

# Better Births for Women Collaborative - Evaluation

OFFICIAL

## Background

Perineal tears are lacerations of the skin and tissue that separate the vagina from the anus (1). Complications such as third- and fourth-degree perineal tears during vaginal birth are classified as severe trauma to the perineum and are associated with maternal morbidity such as perineal pain, incontinence, or painful sexual intercourse (1). Furthermore, severe perineal trauma can lead to lifelong impact on a woman's wellbeing, including both physical and psychological morbidities (2).

In Victoria in 2017-18, the state-wide rate of third- and fourth-degree perineal tears in unassisted births was 3.2%, while the rate of third- and fourth- degree tears in assisted births was 4.7%. On both counts, the rate was higher in public hospitals than in private hospitals and there was significant variation between hospitals in rates of severe perineal tears, ranging from zero to 20% for unassisted vaginal births and zero to 11% for assisted vaginal births (3).

From 2019 until 2021, SCV and IHI partnered to deliver the Victorian Better Births for Women (BBW) Collaborative which aimed to reduce the rate of third- or fourth- degree perineal tears through the introduction of an evidence-based clinical care bundle. This initiative used an adapted [breakthrough series \(BTS\) collaborative approach](#) to test, implement, and scale evidenced-based changes across 13 Victorian maternity service teams (see [Appendix 1](#) for list of participating health services).

The Victorian BBW Collaborative built on the success of the National Collaborative led by Women's Healthcare Australasia (2017 to 2019) to reduce harm to women from perineal tears. This National Collaborative led to a 13.43% reduction in the rate of third- and fourth-degree perineal tears so the same clinical care bundle was adapted for Victorian Health Services to build on this success.

This post-hoc evaluation was completed in 2023 whilst the collaborative concluded in 2021. Members of the evaluation team were not previously involved in the collaborative.

## What did we want to accomplish?

### Better Births for Women collaborative aim

By July 2021, the Better Births for Women collaborative will reduce harm to Victorian women by preventing 50% of third- and fourth-degree perineal tears across participating maternity services.

Our goals were to accomplish this by focusing on:

- Consistent, reliable use of the clinical care bundle
- Partnering with women during pregnancy, labour and birth, and immediately after birth, to support identification of risk factors and shared decision making.

The five key aspects of clinical care bundle are:

- Application of warm perineal compress during labour
- Hands on to support the perineum, with gentle verbal guidance
- Episiotomy performed when indicated (during instrumental delivery and at 60 degrees)
- Genito-anal examination<sup>1</sup> is offered to all women post birth
- Grading of perineal tear based on Royal College of Obstetricians and Gynaecologists (RCOG) grading and reviewed by experienced clinician.

## Did it work?

Key achievements for the program included:

- avoidable harm prevented for 155 women (a 45% reduction in the aggregate severe perineal tears rate towards the target reduction of 50%)
- participating teams reported overall a positive experience and particularly enjoyed the leadership opportunities, learning improvement science and being able to connect and share with other teams
- teams' ability to understand and use improvement methodology increased, particularly in response to 1:1 and group virtual coaching and on-site coaching visits.

See [Appendix 2](#) for further detail about results and aggregated data charts.

## How did we measure improvement?

Measurement is a critical part of testing and implementing changes; measures tell a team whether the changes they are making lead to improvement. Determining if improvement has really happened and if it is lasting requires observing patterns over time.

The main tools used for measuring improvement are run charts and Shewhart (or control) charts. These charts utilise the rules of probability to detect when a change in a system has potentially occurred based on the variation of data from what would be expected in a stable system. Different types of data require the use of different control charts. In this collaborative P-Charts are utilised as the most appropriate control chart for analysing changes in categorical data.

In this report, three control chart rules have been used to detect signals of system change. These are:

- points outside the control limits of the chart
- eight consecutive points above or below the mean
- six consecutive increasing or decreasing points.

When these patterns in the data are observed, it means that the change in the system is unlikely to have occurred by common cause (chance or random variation).

On a control chart, the centreline describes the mean of the observed values and the upper (UCL) and lower (LCL) lines indicate the control limits. Control limits are calculated from observed values in the data of the system you are

<sup>1</sup> Based on feedback from consumers, this language has since been changed to 'comprehensive assessment for perineal tears'.

studying and indicate the expected level of variation in the system. The control chart rules have been devised to maximise the sensitivity and specificity to special cause variation (that would not be expected as part of the normal performance of the system), to reduce the likelihood of false signals of random (chance) variation.

### How did we know that a change was an improvement?

Participating services used an established measurement strategy (see Figure 1) during the collaborative to know whether the changes they were making were leading to improvement. The health service teams collected and reported data in real time using this 'family of measures'. The measurement strategy was developed in consultation with the clinical lead, expert working group and faculty group and was used as the basis for this summative evaluation.

### What changes did we make that resulted in improvement?

SCV and IHI adapted and contextualised a bundle of care for Victorian maternity services. This was based on the Women's Healthcare Australasia (WHA) Clinical Excellence Commission (CEC) Perineal Protection Bundle© used during the WHA Collaborative.

See [Appendix 3](#) for the Driver Diagram and further detail about changes made that resulted in improvement.

**Figure 1: Family of measures, Better Births for Women Collaborative**

<b>Outcome Measure</b>	Percentage of total third- and fourth-degree perineal tears Percentage of third- and fourth-degree perineal tears in non-instrumental vaginal births Percentage of third- and fourth-degree perineal tears in instrumental vaginal births
<b>Process Measures</b>	Percentage of women who have a warm perineal compress applied during the second stage of labour Percentage of women who receive gentle verbal guidance and hands-on technique, from commencement of perineal stretching to birth Percentage of assisted births, in women having their first vaginal birth, where an episiotomy is performed Percentage of episiotomies cut at 60-degrees from the midline Percentage of women who receive a genito-anal examination following vaginal birth Percentage of women whose perineal trauma is examined and graded by two experienced clinicians
<b>Balance Measures</b>	Percentage of episiotomies Percentage of women who have ventouse assisted birth without episiotomy & sustain a third- or fourth-degree tear Percentage of women who have caesarean sections

### How did the pandemic impact our implementation strategy?

The original timeline for the collaborative was August 2019 to July 2020. The collaborative was paused at the beginning of April 2020, due to the coronavirus (COVID-19) pandemic and the associated pressure on the Victorian health system.

When state-wide pandemic conditions allowed, the collaborative was restarted with Phase 2 of collaborative commencing in November 2020 and finishing in May 2021. Minor refinements were made to the driver diagram and measurement strategy, a new data platform was implemented (Team Assurance) and most teams returned ([Appendix 1](#)).

