2019 APEC Healthy Women, Healthy Economies Research Prize

Selective versus routine use of episiotomy for vaginal birth

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Jiang H, Qian X, Carroli G, Garner P. Selective versus routine use of episiotomy for vaginal birth. Cochrane Database Syst Rev. 2017;2: CD000081.

Outline

- Overall introduction of our research

"**Selective versus routine use of episiotomy for vaginal birth**"

- Research background
- Research aim
- Research methods
- Research findings
- Research conclusion
- Implications

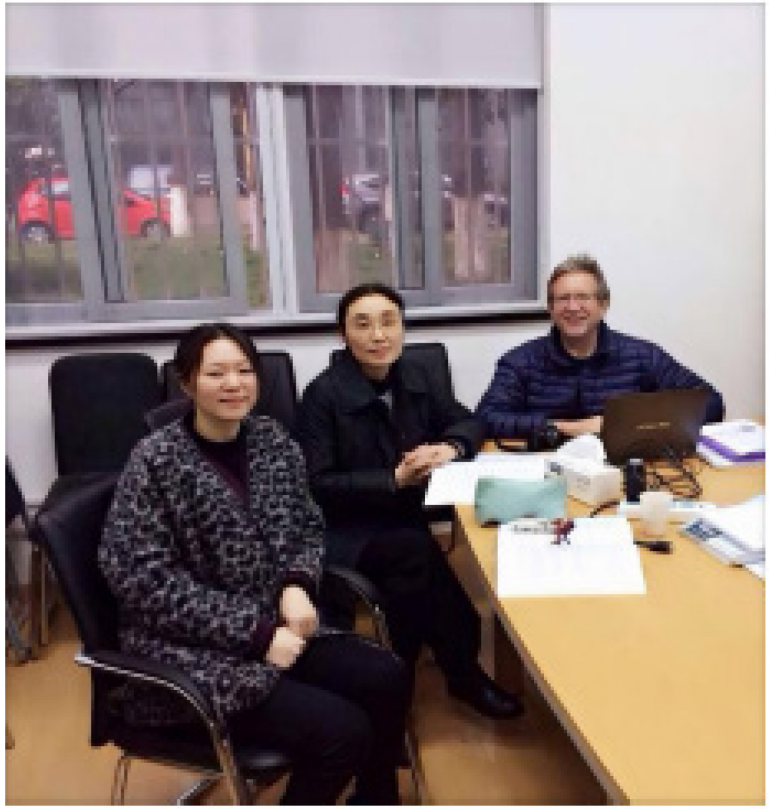
Our research group

Jiang H, Qian X, Carroli G, Garner P. *Selective versus routine use of episiotomy for vaginal birth*. Cochrane Database Syst Rev. 2017;2: CD000081.

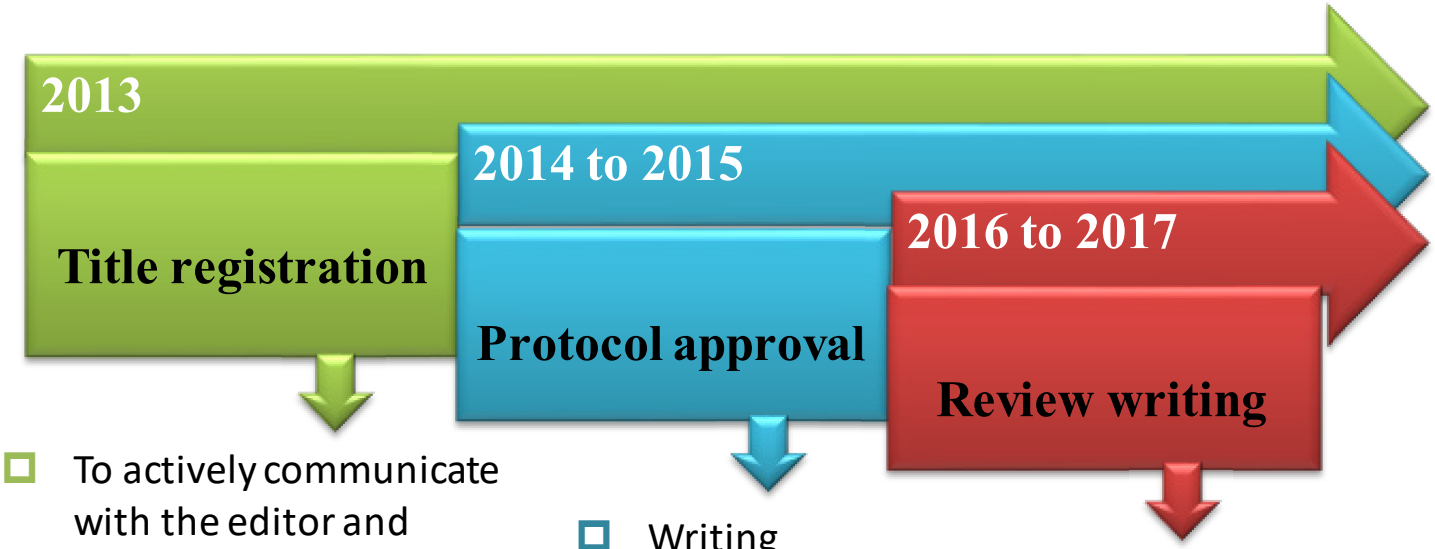
- **Dr. JIANG Hong** is the Associate Professor, Deputy Chair of the Department of Maternal, Child and Adolescent Health, School of Public Health, Fudan University, Shanghai, China.

