Exemplary Professional Practice: Staffing Scheduling and Budgeting Processes

EP10  Nurses use trended data in the budgeting process, with clinical nurse input, to redistribute existing nursing resources or obtain additional nursing resources.

EP10a: Provide an example, with supporting evidence, where trended data was used during the budget process, with clinical nurse input, to assess actual-to-budget performance to redistribute existing nursing resources or to acquire additional nursing resources. Trended data must be presented.

Introduction

The primary mechanism used to acquire nurse staffing resources for the Massachusetts General Hospital (MGH) inpatient nursing units is the development of annual operational budgets. Budgets are planned to support the patient care delivery model (PCDM) which is based on interdisciplinary, patient-and family-focused, relationship-based care. Clinical nurses have the accountability and responsibility for the delivery and coordination of patient care. Inherent in the PCDM is the need for adequate levels of clinical nurses to provide quality patient care.

MGH Inpatient Staffing Model

Determining adequate operational budgets involves quantifying the primary work of a nursing unit/department which, in turn, assists in determining the required personnel, related salary expenses, and non-salary resources required to accomplish that work. At MGH, budgets are developed at the unit or cost center level. The Quadramed AcuityPlus™ Productivity, Benchmarking, and Outcomes System - Inpatient Methodology (Quadramed) is used to quantify the nursing care needs for the MGH inpatient units. Use of Quadramed data is an essential component of the budgeting process and assures that clinical staff nurses provide input, through their daily electronic data entry of patient care needs, in the determination of adequate staffing levels.

Staff from Nursing and Patient Care Services Management Systems & Financial Performance (N&PCS MSFP) support the development, implementation and management of systems to collect and analyze data necessary for decision-making regarding staffing resource allocation and utilization. Historical and trended data are used in the process of developing the direct care staffing budgets for inpatient units. As determined by the MGH Budget Office, the timeline for the budget process begins with planning and projecting in February/March. Formal submission of budgetary requests occurs in April, with subsequent negotiations and adjustments in May and June. The budget receives final approval in July or August, and is implementation in October, the start of the next fiscal year.
Utilization of Trended Data During the Budget Process

The MGH Budget Office begins the process by providing the next year’s high-level budget assumptions using trended and current performance data to project volume statistics. Operational and fiscal data sources for admissions and discharges, length of stay, and activity by service are used to identify trends and patterns in volume of services. Together with information about internal and external factors affecting the organization, these data are used to forecast overall volume in terms of expected Patient Days. Attachment EP10a.a contains the volume trends that were presented and used in the Fiscal Year 2017 (FY’17) budget process which shows that the proposed volume would have a slight increase in Length of Stay, an increase of 3.4% in “Inpatient” days, a decrease in “Observation (ATO)” and “Routine Procedure Recovery” days, resulting in a projected increase in the overall Average Daily Census (ADC) of 2.3% over FY’16. A year-to-date (YTD) trend report of the actual census by clinical service by unit is then used to establish the expected ADC for each unit for the coming year.

To further prepare for the unit-level budgets, the N&PCS MSFP compiles YTD unit-level data from Quadramed for Length of Stay Adjusted Census, Average Acuity, Hours Per Workload Index, Direct Care Shifts used per 24 Hours, and actual RN versus Non-RN Skill Mix. YTD data is analyzed to determine the difference between the Midnight ADC and Length of Stay (LOS) Adjusted Census is calculated for each unit and is used to establish the expected census that will drive the unit’s direct care staffing. The average acuity for the past several months, usually October through February, is then used with the census data to quantify the expected need for nursing care. A unit’s workload or “Workload Index,” calculated as LOS Census X Acuity, is quantified for each unit. The established target for Hours Per Workload Index (HPWI) is applied to the workload to calculate the required direct care clinical nurse and patient care associate (unlicensed assistive personnel) FTEs.

To complete the FTE calculations for a unit, N&PCS MSFP creates a summary of actual benefit time utilization based on the previous 12 months, so as to include seasonal variations and trends. This percentage is added to the calculated direct care FTEs to assure backfill staffing to cover paid time off for direct care staff. For FY’17, an average of 14.5% for clinical nurses and 8.8% for patient care associates was added to the FTE budgets to cover expected time off. A percentage of 4.5% is then added to cover the indirect time needed for orientation, education, professional development and administrative project time. The resulting data represents the total FTEs for direct care staff to be included in the budget.

During budget planning meetings, the Associate Chief Nurses provide feedback about the trended data and initial staffing calculations, including explanations of actual or expected variances. They advise the N&PCS MSFP staff as to whether or not the trended information is appropriate to use for staffing calculations. They also critically review the budget targets for RN mix and provide recommendations for desired changes. The Associate Chief Nurses share the results of the calculations using the
trended data with the Nursing Directors during the process, and Nursing Directors communicate this to clinical nurses, often discussing the expected operational change at the unit level.

