Relationship of Episiotomy, spontaneous tears and OASIS (Obstetric anal sphincter injuries)

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Conflict of interest: co-inventor, EPISCISSORS-60®
first scissors designed to give an accurate mediolateral episiotomy
Obstetric anal sphincter injuries (OASIS)

Incidence
- 30,000 new cases each year in UK
- 6% in first vaginal births
- Leading cause of anal incontinence in women (9:1 F:M)

Direct costs
- £1625 per case for repair + postoperative care
- £48.75 million each year

Indirect costs
- 25% of women choose elective caesarean delivery (extra £1100 per birth; £4.9 million each year)
- £2500 per year/person for fecal incontinence
Litigation costs

- Perineal trauma is the 4th highest reason for claims made in Obstetrics over 10 years (2000-2010)
- £31 million in legal payouts alone
- OASIS being mooted as a Patient Safety Indicator
- £1.6 million damages for OASIS due to an acutely angled episiotomy
How much does OASIS cost the NHS?

- **Failure of primary OASIS repair**
- **Secondary anal sphincter repair** = £1289 per case
- **Sacral nerve stimulation** (NICE recommended) = £10,000 per case
- **Fecal incontinence costs**
- The burden of looking after these patients is estimated to be £2542 ($4110) per person per annum [Fenner, 2012].
Subsequent management of third degree tears (OASIS)

**RCOG guideline**

- “All women should be counselled about the risk of developing anal incontinence or worsening symptoms with a subsequent vaginal delivery”

- “All women with symptoms or abnormal endoanal sonography and/or manometry should have the option of elective caesarean birth”

- 24% opt for elective caesarean (cost = extra £1100 per CS) (Edozien BJOG 2014)
National importance of OASIS-Joint communique from the Presidents of the RCOG & RCM

• “Concerns about increasing rates of birth related third and fourth degree perineal tears….”

• “ As morbidity for women is considerable and can influence decisions about future births, prevention of trauma is a priority......”
OASIS: long-term effects

- 171 women with OASIS between 1971-1990
- Case-control study
- Questionnaires in 1996 and 2005
- 1996 (Faecal incontinence)- 38% (cases) v 16% (controls)
- 2005 (Faecal incontinence)- 61% (cases) v 22% (controls)
- P<0.0001
- Deterioration in continence status despite repair

DeLeeuw BJOG,2008
Why deterioration in continence status?
**Fecal continence mechanism**

- **IAS** - autonomic control; 50% of resting pressure; prevents soiling while asleep.
- **EAS** - voluntary control; 50% of squeeze pressure; prevents incontinence when sudden urge to defecate.
- **Puborectalis** muscle contributes other 50% to both resting and squeeze pressures.
- Puborectalis has Estrogen receptors.
- HRT does not improve fecal incontinence.
**Summary of risk factors**

<table>
<thead>
<tr>
<th>Risk factor</th>
<th>Odds ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primigravidity</td>
<td>3-4</td>
</tr>
<tr>
<td>Short perineal body</td>
<td>8*</td>
</tr>
<tr>
<td>Forceps</td>
<td>3-7</td>
</tr>
<tr>
<td>Vacuum</td>
<td>3</td>
</tr>
<tr>
<td>OP</td>
<td>3*</td>
</tr>
<tr>
<td>Midline episiotomy</td>
<td>3-5</td>
</tr>
<tr>
<td>Previous OASIS</td>
<td>5* (Edozien BJOG 2014)</td>
</tr>
</tbody>
</table>
Latest evidence on OASIS causation

- Perineal body length
- Episiotomy angle
- Episiotomy starting point
- Episiotomies versus spontaneous tears
Perineal body length
Perineal body length
**Perineal body length (PBL)**

- Definition: distance from posterior fourchette to midpoint of anus; normal length = 37-41 mm

- Patients with PBL of ≤ 2.5 cm (measured during first stage) had a significantly higher chance of sustaining OASIS (40% vs. 5.6%) [Deering 2004].

- 40% OASIS (diagnosed by endoanal 3D-USS) versus 11% when using a PBL of 3 cm measured at 35-37 weeks as a cut-off [Geller 2014]
How many women have short PBL?