## Limitations of the Better births for women collaborative

- This program was tested as a bundle of elements together and therefore we are unable to determine which individual bundle elements had the greatest impact on the results of the collaborative.
- Baseline performance for individual services was collected for a limited variable length of time at the commencement of the collaborative. Some baseline information is available for this collaborative through data regularly collected and reported through VPDC.
- This is a retrospective evaluation completed in August 2023. The original project team were not able to be involved in the evaluation.
- All data in this report is self-reported by the services.

### References:

1. Australian Institute of Health and Welfare. National Core Maternity Indicators. Web report; last updated: 28 Sep 2022. Available from: [National Core Maternity Indicators, Third and fourth degree tears - Australian Institute of Health and Welfare \(aihw.gov.au\)](https://www.aihw.gov.au/national-core-maternity-indicators-third-and-fourth-degree-tears)
2. Priddis H, Dahlen HG & Schmied V (2013). Women's experiences following severe perineal trauma: a meta-ethnographic synthesis. *Journal of Advanced Nursing* 64:748–59.
3. Hunt RW, Davey M-A, Ryan-Atwood TE, Hudson R, Wallace E, Anil S on behalf of the Maternal and Newborn Clinical Network INSIGHT Committee 2018, Victorian perinatal services performance indicators 2017-18, Safer Care Victoria, Victorian Government, Melbourne

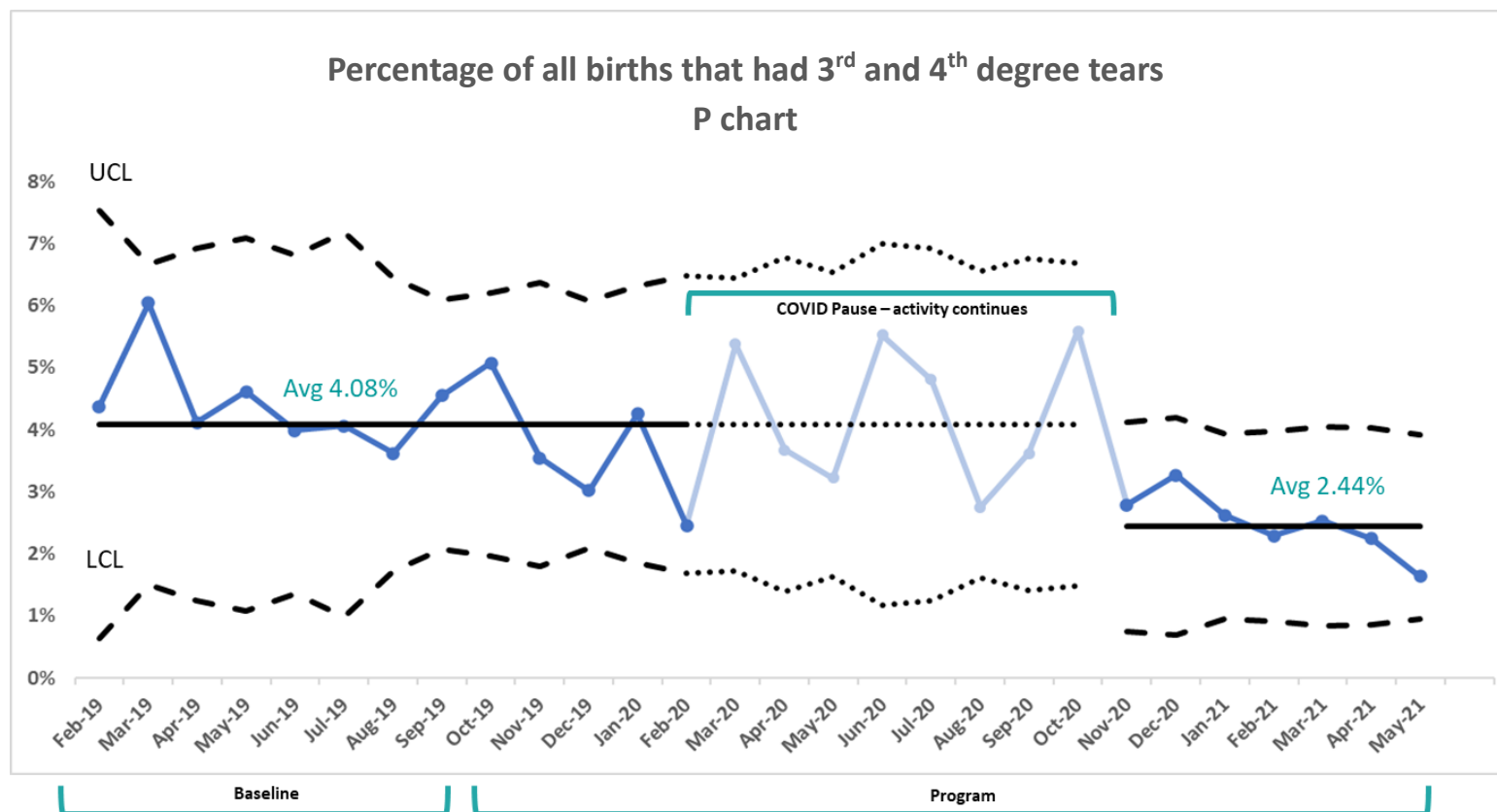
## Appendices

### Appendix 1. Participating Health Services

Phase 1	Phase 2
Ballarat Health Services	Ballarat Health Services
Barwon Health	
Bass Coast Regional Health	Bass Coast Regional Health
Central Gippsland Health Service – Sale	Central Gippsland Health Service – Sale
Djerriwarrh Health Services	Djerriwarrh Health Services
East Grampians Health Service – Ararat	East Grampians Health Service – Ararat
Kilmore and District Hospital	Kilmore and District Hospital
Northern Health	Northern Health
St John of God – Bendigo Hospital	St John of God – Bendigo Hospital
St Vincent’s Private Hospital	St Vincent’s Private Hospital
South West Healthcare – Warrnambool	South West Healthcare – Warrnambool
Western District Health Service – Hamilton	Western District Health Service – Hamilton
Western Health – Joan Kirner	Western Health – Joan Kirner
Wimmera Health Care Group – Horsham	Wimmera Health Care Group - Horsham

## Appendix 2. Aggregate data

### 2.1 Outcome measure: Percentage of all 3<sup>rd</sup> and 4<sup>th</sup> degree tears in all births in participating health services

