Operating Room Metrics Applied to Anesthesia Service Contracts

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Objectives

1. To define and illustrate several operating room metrics that can be applied to anesthesia service contracts.

2. To demonstrate how operating room metrics can be used in anesthesia service contracts to calculate hospital financial support.
Categories of Operating Room Metrics Used in Anesthesia Service Contracts

Three areas where operating room metrics may be used in anesthesia service contracts are:

1. Specifying the number of anesthetizing locations the contracting anesthesiology group will cover including hours and days of coverage.
2. As elements of practice performance standards.
3. In the calculation of hospital financial support (stipends).

OR Metrics Specifying Operating Room Coverage

The OR metrics “Number of ORs covered” and “Hours of Operation of ORs” may seem self-evident. However, failure to precisely define these metrics in hospital contracts can lead to misunderstandings with serious financial implications.

Hospital service contracts usually specify the number of operating rooms to be covered by the contracting anesthesiology group as well as the days and hours these ORs will be in operation. The definition of “operating room” or “anesthetizing location” or “anesthesia location” should be agreed upon with the hospital before the contract is drafted.

A typical anesthesiology contract may read:

“Group shall provide services as expressed in the body of the Agreement within Hospital. “Anesthesia locations” shall be defined as all those places where anesthesia services are required, including, but not limited to, operating rooms, cardiac catheterization labs, lithotripsy, ECT therapy, and certain imaging procedure rooms. Anesthesia Services from Group shall be available according to the following schedule:

Monday through Friday: fully staffed and scheduled coverage is required for:
   a. Twenty (20) anesthesia locations from 7:00 a.m. to 3:00 p.m.
   b. Twelve (12) anesthesia locations from 3:00 p.m. to 5:00 p.m.
   c. Six (6) anesthesia locations from 5:00 p.m. to 7:00 p.m.
   d. Two (2) anesthesia locations from 7:00 p.m. until running cases are completed.”

The implication of these contract terms is that when the anesthesiology group is staffing one of the alternate anesthesia locations such as ECT, MRI or a procedure room, one of the main ORs will not be staffed by the group. Given this wording, the group is agreeing to provide no more than the stated number of simultaneous anesthetics. If this wording were not present, the hospital could expect the anesthesiology group to staff non-operating room locations in addition to the specified number of main operating rooms. Although it is not in the wording of this example, the anesthesiology group should make it clear that the time required to provide an anesthetic includes pre-operative evaluation of the patient, placement of central lines, placement of regional anesthesia blocks and time to bring the patient to the recovery room. Travel time between the main OR site and remote imaging and procedure locations may also need to be taken into account.

Again using this example, “scheduled coverage” begins at 7:00 a.m. for 20 anesthesia locations. However, is it not stated whether the scheduled coverage means “patient in OR”, “cut time” or is the time the anesthesiologist or CRNA is ready to prep the first patient of the day. When drafting a service contract with the hospital, it is the best interest of all to provide wording that defines exactly what is expected to occur at the beginning time specified.

Anesthesiology service contracts state how many anesthetizing locations must be covered by the group until specified ending times. However, anesthesia service contracts rarely state what will happen when
surgery overruns occur. Using our example where 12 ORs are required between 3:00 p.m. and 5:00 p.m., what happens if 14 ORs run past 3:00 p.m.? On one hand, the group is going to finish the cases that extend past the contracted coverage time and will bill for this time. On the other hand, personnel costs almost always increase after 8 hours in a day. One solution could be to agree that the hospital will pay the group a penalty for OR hours in excess of the coverage specified in the contract. The amount could be calculated as the cost of overtime anesthesia personnel coverage less the average amount collected by the anesthesia group for these hours. The cost for this overage may be approximately $100/hour.

**OR Metrics and Practice Performance Standards**

Hospitals may include performance standards and evaluation criteria in anesthesia service contracts. It is common for there to be dozens of detailed performance standards in contracts and for each to be assigned a weighted numerical value with scoring for each standard. The overall score is calculated periodically and can result in the anesthesiology group receiving a pass, fail or reevaluate grade. Some contracts provide financial incentives or penalties to groups based on performance standards.

