

Safer Baby Bundles in Queensland Using a Modified Breakthrough Series Collaborative Approach

Presented by:

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Patient Safety and Quality

Clinical Excellence Queensland

November 2024



**Safer
Baby
Bundle**

WORKING TOGETHER TO REDUCE STILLBIRTH



More Information

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Clinical
Excellence
Queensland



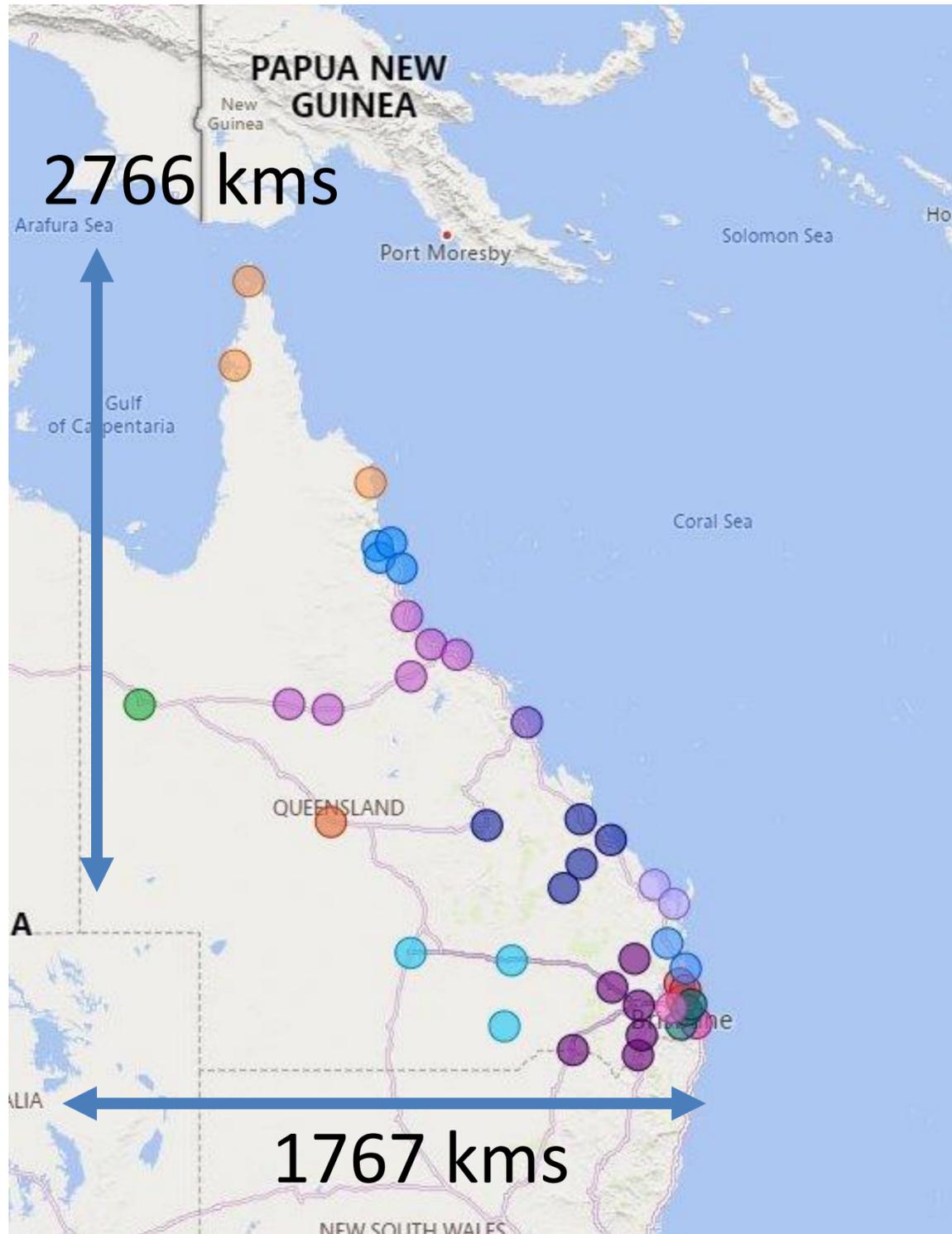
Queensland
Government

Conflict of interest



- We have no conflict of interest to declare.
- This work was conducted as an improvement project as part of our role in Clinical Excellence Queensland
- Funding was provided from the division's operational budget.
- Attendance at this conference is supported by Clinical Excellence Queensland.

Queensland, Australia



Qld population - 5,562,452
45 antenatal clinics
1,727,000 sq kms

7 x size of Great Britain
(population of 69,138,192)
with >12 times less
population



challenging to get to
everyone!

Background

In Australia 6 babies are born still every day (AIHW, 2024¹)

The Queensland Safer Baby Bundle Improvement Project was part of a national initiative to reduce preventable stillbirth post 28 weeks, in Australia, by 20%, by 2023 (now 2025)

Use of an evidence-based antenatal bundle of care

Targeting all sites across Queensland with an antenatal clinic using any model of maternity care

Partnering with midwives and obstetricians

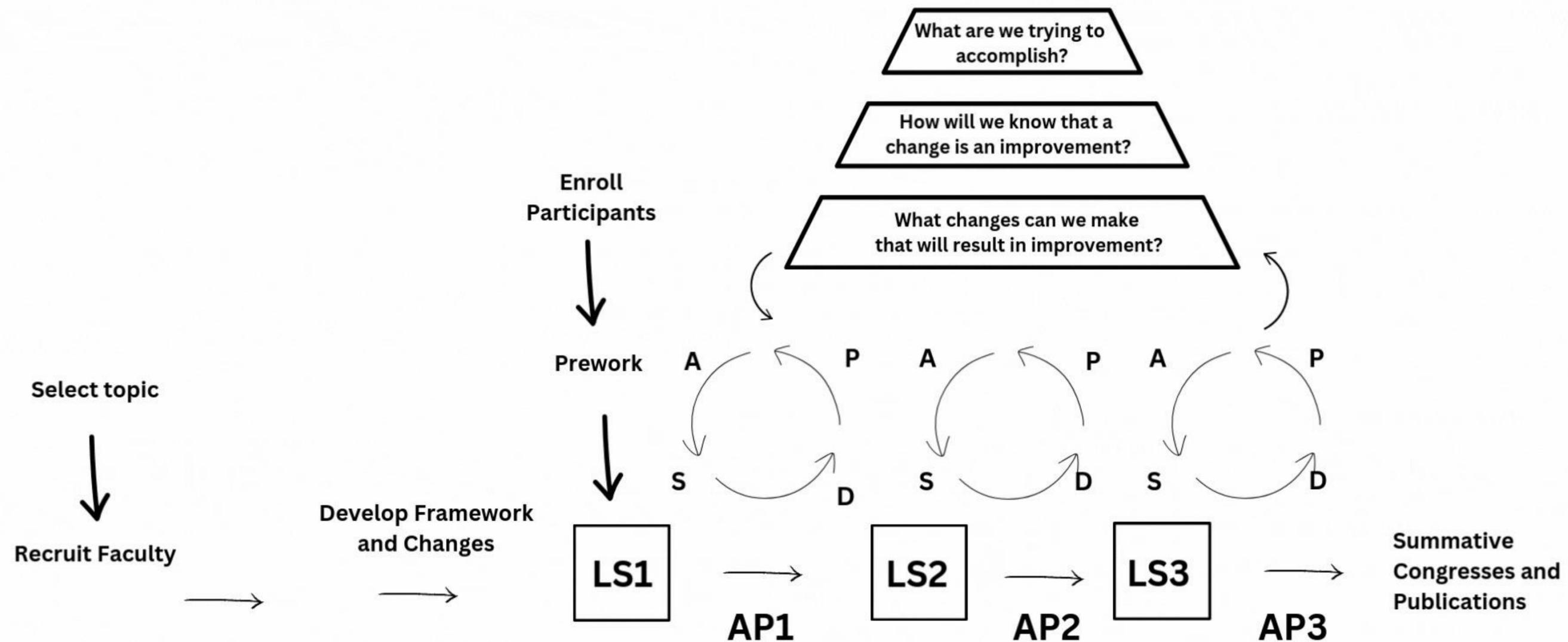
From October 2019 to December 2022

Hosted by Clinical Excellence Queensland (1.2fte)

Using a modified Breakthrough Collaborative Series

Background

IHI Breakthrough Series Collaborative and Model for Improvement



LS1: Learning Session
 AP: Action Period
 P-D-S-A: Plan-Do-Study-Act

Supports:
 ● Email ● Visits ● Phone Conferences ● Monthly Team Reports ● Assessments

Method

What did we do differently?

