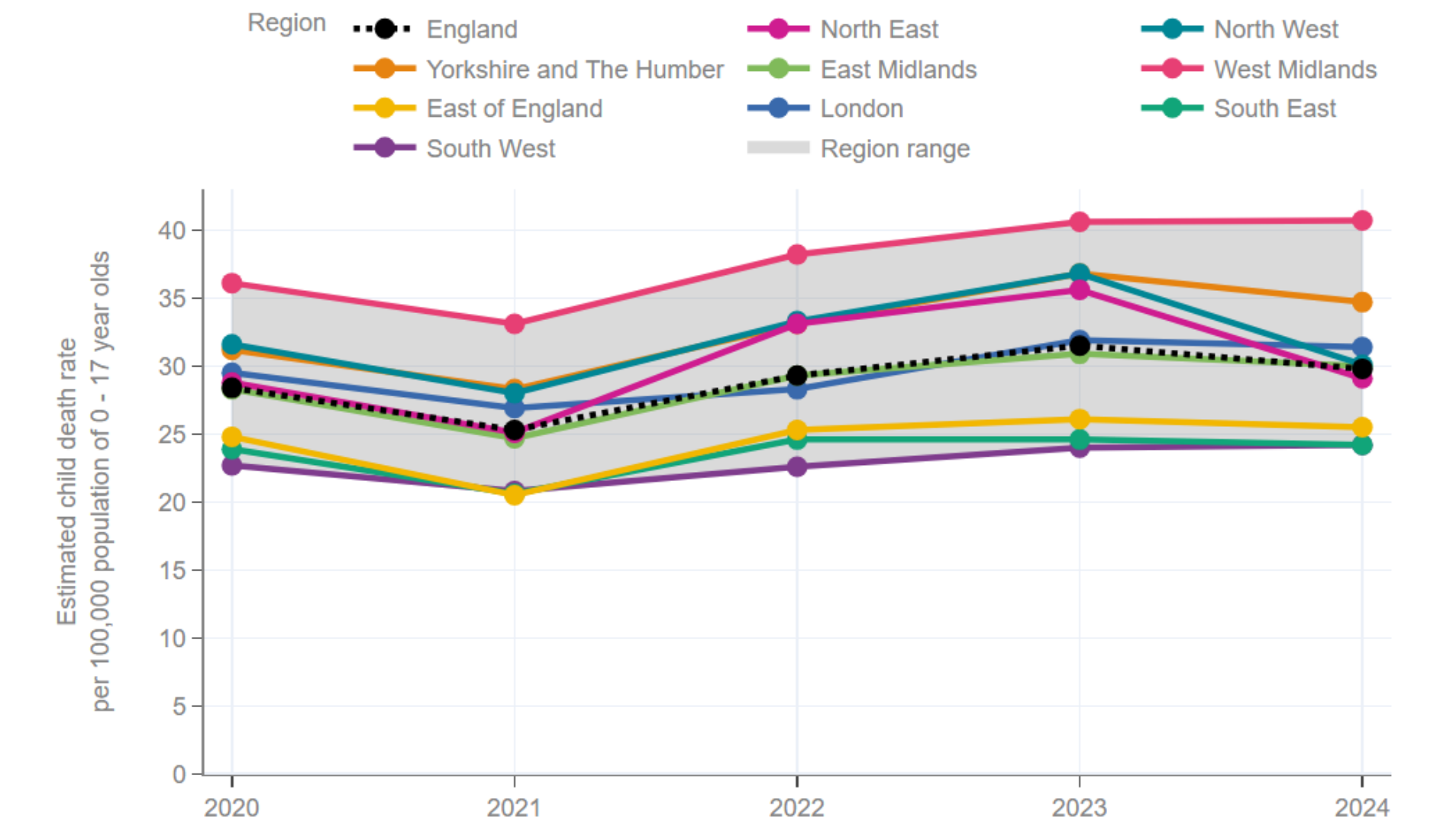
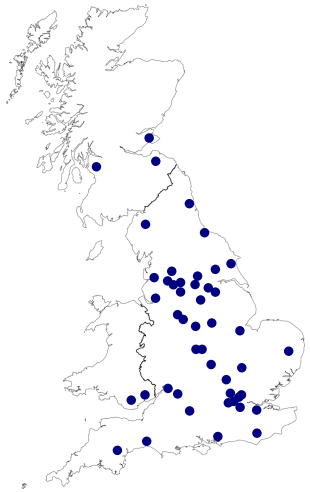
<37
SB

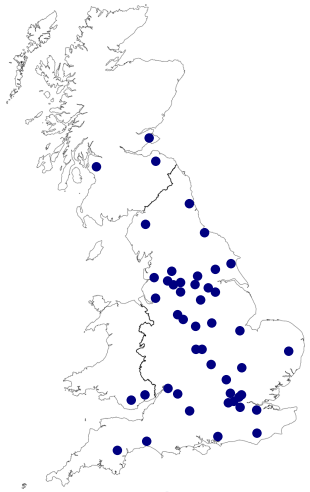
National Child Mortality Database 2024





Vision

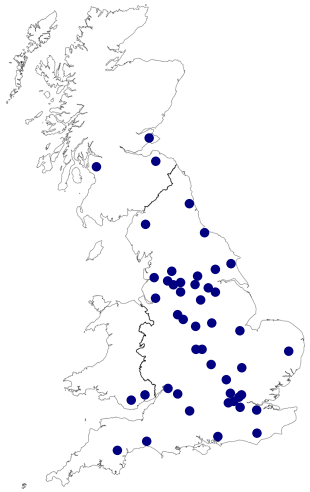
‘To provide equitable access to high-level care in preterm birth prevention in those defined at risk, and to ensure consistency across the UK’



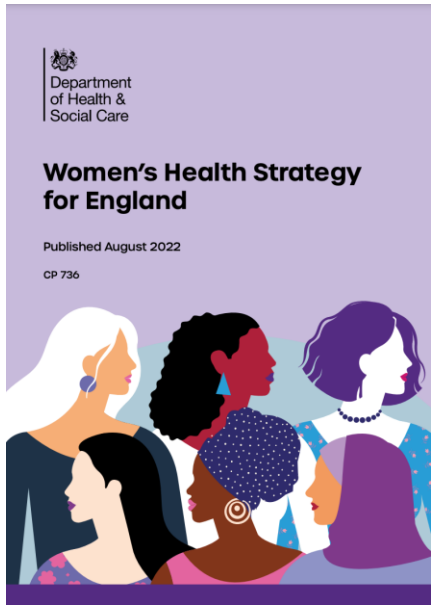
promoting research

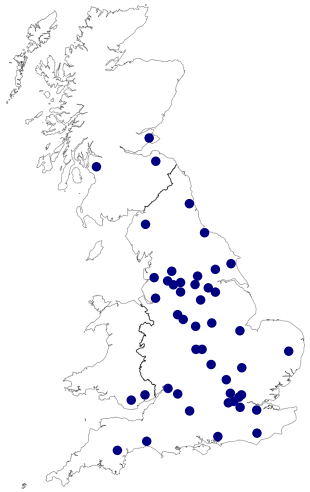
developing policy

enhancing care



promoting research





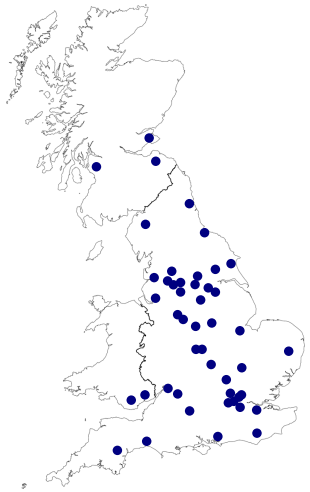
promoting research

stich

Monofilament suture versus braided suture thread to improve pregnancy outcomes after vaginal cervical cerclage (C-STICH): a pragmatic randomised, controlled, phase 3, superiority trial

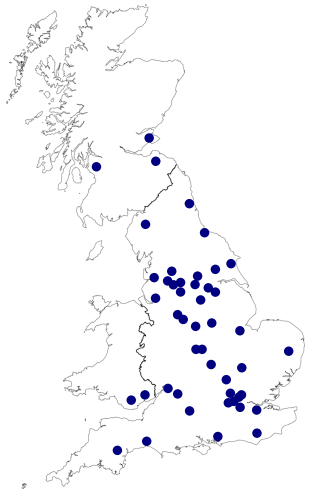
Victoria Hodgetts Morton, Philip Toozs-Hobson*, Catherine A Moakes, Lee Middleton, Jane Daniels, Nigel A B Simpson, Andrew Shennan, Fidan Israfil-Bayli, Andrew K Ewer, Jim Gray, Mark Slack, Jane E Norman, Christoph Lees, Konstantinos Tryposkiadis, Max Hughes, Peter Brocklehurst, R Katie Morris*

promoting research



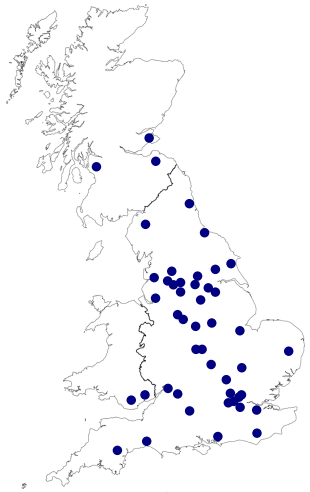
PRESTIGE-PTB

NIHR | National Institute for Health and Care Research



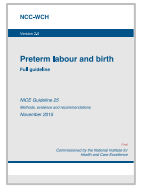
promoting research

developing/delivering future studies:
prediction (miRNAs)
prevention (Lactin V)



developing policy

NICE National Institute for Health and Care Excellence

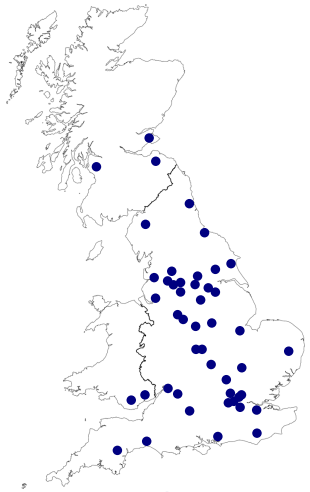


NG25

DG33

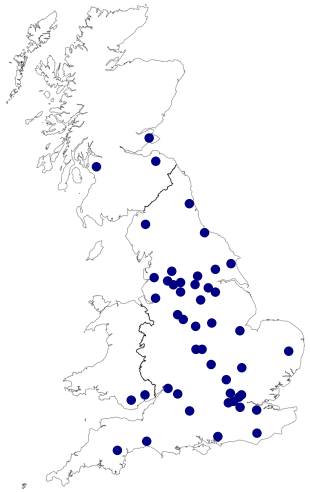
NHS England

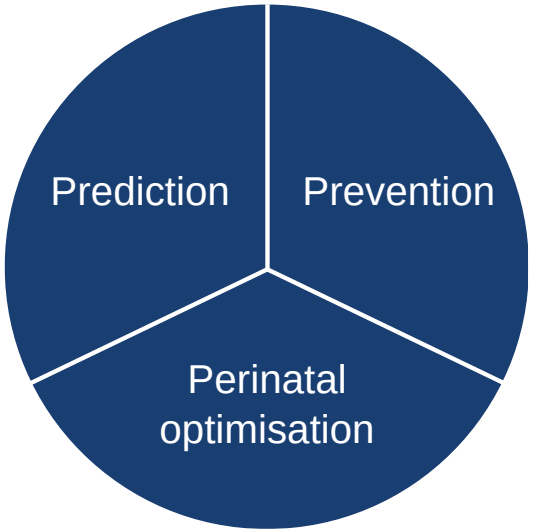
Saving Babies' Lives Care Bundle v3

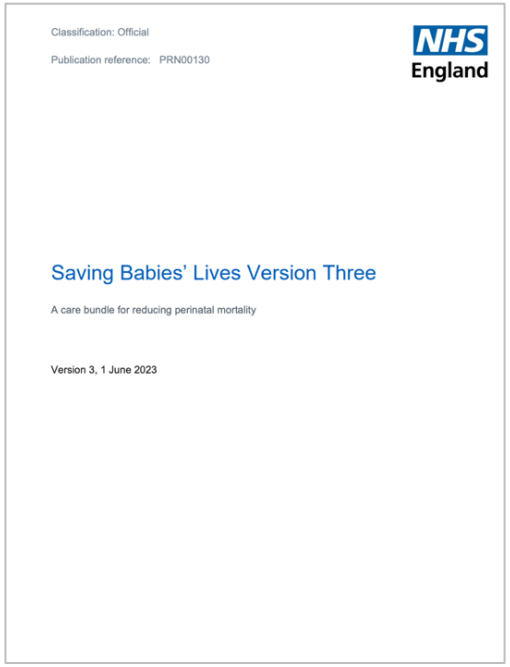


developing policy

networks/referral pathways
job descriptions






Classification: Official

Publication reference: PRN00130

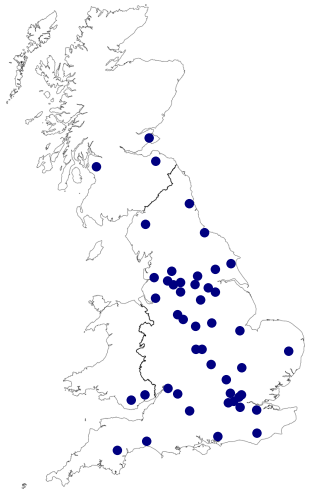
NHS England

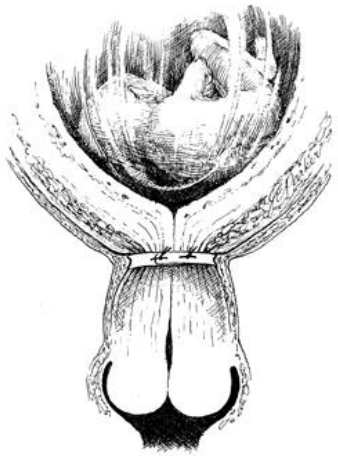
Saving Babies' Lives Version Three

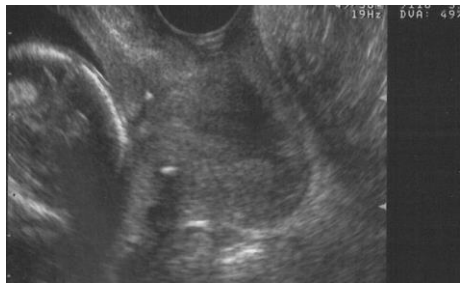
A care bundle for reducing perinatal mortality

