To our Healthcare Clients and Friends:

In the January 2007 edition of the IMA Insights Newsletter, we discussed the need to revisit the budget process by facilitating better communication between financial, clinical, and operational staff to understand utilization and the impact on the budget. This issue examines two other key aspects of the budget and financial reporting process, specifically monthly financial variance reporting and the impact of volume and rate variances.

One of the many responsibilities of the Hospital CFO requires the presentation of financial statements with an explanation of variances to their boards, management team, system office, and often to the community. The typical retrospective profit and loss statement reflects the current month actual, budget, and static variance, and year-to-date actual, budget, and static variance. The Hospital management team and Board of Trustees may review this static information and draw conclusions without regard to true variance factors.

Less frequently, written narratives explain budget variances that reflect the effect of unanticipated volume and rate variances. Although the report may show current month retrospective analysis, no monthly forecast that reflects any trends in unbudgeted volume and/or rate variance accompanies the report. Additionally, the reporting includes no forecast of these trends and their effect on the Hospital’s year-end operating margin. This article introduces simple calculations Hospitals can use to increase understanding of the contributions of volume and rate on variances.

Understanding the impact of volume and rate variances plays a critical role in determining future actions to take. Volume variance is the variation between the actual volume and expected volume, given a constant rate. Rate variance is the variation between actual and expected rate for a static volume. Typically, this analysis is conducted on those line items that tend to vary with volume, most notably, revenues, labor expense, and supplies.

**Calculation of Revenue Variances**

To calculate revenue volume and rate (pricing) variances, the CFO must determine the net inpatient revenue and net outpatient revenue. The following example applies the calculations for inpatient revenue, but could be used for outpatient revenue variances as well:

1. Obtain monthly actual and budgeted admissions and net inpatient revenue.
2. Calculate the actual and budgeted net revenue per admission.
3. Calculate the total inpatient revenue gap (actual inpatient net revenue minus budget inpatient net revenue).
4. Calculate volume variance (actual admissions minus budget admissions times actual rate per admission).
5. Calculate rate variance (actual rate per admission minus budget rate per admission times actual number of admissions).
MONTHLY VARIANCE REPORTING – SEPARATING THE IMPACT OF VOLUME AND RATE

**Calculation of Salary Variances**

Salary expense contains three main variables (volume, productivity within a standard volume, and rate). The calculation, which is a bit more complex, follows:

<table>
<thead>
<tr>
<th></th>
<th>Actual</th>
<th>Budget</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inpatient net revenue</td>
<td>$5,000,000</td>
<td>$6,600,000</td>
<td>($1,600,000)</td>
</tr>
<tr>
<td>Admissions</td>
<td>1,000</td>
<td>1,100</td>
<td>(100)</td>
</tr>
<tr>
<td>Inpatient net revenue per admission</td>
<td>$5,000</td>
<td>$6,000</td>
<td>($1,000)</td>
</tr>
</tbody>
</table>

**Volume variance**
- Amount of variance due to changes in the number of patients seen

**Rate variance**
- Amount of variance due to changes in the amount received per patient

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<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Volume variance</td>
<td>(100) x $6,000</td>
<td>($600,000)</td>
<td></td>
</tr>
<tr>
<td>Rate variance</td>
<td>($1,000) x 1,000</td>
<td>($1,000,000)</td>
<td></td>
</tr>
</tbody>
</table>

**Total variance accounted for**
- ($1,600,000)

**Calculation of Supply Variances**

As with revenue and salary expense, it is essential to segregate supply variances between volume and rate (price/unit). As with the revenue variances above, the calculation is completed with just total supply expense and volume, in this example, case mix index adjusted admissions.

We should explain why case mix index (CMI) was used for supplies and not for salaries. Case mix index is a weighting of diagnostic related groups (DRGs) by Medicare. The intent of DRGs is that the groupings follow total resource utilization. As such, it includes consideration of high cost supplies in its weighting. It does not reflect severity of an illness or patient acuity. A study published by the Society for Health Systems concluded that CMI does not represent a good determining factor in utilization of salaries or FTEs. Although no recent study has been performed on the correlation between supply cost and CMI, we would argue intuitively that the
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higher the overall CMI, the more frequent and complex the surgical cases included in the CMI. This usually means increased use of expensive orthopedic and cardiac implants and supplies.

EXPLANATION OF VOLUME AND RATE VARIANCES

Once the CFO differentiates between volume and rate variances, he/she can better explain the true components of volume and rate variances. Typical examples of factors causing volume and rate variances appear in the following table.

<table>
<thead>
<tr>
<th>Category</th>
<th>Volume Variances</th>
<th>Rate Variances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue</td>
<td>• Not meeting budgeted physician recruitment goals</td>
<td>• Changes in payer mix</td>
</tr>
<tr>
<td></td>
<td>• Physicians unexpectedly leaving the Hospital</td>
<td>• Changes in case mix</td>
</tr>
<tr>
<td></td>
<td>• Not adequately budgeting physician volume variances (vacations, etc.)</td>
<td>• Unanticipated changes in managed care contracts</td>
</tr>
<tr>
<td></td>
<td>• Unanticipated changes in competition (new surgery centers, etc.)</td>
<td></td>
</tr>
<tr>
<td>Salaries and Benefits</td>
<td>• Staff productivity</td>
<td>• Average hourly rate</td>
</tr>
<tr>
<td></td>
<td>• Flexible staffing</td>
<td>• Changes in skill mix</td>
</tr>
<tr>
<td>Supplies</td>
<td>• Utilization</td>
<td>• IV to PO programs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Introduction of new technology or devices</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Unanticipated vendor price changes</td>
</tr>
</tbody>
</table>

FORECASTING FUTURE PERFORMANCE

Armed with the ability to differentiate between volume and rate variances and to understand their causes, the CFO can then reforecast the budget for the remainder of the fiscal year. For example, assume the Hospital had budgeted an increase of 10 neurosurgical cases per month over the prior year’s volume because of the anticipated recruitment of an additional neurosurgeon. During the current fiscal year, the recruitment does not occur. The CFO can forecast that, at a minimum, the Hospital inpatient volume will miss its admissions budget by ten admission per month. If the net expected reimbursement per neurological case is $6,000, then the Hospital needs to either increase net revenue by $60,000 per month (without an increase in expenses) or have a $60,000 reduction in expense to meet the budgeted operating margin.
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ACTION PLANNING

By reforecasting the remaining months through this simple-to-use tool, the CFO will manage stakeholder expectations and provide Hospital leadership with the ability to proactively develop action plans to meet annual budget goals. These action plans, both short-term and long-term, must address the causes of the variances. The plans should focus on the means by which to stabilize or grow volumes, address payer issues, or manage productivity, skill-mix, and supply selection and utilization.

SUMMARY

The Hospital often completes the budget months before the start of a new fiscal year. Accurately predicting all the revenue and expense volume and rate variables creates a significant challenge. Yet, Hospital management is held to its budget by Board of Directors, System Office, bondholders, and the community. As variances to monthly operating results occur, Hospital management must explain these variances, understand their causes, use this knowledge to predict future performance, and develop action plans to meet budgeted operating margin goals.

For additional information or assistance in understanding your Hospital volume and rate variances and/or if you would like access to IMA Consulting’s simple Microsoft Excel™ spreadsheet to assist in this process please contact Bob Gift at (484) 356-6486, Bernie Citerone at (215) 208-0346, or Rob Sutton at the IMA Consulting office (484) 840-1984.

Yours very truly,

Robert D. Sutton, Principal
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