A Perfect Storm

How to unintentionally create a maternity crisis

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Summary of recommendations and care pathway

Key priorities for implementation

Place of birth

- Commissioners and providers[a] should ensure that all 4 birth settings are available to all women (in the local area or in a neighbouring area). [6] [new 2014]
- Explain to both multiparous and nulliparous women that they may choose any birth setting (home, freestanding midwifery unit, alongside midwifery unit or obstetric unit), and support them in their choice of setting wherever they choose to give birth:
  - Advise low-risk multiparous women that planning to give birth at home or in a midwifery-led unit (freestanding or alongside) is particularly suitable for them because the rate of interventions is lower and the outcome for the baby is no different compared with an obstetric unit.
  - Advise low-risk nulliparous women that planning to give birth in a midwifery-led unit (freestanding or alongside) is particularly suitable for them because the rate of interventions is lower and the outcome for the baby is no different compared with an obstetric unit. Explain that if they plan birth at home there is a small increase in the risk of an adverse outcome for the baby. [2] [new 2014]
- Providers, senior staff and all healthcare professionals should ensure that in all birth settings there is a culture of respect for each woman as an individual undergoing a significant and emotionally intense life experience, so that the woman is in control, is listened to and is cared for with compassion, and that appropriate informed consent is sought. [14] [new 2014]
- Senior staff should demonstrate, through their own words and behaviour, appropriate ways of relating to and talking about women and their birth companion(s), and of talking about birth and the choices to be made when giving birth. [15] [new 2014]
- Maternity services should
  - provide a model of care that supports one-to-one care in labour for all women **and**
  - benchmark services and identify overstaffing or understaffing by using workforce planning models and/or woman-to-midwife ratios. [23] [new 2014]
- Commissioners and providers[b] should ensure that there are:
  - robust protocols in place for transfer of care between settings (see also recommendations 46 to 52)
  - clear local pathways for the continued care of women who are transferred from one setting to another, including:
    - when crossing provider boundaries
    - if the nearest obstetric or neonatal unit is closed to admissions or the local midwifery-led unit is full. [11] [new 2014]