Typical performance standards that are OR metrics include:

- Percentage of cases cancelled by anesthesia
- Percentage of cases delayed by anesthesia

When these metrics are tied to contractual performance evaluation and stipend payments, the metrics should be defined to the satisfaction of the anesthesiology group and the hospital when drafting the contract. As hospitals find that financial support of anesthesiology groups is increasing, hospitals will be more inclined to add financial-based performance standards to service contracts. Performance standards are a way for hospitals to assure that they are “getting what they pay for” from contracted anesthesiology groups.

**Calculating Hospital Financial Support Based on Operating Room Metrics**

Financial support of the anesthesiology group is frequently required because the cost of anesthesia personnel needed to staff the contracted ORs is not covered by patient revenue generated from anesthesia services billed in the ORs.

Anesthesia revenue is a function of the payer mix and the number of hours or ASA units that can be billed per anesthetizing location. The payer mix is the weighted average of the unit rate paid by each payer and the percentage of units or hours billed for each payer. For anesthesiologists, the low rate payers are: Medicare, Medicaid, TriCare, and in some states, workers compensation. In addition, many hospitals accept patients with no insurance and no ability to pay. The following example shows the calculation of the “blended” unit and hourly rates for a given payer mix:

<table>
<thead>
<tr>
<th>Payer</th>
<th>% of Units</th>
<th>Unit Rate</th>
<th>Payer</th>
<th>% Hours</th>
<th>Hourly Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medicare</td>
<td>40%</td>
<td>$20</td>
<td>Medicare</td>
<td>40%</td>
<td>$140</td>
</tr>
<tr>
<td>Medicaid</td>
<td>10%</td>
<td>$14</td>
<td>Medicaid</td>
<td>10%</td>
<td>$98</td>
</tr>
<tr>
<td>Red Shield</td>
<td>28%</td>
<td>$60</td>
<td>Red Shield</td>
<td>28%</td>
<td>$420</td>
</tr>
<tr>
<td>MegaHealthy</td>
<td>14%</td>
<td>$62</td>
<td>MegaHealthy</td>
<td>14%</td>
<td>$434</td>
</tr>
<tr>
<td>Workers Comp</td>
<td>4%</td>
<td>$35</td>
<td>Workers Comp</td>
<td>4%</td>
<td>$245</td>
</tr>
<tr>
<td>Cosmetic</td>
<td>1%</td>
<td>$70</td>
<td>Cosmetic</td>
<td>1%</td>
<td>$490</td>
</tr>
<tr>
<td>No Pay</td>
<td>3%</td>
<td>$0</td>
<td>No Pay</td>
<td>3%</td>
<td>$0</td>
</tr>
<tr>
<td><strong>Blended Rate</strong></td>
<td></td>
<td><strong>$37</strong></td>
<td><strong>Blended Rate</strong></td>
<td></td>
<td><strong>$259</strong></td>
</tr>
</tbody>
</table>

Table 1
Generally, if more than 40% of a hospital's patients are reimbursed by government payers, patient revenue will be insufficient to pay anesthesia providers at the market rate.

Although anesthesiologists bill and collect based on ASA RVG units, it is usually easier to converse with hospital administrators using the OR metrics “OR minutes” or “OR hours” because hospital accounting systems report OR use in surgical hours or minutes.

In order to calculate anesthesiology group operating room revenue, the blended unit or hourly rate is multiplied by the number of anesthesia units or hours of anesthesia per operating room for the time period being measured. For our example of a group covering 20 anesthetizing locations, let’s suppose that the average operating room generates 5.5 hours of anesthesia time per day. Using the blended rate from Table 1 of $259/hour, the result is $1,425 per OR per day. Let us further assume it costs an average of $1,800 per day for anesthesia personnel to staff an OR at this hospital. This leaves a gap of $375 per day per OR. This is the gap that must be made up by hospital financial support. The OR metric that primarily controls the size of the gap is OR utilization. There are several ways to calculate OR utilization, but from the point of view of an anesthesiology group, it is the number of hours of anesthesia time billed during contracted prime OR hours divided by the number of prime OR available hours. (See notes 1 and 2).

