

## OBSTETRICS

# Cesarean Section Rate and Trend at Nakorn Panom Hospital, 1993-1999

Utai Tansuwan MD.

*Obstetric Unit, Nakorn Panom Hospital, Thailand*

## ABSTRACT

**Objective** To assess the cesarean section rates and trend in Nakorn Panom Hospital.  
**Design** Descriptive study.  
**Setting** Provincial (General) hospital in northeast Thailand.  
**Subjects** Women who delivered their babies at Nakorn Panom Hospital from January 1, 1993 to December 31, 1999.  
**Results** There were 22421 deliveries in the 7-year period with 8.2% Cesarean section rate. Cesarean section rates varied between 7.8% and 8.7%. Previous Cesarean section, cephalopelvic disproportion and breech presentation were the 3 most common indications for Cesarean section. The average perinatal mortality rate was 21.0 per 1000 births, ranging from 16.5 to 25.8 per 1000 total births.  
**Conclusion** Cesarean section rate at Nakorn Panom Hospital was significantly lower than national figure with a relatively stable trend.

**Key words :** Cesarean section, rate, trend

Cesarean section is one of the most common major operations performed around the world. There are considerable variation in cesarean section rates both within and between different countries. The highest reported cesarean section rate was in Brazil, at 32% in 1986.<sup>(1)</sup> Cesarean section rates in Europe also differ widely. The lowest cesarean section rate in Europe was reported in the Netherlands.<sup>(2)</sup> Although worldwide cesarean section rates differ, its use throughout the western world has risen consistently in almost all countries during the past 20 years.<sup>(2)</sup> This was perceived as a major public health problem and a cause for increasing concern because of the associated higher mortality, higher morbidity, and

hence higher cost in comparison to vaginal deliveries. Increasing cesarean section rates could place a serious burden on the health care programs of developing countries in which resources tend to be scarce.<sup>(3)</sup> In Thailand, Tangcharoensathien published a report on pattern of hospital delivery in Thailand, 1990-1996. The Thai national average cesarean section rate increased from 15.2% to 22.4% during the seven years. The average cesarean section rate in the Thai provincial hospitals was 23.0 % in 1996.

The objective of this study is to evaluate the cesarean section rate and trend in Nakorn Panom hospital, to compare it with the national figures and its relationship with perinatal mortality rates.

## Materials and methods

Women who delivered their babies at Nakorn Panom Hospital from January 1<sup>st</sup>, 1993 to 31<sup>st</sup> December 1999 were studied. Mode of delivery of each woman was identified from the labour room log books and delivery summary records. Indications for cesarean section were identified from delivery summary and medical records. Delivery summary records were used to identify fetal death. Early neonatal deaths were identified from neonatal log books. Descriptive statistics were used to calculate overall cesarean section rates, cesarean section rates for each indication and perinatal mortality rates.

## Results

Nakorn Panom Hospital is a 337-bed provincial hospital in northeast Thailand. There are 2 obstetricians, 12 registered nurses and 2 technical nurses giving services for delivery care. In the 7-year period, 1993-1999, there were 22421 deliveries. The average number of deliveries was 3203 per annum,

with a slight fluctuation. The overall cesarean section rate was 8.2%. The annual cesarean section rates varied between 7.8% and 8.7%, Table 1. The five main indications for cesarean section were previous cesarean section, cephalopelvic disproportion or failure to progress, breech presentation, fetal distress and placenta previa. The cesarean section rate from these indications were 2.3%, 2.2%, 1.3%, 0.5% and 0.4% respectively, Table 2. Previous cesarean section, cephalopelvic disproportion and breech presentation contributed 28.5%, 26.4% and 15.9% of the overall cesarean section rate respectively, Table 2.

There were 470 perinatal deaths in the 7-year period, giving the average perinatal mortality rate of 21.0 per 1000 deliveries. The annual perinatal mortality rate range from 16.5 in 1996 to 25.8 in 1994, Table 3. The relationship between cesarean section rates and perinatal mortality rate is shown in Figure 1. There was no association between cesarean section and perinatal mortality rates.