- **Professor QIAN Xu** is a professor of Department of Maternal, Child and Adolescent Health, School of Public Health, and the founding director of Global Health Institute, Fudan University, Shanghai, China.

- **Professor Paul Garner** is a professor of Liverpool School of Tropical Medicine (LSTM), UK, responsible for the Centre for Evidence Synthesis for Global Health. He was part of the original team that set up the Cochrane Collaboration.



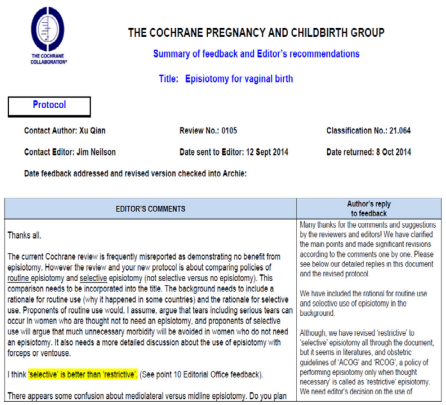
Overall research process



- To actively communicate with the editor and identify the topic
- Complete the title registration

- Writing
- Peer review
- Revision
- Protocol approval

- Writing
- Peer review
- Revision
- Publication



THE COCHRANE PREGNANCY AND CHILDBIRTH GROUP

Summary of feedback and Editor's recommendations

Title: Episiotomy for vaginal birth

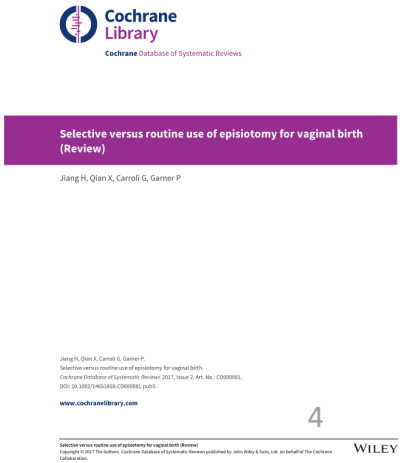
Protocol

Contact Author: Xu Qian | Review No.: 0105 | Classification No.: 21.064

Contact Editor: Jim Neilson | Date sent to Editor: 12 Sept 2014 | Date returned: 8 Oct 2014

Date feedback addressed and revised version checked into Archie:

EDITOR'S COMMENTS	Author's reply to feedback
Thanks all. The current Cochrane review is frequently misreported as demonstrating no benefit from episiotomy. However the review and your new protocol is about comparing policies of routine episiotomy and selective episiotomy (not selective versus no episiotomy). This comparison needs to be incorporated into the title. The background needs to include a rationale for routine use (why it happened in some countries) and the rationale for selective use. Proponents of routine use would, I assume, argue that tears including serious tears can occur in women who are thought not to need an episiotomy, and proponents of selective use will argue that much unnecessary morbidity will be avoided in women who do not need an episiotomy. It also needs a more detailed discussion about the use of episiotomy with forceps or ventouse. I think 'selective' is better than 'restrictive' (See point 10 Editorial Office feedback). There appears some confusion about medio/lateral versus midline episiotomy. Do you plan	Many thanks for the comments and suggestions by the reviewers and editors! We have clarified the main points and made significant revisions according to the comments one by one. Please see below our detailed replies in this document and the revised protocol We have included the rational for routine use and selective use of episiotomy in the background. Although, we have revised 'restrictive' to 'selective' episiotomy all through the document, but it seems in literatures, and obstetric guidelines of 'ACOG' and 'RCOG', a policy of performing episiotomy only when thought necessary' is called as 'restrictive' episiotomy. We need editor's decision on the use of

