Classification of indications for caesarean section: Nulliparous women after induction of labour with a cephalic foetus at term (Robson Group 2A)

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Introduction:

The Robson Ten Group Classification System (TGCS)
Proposed by WHO in 2015 as a global standard for assessing, monitoring and comparing caesarean section (CS) rates both within healthcare facilities and between them[1].

A classification of intrapartum CS delivery has been developed to be used within the Robson TGCS to enable deeper understanding of CS rates. This classification of indications for caesarean section (CICS) has been applied in several centres in Europe[2,3] and gives us a method of comparison between units and over time.

The induced population is a higher risk one, with higher rates of small for gestational age (SGA), intrauterine growth restriction (IUGR), post-term, and maternal complications including pre-eclampsia (PET) and diabetes. Therefore, the CS rate may be expected to be higher that that of those in spontaneous labour. The distribution of indications for these additional CS is unknown.

Objectives:

To apply a developed CICS to women in Group 2A in our unit.
Allow comparing and contrasting between units as a basis for discussion around management of labour, and provide further understanding of how the CS rate for the induced population differs from those in spontaneous labour. Group 1 is analysed in a static poster.

Methods:

Robson's CICS - retrospectively applied to women in Robson Group 2A
April 2020 to March 2022 for deliveries in Palmerston North Hospital, NZ

Indications for caesarean, divided for classification purposes:
Foetal (no oxytocin)
Dystocia <1cm/hr from diagnosis of labour to full dilatation or delivery
 ≥1cm/hr from diagnosis of labour to full dilatation or delivery
Subgroups shown in figure 1

Results:

Total in Group 2A	522	100%
Caesarean delivery:	*159*	*30.5%*
Fetal (no oxytocin)	37	7.1%
Dystocia, IUA poor response	13	2.3%
Dystocia, IUA, ITT, over-contracting	2	0.4%
Dystocia, IUA, ITT, fetal intolerance	62	11.9%
Dystocia, IUA, no oxytocin given	13	2.3%
Dystocia, EUA, malposition or CPD	17	3.3%

IUA: inefficient uterine action (progress <1cm/hr), ITT: inability to treat, EUA: efficient uterine action (progress ≥1cm/hr), CPD: cephalo-pelvic disproportion

Practice points:

This gives us data which informs us when talking to women in our unit around induction of labour. This study does not tell us whether the increased CS rate is secondary to the induction process, or due to the underlying conditions for which labour is being induced.
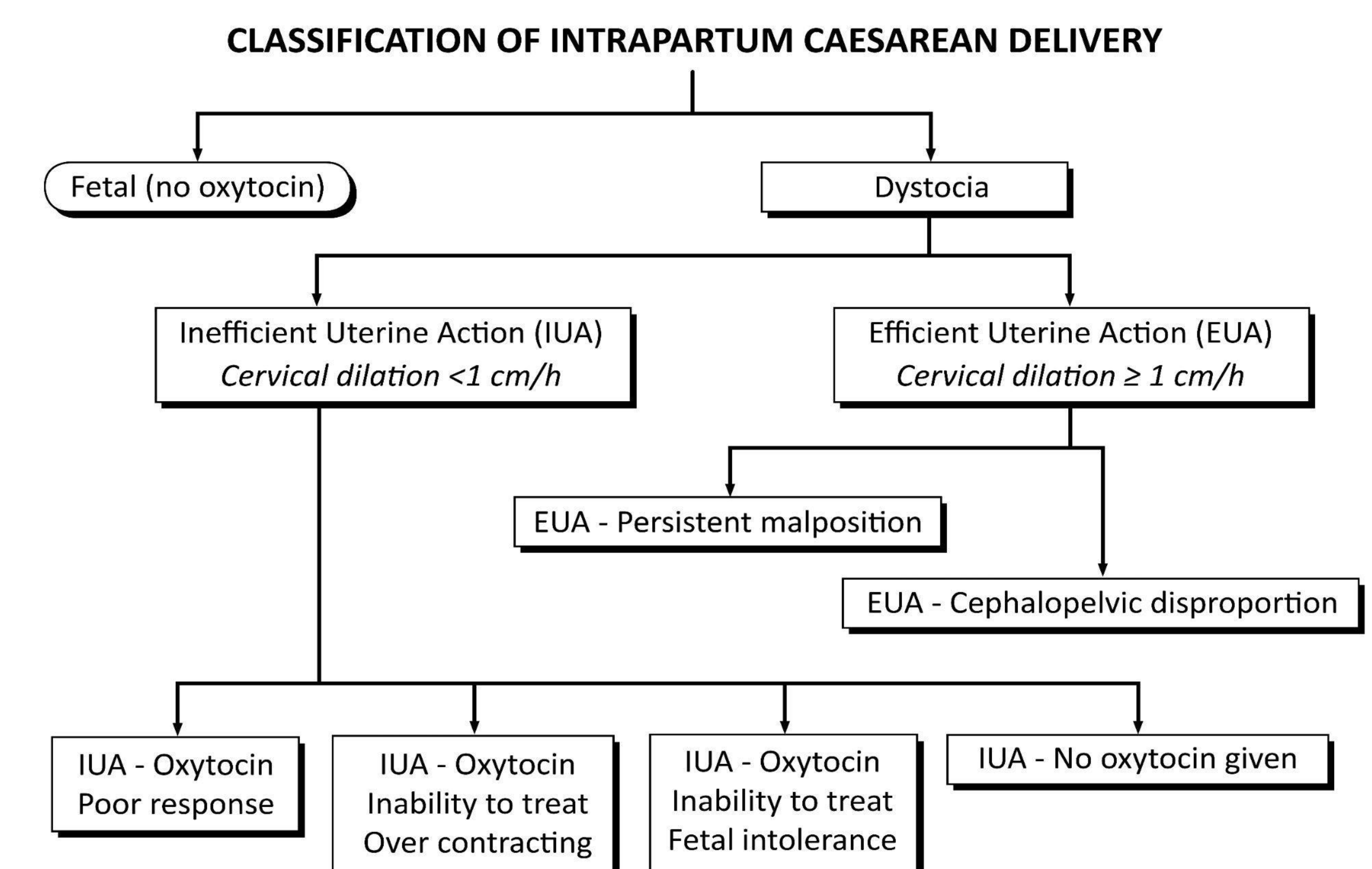
The high rate of CS for foetal reasons prior to established labour reinforces the need for rigorous foetal monitoring during the induction process, even prior to labour establishing.