**Table 1.** Cesarean section rates at Nakorn Panom Hospital, 1993-1999

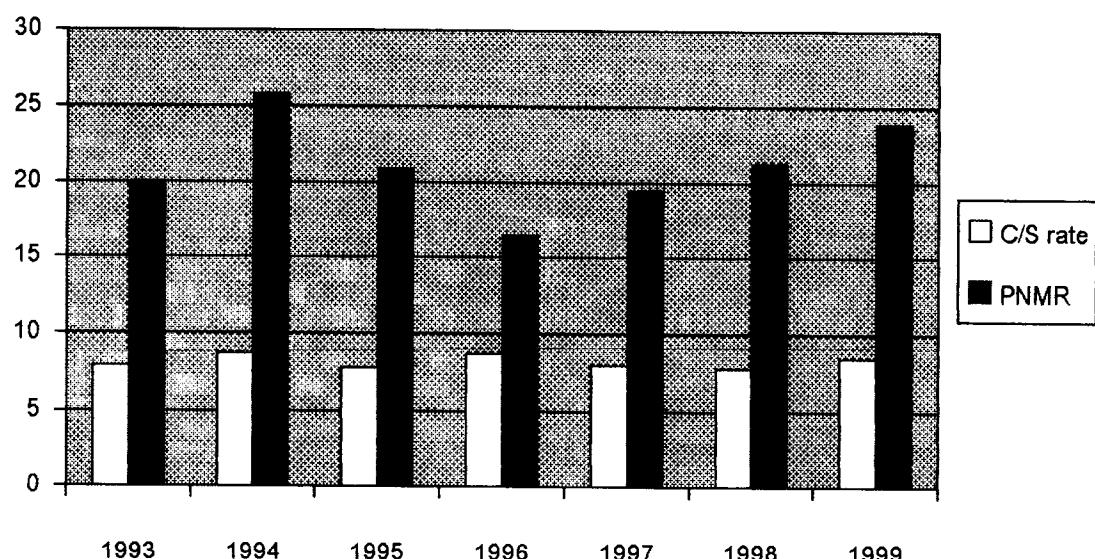
Years	No. of deliveries	No. of cesarean section	Cesarean section rate (%)
1993	2663	226	7.9
1994	2761	215	8.7
1995	2963	236	7.8
1996	3339	291	8.7
1997	3644	285	8.0
1998	3617	314	7.8
1999	3434	270	8.5
<b>Total</b>	<b>22421</b>	<b>1837</b>	<b>8.2</b>

**Table 2.** Indications for cesarean section (Total deliveries = 22421, Total cesarean section = 1837)

Indications for cesarean section	% of deliveries	% of overall cesarean section
1. Previous cesarean section	2.3	28.5
2. Cephalopelvic disproportion	2.2	26.4
3. Breech presentation	1.3	15.9
4. Fetal distress	0.5	6.4
5. Placenta previa	0.4	5.0
6. Others	1.5	17.8
<b>Total</b>	<b>8.2</b>	<b>100</b>

**Table 3.** Perinatal Mortality rates in Nakorn Panom Hospital, 1993-1999.

Years	No. of Deliveries	No. of Perinatal deaths	Perinatal mortality rate (1000 total births)
1993	2663	53	19.9
1994	2761	70	25.8
1995	2963	62	20.9
1996	3339	55	16.5
1997	3644	71	19.5
1998	3617	77	21.3
1999	3434	82	23.9
<b>Total</b>	<b>22421</b>	<b>470</b>	<b>21.0</b>

**Fig. 1.** The relationship between cesarean section and perinatal mortality rates.

## Discussion

The overall cesarean section over the 7-year period, 1993-1999 was 8.2%. Previous cesarean section, cephalopelvic disproportion and breech presentation were the three main indications for cesarean section. Fetal distress contributed to only 6.4% of the overall cesarean section or only 0.5% of total deliveries. The overall perinatal mortality rate during the same period was 21.0 per 1000 total births.

Tangcharoensathien et al reported the Thai national cesarean section rate to be 22.4% in 1996 with a further increasing trend.<sup>(4)</sup> In the same report the cesarean section rate among the provincial hospital in 1996 was 23.0%.<sup>(4)</sup> Our cesarean section rate was much lower compared to the reported national figure. Our rates during the 7-year period were very stable with a very narrow fluctuation. Quilligan recommended that the cesarean section should be between 7.8% to 17.5%.<sup>(5)</sup> The U.S. Department of Health objectives for the 1990s call for decreasing the national cesarean rate to no more than 15% of all deliveries by the year 2000.<sup>(6)</sup> We do believe that our low and relatively stable cesarean section rate was because we did not perform cesarean section when it was not medically and obstetrically indicated.

Our overall perinatal mortality rate was 21.0 per 1000 births which was slightly higher than the recently available rate of 15.3 per 1000 births reported by Department of Health, Ministry of Public Health, Thailand.<sup>(7)</sup> This perhaps could be partly explained by the fact that our hospital serves as a referral center for high risk cases from district hospitals. Our cesarean section rate for fetal distress (0.5%) was quite low compared to Quilligan's recommendation (1.5% to 3.0%). It is also possible that we were incompetent at detecting fetal distress and treating by cesarean section. We are exploring our data to confirm this

possibility. There was a claim that perinatal mortality rates have fallen as cesarean section rates have increased. However, Notzon reported that cesarean section rates did not contribute much to variation in perinatal mortality rates.<sup>(1)</sup>

The limitation of this study is that the data are available in good standard for only 7-year period. The trend may be more clear if data for the earlier years are available.

In conclusion, our study indicated that the cesarean section rates in our hospital have been markedly lower than the national figure with a relatively stable trend.

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