



## Report of the Short Term Scientific Mission (STSM)

***Socio-cultural factors that influence rates of unnecessary caesarean section:  
Preparatory work for a qualitative evidence synthesis to support  
WHO Guideline Development***

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## Abstract

Global action to reduce unnecessary caesarean section may provide the key to unlocking the benefits of labour and physiological birth for more women and babies. This STSM provided a unique opportunity for me to contribute to four evidence reviews for a new World Health Organization (WHO) Unnecessary Caesarean Section Guideline that will be available by the end of 2017. It also enabled me to lay the foundations from which to build future international collaborations as the caesarean delivery debate continues worldwide. Unnecessary caesareans section has now been identified as the number one indicator of over-medicalization and unnecessary intervention across global regions. When medically justified, caesarean section can save the lives of women and babies. However, there is no strong evidence showing the benefits of caesarean section for women or babies who do not require the procedure. Caesarean section is major surgery and is associated with immediate risks to women and babies, as well as having the potential to complicate future pregnancies and long-term effects that are still being investigated. These risks are known to be higher for those with limited access to comprehensive obstetric care. Caesarean sections are also more costly to healthcare systems than vaginal births. In 2015, the WHO released a new Statement on Caesarean Section rates. This Statement epitomizes a new era of global action in relation to caesarean section where at population level, caesarean section rates higher than 10% are not associated with reductions in maternal and newborn mortality rates and that every effort should be made to provide caesarean section to women in need instead of striving to achieve any specific normative rate of dubious utility. This STSM positioned me at the heart of this action at a key stage in the guideline development process. Over the next 12 months I will continue work with the Guideline Development Team.



**Dr Carol Kingdon**  
**November 2016**

## Keywords

Caesarean section, qualitative evidence synthesis, guideline development, delivery mode, vaginal birth, social determinants of health

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# Introduction

The relationship between individuals, societies, cultures and health is complex. The focus of this European Cooperation in Science and Technology (EU COST) action is to understand more about the complexity of these relationships and how they impact physiological labour and birth. It seeks advance by promoting interdisciplinary collaboration to move beyond understanding pathologies of pregnancy and childbirth from one-dimensional and linear clinical perspectives to more nuanced socio-cultural and clinical understandings of the range and limits of normal childbirth physiology in different populations, individuals, and contexts. While the substantive focus is on physiological labour and birth, one cannot ignore the other birth mode increasingly available to women – caesarean section. What is more, as the term unnecessary caesarean section gathers momentum, and public and policy makers' interest increases, caesarean section may provide the key to opening up more positive discourse on the benefits of labour and physiological birth for more women and babies. It is no coincidence that the current global action surrounding unnecessary caesarean section shares a stage with post-2015 sustainable health development goals, and increasing evidence of the benefits of midwifery-led continuity of care, with both underpinned by social models of health.

## Caesarean section: Local decisions, global controversy

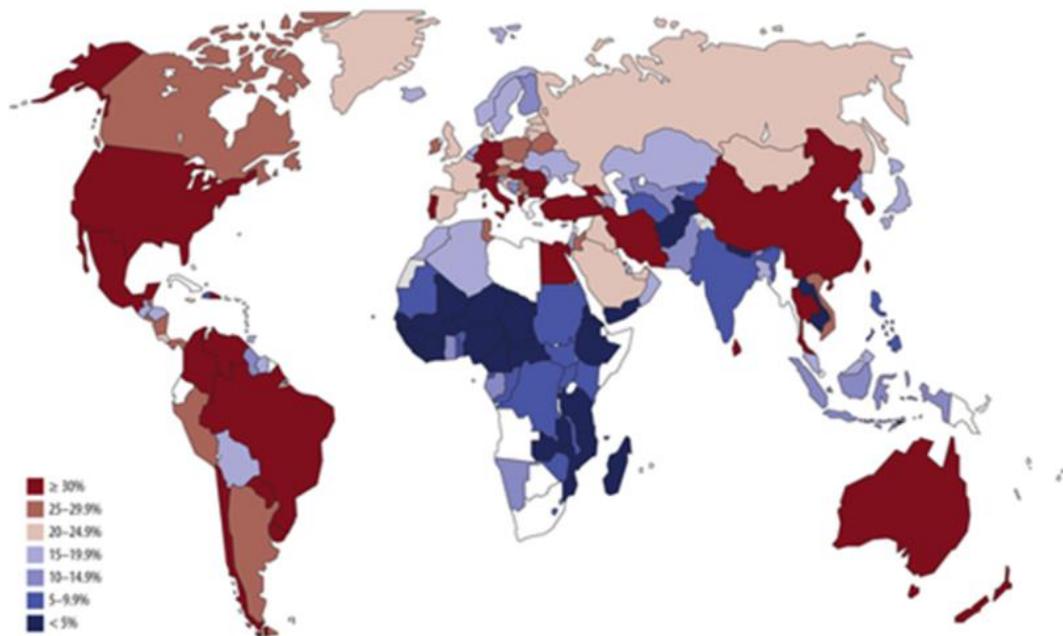
When medically justified, caesarean section can save the lives of women and babies. However, there is no strong evidence showing the benefits of caesarean section for women or babies who do not require the procedure (WHO 2015). Caesarean section is major surgery and is associated with immediate risks to women and babies, as well as having the potential to complicate future pregnancies and long-term effects that are still being investigated (Bétran 2016). These risks are known to be higher for those with limited access to comprehensive obstetric care (WHO 2015). Caesarean sections are also more costly to healthcare systems than vaginal births.