This process commonly results in a unit’s staffing needs staying at a similar level as the previous year, or gaining a portion of an FTE related to the increasing acuity of inpatients at MGH. Occasionally, there are dramatic changes that require more focused attention, planning, and input from both unit-based leadership and clinical nurses. One example that resulted in mid-year staffing correction based on feedback from clinical nurses in the Cardiac Intensive Care Units is presented in TL 2a. An additional example of this process can be seen in the changes in budgeted staffing and scheduling for Respiratory Acute Care Unit (Bigelow 13) and General Medical Unit (Bigelow 9), which occurred in June 2016 and the resulting budget impact for FY’17.

**Example: Respiratory Acute Care Unit (Bigelow 13) & General Medicine (Bigelow 9)**

In early 2016, it was known that the Respiratory Acute Care and General Medical Care Unit (Bigelow 9) would separate into two units. The Respiratory Acute Care beds would move from Bigelow 9 to space vacated on Bigelow 13, which would allow and increase from 10 to 12 beds. The 18 private rooms on Bigelow 9 would then be fully devoted to General Medical Care patients, with 10 of the rooms specifically adapted with negative pressure air flow and identified as Airborne Infection Isolation rooms, as part of MGH’s designation as Region 1 “Ebola and Other Special Pathogen Treatment Center.”

N&PCS MSFP staff were asked to estimate the staffing changes that would be needed to accommodate the move to Bigelow 13, the additional medical beds on Bigelow 9, and the changes that would be expected in patient acuity and workload that would direct the staffing for both units. Working with Theresa Gallivan, RN, MSN, NEA-BC, Associate Chief Nurse for Cardiac, Medicine and Emergency Nursing Services, and Maria Winne, RN, MSN, NE-BC, Nursing Director of the Respiratory Acute Care and General Medical Care Unit (Bigelow 9), and with input from other clinical departments, a staffing budget was developed and shared with nursing and hospital leadership (attachment EP10a.b). As with the annual direct care budget process described above, this analysis used trended data from both Bigelow 9 and other general medical units to estimate the new staffing pattern. For example, the change in beds for the Respiratory Acute Care Unit (RACU) and the medical general care unit was known, but trended data for the previous two years for the percent occupancy of those beds (94% and 90% respectively) was used to develop the expected census. Further analysis was performed on the difference in acuity values for the two populations. The YTD acuity for only the RACU patients (2.680) was used in the calculations for Bigelow 13 staffing, representing a significant increase from the previous budget acuity value of 2.220, which accounted for both the RACU and general medical patient populations on Bigelow 9. Likewise, trended data for acuity from the other seven general medical units was used to help estimate the acuity value for the new medical unit, which was determined to be 1.913. As was anticipated, the calculations demonstrated a lower workload for the Bigelow 13 RACU, primarily due to the reduction in bed size, which translated to the need for 7.4 less direct care FTEs.
The calculations for Bigelow 9 demonstrated the need for an additional 33.4 direct care staff due to the increase in bed capacity, or a net increase of 26.0 FTEs.

Early on in the planning process for these two units, a proposal was made to have the Nursing Director for the Respiratory Acute Care and General Medical Care Unit (Bigelow 9), oversee both new units due to the relative smaller sizes of the two units compared with others at MGH. In addition, it was recognized that the Bigelow 9 staff was comprised of a cadre of clinical nurses with experience in caring for both patient populations. Rather than to actually reduce/eliminate clinical nursing staff on the RACU unit and hire 27.6 FTEs of new clinical nurses for the general medical unit, a decision was made to maintain one nursing staff that would be scheduled for both areas. The proposed staffing plan for the two units allowed for an immediate blend of experienced and novice clinical nurses for both areas. However, the staffing plan also required the creation of systems that would work for both units and the unified clinical staff. Winne involved clinical nurses in this planning of processes for staffing and scheduling, the development of day-to-day systems for patient care assignments, and role expectations for clinical nurses acting in the role of resource nurse to assure appropriate use of staffing resources.

**Clinical Nurse Input Regarding Resource Distribution**

On February 16, 2016, Winne and Susan Gavaghan, RN, MSN, ACNS-BC, Clinical Nurse Specialist, held an operational planning workshop that included four clinical nurses, Jill Turner, RN, BSN, Suzanne Murphy, RN, BSN, RN-BC, Nate Herron, RN, BSN, and Lauren Vaughn, RN, BSN. They discussed many topics including resource nurse communication, patient assignments, rotation of staff between the RACU and the general medical unit, the attending nurse role, patient care associate role, operations associate role, the need for duplicate resource binders and documents for each unit, and plans for staff and unit practice meetings. There was a significant focus on the need for daily clinical nurse staffing for both units that included an appropriate blend of experienced and novice staff members. The group revised the Resource Nurse Guidelines for the two units and included the new expectations for on-going communication between the two units throughout the shift (attachment EP10a.c).

