

Are we medically intervening in maternity care when we don't need to?

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Researchers from the School of Nursing and Midwifery at Trinity

College Dublin have provided an international perspective on differences in key birth interventions as part of a European research network on understanding and contextualising physiological labour and birth (EU COST Action IS1405), which provides insights into [maternity care](#) practices and costs in Ireland.

The School's two studies are published in a special maternity care themed edition of the online journal *PLOS ONE*.

The first study—Economic implications of reducing caesarean section rates—analysis of two [health systems](#)—looks at the cost implications of reducing caesarean sections rates (CS rates) among first-time mothers, along with improving rates of vaginal births after c-sections.

Caesarean section (CS) rates throughout Europe have risen significantly over the last two decades. As well as being an important clinical issue, these changes in mode of birth may have substantial resource implications. Policy initiatives to curb this rise have had to contend with the multiplier effect of women who had a CS for their first birth having a greater likelihood of requiring one during subsequent births, thus making it difficult to decrease CS rates in the short term.

The study examined the long-term resource implications of reducing CS rates among first-time mothers, as well as improving rates of vaginal birth after caesarean section (VBAC), among an annual cohort of women over the course of their most active childbearing years (18 to 44 years) in two public health systems in Europe; Ireland and England/Wales.

Researchers found that the economic benefit of improvements in these two outcomes is considerable, with the net present value of the savings associated with a five-percentage-point change in nulliparous (a woman who has yet to give birth to a child) CS rates and VBAC rates being

€1.1million and £9.8million per annual cohort of 18-year-olds in Ireland and England/Wales, respectively.

Reductions in CS rates among first-time mothers are associated with a greater payoff than comparable increases in VBAC rates. The net present value of achieving CS rates comparable to those currently observed in the best performing Scandinavian countries was €3.5M and £23.0M per annual cohort in Ireland and England/Wales, respectively.

Dr. Patrick Moran, Adjunct Assistant Professor of Health Economics at the School of Nursing and Midwifery said:

"Our results show that in addition to the reported clinical benefits, there is a significant economic benefit of reducing caesarean section rates among those for whom it is safe to do so in Ireland. This can free up vital maternity care resources to strengthen maternity services in Ireland and improve outcome for women, children and families."

The second study from the School of Nursing and Midwifery—How much synthetic oxytocin is infused during labour? A review and analysis of regimens used in 12 countries—highlights the national and institution regimens on the use of oxytocin, the most common drug used to induce labour, across 11 European countries and South Africa.

This study examined the use of oxytocin to induce labour. Oxytocin is widely used, but even 70 years after it was first introduced in clinical practice, there is still no agreement on the optimal infusion regimen to use during induction (starting) or augmentation (speeding up) in labour.

The study found that across the 16 regimens, there were considerable variations which were noted, with an 11-fold difference between minimum and maximum amounts. As oxytocin is a potentially harmful medication, with serious consequences for mum and baby, it is vital that

the appropriate minimum infusion rate is administered.

Ireland is one of only five countries in the study with a national oxytocin infusion regimen; with one Irish hospital using a different regimen. All other countries use differing amounts of oxytocin.

The study found that the total amount of IU (international unit) oxytocin infused, estimated over eight hours, ranged from 2.38 IU to 27.00 IU, a variation of 24.62 IU and an 11-fold difference over the 16 regimens. In Ireland, the total amount infused in one regimen was 4.08 IU, just slightly above the lowest of the 16 regimens, and 13.05 IU in the other hospital regimen, which was the second highest amount but very close to several other regimens.

Dr. Deirdre Daly, Assistant Professor in Midwifery at the School of Nursing and Midwifery said:

"In the era of evidence-based health care, the fact that such widespread variation exists in the use of infused oxytocin, and in the total amount infused, reflects potential overuse in many settings. All maternity care professionals are driven by the need to reduce avoidable maternal and neonatal morbidity and mortality, but it is crucial that intrapartum interventions designed to reduce risk for some who have complications are not used routinely for others who are healthy."

More information: Patrick S. Moran et al. Economic implications of reducing caesarean section rates – Analysis of two health systems, *PLOS ONE* (2020). [DOI: 10.1371/journal.pone.0228309](https://doi.org/10.1371/journal.pone.0228309)

Deirdre Daly et al. How much synthetic oxytocin is infused during labour? A review and analysis of regimens used in 12 countries, *PLOS ONE* (2020). [DOI: 10.1371/journal.pone.0227941](https://doi.org/10.1371/journal.pone.0227941)

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