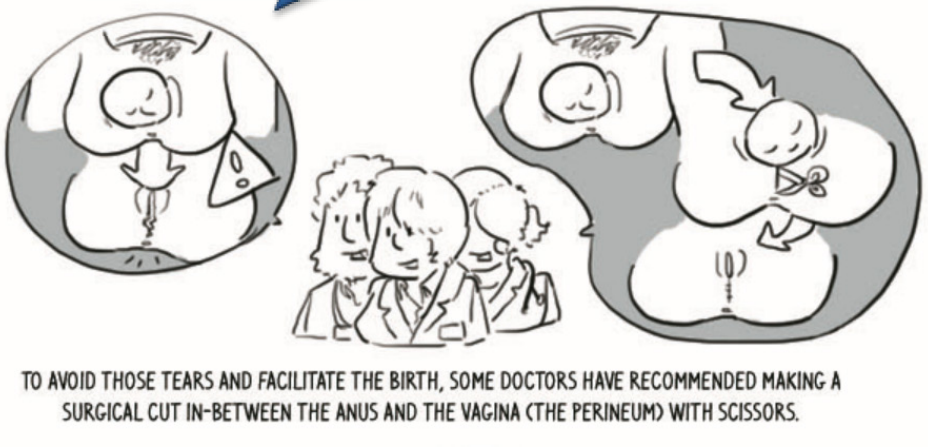


Research background

- Vaginal birth can cause tears to the vagina and perineum.

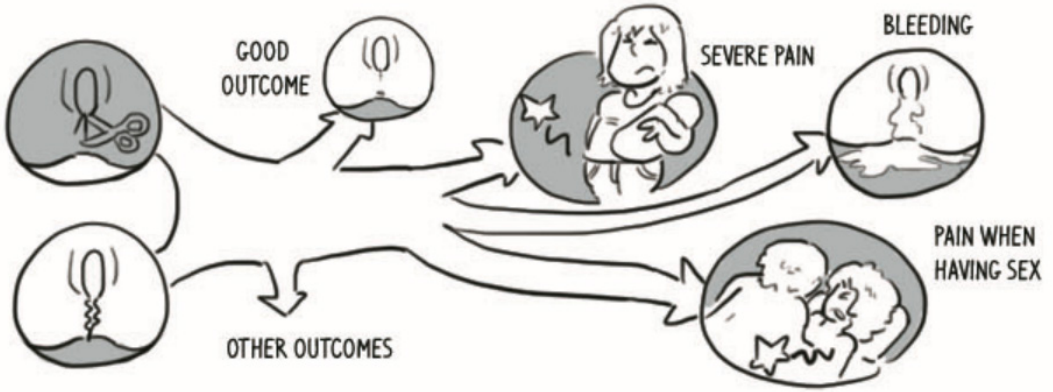
- Episiotomy is a surgical incision of the vagina and perineum carried out by a skilled birth attendant to enlarge the vaginal opening.

- Reported rates of episiotomies vary from as low as 9.7% (Sweden) to as high as 100% (Chinese Taipei) .



Research Background

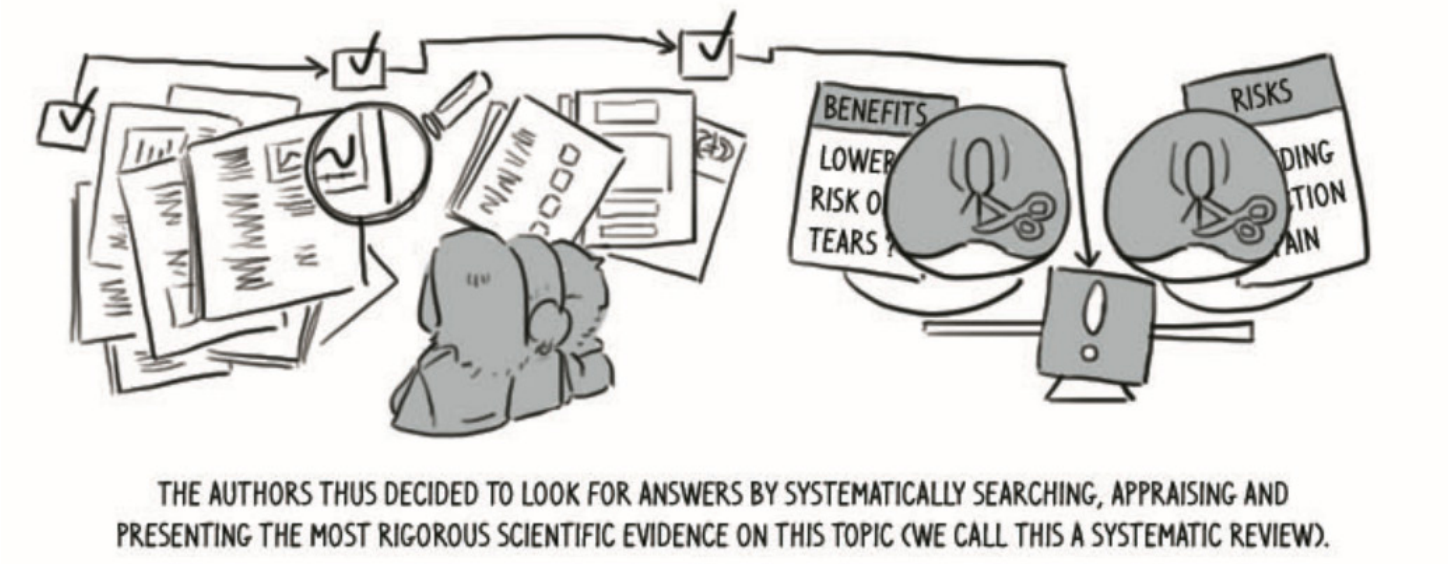
- Complications associated with episiotomy include bleeding, pain and discomfort of the wound and sutures (which may cause **pain** while sitting, and in turn affect breastfeeding), **wound scarring, dyspareunia, or complications in subsequent vaginal births**.
- Other adverse effects of episiotomy, e.g. **unnecessary health expenditures, cost of human resource** etc.



