

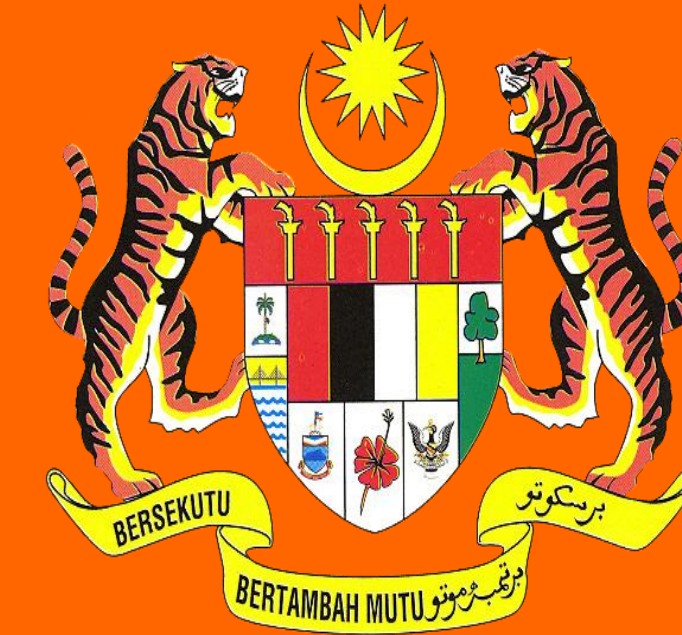
Variation in practise of induction of labour resulting in Emergency Caesarean section from 14 tertiary hospitals in Malaysia



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Introduction

Caesarean section (CS) rates have been gradually rising in Malaysia. CS accounted for 23.04% of deliveries in 2010, 23.41% in 2011 and 25.08% in 2012 from all participating hospitals. There is a wide range of variation in the CS rates from the participating public hospitals. Studies have shown that induction of labour (IOL) has increased risk of emergency CS and the aim of this study is to see if IOL has led to an increase in CS rates. There has been no audit on IOL to look at variation in practise in Malaysia

Methodology

Selection of the cohort

399,274 deliveries from the National Obstetrics Registry (NOR), Malaysia were analysed over a 3 year period from 2010-2012. 12 tertiary hospitals in Peninsular Malaysia and 2 tertiary hospitals from East Malaysia contribute obstetric data to NOR and this accounts to 1/3rd of the deliveries in the country.

The resulting sample of 342,148 deliveries were restricted to women aged between 15 and 45 with singleton, term, cephalic deliveries (Figure i). By concentrating on this group, attention was focused on the group of women whose maternity care is most affected by clinical uncertainty and which varied the most between providers. Statistical tool used STATA version 11 and statistical analysis used was simple logistic regression.

Results

After adjusting by maternal age, ethnicity, gestational age, birthweight, pre-existing hypertension, pre-existing diabetes, gestational diabetes, pre-eclampsia/eclampsia and placenta praevia/abruption, the rates for individual hospitals ranged between 16.66% and 94.29%. Among hospitals with good-quality data, the mean CS rate was 24.04%. Table 1 shows the risk adjusted rate of caesarean section, adjusted for maternal characteristics and clinical risk factors.

