



The Tommy's National Centre for Maternity Improvement

Prof Basky Thilaganathan

Our shared vision



Tommy's



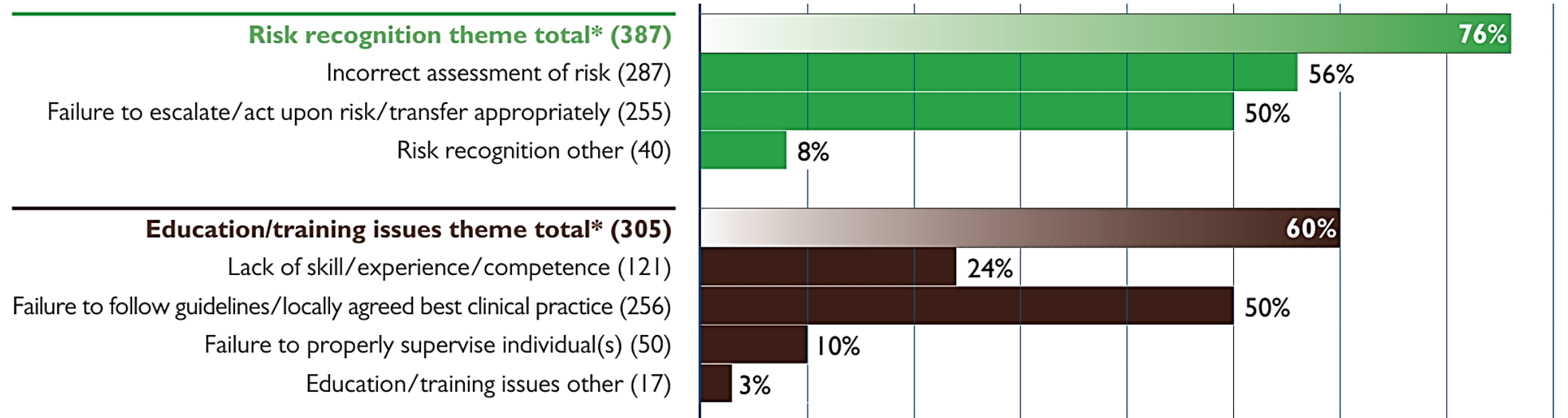
**For all pregnant woman to receive the right care at
the right time, no matter where they live**

NHS
England



The Tommy's National Centre for Maternity Improvement

Tommy's
National Centre for
Maternity Improvement



Each Baby Counts: Final Progress Report 2020

Risk assessment: improve prediction of traditional checklists
Decision support: to reduce significant variation in practice

NICE National Institute for
Health and Care Excellence

NICE Pathways

NICE guidance

Standards and indicators

Evidence search

BNF

[NICE](#) > [NICE Guidance](#) > [Conditions and diseases](#) > [Fertility, pregnancy and childbirth](#)

Pregnancy

All NICE products on pregnancy. Includes any guidance, advice, NICE Pathways and quality standards.

Published products on this topic (92)

- ❑ 60yr-old assessment tool
- ❑ High prevalence of risk factors (20-25%)
- ❑ Risk factors are not equivalent (CHT, HDP)
- ❑ Categorical evaluation of risks (age, weight)
- ❑ Ignores interaction of risks (protective effects)
- ❑ Social deprivation/ethnicity (health inequity)
- ❑ No numerical risk provided

Risk factors for pre-eclampsia

Moderate

- First pregnancy
- Age ≥ 40 years
- Pregnancy interval >10 years
- Body mass index ≥ 35 kg/m² at first visit
- Family history of pre-eclampsia
- Multi-fetal pregnancy

High


- Hypertensive disease during previous pregnancy
- Chronic kidney disease
- Autoimmune disease such as systemic lupus erythematosus or antiphospholipid syndrome
- Type 1 or type 2 diabetes
- Chronic hypertension

Risk assessment - Alternative

Combined test for pre-eclampsia

NIHR | National Institute
for Health Research

Journals Library



Efficacy and Mechanism Evaluation

Volume 7 • Issue 8 • November 2020
ISSN 2050-4365

Mini-combined test compared with NICE guidelines for early risk-assessment for pre-eclampsia: the SPREE diagnostic accuracy study

Liona C Poon, David Wright, Steve Thornton, Ranjit Akolekar,
Peter Brocklehurst and Kypros H Nicolaides