In 2015, the WHO released a new Statement on Caesarean Section rates (WHO 2015). This Statement epitomizes a new era of global action in relation to caesarean section where 'at population level, caesarean section rates higher than 10% are not associated with reductions in maternal and newborn mortality rates' and that 'every effort should be made to provide caesarean section to women in need' (WHO 2015; Betrán 2016). An emphasis reiterated in The Lancet Maternal Health Series 2016 that positions unnecessary caesarean section as the leading cause for concern in the extremes of inequity apparent in present-day health services where some women receive too little, too late, while others receive too much, too soon (Lancet 2016). There is also public interest in caesarean section inequity as depicted in the National Geographic's April 2016 infographic map showing the overall births worldwide and the rate of births by caesarean section.

Since 1985, the rates of caesarean section have increased steadily in both developed and developing countries. As illustrated overleaf, the most recently available figures suggest an average global rate of CS of 18.6%, ranging from 6.0% to 27.2% in the least and the more developed regions (Betrán 2016). Countries with the highest national CS rates include Dominican Republic (56.4%), Brazil (55.6%), Cyprus (52.2%), and Egypt (51.8%) (Betrán 2016). In stark contrast CS rates in West Africa are around 3%, with only half a percent point increase in Niger (from 0.9% to 1.4%), Burkina Faso

(from 1.3% to 1.9%) and Zambia (from 2.6% to 3%) since 1990 (Betrán 2016). The reasons for these disparities are complex, with clinical factors often poorly recorded and the intersections between clinical and socio-cultural factors even less well understood.

**Fig 1. Latest available data on caesarean section rates by country (not earlier than 2005).**



Betrán AP, Ye J, Moller AB, Zhang J, Gómezoglu AM, et al. (2016) The Increasing Trend in Caesarean Section Rates: Global, Regional and National Estimates: 1990-2014. PLoS ONE 11(2): e0148343. doi:10.1371/journal.pone.0148343  
<http://journals.plos.org/plosone/article?id=info:doi/10.1371/journal.pone.0148343>



**Figure 1: Map of global, regional and national caesarean section rates published by my host, Ana P. Betrán earlier this year**

### Clinical classification of caesarean section: Part of the picture

In the absence of an internationally accepted classification system for caesarean section, the WHO has proposed the Robson classification system as a global standard for assessing, monitoring, and comparing caesarean section rates within and across clinically meaningful groups (WHO 2015). Its use is also endorsed by the Federation of International Gynecologists and Obstetricians (FIGO 2016). The Robson Classification can be used to stratify all women into one of 10 mutually exclusive groups based on five key obstetric characteristics (previous obstetric record including parity and/or previous caesarean section, gestational age, onset of labour, fetal presentation, and number of fetuses) (Robson 2001). The Robson Classification is a valuable tool in current efforts to understand differences in obstetric populations and caesarean section rates per groups between facilities or regions and over time (Betrán 2016). For example, we now know in very high and high Human Development Index (HDI) countries, women with a previous caesarean section and nulliparous women who went into spontaneous labour account for 50% of all caesarean sections performed

(Vogel 2015). While this information is important for targeting interventions and monitoring trends in overall rates, it tells us nothing about the social and cultural factors that influence rates of caesarean section in those populations, including women's preferences, healthcare professionals practice patterns or healthcare system incentives, which are the missing components in tackling the global excess of unnecessary caesarean section.