No SPC charts. Use of dashboard from a variety of data sources

No requirement to undertake formal PDSAs

Completion of Stillbirth CRE eLearning module prior to commencement

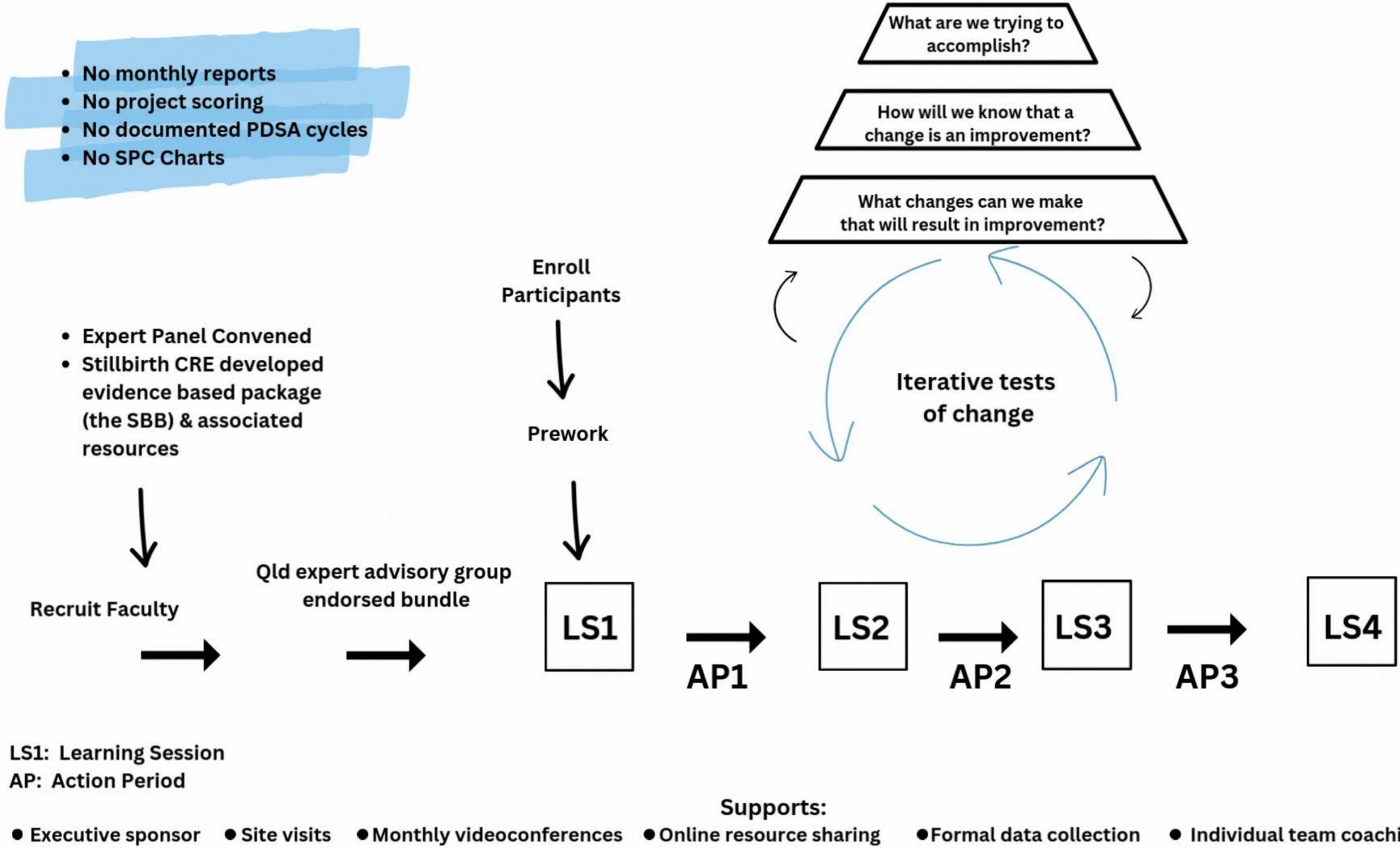
No fee to join

Added a final showcase and sustainability focussed learning session

No formal written reporting of progress or project progress scores

Support - site visits / 1:1 coaching

Modified Breakthrough Series Collaborative



- No monthly reports
- No project scoring
- No documented PDSA cycles
- No SPC Charts

- Expert Panel Convened
- Stillbirth CRE developed evidence based package (the SBB) & associated resources

LS1: Learning Session
AP: Action Period

Modified from the Institute for Healthcare Improvement. (2003). *The Breakthrough Series: IHI's Collaborative Model for Achieving Breakthrough Improvement* (IHI Innovation Series white paper)

Method

Steering committee to oversee

Engagement with:

- senior obstetric and midwifery clinicians via local teams
- executive sponsors via written agreements
- consumers – steering committee and local sites
- First Nations
- Stillbirth CRE – resources, advice, steering committee, national guidance



Method

Suite of measures for dashboard

Outcome (1)

Process (12 + 5 optional)

Balancing (4)

Aligned with national measures

Data sources

Clinician survey

Chart audit using Redcap

Quitline data

Perinatal data collection

Consumer survey

Dashboard



Number of women attended for antenatal care

16,123

Number of women with documented risk assessment for FGR at first antenatal booking visit

9,651

Number of women (at any gestation) whose care was escalated as per FGR care pathway

8,343

Number of women with SFH measurement taken and plotted on growth chart from 24 weeks gestation

5,046

Proportion of women with documented risk assessment for FGR at first visit

59.9% ^{100%} _{Target}

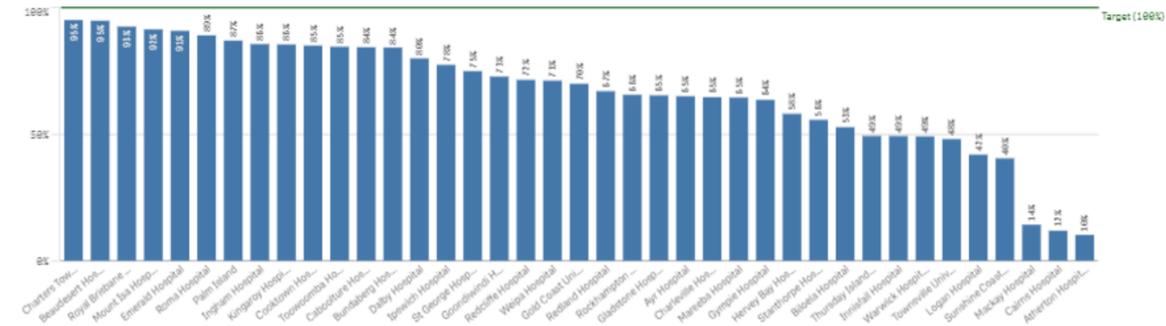
Proportion of women (at any gestation) whose care was escalated appropriately as per the FGR care pathway

51.7% ^{80%} _{Target}

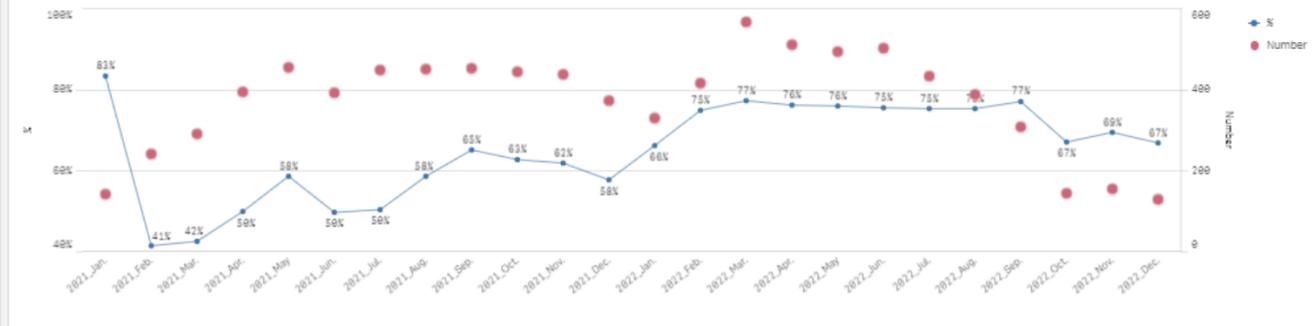
Proportion of women with SFH measurement taken and plotted on growth chart from 24 weeks gestation

31.3% ^{80%} _{Target}

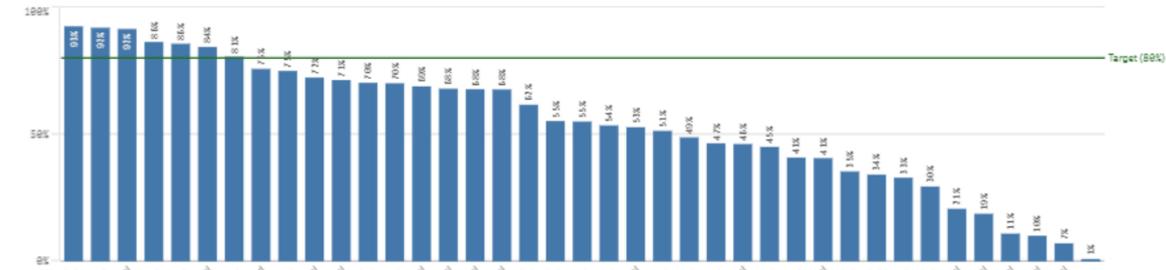
By site - Proportion of women with documented risk assessment for FGR at first antenatal visit



Run chart - Proportion & number of women with documented risk assessment for FGR at first antenatal visit



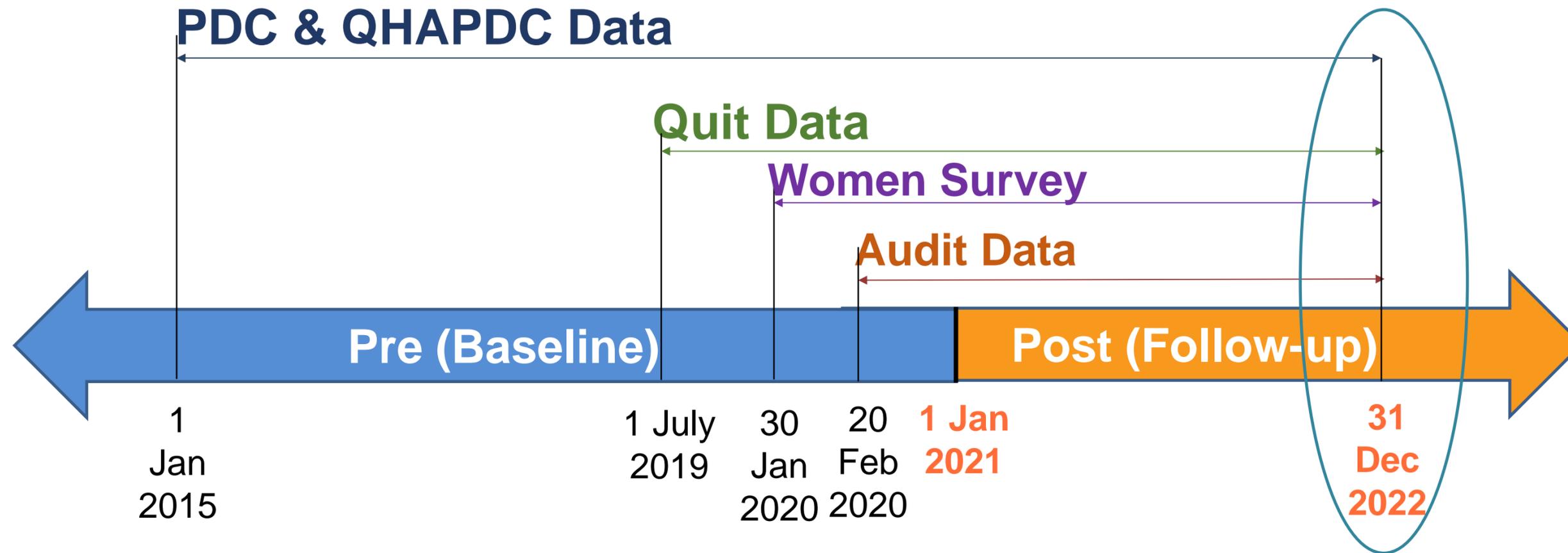
By site - Proportion of women (at any gestation) identified as at risk of FGR whose care was escalated as per the FGR care pathway