**Sensitivity and specificity
doubled with algorithm**

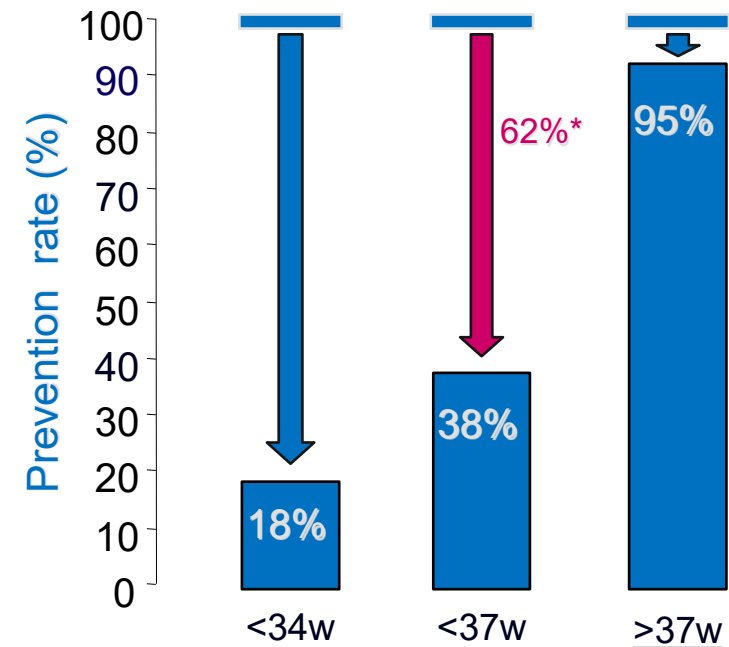
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VOL. 377 NO. 7

Aspirin versus Placebo in Pregnancies at High Risk
for Preterm Preeclampsia



Efficacy vs effectiveness

□ Significant reduction in adverse outcomes

- Preterm preeclampsia (PE)... ↓80%
- SGA <10th centile at term... ↓40%
- Perinatal death (overall)... ↓37%
- Perinatal death (FGR/PE)... ↓72%
- Ethnic health disparity reduced

Implementation of routine first trimester combined screening for pre-eclampsia: a clinical effectiveness study

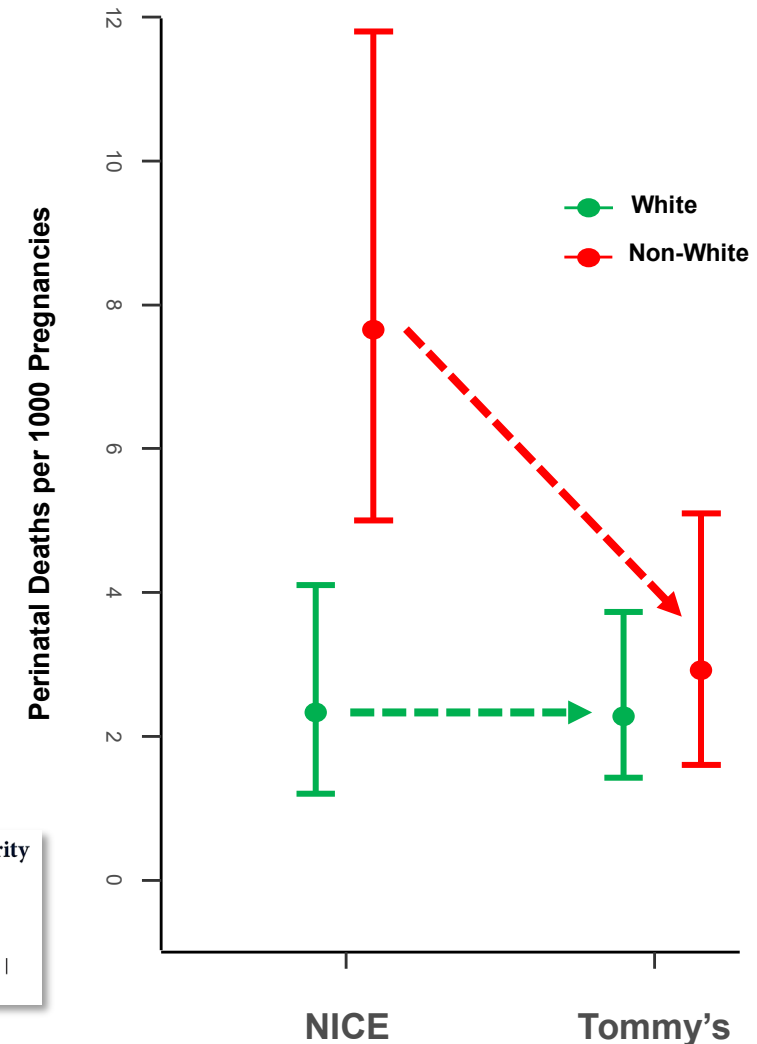
GP Guy,^{a,b} K Leslie,^{a,c} D Diaz Gomez,^a K Forenc,^a E Buck,^a A Khalil,^{a,b} B Thilaganathan^{a,b,d}