BOTH EPISIOTOMIES AND TEARS CAN LEAD TO SEVERE PAIN, BLEEDING, INFECTIONS, PAIN WHEN HAVING SEX, AND LONG-TERM INCONTROLLABLE URINE LEAKING.

Research aim

- To assess the effects on mother and baby of a policy of **selective episiotomy ('only if needed')** compared with a policy of **routine episiotomy ('part of routine management')** for vaginal births.



Research methodology

Systematic review method adhere to Cochrane Review standards

Inclusion criteria:

Randomized controlled trials (RCT).

Participants:

Pregnant women having normal or assisted vaginal births.

Intervention:

A policy of performing episiotomy only if needed ('selective', intervention group) versus routine episiotomy (control group).

Assessment of risk of bias in included studies

- (1) Random sequence generation
- (2) Allocation concealment
- (3) Blinding of participants and personnel; Blinding of outcome assessment
- (4) Incomplete outcome data
- (5) Selective reporting (checking for reporting bias)
- (6) Other bias (checking for bias due to problems not covered by above points)

Overall bias

Research methodology

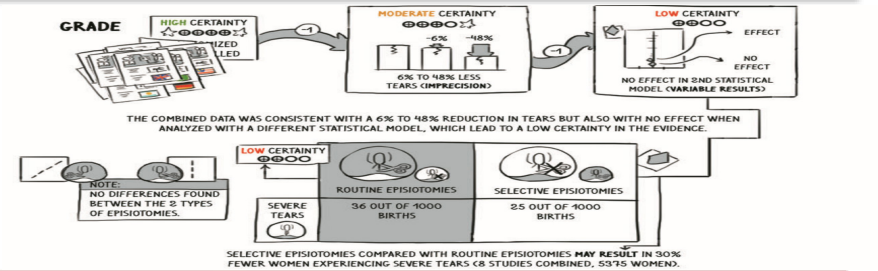
Data synthesis

- ✓ Meta-analysis
- ✓ random-effects when substantial statistical heterogeneity detected (greater than 50%)
- ✓ fixed-effect

Literature searching

- ✓ Retrieved 49 reports, identified 29 studies, of which 12 were included
- ✓ 7 in developed countries
- ✓ Canada, Germany, Ireland, Spain, and the UK.
- ✓ 5 in low-mid income countries
- ✓ Argentina, Columbia, Malaysia, Pakistan, and Saudi Arabia.

Assessment of the certainty of the evidence using the GRADE approach



Main outcomes

- ✓ **Severe perineal/vaginal trauma**
- ✓ Blood loss at delivery
- ✓ Newborn Apgar score less than seven at five minutes
- ✓ Perineal infection
- ✓ Moderate or severe pain
- ✓ Long-term dyspareunia (at least six months after delivery)
- ✓ Long-term effects (defined as trauma at least six months after delivery, including urinary fistula, urinary incontinence, genital prolapse, rectal fistula, faecal incontinence and genital prolapse)

Research findings

A policy of selective episiotomy **may result in 30% fewer women experiencing severe perineal/vaginal trauma** (RR 0.70, 95% CI 0.52 to 0.94; 5375 women; eight RCTs; low-certainty evidence).