- Number of women with PBL<30mm was 15%
- They have a 40% risk of OASIS
Episiotomy angle and OASIS
### USA: nationwide inpatient sample
(7.1 million vaginal births, 3070 hospitals)

<table>
<thead>
<tr>
<th>Type of delivery (N)</th>
<th>3(^{rd}) degree tear</th>
<th>4(^{th}) degree tear</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forceps with episiotomy (88,691)</td>
<td>18.3%</td>
<td>10%</td>
<td>28.3%</td>
</tr>
<tr>
<td>Forceps without episiotomy (50,935)</td>
<td>19.3%</td>
<td>6.4%</td>
<td>25.7%</td>
</tr>
<tr>
<td>Vacuum with episiotomy (271,138)</td>
<td>12.5%</td>
<td>6.1%</td>
<td>18.6%</td>
</tr>
<tr>
<td>Vacuum without episiotomy (261,261)</td>
<td>8%</td>
<td>2%</td>
<td>10%</td>
</tr>
<tr>
<td>Normal delivery with episiotomy (1.2 million)</td>
<td>3.3%</td>
<td>1.2%</td>
<td>4.5%</td>
</tr>
<tr>
<td>Normal delivery without episiotomy (5.8 million)</td>
<td>3.3%</td>
<td>1.1%</td>
<td>4.4%</td>
</tr>
</tbody>
</table>

Friedman Obstet Gynecol 2015
• Midline episiotomy does not protect against OASIS

• How far angled away from the midline does the episiotomy have to be to protect against OASIS?
OASIS & Episiotomy suture angle

- OASIS = 30° versus controls = 38° (Eogan 2006)
- OASIS = 26° versus controls = 37° (Andrews 2006)
- OASIS = 10% if the sutured episiotomy angle was < 25° versus 0.5% if the angle was ≥ 45°.
- Risk reduces by 50% for every 6 degrees the episiotomy is angled away from the midline. [Andrews 2006, Eogan 2006, Stedenfeldt 2012].
- However, if the episiotomy angle > 60°, the pressure on the perineum is not relieved and OASIS incidence increases 9-fold [Stedenfeldt 2012].
Relationship of OASIS and episiotomy suture angle

- OASIS in midline episiotomies = 10-20% (USA)
- In mediolateral episiotomies, incidence of OASIS is 10% if suture angle $\leq 25^0$
- High OASIS with mean angles of $26,30^0$

OASIS increases 9-fold if suture angle $> 60^0$

No OASIS with mean angles $= 38^0$

OASIS = 0.5% if suture angle is $\geq 45^0$

‘SAFETY ZONE’ is 40-60$^0$ post-delivery suture angle
• But is the episiotomy cutting angle the same as the episiotomy suture angle?

• Does the perineum distend at birth?
Perineal distension at birth

Zemcik 2012
Perineal distension

- 40% in vertical plane (similar to 50% in PL studies)
- 170% in transverse plane
- Why is the perineum distending unequally?
Perineal body is fibro-muscular midline structure; least likely to distend?
## Perineal length and obstetric outcomes

<table>
<thead>
<tr>
<th>Author</th>
<th>N</th>
<th>Perineal length during First stage/antenatal (mm)</th>
<th>Perineal length during crowning (mm)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rizk 2000</td>
<td>212 (P)</td>
<td>46±9 (FS)</td>
<td>-</td>
<td>-PL&lt;40mm associated with increased E, SPT, OVD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-15% women has PL&lt;40mm</td>
</tr>
<tr>
<td>Deering 2004</td>
<td>133</td>
<td>39±7 (FS)</td>
<td>39±7 (FS)</td>
<td>PL&lt;25mm-=40% OASIs v 5%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-PL&lt;35mm-Increased OVD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-PL&lt;35mm=26%</td>
</tr>
<tr>
<td>Rizk 2005</td>
<td>114 (SVD)</td>
<td>41±7 (FS)</td>
<td>39±7 (FS)</td>
<td>20% had PL&lt;35mm; Women with short PL more likely to tear</td>
</tr>
<tr>
<td>Walfisch 2005</td>
<td></td>
<td>40±10</td>
<td>62±12</td>
<td>55% PL increase from FS to crowning; Women with PL&lt;40mm more likely to tear</td>
</tr>
<tr>
<td>Ayten 2005</td>
<td></td>
<td></td>
<td></td>
<td>OASIs=30% in women with PL&lt;30mm vs 0.5% (midline episiotomy)</td>
</tr>
<tr>
<td>Lai 2009</td>
<td>429</td>
<td>39±8 (FS)</td>
<td>60±9</td>
<td>53% PL increase from FS to crowning: Chinese women</td>
</tr>
<tr>
<td>Dua 2009</td>
<td>1000</td>
<td>37 (FS)</td>
<td>-</td>
<td>Strong correlation between short PL and OASIs</td>
</tr>
<tr>
<td>Kalis 2010</td>
<td>142</td>
<td>-</td>
<td>64±12</td>
<td>Anal dilatation=25mm</td>
</tr>
<tr>
<td>Tsai 2012</td>
<td>200</td>
<td>39±6 (FS)</td>
<td></td>
<td>No differences between ethnic groups</td>
</tr>
<tr>
<td>Geller 2014</td>
<td>119</td>
<td>35mm (AN)</td>
<td></td>
<td>14% had PL&lt;30mm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-OASIs=40% in PL&lt;30mm v 11%</td>
</tr>
</tbody>
</table>