Run chart - Proportion & number of women (at any gestation) identified as at risk of FGR whose care was escalated as per the FGR care pathway



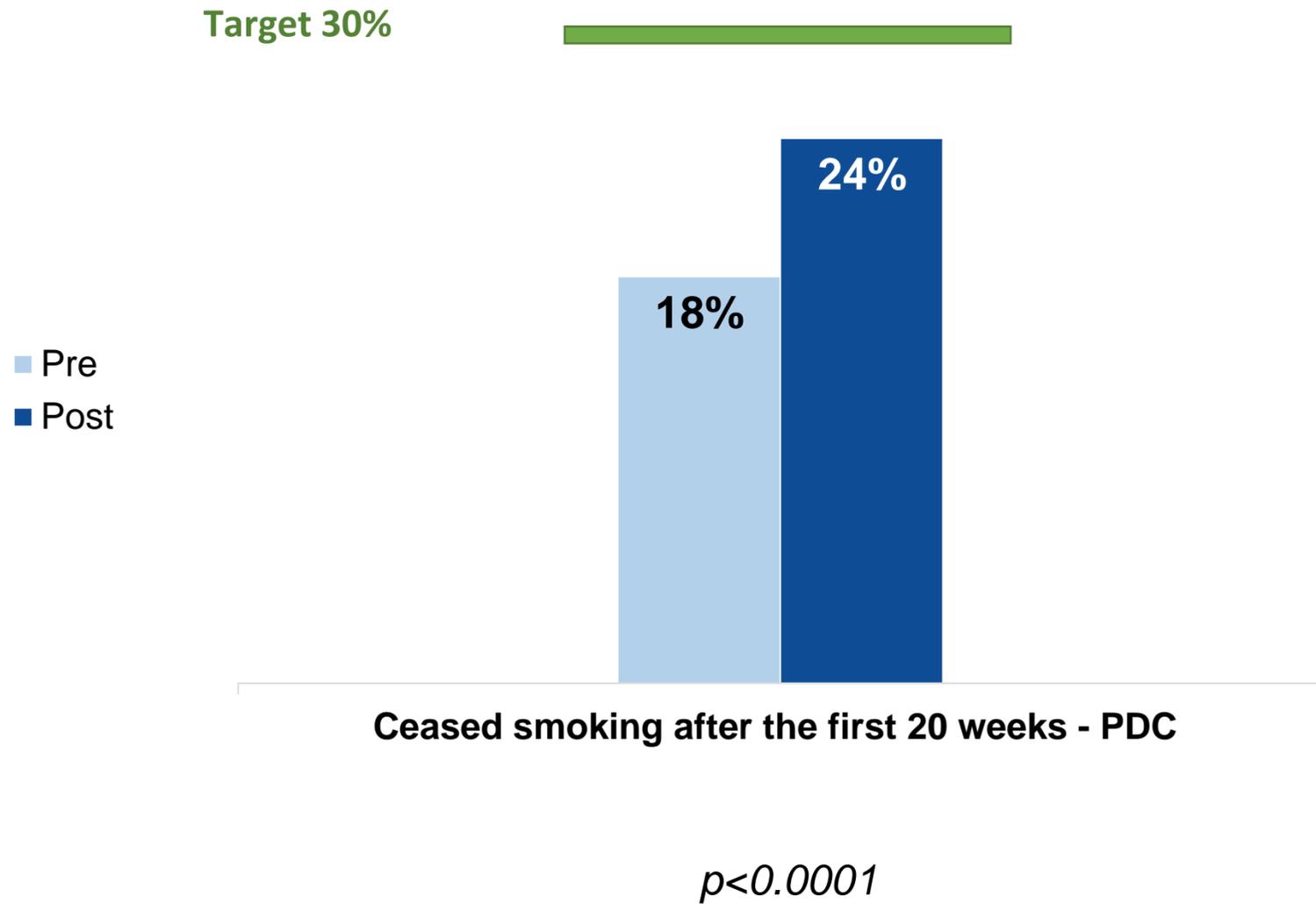
Time frame for different data used in SBB project



Element 1: Smoking cessation support:

Rate of smoking cessation after the first 20 weeks of pregnancy

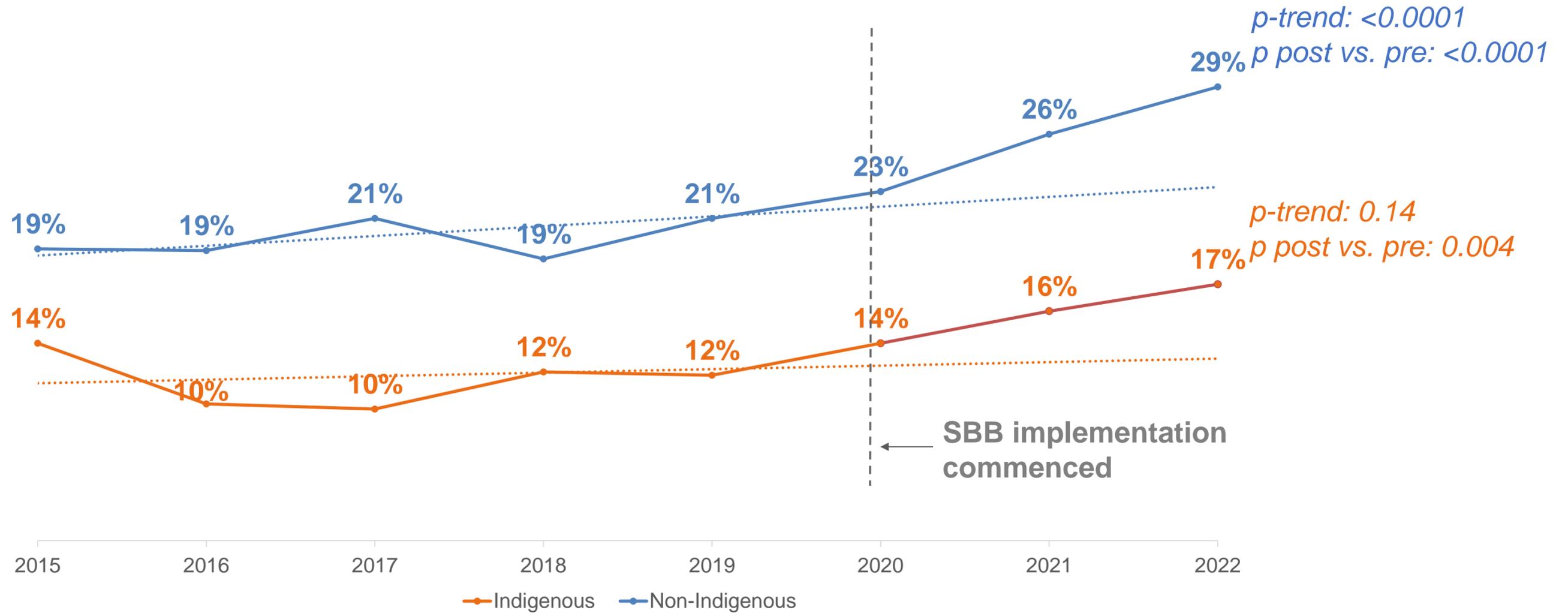
(among women who reported smoking in the first 20 weeks of pregnancy – PDC)



	Pre	Post	<i>p-value</i>
Indigenous	12%	16%	<0.0001
Non-Indigenous	20%	27%	<0.0001

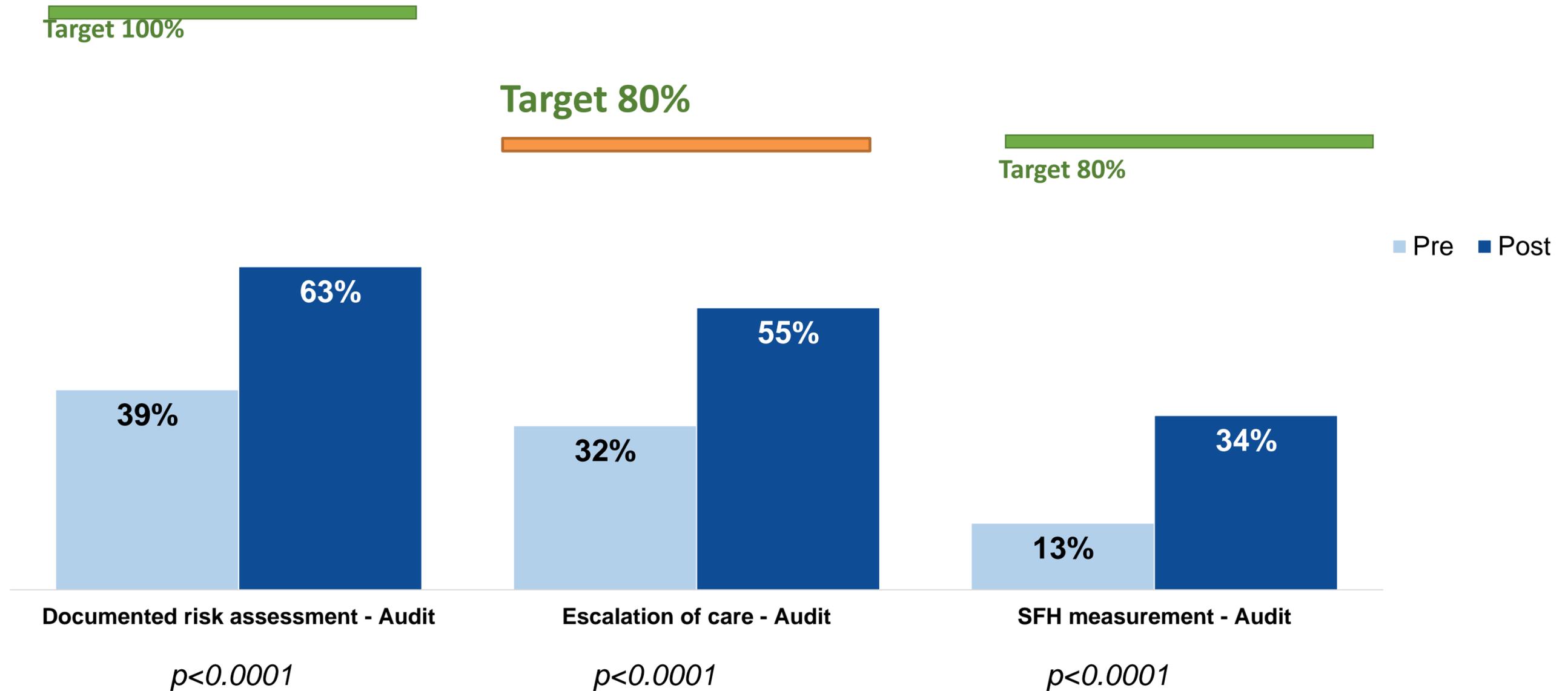
Element 1: Rate of smoking cessation after the first 20 weeks of pregnancy