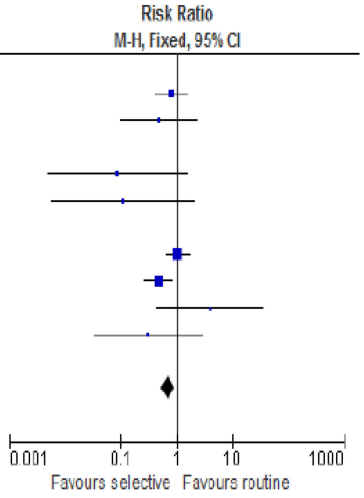
1 - Restrictive versus routine episiotomy (where non-instrumental was intended)

1.1 Severe perineal/vaginal trauma

Study or Subgroup	Selective episiotomy Events	Total	Routine episiotomy Events	Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Ali 2004	0	100	0	100		Not estimable
Belizan 1993	15	1298	19	1308	19.3%	0.80 [0.41, 1.56]
Dannecker 2004	2	49	5	60	4.6%	0.49 [0.10, 2.42]
Eltorkey 1994 (1)	0	100	0	100		Not estimable
Harrison 1984	0	92	5	89	5.7%	0.09 [0.00, 1.57]
House 1996	0	94	3	71	4.1%	0.11 [0.01, 2.06]
Juste-Pina 2007 (2)	0	200	0	202		Not estimable
Klein 1992	30	349	29	349	29.6%	1.03 [0.63, 1.69]
Rodriguez 2008	15	222	32	223	32.6%	0.47 [0.26, 0.84]
Sleep 1984	4	498	1	502	1.0%	4.03 [0.45, 35.95]
Sulaiman 2013	1	89	3	82	3.2%	0.31 [0.03, 2.89]
Total (95% CI)		**3091**		**3086**	**100.0%**	**0.70 [0.52, 0.94]**
Total events	67		97			

Heterogeneity: Chi² = 11.09, df = 7 (P = 0.13); I² = 37%

Test for overall effect: Z = 2.38 (P = 0.02)



Footnotes

(1) No third degree lacerations in either group

(2) No serious case of perineal trauma (3rd or 4th degree) in either group

Research findings

- **Routine episiotomy** compared with the policy of **selective episiotomy**
  - **increased risk of severe perineal/vaginal trauma**;
  - **no clear difference on**
    - ✓ blood loss at delivery,
    - ✓ APGAR Score at 5 minutes,
    - ✓ perineal infection,
    - ✓ women with moderate or severe pain (measured by visual analogue scale),
    - ✓ long-term dyspareunia (at least six months) and long-term urinary incontinence (at least six months)

0105 Selective versus routine use of episiotomy for vaginal birth

Patient or population: Women in labour where operative delivery was not anticipated. (Women were above 16 years old and between 28 gestational weeks and full term, with a live singleton fetus, without severe medical or psychiatric conditions, and had vaginal birth.)
Setting: Hospitals in high-, middle- and low-income countries. (Studies were carried out between July 1982 and October 2009, in Argentina, Canada, Columbia, Germany, Ireland, Malaysia, Pakistan, Saudi Arabia, Spain, and the UK. Five studies were carried out in university teaching hospitals, and one of these five studies recruited some participants from a mid-complexity level hospital. The other six studies were conducted in maternity units with inadequate information to judge the institution's level.)
Intervention: Selective episiotomy (episiotomy rates in the selective group ranged from 8% to 59%).
Comparison: Routine episiotomy (episiotomy rates in the routine group ranged from 61% to 100%; episiotomy rate differences between the groups within trials varied from 21% to 91%).