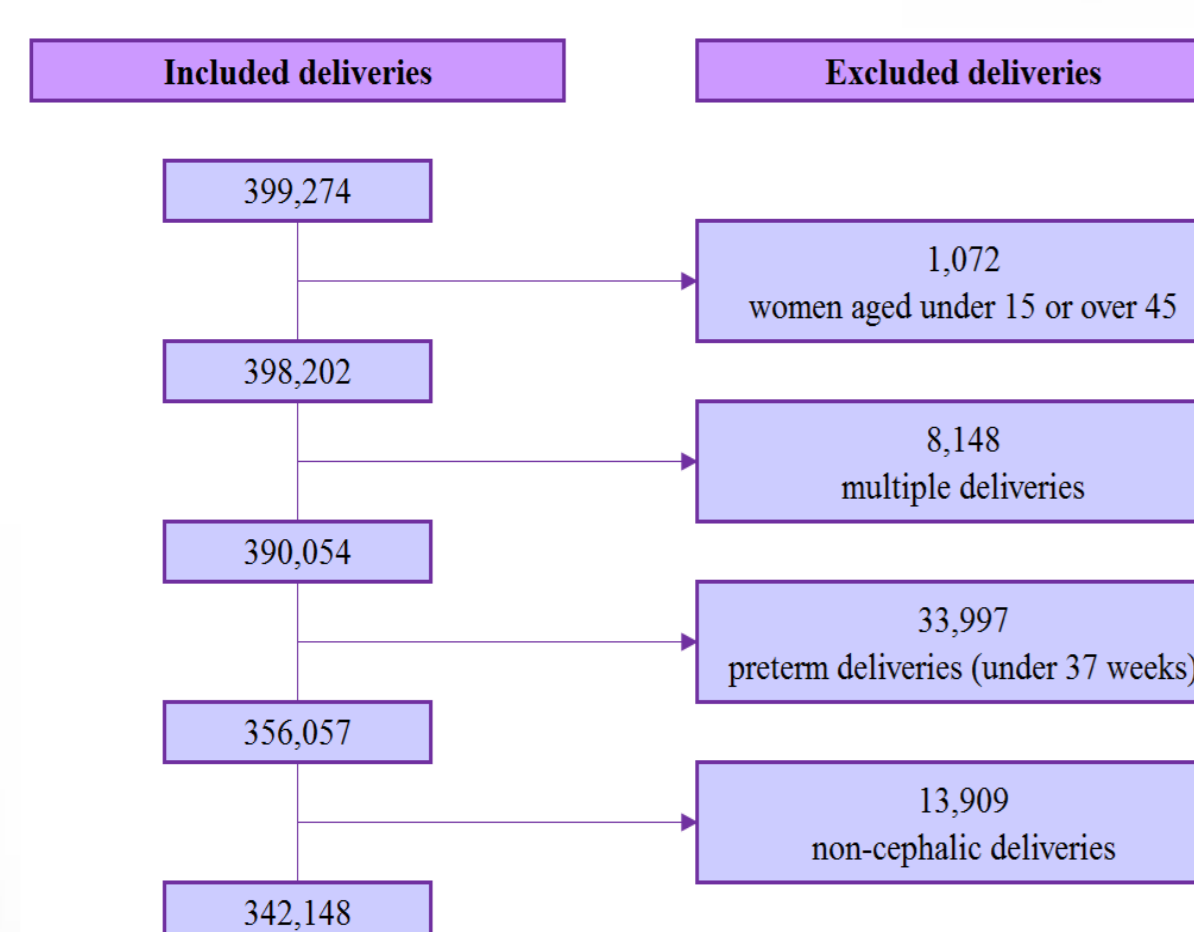


Figure i : Data flow

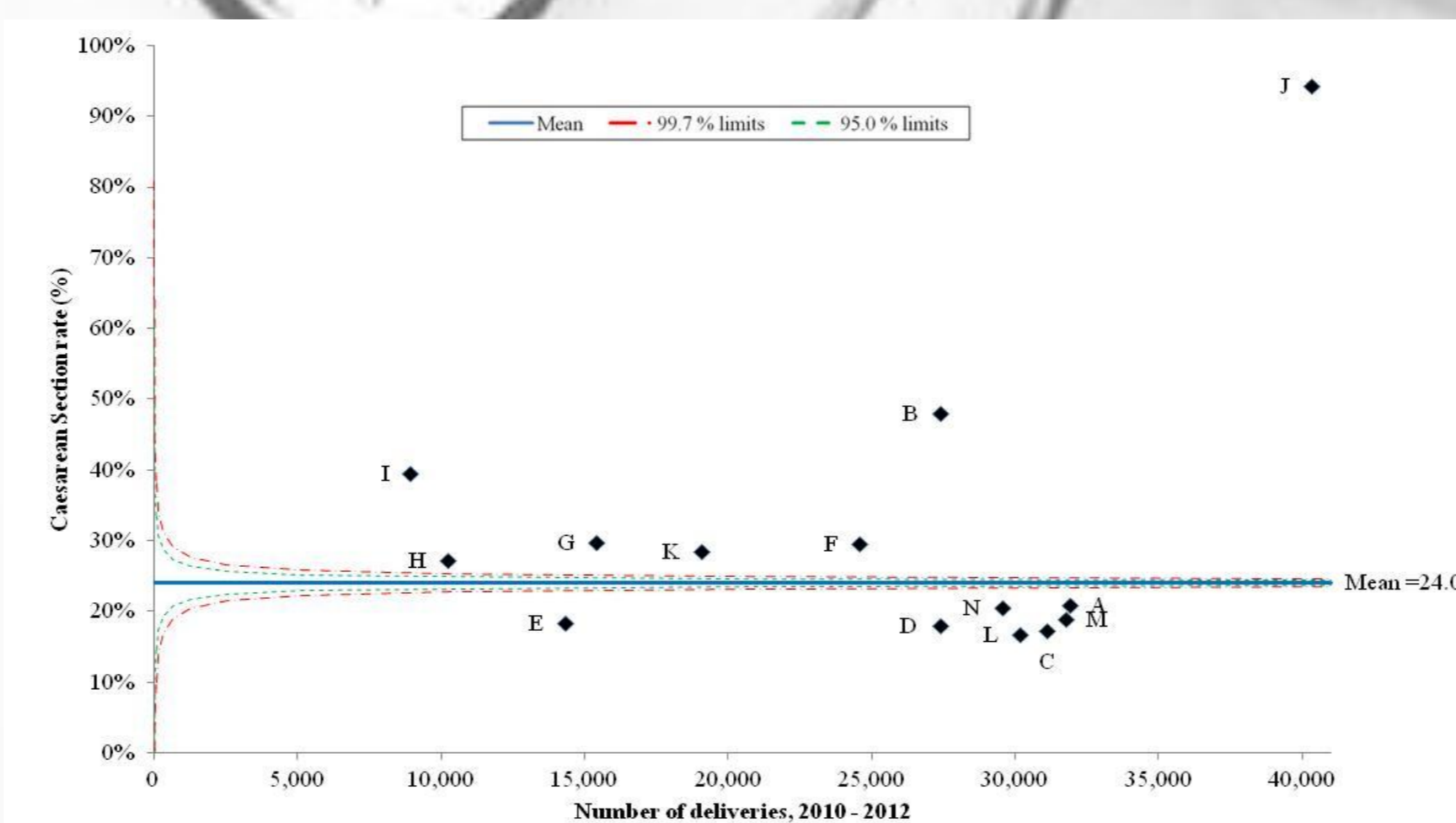


Figure I: Funnel plot showing rates of caesarean section, adjusted for maternal characteristics and clinical risk factors