Version 3, 1 June 2023

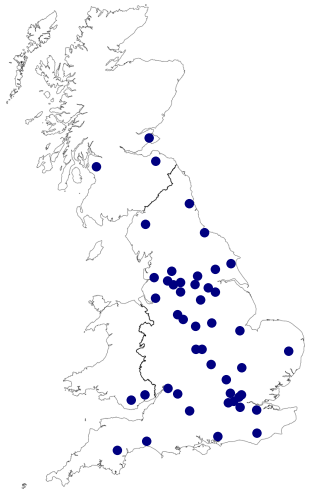
enhancing care

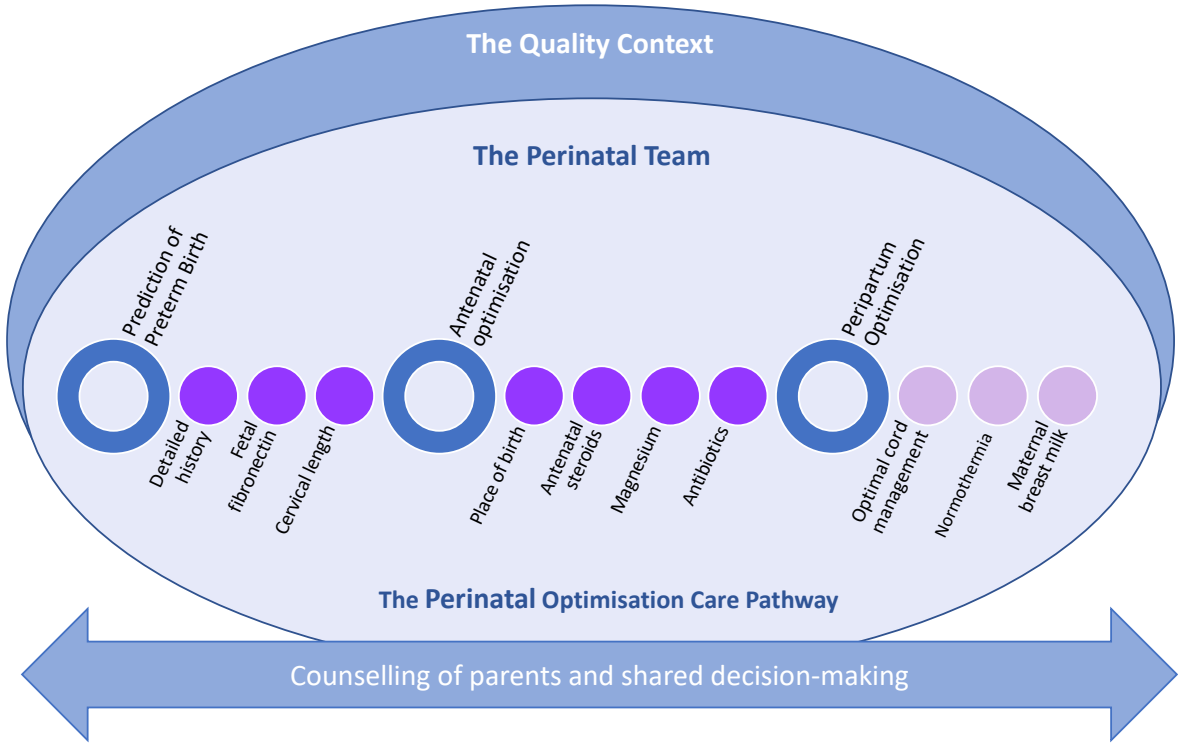




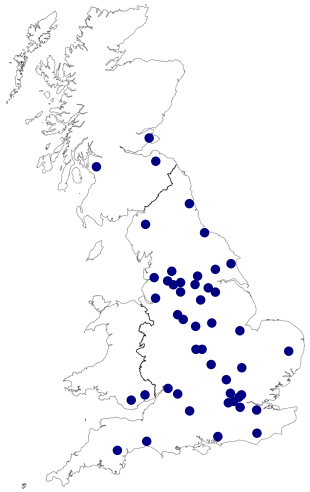


enhancing care



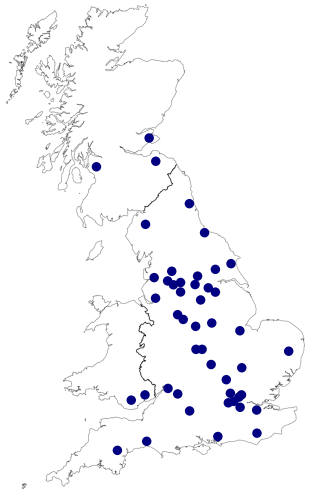


enhancing care



QUiPP

enhancing care



enhancing care

Right Place of Birth
(for babies born less than 37 weeks)

I am at the right hospital in case my baby needs to be born early

2022: 80%
2023: 85% ↑

Magnesium Sulphate
(for all babies born less than 30 weeks)

I have received Magnesium Sulphate to support my baby's brain development

2022: 91%
2023: 91% →

Early Breast Milk
(for all babies born less than 37 weeks)

I have received information about the benefits of early breast milk and have been shown hand expressing/breast pump techniques to help me try to make early breast milk for my baby before or within an hour of them being born

2022: 49%
2023: 81% ↑

Thermal Care
(for all babies born less than 37 weeks)

2022: 76%
2023: 81% ↑

Antenatal Steroids
(for all babies born less than 34 weeks)

2022: 42%
2023: 54% ↑

Antibiotics
(for all babies born less than 37 weeks where mum is in established labour)

I have received antibiotics to reduce the chance of my baby developing an infection called Group B Strep

2022: 74%
2023: 77% ↑

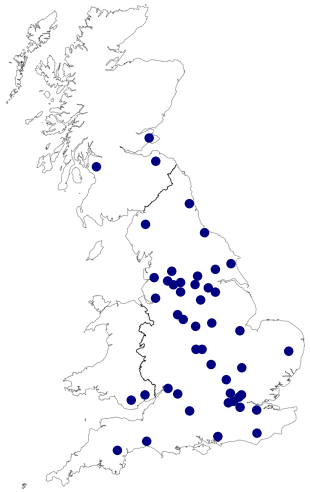
Optimal Cord Management
(for all babies born less than 37 weeks)

After my baby is born, whenever possible, the professional team will support them to receive an extra transfusion from the placenta to help protect them, for at least a minute before the umbilical cord is clamped

2022: 74%
2023: 71% ↓

Counselling
(for all babies born less than 34 weeks)

Last 6 months of 2023
63%



enhancing care

Sands
Saving babies' lives. Supporting bereaved families.

Bliss
for babies born premature or sick

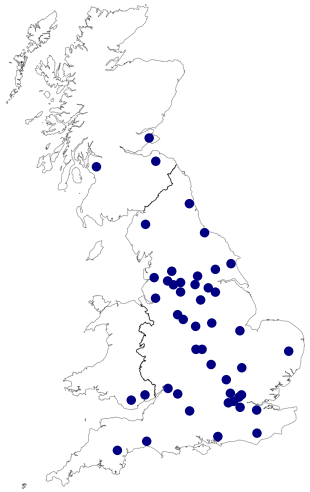
Tommy's

Tamba

CEREBRA

Little heartbeats

Borne



Tommy's

How healthcare practitioners can image the cervix during pregnancy and see a caesarean section scar

BABY LIFELINE TRAINING
Promoting Safer Maternity Care

enhancing care

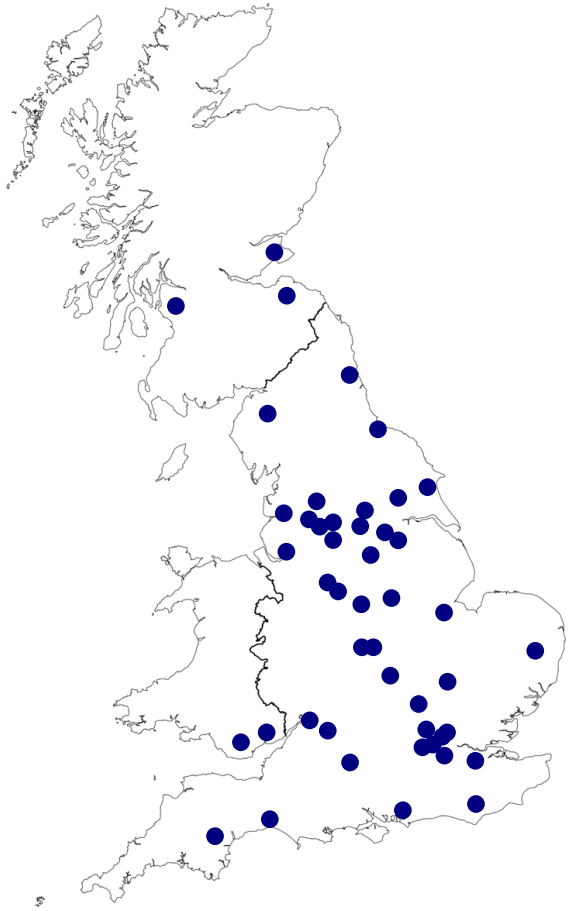
teaching
training
clinical guidance
audits

How can we succeed…?

- networks: regional/national
- data: relevant, local, contemporary
- teams: medical, midwifery
- increasing skills: scanning, operative
- inspiring the next generation
- working with women

Achieving the vision

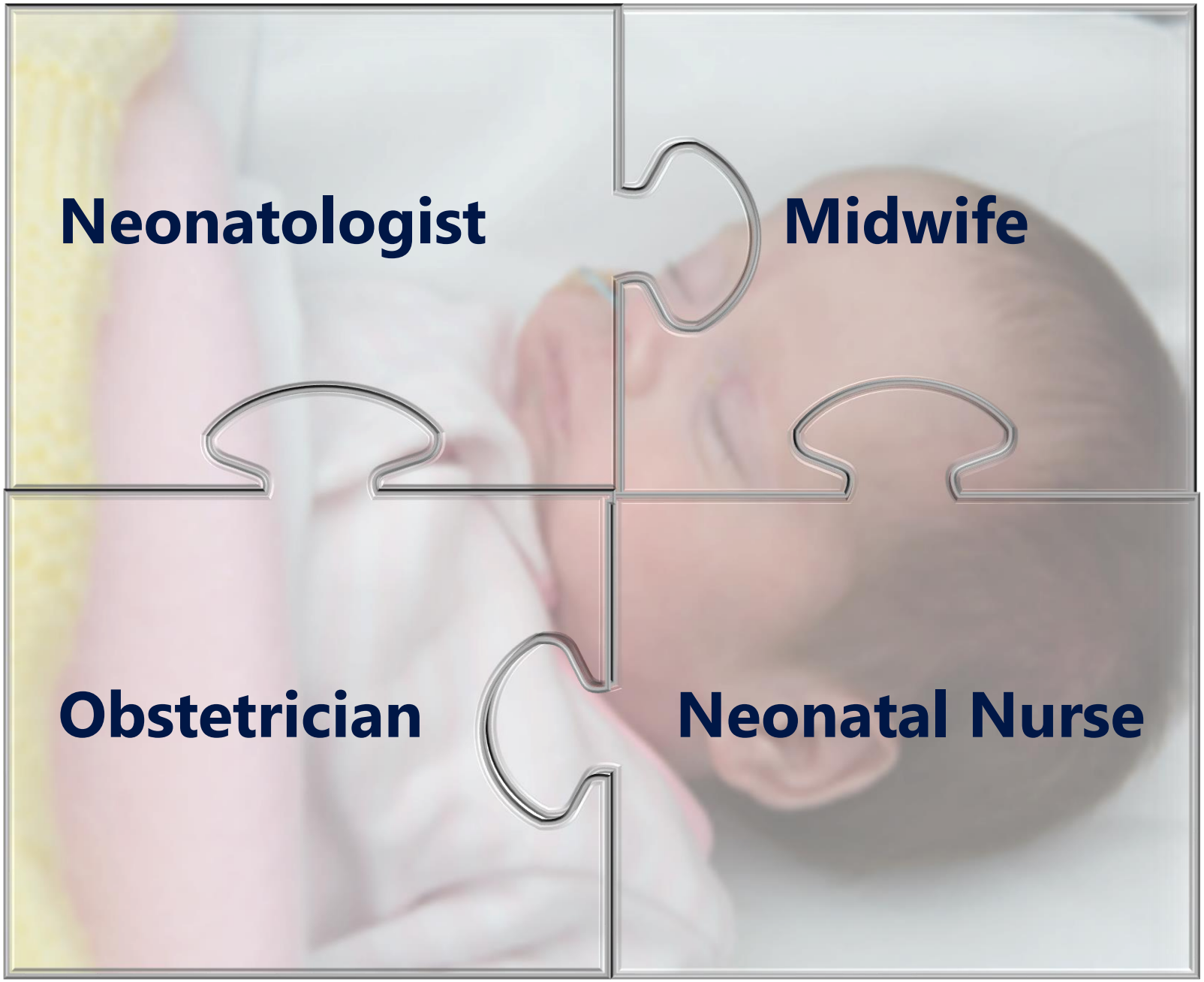
- supporting research
- developing policy
- delivering care