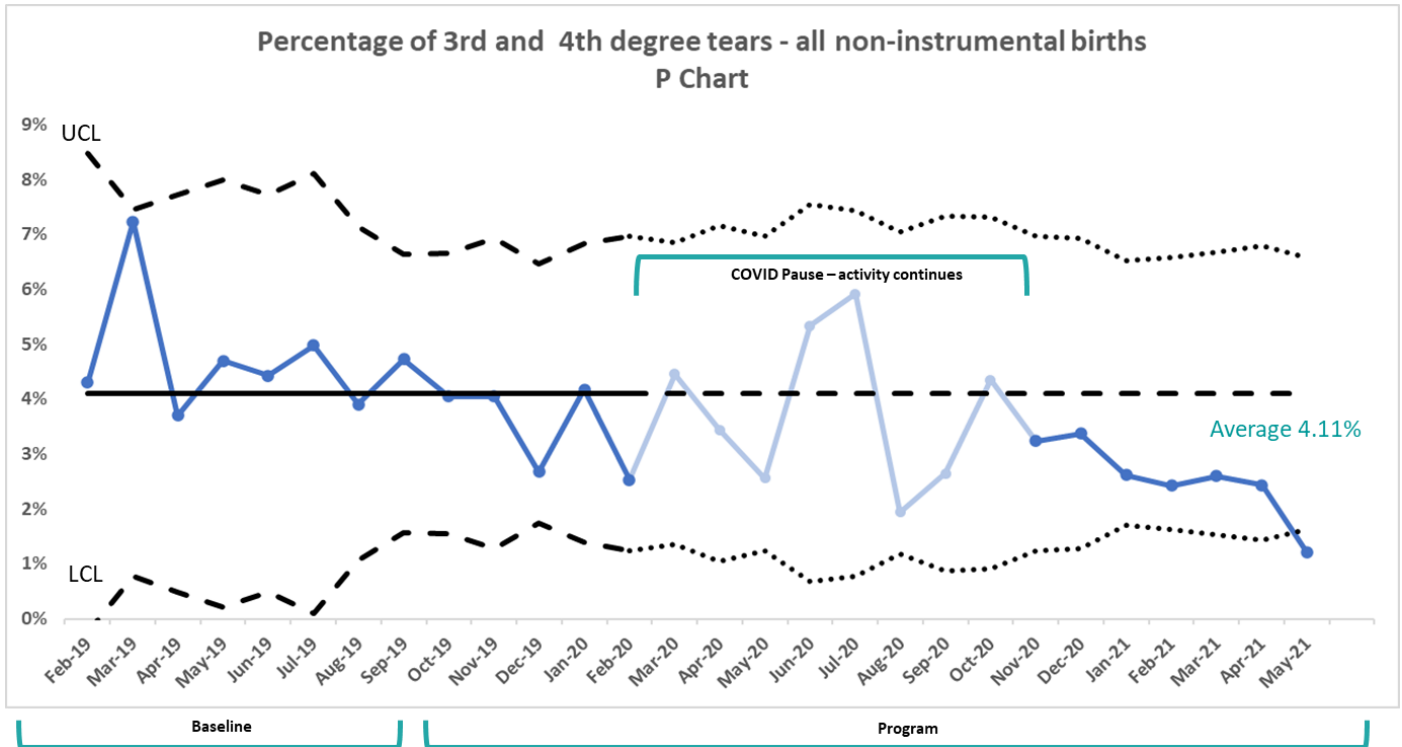


**Numerator:** Number of women who meet the denominator criteria who had a third- and fourth-degree perineal tear

**Denominator:** Number of women who had a vaginal birth

The mean tear rate prior to the collaborative is calculated between 4.08% and 4.9% depending on the measures included in the baseline measurement. Based on the post-collaborative tear rate of 2.44% it is therefore estimated that between 108 and 209 fewer tears were experienced. The figure of 155 fewer tears is based on a median value for the pre-collaborative baseline rate of tears.

## 2.2 Outcome measure: Percentage of third- and fourth-degree perineal tears in non-instrumental vaginal births



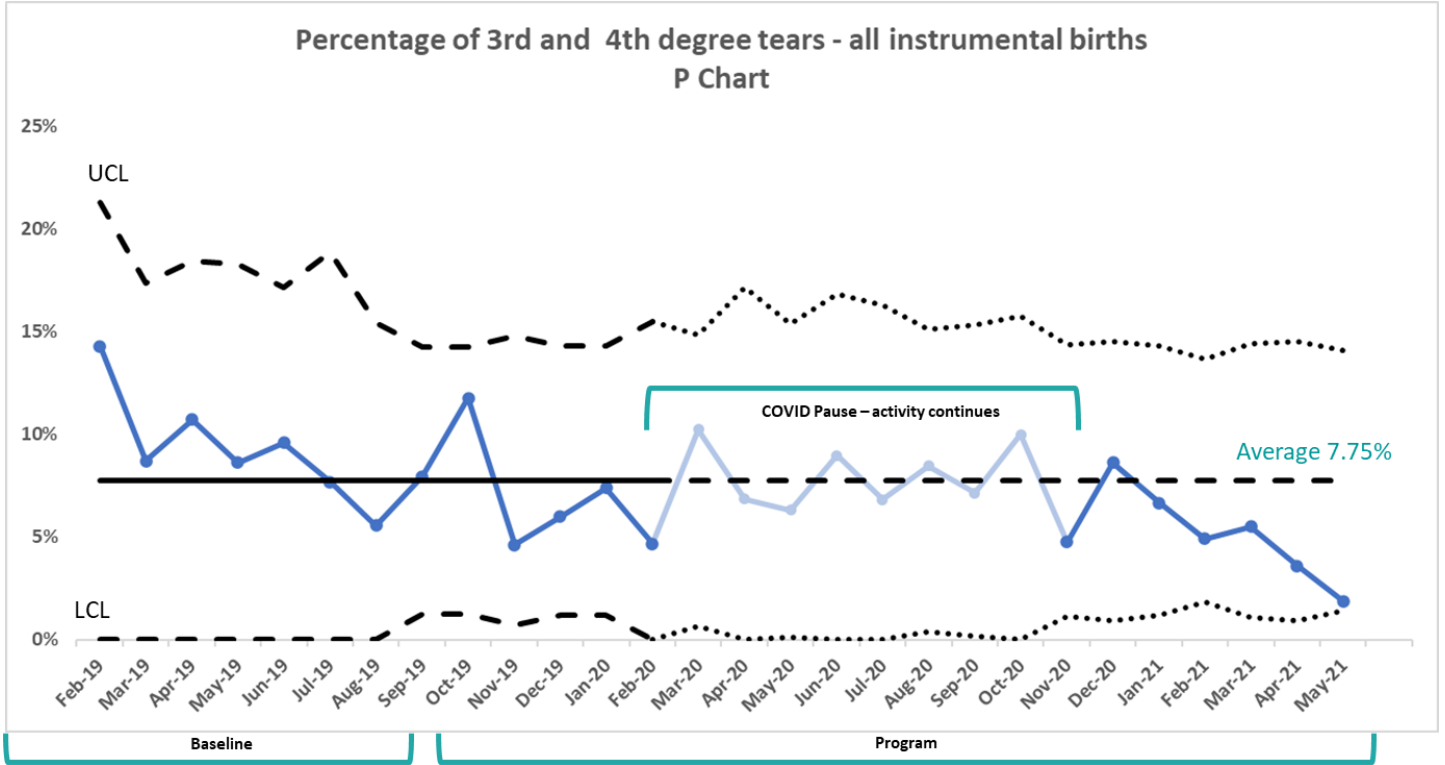
**Numerator:** Number of women who meet the denominator criteria who had a third- and fourth-degree perineal tear

