MidCentral District Health Board
Te Pae Hauora o Ruahine o Tararua

IMPROVING BIRTHING OUTCOMES FOR WOMEN USING THE ROBSON TEN-GROUP CLASSIFICATION SYSTEM AND CONTINUOUS AUDIT

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INTRODUCTION

In 1985, the World Health Organisation (WHO) stated that a caesarean rate of greater than 10 to 15% was unacceptable at a population level[1]. However, internationally, rates of caesarean section (CS) continue to rise; almost doubling from the year 2000 to 2015 with an estimated 21% of births occurring through CS.[2] In our unit, we have taken a proactive approach to addressing this issue by utilising the Ten Group Classification System to audit and identify important groups of women undergoing CS in our population.

In 2015, Robson[3] described the Ten-Group Classification System for CS as a guide for collecting and comparing data. This has subsequently been endorsed by the WHO as a method for classifying caesarean birth based on five obstetric characteristics; parity, gestational age, onset of labour, presentation and previous caesarean. Through the use of this tool we can see trends in rates of caesarean birth and identify which women contribute the highest proportion of caesarean births.

The aim of this study was to show the utility of continuous audit of outcomes in birth based on the WHO endorsed, Robson Ten-Group Classification System (TGCS) to improve outcomes for women.

BACKGROUND

In early 2017 we began reviewing our birth outcomes and classifying them by the Robson TGCS. We noted that comparatively, our rates of caesarean section were high *(Figure 1)*. We formulated a working group dedicated to the improvement of our labour and induction management with a goal of reducing overall caesarean rates.

We presented this process at a departmental meeting in August 2017 discussing the audit and interventions that were under development. We also presented the TGCS and the importance of the different groups. Each woman can only be classified into one of ten mutually exclusive groups *(see Figure 2)*. The characteristics of each group contribute to CS rates in a predictable way. Group 1 and 2A were identified as important groups to focus on.
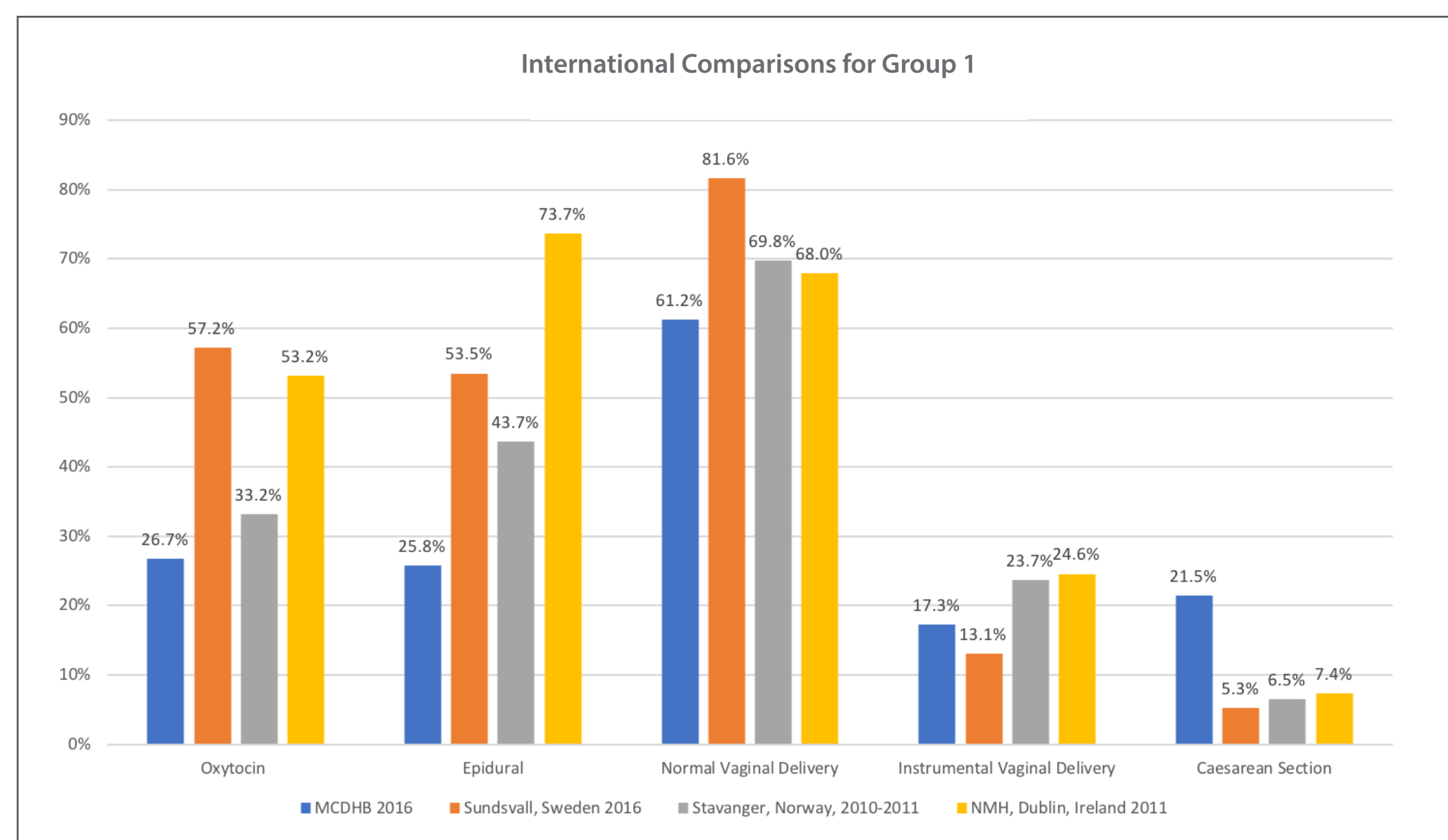