In our example contract, prime hours are the 8 hours between 7:00 a.m. and 3:00 p.m. Let us assume that 5 of the 5.5 average daily anesthesia hours occur during the prime hours. OR utilization would be calculated at 5/8 = or 62.5%. This is not an extremely low utilization rate, but combined with the poor payer mix in this example, the result is a considerable gap between patient revenue and anesthesia personnel cost.

One might ask how high the OR utilization must be to close the revenue/personnel cost gap. In order to receive $1,800 per day per OR at $259/hr., 6.95 hours must be billed. If we assume that .5 hours will be billed after prime hours, we will need to bill 6.45 prime hours and the OR utilization rate will be 6.45/8 = 80.6%.

How can the OR utilization rate be increased to reduce the “gap”? There are three methods and all are difficult to implement. The first is to move cases that occur outside prime time hours into prime time. This is impossible if most non-prime time surgical hours are due to emergency and “urgent” surgery. The second possibility is to increase surgery in the existing OR's. To increase utilization from 62.5% to 80.6% would require a surgical volume increase of 29%, another improbability. The third method is to reduce the number of available operating rooms which would increase volume in the remaining ORs. Turning again to our example, we need to get from 5 hours per OR per day to 6.45 hours per OR per day. Five hours per day for each of 20 ORs yields 100 hours of anesthesia time per day. At 6.45 hours per day per OR, this would result in a theoretical need for only 100/6.45 or 15.5 OR’s. If this were done, the hospital would pay no financial support and the anesthesiology group would reduce its staff by the number of non-prime OR hours which would increase volume in the remaining ORs. Turning again to our example, the result is a considerable gap between patient revenue and anesthesia personnel cost.

It is unlikely that a hospital will be willing to drastically reduce its number of operating rooms to pay its anesthesia group a lower stipend. However, it may be useful for the anesthesiology group to base its hospital financial support on the OR metric, OR utilization rate. The annual financial support needed by our example practice is $375 per day per OR times 20 ORs times 250 weekdays per year totaling $1,875,000 ($93,750 per OR). The contract could be written such that if the OR utilization rate were to be increased or decreased, the hospital's financial support payments would increase or decrease in step with the utilization rate. In this case, an increase or decrease of 1% in the utilization rate would change the hospital support amount by $103,600. (62.5% to 63.5% = increase of .08 hours per OR per day times 250 days times $259/hour times 20 ORs.)

There are many ways to calculate hospital financial support. Basing it on OR utilization emphasizes that the support amount is out of the control of the anesthesiology group but is potentially controlled by the
hospital. If the hospital believes that the OR utilization rate is controlled by surgeons, at least the hospital can explain the method of its support calculation to the hospital board and other stakeholders. Some hospitals actually try to increase OR utilization and can add the benefit of reduced payments to its anesthesiology group as an additional incentive to do so.

Another OR metric that can be used to calculate hospital support in anesthesia service contracts is the percent of OR hours that occur outside prime hours relative to total OR hours. We have demonstrated that the underutilization of ORs during prime time results in a loss of revenue for the anesthesiology group. Overutilization also has a negative financial effect. When OR's are busy after prime hours, at night and on weekends, the anesthesiology group generates revenue for itself. However, third party payers pay the same rate for non-prime time work as they do for prime time anesthesia services. But, the cost of personnel is higher for services not in prime time.

Workers are willing to be paid a normal rate if their work is within a fixed daytime, weekday schedule. Anesthesia personnel do not favor weekend work, long days or variable days on and off. In addition, very long workdays can present a danger to patients as does working with limited staff and backup late at night and on weekends. The result is that personnel who are willing to work variable schedules with significant extended hours at night and weekends demand additional pay. An OR metric that can be used to compensate anesthesiology groups that staff operating rooms requiring significant non-prime hours coverage is the percent of non-prime hours served relative to total hours of service. Hospital and anesthesia billing and management systems keep track of the beginning and end of each case. Reports from these systems can split OR time and anesthesia time between prime and non-prime time to obtain the prime/non-prime ratio.

