

## **Implications of Private Practice in Public Hospitals on the Cesarean Section Rate in Thailand**

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### **Abstract**

Cesarean section rate in developed countries increased significantly during 1971-1990. In Thailand the rate increased steadily from 15.2% in 1990 to 22.4% in 1996. Cesarean section rate increases with the decline of vaginal delivery, as operative delivery (vacuum and forceps) remained unchanged. There is limited evidence on Thai Cesarean procedures.

Anecdotal evidence on high cesarean procedures among private patients leads to a census of all delivery in June 1998 in 29 provincial hospitals, using an interview questionnaire by obstetric nurses with permission of the obstetric department head.

An obvious magnitude, 37.2% of patients pay unofficial gratitude money for obstetrician personal delivery services. The average cesarean section rate in the sample hospitals was 27.2%. Private patients risked undergoing cesarean section 2.92 times of non-private cases. Logistic regression showed a steeper gradient: private cases have a 5.83 higher chance of primary cesarean section than non-private cases ( $p < 0.001$ ) and delivery during in office hours had a 2.45 higher chance of cesarean than out of office hours ( $p < 0.001$ ). Financial implications of US\$ 2.5 million was estimated for each one percent of cesarean procedures. Private practice could lead to deterioration of public confidence on obstetric services in public hospitals. Consequently it encourages a move to private practice and finally unnecessary cesarean procedures. This vicious cycle could not be easily broken unless more multi-disciplinary understanding of this complex issue and multiple measures are introduced.

We conclude that private practice, whereby physicians feel obliged to provide personal delivery services, when triggered by leisure and time conflict, leads to higher and possibly unnecessary cesarean procedures.

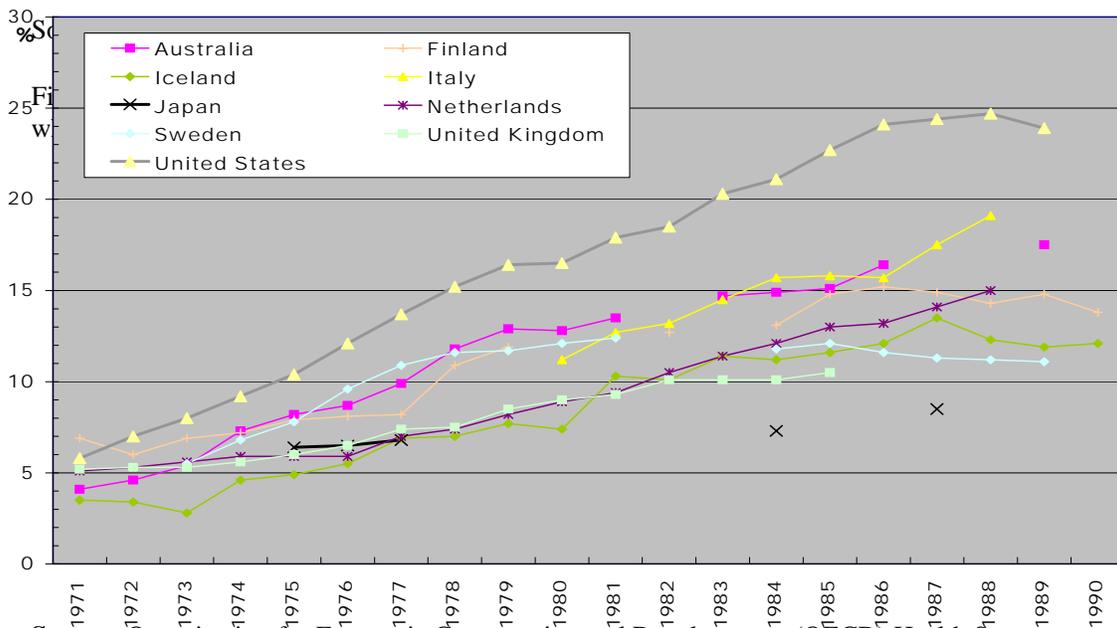
**Key words:** cesarean section, private practices, Thailand.