E = episiotomies; SPT = Spontaneous perineal tears. OVD = Operative vaginal delivery; OASIs = obstetric anal sphincter injuries.
Angular distension of the perineum
Effect of perineal distension at crowning on episiotomy angles

- $40^\circ$ angle pre-marked episiotomy resulted in suture angle of $22^\circ$  
  [Kalis 2008, 2010]

- $60^\circ$ pre-marked episiotomy resulted in suture angle of $45^\circ$.  
  [Kalis 2008, 2010]

- This is due to stretching of the perineum by 2.7X in the transverse dimension and 1.4X in the vertical dimension  
  [Zemick 2012].
Perineum is a sphere at crowning

- The perineum is a sphere at the time of crowning of the baby’s head. Estimating angles on a sphere is a specialised branch called ‘Sphere Trigonometry’. The protractor depicted below is the instrument used to measure spherical angles. It is not practical to use during birth.
# Effect of perineal distension

<table>
<thead>
<tr>
<th>Author</th>
<th>n</th>
<th>Incision angle</th>
<th>Method of marking perineum</th>
<th>Suture angle</th>
<th>Patient group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kalis (2008)</td>
<td>50</td>
<td>40</td>
<td>Gentian violet</td>
<td>20 (17-25)</td>
<td>SVD; primips</td>
</tr>
<tr>
<td>Kalis (2011)</td>
<td>60</td>
<td>60</td>
<td>Gentian violet</td>
<td>44 (±5)</td>
<td>SVD; primips</td>
</tr>
<tr>
<td>Freeman (2014)</td>
<td>17</td>
<td>60</td>
<td>Episcissors-60</td>
<td>43 (39-46)</td>
<td>OVD; primips</td>
</tr>
<tr>
<td>Patel (2014)</td>
<td>25</td>
<td>60</td>
<td>Episcissors-60</td>
<td>50 (±2)</td>
<td>SVD; mixed</td>
</tr>
<tr>
<td>El-Din</td>
<td>165</td>
<td>60</td>
<td>Gentian violet</td>
<td>44 (±5)</td>
<td>SVD; primips;</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>OASIS 2.3%</td>
</tr>
<tr>
<td></td>
<td>165</td>
<td>40</td>
<td>Gentian violet</td>
<td>24 (±5)</td>
<td>SVD; primips;</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>OASIS 5.5%***</td>
</tr>
<tr>
<td>van Roon</td>
<td>838</td>
<td>60</td>
<td>Episcissors-60</td>
<td>52</td>
<td></td>
</tr>
</tbody>
</table>
“Where episiotomy is indicated, the mediolateral technique is recommended, with careful attention to ensure that the angle is 60 degrees away from the midline when the perineum is distended. [D]”
“Special scissors designed to ensure an incision angle of 60 degrees have been shown to be effective in achieving the correct angle\textsuperscript{29,30}. Evidence level 3”
How good are we at visual estimation of angles (Eyeballing)?

• Only 13% of the episiotomies were found to be more than $40^\circ$ [Andrews 2006].