Effect of routine first-trimester combined screening for pre-eclampsia on small-for-gestational-age birth: secondary interrupted time series analysis

G. P. GUY^{1,2}, K. LESLIE^{1,3}, D. DIAZ GOMEZ¹, K. FORENC¹, E. BUCK¹, A. BHIDE^{1,2} and B. THILAGANATHAN^{1,2,4}

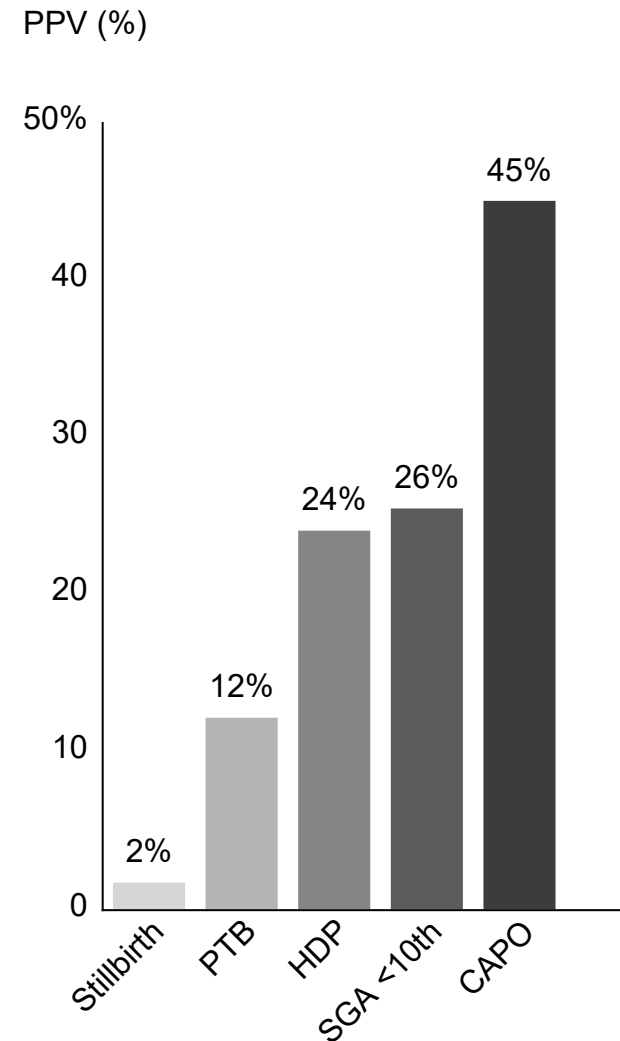
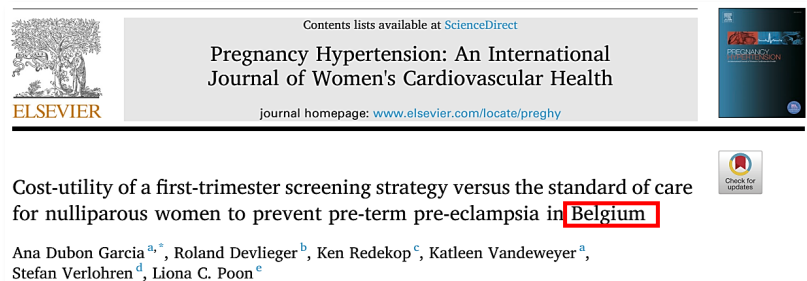
Reducing health inequality in Black, Asian and other minority ethnic pregnant women: impact of first trimester combined screening for placental dysfunction on perinatal mortality