### **Introduction**

Birth, a normal human physiological process was once a high mortality event causing both serious maternal and newborn losses. Medical technology and public health measures were introduced to prevent childbirth complications including cesarean section (CS). CS was at first a major operation for high-risk pregnancy; there were major operative complications from CS. When surgical and anesthetic techniques and blood transfusion are well developed, CS safety has been increasing, leading to a rapid increasing of cesarean section rate. USA is an extreme example where the CS rate climbed from 4.5% in 1965 to 22.7% in 1985<sup>(1)</sup>. Many developed countries have a similar situation though to a lesser degree<sup>(2)</sup> (Figure 1).

The constant growth of cesarean sections draws concern among social scientists and policy makers to understand its determinants. Studies indicated dystocia, fetal distress, breech presentation, and repeated cesarean section were four main indications<sup>(3-7)</sup>. Other factors involved in an increasing cesarean section rate<sup>(8)</sup>, for example, maternal age, multiparity, previous cesarean section, incidental sterilization, private insurance coverage and malpractice concerns<sup>(4,8-9)</sup>. Electronic fetal monitoring<sup>(4,8)</sup> with high false positive results associated with high CS rate. Physician's and mother's schedules for elective cesarean section is not uncommon in some places<sup>(8)</sup>.

**Figure 1 Cesarean Section Rate: OECD Countries Perspective 1971-1990**



**Source:** Organization for Economic Co-operation and Development. (OECD) Health Systems. Facts and Trends, 1960-1991.<sup>(2)</sup>

Safe operation and relative lack of skill, e.g. mid-cavity forceps among young obstetricians and financial incentives were cited as stimulating factors<sup>(9)</sup>. Patient choice also plays a role, e.g. for fear of vaginal delivery that would lead to stress incontinence, anal sphincter damage and sexual dysfunction<sup>(10)</sup>. Maternal requests appear to be a prominent indication for elective cesarean section<sup>(9, 11)</sup>. Role of educational influence by “opinion leaders” and their status among colleagues in the medical community is likely to aggravate the rate<sup>(4)</sup>.

The total cesarean section rate in Thailand increased from 15.19% in 1990 to 22.44% in 1996 (Table 1). Ministry of Public Health (MOPH) provincial hospitals had a higher rate (22.9%), though this is lower than private hospitals, it accounted for 32% of total national deliveries in 1996 (Table 2). Even though delivery share in district hospitals is at the highest 39%, its 7.2%<sup>(1)</sup> cesarean section rate has little effect on national average. And although private hospitals had the highest CS rate of over 50% in 1996, it took a lesser share of only 7% of total deliveries. This observation leads us to investigate cesarean sections in provincial hospitals in this study.

**Table 1 Percent distribution of hospital mode of delivery, 1990-1996**

		1990	1991	1992	1993	1994	1995	1996
1. District Hospital:	Vaginal Delivery	87.97	88.78	88.54	88.20	87.77	87.33	86.27
	CS	5.19	5.42	5.70	5.63	6.15	6.47	7.19
	Others	6.84	5.79	5.75	6.17	6.08	6.20	6.54
2. Provincial Hospital:	Vaginal Delivery	75.4	74.8	73.7	71.9	70.5	66.9	65.2
	CS	14.22	15.26	16.45	18.33	20.17	21.44	22.90
	Others	10.37	9.95	9.88	9.77	9.36	11.69	11.93
3. Other Public Hospital:	Vaginal Delivery	71.7	71.0	71.3	70.2	69.8	69.9	69.0
	CS	15.94	16.71	17.59	19.05	20.11	20.23	21.20
	Others	12.40	12.26	11.11	10.71	10.10	9.92	9.76
4. Private Hospital:	Vaginal Delivery	44.70	42.18	39.45	38.08	35.90	35.18	34.26
	CS	38.55	42.00	44.49	46.47	49.18	49.91	51.45
	Others	16.74	15.82	16.06	15.46	14.92	14.91	14.29
5. Overall:	Vaginal Delivery	73.82	73.60	73.02	71.70	70.56	68.27	66.84
	CS	15.19	15.98	16.96	18.44	19.98	21.13	22.44
	Others	10.98	10.42	10.02	9.87	9.45	10.61	10.72

Source: Tangcharoensathien V, Chantarasatit N, Sittitooon C, et al., 1998.<sup>(1)</sup>