• Episiotomy angle = $20^\circ$ (12.8-38.7) [Midwives]

• Episiotomy angle = $27^\circ$ (0-73) [Doctors]

• No midwife and 22% of doctors performed a truly mediolateral episiotomy [40-60$^\circ$]

• Only one-third of episiotomies were $> 40^\circ$ even on paper. [Tincello 2003].
Fodstad and Laine 2013 (after the intervention programme)

Type of episiotomy, (n=300)

- 7% were median/midline (suture angles <25 degrees)
- Mediolateral =13%(25-60 degrees)
- Non-classifiable=36%
- Lateral=44% ((sutured episiotomy >10mm away from posterior fourchette with angles between 25-60 degrees)

OASIS rate

- 20% (4/20) in midline group
- 10% in the mediolateral group (4/38)
- 4% in the non-classifiable group
- Lateral episiotomy=0
“Cut at 60 degrees” study
Cut 60 study

• 106 doctors and midwives from 3 centres
• Asked to cut at 60 degrees on a paper replica of perineum
• 15% cut between 58-62 degrees
• 36% cut between 55-65 degrees
• 44% cut below 55 degree
• 18% cut above 66 degrees
Summary of current practice: How good are we at ‘eyeballing’ episiotomy angles?

| Draw on paper | • 1/3rd doctors & midwives drew episiotomies > 40°  
|              | • (Tincello 2003) |
| Cut on paper | • 15% cut 58-62 degrees  
|             | • 37% cut 55-65° when asked to cut at 60°  
|             | • 63% cut below or above this range (Naidu 2014) |
| Actual patients | • No midwife & 22% doctors performed episiotomies with suture angle > 40° (Andrews 2005)  
|               | • 43% episiotomies were not mediolateral/lateral (Fodstad 2014) |
**Episiotomy starting point**

- Lateral episiotomies - those where the sutured episiotomy originates away from the midline. Shown to reduce the risk of OASIS by 56% for every 4.5mm distance from the midline [Stedenfeldt 2012].
- A safe distance of 9mm [Stedenfeldt 2012] and 10.5 mm [Fodstad 2013] from the posterior fourchette have been suggested to reduce the risk of OASIS.
- How can we realistically achieve this at delivery?
Relieving pressure on the perineum: Manual perineal protection

- Slow controlled delivery of the head. This would appear to prevent a ‘speed driven precipitous ‘explosive’ tearing of the perineum when the ‘strain’ in the tissues exceeds their ‘stiffness’.
- Digital support-application of fingers on the central posterior perineum in a manner that dissipates perineal pressure. There could be human variations to this technique, and the true contribution of this technique to prevention of OASIS would be difficult to quantify, unless pressure measurements of actual perineal stretching or deformation were done.
Relieving pressure on the perineum: Episiotomy (perineotomy)

- Will relieve pressure on the central posterior perineum as long as its adequate in length and depth
- Not too lateral (>60 degrees post-delivery suture angle) (Stedenfeldt 2012)
- Not too close to the midline (<30 degrees post-delivery suture angle), (10% likelihood of direct physical injury to the anal sphincters) (Eogan 2006)
**Episiotomies versus spontaneous tears in normal births (primips)**

- OASIS with spontaneous tears 40-50% higher than in women given episiotomies in normal births [Revicky 2010, Gurol-Urganci 2013].

- This is because $2^0$ tears generally extend into the anal sphincter complex and disrupt the muscles.
### UK: Hospital Episode Statistics data

**1.2 million births, 90 hospitals**

<table>
<thead>
<tr>
<th>First births only Type of delivery (N)</th>
<th>3rd &amp; 4th degree tear %; Relative risk (RR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forceps with episiotomy (101,454)</td>
<td>6.1%</td>
</tr>
<tr>
<td>Forceps without episiotomy (19,669)</td>
<td>22.7% (RR=6)</td>
</tr>
<tr>
<td>Vacuum with episiotomy (114,913)</td>
<td>2.3%</td>
</tr>
<tr>
<td>Vacuum without episiotomy (48,656)</td>
<td>6.4% (RR=2.5)</td>
</tr>
<tr>
<td>Normal delivery with episiotomy (116,983)</td>
<td>2.2%</td>
</tr>
<tr>
<td>Normal delivery without episiotomy (631,504)</td>
<td>3.4% (RR=1.6)</td>
</tr>
</tbody>
</table>
Episiotomies in spontaneous deliveries