In our example, the ratio of non-prime to prime OR hours is low even if we add in the time of weekend coverage. It is common, however, for busy tertiary care hospitals to have a non-prime to total hours ratio between 20% and 35%. Anesthesia groups staffing these hospitals should consider service contract terms that specify additional financial support as this ratio increases. This can be done on a sliding scale. For example:

<table>
<thead>
<tr>
<th>Non-Prime to Prime Percent</th>
<th>Additional Quarterly Compensation</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0% - 19.9%</td>
<td>$0</td>
</tr>
<tr>
<td>20.0% - 21.9%</td>
<td>$30,000</td>
</tr>
<tr>
<td>22.0% - 23.9%</td>
<td>$36,000</td>
</tr>
<tr>
<td>24.0% - 25.9%</td>
<td>$43,200</td>
</tr>
<tr>
<td>26.0% - 27.9%</td>
<td>$51,840</td>
</tr>
<tr>
<td>28.0% - 29.9%</td>
<td>$62,208</td>
</tr>
<tr>
<td>30.0% - 31.9%</td>
<td>$74,650</td>
</tr>
<tr>
<td>32.0% - 33.9%</td>
<td>$89,580</td>
</tr>
</tbody>
</table>

Table 2

As stated previously, another method is to charge a specified “penalty” rate for all anesthesial hours outside the contracted hours for the covered operating rooms.

**Conclusion**

When drafting and negotiating an anesthesia service contract, it is important to precisely define the terms of operating room coverage so both sides understand exactly what is being requested by the hospital and exactly what coverage will be delivered by the anesthesiology group. If the anesthesiology group requires hospital financial support to cover ORs with a poor payer mix, low utilization and/or significant
after-hours coverage, a precise definition of the support calculation is necessary. The contract should also specify financial penalties or givebacks that will occur if there are coverage deviations during the term of the contract.

Notes:

1. **Turnover time and OR utilization calculations.** For the purpose of calculating anesthesiology group financial shortfalls caused by low OR utilization, it is simpler to not use turnover time. However, if the hospital wants to add turnover time to the OR utilization calculation, a higher achievable OR utilization should be required. For example, if the ORs average 3 cases per day with 30 minutes of average turnover time, this would add one hour to the numerator and 12.5% to the resultant calculation of OR utilization if there were 8 hours of prime time. Therefore, a higher achievable OR utilization rate (12.5% in this example) should be expected. High turnover times are disadvantageous to the anesthesiology group and the hospital because no billing can be done during this time.

2. **Difference between surgical time and anesthesia time.** The anesthesiology group should compare the OR hours billed from its practice management system to the hours the hospital reports from its OR management system. The hospital’s case start and end times will be different from the anesthesiology group’s start and end of anesthesia administration. The difference in these times should be reconciled and definitions agreed upon if OR utilization or non-prime OR times are used to calculate financial compensation in the anesthesiology service contract. Anesthesia time will usually be a few minutes longer than surgical case time.
Additional Reading

Abstracts from the 2008 Conference on Practice Management
2008 - Chapter 24 - Preparing the Financial Case for Hospital Support
J. Laden & M. Monea

Staffing Costs and Underutilized Operating Rooms
K. Bierstein with J. Laden & M. Monea
ASA Newsletter 2007; June 2007, Volume 71
http://www.asahq.org/Newsletters/2007/06-07/pracMgmt06_07.html

Abstracts From the 2004 Conference on Practice Management
Chapter 7 - Minimizing the Impact and Cost of Inefficient O.R. Utilization
M. Monea, J. Laden

The cost of inefficient O.R. utilization,
K. Bierstein with J. Laden & M. Monea
ASA Newsletter 2004; September 2004, Volume 68
http://www.asahq.org/Newsletters/2004/09_04/pracMgmt09_04.html

How many rooms do we need?
K. Bierstein with J. Laden & M. Monea
ASA Newsletter; June 2004; Volume 68
http://www.asahq.org/Newsletters/2004/06_04/pracMgmt06_04.html