**Denominator:** Number of women with a non-instrumental vaginal birth

**This graph demonstrates that:**

- This chart shows a reduction in third- and fourth- degree perineal tears as the last data point in May 2021 is outside the lower confidence limit for the chart and is therefore unlikely to be due to chance variation. Further data are required to quantify the magnitude of the reduction as the system had not stabilised by May 2021.

2.3 Outcome measure: Percentage of third- and fourth-degree perineal tears in instrumental vaginal births



**Numerator:** Number of women who meet the denominator criteria who had a third- and fourth-degree perineal tear

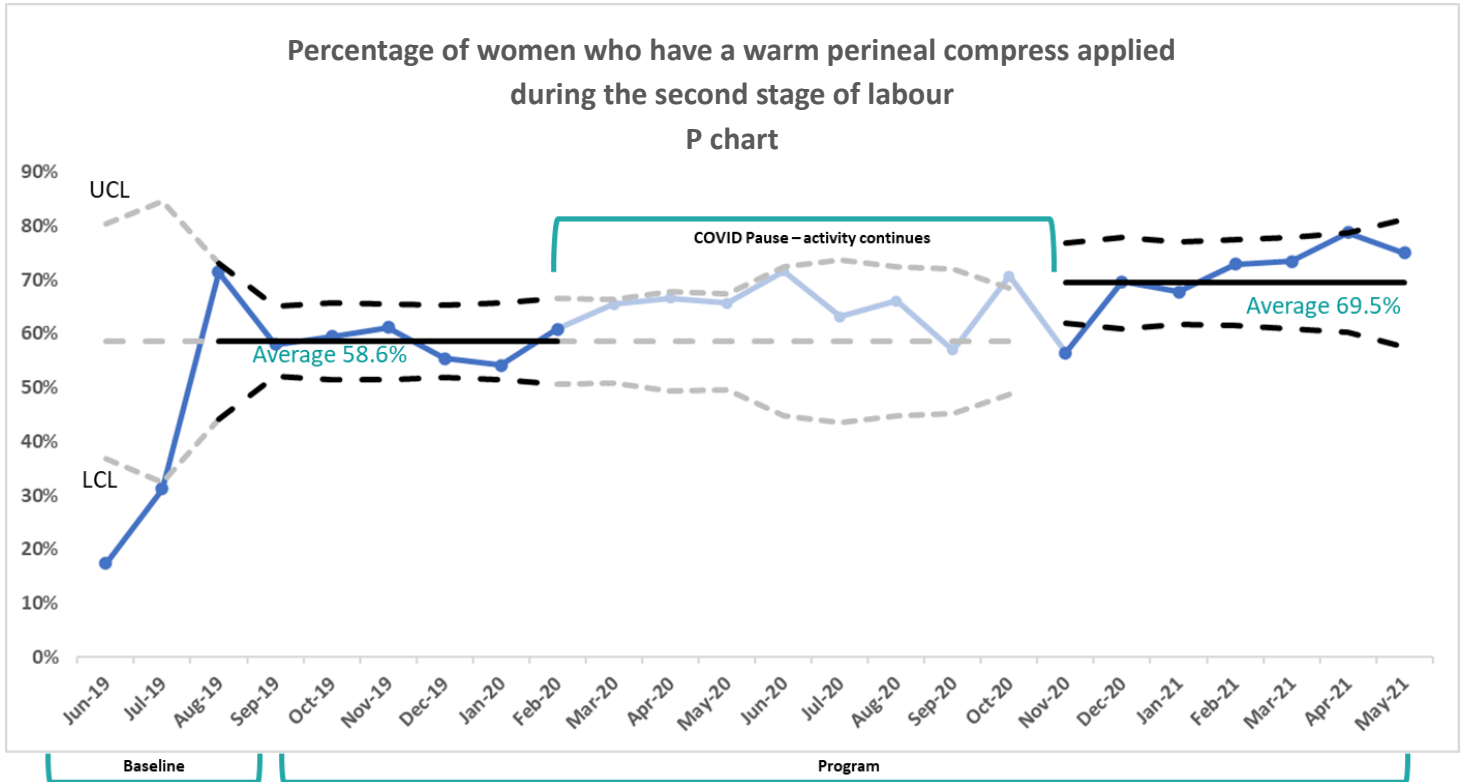
**Denominator:** Number of women who had an instrumental vaginal birth

**This graph demonstrates that:**

While this chart shows a reduction in third- and fourth- degree tears for instrumental births by May 2021, the last result is just inside the lower confidence interval. Further data are therefore required to confirm the significance of this change.