References:
1. Robson Classification: Implementation Manual. Geneva: World Health Organization; 2017.
2. Robson M, Murphy M, Byrne F. Quality assurance: The 10-Group Classification System (Robson classification), induction of labor, and caesarean delivery. Int J Gynecol Obstet. 2015; 131: S23-S27
3. Kessler J, Robson M. Verifying a previously described classification system for intrapartum caesarean delivery in a national Norwegian study. Am J Obstet Gynecol. 2020 Jan; Suppl Poster Session IV: S535-536
4. Lyon J, Kempe P, Robson M. Classification of indications for caesarean section: nulliparous women in spontaneous labour with a cephalic foetus at term (Robson Group 1). Poster session presented at: RANZCOG ASM; 2022 Oct 10-12; Gold Coast.

Table 3. The Robson Classification with subdivisions

Group	Obstetric population
1	Nulliparous women with a single cephalic pregnancy, ≥37 weeks gestation in spontaneous labour
2	Nulliparous women with a single cephalic pregnancy, ≥37 weeks gestation who had labour induced or were delivered by CS before labour
2a	Labour induced
2b	Pre-labour CS
3	Multiparous women without a previous CS, with a single cephalic pregnancy, ≥37 weeks gestation in spontaneous labour
4	Multiparous women without a previous CS, with a single cephalic pregnancy, ≥37 weeks gestation who had labour induced or were delivered by CS before labour
4a	Labour induced
4b	Pre-labour CS
5	All multiparous women with at least one previous CS, with a single cephalic pregnancy, ≥37 weeks gestation
5.1	With one previous CS
5.2	With two or more previous CSs
6	All nulliparous women with a single breech pregnancy
7	All multiparous women with a single breech pregnancy including women with previous CS(s)
8	All women with multiple pregnancies including women with previous CS(s)
9	All women with a single pregnancy with a transverse or oblique lie, including women with previous CS(s)
10	All women with a single cephalic pregnancy < 37 weeks gestation, including women with previous CS(s)

CLASSIFICATION OF INTRAPARTUM CAESAREAN DELIVERY

Figure 1. Fetal (no oxytocin) / Dystocia → Inefficient Uterine Action (IUA) Cervical dilation <1 cm/h / Efficient Uterine Action (EUA) Cervical dilation ≥ 1 cm/h; EUA - Persistent malposition; EUA - Cephalopelvic disproportion; IUA - Oxytocin Poor response; IUA - Oxytocin Inability to treat Over contracting; IUA - Oxytocin Inability to treat Fetal intolerance; IUA - No oxytocin given

Our induction process

Oral misoprostol (25mcg 2 hourly, up to 8 doses/day), repeated for up to two days. CTG performed prior to every misoprostol dose.

If cervix is unfavourable at completion a single cervical balloon catheter is placed with 50mL of fluid and left for 12 hours prior to ARM and oxytocin. Other than this, ARM is only performed once the cervix is fully effaced and at least 3cm dilated. Oxytocin is commenced if progress is <1cm/hour after ARM.