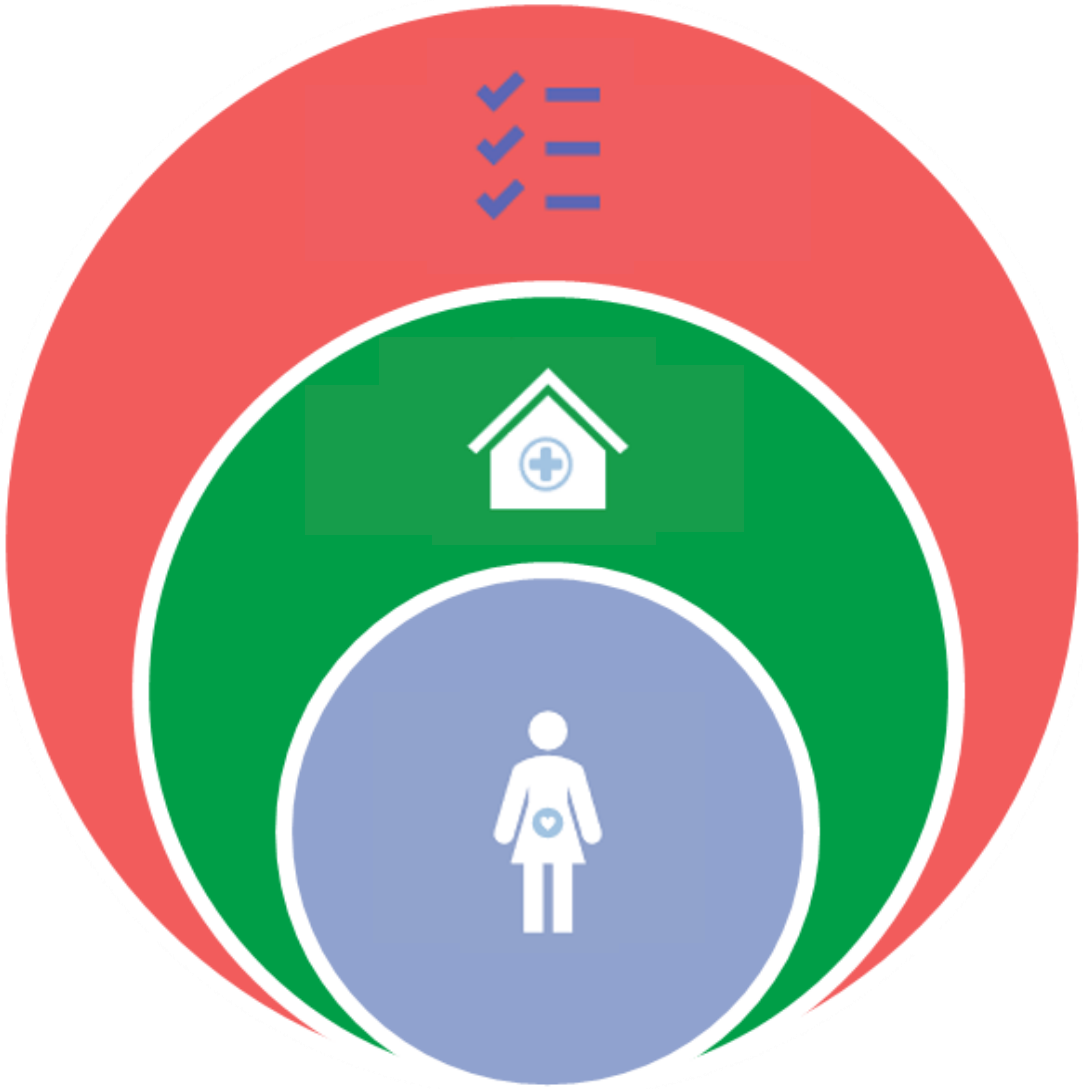


Role of the Preterm Midwife

Gemma Miller and Lizzie Kilburn
Preterm Specialist Midwives

NENC Preterm Birth Conference
November 2024


Neonatologist
Midwife
Obstetrician
Neonatal Nurse



Knowledge

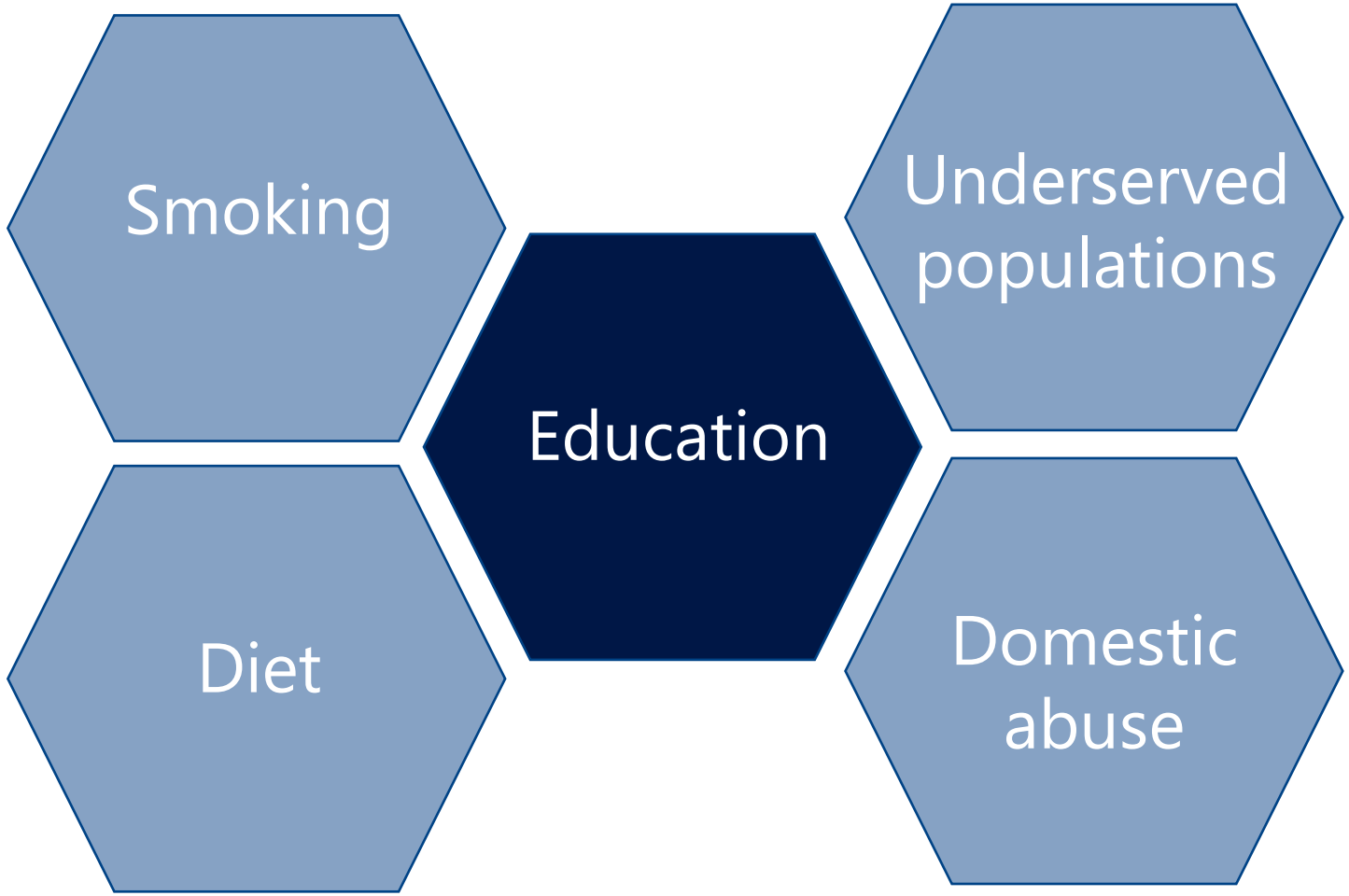
Teamwork

Focus

IMPART

Carlisle N et al *Implement Sci Commun* 5:57 (2024)

Knowledge


Smoking
Education
Underserved populations
Diet
Domestic abuse

Knowledge

Diet

- multicentre double-blind randomised trial
- six centres, Australia

- Low risk population
- Omega 3 supplement vs placebo

Makrides M et al N Engl J Med 2019; 381:1035-1045

Knowledge

- SCOPE study: prospective low-risk primiparous population, n= 2504
- Effective, as long as by 15wks

	non-smokers	stopped <15w	continued > 15w	*P* value
PTB	4 %	4 %	10 %	.006
Birthweight	3409 g	3479 g	3139 g	<.001
SGA	10 %	10 %	17 %	.03

Offering cash incentives for smokers to quit could save the NHS billions

Research shows half of smokers quit after receiving rewards including cash, vouchers, and deposits

By **Saffron Otter** Search and Trends writer
16:42, 17 JUL 2019

NEWS

RECOMMENDED

Curry Mile shisha bar fined for ignoring smoking rules

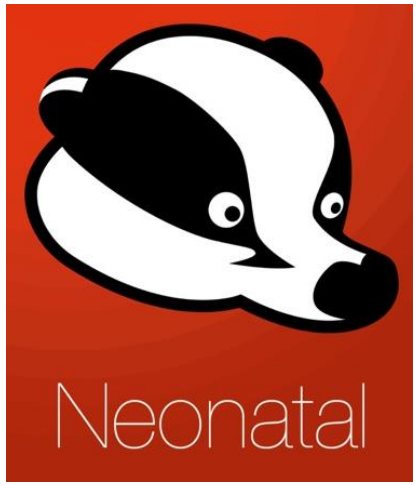
Doctors warn of vaping risk as teenager almost dies from 'catastrophic' reaction

Smoking cessation: incentives compared to no incentives in pregnant women

Outcomes	Anticipated absolute effects* (95% CI)		Relative effect (95% CI)	№ of participants (studies)	Certainty of the evidence (GRADE)
	Risk with control	Risk with incentives: pregnancy			
Smoking cessation in pregnancy at longest follow-up Follow-up: 10 to 24 weeks postpartum	72 per 1000	170 per 1000 (110 to 264)	RR 2.38 (1.54 to 3.69)	2273 (9 RCTs)	⊕⊕⊕⊕ MODERATE[a]

Teamwork

- working with other specialist teams
- importance of antenatal counselling for those preparing to have a preterm birth
- perinatal team reviews of preterm births
- accurate documentation



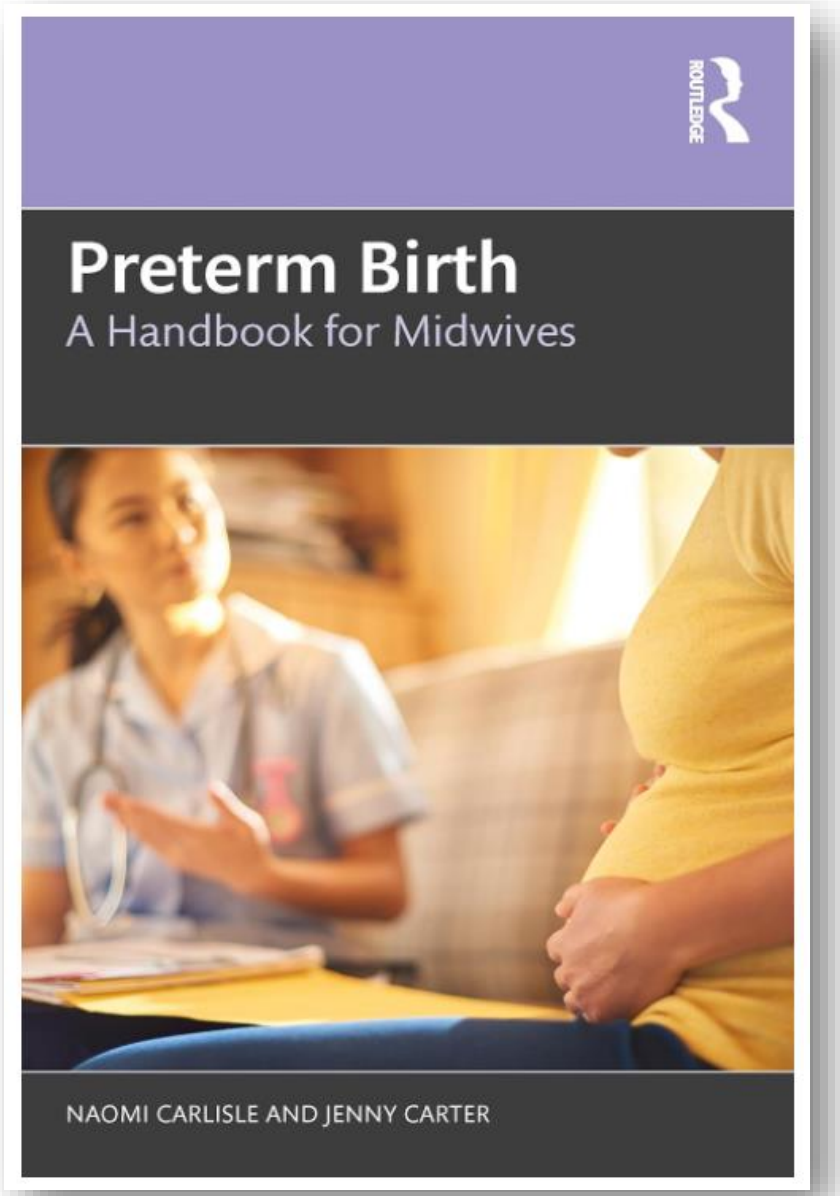
Focus

Support

Empowerment

Personalised

Access



Coming soon!

(December 2024)

UK Preterm Midwife Network

UK Preterm Midwife Network

Preterm birth specialist midwives

Private • Active 4 days ago

A network for midwives to support improvements in care for women at high risk of havi

Network Administrators:

Email: leedsth-tr.pretermpreventionmidwives@nhs.net

Send an email to be added to the meetings


I'm new here

PRETERM BIRTH RESEACH

- Pioneer
- Prestige
- ABOVE Study
- Introducing the Preterm Clinical Network Cohort Research Programme (PCN-CRP)

PIONEER

PRAVASTATIN TO PREVENT
PRETERM BIRTH

JOINTLY FUNDED BY

Medical Research Council

NIHR | National Institute for Health and Care Research

University of BRISTOL

BRISTOL TRIALS CENTRE

Imperial College London

Funded by NIHR/MRC Efficacy and Mechanism Evaluation Programme

Five-year programme with three-year recruitment period

Set up commenced August 2023

Chief Investigator: Dr Katherine Birchenall
Co-lead: Prof Jane Norman
Trial manager: Dr Taemi Kawahara
Co-applicants: Professor David MacIntyre; Professor Phillip Bennett; Dr Lynne Sykes; Dr Jenny Carter; Tamsyn Mason; Professor Katie Morris; Professor Sarah Stock; Dr Nigel Simpson; Professor Dilly anumba; Professor Charles Roehr; Dr Christy Burden; Dr Lucy Culliford; Ms Michelle Lazaroo; Dr Jessica Harris; Dr Julia Wade; Dr Sarah Baos

PIONEER

PRAVASTATIN TO PREVENT PRETERM BIRTH

JOINTLY FUNDED BY
UKRI Medical Research Council
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Aims

1. To evaluate the efficacy of Pravastatin vs placebo, administered from the second trimester until 37+0 weeks' gestation, in reducing PTB in pregnant women identified as being at intermediate or high risk of PTB

2. To investigate mechanisms via which Pravastatin may have this effect

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PICO

Participants: Pregnant women at high or intermediate risk of preterm birth

Intervention: 20mg Pravastatin, taken once daily from between 16+0 and 20+0 gestation until 37+0 gestation, or birth if earlier