Outcomes	Anticipated absolute effects* (95% CI)		Relative effect (95% CI)	№ of participants (studies)	Certainty of the evidence (GRADE)	Comments
	Risk with routine episiotomy	Risk with selective episiotomy				
Severe perineal/vaginal trauma	3.6 per 100	2.5 per 100 (1.9 to 3.4)	RR 0.70 (0.52 to 0.94)	5375 (8 RCTs)	⊕⊖⊖⊖ low [1,2,3] due to imprecision and inconsistency	Selective episiotomy compared to routine may reduce severe perineal/vaginal trauma
Blood loss at delivery	The mean blood loss at delivery was 278 mL	27 mL less (95% CI from 75 mL less to 20 mL more)		336 (2 RCTs)	⊕⊖⊖⊖ very low [4,5,6] due to risk of bias, imprecision and inconsistency	We do not know if selective episiotomy compared to routine affects blood loss at delivery
Babies with newborn Apgar score < 7 at 5 minutes	0 per 100	0 per 100	no events	501 (2 RCTs)	⊕⊕⊕⊖ moderate [7,8] Due to imprecision	Both selective episiotomy and routine probably has little or no effect on Apgar < 7 at 5 minutes
Perineal infection	2 per 100	2 per 100 (0.9 to 3.6)	RR 0.90 (0.45 to 1.82)	1467 (3 RCTs)	⊕⊖⊖⊖ low [9] Due to imprecision	Selective episiotomy compared to routine may result in little or no difference in perineal infection
Women with moderate or severe pain (measured by visual analogue scale)	45.1 per 100	32 per 100 (21.6 to 47.3)	RR 0.71 (0.48 to 1.05)	165 (1 RCT)	⊕⊖⊖⊖ very low [10,11,12] Due to imprecision and indirectness	We do not know if selective episiotomy compared to routine results in fewer women with moderate or severe perineal pain
Women with long-term dyspareunia (≥ 6 months)	12.9 per 100	14.8 per 100 (10.9 to 19.8)	RR 1.14 (0.84 to 1.53)	1107 (3 RCTs)	⊕⊕⊕⊖ moderate [13] Due to imprecision	Selective episiotomy compared to routine probably results in little or no difference in women with dyspareunia at > 6 months
Women with long-term urinary incontinence (≥ 6 months)	32.2 per 100	31 per 100 (21.5 to 46.3)	RR 0.98 (0.67 to 1.44)	1107 (3 RCTs)	⊕⊖⊖⊖ low [13,14] Due to risk of bias and imprecision	Selective episiotomy compared to routine results may have little or no difference in the number of women with urinary incontinence > 6 months

*The risk in the intervention group (and its 95% confidence interval) is based on the assumed risk in the comparison group and the relative effect of the intervention (and its 95% CI)

CI: Confidence interval; RR: Risk ratio

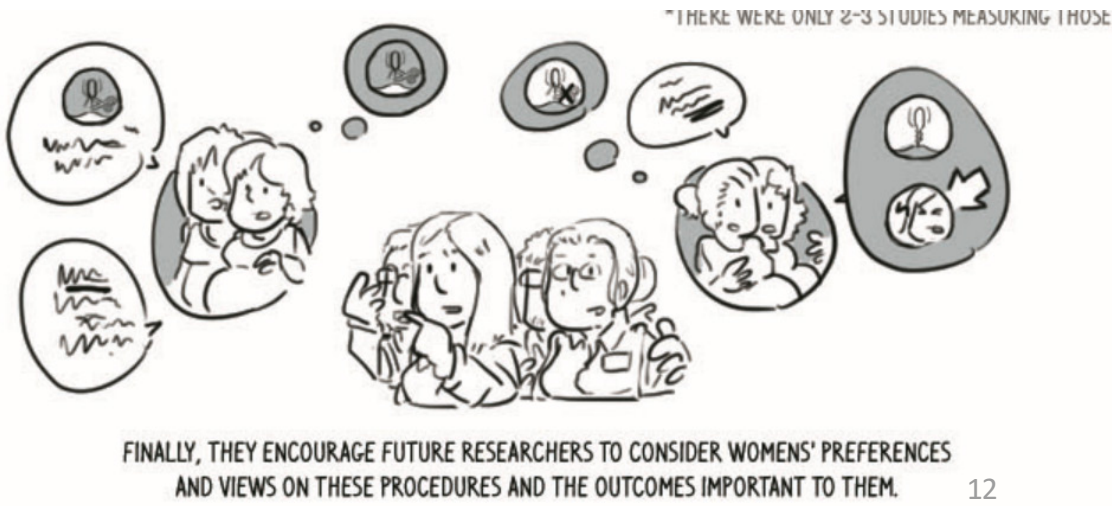
Impact on future researches

◆**Few trials reported some of our key outcomes:**

- ✓ low Apgar score at five minutes
- ✓ perineal infection
- ✓ perineal pain
- ✓ long term dyspareunia
- ✓ urinary incontinence
- ✓ any possible effect on breastfeeding