(among women who reported smoking in the first 20 weeks of pregnancy – PDC)



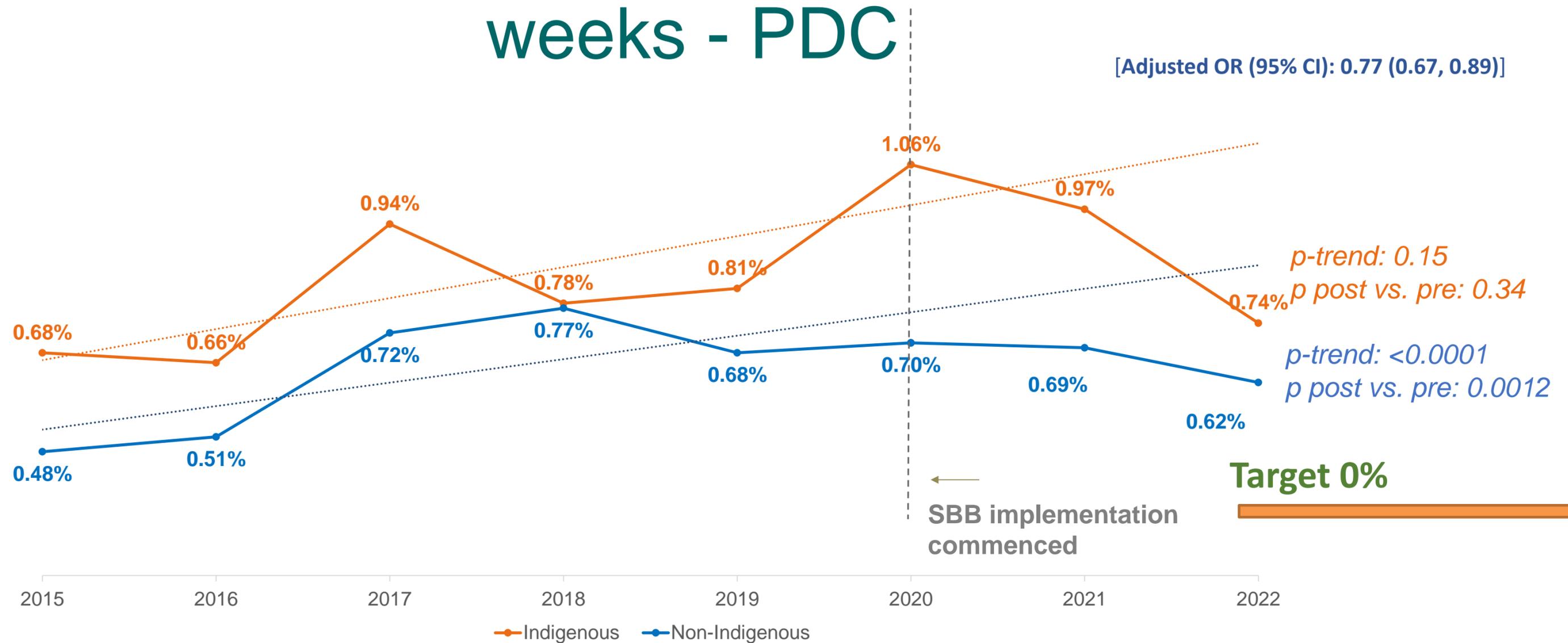
p values for trend from Wald test based on parameter estimate and SE from logistic regression for poisson distribution
 Comparison between groups. *p* values from Wald test based on parameter estimate and SE from logistic regression for poisson distribution

Element 2: Improved detection & management of impaired fetal growth



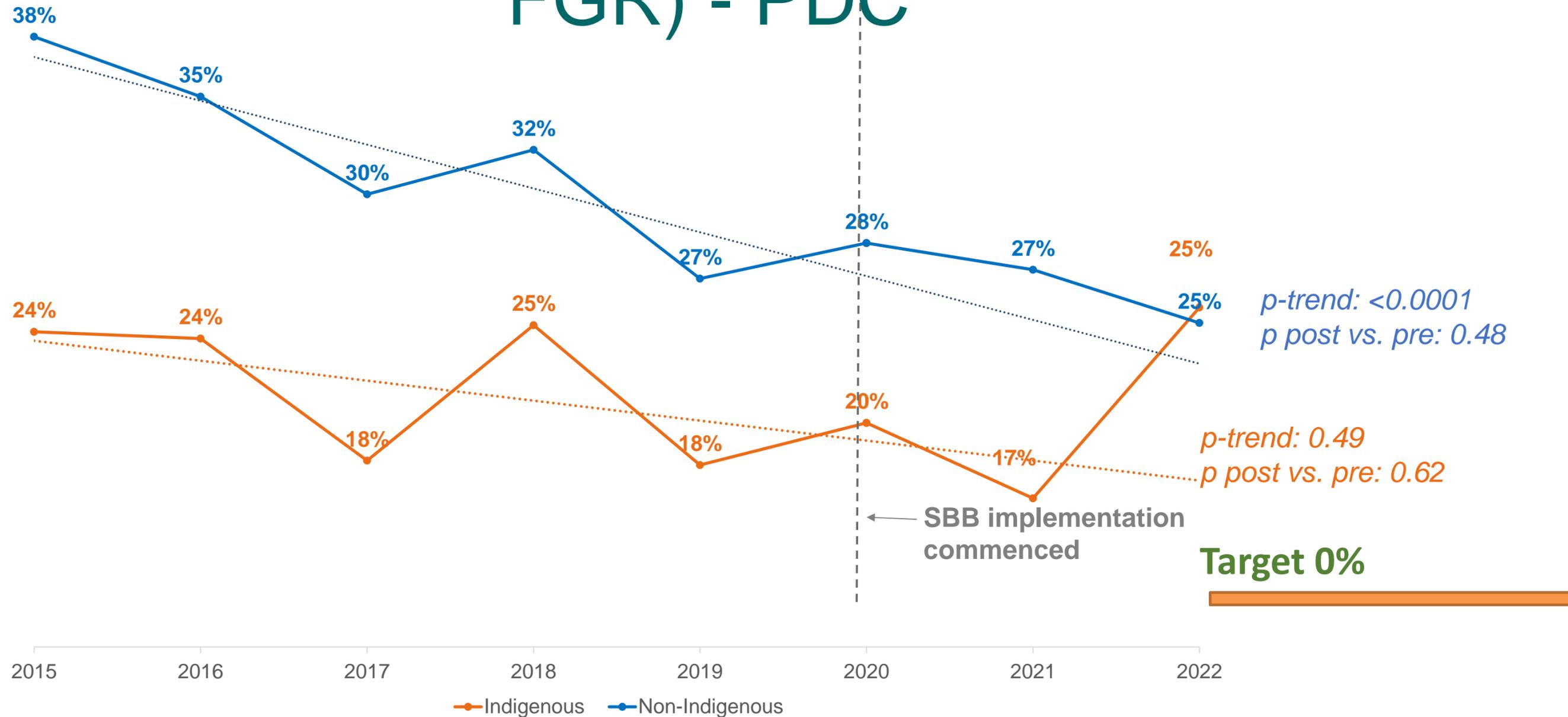
p-values from Chi Squared test

Element 2: Planned births for suspected FGR (false positive FGR) in all singleton births at ≥ 37 weeks - PDC



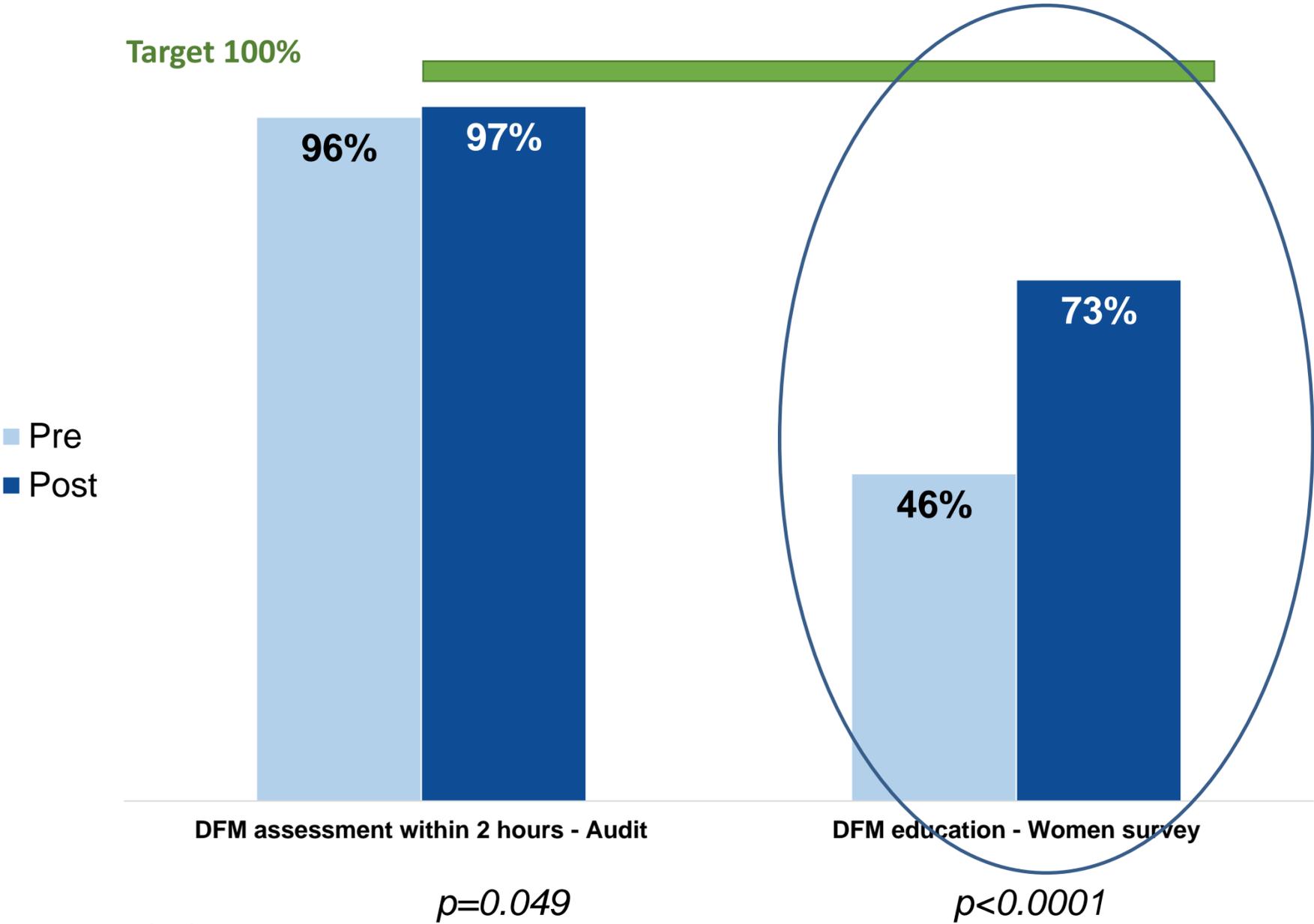
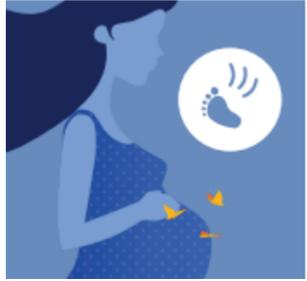
p values for trend from Wald test based on parameter estimate and SE from logistic regression for poisson distribution
 Comparison between groups. *p* values from Wald test based on parameter estimate and SE from logistic regression for poisson distribution