## **Unnecessary caesarean section: The other part of the picture?**

The WHO is currently engaged in a programme of work exploring rising caesarean section rates and the complex reasons for them to inform a new Caesarean Section Guideline (Betrán 2016, 2015). While the WHO associates caesarean section rates of around 10% with preventing mortality in mothers and newborns, it also recognises the unprecedented rises in caesarean section rates since 1990 mean it is not universally desirable to strive to achieve a specific rate in the short-term (WHO 2009). Instead the emphasis is that women who need a caesarean get one, and increased effort is centred on unnecessary caesarean section. The WHO Guideline Development Group has proposed the following working definition of unnecessary caesarean section:

*'Unnecessary caesarean deliveries are those procedures that are performed in the absence of medical indications such as substantial maternal risk factors, fetal anomalies, pregnancy complications, birth weight <2500 g or >4000 g, and complications of labour or delivery (Koroukian 1998). Generally unnecessary caesarean deliveries are those without medical indications in which the mother is exposed to potential harms that outweigh the potential benefits (Kabir 2004).'*

It has been estimated that 6.8% of primary and 39.2% of repeat caesarean sections are unnecessary (Koroukian 1998). The global cost of unnecessary caesarean section has been estimated to amount to approximately 2.32 billion US dollars (Gibbons 2010). The social determinants of unnecessary caesarean sections are a key component to the development, implementation and success of this guideline.

## **Social determinants of caesarean section: Another part of the picture**

In the context of rising rates of unnecessary caesarean section rates, maternal and neonatal physical health outcomes must be considered alongside psychosocial influences, cultural context and social change. As highlighted in the Lancet Maternal Health Series (2016) as individuals and communities become more prosperous, many lifestyle and behavioural changes can occur. This includes increased maternal age at first birth; increased obesity and greater aspirations to use specific healthcare services and technology. The trend towards smaller families is also relevant. As is women's fear of vaginal birth, which must be considered in the context of the increased medicalization of childbirth. Increasing reliance on science and technology is not only widespread, it is also increasingly visible in media portrayals of childbirth (Campo-Engelstein 2015, Morris 2010). In the UK context there has been a shift in the expectations of childbearing women who are now more willing to accept interventions during childbirth (Green 2007). Women have also become more active in seeking

interventions in accordance with the prevailing cultural values of choice, self-enhancement and individual responsibility (Kingdon 2016). While in North America, it has been suggested that the reasons why some women prefer caesarean over vaginal birth is a belief that vaginal birth is inherently flawed, their socialization into a culture where birth must fit around organisational productivity, fashion imperatives, limited healthcare resources and malpractice insurance (Bergeron, 2007). In an Australian context too, studies suggest women's expectation of choice, the gendering of women (primarily as sexual objects), values such as control, convenience and a quick fix, as well as the normalization of surgery for enhancement, are all factors in the complex web that make the phenomenon of CS for non-medical reasons (McAra-Couper 2011). While in a Brazilian context, it has been shown that CS is associated with higher quality care, and that particularly for some groups of women, it offers a route out of commonly experienced mistreatment and abuse during planned vaginal births (Béhague 2002). Data from the Norwegian national cohort study (n=58,881) shows women's reasons for expressing a preference include socio-demographic factors (age, marital status, work status, education, income), obstetric and medical conditions (previous caesarean, multiple pregnancy, assisted conception, pre-existing mental health problem), emotional factors (fear of birth, concerns about baby, previous traumatic birth, sexual/physical abuse) and societal factors (maternity provider, gender of obstetrician, caesarean rate at delivery hospital) (Fuglenes 2011). Previous birth experience, fear of vaginal birth, need for choice and control, coupled with the cultural acceptability of caesarean section may all influence women's decision-making surrounding ways of giving birth. However, longitudinal studies from the UK (Kingdon 2009) and Sweden (Karlstrom 2011) show how women's preferences can change during pregnancy. This is why the WHO reviews are so important to informing the content and delivery of global action to reduce unnecessary caesarean section with birth preference at the beginning of pregnancy not necessarily the same as actual birth mode.