Comparator: Placebo, taken once daily for the same duration

Primary outcome: Gestational Age in days at birth

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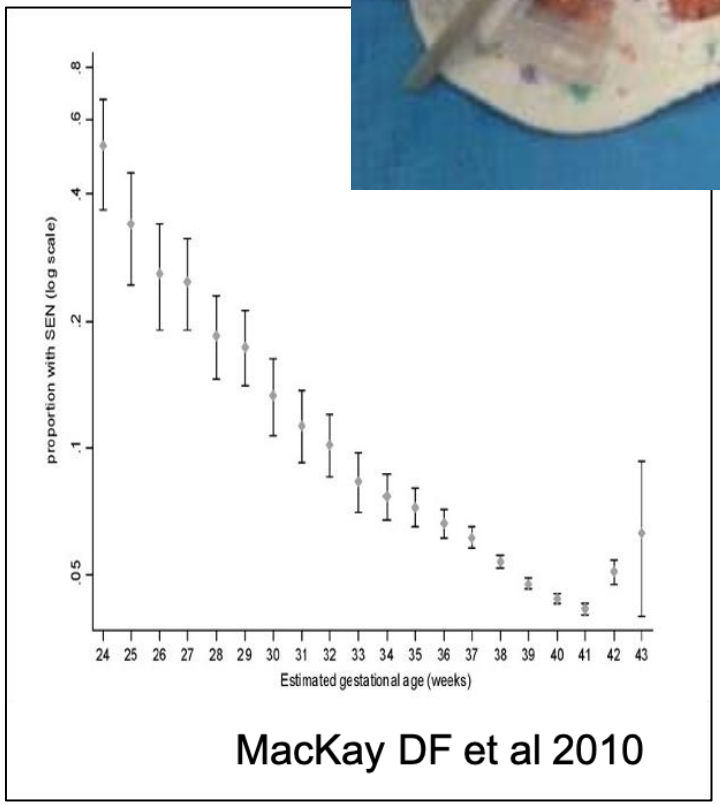
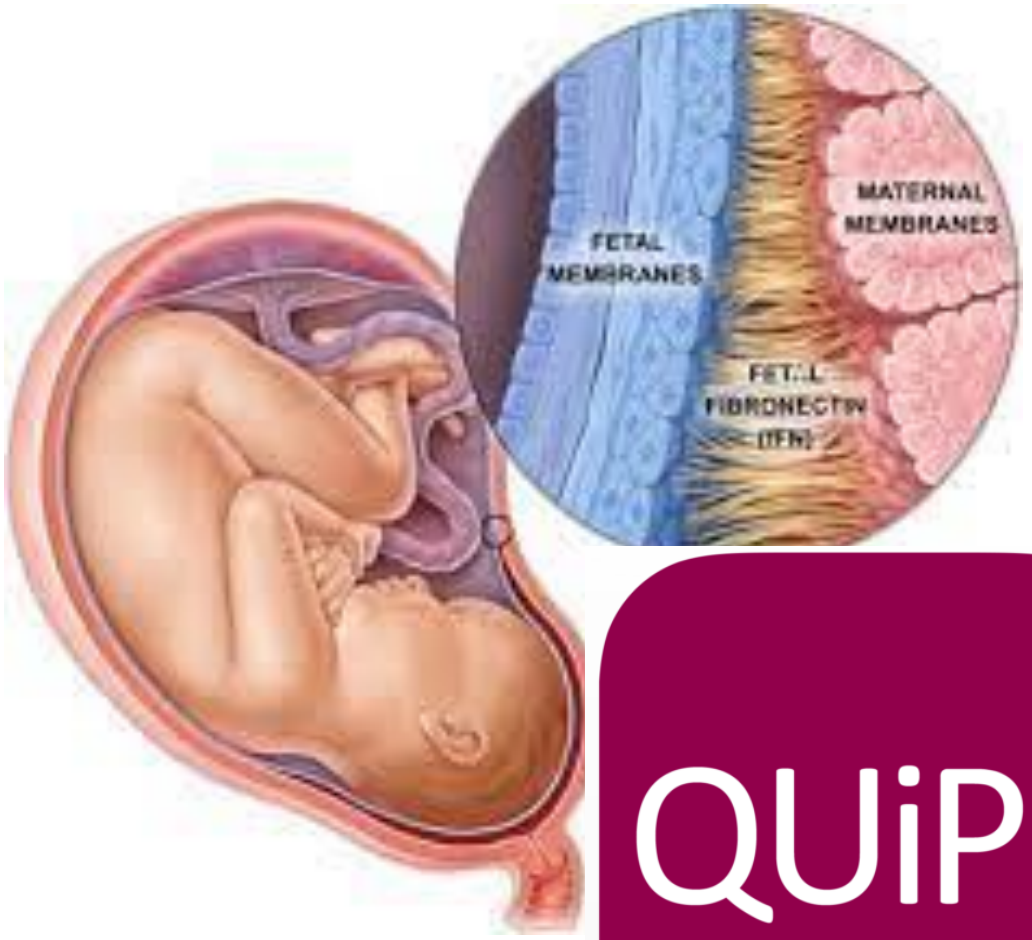
Preterm birth

- ~ 8% of live births in UK born preterm (<37/40)
- ~ 75% spontaneous preterm labour
- 16%-29% of deaths in under 5s
- In year to March 2020, 69% of the 2102 infants who died before their first birthday in England were born preterm



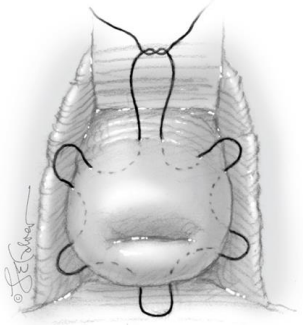
MacKay DF et al 2010

PIONEER



QUiPP

Cerclage



Pessary

Progesterone

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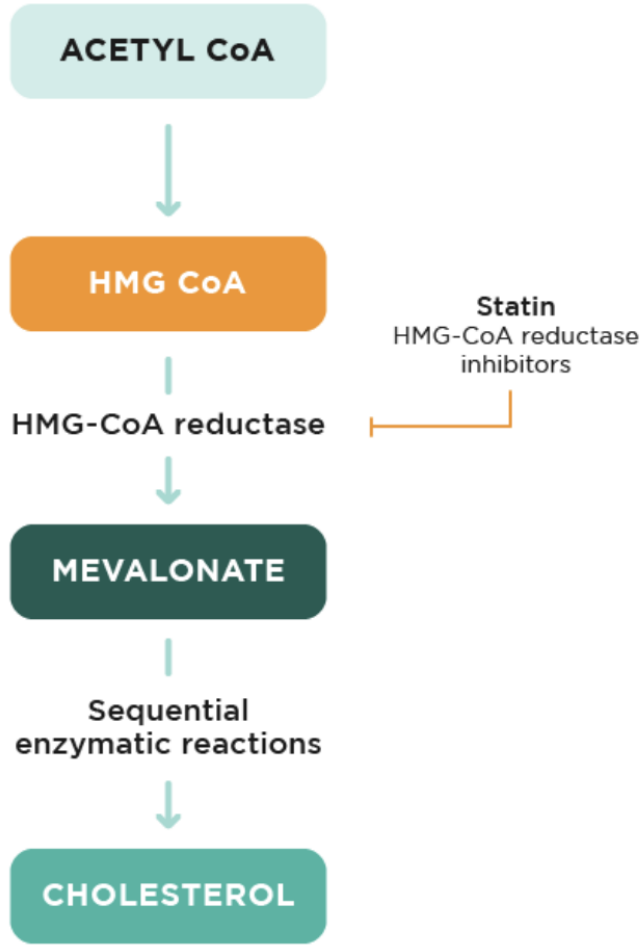
Statins

- Lower risk for cardiovascular disease via inhibition of 3-hydroxy-3-methylglutaryl-coenzyme A reductase:
  - reduce serum low-density-lipoprotein (LDL)-cholesterol
  - increase protective high-density-lipoprotein (HDL)-cholesterol

- Previously avoided in pregnancy because animal studies and retrospective case reports suggested possible fetal toxicity
  - Since been refuted
  - USA FDA removed Category X label in 2021
  - Cohort studies and meta-analyses: no teratogenic effect



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Pravastatin

- Cheap
- Hydrophillic
- No fetal malformations associated with use
- Safety profile enhanced as used in recent RCTs for prevention and treatment of pre-eclampsia and Antiphospholipid syndrome with no safety concerns

PIONEER

Pravastatin vs placebo for prevention/treatment of Pre-eclampsia

- Preterm birth secondary outcome
- Pravastatin reduced prematurity
- No safety concerns

Am J Obstet Gynecol. 2016 June ; 214(6): 720.e1–720.e17. doi:10.1016/j.ajog.2015.12.038.

Safety and Pharmacokinetics of Pravastatin Used for the Prevention of Preeclampsia in High-Risk Pregnant Women: A Pilot Randomized Controlled Trial

Maged M. Costantine, MD, Kirsten Cleary, MD, Mary F. Hebert, PharmD, FCCP, Mahmoud S. Ahmed, PhD, Linda M. Brown, DrPH, Zhaoxia Ren, MD, PhD, Thomas R. Easterling, MD, David M. Haas, MD, MS, Laura S. Haneline, MD, Steve N. Caritis, MD, Raman Venkataramanan, PhD, Holly West, DHEd, Mary D'Alton, MD, Gary Hankins, MD, and for the *Eunice Kennedy Shriver* National Institute of Child Health and Human Development Obstetric-Fetal Pharmacology Research Units Network (OPRU)

- PTB rate 10% Pravastatin vs 50% control (NS)

Original Article

INOVASIA Study: A Randomized Open Controlled Trial to Evaluate Pravastatin to Prevent Preeclampsia and Its Effects on sFlt1/PlGF Levels

Muhammad Ilham Aldika Akbar, MD. PhD[1,2] Angelia Yosediputra, MD[3] Raditya E. Pratama, MD[4] Nur L. Fadhilah, MD[5] Sulistyowati Sulistyowati, MD[6] Fariska Z. Amani, MD[7] Ernawati Ernawati, MD, PhD[1,3] Erry G. Dachlan, MD, PhD[1,3] Muhammad D. Angsar, MD[1,2,3] Gus Dekker, MD, PhD[1,8]

- PTB rate 16% Pravastatin vs 36% control (p=0.048)

BJOG An International Journal of Obstetrics and Gynaecology

DOI: 10.1111/1471-0528.16013
www.bjog.org

Maternal medicine

Pravastatin for early-onset pre-eclampsia: a randomised, blinded, placebo-controlled trial

A Ahmed,[a,b,*] DJ Williams,[c,*] V Cheed,[d] LJ Middleton,[d] S Ahmad,[a] K Wang,[a] AT Vince,[d] P Hewett,[e] K Spencer,[f] KS Khan,[g] JP Daniels,[h] for the StAmP trial Collaborative Group[†]

- Pravastatin vs Placebo hazard ratio 0.84 (NS)

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NIHR | National Institute for Health and Care Research

Antiphospholipid Syndrome

The Journal of Clinical Investigation CLINICAL MEDICINE

Pravastatin improves pregnancy outcomes in obstetric antiphospholipid syndrome refractory to antithrombotic therapy

Eleftheria Lefkou,[1] Apostolos Mamopoulos,[1] Themistoklis Dagklis,[1] Christos Vosnakis,[1] David Rousso,[1] and Guillermina Girardi[2]

[1]Third University Department of Obstetrics and Gynaecology, Hippokration General Hospital of Thessaloniki, Aristotle University of Thessaloniki, Thessaloniki, Greece. [2]Division of Women's Health, King's College London, London, United Kingdom.

- All in non-Pravastatin group birthed preterm
- All in Pravastatin group birthed close to term
- Median birth GA difference = 13 weeks

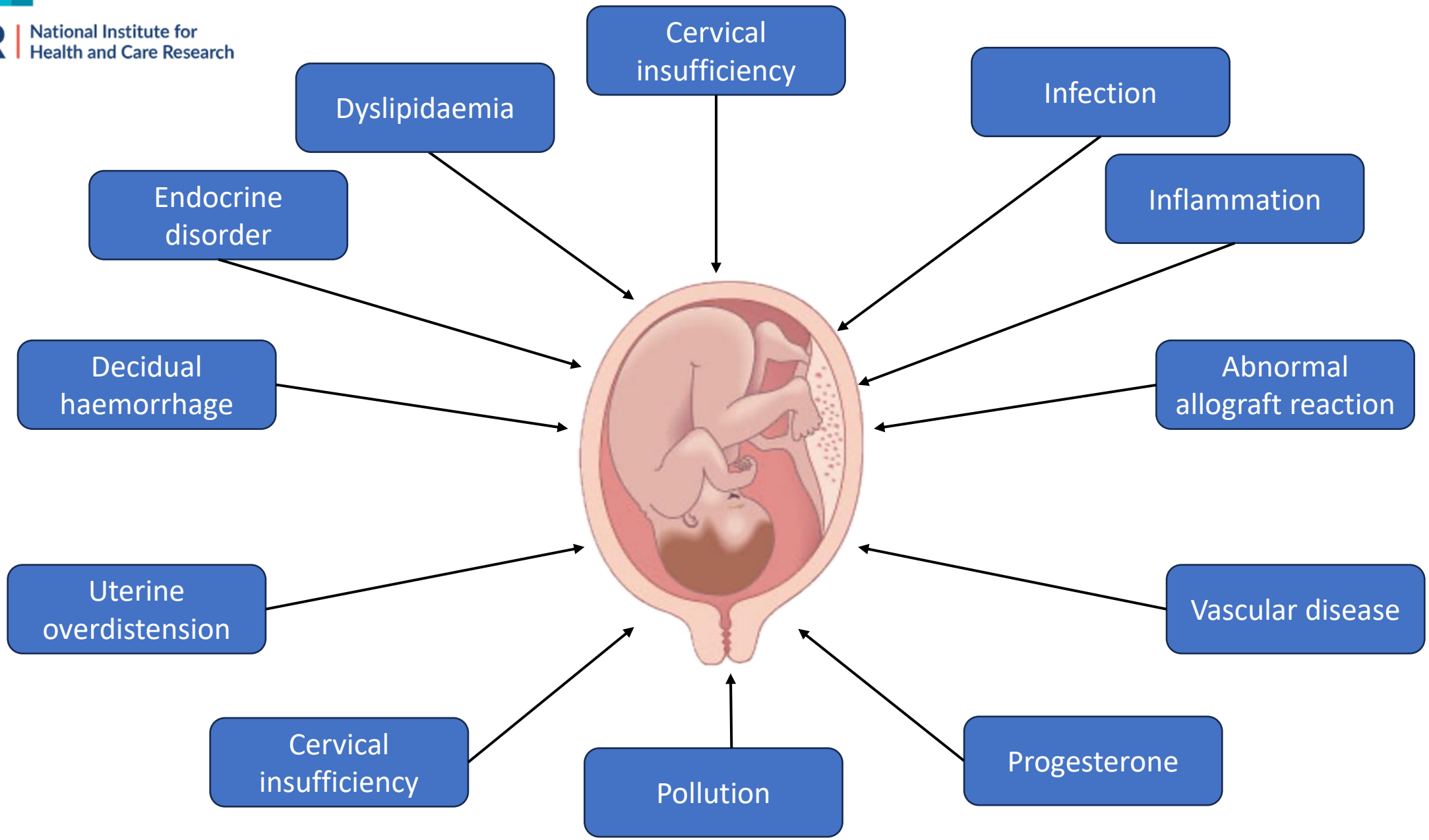
PIONEER

PIPIN Study

- Dr Eleanor Whitaker & Professor Jane Norman
- Feasibility study
- Women in preterm labour consented to Pravastatin 40mg/day

JOINTLY FUNDED BY
Medical Research Council
NIHR | National Institute for Health and Care Research