Element 2: Undetected severe FGR babies (missed FGR) - PDC



p values for trend from Wald test based on parameter estimate and SE from logistic regression for poisson distribution
 Comparison between groups. *p* values from Wald test based on parameter estimate and SE from logistic regression for poisson distribution

Element 3: Increasing awareness & management of women with decreased fetal movements (DFM)



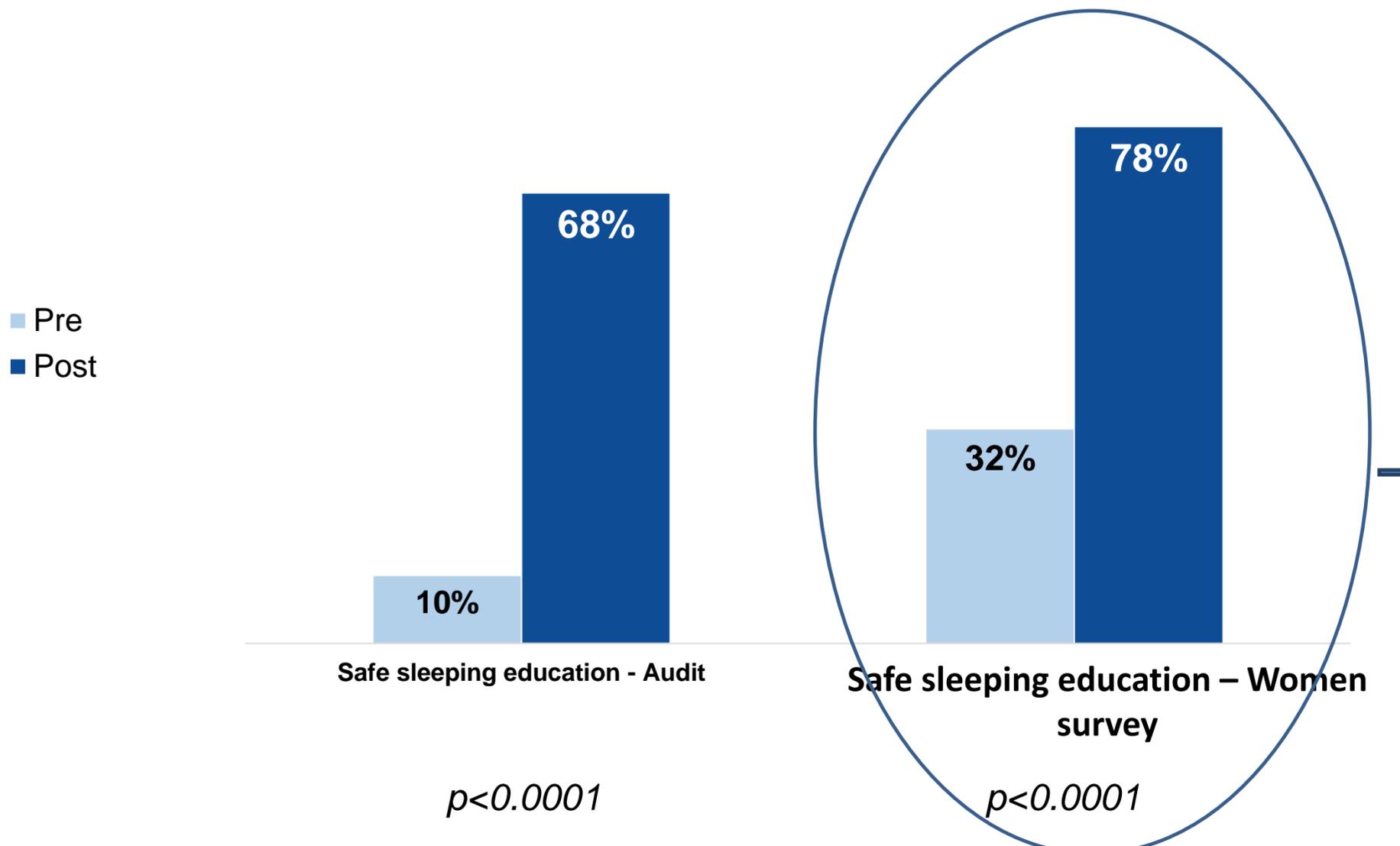
DFM education (women survey)	Pre	Post	<i>p-value</i>
Indigenous	43%	72%	0.017
Non-Indigenous	46%	73%	< 0.0001

p-values from Chi Squared test

Element 4: Provision of maternal safe sleeping advice



Target 100%

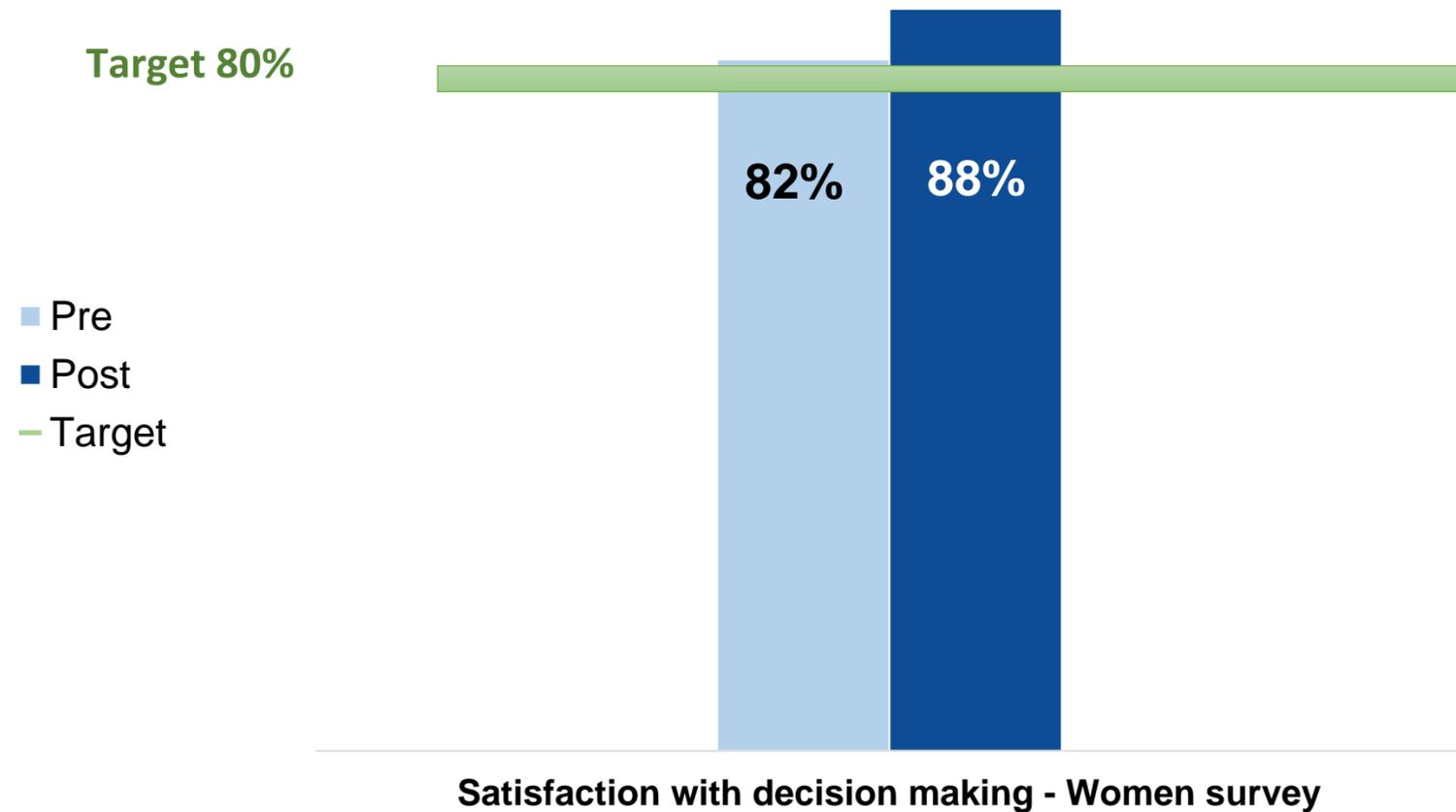


Safe sleeping education – Women survey	Pre	Post	<i>p-value</i> *
Indigenous	19%	72%	< 0.0001**
Non-Indigenous	33%	79%	< 0.0001

**p-values from Chi Squared test*
 ***p-value from Fisher exact test*

Element 5:

Improved decision making around timing of birth for women with risk factors



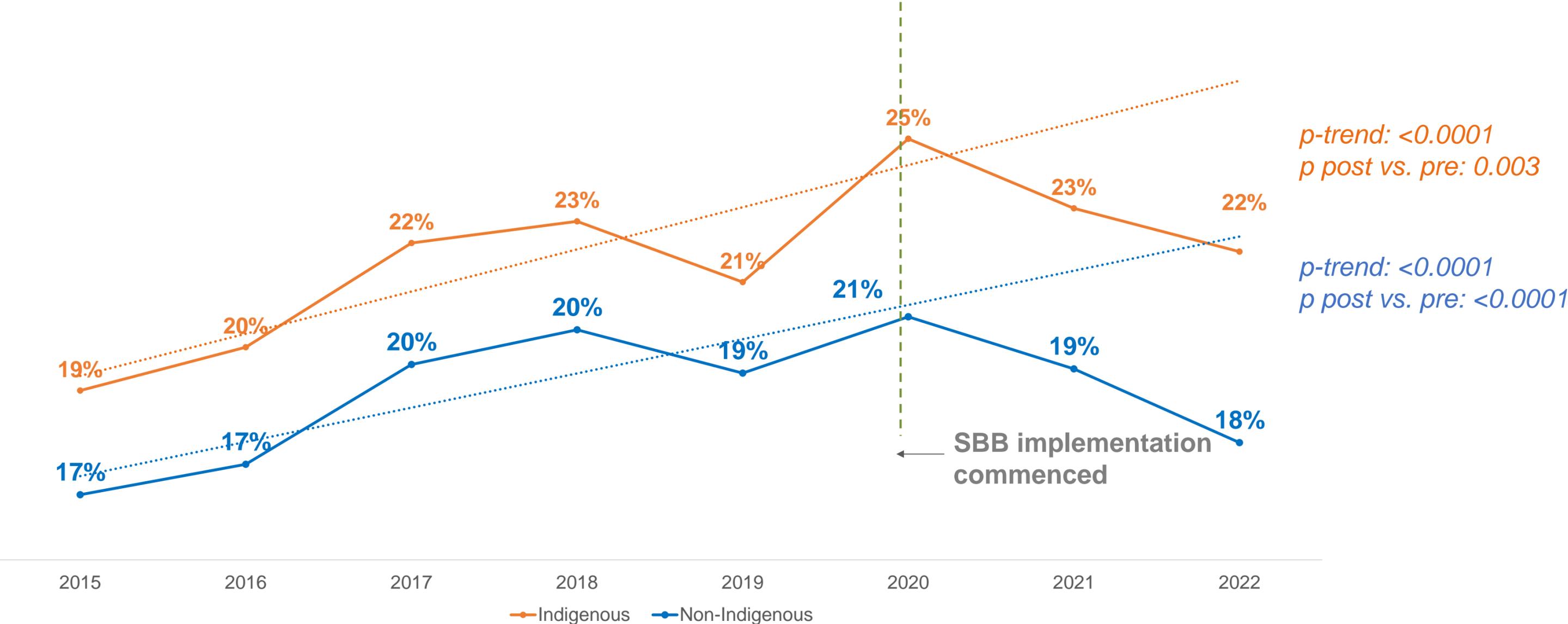
Satisfaction with decision making - women survey	Pre	Post	<i>p-value</i>
Indigenous	81%	91%	0.25**
Non-Indigenous	82%	88%	0.02

p-values from Chi Squared test
***p-value from Fisher exact test*

No adverse impact on balancing measures

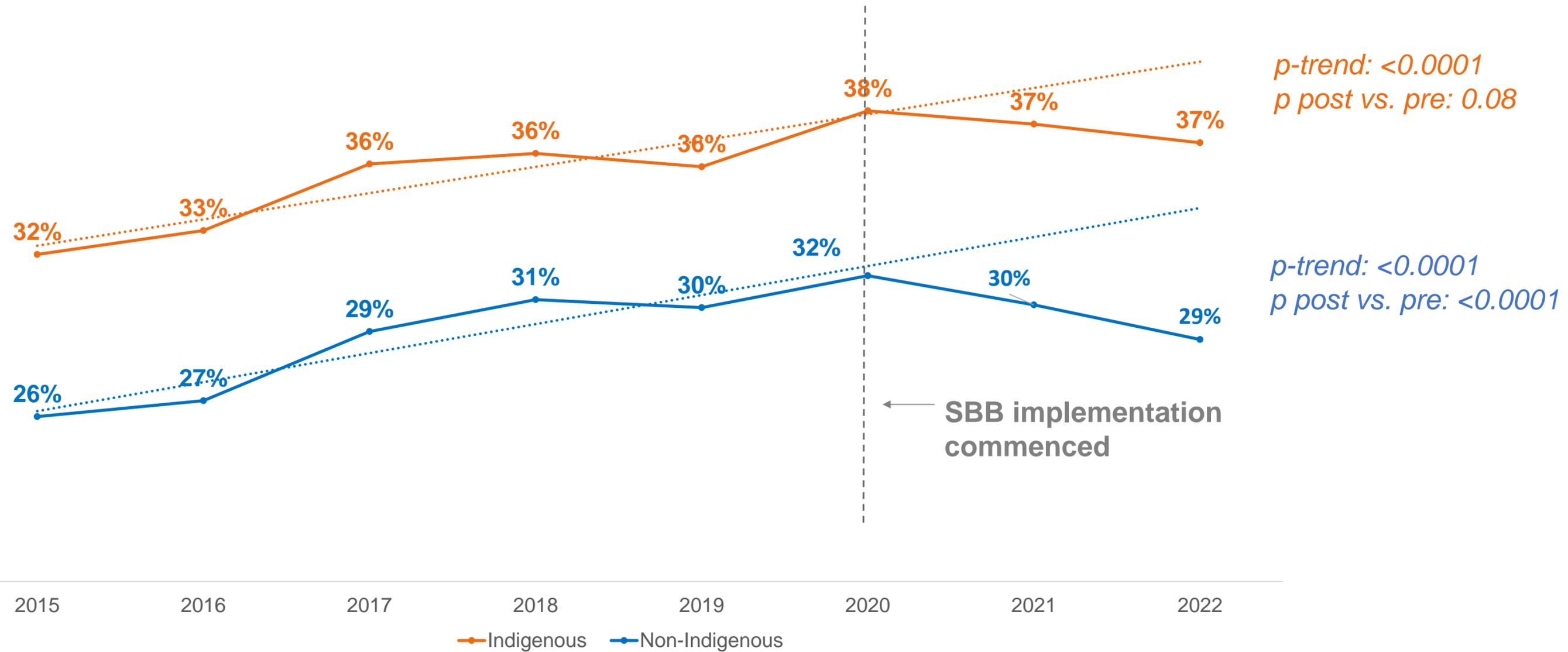


Induction of labour (IOL) or elective caesarean sections before 39 weeks with singleton pregnancy



p values for trend from Wald test based on parameter estimate and SE from logistic regression for poisson distribution
 Comparison between groups. *p* values from Wald test based on parameter estimate and SE from logistic regression for poisson distribution

Early term births (between 37 & 38+6 weeks)



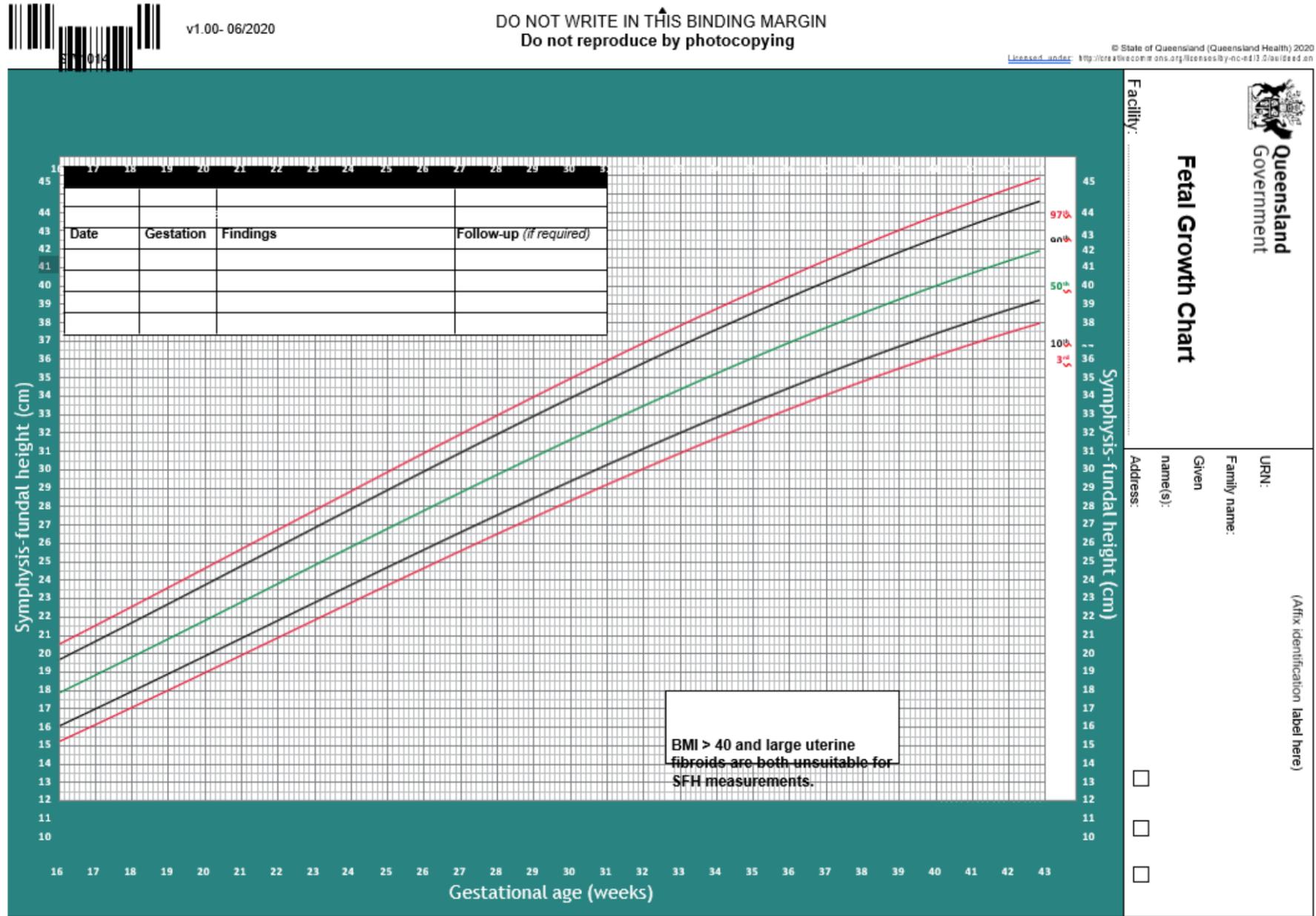
p values for trend from Wald test based on parameter estimate and SE from logistic regression for poisson distribution
 Comparison between groups. *p* values from Wald test based on parameter estimate and SE from logistic regression for poisson distribution

Stillbirths – rate per 1000 births



	Pre	Post
All	2.1	2.1
Indigenous	3.5	3.7
Non-Indigenous	2.0	2.0

Standardisation & Sustainability



Page 2 of 2

Standardisation & Sustainability



Metro North Hospital and Health Service *Putting people first*

Caboolture Hospital – Womens, Childrens and Family Services

Guideline

Effective from: June 2020
Review date: June 2023

Standardised Fetal Growth Chart, Use of and Referral Pathway - 005436



Background

Assessment of fetal growth using fundal height remains an important first level screening tool during routine antenatal care for detection of abnormal fetal growth (Papageorgiou et al., 2016).