Becky Liu^{1,2} | Usaama Nadeem² | Alexander Frick^{1,2} | Morakinyo Alakaloko¹ | Amar Bhide^{1,2} | Basky Thilaganathan^{1,2,3}



Cost effectiveness

- ❑ FMF algorithm vs standard care
- ❑ Assumed 50,000 births/year
- ❑ Fewer preterm PE (479 vs 816)
- ❑ Saving of £50 per pregnancy
- ❑ Similar QALYs
- ❑ More effective in 99% simulations





Royal College
of Midwives



Royal College of
Obstetricians &
Gynaecologists

Tommy's Clinical Decision Tool

Patient and Public Involvement



Innovation

- App development
- CE conformity
- QMS
- Version updates



Implementation

- Toolkit
- Training
- Hospital induction
- Support



Improvement Science

- Fidelity
- Barriers
- Facilitators
- Refinement



Impact

- Data management
- Publication
- Grants
- Machine learning

Co-development & Engagement

www.TommysApp.org

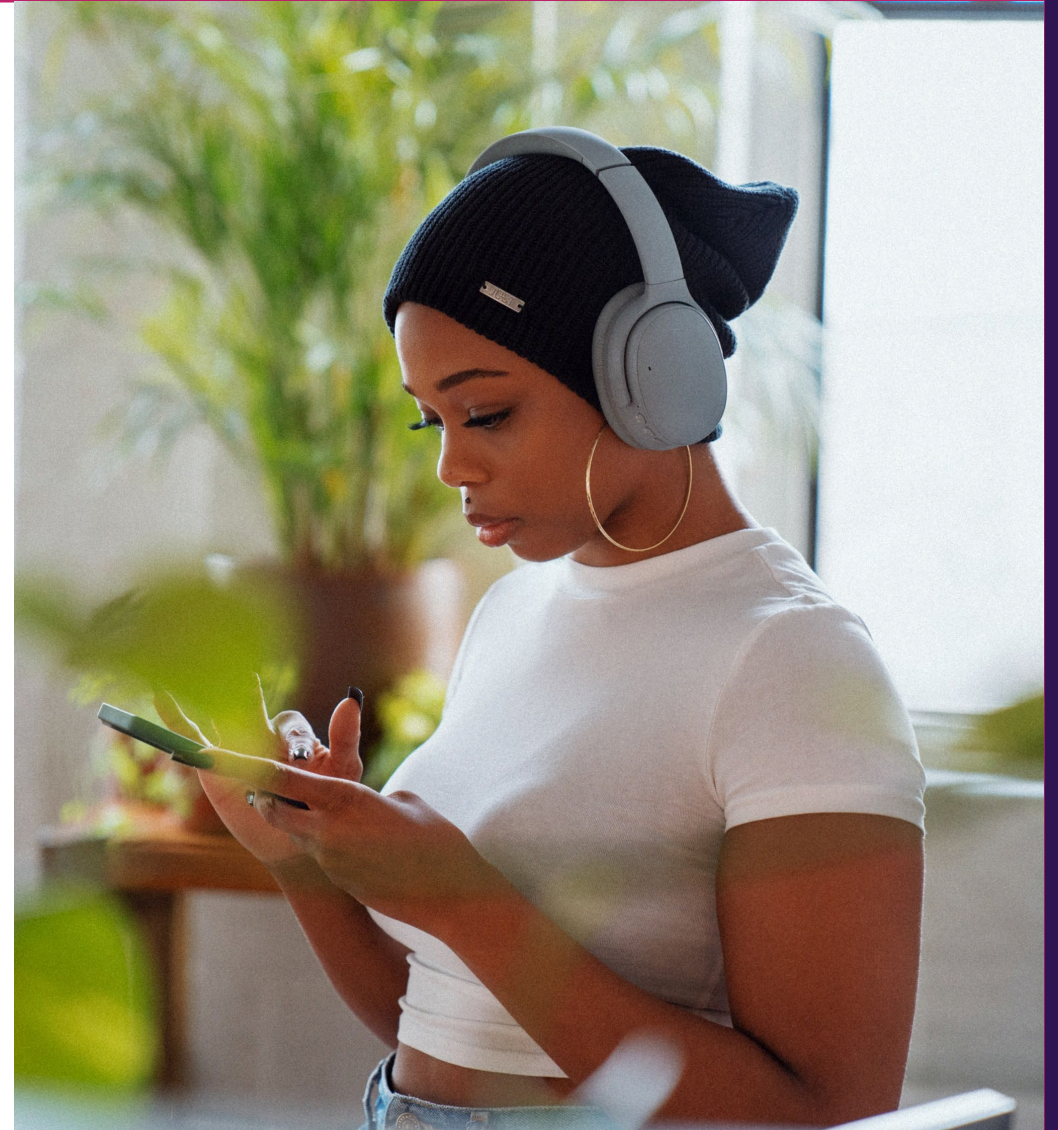
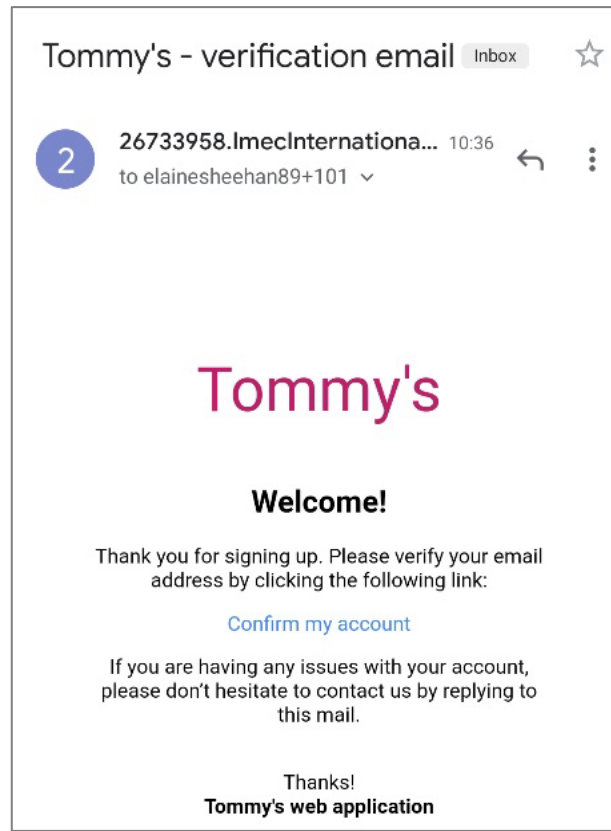
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Together, for every baby