**Table 2 Percent distribution of deliveries by type of hospitals, Thailand, 1990-96**

Percent of hospital delivery	1990	1991	1992	1993	1994	1995	1996
MOPH district hospital	32%	35%	36%	37%	37%	37%	39%
MOPH provincial hospital	32%	33%	31%	31%	31%	31%	32%
Other public hospitals	30%	28%	28%	27%	26%	26%	22%
Private hospitals	5%	5%	5%	5%	6%	7%	7%
Overall	100%	100%	100%	100%	100%	100%	100%

Source: Tangcharoensathien V, Chantarasatit N, Sittitooon C, et al., (1998).<sup>(1)</sup>

Note in Table 3 that secondary cesarean procedures accounted for more than one third, 35.9% of total CS in 1996. If the concept of ‘once cesarean section, always cesarean section’ is still a general practice, efforts to reduce unnecessary primary cesarean sections will have a major impact on overall cesarean section rate, rather than by trying to reduce secondary cesarean section, e.g., via Vaginal Birth After Cesarean Section (VBAC)<sup>(12)</sup>, which faces more resistance by professionals and patients. Cesarean section rate also varied by region; the rate in Bangkok – the capital was nearly twice of that in northeast region, the poorest area of the country (Table 4).

**Table 3 Secondary CS rate as percent of total CS 1990-1996**

Type of Hospital	1990	1991	1992	1993	1994	1995	1996
1. District Hospital	17.16	18.14	18.43	18.81	19.83	22.74	23.89
2. Provincial Hospital	22.78	23.19	23.83	23.94	25.64	38.21	37.03
3. Other Public Hospital	28.75	30.19	30.77	32.77	34.62	32.81	33.62
4. Private Hospital	40.47	40.20	38.99	37.50	36.73	38.13	37.72
5. Overall	27.59	28.05	28.33	28.63	29.43	36.39	35.90

Source: Tangcharoensathien V, Chantarasatit N, Sittitooon C, et al., (1998).<sup>(1)</sup>

**Table 4 CS rate by geographical region, 1990-1996**

Region	1990	1991	1992	1993	1994	1995	1996
1. Greater Bangkok	19.20	20.27	21.13	22.83	24.44	25.25	27.33
* Bangkok	20.51	21.78	22.54	24.21	25.69	26.38	29.02
* Vicinity	10.79	11.33	12.65	15.34	18.22	18.32	19.61
2. Central	17.06	18.16	19.21	20.61	21.99	21.53	22.95
3. Northern	13.26	13.98	15.83	17.37	19.53	22.04	23.91
4. Northeastern	8.72	9.14	9.40	10.70	12.19	14.55	15.41
5. Southern	15.62	17.43	18.51	20.22	21.18	23.43	25.29
Overall	15.19	15.98	16.96	18.44	19.98	21.13	22.44

Source: Tangcharoensathien V, Chantarasatit N, Sittitooon C, et al., (1998).<sup>(1)</sup>

Private health sector coexists and has symbiosis relationship with public health sector. We classified dual practice into two broad categories. One is off-site practice in privately owned clinics or consultant work in private hospitals during off-office hours, receiving doctor fees or charges directly. The other is providing on-site private services in public hospitals. In addition to paying hospital for room and board and delivery services, private patients are bound to pay unofficial ‘gratitude money’ direct to physicians<sup>(13)</sup>. There is usually an integral linkage between the two for the case of cesarean sections, for example, antenatal cares were sought in a private clinic and a cesarean section was provided in a public hospital. Though private practice by public doctors (dual practice) is generally accepted by the society, little was known on their practicing behavior.

Anecdotal observations on the higher cesarean section rate among private patients in some public hospitals leads us to investigate this association. The study objectives are:

- To estimate the relative risk of cesarean section between private and non-private patients.
- To compare profile of delivery time between private and non-private patients.
- To estimate additional expenditures and financial implications to patients for unnecessary cesarean sections.

The study aims to shed light on the influence of private practice on cesarean sections in order to provide feed back information to professionals, the Thai Medical Council, Royal Colleges and general public for further proper courses of action.

## Methods

MOPH provincial hospitals were chosen as study sites because of their high delivery share, albeit lower rate than the private sector, and limitation of access to data in the private sector. Though the rate was more than 50% in private hospitals, private sector share of total deliveries was relatively low. Based on the sampling frame of 92 provincial hospitals, 30 hospitals were randomly selected. Heads of Obstetric departments approved access to patient interviews, then an interview questionnaire by nurses was launched. A retrospective was impossible as patient status (private and non-private) is unavailable. A prospective census was decided, with all deliveries for the entire month of June 1998 enumerated.