Caesareans for foetal indication only amongst women in Group 2A

20 — Prior to established labour
17 — In established labour
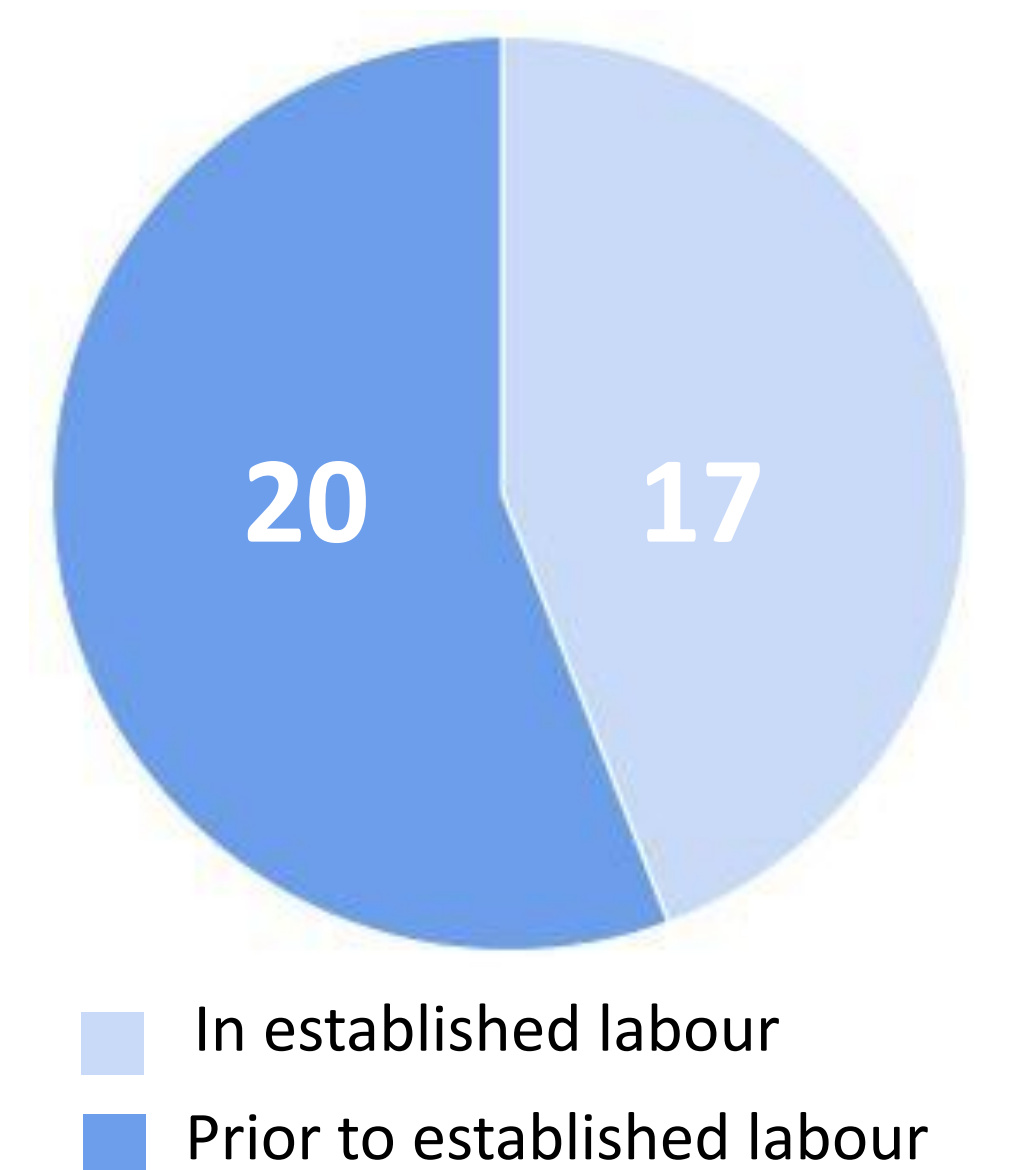
Results and discussion:

As expected, both rates of CS and frequency of each indication for CS differ between women in induced labour and spontaneous labour.

Foetal intolerance of labour (with or without labour dystocia) in particular occurred around twice as often in induced labours versus spontaneous labours, with 19% of women in Group 2A delivered by CS for these reasons. Physiologically the higher rate fits with increased placental pathology including IUGR and PET, though as further research the indication for CS could be correlated with the indication for induction of labour (IOL) to confirm this. It could then be compared with units using other methods of IOL to help determine the optimal method of induction for higher risk subsets of women. 54% of CS for foetal indications alone (3.8% of inductions commenced) were performed prior to established labour.

The 13 women who were diagnosed with dystocia but no oxytocin was given were predominantly those who declined intervention: either balloon insertion or ARM when indicated, or oxytocin following the latter.