Cesarean Section Tariff Analysis Based on Indonesian Case Base Groups in Cipto Mangunkusumo Hospital

Budi Iman Santoso 1,*, Laksono Trisnantoro 2, and Yos Hendra 2

1 Obstetrics and Gynecology Department, Dr. Cipto Mangunkusumo Hospital/Faculty of Medicine Universitas Indonesia, Jakarta 10430, Indonesia
2 Community Health Department, Faculty of Medicine Universitas Gadjah Mada, Yogyakarta 55281, Indonesia

Introduction: Badan Penyelenggara Jaminan Sosial (BPJS) Kesehatan as the National Health Insurance Corporation/Administration in Indonesia has two payment mechanisms through capitation for the primary health care and Indonesian Case Base Groups (INA-CBGs) for the secondary health service. Based on data from Indonesian Demographic Health Survey (IDHS) in 2012, the number of cesarean deliveries per year (95% CI) was 611,561 (570.165–655.962) and Cesarean delivery rate per 100 live births (95% CI) was 12.9 (12.0–13.8). Meanwhile, the study conducted in Dr. Cipto Mangunkusumo hospital (RSUPNCM) in 2012 revealed that 40% women delivered through Caesarean Section (CS). Therefore, we would like to analyse the CS tariff in Cipto Mangunkusumo Hospital (RSUPNCM) as the centre of referral compared to INA-CBG’s tariff.

Methods: This cross-sectional study design was conducted in RSUPNCM from February to May 2016 by involving all CS claim records from 2014 to 2016. We performed the descriptive analysis consisting of diminishing risk of loss, CS tariff, and optimization of the tariff.

Results: The average length of stay (ALOS) on CS cases in 2014 and 2015 was about 5 to 7 days. The difference between RSUPNCM revenue expectation and INA-CBG’s tariff was from 62.97% to 74.22%. By using unit cost, we could diminish the risk of loss between 58.9% for high risk CS in the third class and 75.7% for moderate risk CS in the first class. In assumption, the best efficiency potency was 50% reduction of RSUPNCM total claims combined with 40% increase of INA-CBG’s claim.

Conclusion: Unit cost for Caesarean section on mild and moderate risk CS could be decrease to reduce the deficit potency. Medical service fee should be recalculated to reach the best efficiency.

Keywords: Risk of Loss, Cesarean Section, Unit Cost, National Health Insurance.

1. INTRODUCTION

The Indonesian National Social Health Insurance is a compulsory health insurance scheme in which everyone must participate. Indonesia’s National Social Health Insurance had been launched since 2014. The benefit package is focused on personal health care and covers promotive, preventive, curative and rehabilitative health services. Moreover, the benefit package includes both medical and non-medical services. Badan Penyelenggara Jaminan Sosial Kesehatan (BPJS-K) is one of the institutions who involves in this program to administer the health insurance scheme including collection of contributions, complaints management, contract arrangements, and claim payment.1

Badan Penyelenggara Jaminan Sosial Kesehatan as the National Health Insurance Corporation/Administration in Indonesia has two payment mechanisms through capitation for the primary health service and Indonesian Case Base Groups (INA-CBGs) for the secondary health service.1,2 Delivery is one of the program subsidized in national health coverage. There were 850,000 deliveries paid by BPJS Kesehatan as the manager of national health coverage from January to November 2014. The total tariff reached 2.3 trillion rupiahs. Out of 850,000 deliveries, about 300,000 were performed in the primary health center and the rest were in hospital. Meanwhile, the evaluation result showed that 30% of those deliveries (around 250,000) were in normal category. Therefore, there were more than 300,000 deliveries in fault reference and cesarean deliveries were included in those deliveries.