Aetiology of preterm birth



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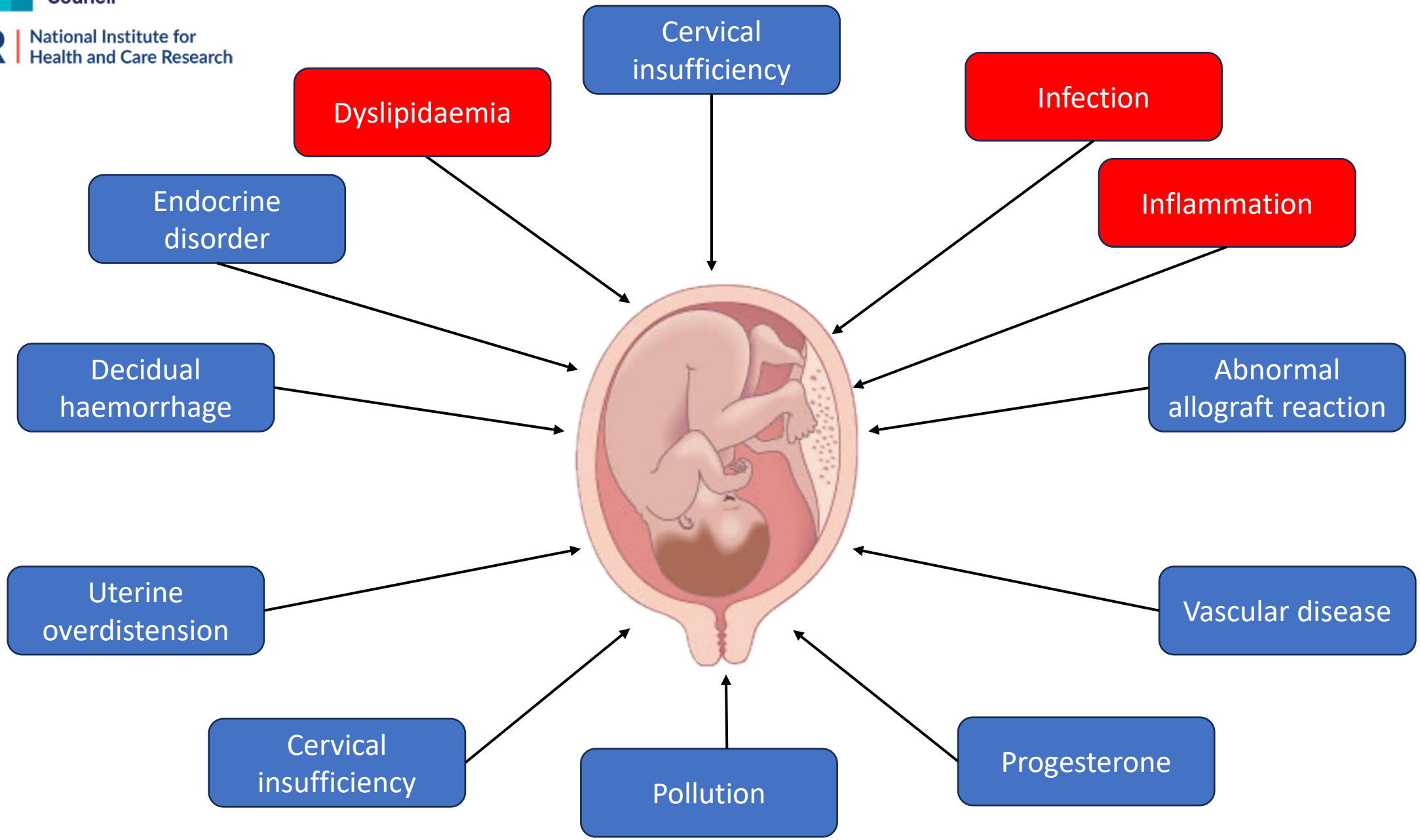
Aetiology of preterm birth



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Hypotheses for mechanism of action

1. Directly modifying maternal inflammatory pathways

2. Indirectly modifying maternal vaginal and gut microbiota

3. Directly modifying maternal lipid profiles and reducing dyslipidaemia

4. Directly affecting smooth muscle contraction

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NIHR | National Institute for Health and Care Research

PIONEER design

University of BRISTOL

BRISTOL TRIALS CENTRE

Imperial College London

- Multi-site parallel group placebo-controlled RCT with blinding
  - embedded mechanistic investigation
  - embedded QuinteT Recruitment Intervention (QRI)

- Setting: Across UK-wide specialist PTBP clinics

- Randomisation:
  - Participants randomised in a 1:1 ratio, in blocks of varying size,
  - Stratified by site and history of previous PTB

- Recruitment target:

  375 participants in each arm (750 total)

  Within this, 125 in each arm (250 total) mechanistics study

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Inclusion and exclusion criteria

Inclusion criteria:

1. Pregnant with singleton pregnancy at high or intermediate risk for PTB
2. Between 16+0 and 20+0 at randomisation

Exclusion criteria:

1. Multiple pregnancy
2. <16 years of age
3. Contradiction to Pravastatin
4. Personal or first-degree relative with heritable muscle disorder
5. Participating in the active phase of another interventional study
6. Lactose intolerance
7. >14 units of alcohol/week
8. Past/current liver disease
9. Creatine Kinase (CK) concentration > 5x upper limit of normal

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Antenatal care

- No other difference to care in terms of management of PTB prevention
- Two to three extra hospital visits
- Participants will be fully renumerated for these visits

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Timing of participant contacts and sample collection

PRAVASTATIN OR PLACEBO UNTIL 37 WEEKS

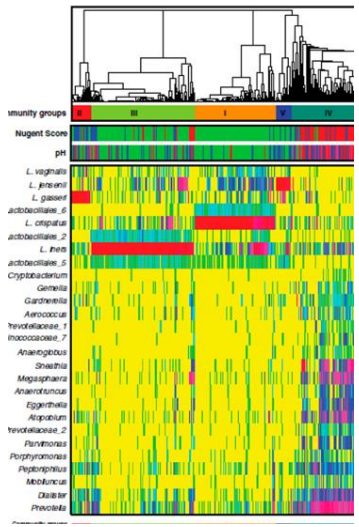
Contact	1st contact	2nd contact	3rd contact	4th contact	5th contact
When	*12-16 w*	*16-20 w*	16-20 w	24 w	28 w
What	PIS with clinic Appointment letter	2- stage consent	Commence Pravastatin / Placebo	Mechanistic Only	Pill count s/e questionnaire
Samples		LFTs Creatine Kinase	Blood (lipid profile) 3 vaginal swabs 1 stool pot to post	Blood (lipid profile) 2 vaginal swabs	Blood (lipid profile) 3 vaginal swabs 1 stool pot to post ALT or AST

Mechanistic studies

Cervicovaginal

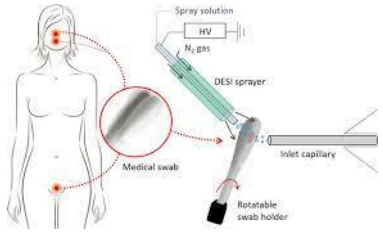
Stool

Microbial composition

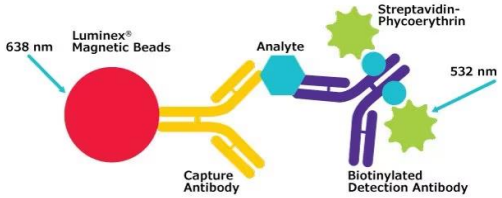


Cervicovaginal

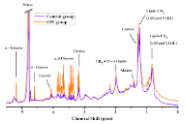
Vaginal metabolic profiling using DESI-MS



Immunophenotyping
IL-8, IL-6, IL-2, IL-1β
C3 C3b C5 C5a
IgG1 and IgG3

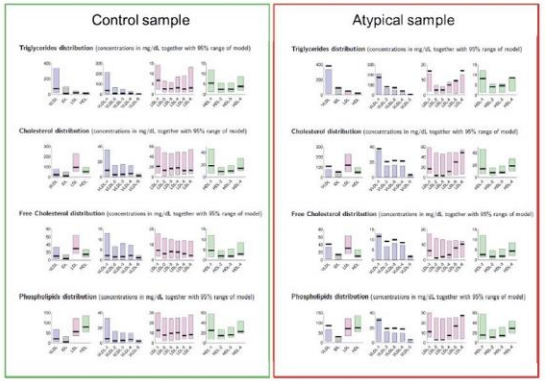


Blood samples



Blood lipid profiling by NMR metabolomics

- The main VLDL, IDL, LDL and HDL classes
- Six VLDL subclasses VLDL-1 to VLDL-6
- Six LDL sub-classes LDL-1 to LDL-6
- Four HDL-subclasses HDL-1 to HDL-4



JOINTLY FUNDED BY
Medical Research Council
NIHR | National Institute for Health and Care Research

Quintet Recruitment Intervention

- Embedded QRI to optimize recruitment and safeguard informed consent:
  - Participant, clinician, or organizational potential barriers will be explored
  - Analysis of recruitment data
  - Interviews with participants and clinicians
  - During set up, recruitment and analysis

PIONEER

Thank you

PIONEER-TRIAL@bristol.ac.uk

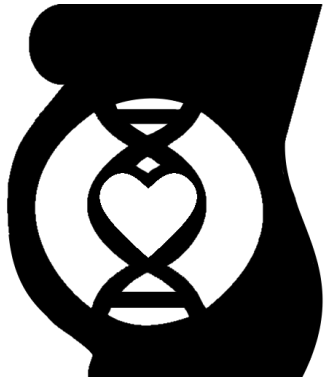
Katherine.Birchenall@bristol.ac.uk

Tommy's

The pregnancy and baby charity

Genomics england

Prestige – PTB Study



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PRESTIGE-PTB

- **Preterm Birth Genomic Investigation using Whole Genome Sequencing**
- Title: Multi-centre cohort study exploring genetic determinants of spontaneous preterm birth using Whole Genome Sequencing (WGS) across diverse populations in England
- Funder: Tommy's Charity with support from Genomics England Limited (GEL)
- Target: 5,000 participants
- Duration: Sample collection up until March 2024 with subsequent data analysis.

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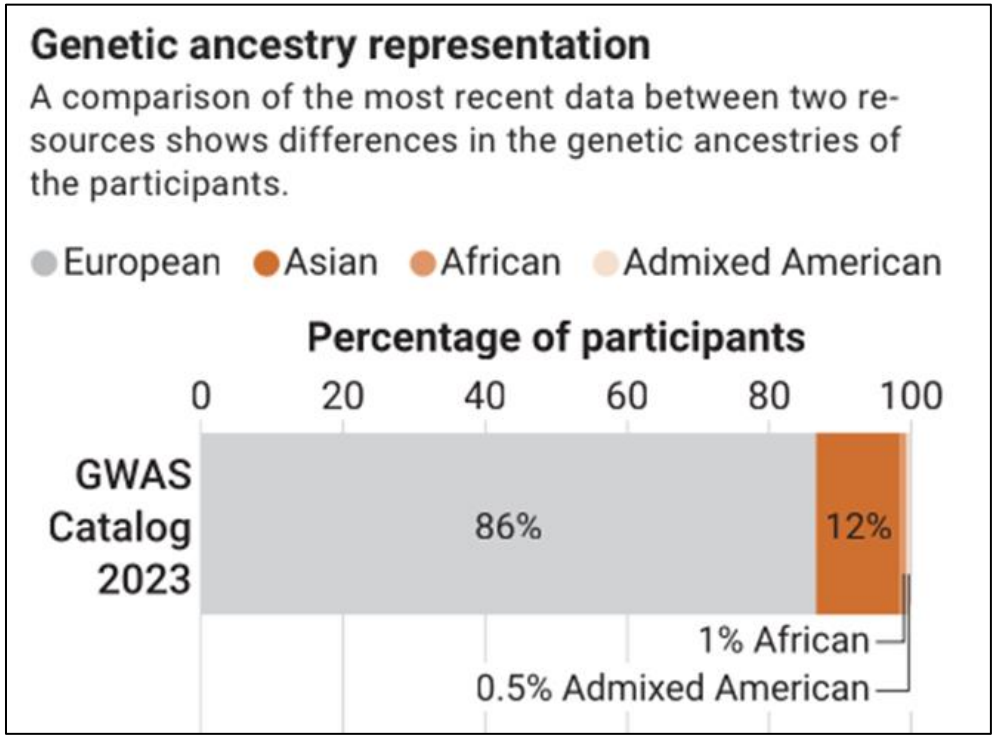
PRESTIGE-PTB

- While evidence exists for the role of genetic variation in the aetiology of sPTB (spontaneous preterm birth), there is a paucity of data related to those of non-European ancestry

- PRESTIGE-PTB aims to use the power of whole genome sequencing within the diverse UK population to further understand genetic determinants of sPTB across varied ancestries



PRESTIGE-PTB

What is whole Genome Sequencing?

The process by which a person's entire genome can read. The genome is the complete set of genetic material present in each person – all 3 billion base-pairs.

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Inclusion Criteria

- Biological mothers* aged over 18 years old who had a sPTB between 16+0 and 36+6 weeks of gestation in either their current or previous pregnancies
- Preterm prelabour rupture of membranes (PPROM)
- Individuals must possess the capacity to provide informed consent

Exclusion Criteria

- Individuals who lack the capacity to understand and consent to the study
- Mothers who are not biologically related to preterm children
- Mothers under 18 years old
- Individuals affected by iatrogenic PTB without PPROM
- Individuals affected by PTB occurring before 16+0 weeks of gestation

**We recognise that not all people who have had a sPTB will identify as 'mothers' or 'women'. People who fulfil the eligibility criteria but do not identify as 'mothers' or 'women' are welcome to participate in the study*

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PRESTIGE-PTB

A country wide network of recruitment sites facilitated by the UKPCN with Tommy's support

- 13 NHS hub sites across England – up to 5 spoke sites
- Allocated funding for a dedicated research midwife or nurse – we can include more

- University College London Hospital
- Barts
- Manchester
- Bristol
- Oxford
- Cambridge
- Imperial
- Guy's and St Thomas'
- Leeds
- Liverpool Women's
- Newcastle
- Birmingham
- Coventry

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PRESTIGE-PTB: live recruitment update

Date	01/11/2024
9 Hub sites	
Imperial College Healthcare NHS Trust	78
Oxford University Hospitals NHS Trust	12
Liverpool Women's NHS Foundation Trust	33
Leeds Teaching Hospitals NHS Trust	43
University Hospitals Coventry & Warwickshire	16
Birmingham Women's and Children's NHS Foundation Trust	15
University College London Hospitals NHS Foundation Trust	10
Manchester University NHS Foundation Trust	2
Barts Health NHS Trust	16
4 Spoke sites	
Royal Berkshire NHS Foundation Trust	7
Royal Free London NHS Foundation Trust	0
The Hillingdon Hospitals NHS Foundation Trust	2
The Shrewsbury and Telford Hospital NHS Trust	1
Total recruitment	235

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PRESTIGE-PTB: sites almost ready to open

- **Hub sites**
- Newcastle upon Tyne Hospitals NHS Foundation Trust
- The University Hospitals Bristol and Weston NHS Foundation Trust
- Likely also Epsom and St Hellier

- **Spoke sites**
- Arrowe Park Hospital / Wirral University Teaching Hospital NHS Foundation Trust
- Leighton Hospital - Mid Cheshire Hospitals Foundation Trust
- George Eliot Hospital NHS Trust
- Northern Care Alliance NHS Foundation Trust
- Bolton NHS Foundation Trust

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PRESTIGE-PTB: self-referral

- Women across England with a history of sPTB can self-refer to participate in PRESTIGE-PTB
- Completed self-referral forms to be sent to selected study sites
- Web and social media advertisements will go live in 2-3 weeks (currently under ethical review).
- Web advertisements will be featured on Tommy's and Imperial College websites.
- Social media campaigns will be shared via Tommy's and other partner organisations within our network.