Key parameters included patient status (private or non-private), delivery mode, time and date of delivery, delivery staff (obstetrician, obstetric nurse, medical or nursing student). Hospital level information on average expenses for each type of delivery in both normal and private ward, average 'gratitude payment' by private patients for normal delivery, cesarean sections and others (vacuum and forceps), were retrieved.

Financial implications of unnecessary cesarean sections was estimated by cesarean case distribution in public and private hospitals<sup>1</sup>, the difference in hospital charges between cesarean section and normal delivery (categorized by normal and private ward), plus additional payments by private patients in public hospitals and the doctor fee difference in private hospitals.

## Results

Only 29 hospitals participated, since one provincial hospital in the central region declined to provide information. In June, 1998, a total 8764 deliveries were censused, averaging 302 deliveries per hospital (max.781, min.112). Total cesarean section rate in our 1998 study was 27.21% (range 7.7% to 44.9%), compared to 22.9% in 1996<sup>(1)</sup>.

Other operative (vacuum and forceps) rate was 12.2% (range 1.6% to 26.8%), comparable to 11.9% in 1996<sup>(1)</sup>. Rate of vaginal delivery was 60.6% (range 35.8% to 81.9%). Findings confirm that cesarean sections increased over vaginal deliveries while vacuum and forceps rate was maintained (Table 5).

Unexpectedly, the study revealed an observable magnitude of 37.2% (range 15.8% to 80.4%) of patients who pay unofficial gratitude money for obstetrician personal delivery services.

**Table 5 Census on delivery pattern in 29 MOPH provincial hospitals, June 1998**

Delivery Pattern	Private cases		Non-Private cases		Total	
Normal Delivery (NL) Range*	1080	33.1% 8.4% - 75.2%	4233	76.9% 63.5% - 100%	5313	60.6% 35.8% - 81.9%
Cesarean Section (CS) Range*	1512	46.4% 11.9% - 89.2%	873	15.9% 0% - 26.7%	2385	27.2% 7.7% - 44.9%
FE/VE/Breech Range*	670	20.5% 0 - 50%	396	7.2% 0 - 16%	1066	12.2% 1.6% - 26.8%
Total	3262	100%	5502	100%	8764	100%
Relative Risk of						
CS in Private Patient				2.92		
Other Operative Delivery in Private Patient				2.85		

Range\* percent at hospital level

Almost three times higher cesarean section rate among private patients (46.4%) than non-private patients (15.9%) was observed. Cesarean section rate among private

patients in public hospitals was not dissimilar to that in private hospitals (51.5%)<sup>(1)</sup>. This reflects similar obstetric practice patterns between the two sectors.

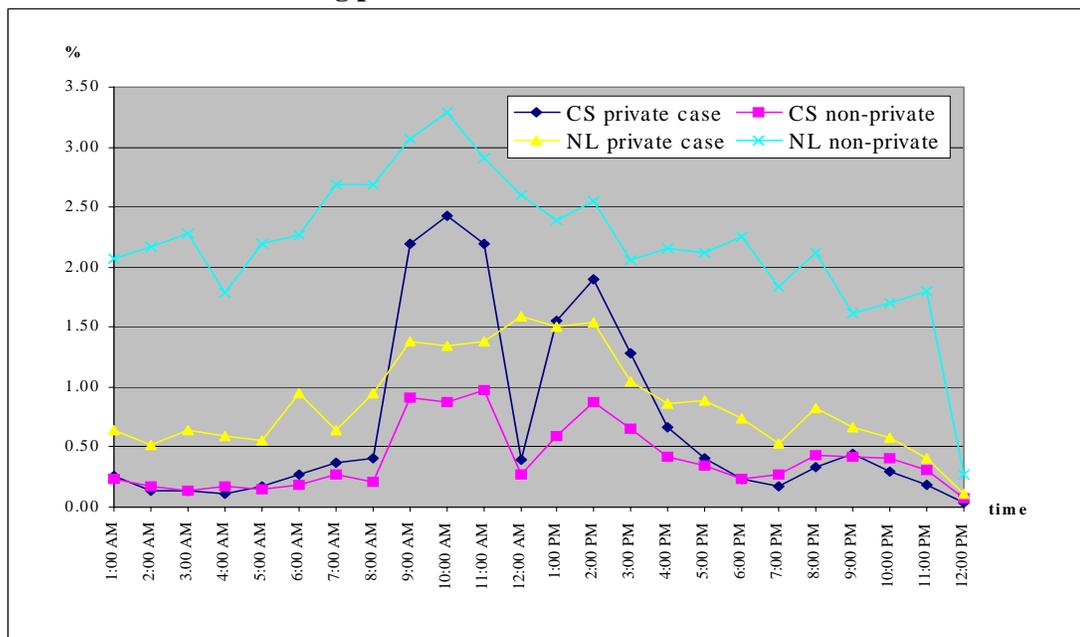
At the hospital level, cesarean section rate among private patients ranged from 11.9% to 89.2%. Less variation of cesarean section rate was observed among non-private cases (0% to 26.7%). Rate of operative delivery (forceps and vacuum) was higher among private (20.5%) than non-private patients (7.2%). The relative risk of private patients, compared with non-private patients, to undergo cesarean and operative delivery was 2.92% and 2.85%, respectively (Table 5).