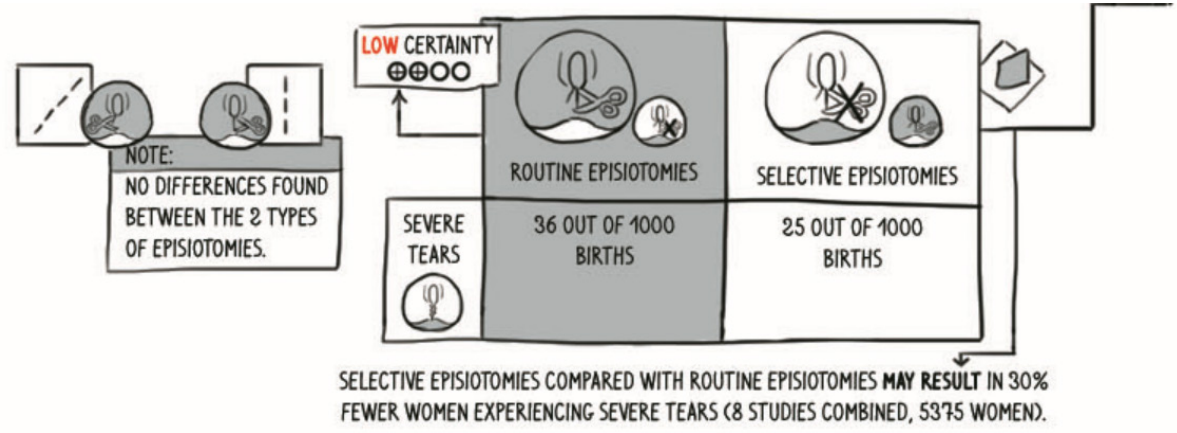
◆**Further cost-effectiveness analysis** may help elucidate the extent of cost savings with selective episiotomy.

- ◆ The trials included in this review did not appear to consider **women's preferences** and views on these procedures and the outcomes important to them.
- ◆ Other remaining questions relate to relative effects with **the type of episiotomy (midline or mediolateral, or different angles of episiotomy).**



Research conclusion

- In women where no instrumental delivery is intended, **selective episiotomy policies result in fewer women with severe perineal/vaginal trauma.**
- The findings of the research have the potential of **saving unnecessary health expenditures** and **reallocating resources to the area in most needs**.



Application in guidelines

Used in 3 guidelines:

1. Royal College of Obstetricians & Gynecologists (2017)

2. WHO Recommendations: Intrapartum care for a positive childbirth experience (2018)

3. Queensland Maternity and Neonatal Clinical Guidelines Program (2018)

Received high attention worldwide

https://cochrane.altmetric.com/details/16221476

Jiang H, Qian X, Carroli G, Garner P. *Selective versus routine use of episiotomy for vaginal birth*. Cochrane Database Syst Rev. 2017;2: CD000081.

- Attention score In the **top 5%** of all research
- **98th percentile of High Attention Score** compared to outputs of the same age
- **95th percentile of high attention Score** compared to outputs of the same age and source

Cochrane Library

Selective versus routine use of episiotomy for vaginal birth

Overview of attention for article published in Cochrane database of systematic reviews, February 2017

About this Attention Score

In the top 5% of all research outputs scored by Altmetric

SUMMARY | News | Blogs | Policy documents | Twitter | Facebook | Wikipedia

Title	Selective versus routine use of episiotomy for vaginal birth
Published in	Cochrane database of systematic reviews, February 2017
DOI	10.1002/14651858.cd000081.pub3
Pubmed ID	28176333
Authors	Hong Jiang, Xu Qian, Guillermo Carroli, Paul Garner
Abstract	Some clinicians believe that routine episiotomy, a surgical cut of the vagina and perineum, will prevent serious tears during childbirth. On the other hand, an episiotomy guarantees perineal trauma and sutures. To assess the effects on mother and baby of a policy of selective episiotomy ('only if needed') compared with a policy of routine episiotomy ('part of routine management') for vaginal births. We searched Cochrane Pregnancy and Childbirth's Trials Register (14 September 2016) and reference lists of retrieved studies. Randomised controlled trials (RCTs) comparing selective versus routine use of episiotomy, irrespective of parity, setting or surgical type of episiotomy. We included trials where either unassisted or assisted vaginal births were intended. Quasi-RCTs, trials using a cross-over design or those published in abstract form only were not eligible for inclusion in this review. Two authors independently screened studies, extracted data, and assessed risk of bias. A third author mediated where there was no clear consensus. We observed good practice for data analysis and interpretation where trialists were review authors. We used