Plotting fundal height measurements and estimated fetal weights (EFW) provides a visual aid in the assessment of fetal growth trajectory. Deviation on the normal growth curve prompts timely consultation, escalation and referral for ultrasound scan and follow up.

A fundal height or EFW that deviates on a normal growth curve could indicate conditions such as:

- small for gestational age, fetal growth restriction or oligohydramnios
- large for gestational age, fetal macrosomia or polyhydramnios.

(RANZCOG, 2018) recommends serial measurement of fundal height at each antenatal appointment from 24 weeks of pregnancy.

Caboolture Hospital Maternity Services recommends that all women, at each visit from 28 weeks, should have their level of care reviewed and documented.

Purpose and intent

This document outlines the process for fetal growth measurement (fundal height and estimated fetal weight) and pathways for referral to optimise the detection and timely review of abnormal fetal growth. This is undertaken by the utilisation of the:

- *Caboolture Hospital Fetal Growth Restriction (FGR) Care Pathway (Appendix 2)*
- *Standardised Growth Chart Referral Pathway*. (Attachment 3)
- *Standardised Fetal Growth Chart - Fundal Height Chart - MR A 10820 (page1)* (Attachment 4)
- *Standardised Fetal Growth Chart – Fetal Weight chart - MR A 10820 (page 2)* (Attachment 4)

Scope and target audience

This document applies to all Caboolture Hospital clinical staff (permanent, temporary, casual and agency), students, and privately practicing midwives (PPM).

Standardised Fetal Growth Chart, Use of and Referral Pathway - 005436
– Guideline
V2 Effective: June 2020 Review: June 2023

Caboolture Hospital – Womens, Childrens and Family Services

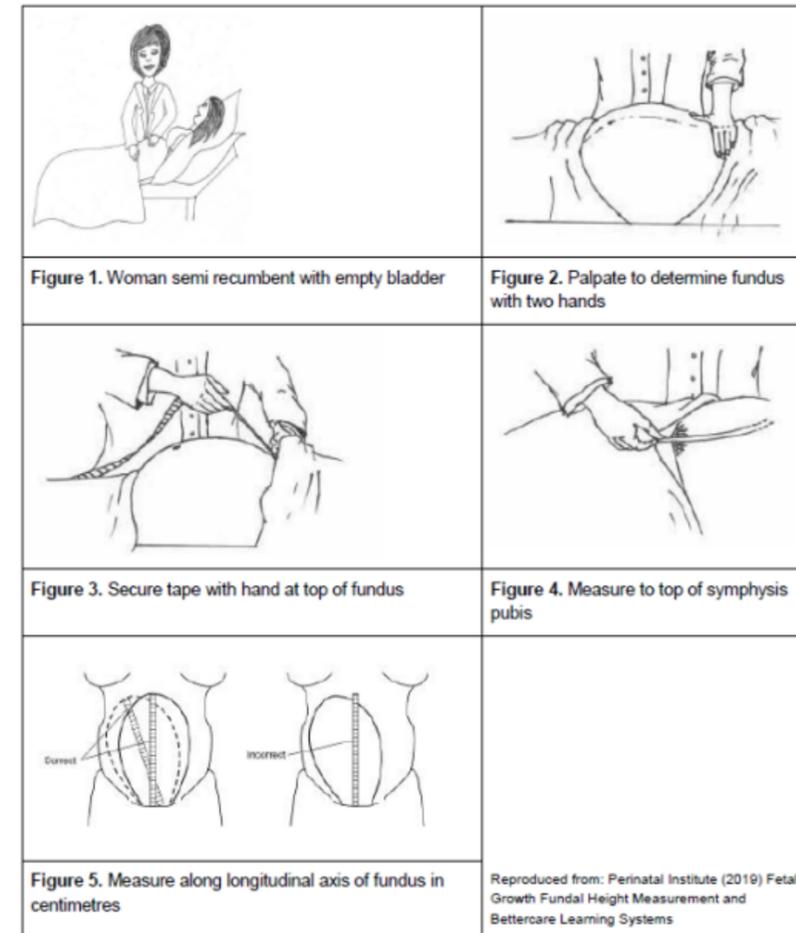


Figure 1. Woman semi recumbent with empty bladder

Figure 2. Palpate to determine fundus with two hands

Figure 3. Secure tape with hand at top of fundus

Figure 4. Measure to top of symphysis pubis

Figure 5. Measure along longitudinal axis of fundus in centimetres

Reproduced from: Perinatal Institute (2019) Fetal Growth Fundal Height Measurement and Bettercare Learning Systems

Exclusion

All women who have an obstetric ultrasound scan require estimated fetal weight to be recorded on the *Standardised Fetal Growth Chart (MRA 10820) - fetal weight chart (page 2)* by the medical officer or RM reviewing this scan report. Refer as per *Standardised Growth Chart Referral Pathway (Attachment 3)*.

Standardised Fetal Growth Chart, Use of and Referral Pathway - 005436 – Guideline
V2 Effective: June 2020 Review: June 2023

Standardisation & Sustainability

eLearning



Safer Baby Bundle eLearning module

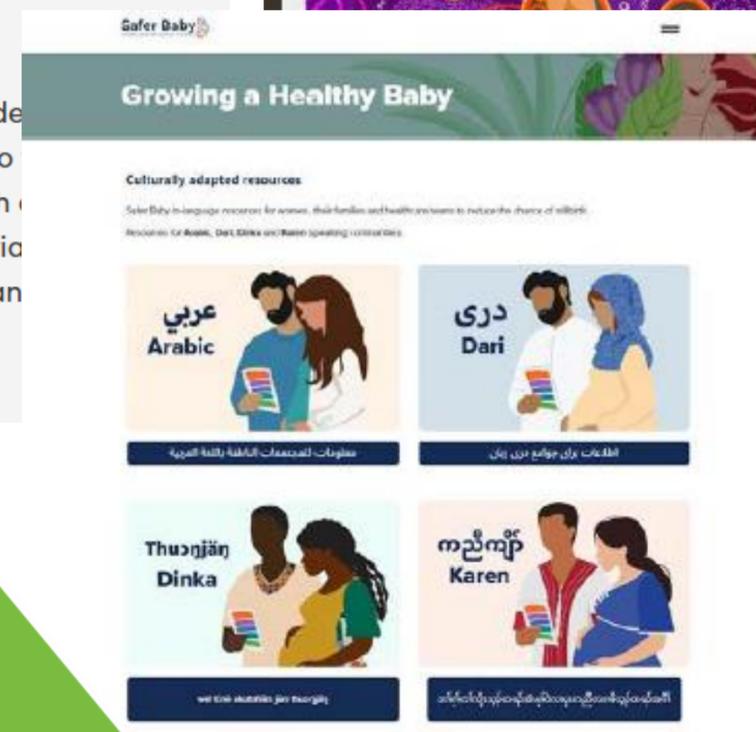
The Safer Baby Bundle module provides evidence based information for maternity health care providers on the 5 elements of the bundle: Smoking Cessation, Fetal Growth Restriction (FGR), Decreased Fetal Movements (DFM), Side Sleeping and Timing of Birth.

START MODULE

IMPROVE IMproving Perinatal Mortality Review and Outcomes Via Education

IMPROVE eLearning module

IMPROVE - This is a training package of six courses and is designed to support maternity healthcare professionals in responding to women who have experienced stillbirth, and gain crucial learnings. Each course takes approximately 20 minutes to complete and provides essential information for obstetricians, midwives, nurses, general practitioners and antenatal educators.



Standardisation & Sustainability



Queensland Government
Gold Coast Health
PREGNANCY RISK ASSESSMENT

(Affix identification label here)
URN: _____
Family name: _____
Given name(s): _____
Address: _____
Facility: _____ Date of birth: _____ Sex: M F I

Age: _____ G: _____ P: _____ EDD: _____ Gestational age today: _____ Singleton Multiple
Current Model of Care: _____ WOBA number: _____ GP Details: _____

OBSTETRIC RISK FACTORS, MEDICAL / MENTAL HEALTH CONDITIONS, MEDICATIONS, ABNORMAL INVESTIGATIONS:
 Yes No – If Yes, please document below, consult ACM Referral Guidelines & REFER TO CHART REVIEW CLINIC

RISK FACTORS FOR PERINEAL TEAR
 Previous 3rd or 4th degree tear
 Nulliparous AND from South East Asia
Management
• REFER TO CHART REVIEW CLINIC
• USS and chart review at 36 weeks