World Health Organization (WHO) stated that the rate of cesarean section (CS) procedure in a country was around 5–15%. In USA, the CS rate reached 32%.3 In Indonesia, the CS rate increased from 8% in 2005, 15% in 2006, to 21% in 2007.4 Based on data from Indonesian Demographic Health Survey (IDHS) in 2012, the yearly number of cesarean deliveries (95% CI) was 611,561 (570.165–655.962) and Cesarean delivery rate per 100 live births (95% CI) was 12.9 (12.0–13.8).5 Meanwhile, the study conducted in Dr. Cipto Mangunkusumo hospital...
(RSUPNCM) in 2012 revealed that 40% women delivered through CS. The proportion of high medical service and medicine caused the inefficiency. The different claim between hospital and paid by BPJS-K was associated significantly with diagnosis code, the number of secondary treatment, length of stay, and also the severity of disease. Liastuty commented that INA-CBG’s tariff could not cover the tariff although it increased 100%. Therefore, this study aimed to analyse the CS tariff in RSUPNCM as the centre of referral compared with INA-CBG’s tariff.

2. METHOD
2.1. Study Design
The study was a hospital based cost accounting cross sectional study estimating the average cost of Caesarean section (CS) from the provider (hospital) perspective (billing from hospital) and the claim perspective (national health insurance tariff). Duration of the study was from February 2016 to May 2016. The study was carried out at a large government Hospital located in Jakarta, Indonesia. The hospital, a teaching and general referral hospital provides maternity services to women of many cities near Jakarta. We divided the samples into 2 sections whereas the first one was to know the tariff description in RSUPNCM between 2014 and 2015 data (900 claim records). The second one was to determine the efficiency potency by analyzing the unit cost from 2016 data (41 claim records) which consisted of mild, moderate, and severe risk category.

We recruited all post-partum women delivering at term (36–42 weeks of gestation) by CS and they had national insurance health card. Meanwhile, all women delivered vaginally, exempted from hospital dues, and not delivered at the hospital but admitted for post-partum complication were excluded. Three types of methodologies can be employed to calculate unit costs, the activity based approach, the top-down approach and the bottom-up approach. To estimate the provider costs the double distribution approach was employed in this study. A tool was developed to gather data on direct and indirect cost. Unit costs for the inputs identified were derived from a search of published and unpublished literature and databases, as well as from consultation with costing experts. The cost data from both provider and patient claim perspective was entered separately on Microsoft Excel to obtain total costs, average, and difference. We performed descriptive analysis consisting of diminishing risk of loss, CS tariff, and optimization of the tariff. The study was approved by Ethical Committee Faculty of Medicine, Universitas Indonesia.

3. RESULTS
The average length of stay (ALOS) on CS cases in 2014 was about 5 to 7 days. The difference between RSUPNCM revenue expectation and INA-CBG’s tariff in 2014 to 2015 was 62.97% to 74.22% (Table I). Unit cost consists of the equipment and medical service. Unit cost is usually used as the reference for the second-class tariff. Meanwhile, the first class is 150% times of second class. Equipment tariff is a part of unit cost with the increased inflation of 16–18%. Table II depicted that the new patients’ bill on CS in mild and moderate risk had surplus compared to CS in severe risk. Apart from that, unit cost concept could diminish the risk of loss in the range starting from 58.9 to 75.7% (Table III).

4. DISCUSSION
The study on costs of vaginal delivery and Caesarean section at a tertiary level public hospital in Islamabad, Pakistan revealed the average cost for a Caesarean section from the hospital side was 162 US$ (10868 rupees) and 204 US$ (13678 rupees) from the patient’s side. Yusfetaria, et al., through their study in emergency department Ampana hospital, Tojo Una-una district, Central Sulawesi described that according to activity based costing methods, the unit cost on CS procedure was 363 US$ (4,872,097 IDR) with the constant value of 3%; thus, they got the total of 373 US$ (5,018,260 IDR). The difference between rational tariff according to activity based costing and hospital tariff was 13%; meanwhile, the difference with INA-CBG’s tariff was 18% whereas the activity based costing tariff was calculated higher. Another study held by Pasar Kebijakan dan Manajemen Keuangan (PKMK) Universitas Gadjah Mada and Faculty of Medicine Universitas Cendana showed that the unit cost of CS procedure for first, second, and third class in Bajawa hospital in accordance with clinical pathway was 415 US$, 389 US$, 384 US$ (IDR 5,580,743; IDR 5,218,279; IDR 5,169,526; respectively with the actual tariff was 491 US$, 458 US$, 424 US$ (IDR 6,607,394; IDR 6,158,667; IDR 5,708,904; respectively). Actually, INA-CBG’s tariff for CS procedure was lower than unit cost, except for the first class. It indicated that INA-CBG’s could not cover the CS procedure. The availability of clinical pathway was able to describe the standard of tariff needed and minimized the variation of procedure also tariff.