About this Attention Score

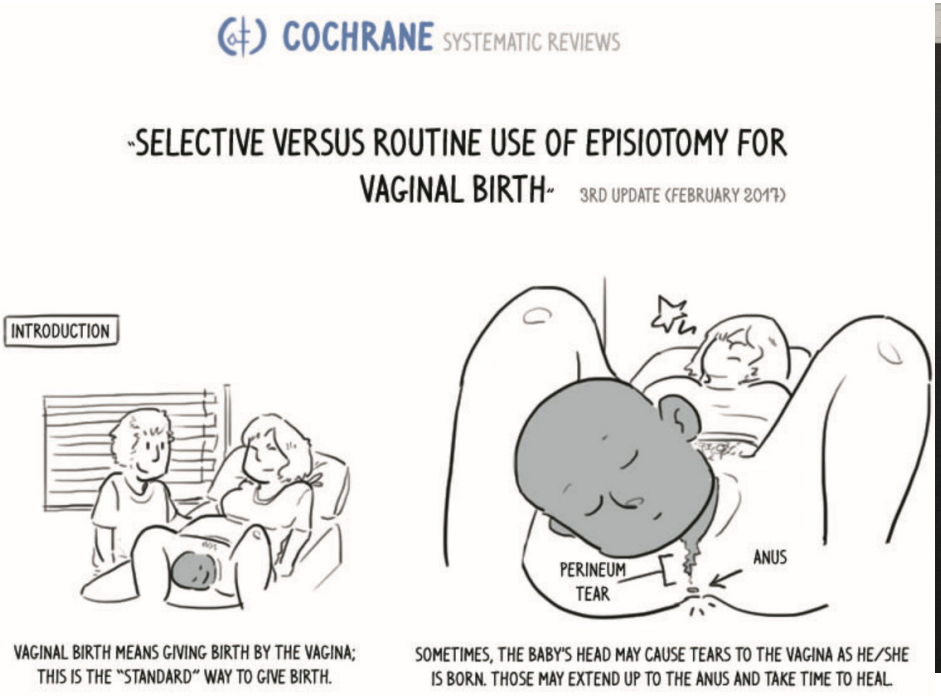
In the top 5% of all research outputs scored by Altmetric

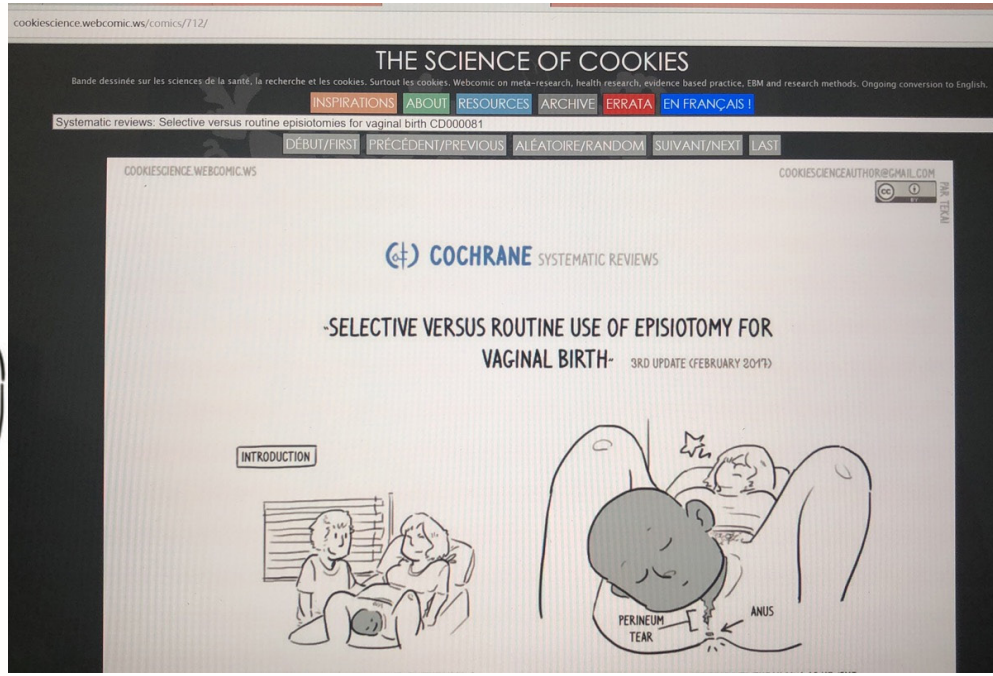
High Attention Score compared to outputs of the same age (98th percentile)

High Attention Score compared to outputs of the same age and source (95th percentile)

Knowledge translation

- The French artist **Martin Vuilleme** draws comics explaining this research at http://cookiescience.webcomic.ws/comics/712/
- Being circulated in FIGO website (International Federation of Gynecology and Obstetrics)





Thank you!

Jiang H, Qian X, Carroli G, Garner P. **Selective versus routine use of episiotomy for vaginal birth**. Cochrane Database Syst Rev. 2017;2: CD000081.
Supported by "Effective Health Care Research Consortium" (International Development Agency, the United Kingdom, PO 5242)

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