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Five pathway touchpoints



Booking

- Preterm birth risk assessment
- Placental function risk assessment



Emergency

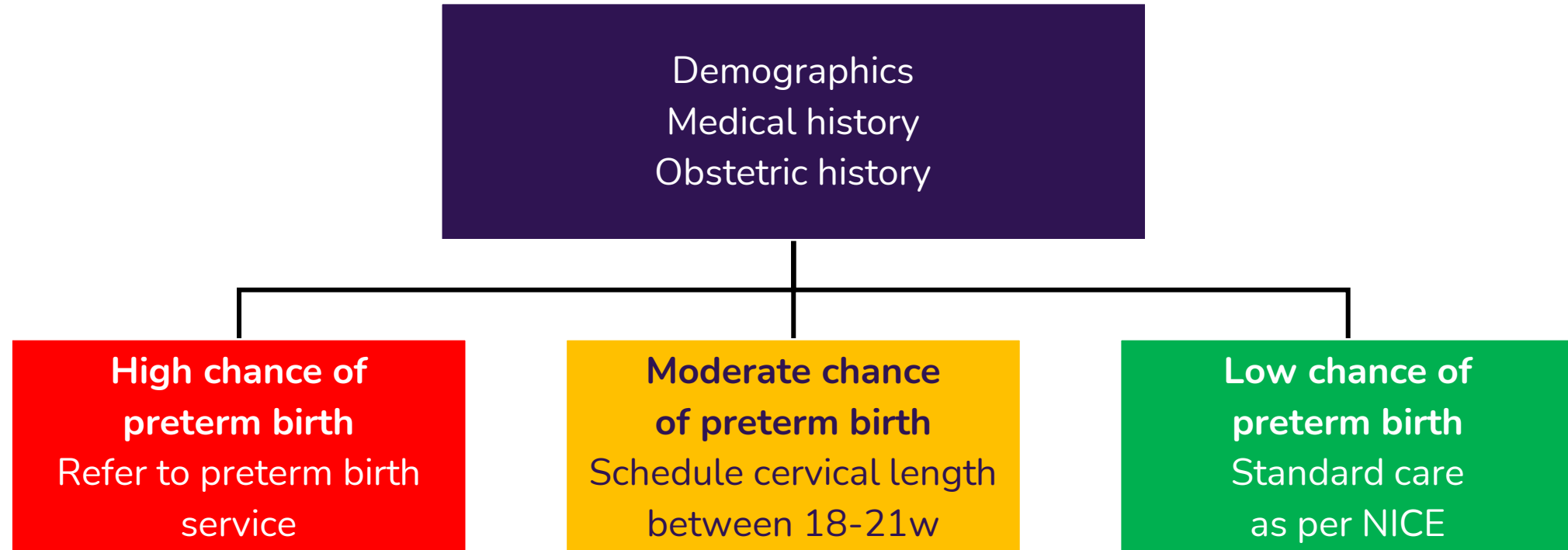
- Reduced fetal movement
- Threatened preterm birth