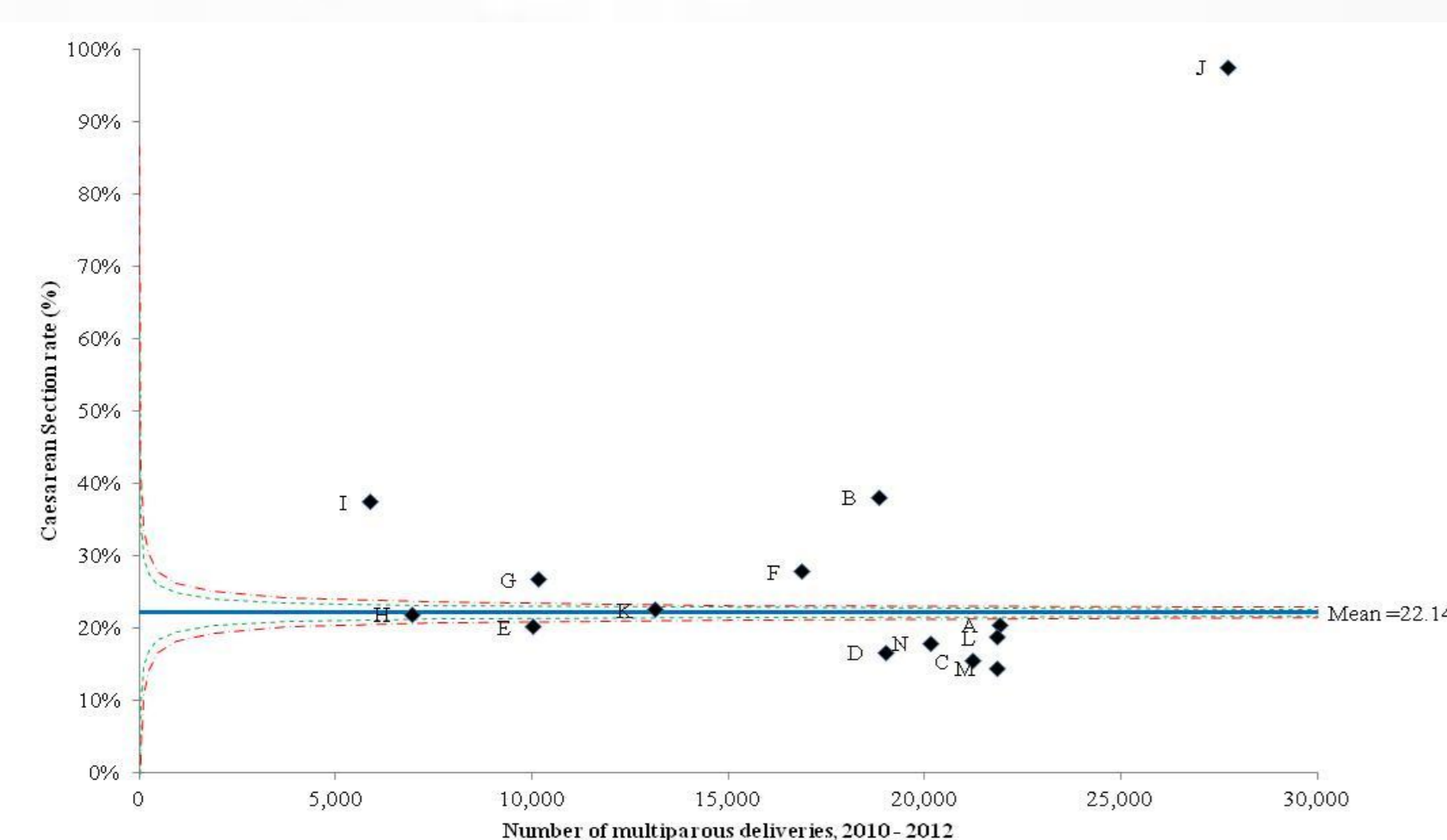


Figure II: Funnel plot showing rates of caesarean section for multiparous women, adjusted for maternal characteristics and clinical risk factors.