## 2.4 Warm perineal compress applied



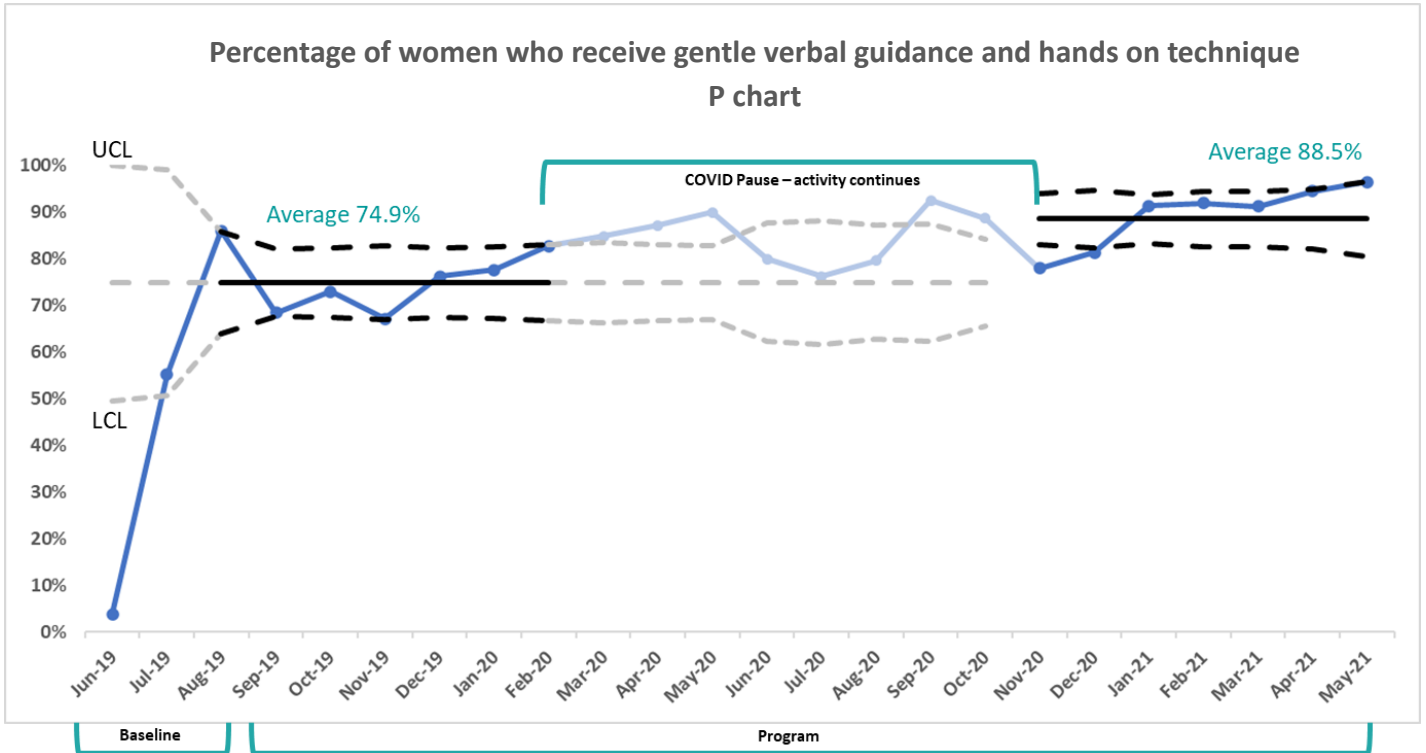
**Numerator:** Number of women who meet the denominator criteria who had a warm perineal compress applied during the second stage of labour

**Denominator:** Number of women who had a vaginal birth

**This graph demonstrates that:**

- Pre-program (baseline), the percentage of women who had a warm perineal compress applied during the second stage of labour, was low.
- Between August 2019 and February 2020, a new mean was established at 58.6%.
- This continued to improve over the course of the collaborative with a new mean established between November 2020 and May 2021 at 69.5%. Where the new mean was established, additional improvements may have still been occurring but had not yet reached stability.

## 2.5 Gentle verbal guidance and hands on technique



**Numerator:** Number of women who meet the denominator criteria who receive gentle verbal guidance and hands on technique from commencement of perineal stretching<sup>2</sup>

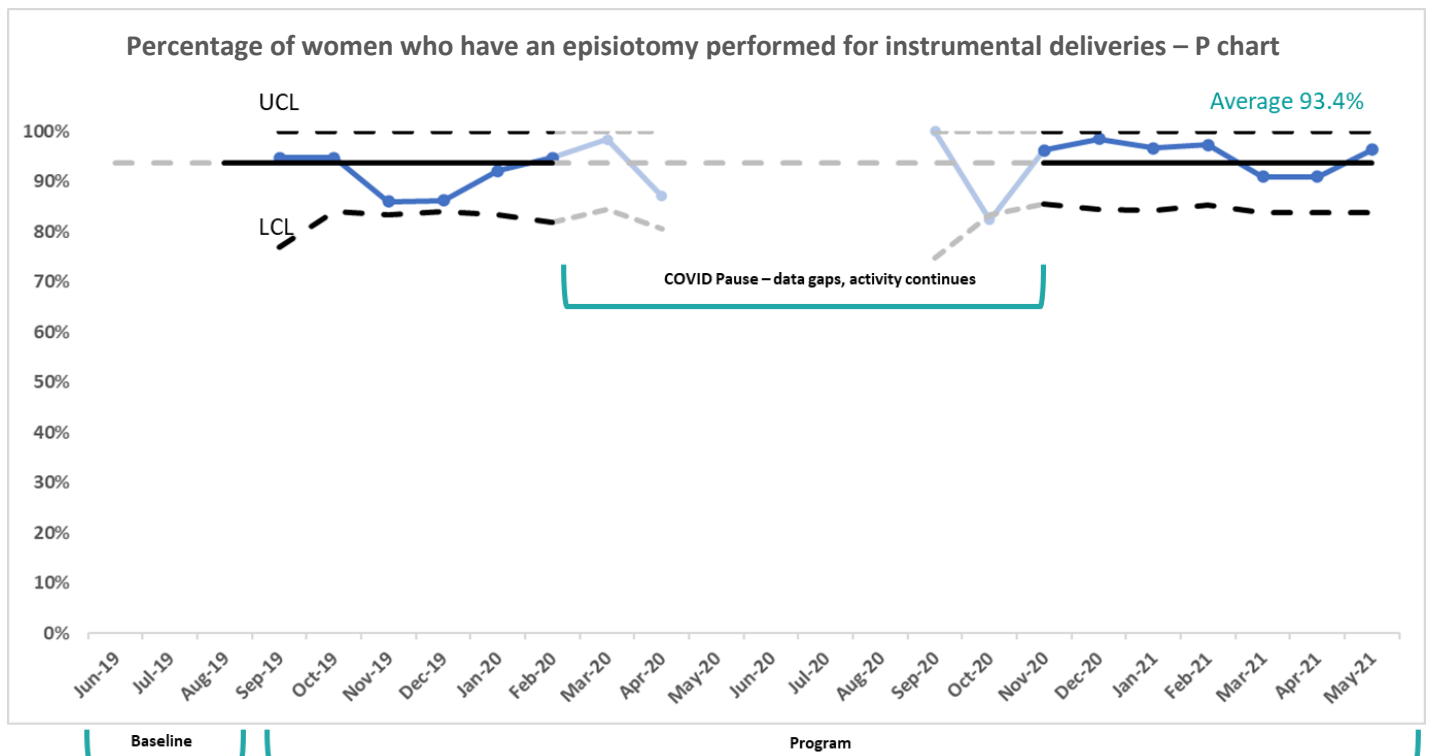
**Denominator:** Number of women who had a vaginal birth

**This graph demonstrates that:**

- Pre-program (baseline), the percentage of women who received gentle verbal guidance and hands on technique from the commencement of perineal stretching, was low but rapidly increased.
- Between August 2019 and February 2020, a new mean was established at 74.9%.
- This continued to improve over the course of the collaborative with a new mean established between November 2020 and May 2021 at 88.5%. Where the new mean was established, additional improvements may have still been occurring but had not yet reached stability.