The aim of this STSM was to develop links and collaborations with the WHO team who are currently working on new guidance to reduce unnecessary caesarean sections.

## **STSM Objectives**

The specific objectives of this STSM were:

1. To visit WHO Headquarters in Geneva, Switzerland and meet members of the Guideline Development Team;
2. To find out about WHO Guideline Development processes, support preparatory work for the Guideline Development Group Meeting;
3. To undertake preparatory work for a robust qualitative evidence synthesis to support the WHO Guideline to reduce unnecessary caesarean sections. This will include working towards team formation and finalization of data-extraction instruments, with the possibility of data extraction;
4. To explore the feasibility and desirability of pursuing the Review as a Cochrane qualitative evidence synthesis to complement the existing Cochrane Reviews of 'Non-clinical interventions for reducing unnecessary caesarean sections' (Khrunpradit et al, 2011,

Effective Practice and Organisation of Care (EPOC) Group, host is co-author) and ‘Caesarean section for non-medical reasons’ (Lavender et al, 2012 Pregnancy and Childbirth Group – currently in process of being updated, applicant is co-author);

5. To write an STSM report of my visit to WHO Headquarters and the work achieved.
6. To commit to completing the resultant review within two years and to using the GRADE-CERQual approach to assess confidence in the review findings;
7. To write a discussion paper that reflects developments in evidence synthesis and guideline development since 2008 when Tina Lavender and I published our paper ‘Cochrane Reviews with no trials: Pointless or pragmatic?’ and finally;
8. To continue to develop my working relationship with the Cochrane Pregnancy and Childbirth Group who are currently in receipt of an NIHR Cochrane Programme Grant (07/2014-07/2018) for ‘Pregnancy and Childbirth systematic reviews to support clinical guidelines’ that concentrates on those questions prioritised by clinical guideline authors nationally (NICE) and internationally (WHO). Their current focus is on four topics: management of breech presentation; management of multiple pregnancy in the antenatal period; induction of labour; and diabetes in pregnancy; and is methodologically confined to Randomised Controlled Trials only.

Objectives 1-5 of my STSM were met during my visit. Objectives 6-8 are ongoing with vital preparatory work undertaken during my time in Geneva. It is also important to note that since writing these objectives the opportunity arose to be involved with three qualitative evidence syntheses to directly inform the WHO Guideline. The Cochrane review remains a longer term objective (within two years).

## Schedule of work undertaken

I arrived in Geneva, Switzerland in the evening of Sunday 30<sup>th</sup> of October.

### **Day 1 - Monday 31<sup>st</sup> October 2016**

Upon arrival at the Headquarters of the World Health Organisation (WHO) I met with my host Ana Pilar Betrán. I was introduced to members of the Department of Reproductive Health and Research and given desk space. I spent my first morning working on the protocol for a qualitative review of interventions to reduce unnecessary caesarean section targeted at women, communities and the public. In the afternoon, Ana and Qian Long presented their progress to date on the mixed-methods review of women’s preferences for caesarean section that will also inform the Guideline. Qian also presented details of a sub-study of women’s preferences for caesarean section in China. Ana and Qian kindly invited me to work with them on this sub-study. I began by reading, quality appraising and mapping reported themes in the four papers published in English (including data extraction).

### **Day 2 – Tuesday 1<sup>st</sup> November 2016**

My second day began with a meeting with Ana to discuss the protocol for the review of interventions to reduce unnecessary caesarean section targeted at women, communities and the public. We discussed the aims and objectives of the review in relation to the 12 key questions identified by the WHO Guideline group invited to the scoping meeting, methodological considerations and the timeframe. We also discussed the feasibility and desirability of pursuing these reviews as a Cochrane qualitative evidence synthesis to complement the existing Cochrane

Reviews of 'Non-clinical interventions for reducing unnecessary caesarean sections' (Khrunpradit et al, 2016, Effective Practice and Organisation of Care (EPOC) Group, host is co-author) and 'Caesarean section for non-medical reasons' (Lavender et al, 2012 Pregnancy and Childbirth Group). Ana had no objection in principle but felt registration with Cochrane would have to follow the Guideline Development reviews, rather than happen in tandem because of time restrictions. After this meeting I met Dr. A Metin Gülmezoglu, Co-ordinator for the maternal and perinatal health and preventing unsafe abortion team. I then spent the remainder of the day working on the protocols for three qualitative evidence syntheses of interventions to reduce unnecessary caesarean section targeted at: 1) women/communities/public, 2) healthcare professionals, 3) organisations/facilities/systems, which are to be completed by the spring of 2017.