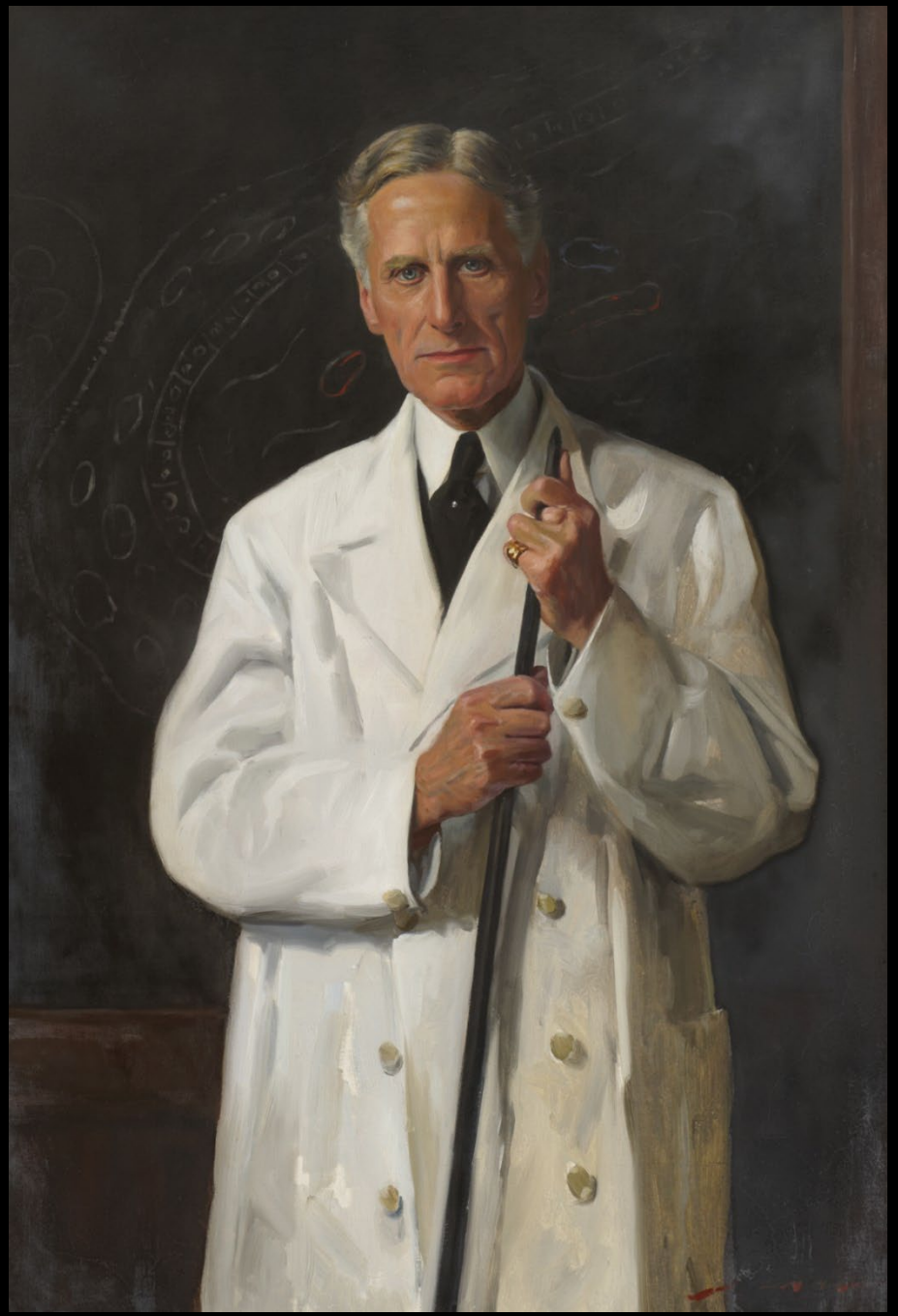
Measuring fetal heart rate as part of initial assessment

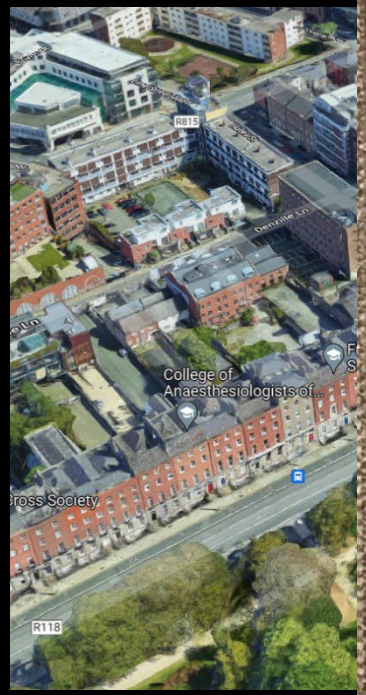
- Do not perform cardiotocography on admission for low-risk women in suspected or established labour in any birth setting as part of the initial assessment. [55] [new 2014]

a This can also include networks of providers.
b This can also include networks of providers.

Update 2014

"Providers, senior staff and all healthcare professionals should ensure that in all birth settings there is a culture of respect for each woman as an individual undergoing a significant and emotionally intense life experience, so that the woman is in control, is listened to and is cared for with compassion, and that appropriate informed consent is sought."