After analyzing the unit cost, INA-CBG’s, and RSUPNCM tariff with each efficiency potency, we can determine the tariff as following:
(1) The tariff for the heterogenic outcome such as intrauterine device (IUD) insertion or difficulty cases were not written.
Table II. The comparison between INA-CBG’s tariff and unit cost (unit cost of cesarean section and other procedures).

<table>
<thead>
<tr>
<th>Class</th>
<th>Facility fee (A)</th>
<th>Facility fee-subsidy (A)</th>
<th>Medical fee (B)</th>
<th>Medical fee-subsidy (B)</th>
<th>Unit cost of CS (C = A + B)</th>
<th>Unit cost of other procedures (D)</th>
<th>INA-CBG’s tariff (E = C + D)</th>
<th>Difference (G = F − E)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild Risk of CS</td>
<td>$117.29</td>
<td>$93.84</td>
<td>$23.46</td>
<td>$362.96</td>
<td>$217.78</td>
<td>$145.18</td>
<td>$168.64</td>
<td>$260.11</td>
</tr>
<tr>
<td>I</td>
<td>$156.39</td>
<td>$125.11</td>
<td>$31.28</td>
<td>$483.95</td>
<td>$290.37</td>
<td>$193.58</td>
<td>$224.86</td>
<td>$260.11</td>
</tr>
<tr>
<td>I</td>
<td>$234.59</td>
<td>$187.67</td>
<td>$46.92</td>
<td>$729.25</td>
<td>$435.65</td>
<td>$290.37</td>
<td>$337.29</td>
<td>$260.11</td>
</tr>
<tr>
<td>Moderate Risk of CS</td>
<td>$130.32</td>
<td>$104.26</td>
<td>$26.06</td>
<td>$453.70</td>
<td>$272.22</td>
<td>$181.48</td>
<td>$207.54</td>
<td>$279.67</td>
</tr>
<tr>
<td>II</td>
<td>$173.76</td>
<td>$139.01</td>
<td>$34.75</td>
<td>$604.93</td>
<td>$382.96</td>
<td>$241.97</td>
<td>$276.73</td>
<td>$279.67</td>
</tr>
<tr>
<td>I</td>
<td>$260.64</td>
<td>$208.51</td>
<td>$52.13</td>
<td>$907.40</td>
<td>$544.44</td>
<td>$362.96</td>
<td>$415.09</td>
<td>$279.67</td>
</tr>
<tr>
<td>Severe Risk of CS</td>
<td>$159.29</td>
<td>$127.43</td>
<td>$31.86</td>
<td>$680.59</td>
<td>$408.35</td>
<td>$272.24</td>
<td>$304.09</td>
<td>$530.34</td>
</tr>
<tr>
<td>I</td>
<td>$212.38</td>
<td>$169.91</td>
<td>$42.46</td>
<td>$907.40</td>
<td>$544.44</td>
<td>$362.96</td>
<td>$405.44</td>
<td>$530.34</td>
</tr>
<tr>
<td>II</td>
<td>$318.58</td>
<td>$254.86</td>
<td>$63.72</td>
<td>$1,361.10</td>
<td>$816.66</td>
<td>$544.44</td>
<td>$608.16</td>
<td>$530.34</td>
</tr>
</tbody>
</table>

Table III. The diminish risk of loss on cesarean section tariff base on new unit cost.