### **Day 3 – Wednesday 2<sup>nd</sup> November 2016**

Ana, Qian and I met in the morning of my third day to discuss my initial assessment of the English papers for the China paper, which I had entered into a spreadsheet for data management. We also discussed the use of an existing model (Health Beliefs Model) or development of a new model to represent findings, and from which to develop a framework for action/interventions. I shared an idea I had had to combine the clinical Robson Groups and the Social Determinants of Health in a single model. Qian and I spent the rest of the day translating paper details and data from Chinese to English. This was a particularly insightful process and a unique opportunity for me. Qian and I also discussed the potential for future collaborative between the US (Duke University, North Carolina), China (Duke Kunshan University) and the UK.

### **Day 4 – Thursday 3<sup>rd</sup> November 2016**

In the morning Qian and I continued to work on the China paper. In the afternoon Ana and I met to discuss the WHO Guideline Development Process in general and for Caesarean Section in particular. Ana also informed me about other ongoing international work in relation to interventions to reduce unnecessary caesarean section. I was especially interested to hear of the work in Argentina where a proposal exists for formative research (including a qualitative component) and a trial. Ana agreed to forward further details and links to the team. The intention is that the 2017 Guideline will be one component on a continuum from the 2015 WHO Statement to WHO endorsed interventions in the longer term. The team are under no illusion about the complexity and magnitude of the task to reduce unnecessary caesarean section.

### **Day 5 – Friday 4<sup>th</sup> November 2016**

Ana, Qian and I met first thing on the Friday morning to discuss our progress with the China paper and review protocols, which was followed by a Skype meeting with Professor Soo Downe to update her. In the afternoon of my final day I met with WHO Guideline expert Femi Oladapo. His recent work includes the WHO recommendations for Optimising health worker roles to improve access to key maternal and newborn health interventions through task shifting (OPTIMIZE MNH) and the development of the new WHO Antenatal Care and Intrapartum Guidelines. The WHO adopted a new process for Guideline Development in 2007 that included the use of the GRADE (Grading, Assessment, Development, and Evaluation) to support decision-making. Femi explained the roles of the four groups involved in the guideline development process: the steering group, Guideline Development Group, external review group, and the systematic review team, before we talked specifically about the evidence reviews. Femi explained how the WHO follows a grid methodology, uses the PICO format to formulate questions and outcomes, before evidence retrieval and synthesis, GRADE assessment and agreement. We discussed the shift since 2010 towards the inclusion of qualitative evidence synthesis in the process and the benefits, strengths and limitations to inform my update of the 'Cochrane Reviews with no trials: Pointless or pragmatic?' paper to developments in evidence synthesis and guideline development since 2008 (STSM objective 7). I flew home on the Friday evening.

# Clinical and social determinants of caesarean section: The whole picture

The combination of recent developments in qualitative evidence synthesis and the inclusion of qualitative evidence in WHO guideline development since 2010 (Lewin 2015), coupled with the 2015 global call to action around caesarean section and the WHO's wider 2016-2030 strategy that centres the social determinants of health makes this an exciting time for the develop of a new model to understand rising caesarean section rates.

Qualitative research aims to explore how people perceive and experience the world around them (Ames 2015). Qualitative data can address certain types of key questions that cannot be answered by quantitative research methods (WHO, 2014). Such as “how” and “why” interventions produce effects, or identify the influence of the values and preferences of the people receiving the intervention, and the barriers and facilitators to the interventions effectiveness. In other words, qualitative evidence can help explain, interpret and apply the quantitative results of a systematic review. There is increasing recognition in medicine that while quantitative research strives to be objective and has led to extraordinary medical advances, patients often fail to reap the benefits because health professionals may not understand how best to deliver them in the context of patients' multifaceted lives (Gulmezoglu 2013). As a Sociologist, I am especially interested in a broader conceptualisation of caesarean section that takes into account individual agency and social context.