ACTIVE MANAGEMENT OF LABOR

Third Edition

• K. O'DRISCOLL
• D. MEAGHER
WITH
• P. BOYLAN

Mosby

intention is to use data on death rates to inform patient choice about whether or not to undergo a procedure. This is entirely different from the publication of crude league tables of death rates by hospital or surgeon that, by providing an incentive to avoid treating high risk patients or to collect data in a way that gives favourable results, would probably mislead.[10]

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Active management of labour: current knowledge and research issues

James G Thornton, Richard J Lilford

Abstract

***Objectives*—To review the evidence that the package of labour interventions collectively called "active management"—namely, strict diagnostic criteria for labour, early amniotomy, early use of oxytocin, and continuous professional support—reduce rates of caesarean sections and operative vaginal delivery in first labours.**

***Design*—Review of observational data, supplemented by evidence from four separate overviews of relevant randomised trials previously published as part of the Cochrane Collaboration pregnancy and childbirth database.**

***Results*—Observational data do not permit a clear conclusion. There have been no randomised trials of the total package of active management or of the use of strict diagnostic criteria alone, but trials of early amniotomy, early oxytocin, and these interventions combined do not suggest that these interventions are effective in reducing rates of caesarean sections or operative vaginal deliveries. In contrast, the provision of continuous professional support in labour seems to reduce both types of operative delivery, although the effect on caesarean sections is confined to those settings where non-professional companions are not normally present in labour.**

***Conclusions*—Delivery units should endeavour to provide continuous professional support in labour, but routine use of amniotomy and early oxytocin is not recommended.**

Doctors and midwives often intervene in labour by rupturing membranes and prescribing oxytocin in the hope of preventing harm to both mother and baby. Until the 1970s both interventions were considered meddlesome, but since then routine amniotomy and the early use of oxytocin have become widespread as part of a movement associated in particular with the National Maternity Hospital in Dublin. These measures were introduced there in the late 1960s[1] as part of a package of care, "the active management of labour."[2] Other components of the package were strict criteria for the diagnosis of labour and a commitment to never leave a woman unattended in labour and to limit its maximum duration. Proponents of active management claimed that it lowered the rate of caesarean sections and instrumental deliveries, was safer for the baby (because the liquor could be inspected and prolonged labour avoided), and was popular with mothers. Opponents disputed the reduction in operative delivery and argued that amniotomy increased the risk of infection, that even in first labours oxytocin occasionally caused fetal hypoxaemia and maternal hyponatraemia, and that many women resented the interventions. While the debate raged[3] active management (or at least two of its components, amniotomy and oxytocin) rapidly moved into routine use, especially in the English speaking countries outside America.

An important factor in this process was the personality, and vigorous prose style, of active management's foremost advocate, Kieran O'Driscoll of Dublin, who managed to convince even the most cautious clinicians. The *BMJ*'s review in 1980 of his *Active Management* is an example of the enthusiastic reception it received: "Our ers will be seen as one in which there occurred a revolution in intrapartum care centring on Dublin . . . 'First Blast of the Trumpet against the Monstrous Regiment of Women Mismanaged in Labour' . . . place it alongside [the obstetric classics of] Smellie and Mauriceau."[4] Although the reviewer reminded readers that the book was one sided and recalled the old aphorism that "an accelerated labour is as safe as a streamlined parachute," he was correct to predict that he was reviewing a major development in medicine, destined for widespread acceptance.

Another factor in the rapid adoption of active management was the development of the partogram, which implicitly supported active management with alert and action lines.[5] The idea was that if progress was slow these lines would be crossed and intervention should follow. For women already in a hospital maternity unit, the interventions were amniotomy, oxytocin, and, if these failed, caesarean delivery. The evidence that augmentation had any advantage, over and above use of the partogram itself as a guide to the need for transfer to hospital or a caesarean section, was scanty. However, clinicians had no other clear guidelines for the permissible duration of natural labour, and they were unwilling to perform caesarean sections without trying less extreme measures such as amniotomy and oxytocin. In the United States, in contrast, the inventor of the partogram, Emmanuel Friedman, argued—admittedly from equally tenuous data—that amniotomy should be avoided because he believed it slowed labour.[6] He also recommended observation rather than oxytocin for most cases of slow progress, making an exception only for those cases in which cephalopelvic disproportion had been excluded. Since then both sides have been able to provide supporting observational data.