Figure 1. Rossen 2017, Kempe 2019 [4,5]

RESULTS

From January 2016 to July 2017, overall CS rates were 30.2% (926/3070). 684 were in Group 1, 142 (20.8%) of which underwent CS. 130 were in Group 5A and 50 (38.5%) underwent CS. Following the introduction of the TGCS audit we saw a reduction in caesarean rates. Between August 2017 and June 2019, the overall caesarean rate was 28.8%. We have seen an increase in the size and contribution of Group 5.

Between August 2017 and June 2019 – Group 1's CS rate was 18.6% and Group 5A was 31.2%.

We have additionally noted a reduction in CS rates amongst induced women following our new induction of labour protocol of up to 50%. CS rates have decreased in Group 5 and 5A however the overall contribution/size of the group has increased from 10.3% to 12.1%

There has been a statistically significant increase in post-partum haemorrhage (PPH) greater than one litre in women in Group 1. Otherwise, we have seen no significant increase in adverse maternal or neonatal outcomes currently measured. *(Figure 3 and 4)*.

Figure 2. Image courtesy of World Health Organisation. WHO statement on caesarean section rates, Executive Summary 2015.

METHODS

Data for births at a secondary level hospital for the period of January 2016 to June 2019 was collected and classified by the TGCS. The first year of data was presented to staff in August 2017 and we discussed the audit process, illustrating the importance of the different groups and their contribution to overall caesarean rates. This became a starting point for ongoing audit and multidisciplinary discussions around management.

A guidelines group developed a new Labour Dystocia (for management of women in spontaneous labour) and Induction of Labour Guideline which were launched in February 2018. Weekly multidisciplinary labour review meetings were initiated with obstetric and midwifery-led participation.

