

# Changing Trends in the Rates and Leading Indications of Cesarean Sections in a Tertiary Care Hospital

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## ABSTRACT

**Background:** Caesarean section is a time honoured approach that evolved to save maternal lives in the times of difficult deliveries. The rise in the rates of caesarean section is a matter of concern as being a major surgery, it is associated with risks that can extend for years and affect the health and future pregnancies of women.

**Objective:** This study is carried out to analyse changing trends in the rates and indications of caesarean sections in the last six years in a Tertiary Care Hospital of Peshawar.

**Materials and Methods:** This retrospective study is carried out by collecting record of all deliveries including indications of caesarean sections of the years 2014, 2016 and 2018 of the unit.

**Results:** The caesarean rate was 174/1000 total births for year 2014. It was 143 and 176 per 1000 total births for the year 2016 and 2018. The commonest indication for primary caesarean section was fetal malpresentations with rates as 31.5, 30.2 and 29.9 per 1000 total births for 2014, 2016 and 2018 respectively. Fetal distress was observed as the second commonest indication. Previous 2 or more caesareans was the commonest indication for repeat caesarean sections in all three years, with rise in rates from 21.4 to 28.70 per 1000 total births from 2014 to 2018.

**Conclusion:** The rates of caesarean sections of the last five years on average are close to the WHO rates. Fetal Malpresentations, Distress and Previous two or more caesarean section are the leading indications of caesarean sections.

**Key words:** Primary caesarean section, repeat caesarean section, indications of caesarean sections

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## INTRODUCTION

Caesarean section is a major obstetrical surgical procedure, which mainly evolved to save maternal life during difficult child birth.<sup>1</sup> There has been progressive increase in the rates of caesarean section in the world. The reasons for this rise are multifactorial and include a wide variety of maternofetal indications, changing obstetric practices and the growing safety and acceptance of this procedure.<sup>2,3</sup>

The WHO in its 1985 report advocated a caesarean rate of 5-15%, with evidence that rates above this are not associated with additional reduction in maternal and neonatal mortality and morbidity.<sup>4,5</sup> The rapid escalation in the rates of caesarean section from 1996 to 2011 without a concomitant reduction in maternal and neonatal morbidity and mortality has raised concerns about the possible overuse of this procedure.<sup>6</sup>

The indications of caesarean sections vary widely among institutions because of lack of universal standardized classification system round the globe.<sup>7,8</sup> Indications can be multiple and related.<sup>9</sup> In order to understand the degree to which the

caesarean section can be reduced it is important to know the indications for which the surgery is performed.

When medically indicated this procedure affectively reduces the morbidity and mortality for both mother and baby. However the liberal use of this procedure is a matter of concern. As with any other major surgery, caesarean section is associated with all the short and long term complications ranging from anaesthetic complications, haemorrhage, thromboembolism, wound infections and long term implications for future pregnancies in the form of repeat caesarean sections, placenta accreta etc.

This study is carried out to analyse the rates of caesarean deliveries and to study the commonly used indications. This will help to adopt strategies for reducing caesarean rates where possible in future in the institute.

## MATERIALS AND METHODS

This was a retrospective study carried out in Gynae C unit of Medical Teaching Institute Lady Reading Hospital, Peshawar, KPK. Changing trends in the rates and indications were described as either increase or decrease in the rates of caesarean sections and the rates of their indications.

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The data of total number of deliveries and caesarean sections of the year 2014 ,2016 and 2018 was collected from the unit record .These three years out of the last six years for study were selected using probability systematic sampling technique. The caesarean section indications were collected and analysed .Caesarean sections were classified into Primary and Repeat caesarean sections. The commonly used indications for both primary and repeat caesarean sections in order of rates were recorded. Common indications for caesarean sections were malpresentations, fetal distress, placenta previa, cephalopelvic disproportion, placental abruption, obstructed labour, non progress of labour and failed inductions. additional indications like scar dehiscence, refused vaginal birth after previous caesarean section and previous two or more caesarean sections were included for category of repeat caesarean sections. The less commonly used indications were included under the category of "Others", like previous myomectomy, previous fourth degree perineal tear repair, etc.

The rates of caesarean sections for year 2014,2016 and 2018 were found out using the total number of deliveries of the respective years and expressed as per 1000 total births.The commonly used indications for Primary and repeat caesarean sections for the year 2014 were

analysed and compared with the year 2016 and 2018, separately as per 1000 total births.

**RESULTS**

Total births for the years 2014,2016 and 2018 were 5,453 ;6,940 and 8,317 respectively (Table 1). The caesarean rate was 174/1000 total births for year 2014.It was 143/1000 total births for the year 2016 and 176/1000 total births in the year 2018 (Table 1).Vaginal births during the same periods were 4,499 (82.6%), 5,942 (85.7%) and 6,846 (82.4%) .

Amongst the most frequently used indications for primary caesarean sections in the year 2014 were Malpresentations(31/1000),followed by Fetal distress(23.8/1000),followed by Non progress of labour(17.4/1000) and Obstructed labour (16.5/1000).Malpresentation remained the commonest indication for 2016(30.2/1000) and 2018 (29.9/1000).Caesarean sections for fetal distress was observed as the second commonest indication with rates as 23.8/1000,16.7/1000 and 29.9/1000 total births for the years 2014,2016 and 2018 respectively(Table 2). For Repeat caesarean sections Previous 2 or more caesarean section remained as the commonest indication in all three years i.e 2014,2016 and 2018 as 21.4/1000,25.07/1000 and 28.70/1000 total births respectively(Table 3).