Observational data

The National Maternity Hospital in Dublin has been renowned for its relatively low caesarean section rate, and doctors there have also claimed to have abolished

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COMMENTARIES

The active mismanagement of labour

We are all working together to one end, some with knowledge and design, and others without knowing what they do
Marcus Aurelius

Experience has taught us that the introduction of innovative approaches to patient management should be subjected to scientific scrutiny before they are widely implemented. The concept of the 'active management of labour' revolutionised obstetric practice in the United Kingdom because of the enthusiasm with which it was introduced and the promise of a safe and simple solution to prolonged labour. Unfortunately, 'failure to progress' still plagues labour and data are now emerging, after over 25 years, to show that the concept of active management was not only simple but simplistic.

The principles of active management of labour were first applied to a consecutive series of 1000 nulliparous women in the late 1960s[1]. For purely pragmatic reasons the duration of labour was to be limited by accelerating delayed progress by administering oxytocin or by caesarean section if this did not succeed. Attention was drawn to the correct diagnosis of labour, and amniotomy was performed to check for meconium. Because the 'powers' or uterine force was the only variable open to manipulation, the classical causes of aberrant progress (i.e. occipito-posterior, cephalo-pelvic disproportion, and hypotonic uterine activity) were considered irrelevant. The treatment would be oxytocin, whatever the perceived problem. In the original study by O'Driscoll *et al.*[1] 55% of nulliparous women required oxytocin. This would imply that in their series it was normal to require oxytocin in labour!

Well designed clinical trials to test this empirical approach are few. Meta-analysis of the available randomised clinical trials on the components of active management[2] show that oxytocin augmentation does not improve caesarean section rates, operative vaginal delivery rates or neonatal outcome. However, it does increase hyperstimulation and the amount of pain experienced by the mother. Amniotomy, once considered a means of improving the forces of labour, has been shown to cause a modest reduction in the duration of labour but does not affect perinatal outcome or operative delivery rates[3–5]. Paradoxically, we have invested heavily in the development of that part of active management which has no useful effect, yet with our current financial constraints, we are often failing to provide the one component which does have benefit: the provision of a companion in labour.

Three randomised studies have tested the effectiveness of the overall package of active management. Lopez-Zeno *et al.*[6] concluded that the caesarean section rate was reduced, but scrutiny of the data reveals that the largest reduction came merely from the interest taken in labour management resulting from the study—the Hawthorne effect. Statistical significance was achieved only by stratifying the data, thereby introducing bias. Two more recent studies with consistent findings by Frigoletto *et al.*[7] and Cammu and Van Eeckhout[8] show a modest reduction in the duration of labour (median reduction of 2·7 hours in the study by Frigoletto *et al.* and mean reduction of 29 minutes in the study by Cammu and Van Eeckhout), but no differences in neonatal outcome or reduction in operative delivery rates (caesarean section rate 19·5% in the active management group and 19·4% in the control group in the study by Frigoletto *et al.*, caesarean section rate 3·9% in the active management group and 2·6% in the control group with a spontaneous vaginal delivery rate of 78% in the active management group and 79% in the control group in the study by Cammu and Van Eeckhout). The two very different operative delivery rates in these studies emphasise the pitfalls of comparing operative delivery rates in different populations. The low caesarean section rate in the Dublin population may have been the justification for many UK centres to adopt the principles of active management.

It is all too frequent in medicine to find ignorance about the most common events. The mechanisms which initiate labour remain obscure, as are the complex chemical and physical changes in the cervix which pre-empt labour. Even the mechanisms of normal labour are oversimplified and poorly understood. Between pregnancy and parturition, uterine function undergoes a remarkable

role reversal which requires careful orchestration. The quiescent myometrium has to become active and the cervix, the function of which has been to obstruct delivery, must lose its resistance. Furthermore, the process has to be repeatable for subsequent pregnancies. Our blatant inability to explain these phenomena in precise terms underlines labour's subtle complexity.