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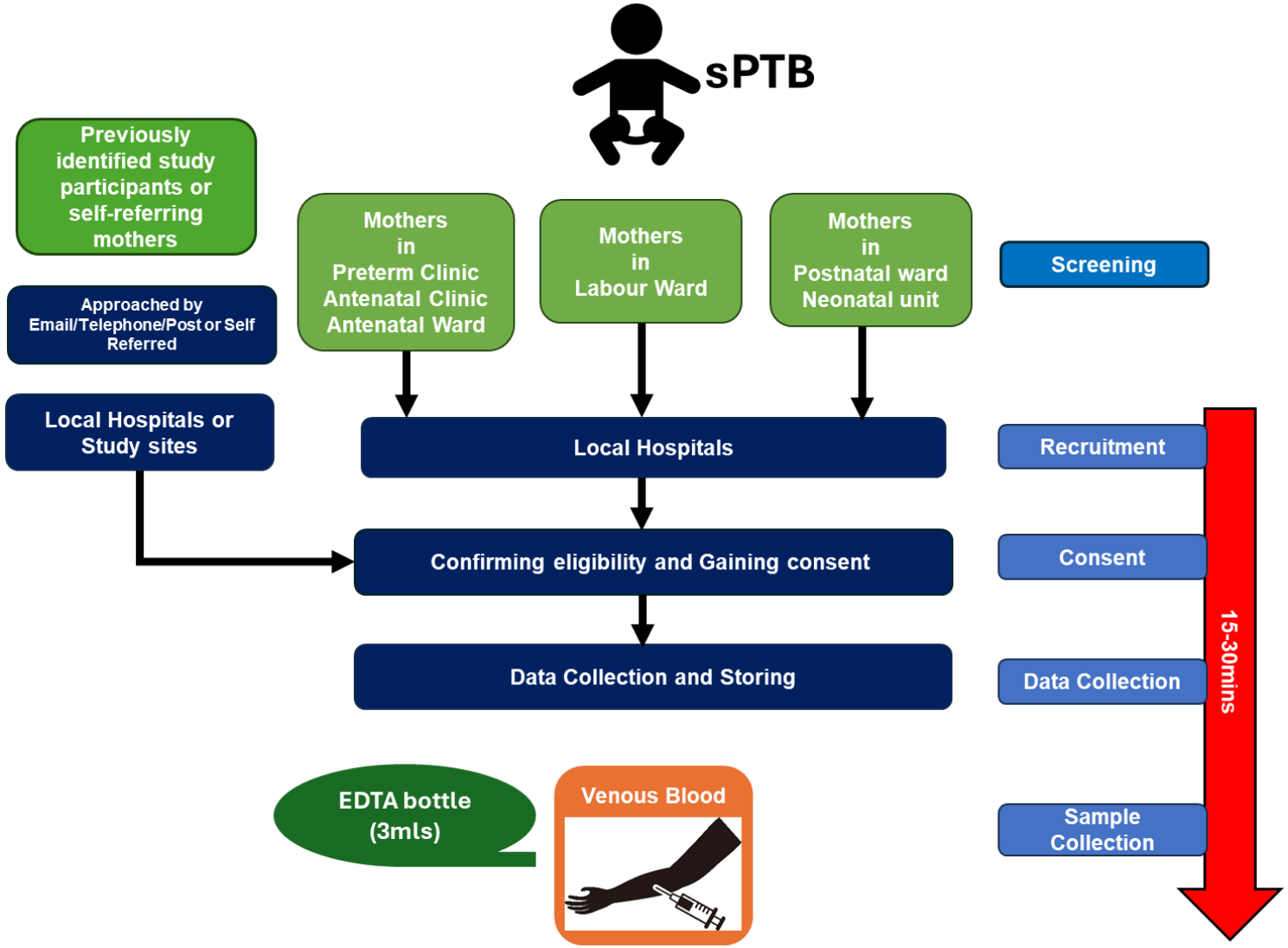

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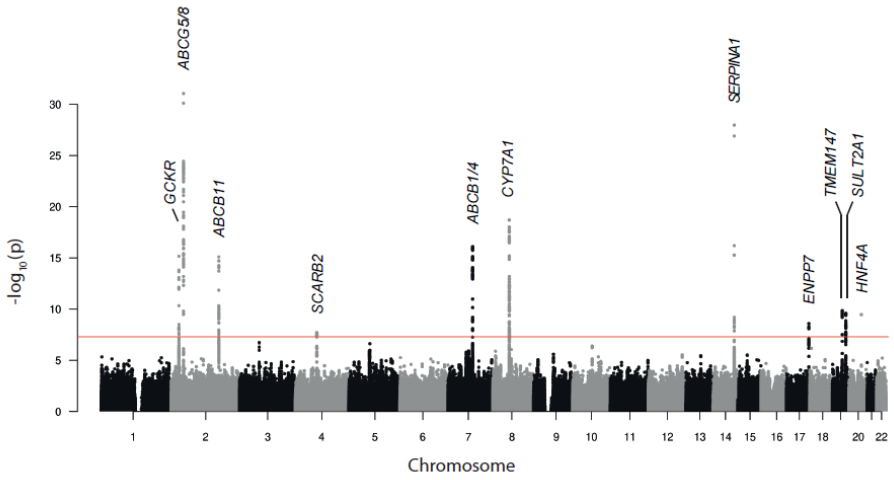
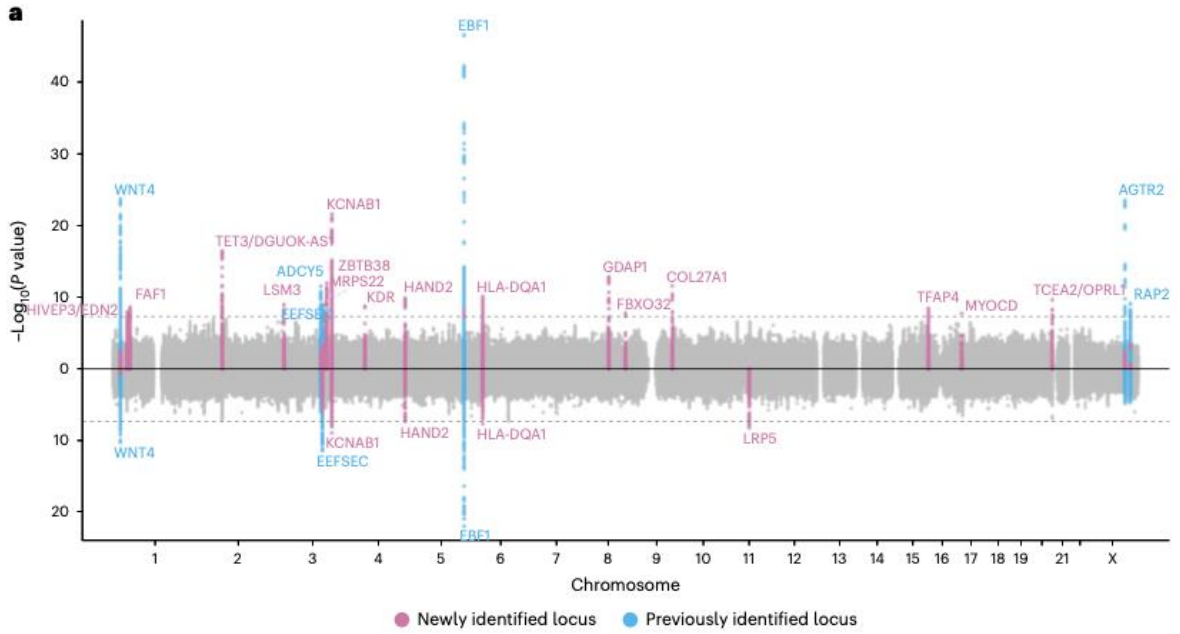
PRESTIGE-PTB

What might the study output look like - Manhattan or Miami?



Dixon et al 2022



Sole-Navais et al 2023

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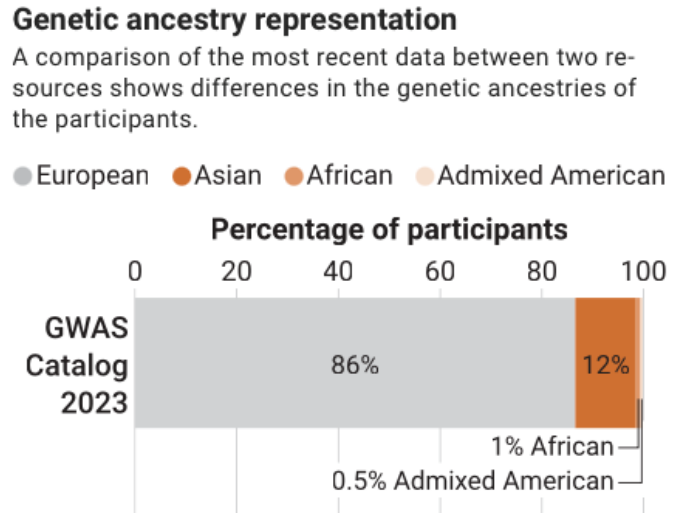
The pregnancy and baby charity

Genomics england

- New insights into the genetic determinants of PTB
- Better understanding of mechanisms underlying PTB
- Potential of new druggable targets
- Bringing genomics to underrepresented ancestries



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The pregnancy and baby charity

Genomics england

Professor Catherine Williamson, Chief Investigator

Dr Peter Dixon, Principal Investigator

Megumi Nimura, Senior Research Nurse

Anna Merrick, Senior Research Midwife

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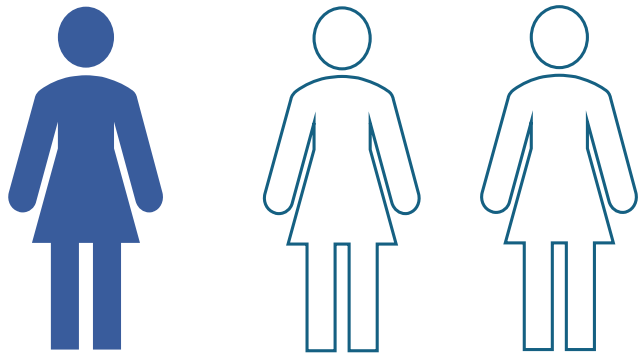
Preterm Birth Conference

Dr Laura van der Krogt

In-Labour Caesarean Section

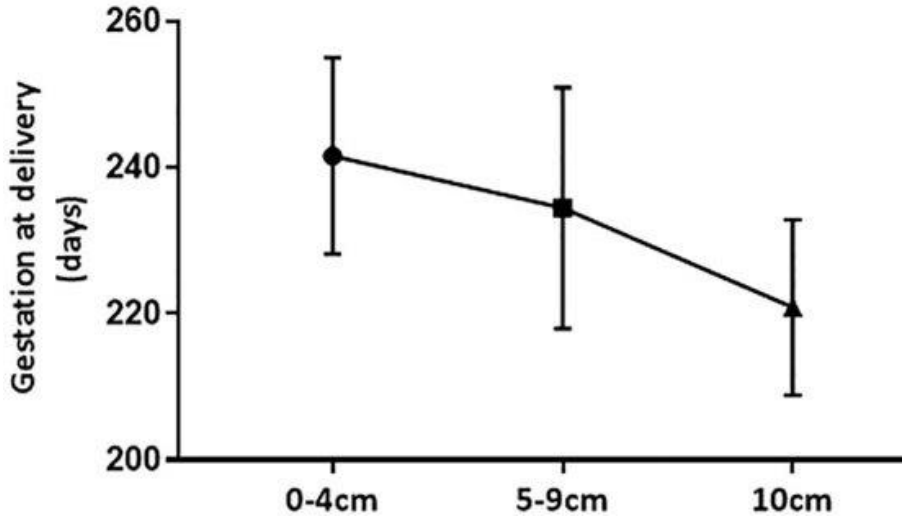
- The rate of caesarean section (CS) is on the rise globally
- In England 1 in 3 women deliver by CS
- **23% of all deliveries** are by **CS in labour**



(Betran., et al 2021 ; Maternity Services Statistics., 2023)

Subsequent Preterm Birth Risk

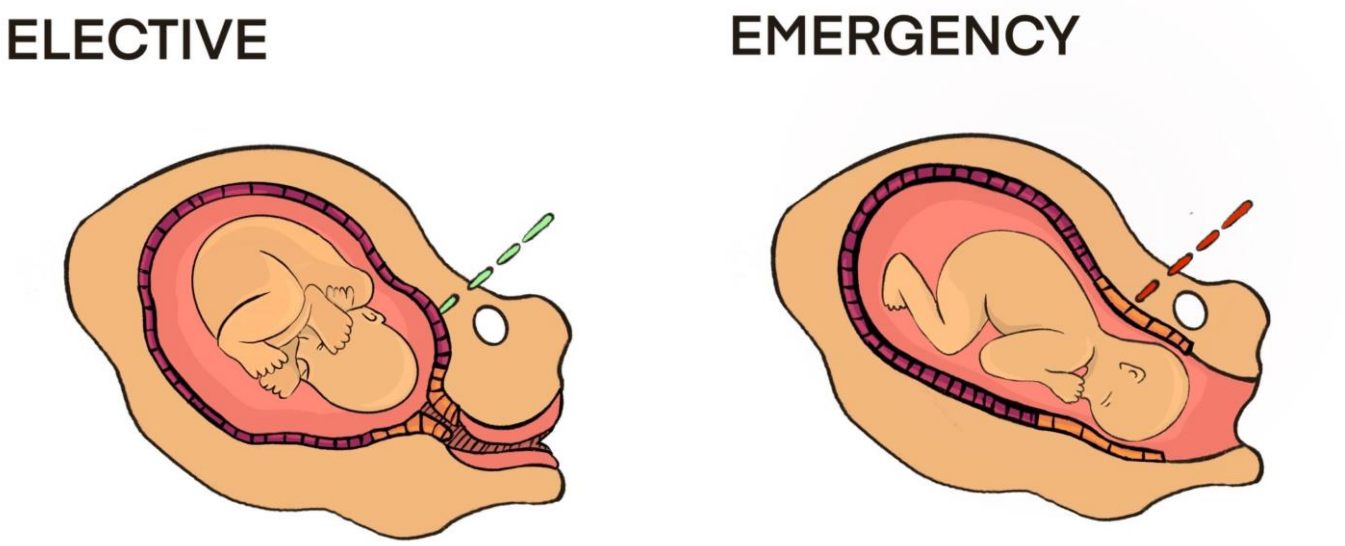
- In-labour CS **associated with** subsequent mid-trimester loss (MTL) and spontaneous preterm birth (sPTB)
- Risk increases with increasing dilatation – **greatest at full dilatation**
- Increased risk of **recurrence**
- **Relative risk 5.56** for recurrent sPTB and MTL after in-labour CS
- Absolute risk of recurrence **>50%**



(Levine et al., 2015 ; Suff et al., 2022)

Cervical Caesarean Damage

- Underlying mechanism may be inadvertent damage to the cervix during caesarean – '***cervical caesarean damage'***



(Levine et al., 2015; Vink et al., 2016)