<sup>2</sup> \*For an operational definition, please refer to the driver diagram in [Appendix 3](#)

## 2.6 Percentage of episiotomies performed for instrumental deliveries, in women having their first vaginal births



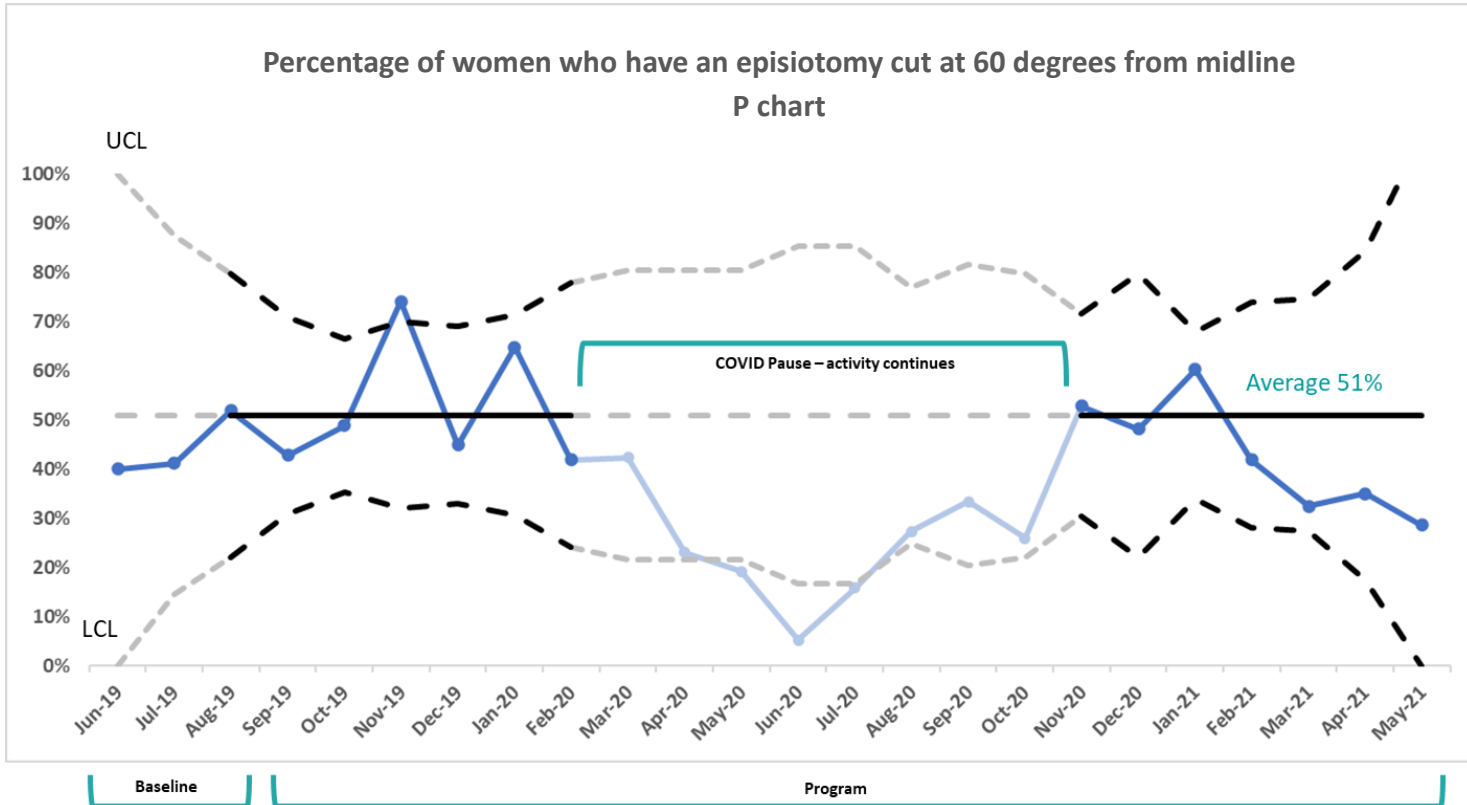
**Numerator:** Number of women who meet the denominator criteria who had an episiotomy performed

**Denominator:** Number of women having their first vaginal birth who had an instrumental vaginal birth

### This graph demonstrates:

- No baseline data
- No significant change during the collaborative and an average of 93.4% of women who have an episiotomy performed for instrumental deliveries in women having their first vaginal birth.
- Common cause/ expected variation in data across the two phases.