Term

- Timing, mode and place of birth

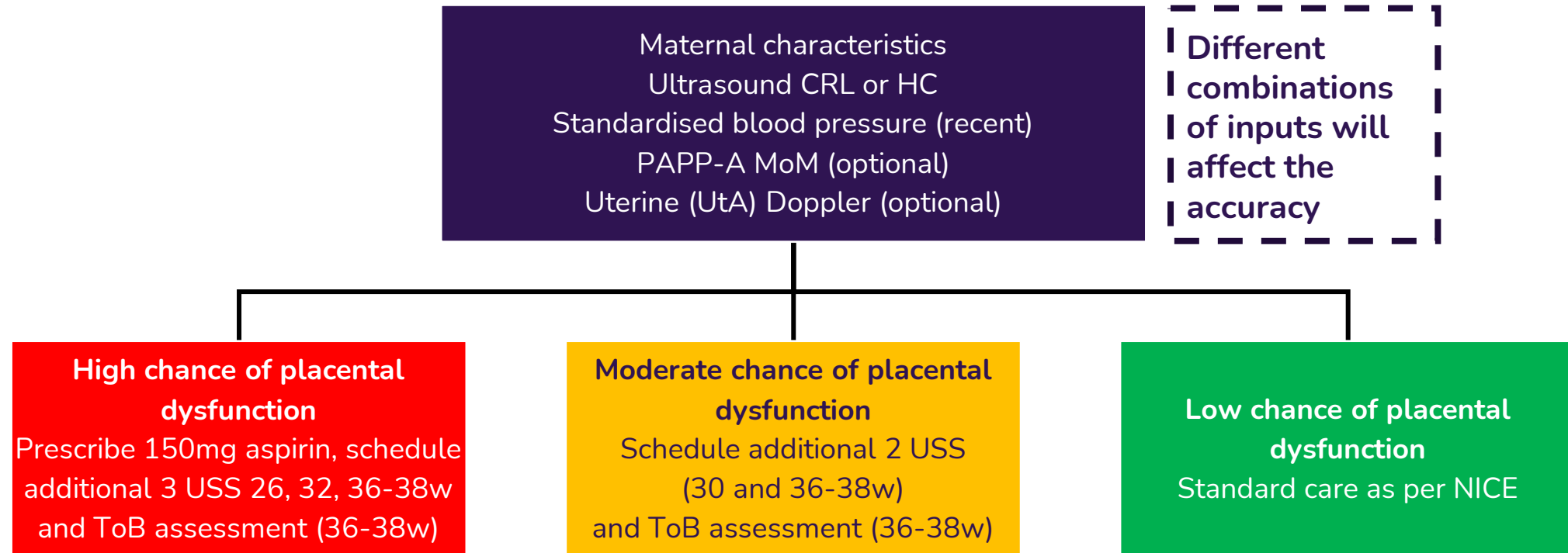
Preterm birth (PTB) assessment ideally ≤ 12 weeks



Exceptions to these pathways:

- History of cervical surgery in medical history=> Care pathway defaults to high chance pathway

Placental function (PF) assessment ≤16 weeks



Exceptions to these pathways:

- Women with chronic hypertension, pre-existing diabetes and multiple pregnancy => Refer to a specialist team
- Late bookers follow at minimum a moderate chance pathway

Example: Placental function assessment

Fetal scan	
Date of fetal scan	14/05/2021
Fetal CRL (mm)	76
Multiple pregnancy	No

Blood pressure	
Date of blood pressure measurement	14/05/2021
Systolic BP	150
Diastolic BP	100
Mean arterial blood pressure (MAP)	116.67

Blood test	
Date of blood test	14/05/2021
PAPP-A MoM	0.2145
PIGF MoM	n/a

Uterine artery	
Date of uterine artery scan	14/05/2021
Left uterine artery doppler	0.9
Right uterine artery doppler	0.85



Placental Function Assessment

Risk of Placental Function <37 weeks

Placental Function Assessment	
Risk	1 in 17
Classification	● High

⚠ Offer aspirin 150mg/OD

⚠ Schedule ultrasounds at 26, 32 and 37 weeks

OK

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Aspirin versus Placebo in Pregnancies at High Risk
for Preterm Preeclampsia

✔ Placental Function Assessment

ⓘ In addition, your midwife will discuss the option of taking aspirin to lower your chance of pre-eclampsia

ⓘ Your midwife will also offer extra scans at 26, 32 and 37 weeks and schedule an appointment around 36 weeks to discuss the timing of your birth

Healthcare professional view

Woman's view

Changed fetal movements (CFM) assessment: from 28w onwards

Run CFM assessment for every attendance with changed/ reduced FMs
Maternal characteristics
Number of attendances ≥ 28 weeks within a 4 week period

Fetal
auscultation

cCTG

cCTG and USS if
not performed
within last 2
weeks

cCTG and USS
Consider IOL

Exceptions to these pathways:

- Gestational hypertension and/or gestational diabetes default to high chance pathway (i.e. cCTG and USS)

Threatened PTB assessment

Undertake Possible Preterm Birth Assessment


Date of investigation
14-05-2021

Uterine activity present

Has the woman ruptured her membranes


Cervical length (mm)

fFN concentration (ng/ml)

 You should inform at least one exam value

CANCEL SAVE

Threatened Preterm Birth Assessment


QUIPP PTB Assessment	
Risk	< 5%
 Suitable for observation and discharge home	
Threatened PTB	
Date of investigation	23/04/2021
Uterine activity present	Yes
Has the woman ruptured her membranes	No
Cervical length (mm)	35
fFN concentration (ng/ml)	30


Healthcare professional view



Today
Week 34

14/05/2021 Visit

 Possible Preterm Labour Assessment

 Your doctor should discuss the option of going home and explain the possible signs of preterm labour and what to do if this happens

Woman's view

Timing of Birth (ToB) assessment around 36 weeks

Routinely completed for women who are moderate or high chance of placental dysfunction

Run Timing of Birth assessment ($\geq 36/40$)



- ❑ **Supported by health directives**
 - Each Baby Counts directives
 - SBLCBv2 recommendations
 - NHS Maternity Incentive Scheme
 - NHS RHO and NHSE initiatives
- ❑ **Regulatory and safety standards**
 - NICE evidence standards for DHTs
 - CE-marked medical device
 - MHRA registration
 - Data held on NHSD Cloud



National rollout in England

2020/21
Development & Testing

- Community of Practice
- St. George's University Hospital
- University of Bristol/North Bristol Trust
- Women's Advisory Group

2021/22
Early adopter sites (n=5)

- Sheffield
- Ashford & St Peters
- Lewisham
- Greenwich
- Bolton

2023-25
Step randomised trial
(26 hospital sites)