The WHO defines the social determinants of health as the conditions in which people grow, live, work and age (WHO, 2008). They also include gender norms, roles and relationships that have a bearing on peoples desires for, and uptake of, health services, as well as on health outcomes. The four reviews I worked on during my time at the WHO will provide evidence of the social determinants of unnecessary caesarean section. We also began to develop a woman-centred, multi-factorial and cylindrical model of the clinical and social determinants of caesarean section. It demonstrates how the cycle of repeat caesarean section can be made and re-made. It builds on the on-going evidence syntheses for the new WHO Unnecessary Caesarean Section guideline and the 2015 WHO Statement on Caesarean Section by depicting the relationship between the 10 Robson Groups and the social determinants of caesarean section. The model is simple to understand, transferrable across settings and world regions, and has been designed to complement post-2015 circular representations of the WHO's sustainable development goals. It speaks to the WHO's integration of the social determinants of health into its agenda in the lead up to 2030 and to the ISCH COST Action IS1405's interdisciplinary approach to understanding the context and barriers to labour and physiological birth. The model could provide a base for a framework for action to reduce unnecessary caesarean section.

## Conclusion

Reducing rates of unnecessary caesarean section is essential to ensuring sustainable universal reproductive health services and the health and wellbeing of future generations of women and children. When medically justified CS can save the lives of women and children. When unnecessary caesarean section is associated with immediate risks to women and babies (associated with surgery), short and longer term morbidity, and the potential to complicate future pregnancies. The reasons for the current unprecedented rates of caesarean section are complex. They include clinical and social factors. As a Sociologist it was a privilege and an inspiration to visit the WHO and work with the Caesarean Section Guideline Team. Going forward, drawing from my methodological, theoretical and subject expertise I hope I can deliver what fellow Sociologists consider as:

*'The most useful sociological accounts are precisely those which insiders recognize as sufficiently inside to be true but not so "inside" that they reveal only what is already known. The sociologist's obligation is to report honestly but according to his own lights.'*

*Glaser and Strauss (1968:8-9)*

## STSM Highlights



My week at the Headquarters of the World Health Organization was an inspirational experience. It enabled me to consolidate 15 years of maternity research and teaching. Working together with Ana Pilar Betrán and Qian Long, the week culminated in the development of a new working model for understanding the clinical and social determinants of caesarean section.

During my STSM I was also privileged to work on a sub-analysis of papers reporting women's preferences for caesarean section in China. Working with Qian, a skilled translator of language and meaning, taught me so much about the unique socio-cultural factors that shape women's birth experiences in China - a country steeped in tradition, amidst a period of unprecedented social change, where differences between state jurisdiction of birth in urban and rural communities and its influence on women's preferences for delivery mode have, to date, been so little understood.



## Host report and foundations for future collaboration

The steady and unprecedented rise in the use of caesarean section in the last decades has resulted in global concern, debate and a call to action from the scientific, public health and medical communities. The WHO is developing a Guideline on interventions to reduce unnecessary caesarean section. It is expected that these Guidelines will form the basis for the development of national and subnational strategies in order to epitomize the use of caesarean delivery and ultimately monitoring and improving the quality of care of mothers and babies by more appropriate care and procedures during childbirth.

As a sociologist, Dr Carol Kingdon holds complementary capacity and knowledge to the WHO Caesarean section Guideline team, with her visit to WHO Headquarters enabling her to further develop insights and understanding into the complex global phenomena of rising caesarean section rates. During her visit Carol integrated into the team, working on three qualitative evidence synthesis protocols and with Dr Qian Long on a sub-study of women's preferences for caesarean section in China. She also met all members of the Caesarean section systematic review team.

We look forward to continuing to work with Carol to deliver the reviews and resultant publications. The following outputs have been agreed:

- Paper reporting *Chinese women's reasons for choosing caesarean section: A mixed-methods review of women's and healthcare provider's views and experiences* (February 2017)
- Three qualitative evidence syntheses reporting *Use of interventions to reduce unnecessary caesarean section targeted at 1) women, communities/public; 2) healthcare professionals; and 3) Organizations/facilities/systems*(March 2017)
- Paper discussing recent developments in qualitative evidence synthesis and WHO Guideline Development process that updates 2008 paper *Cochrane Reviews with no trials: Pointless or pragmatic?* (April 2017)
- Development of collaborative proposals for Cochrane qualitative evidence synthesis to complement quantitative intervention review (Khrunpradit et al 2016), further formative research and intervention trial to reduce unnecessary caesarean section (ongoing).



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