## 2.7 Percentage of episiotomies cut at 60 degrees from the midline



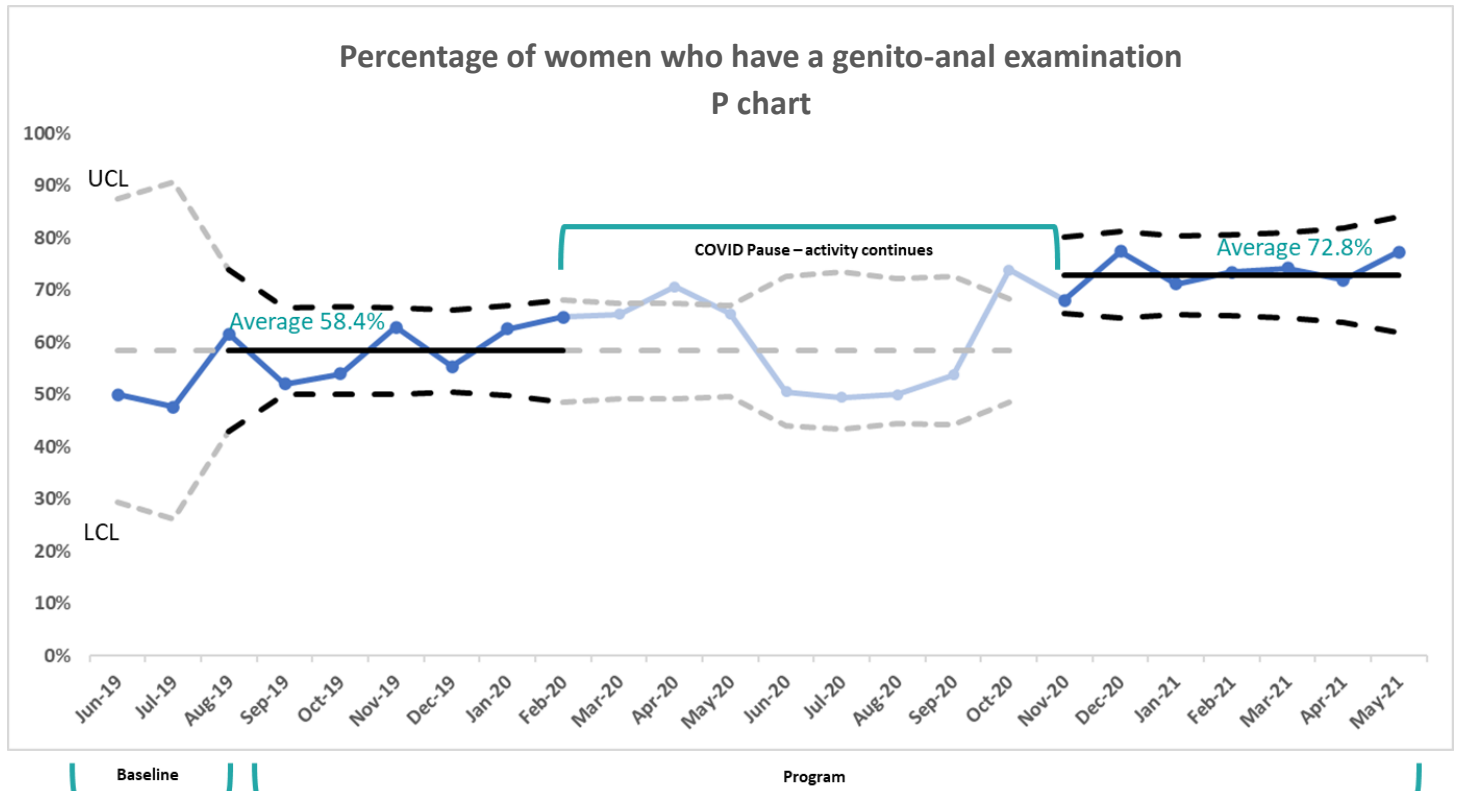
**Numerator:** Number of women who meet the denominator criteria who had an episiotomy cut at 60 degrees from midline

**Denominator:** Number of women who underwent an episiotomy

**This graph demonstrates:**

- Few baseline data points, but not enough to establish a pre-program mean
- No significant change during the collaborative and an average of 51% of women who have an episiotomy cut at 60 degrees from the midline
- A significant deterioration during COVID but overall, no significant change.

### 3.8 Percentage of women who have genito-anal examination post birth



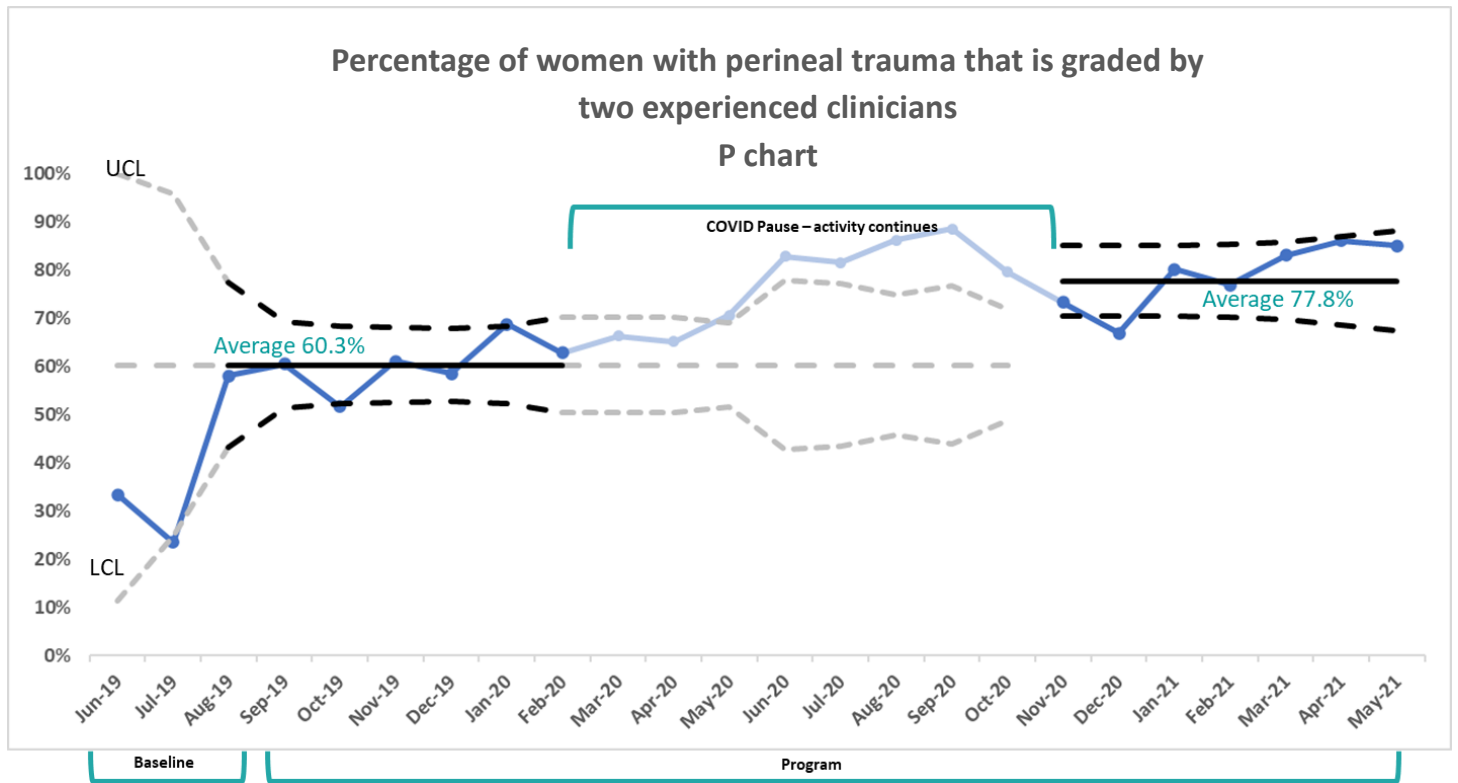
**Numerator:** Number of women who meet the denominator criteria who had a genito-anal examination post birth

**Denominator:** Number of women who had a vaginal birth

**This graph demonstrates:**

- Few baseline data points, but not enough to establish a pre-program mean
- Between August 2019 and February 2020, a new mean was established at 58.4% of women who had a genito-anal examination post birth
- This continued to improve (despite the dip during COVID) and a new mean was again established at 72.8% between November 2020 and May 2021.