- Matched case-control study 64,000 vaginal births
- Subjects were matched for baseline OASIS risk factors like age, birth weight, instrumental deliveries, length of second stage, and parity.
- Episiotomy reduced the odds ratio of OASIS by 23% in first vaginal birth, increased it in subsequent vaginal births by 63%.
- Harms noted with episiotomy in observational studies are due to indications of its use, rather than a treatment effect

Raisanen PLOS one 2014
Systematic review: episiotomy and OASIS in SVD’s

- **Objective**: to compare rates of OASI amongst women who had undergone mediolateral episiotomy (MLE) versus those who did not.

- **Methods**: Two reviewers independently selected and extracted data on study characteristics, quality and results. Computed events of OASI in those who did and did not have an episiotomy from individual studies and pooled these results in a meta-analysis where possible.
• **Main Results**: Majority of women (636755/651114) were nulliparous, MLE reduced the risk of OASI (RR =0.67; 95% CI 0.49-0.92) in vaginal delivery.

• **Conclusion**: The pooled analysis of a large number of women undergoing vaginal birth, most of who were nulliparous, indicates that MLE has a beneficial effect in prevention of OASI. An accurately given MLE might have a role in reducing OASI and should not be withheld, especially in nulliparous women.

Verghese IUJ 2016; In press
### Risk benefit relationship between MLE and OASI based on parity

#### 2.1.1 Nulliparous

<table>
<thead>
<tr>
<th>Study or Subgroup</th>
<th>Episotomy Events</th>
<th>Episotomy Total</th>
<th>No Episotomy Events</th>
<th>No Episotomy Total</th>
<th>Weight</th>
<th>Risk Ratio M.H, Random, 95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bednarek 2005</td>
<td>0</td>
<td>154</td>
<td>4</td>
<td>554</td>
<td>2.5%</td>
<td>0.40 [0.02, 7.35]</td>
</tr>
<tr>
<td>Buckley 1985</td>
<td>34</td>
<td>2783</td>
<td>51</td>
<td>3083</td>
<td>27.9%</td>
<td>0.05 [0.62, 1.46]</td>
</tr>
<tr>
<td>Gurrol-Urganj 2013</td>
<td>2574</td>
<td>117452</td>
<td>21592</td>
<td>631332</td>
<td>35.8%</td>
<td>0.64 [0.62, 0.67]</td>
</tr>
<tr>
<td>Lam (nulliparous) 2006</td>
<td>7</td>
<td>5216</td>
<td>2</td>
<td>52</td>
<td>7.6%</td>
<td>0.08 [0.02, 0.36]</td>
</tr>
<tr>
<td>Prager 2008</td>
<td>14</td>
<td>109</td>
<td>74</td>
<td>311</td>
<td>26.2%</td>
<td>1.20 [0.73, 1.95]</td>
</tr>
<tr>
<td>Subtotal (95% CI)</td>
<td>123813</td>
<td>636755</td>
<td>100.0%</td>
<td></td>
<td>0.71 [0.44, 1.14]</td>
<td></td>
</tr>
</tbody>
</table>

Total events: 2833
21723
Heterogeneity: Tau² = 0.17; Chi² = 10.04, df = 4 (P = 0.032); ¶ = 76%
Test for overall effect: Z = 1.41 (P = 0.15)