Current Guidance

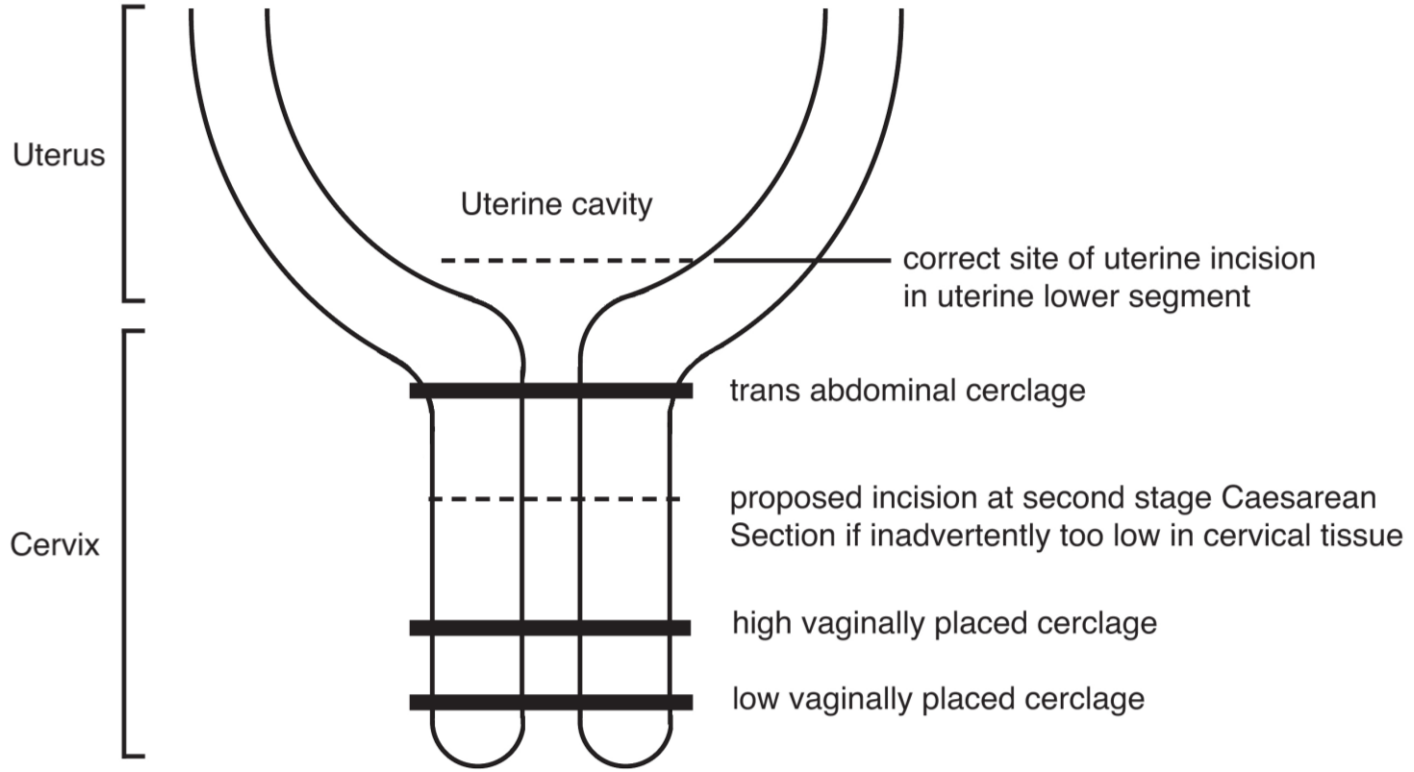
- Saving Babies Lives' Version 3 :
  - Offer women with previous history of **full dilatation caesarean** referral to preterm birth surveillance clinic for cervical length screening

(Saving Babies Lives' Version 3, 2023)

Cervical Cerclage

- Transvaginal cerclage (TVC) is **10x less successful** in women who have had sPTB following an in-labour CS

- Transabdominal cerclage (TAC) may be **more successful** as the suture is higher

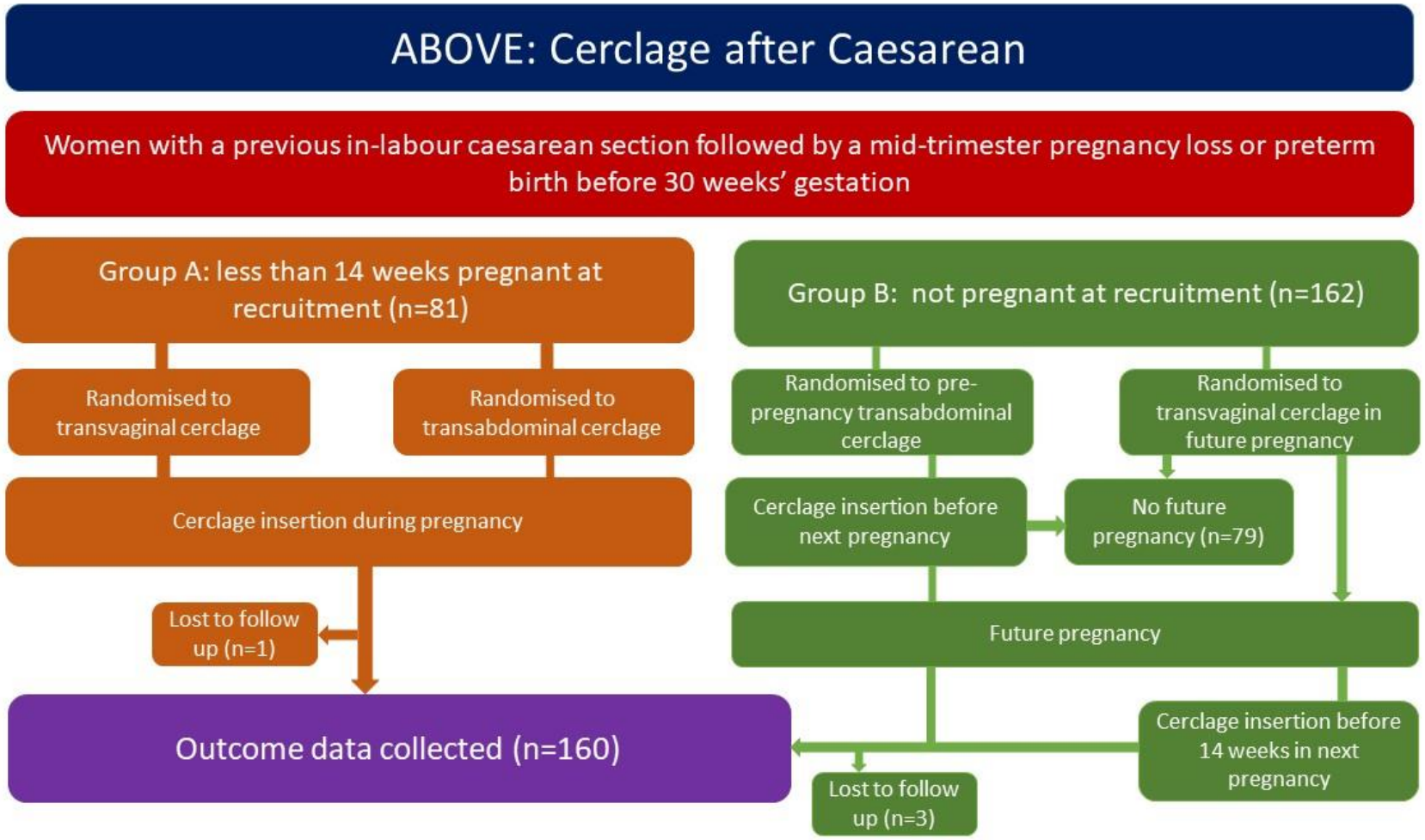


(Hickland et al., 2020; Rosen O Sullivan et al., 2022)

Study Aims

1. To evaluate the effectiveness of TACs in comparison with TVCs in women who have suffered MTL/sPTB following in-labour caesarean section.
2. To compare the pregnancy outcomes in women who had a TAC placed prior to pregnancy with those where a TAC was placed in early pregnancy.

Trial Design



Power Calculation

- Sample size estimation based on relative risk reduction of 67% for sPTB <30 weeks with TAC compared to TVC
- 40 women with TAC and 40 women with TVC are required for 80% power at 5% significance level
- This is 80 in each group (in pregnancy and pre-pregnancy recruits)
- Total 160 women

Current Progress

- Ethics approval in May 2024
- First site opened in August 2024
- Currently:
  - Three sites open to recruitment
  - Ongoing set up at other sites
  - First recruit in September 2024

Contact

Chief investigator: Professor Andrew Shennan

Co-investigators: Professor Rachel Tribe, Dr Lisa Story, Dr Natalie Suff, Dr Jenny Carter

Trial coordinator: Dr Laura van der Krogt

Trial email address: above-study@kcl.ac.uk

Study website: https://www.medscinet.net/ukpcn/above/

SAVE THE DATE - UK PRETERM BIRTH CONFERENCE 2025

March 13-14, 2025

RCOG
10-18 Union Street
London

Contacts:
Manju (manju.chandiramani1@gstt.nhs.uk),
Nicole (nicole.moriarty@kcl.ac.uk),
Laura (laura.c.van_der_krogt@kcl.ac.uk)

KING'S HEALTH PARTNERS

An Academic Health Sciences Centre for London

Pioneering better health for all

Preterm Clinical Network Cohort Research Programme (PCN-CRP)

Tommy's
Registered charity no 1060508

Encourage, recognise and reward...

NHS Innovation Challenge Prizes
Winner 2013

Jenny Carter

Midwife and Senior Research Fellow
Department of Women and Children's Health

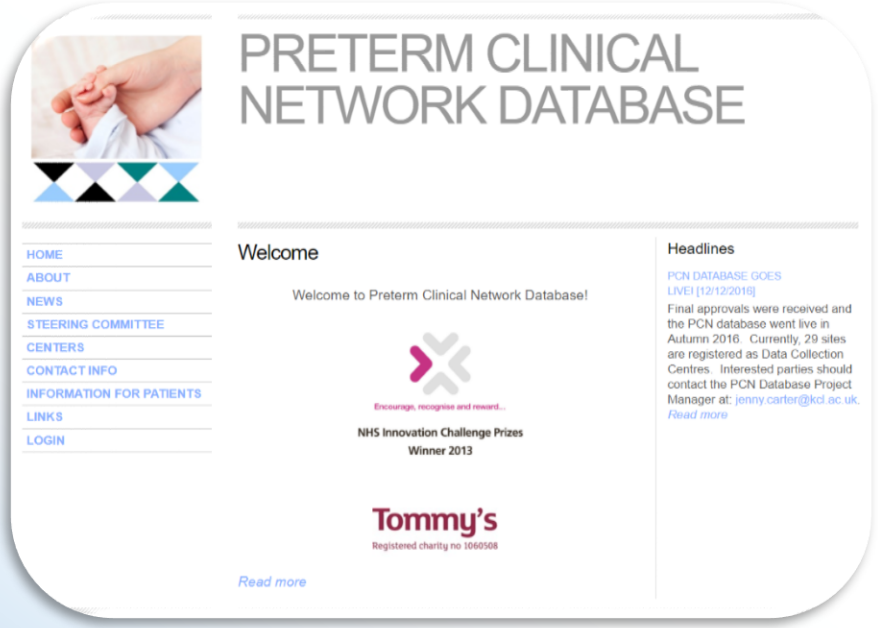
KING'S College LONDON

Guy's and St Thomas' NHS
NHS Foundation Trust

King's College Hospital NHS
NHS Foundation Trust

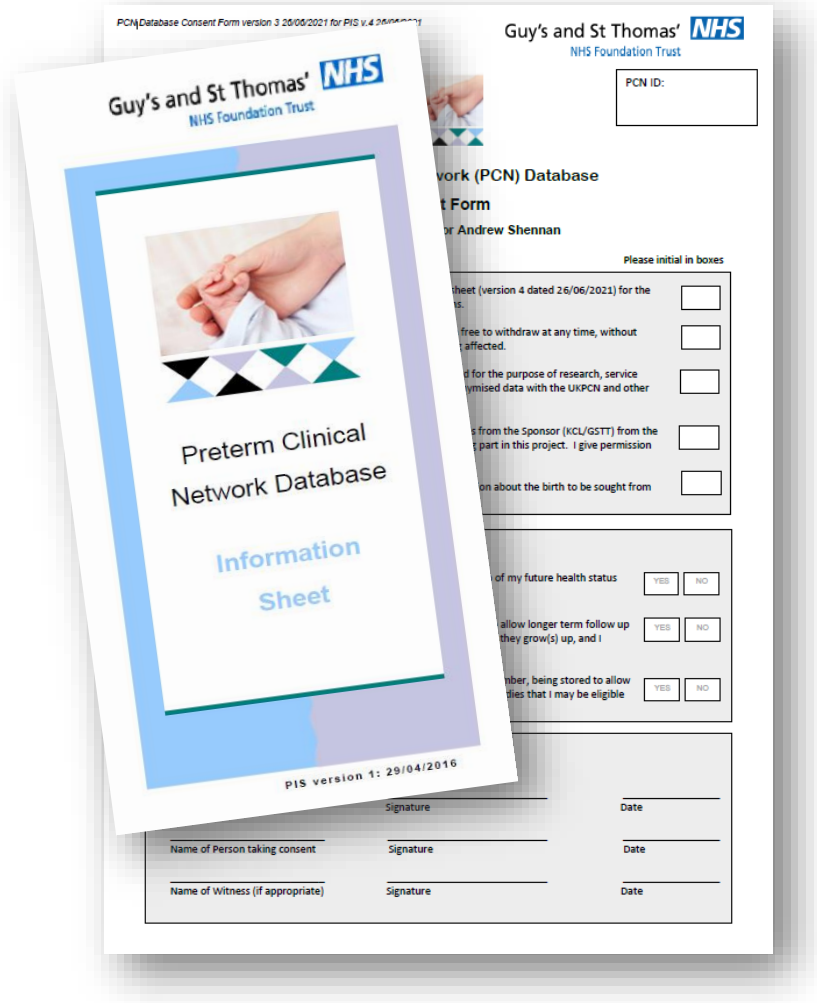
South London and Maudsley NHS
NHS Foundation Trust

UK Preterm Clinical Network (UKPCN)



Preterm Clinical Network (PCN) Database

- Initial funding through NHS Innovations Challenge Prize and Tommy's.
- Launched in 2016 as a research database.
- Prospective and retrospective data.
- Registry of future research participants



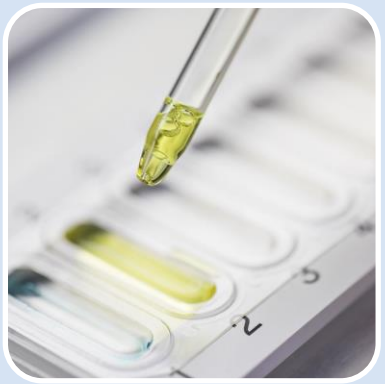
Preterm Clinical Network (PCN) Database

40	Data registered collection centres
8030	Prospectively collected records
84%	Consent to child long term follow up
79%	Consent to long term follow up of own health
52%	Consent to contact about future research
4,400	Historical records

Preterm Clinical Network Cohort Research Programme (PCN-CRP)

- Research databases not eligible for NIHR portfolio adoption.
- New REC/HRA approvals process for programmes.
- Overarching protocol with sub-studies.
- Future sub-studies added as amendments.
- Majority of women eligible for at least one sub-study.
- NIHR portfolio > CRN support.
- More sites, more women, more diversity.