### 3.9 Percentage of women with perineal trauma that is graded by two experienced clinicians



**Numerator:** Number of women who meet the denominator criteria whose perineal trauma is graded by two experienced clinicians

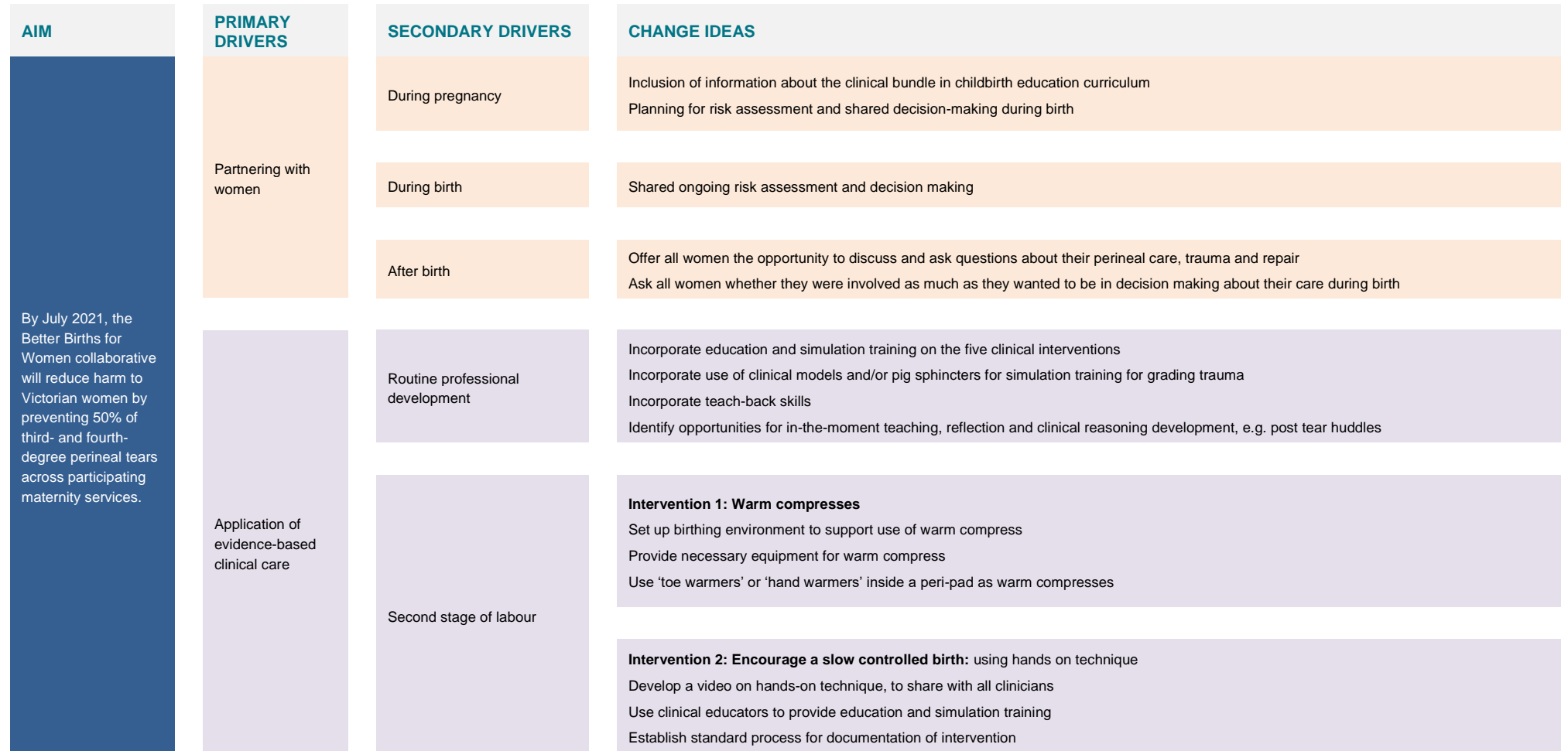
**Denominator:** Number of women with perineal trauma

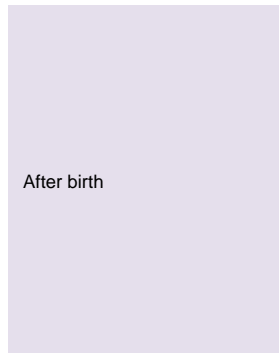
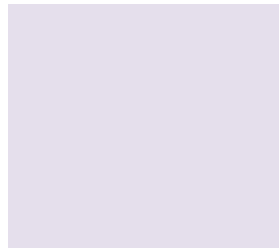
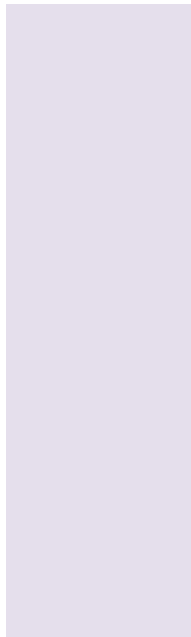
**This graph demonstrates:**

- Few baseline data points, but not enough to establish a pre-program mean.
- Between August 2019 and February 2020, a new mean was established at 60.3% of women with perineal trauma that was graded by two experienced clinicians.
- This continued to improve and a new mean was again established at 77.8% between November 2020 and May 2021 (note: the increase during COVID is not included in the mean calculation).
- Improvement may have still been occurring from March 2021, but stability had not yet been achieved.

## Appendix 3. Driver Diagram

A driver diagram is a visual display of a team’s theory of what “drives”, or contributes to, the achievement of a project aim. A driver diagram shows the relationship between the overall aim of the project, the primary drivers (sometimes called “key drivers”) that contribute directly to achieving the aim, the secondary drivers that are components of the primary drivers, and specific change ideas to test for each secondary driver.





**Intervention 3: Correct episiotomy technique used when indicated**

Episiotomy should be performed: at crowning of the fetal head, using a medio-lateral incision, at a minimum 60-degree angle from the posterior fourchette

Introduce post-repair episiotomy angle measurement

Use Episcissors for cutting episiotomies

Use cord-clamps to guide a 60-degree angle episiotomy when using mayo scissors

**Intervention 4: Genito-anal examination for perineal tears**

For all women, genito-anal examination following birth needs to be offered, and where informed consent is given be performed by an experienced clinician and include a per-rectum examination for all women, including those with an intact perineum

Use a checklist for post-birth care that incorporates genito-anal examination

**Intervention 5: Accurate severity grading of perineal tears**

All perineal trauma should be graded according to the Royal College of Obstetricians and Gynaecologists (RCOG) grading guideline and reviewed respectfully by a second experienced clinician to confirm the diagnosis and grading

Develop local operational definitions for experienced clinicians

Provide staff rostering that supports availability of experienced clinicians

For further information about driver diagrams, see [IHI website](#).