#### 2.1.3 Combined data

<table>
<thead>
<tr>
<th>Study or Subgroup</th>
<th>Episotomy Events</th>
<th>Episotomy Total</th>
<th>No Episotomy Events</th>
<th>No Episotomy Total</th>
<th>Weight</th>
<th>Risk Ratio M.H, Random, 95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bednarek 2005</td>
<td>0</td>
<td>154</td>
<td>4</td>
<td>554</td>
<td>1.1%</td>
<td>0.40 [0.02, 7.35]</td>
</tr>
<tr>
<td>Buckley 1985</td>
<td>34</td>
<td>2783</td>
<td>51</td>
<td>3083</td>
<td>16.8%</td>
<td>0.95 [0.62, 1.46]</td>
</tr>
<tr>
<td>Gurrol-Urganj 2013</td>
<td>2574</td>
<td>117452</td>
<td>21592</td>
<td>631332</td>
<td>24.4%</td>
<td>0.84 [0.62, 0.7]</td>
</tr>
<tr>
<td>Lam 2006</td>
<td>7</td>
<td>5216</td>
<td>2</td>
<td>52</td>
<td>4.5%</td>
<td>0.40 [0.10, 1.52]</td>
</tr>
<tr>
<td>Prager 2008</td>
<td>14</td>
<td>109</td>
<td>74</td>
<td>311</td>
<td>15.5%</td>
<td>1.20 [0.73, 1.95]</td>
</tr>
<tr>
<td>Sammaritano 2009</td>
<td>7</td>
<td>67</td>
<td>36</td>
<td>103</td>
<td>17.5%</td>
<td>0.80 [0.54, 1.19]</td>
</tr>
<tr>
<td>Steiner 2012</td>
<td>12</td>
<td>24123</td>
<td>116</td>
<td>25287</td>
<td>20.8%</td>
<td>0.39 [0.25, 0.6]</td>
</tr>
<tr>
<td>Subtotal (95% CI)</td>
<td>150068</td>
<td>651144</td>
<td>100.0%</td>
<td></td>
<td>0.67 [0.49, 0.92]</td>
<td></td>
</tr>
</tbody>
</table>

Total events: 2731
21808
Heterogeneity: Tau² = 0.11; Chi² = 28.19, df = 5 (P = 0.001); ¶ = 79%
Test for overall effect: Z = 2.45 (P = 0.01)

Test for subcategory differences: Chi² = 0.03, df = 1 (P = 0.87), ¶ = 0%

Verghese IUJ 2016; In press
Midwife’s view

• “we need to get over the impression among midwives that to do an episiotomy is a failure as a midwife; that she didn’t achieve an intact perineum…..

• We have to do what is best for the woman”
  
  • Gillian Young, Senior Midwife, Hinchingbrooke Hospital, UK
Results of 2 UK centre study with a fixed angle device

- Time series analysis (before and after replacement of existing episiotomy scissors with the **EPISCISSORS 60®**)
- Total of 7,500 births annually
- Data compared to 2014 figures
- Project funded by NHS England

Van Roon 2015
OASIS reduction

- 18% OASIS reduction in overall nulliparous vaginal deliveries compared to 2014 after introduction of *EPISCISSORS 60®* (p=0.22, ns)
- 14.3% OASIS reduction in nulliparous OVDs given episiotomies compared to 2014 after introduction of *EPISCISSORS 60®* (p=0.2, ns)
- 84% OASIS reduction in nulliparous SVDs given episiotomies compared to 2014 after introduction of *EPISCISSORS 60®* (p=0.03***)
- 85% reduction in OASIS in nulliparous SVDs given episiotomy (1%) compared to those not given episiotomy in (6.9%) in 2015 (p=0.01***), Risk ratio=0.15
- Clinically significant OASIS reductions across OVD and SVD
Episiotomy increase

• 11% increase in episiotomy numbers in nulliparous vaginal deliveries compared to 2014 after introduction of EPISCISSORS 60® (p=0.08)

• Corresponding reduction in second degree tears, perineal suturing burden unchanged.

• 16.5% increase in number of episiotomies in nulliparous OVDs in Hinchingbrooke compared to 2014 after introduction of EPISCISSORS 60® (p=0.003***)

• 47% increase in number of episiotomies in nulliparous SVDs at Poole compared to 2014 after introduction of EPISCISSORS 60® (p=0.007***)
EPISCISSORS 60® angles and user feedback

- Mean episiotomy post-suture angles of 52 degrees after introduction of EPISCISSORS 60®

- 86% rated the EPISCISSORS 60® usage good or very good.
• UK Government Health Ministry has ordered bulk purchase of *EPISCISSORS 60®*
Summary

- **OASIS**
  - Associated with episiotomies $<30^\circ, >60^\circ$ suture angles

- **40-60$^\circ$ suture angle is SAFE ZONE**

- **Current practice**
  - 13% clinicians achieve suture angle of $>40^\circ$

- **OASIS 60% lower with episiotomies in primiparae**
Thank you