We present the data quarterly to important stakeholders (obstetricians, LMC midwives, core midwives and Paediatricians) and display infographic representations of the trends in prominent clinical areas.
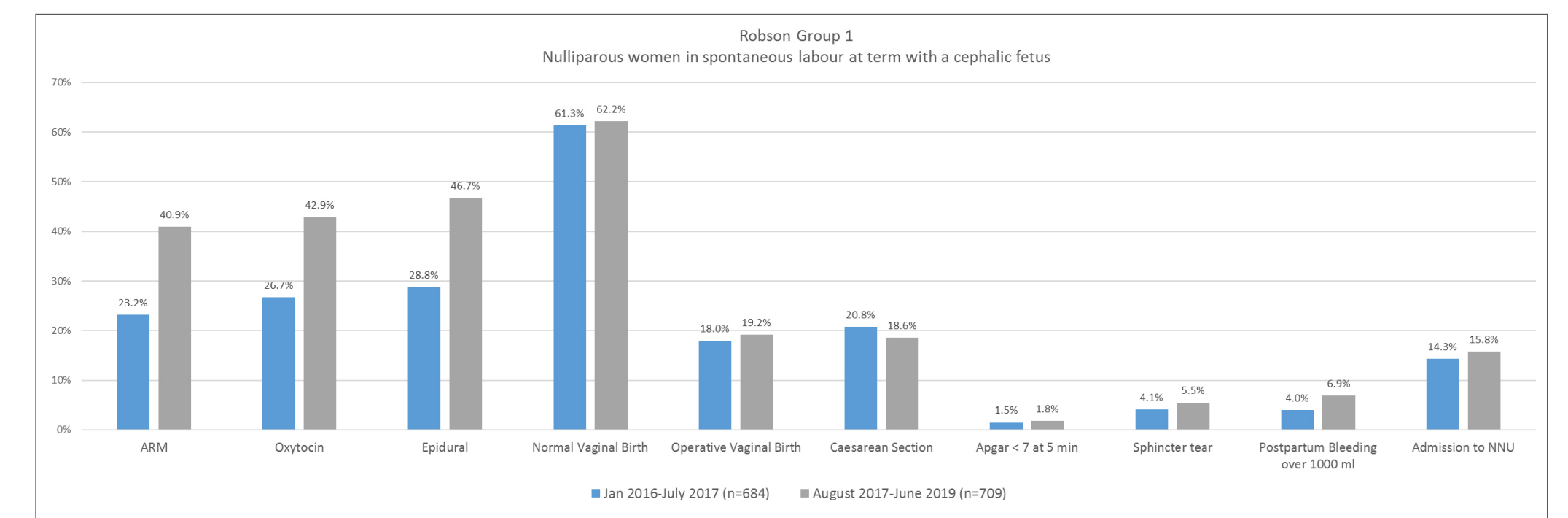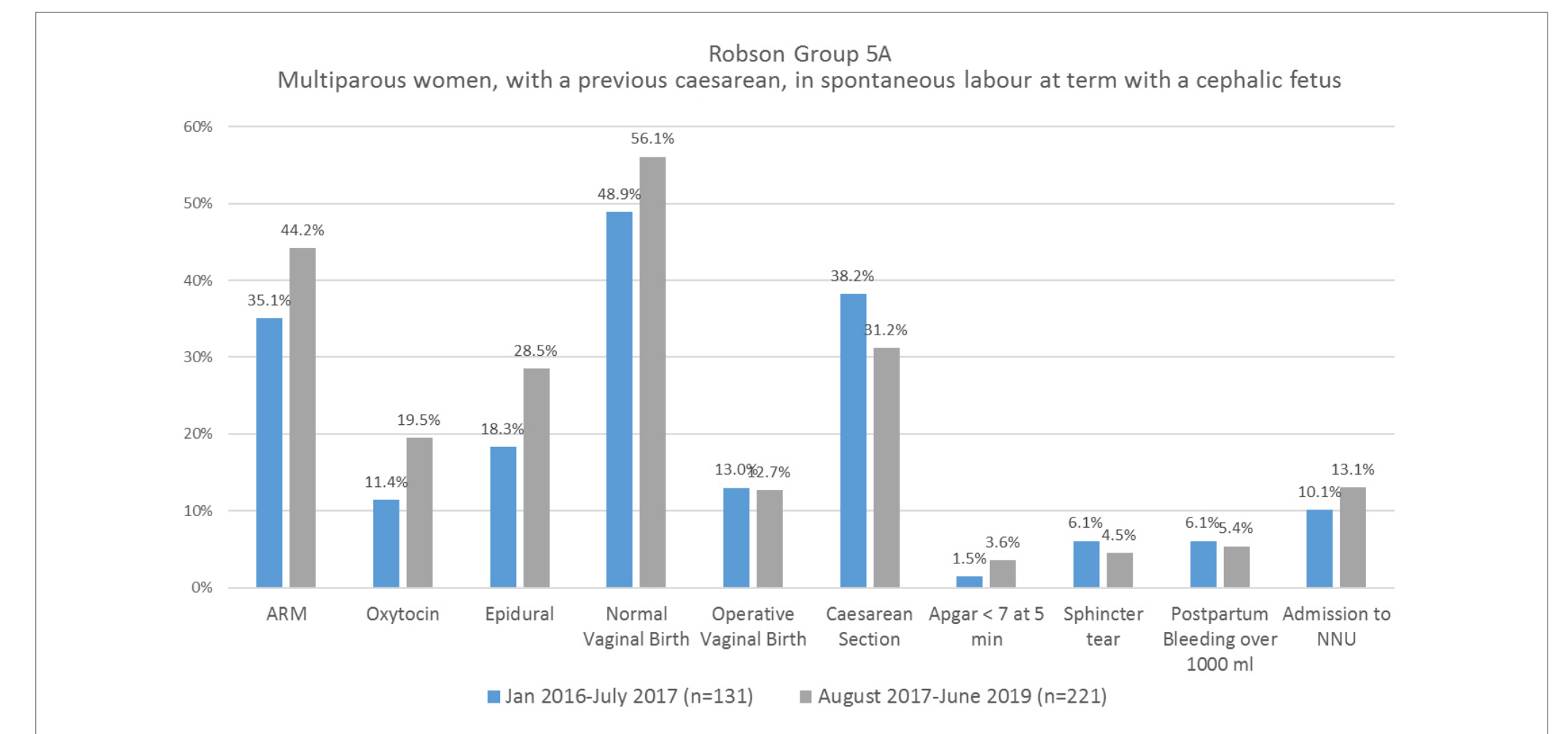