<table>
<thead>
<tr>
<th>Class</th>
<th>Patients claim according to previous CS tariff (A)</th>
<th>Unit cost of INA-CBG’s Tariff (B)</th>
<th>The difference between INA-CBG’s Tariff and previous tariff (C − A)</th>
<th>The difference between INA-CBG’s and unit cost (D − B)</th>
<th>The diminish risk of loss (E)</th>
<th>The percentage on diminish risk of loss (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild risk of CS</td>
<td>$1,334.80</td>
<td>$428.76</td>
<td>$84.40</td>
<td>$906.05</td>
<td>67.9</td>
<td></td>
</tr>
<tr>
<td>II</td>
<td>$1,636.01</td>
<td>$484.97</td>
<td>$130.81</td>
<td>$1,151.04</td>
<td>70.4</td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>$2,238.56</td>
<td>$597.40</td>
<td>$121.02</td>
<td>$1,641.16</td>
<td>73.3</td>
<td></td>
</tr>
<tr>
<td>Moderate risk of CS</td>
<td>$1,659.67</td>
<td>$487.21</td>
<td>$152.65</td>
<td>$1,722.46</td>
<td>70.6</td>
<td></td>
</tr>
<tr>
<td>II</td>
<td>$2,058.08</td>
<td>$556.39</td>
<td>$211.44</td>
<td>$1,501.69</td>
<td>73.0</td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>$2,854.97</td>
<td>$694.76</td>
<td>$201.05</td>
<td>$2,160.22</td>
<td>75.7</td>
<td></td>
</tr>
<tr>
<td>High risk of CS</td>
<td>$2,031.54</td>
<td>$834.43</td>
<td>$72.74</td>
<td>$1,197.10</td>
<td>58.9</td>
<td></td>
</tr>
<tr>
<td>II</td>
<td>$2,529.01</td>
<td>$935.78</td>
<td>$(21.74)</td>
<td>$1,583.23</td>
<td>63.0</td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>$3,524.10</td>
<td>$1,138.50</td>
<td>$(72.12)</td>
<td>$2,385.61</td>
<td>67.7</td>
<td></td>
</tr>
</tbody>
</table>

Note: 1 US$ = 13,456 IDR.

in INA-CBG’s application. Therefore, the INA-CBG’s system should be adjusted to describe the real INA-CBG’s tariff. It is due to the heterogeneous and different rational fee for every diagnosis, such as medical service, consumable material, length of procedure, and risk of procedure which implied into the medical fee;
(2) The subsidy on surgical room should not be given to all patients;
(3) The subsidy should not be stated for the input factors.

Tariff should be regulated evenly for all patients; however, the poor society gets the subsidy from government as the rational tariff. Therefore, the subsidy would be more precise for the lower class of society.

Based on the total unit cost data, the BLU tariff pattern according to health ministry rules number 12 in 2013 was not appropriate because the equipment and medical fee were under standard (4.54% to 6.25% and 39.92% to 43.49%; respectively). Looking at the inappropriate between equipment and medical fee, we suggest the alteration for medical fee, namely
(1) If we would like to get more efficiency apart from equipment service, we should do revision on medical service fee after the agreement for the total CS procedure;
(2) We should regulate the class adjustment for the medical service fee by setting the first or second class tariff as the reference.

In this study, we conducted the comparison between the patients’ claim in hospital and INA-CBG’s claim paid by BPJS. Of 41 data in 2016, RSUPNCM had deficit $75,523.08. Therefore, we did several simulations through assumption of diminishing the hospital patients’ claim and increasing the INA-CBG’s claim paid by BPJS. The biggest efficiency potency was RSUPNCM reduced 50% of hospital patients’ claim and BPJS increased 40% of INA-CBG’s claim.

4.1. Study Limitations

There were some limitations on the quality of the cost data on our study. One of the limitations such as cost services that were shared amongst patients from other departments of the hospital. Another limitation was the costs of delivery in our study were the representative of costs at tertiary level public hospitals but may not be the representative of the costs in rural or urban settings, at primary and secondary healthcare level nor was it representative of deliveries in the private sector. Moreover, a study on a larger scale with various types of hospitals is required to cover all aspects of CS and its associated costs.
5. CONCLUSION

Unit cost of mild and moderate Caesarean Section could be decrease to minimize the deficit potency in the hospital. However, we should re-calculate the medical service fee to reach the best efficiency. In recommendation, the next study should include whole cost analysis in hospital as the basic for budgeting and subsidizing, base on the negotiation to the stakeholders, and also the recommendation for the new hospital tariff which is affordable for everyone. Apart from that, to regulate this policy, hospital and BPJS should do the review to obtain the ideal condition agreed by two parties.

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References and Notes


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