Note that zero percent of cesarean sections among non-private cases in a month census, was unacceptable as there might have been clinical indications for cesarean section, but the patient could not adequately access services as needed. The maximum 89% cesarean section rate among private cases reflects the enormous magnitude of unnecessary cesarean sections.

When a private patient was accepted, an obstetrician was bound to look after the whole process of labor pain observation, assessment of progress and finally delivery. A vaginal delivery could take 10-12 hours, whereas three quarters of an hour was needed for a cesarean section. Leisure hours, especially after midnight, and time conflict in the event of several private cases arriving at one time, plausibly induced the decisions to perform cesarean sections. We looked at delivery time between private and non-private cases.

Figure 2 presents the distribution of deliveries by time of delivery around the clock; most were born during the day shift (8.00 a.m. to 4.00 p.m.). Hour distribution patterns looks similar for vaginal delivery among private and non-private cases, and cesarean sections in non-private cases.

**Figure 2 Modes of delivery: cesarean section (CS) and normal delivery (NL) by times and whether being private case.**



Cesarean section in private cases increased significantly during office hours and was proportionally much higher than non-private cases. This implies private status and

time of delivery determine the mode of delivery. Logistic regression analysis was done using STATA 6.0; dependent variable is mode of delivery and vaginal delivery is reference. Five groups of independent variables were identified:

- Status (private and non-private).
- Maternal age (<20, 21-25, 26-30, 31-35 and 36+).
- Birth weight (<2000, 2001-2500, 2501-3000, 3001-3500, 3501-4000 and 4000+ gram).
- Time and day of delivery (office hours – Monday to Friday 0830 to 1630 hr; outside office hours – Monday to Friday 1630-0830 hr, and all day Saturday and Sunday).
- Patient payment status (out of pocket, civil servant, social security, voluntary health card, low income card and other).

Logistic regression reveals the following key findings of concern (Table 6):

- Private cases had a 5.83 higher chance (1/0.1715) of cesarean section than non-private cases (p<0.001).
- CS deliveries during office hours had a 2.45 higher chance (1/0.4085) of being performed than those outside office hours (p<0.001).

**Table 6 Logistic regression of different variables on primary CS in 29 Hospitals, June 1998**

Variable	Odds Ratio	Standard Error	P value	Reference group
Non Private Case	0.1715	0.0322	<b>0.000</b>	Private cases
Non Office Hour	0.4085	0.0452	<b>0.000</b>	Office hour
Age				26-30 years
Less than 20 years	0.5335	0.1272	<b>0.008</b>	
21-25 years old	1.0362	0.1107	0.747	
31-35 years old	1.2522	0.3087	0.385	
Over 36 years old	1.4110	0.4026	0.258	
Birthweight				2501-3000 gm.
Less than 2000 gram	2.4230	0.7790	<b>0.022</b>	
2001-2500 gram	2.1052	0.4672	<b>0.008</b>	
3001-3500 gram	1.5730	0.2152	<b>0.009</b>	
3501-4000 gram	2.2185	0.3907	<b>0.001</b>	
Over 4000 gram	3.9512	2.5207	0.060	
Insurance type:				Out of pocket
Civil Servant Medical Benefit	1.6089	0.4523	0.125	
Social Security	0.9940	0.3718	0.988	
Voluntary Health Card	1.6132	0.2443	<b>0.012</b>	
Low Income Scheme	1.6185	0.6061	0.231	
Other	1.5297	0.6505	0.344	