Additional clinical nurses were hired in April and May 2016, a time when final decisions were being made regarding permanent hiring of eCare nurse residents. Winne was able to hire 22 clinical nurses from this group who had already been working at MGH for six to twelve months.

On June 14, 2016, the Respiratory Acute Care Unit patients moved from Bigelow 9 to Bigelow 13. Due to the construction plans for the Bigelow 9 Airborne Infection Isolation rooms, there was an incremental opening of rooms from 10 to 14 by the end of June, and the unit was not fully opened at 18 beds until January 2017. Bigelow 13 also had a slight ramp up from 10 to 12 beds for the first month due primarily to the large number of nurses who were in the process of completing unit-based orientation.
Assessment of Actual to Budget Performance

N&PCS MSFP produces weekly Workload/Productivity Reports to provide an on-going monitoring tool for nursing workload and appropriate use of direct care staffing. The report is sent to nurse leaders and nursing directors of inpatient units and includes weekly, month-to-date and year-to-date data as appropriate. The parameters established in the budgeting process are included as well as actual performance for census, acuity, workload, shifts worked in a 24-hour period, and HPWI, the key workload/productivity staffing metric. Early Workload/Productivity reports for the two units showed use of staffing that exceeded budget targets, primarily due to both having lower census than planned because of the staged opening of beds. In addition, data showed a lower patient acuity values for both units when compared to the populations before the unit changes, an unexpected factor that contributed to a lower unit workload than planned. For example, the following data was on the report for the week of July 17 through 23, 2016, approximately one month after the move, showing that actual census, acuity and workload below budget targets and the staffing metric of HPWI being significantly higher than expected:

<table>
<thead>
<tr>
<th>Serv Unit</th>
<th>CENSUS</th>
<th>ACUITY</th>
<th>WORKLOAD</th>
<th>HPWI</th>
<th>SHIFTS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Bud LOS Census</td>
<td>Act LOS Census</td>
<td>Bud Total Acuity</td>
<td>Act Total Acuity</td>
<td>Bud Total WI</td>
</tr>
<tr>
<td>Bigelow 13 RACU</td>
<td>11.2</td>
<td>10.0</td>
<td>2.68</td>
<td>2.36</td>
<td>30.1</td>
</tr>
<tr>
<td>Bigelow 9 Medical Unit</td>
<td>16.1</td>
<td>12.3</td>
<td>1.91</td>
<td>1.69</td>
<td>30.8</td>
</tr>
</tbody>
</table>

As weeks progressed, the Workload/Productivity Report continued to show an HPWI that was significantly over budget. Winne used this trended information to cancel the contract renewals for two agency RNs. She also discussed staffing strategies with the staff on both units. One change that was made involved using one Attending Registered Nurse to cover both units. The unit-based guidelines were revised to include this expectation and the decision was made to base the Attending Registered Nurse on Bigelow 9 because it was the larger unit with a higher patient turnover. Conversations also focused on the appropriateness of the usual two-patient assignments on Bigelow 13 when some patients did not require the RACU level of care. In this situation resource nurses were reminded to consider a more appropriate three-patient assignment.

In early December 2016, Gallivan called a meeting to review the issues related to staff utilization for these two units. Two N&PCS MSFP representatives attended and presented trended data for September through November showing the acuity values for both units and an estimate as to how that might impact the FY’18 budget process. In addition, N&PCS MSFP agreed to create unit-based trend graphs that Winne could use to share with the nursing staff. The graphs in attachment EP10a.d, demonstrating the Workload/ Productivity trend from October 2015 through the beginning of January 2016 for both units were provided to Winne who reviewed the information with clinical nurses serving as unit resource nurses during the week of January 9-13, 2017. Winne sent the
e-mail included in attachment EP10a.e to all clinical nurses on Bigelow 9 and Bigelow 13 on January 18, 2017 who perform as resource and attending nurses, summarizing the discussions at the staff meeting and the proposed suggestions made by the clinical nurses.

The budgeting process used for Bigelow 9 and Bigelow 13 demonstrates how trended data of various types was used to budget direct care staffing FTEs. The subsequent monitoring of actual-to-budget performance for census, acuity, workload and HPWI indicated use of staffing resources beyond budget targets. Based on this information, Winne worked with clinical nurses to adjust budgeted nursing resources, focusing on a redistribution of Attending Nurse hours and appropriate changes in patient assignments when the units’ acuity and workload were lower than budgeted.