Classically, delay in progress is seen in terms of poor powers, mismatch between presenting part and pelvis, malpresentation or malposition. Active management relied on increasing the powers to improve flexion, encourage rotation and overcome borderline disproportion. The soft tissues were discounted as passive, and any resistance offered by them could be overcome by efficient forces. Significant proportions of women who are not progressing in labour do not respond to oxytocin[9] and in only a minority can cephalo-pelvic disproportion, malpresentation or malposition be found. Furthermore, two-thirds of these cases will deliver vaginally in their next pregnancy[10]. The association between prolonged labour and increased morbidity and mortality is incontrovertible. However, the recurrent finding that shortening labour by force does not improve clinical outcome suggests that it is not duration *per se* which gives rise to poor outcome but the pathology which underlies the delay. The tragedy of the last 25 years is that active management has not only failed to solve the problem it addressed, but it has also stopped us thinking logically about the underlying pathology and has therefore delayed research into the causes.

The two papers by Allman *et al.*[11,12] on pages 763–768 and 769–775 in this edition of the *Journal* are a brave attempt to clarify the physiology and pathology of labour. The techniques are not new but are refinements of previous techniques first described by Lindgren and Smyth in 1961[13]. Spatial studies of head:cervix forces were derived from head:cervix pressure measurements[14]. In normally progressing labour the forces are not evenly distributed but concentrated in a high zone of force around the equator with low forces in front of the head. These patterns are not easy to standardise, hence their lack of implementation in routine clinical practice, but are reproducible[13–15]. Furthermore, the findings are not easy to explain, and emphasise the complexity of the mechanism of labour which requires further study. The observation that the rise in intrauterine pressure lags behind the rise in head:cervix force[12] is consistent with our own findings using continuous cervimetry[16]. We attributed this to uptake in slack in the cervical collagen fibres by the initial part of myometrial contraction. Thereafter, once the collagen fibres are under tension, resistance from the cervix allows tension in the wall of the uterus to form, thus causing a rise in intrauterine pressure.

The quotation from Marcus Aurelius that heads this commentary is not intended to be facetious. We would benefit greatly from a better understanding of the pathophysiology of labour to enable us to manage problems 'by design'. Unfortunately, we have spent the last 25 years managing labour *without knowing what we do*. The superficial nature of our understanding must be appreciated and change in practice based on speculative interpretation of complex data should be viewed with scepticism. Developments in practice must ultimately be tested by properly conducted clinical trials before widespread implementation.