Financial implications were calculated in Table 7, showing a one percent increase in cesarean section rate resulted in an additional 8975 cesarean cases per year; of which 84% were performed in public and 16% in private hospitals. Additional expenditures born by patients for cesarean sections instead of having normal delivery were estimated at US\$ 2.5 million in 1997, of which US\$ 391,490 (16%) consisted of additional payments to doctors (doctor fees in private hospitals and gratitude money in public hospitals), and 84% for hospital charges.

We can further apply the US\$ 2.5 million extra-expenditure for the cesarean section rate. Our CS survey rate of 27% in June 1998 and 22% in 1996, by Tangcharoensathien et al<sup>(1)</sup>, compared to the WHO recommended CS rate of 15%<sup>(14)</sup>, and the US Healthy People Year 2000 objectives<sup>(8,15)</sup>, indicated a discrepancy of unnecessary cesarean rate of 7% to 12% could incur extra-expenditures of approximately US\$ 17.5 to 30 million per annum; equivalent to 0.0135% to 0.0235% of 1998 Gross Domestic Product at current price<sup>(16)</sup> or 0.27% to 0.67% of annual national health expenditure (3.5-5% of GDP)<sup>(17)</sup>.

**Table 7 Financial implications of one percent increase of Cesarean rate, Thailand 1997**  
(US dollar)<sup>1</sup>

	Public hospital		Private hospital Total	
Estimate additional cesarean	7,539 (84%)		1,436 (16%)	8,975 <sup>1</sup>
	Normal ward	Private ward		
% distribution	70%	30%		
Additional hospital expense for Cesarean section/ case <sup>2</sup>	181	246	417	
Additional hospital expense <sup>2</sup>	957,244	555,373	598,333	2,110,950
% private cases	37.2		100	
Additional doctor fee for Cesarean section/ case <sup>3</sup>	74		128	
Additional doctor fee for Cesarean section <sup>3</sup>	208,001		183,489	391,490
Total				2,502,440

Note: <sup>1</sup> 1 US dollar equals 36 Baht

<sup>2</sup> Total delivery in 1997 = 897,495 if 1% shift to be cesarean section will result 1% X 897,495 = 8,975 additional cesarean section cases

<sup>3</sup> Average expense estimated from additional expense from normal delivery

## Discussion

Not surprisingly, private practice by public obstetricians was a strong determinant of cesarean sections. We assume private practice, whereby physicians feel obliged to provide personal delivery services, was the entry point and was triggered by time conflicts when several private cases arrived at the same time. Cesarean section was more time-manageable than the normal process of labour and delivery phases. This eventually could lead to slips of clinical indications, unnecessary cesarean procedures and financial burdens, and further mislead public opinion towards choices of delivery due to imperfect information.

Non-private cases have little choice, since they are normally seen by an obstetrician once during ANC with others seen by nurses, medical or nursing students, unless deemed a high-risk pregnancy. The labour and delivery processes are usually taken care by obstetric nurses with a obstetric consultant on-call for backup.

We see three determinants spurring dual practice growth – supply side, demand side and system level characteristics. Firstly, Chunharas, et al<sup>(18)</sup>, in 1990 reported primary monthly income (from government budget) among public hospital doctors was US\$ 454 (25 Baht per US\$1), while private sector colleagues earned 2.6-6.2 times higher. Earnings from private practice among public doctors constitute 55% of total

income. This creates an incentive to do private practice. To halt the internal brain drain of doctors from the public to private sector, the Ministry of Public Health introduced a non-private practice allowance which resulted in halting the drain only among younger doctors whose private practices had not yet matured<sup>(19)</sup>.

Secondly, women's willingness to pay for quality physician services, privacy and convenience was a demand side determinant. Unofficial payment goes along well with the Thai cultural practice of gratitude expression either in cash or in kind. Survey data revealed 15.8%- 80.4% of all deliveries were private patients. What is still unknown is the magnitude of confidence in obstetric services provided by nursing staff. Lack of confidence spurs the decision to be a private patient. Among other factors, such as fear of labor pain and incontinence, the desire for sterilization and an auspicious time of birth were cited as reasons for cesarean sections<sup>(2, 20)</sup>.