Table No 1. Rates of caesarean sections calculated as per 1000 total births

YEARS	Total c. sections	Total births	Rates
2014	954	5,453	174/1000
2016	998	6,940	143/1000
2018	1471	8,317	176/1000

Table No 2. Indications of Primary caesarean sections as /1000 total births

Indications	Year 2014	Year2016	2018
Malpresentations	31.5	30.2	29.9
Fetal distress	23.8	16.7	29.9
Non progress of labour	17.4	8.7	11.6
Obstructed labour	16.5	7.6	13.7
Placenta previa	15.2	11.6	9.3
CPD	7.1	4.1	3.6
Placental abruption	5.5	3.6	5.0
Failed induction	4.00	4.4	7.5
Others	4.00	4.1	4.00

Table No 3. Indications of Repeat Cesarean sections

Indications	Year 2014	Year2016	2018
Previous 2/more C.section	21.45	25.07	28.70
CPD	6.60	6.34	4.92
Malpresentations	4.95	5.90	6.61
Fetal distress	4.58	4.03	6.97
Scar dehiscence	3.48	2.44	2.76
Refused VBAC	3.30	4.32	5.77
Non progress of labour	2.38	0.72	3.60
Placenta Previa	1.10	1.00	1.32
Failed induction	0.73	1.87	1.56
Placental abruption	0.55	0.43	00
Obstructed labour	0.18	0.14	00
IUGR	0.18	00	0.24

## DISCUSSION

The rates and indications of caesarean sections vary widely from region to region because of differences in obstetric practices and lack of a universal classification system. In our study the rates of caesarean sections remained fairly constant for the year 2014 and 2018 (average 17%) and showed a falling trend in the year 2016 (14%). The caesarean section rate of our study is close to the rate found out in one other study in Pakistan<sup>10</sup>, where the rate was found to be 15.8%. The rate is also only marginally increased from the WHO standard of 15%. There hasn't been significant change in caesarean section rate in our study over the last five to six years. Caesarean section rate on average in our study was significantly lower than that reported by studies conducted in Sindh and Punjab, Pakistan where rates were 31.26%<sup>15</sup>, 81%<sup>17</sup> and 60%<sup>18</sup>. In a similar study conducted in India the rates of caesarean sections increased from 149/1000 live births to 234/1000 live births over six years i.e. from 2009 to 2015.<sup>11</sup> The caesarean section rate increased from 26% in 2001 to 30% in 2007 in a study conducted in UK.<sup>12</sup> This reflects changes in the obstetric practices from country to country. Because of lack of standardization its not easy to compare rates between centres, however a trend within a setting is clue to many things. Moreover, as has been stated by WHO caesarean section should be undertaken where medically necessary rather than striving to achieve a specific rate.<sup>14</sup>

In our study Malpresentation was the consistent leading indication for caesarean section from 2014 till 2018, 31.5/1000, 30.2/1000 and

29.9/1000 respectively for the years 2014, 2016 and 2018. This is in contrast to many other studies where the leading indication for caesarean sections was fetal distress.<sup>9,11,13</sup> There could be many reasons for it. Limited use of ECV for reducing non cephalic presentation at birth, liberal use of caesarean sections for breech presentations and inclusion of caesarean sections for malpresentation of leading twin are the probable causes for increased rates for malpresentations in our study. In a study done at Karachi the commonest indications in order of frequencies were repeat caesarean followed by failure to progress, abnormal lie, fetal distress and fetal growth restriction.<sup>16</sup> In the study done by Choudhary et al the leading contributor to increased caesarean section was previous caesarean section.<sup>12</sup> Caesarean sections for fetal distress is the second commonest indication in our study. Non progress of labour and obstructed labour are the other common causes for primary caesarean section in our study. As our hospital is located in the centre of the city and is of the largest capacity of the three teaching hospitals of the city, we receive referred cases from all over the province and surroundings. These include a bulk of cases handled by non-professionals which is contributing to a rise in caesarean section rate due non progress of labour, obstructed labour and fetal distress.

For repeat caesarean sections, the commonest indication was history of previous two or more caesarean sections and this entity has shown an increasing trend from 2014 to 2018. The rate was 21.4/1000 in 2014, 25.07/1000 in 2016 and

28.70/1000 in 2018. This finding is in accordance with the findings of other studies.<sup>9,10,11,12,13</sup> Whether the indications were justified or not, it was beyond the scope of our study. However, it could be easily detected that many of these indications could have been reduced by practices like external cephalic versions for breech and transverse fetuses, promoting and supporting patients to choose vaginal births after previous one caesarean sections and by utilizing electronic fetal monitoring for indicated high risk patients only. The practice of generalized electronic fetal monitoring was observed during the study period and it could have led to increases caesareans for presumed fetal compromise.

### CONCLUSION

After an initial fall in caesarean rate in our study because of a concomitant fall in the rate of caesarean sections done for fetal distress and non progress of labour, it increased again in the year 2018. Malpresentations was the commonest indication for primary caesarean section in all three years. Previous 2 or more caesarean section was the commonest reason for repeat caesarean sections.

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