Sub-studies



Urine infection and preterm birth

- All women at risk of PTB

1

Caesarean section scar characteristics

- Previous in-labour CS

2

Mental wellbeing screening

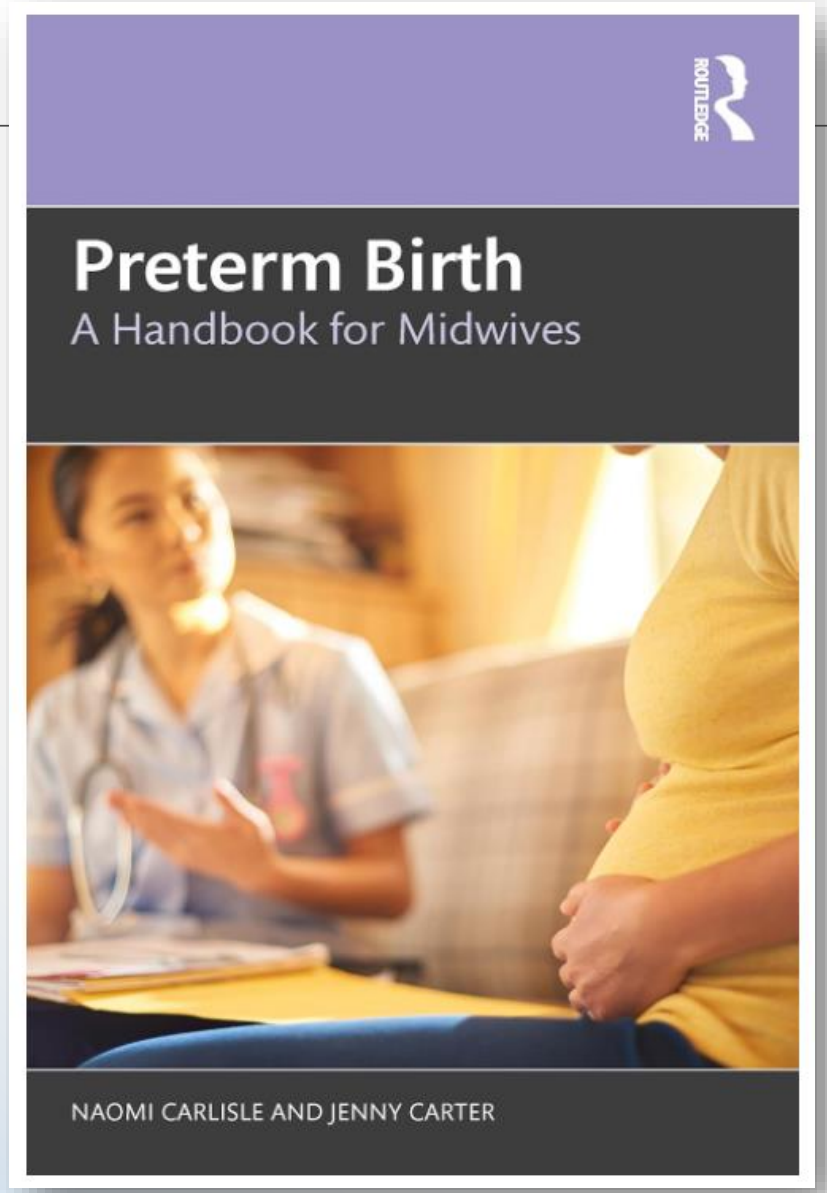
- All women at risk of PTB

3

New predictors for QUiPP

- Actim Partus
- Pregnolia

4



Coming soon!

(December 2024)

SAVE THE DATE - UK PRETERM BIRTH CONFERENCE 2025

March 13-14, 2025

RCOG
10-18 Union Street
London

Contacts:
Manju (manju.chandiramani1@gstt.nhs.uk),
Nicole (nicole.moriarty@kcl.ac.uk),
Laura (laura.c.van_der_krogt@kcl.ac.uk)

Questions

Pregnolia

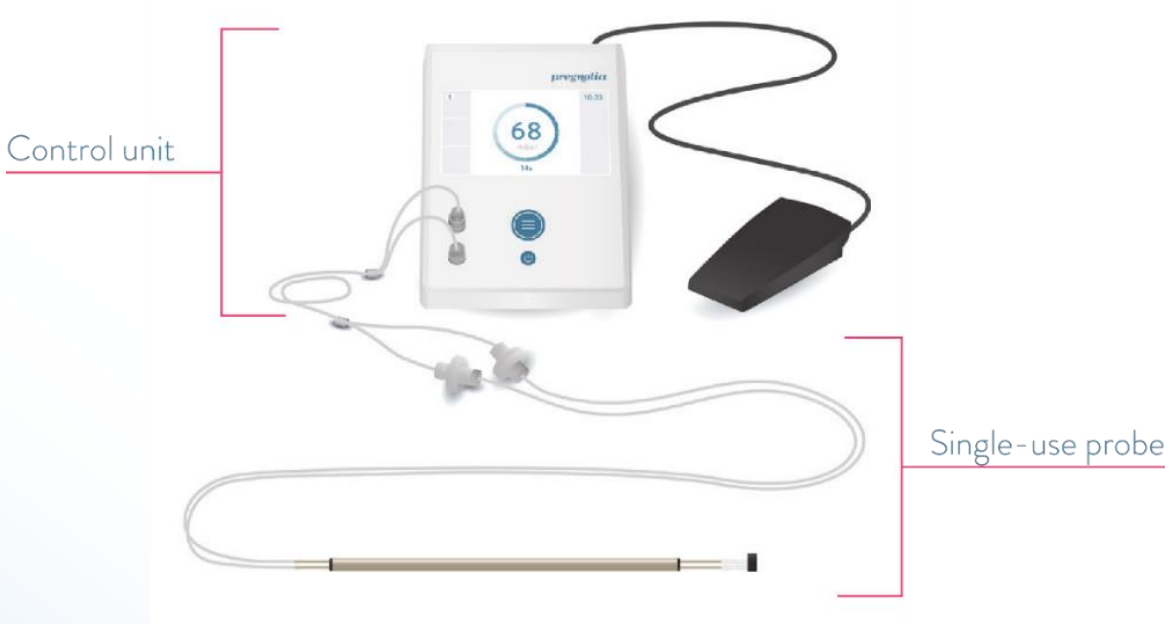


Figure 1: System components: control unit including control unit console, power supply (not shown), foot switch, connector cable and single-use probe

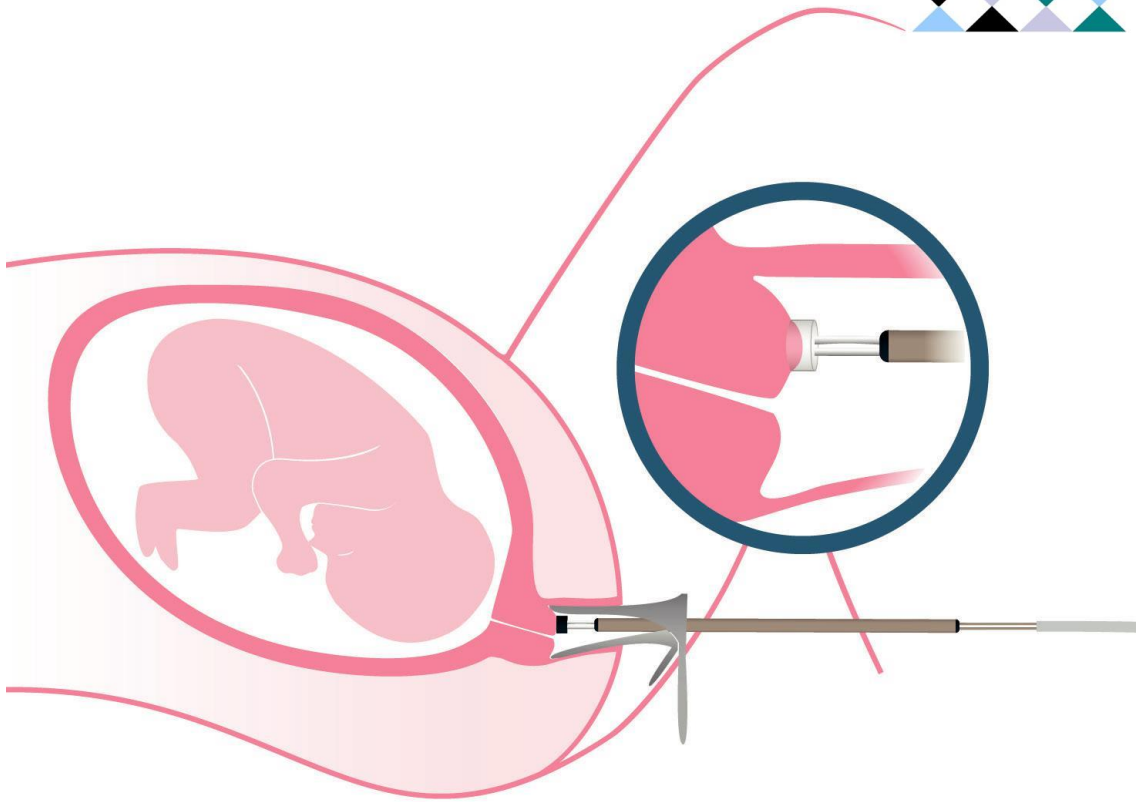


Figure 2: General overview of the method and application. The probe is manually placed on the cervix during a routine gynaecological evaluation, with the aid of a speculum.

Lunch

National Patient Safety Improvement Programmes

NHS

Maternity and Neonatal

World Café

Julia Wood, Dr Alex Patience, Dr Louise Michie

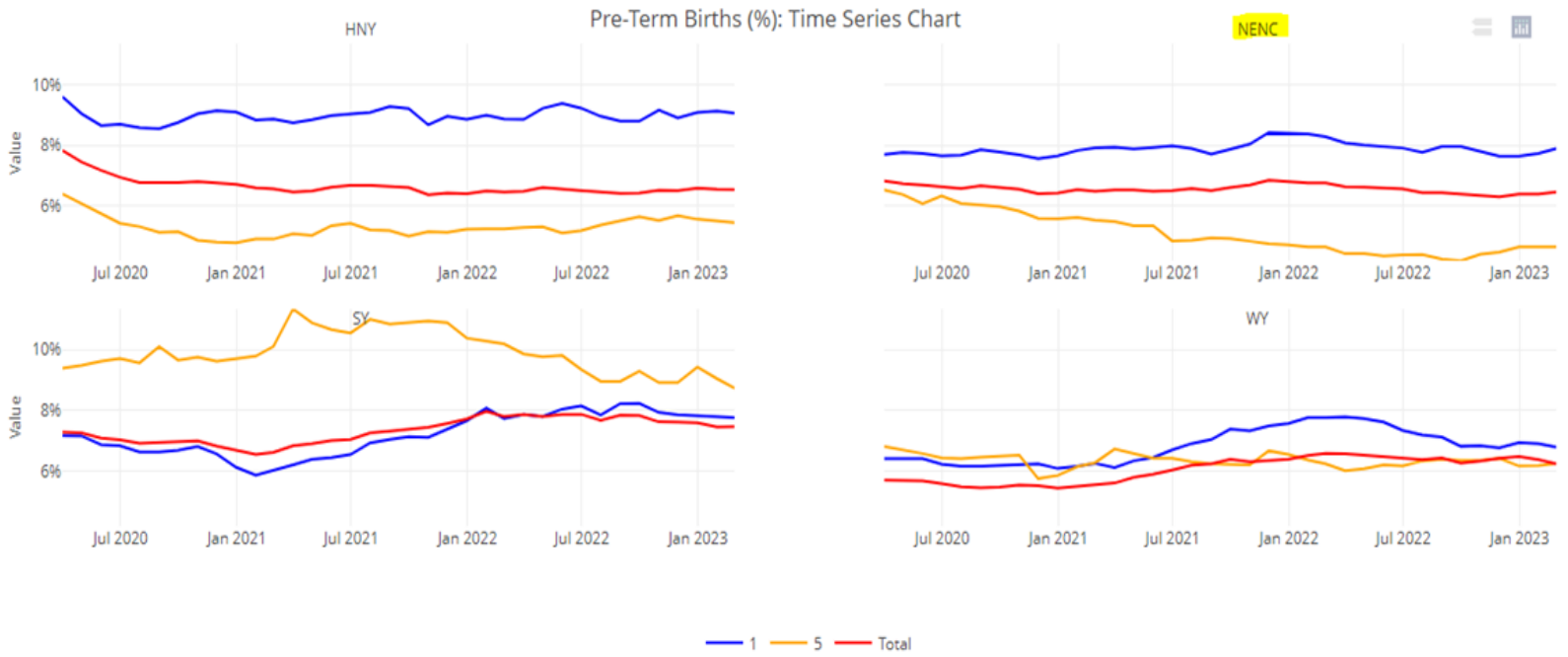
How it works

- Sit with people you don't know – different experiences
- 12 tables / 4 questions /15 minutes per question
- You will stay in the same groups you are now for the duration of the world café – one group per table
- Groups move tables – questions stay on the tables
- If you start at table 1, you move to table 2, and then move to table 3 when asked to do so
- If you start on table 3, you move to table 4, and then move to table 1 when asked to do so
- In round one you answer the question
- In subsequent rounds you read what the previous group has written in response to the question and then add to this – additional comments to something already written or new ideas/thoughts
- Identify a scribe for your group
- At the last round, following your discussion, you need to identify as a group what you feel is the most important point which has been made on your flipchart paper (including what other groups have identified). One person will feed this back – identify someone to do this
- Mark the most important point with a dot – dots on tables
- All information will be written up so your comments/thoughts/ideas will not be lost

Questions

- How can we improve shared decision-making at the thresholds of viability?
- What interventions would improve preterm birth outcomes for those in the most deprived areas?
- What are the priorities for the region regarding preterm birth?
- How can perinatal teams collectively deliver the best care for women and babies?

Impact of deprivation on preterm birth rates for Humber & North Yorkshire, NENC, South Yorkshire and West Yorkshire (prepared by the Senior Analytical Manager from the NHS Performance Analysis Team, North East and Yorkshire)



Summary: on the charts the red line represents the overall value for each geography, the blue line the value for patients in the most deprived national quintile and the orange line the value for patients in the least deprived national quintile. There has been a noticeable drop-off in the pre-term birth figures for the least deprived quintile for NENC, but the most deprived has stayed around the same level. There are lots of possible explanations for this but indicates that interventions that have been put in place have been most effective for patients from areas of lower deprivation.

Compassionate Leadership Events

Thursday 5th December 2024 and
Friday 6th December 2024, 10:00-16:30
Citygate, Gallowgate,
Newcastle upon Tyne NE1 4WH

Health Innovation
North East and North Cumbria

HEALTHCARE CONFERENCES UK

Health Innovation
North East and North Cumbria

Enquiry: paula.elliott@healthinnovationnenc.org.uk

www.healthinnovationnenc.org.uk

Preterm Birth Conference Feedback Survey

Closing remarks