RISK FACTORS FOR STILLBIRTH

LOW RISK <input type="checkbox"/> No FGR / Stillbirth risk factors identified <input type="checkbox"/> More than 50% of FGR cases occur in women with NO identifiable risk factor	Management <input type="checkbox"/> Perform standardised serial SFH measurements at each antenatal visit from 24 weeks gestation and follow existing guidelines
MODERATE RISK Risk factors for FGR / Stillbirth identified MINOR RISK FACTORS <input type="checkbox"/> Age ≥35 years and nulliparous <input type="checkbox"/> IVF <input type="checkbox"/> BMI >30 <input type="checkbox"/> Alcohol, Substance Use, Smoking <input type="checkbox"/> ATSI, pacific, African or South Asian ethnicity <input type="checkbox"/> No / poor antenatal care MAJOR RISK FACTORS <input type="checkbox"/> Age ≥40 years and nulliparous <input type="checkbox"/> Previous late FGR / SGA (>32 weeks) <input type="checkbox"/> Papp A ≤0.4 MoM Antenatal Complications <input type="checkbox"/> Suspected FGR / SGA by SFH or USS (e.g. slow growth, static growth, <10 th centile) <input type="checkbox"/> Pre-eclampsia <input type="checkbox"/> Antepartum haemorrhage <input type="checkbox"/> Congenital infection Unsuitable for SFH measurements <input type="checkbox"/> BMI ≥40 <input type="checkbox"/> Large uterine fibroids	Management <input type="checkbox"/> 1 minor risk factor: Routine care with SFH measurements (if continued smoking / substance abuse or BMI >30 then consider USS at 28 – 30 + 34 – 36 wks and REFER TO CHART REVIEW CLINIC) <input type="checkbox"/> 2 x minor risk factors: Consider 1 – 2 x third trimester ultrasounds after 28 weeks. REFER TO CHART REVIEW CLINIC <input type="checkbox"/> 3 or more minor RF's or 1 major risk factor • Consider 2 – 3 third trimester ultrasounds from 28 weeks. • Commence low dose Aspirin (100-150mg nocte) prior to 16 weeks and continue to 36 weeks. REFER TO CHART REVIEW CLINIC. • If pregnancy uncomplicated consider IOL from 39 weeks
HIGH RISK OF EARLY FGR <input type="checkbox"/> Previously early (<32 weeks) FGR / SGA and / or pre-eclampsia <input type="checkbox"/> Previous stillbirth with FGR / SGA Maternal medical conditions e.g.: • Antiphospholipid antibody syndrome • Renal impairment • Chronic hypertension • Diabetes with vascular disease	Management • REFER TO CHART REVIEW CLINIC • Consider Uterine Artery Doppler at 20 – 24 weeks • 2 – 4 weekly growth scans from 24 weeks • Recommend dose aspirin (100 – 150 mg nocte) to commence prior to 16 weeks gestation and continue to 36 weeks • Timing of birth according to sMFM guidance

ACTIONS TAKEN:
 Nil referral required REFERRED TO CHART REVIEW CLINIC via email: GPI.Qmidwife@health.qld.gov.au
Discussed: Smoking Side sleeping Fetal movements Fetal growth Timing of birth / Risks of stillbirth
Clinician name (print): _____ Designation: _____
Signature: _____ Date: _____

00050.GC-10915
Date Reviewed – 07/2023
All clinical form creation and amendments must be conducted through Health Information Services
00104-63bab

PREGNANCY RISK ASSESSMENT

Queensland Government
Safer Baby Bundle Risk Assessment

(Affix identification label here)
URN: _____
Family name: _____
Given name(s): _____
Address: _____
Facility: _____ Date of birth: _____ Sex: M F I

Signature Log Every person documenting in this form must supply a sample of their initials and signature below.

Initials	Signature	Name	Designation	Initials	Signature	Name	Designation

Safer Baby Bundle
WORKING TOGETHER TO REDUCE STILLBIRTH

Element 1 Smoking Cessation (Refer to QUIT Smoking Cessation Care Pathway)	Element 2 Fetal Growth (Refer to FGR flowchart)	Element 3 Fetal Movement (Refer to DDH DFM flowchart)	Element 4 Side Sleeping (Refer to Sleep on your side when baby inside brochure)	Element 5 Timing of Birth (Refer to Every Week Counts brochure)
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Risk factors for Stillbirth Prevention (tick)

<input type="checkbox"/> Maternal Age > 35	<input type="checkbox"/> No / limited antenatal care
<input type="checkbox"/> BMI > 30	<input type="checkbox"/> Previous stillbirth
<input type="checkbox"/> Maternal smoking	<input type="checkbox"/> Pre-existing diabetes
<input type="checkbox"/> Nulliparity	<input type="checkbox"/> Pre-existing hypertension
<input type="checkbox"/> Artificial Reproductive Technology	<input type="checkbox"/> Pre-eclampsia
<input type="checkbox"/> Alcohol/drug use	<input type="checkbox"/> Small for gestational age (< 10th centile)
<input type="checkbox"/> Aboriginal and Torres Strait Islander, Pacific, African and South Asian ethnicities	<input type="checkbox"/> Decreased fetal movement presentation

Initial/Date: _____

LEVEL 2 SURVEILLANCE: Risk factors for FGR <input type="checkbox"/> Age ≥ 40 years or ≤ 20 <input type="checkbox"/> Substance use during pregnancy: smoking, drugs <input type="checkbox"/> IVF singleton pregnancy <input type="checkbox"/> Limited antenatal care <input type="checkbox"/> Booking BMI ≥ 35 or ≤ 18 <input type="checkbox"/> Previous late (> 32 weeks) FGR/SGA <input type="checkbox"/> PaPP A < 0.4 MoM	LEVEL 3 SURVEILLANCE: Risk factors for FGR <input type="checkbox"/> Previous early (< 32 weeks) FGR/SGA and/or pre-eclampsia <input type="checkbox"/> High risk first trimester pre-eclampsia screening result in this pregnancy <input type="checkbox"/> Previous stillbirth with FGR/SGA Maternal medical conditions, eg: <input type="checkbox"/> Antiphospholipid antibody syndrome <input type="checkbox"/> Renal impairment <input type="checkbox"/> Chronic hypertension <input type="checkbox"/> Diabetes with vascular disease
--	--

Initial/Date: _____

FGR Level Surveillance Booking <input type="checkbox"/> L1 <input type="checkbox"/> L2 <input type="checkbox"/> L3 28 weeks <input type="checkbox"/> L1 <input type="checkbox"/> L2 <input type="checkbox"/> L3 36 weeks <input type="checkbox"/> L1 <input type="checkbox"/> L2 <input type="checkbox"/> L3	Initial/Date: _____	Side sleeping discussion and pamphlet provided Booking <input type="checkbox"/> Initial/Date: _____ 20 weeks <input type="checkbox"/> Initial/Date: _____ 24 weeks <input type="checkbox"/> Initial/Date: _____
Decreased fetal movement episodes Initial/Date: _____	Brochures provided Fetal Movement Safer Baby Initial/Date: _____	

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v2.00 - 06/2022
Mat No: 10414998
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All clinical form creation and amendments must be conducted through Health Information Services.
Acknowledgement: Centre of Research Excellence in Stillbirth
Western Pacific Regional Office of the International Stillbirth Alliance
Coordinating Centre: PSANZ Stillbirth & Neonatal Death Alliance (PSANDYA)

Page 1 of 2



Standardisation & Sustainability



Fetal Growth Restriction Care Pathway

Please follow local guidelines relating to risk factors and surveillance levels

No risk factors for FGR identified
More than 50% of FGR cases occur in women with NO identifiable risk factors

Level 1 Surveillance

- SFH measurement from 24 weeks gestation
- Plot measurement on SFH graph
- Ultrasound as clinically indicated

Level 2 FGR Risk Factors

- None
- Age > 40 years or age < 20 years
- IVF Singleton pregnancy
- BMI > 35 or BMI < 18
- Previous late FGR/SGA > 32weeks
- PaPP A < 0.4MoM
- Smoking or Substance use in pregnancy
- Limited antenatal care

Level 2 Surveillance

- Fetal growth USS 26-28 weeks gestation
- Fetal growth USS 34-36 weeks gestation
- Additional USS as clinically indicated
- SFH measurement from 24 weeks gestation
- Plot measurement

Level 3 FGR Risk Factors

- None
- Previous early FGR/SGA > 32weeks
- Previous early Pre-eclampsia > 32weeks
- 1st trimester pre-eclampsia this pregnancy
- Previous Stillbirth with FGR/SGA
- Maternal Antiphospholipid antibody syndrome
- Maternal Renal impairment
- Maternal Chronic hypertension
- Maternal Diabetes with Vascular disease

Level 3 Surveillance

- Fetal Growth USS 2-4 weeks from 24 weeks gestation
- Com

Decreased Fetal Movements

Fetal Movement Information discussed Yes No

Information Brochure provided Yes No

Side Sleeping

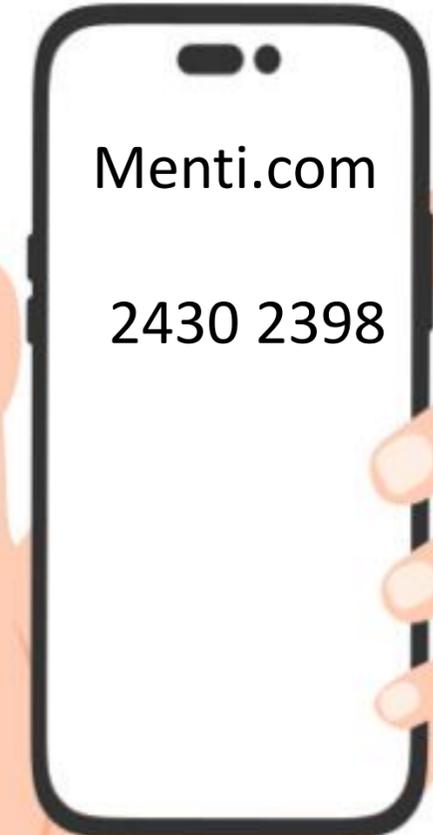
Side Sleeping Information discussed Yes No

Side Sleeping Brochure provided Yes No

References

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2. Queensland Maternal and Perinatal Quality Council, *Queensland Mothers and Babies: 2014 and 2015: Report of the Queensland Maternal and Perinatal Quality Council*. 2018.
3. Resar, R., Griffin, F.A., Haraden, C., Nolan, T.W., *Using Care Bundles to Improve Health Care Quality*, in IHI Innovation Series White Paper. 2012, Institute for Healthcare Improvement: Cambridge, Massachusetts. p. 1-18.
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6. Institute for Healthcare Improvement. *The Breakthrough Series: IHI's Collaborative Model for Achieving Breakthrough Improvement in IHI Innovation Series White Paper*. 2003, Institute for Healthcare Improvement: Cambridge, Massachusetts.

Mentimeter





Thank you & further info



More Information

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Stillbirth Centre of Research Excellence

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<https://stillbirthcre.org.au/parents>

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