Acceptability and usability

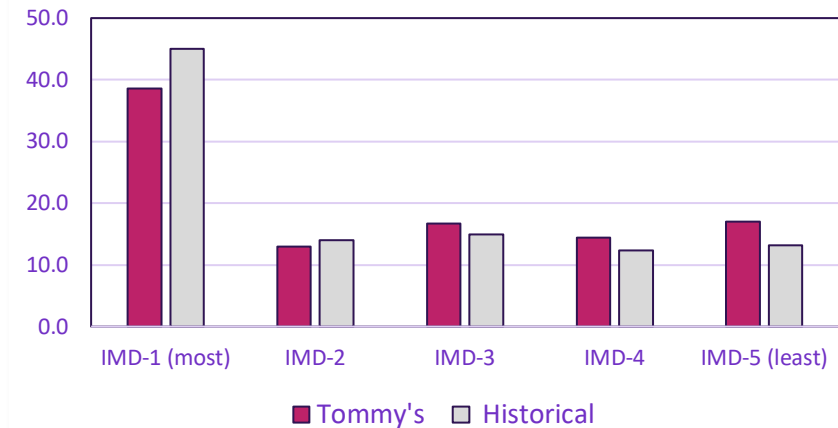
Women

- Reliable source of information
- Easy to use – its not an app

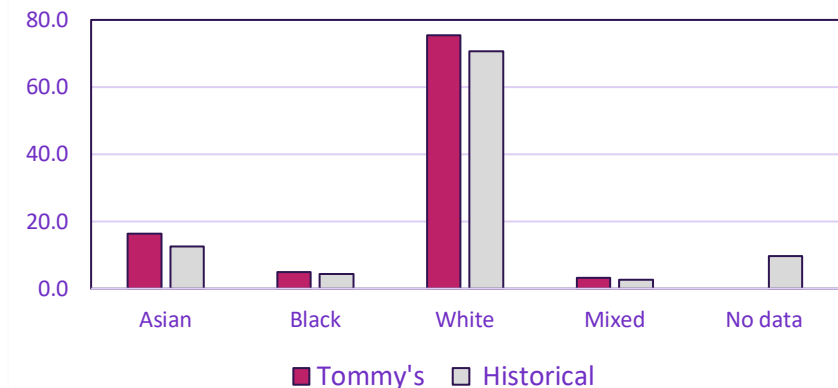
Healthcare professionals

- Support the concept
- I trust the science behind it
- Easier than anticipated

Index of Multiple Deprivation (%)



Ethnicity (%)



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Modules in development

2022

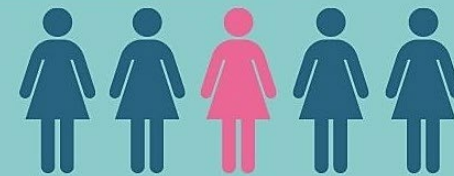
- Miscarriage and fertility

2023

- Perinatal mental health

2024

- Hypertension
- Diabetes
- Multiple pregnancy



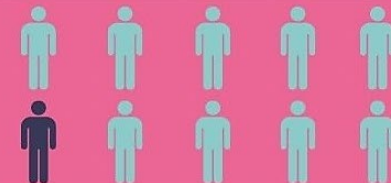
1 in 5 new or expectant
mums will experience
perinatal mental illness

Maternal mental health
conditions can range from low
mood to psychosis



Around one quarter of all maternal
deaths between six weeks and a year
after childbirth are related to mental
health problems

1 in 10 dads will
become depressed
during their partner's
pregnancy



Of fathers with depressed partners,
24% to 50%
experience depression themselves

Sources:

NHS England, Royal College of Obstetricians & Gynaecologists, NCT

Programme Leadership & Workstreams

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National Centre for
Maternity Improvement



CENTRE LEADERSHIP:

Co-Sponsors – Gill Walton (RCM, CEO) and Edward Morris (RCOG, President)

Collegiate Oversight – RCM: Birte Harlev-Lam & RCOG Prof Tim Draycott

Centre Clinical Director – Prof Basky Thilaganathan

Centre Deputy Directors – Prof Jane Sandall and Prof Andrew Judge

Head of Programme – Gemma Thurston

WORKSTREAMS & MULTI-PROFESSIONAL WORKSTREAM LEADS:

- Clinical Research: Prof Dilly Anumba & Prof Basky Thilaganathan
- Patient & Public Involvement: Maria Viner & Women's Reference Group
- Digital Development – Hannah Wilson & Elaine Sheehan
- Data & Statistical Analysis – Prof Andrew Judge & Erik Lengerraund
- Practical Implementation – Cathy Winter & Christy Burden
- Evaluation & Improvement Science – Prof Jane Sandall & Jenny Carter

YouTube explanatory Q&A video:

<https://youtu.be/vTZEVQMrSGE>



Step-by-step guide to the Tommy's app:

<https://vimeo.com/638468663/23d205d029>



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Key Contacts:

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Head of Programme – Gemma Thurston