Figure 3

Figure 4

CONCLUSION

Women in Groups 1 and 3 contribute the highest number of births overall. Women in Group 3 have a comparatively low rate of CS. In accordance with other published findings, women who fall into Group 5 have the highest contributing portion to the overall caesarean rates and have a high repeat caesarean rate. This indicates the importance of avoiding primary caesarean birth. As Group 1 is one of our largest groups, it follows that they are an important group to focus on to reduce CS rates as this will over time reduce the overall size of Group 5. We have seen an increase in the size of Group 5 in this time period; likely a result of historically high rates of CS in Group 1 and 2A. Over time we would like to see the size of this group reduce.

The continuous audit has been able to show us a reduction in CS amongst women whose labour is induced. It has also been able to show us groups where our changes are not having as significant of an impact. This has helped to guide us on where to re-focus our efforts.

Labour and birth audits can provide an abundance of data regarding outcomes that can help to guide practise in a reflective and evidence-based way. It is also important to be able to compare to other units both locally and internationally to allow for ongoing quality improvement. The TGCS has continued to prove itself as a useful tool to present meaningful results within our community.

It helps to provide real time performance statistics for our unit and aids in information sharing to staff, patients and their whānau.

PN Hospital 1 Jan 16–31 Jul 17		926/3072 30,1%	Size of Group	C/S Rate	Contr of Each Gp
1	Nullip single ceph >=37wks spon lab	142/684	22,3%	20,8%	4,6%
2	Nullip single ceph >=37wks ind or CS before lab	152/338	12,0%	45,0%	5,0%
2A	Nullip single ceph >=37wks ind lab	128/314	10,2%	40,8%	4,2%
2B	Nullip single ceph >=37wks CS before lab	24/24	0,8%	100,0%	0,8%
3	Multip (excl prev caesarean sections) single ceph >=37wks spon lab	24/917	29,9%	2,6%	0,8%
4	Multip (excl prev caesarean sections) single ceph >=37wks ind or CS before lab	89/352	11,4%	25,3%	2,9%
4A	Multip (excl prev caesarean sections) single ceph >=37wks ind lab	51/314	10,2%	16,2%	1,7%
4B	Multip (excl prev caesarean sections) single ceph >=37wks CS before lab	38/38	1,2%	100,0%	1,2%
5	Previous caesarean section single ceph >= 37wks	317/422	13,8%	75,1%	10,3%
5A	Previous caesarean section single ceph >= 37wks spont lab	50/131	4,3%	38,2%	1,6%
5B	Previous caesarean section single ceph >= 37wks ind lab	26/50	1,6%	52,0%	0,8%
5C	Previous caesarean section single ceph >= 37wks CS before lab	241/241	7,8%	100,0%	7,8%
6	All nulliparous breeches	40/44	1,4%	90,9%	1,3%
7	All multiparous breeches (incl previous caesarean sections)	45/53	1,7%	84,9%	1,5%
8	All multiple pregnancies (incl previous caesarean sections)	31/48	1,6%	64,6%	1,0%
9	All abnormal lies (incl previous caesarean sections)	10/10	0,3%	100,0%	0,3%
10	All single ceph <= 36wks (incl previous caesarean sections)	76/204	6,6%	37,3%	2,5%

Table 1: Contr – contribution.

PN Hospital 1 Aug 17–30 June 19		921/3202 28,8%	Size of Group	C/S Rate	Contr of Each Gp
1	Nullip single ceph >=37wks spon lab	132/709	22,1%	18,6%	4,1%
2	Nullip single ceph >=37wks ind or CS before lab	146/420	13,2%	34,8%	4,2%
2A	Nullip single ceph >=37wks ind lab	112/386	12,1%	29,0%	3,1%
2B	Nullip single ceph >=37wks CS before lab	34/34	1,1%	100,0%	1,1%
3	Multip (excl prev caesarean sections) single ceph >=37wks spon lab	27/808	25,2%	3,3%	0,8%
4	Multip (excl prev caesarean sections) single ceph >=37wks ind or CS before lab	68/347	10,8%	19,6%	2,1%
4A	Multip (excl prev caesarean sections) single ceph >=37wks ind lab	25/304	9,5%	8,2%	0,8%
4B	Multip (excl prev caesarean sections) single ceph >=37wks CS before lab	43/43	1,3%	100,0%	1,3%
5	Previous caesarean section single ceph >= 37wks	386/568	17,8%	68,0%	12,1%
5A	Previous caesarean section single ceph >= 37wks spont lab	69/221	6,9%	31,2%	2,2%
5B	Previous caesarean section single ceph >= 37wks ind lab	23/53	1,7%	43,4%	0,7%
5C	Previous caesarean section single ceph >= 37wks CS before lab	294/294	9,2%	100,0%	9,2%
6	All nulliparous breeches	42/49	1,5%	85,7%	1,3%
7	All multiparous breeches (incl previous caesarean sections)	22/28	0,9%	78,6%	0,7%
8	All multiple pregnancies (incl previous caesarean sections)	30/54	1,7%	55,6%	0,9%
9	All abnormal lies (incl previous caesarean sections)	3/3	0,1%	100,0%	0,1%
10	All single ceph <= 36wks (incl previous caesarean sections)	65/216	6,7%	30,1%	2,0%

Table 2: Contr – contribution.

References:
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2. Boerma, T et al. Global epidemiology of use of and disparities in caesarean section. The Lancet. 2018;392;p1341-1348.
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4. Rossen J, Lucovnik M, Eggebo TM, et al. A method to assess obstetric outcomes using the 10-Group Classification System: a quantitative descriptive study. BMJ Open 2017;0:e016192. doi:10.1136/bmjopen-2017-016192.
5. Kempe, Per et al. The continuous audit of events and outcomes of labour and birth using the Ten Group Classification System and its role in quality improvement, European Journal of Obstetrics and Gynecology and Reproductive Biology, Volume 237, 181-188.