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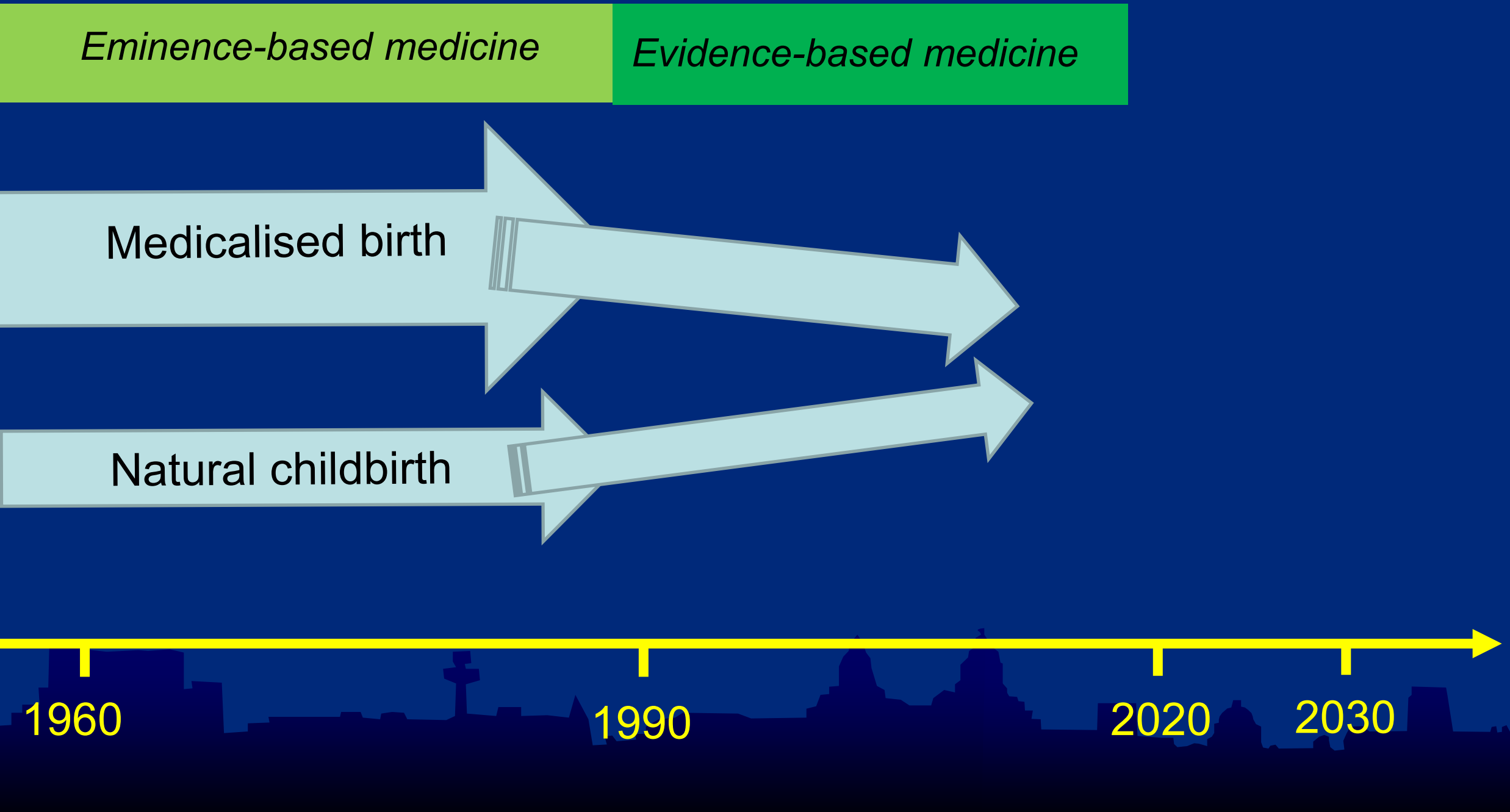
Eminence-based medicine
Evidence-based medicine
Medicalised birth
Natural childbirth
1960
1990
2020
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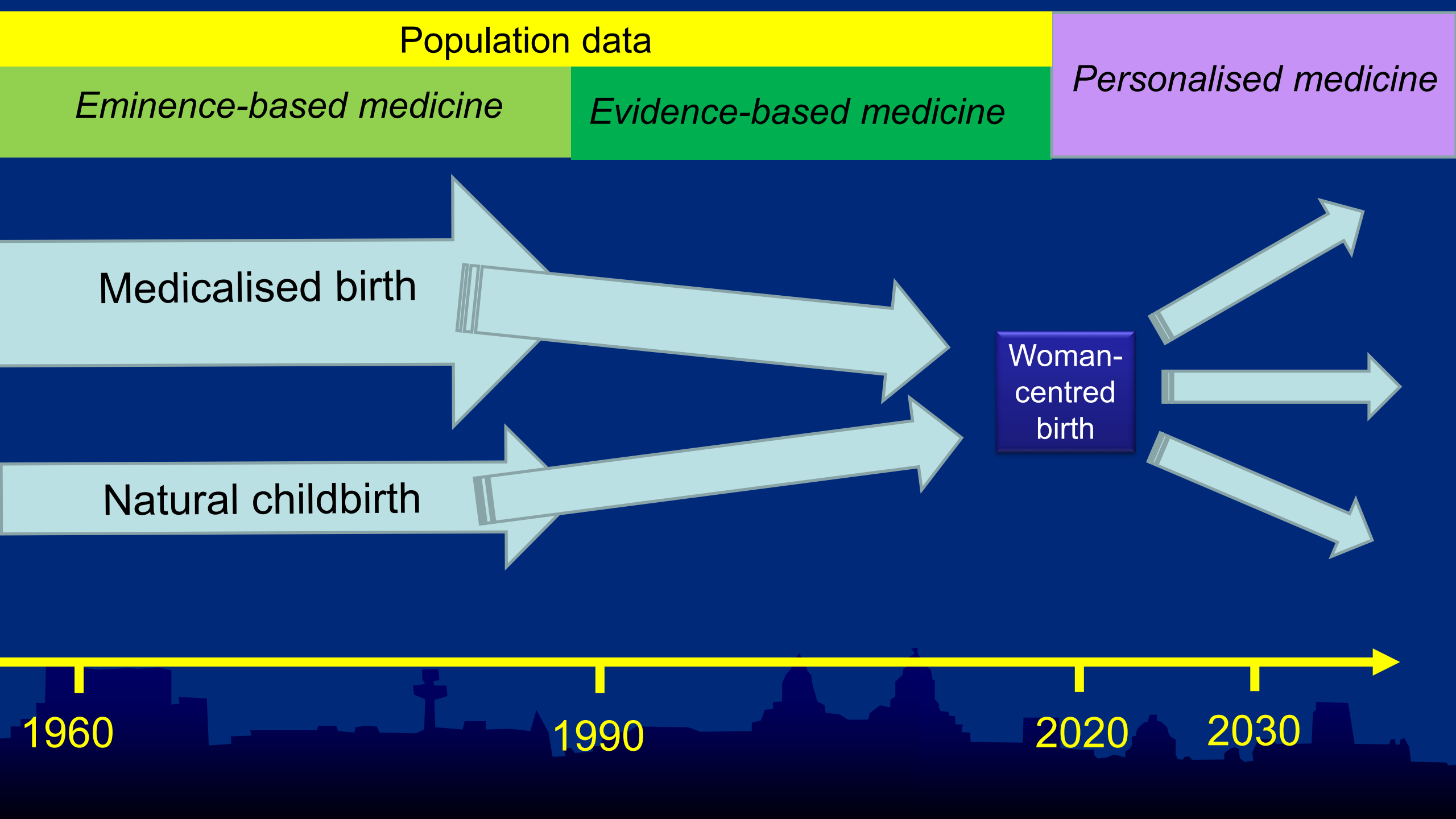
Population data
Eminence-based medicine
Evidence-based medicine
Personalised medicine
Medicalised birth
Natural childbirth
Woman-centred birth