Thirdly, there is no regulation on dual practice unless there is a problem with medical negligence taken up by the Medical Council<sup>(13)</sup>. On-site private practice is unofficial but generally well known and tolerated. The more one works, the more one gets, is commonly accepted as long as dual practice does not have negative consequences to non-private patients in terms of access to adequate physician care when needed. The high cost of private hospitals, some US\$\* 278- 694 higher than public hospitals, spurs patients to public hospitals where they pay an additional gratitude fee of US\$ 28 to 125 for equivalent quality of care.

The gratitude fee is informally set, higher for cesarean (US\$ 83) than vaginal delivery (US\$ 56). This leads to financial incentives for more cesarean sections. In some hospitals where the two rates are similar, there is a higher cesarean section rate; explained by leisure and time conflict management.

The message does not get through to the public. The high cesarean section rate alone did not contribute to declines in infant mortality during the past two decades<sup>(15)</sup>. For example, the Public Citizen Health Research Group estimated that the approximately 475,000 unnecessary cesarean procedures in the US in 1987, resulted in 25-100 avoidable maternal deaths and 25,000 serious maternal infections<sup>(21)</sup>.

In the UK, it is estimated that a one percent increase in the cesarean section rate would increase the annual NHS budget by 5 million pounds<sup>(22)</sup>. Excess cost of US cesarean sections was US\$ 3,160 per procedure<sup>(23)</sup>. In 1987, cesarean sections, resulted in a cost of over US\$1 billion<sup>(21)</sup>.

Studies in Thailand were sporadic, hospital specific and did not address major determinants<sup>(5-7,24)</sup>. Further studies on maternal and child outcome, morbidity and complications from cesarean sections, risks and benefits, are needed to serve as a solid foundation for consensus development among all parties concerned.

We would like to raise the equity consequences of private practices. Does private attendance by an obstetrician to one group make non-private cases feel uncertain on their delivery safety backup? The absence of cesarean sections for non-private cases in a hospital (Table 5) is intolerable as presumably there are clinically indicated cases.

A gap in the cesarean section rate between private and non-private cases raises questions on equitable access to quality delivery services for those who need care. The high rate among private cases raises problems in unnecessary cesarean sections rather than waiting for further investigations.

We demonstrate the association of private practice with possible unnecessary cesarean sections, and inefficiency due to substantial financial implications with unclear

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\* 36 Baht per 1 US dollar at current rates of exchange

benefits. Private practice possibly discriminates against adequate access to care for non-private groups who might need it. What should Thailand do next?

Several successful strategies include:

- physician and public education on maternal and fetal benefits of vaginal delivery<sup>(8)</sup>;
- practice guidelines for management of labor,
- physician peer review or medical audit of labor management<sup>(8, 23, 25)</sup>,
- physician and hospital payment reform<sup>(4, 8)</sup>;
- change in labor management, such as limiting unnecessary induction of labor, modification of epidural analgesia, use of prostaglandin preparations for cervical ripening if induction is necessary, and active management of labor<sup>(4, 23, 26)</sup>.

This study sheds light on a complex and difficult issue – private practice. The study on private practice was criticized as “forbidden area, destructive research”. Knowledge on patient factors, maternal and fetal outcome, and short and long term complications are further required for policy formulation.

## **Conclusion**

This study contributes to the understanding that private practice in public hospitals and physician time management could lead to higher rates of cesarean sections for private patients, and lower rates for non-private patients. There are equity concerns when private practice jeopardizes the general confidence on public hospital obstetric services and limits adequate access to cesarean sections among non-private cases who might need them. There are significant financial implications of cesarean procedures with doubtful benefit shouldered by patients who may not need them.

We recommend more studies, not only from medical but multi-disciplinary perspectives, for example, social, anthropological, legal and ethical studies are required for future national consensus building on the optimal level of cesarean rate and other measures such as financial, clinical guidelines, peer review, clinical audit, adequate and balanced public information on the benefits and indications of cesarean sections. In the meantime, measures to improve quality obstetric services in the public sector to gain the confidence of the public could counterbalance the power of physicians in private practice.

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