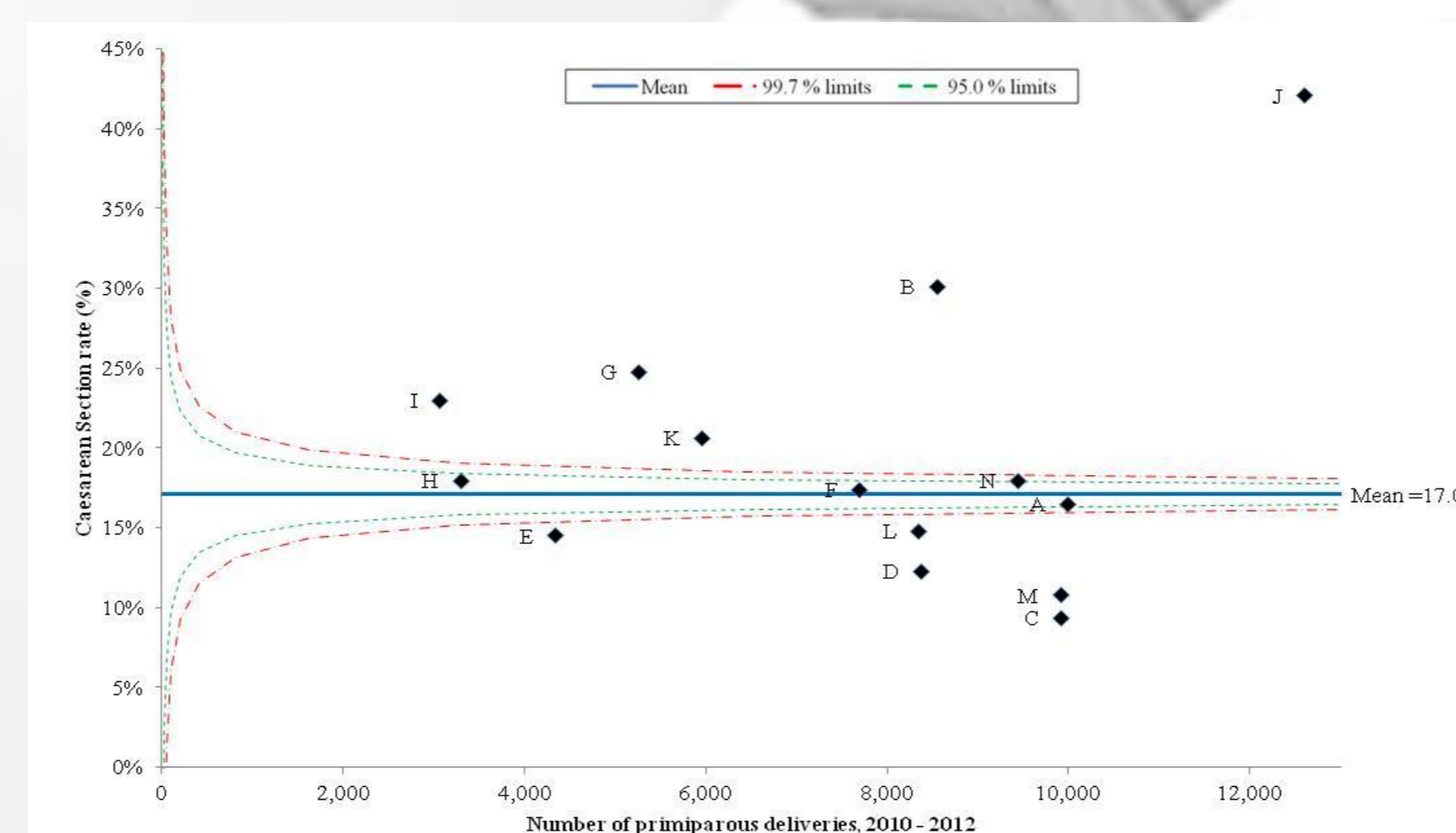


Figure III: Funnel plot showing rates of caesarean section for primiparous women, adjusted for maternal characteristics and clinical risk factors

The mean CS rate for primiparous women was 17.08%. After risk adjustment the rates for individual hospitals ranged between 9.39% and 42.10%. Figure II showed that four hospitals having a rate inside the 99.7% limits with five hospitals having a rate above 20%. The mean CS for multiparous women was 22.14%. After risk adjustment the rates for individual hospitals ranged between 14.50% and 97.59%. Figure III showed that two hospitals having a rate inside the 99.7% limits with five hospitals having a rate above 25%.

Hospital	Total Deliveries <i>n</i>	Risk Adjusted Rate
A	31,888	20.85%
B	27,385	48.05%
C	31,131	17.20%
D	27,373	17.98%
E	14,342	18.36%
F	24,565	29.59%
G	15,403	29.74%
H	10,231	27.17%
I	8,936	39.44%
J	40,325	94.29%
K	19,067	28.41%
L	30,170	16.66%
M	31,755	18.87%
N	29,577	20.50%
Mean	342,148	24.04%

Table I The risk adjusted rate of caesarean section, adjusted for maternal characteristics and clinical risk factors.

Conclusion

In both groups of women there was a wide variation in IOL among the participating hospitals resulting in raised emergency CS rates. The possible explanation for the over dispersion in IOL rates are coding inconsistencies between induction and augmentation, inadequate adjustment of case mix and true variation as a result of clinical management. The variation in IOL has led to higher rate of emergency CS thus one of the contributing factors for the rising CS rates in Malaysia. Further studies are required to examine timing, indications and use of non-pharmacological methods of IOL and clinical management to reduce the variation gap as well as rising CS rates. The current IOL guidelines should be replaced with a standardized guideline and audits is recommended.

Reference

Patterns of Maternity care in English NHS hospitals 2011/2012