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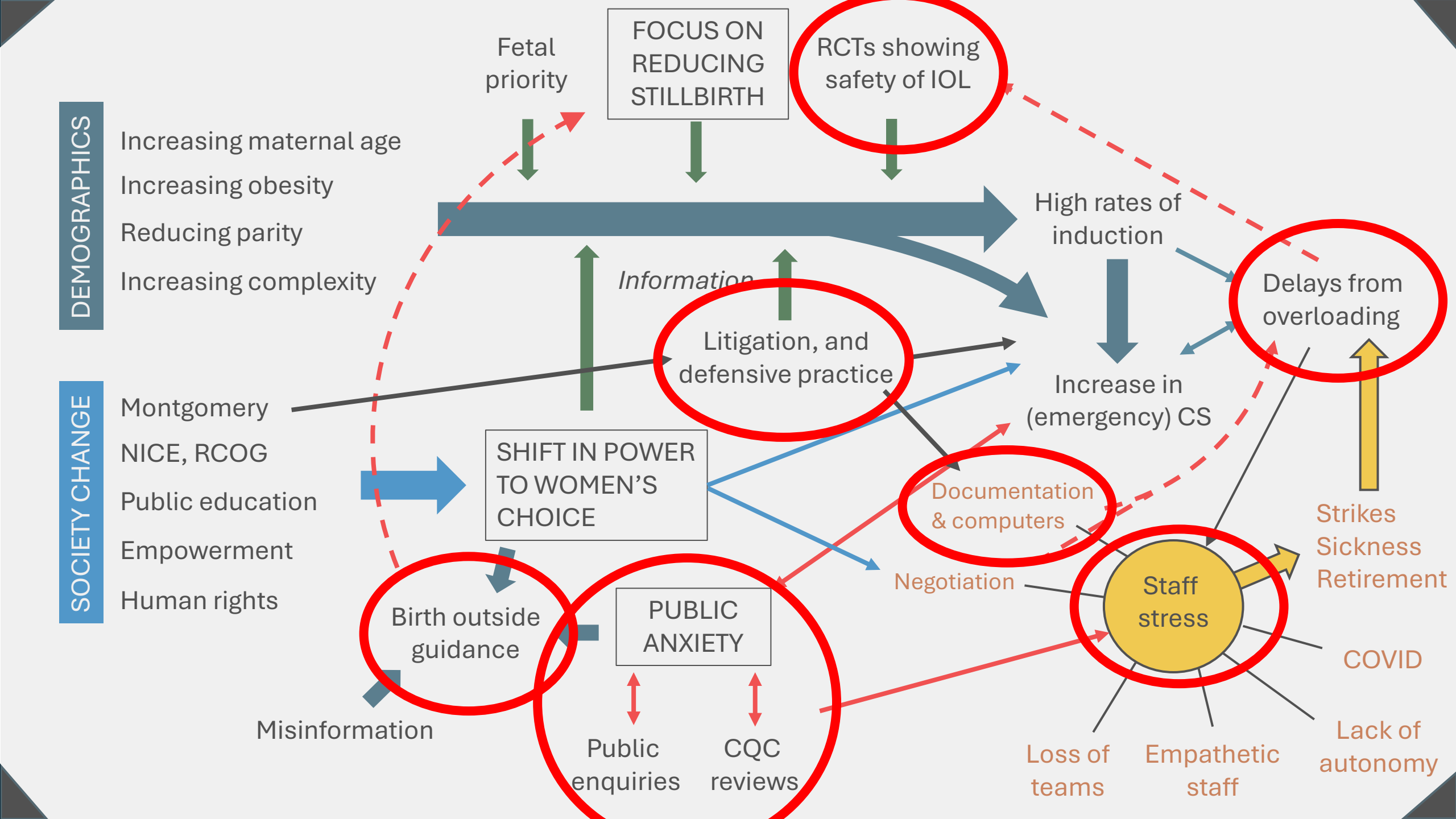
DEMOGRAPHICS
Increasing maternal age
Increasing obesity
Reducing parity
Increasing complexity
SOCIETY CHANGE
Montgomery
NICE, RCOG
Public education
Empowerment
Human rights
Fetal priority
FOCUS ON REDUCING STILLBIRTH
RCTs showing safety of IOL
High rates of induction
Delays from overloading
Information
Litigation, and defensive practice
Increase in (emergency) CS
SHIFT IN POWER TO WOMEN'S CHOICE
Documentation & computers
Strikes
Sickness
Retirement
Negotiation
Staff stress
Birth outside guidance
PUBLIC ANXIETY
COVID
Misinformation
Public enquiries
CQC reviews
Loss of teams
Empathetic staff
Lack of autonomy

Thank-you!

Liverpool Women's NHS Foundation Trust

UNIVERSITY OF LIVERPOOL

Sanyu Research Unit for International Maternal & Child Health

"the art of achieving good outcomes with few resources"