STAFFING SERIES PART 1

CE 1.5 CONTACT HOURS

Developing a staffing plan to meet inpatient unit needs

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This article is the first in a two-part series on inpatient staffing. This month, we discuss the process for calculating the number of full-time equivalents (FTEs) you have on your current schedule and the number of FTEs needed to cover your mode (most commonly occurring) volume. Next month, we'll explore productivity, including how productivity is calculated and ideas to improve the productivity of your unit.

The staffing budget is one of the most difficult, if not the most difficult, challenges nurse leaders face in their work. Labor consumes the majority of the organization's financial resources; therefore, everyone must act responsibly to ensure financial health. Census variability is no friend to the staffing plan. It's always important to staff to volume and try to achieve having enough staff with the correct skill mix to provide quality patient care in the most cost-effective manner.

As a nurse leader, you're expected to predict or make an educated guess as to what your staffing need will be for each day. Flexing your staffing levels to actual volume is a key to your department being productive. You may be asking yourself, where do patient safety and quality care come into consideration instead of just dollars? There are several evidence-based leadership studies that prove the higher the RN-to-patient ratio, the lower the adverse outcomes for patients.[1] The successful nurse leader learns to find the right balance between quality, safety, staff satisfaction, and fiscal responsibility in providing the most effective staffing plan.

What's an FTE?

The first step to understanding the staffing budget is to understand the calculation for an FTE—an employee, or a combination of employees, who work full time (80 hours per 14-day pay period or for a total of 2,080 hours per year). You can calculate how much any one person consumes of your budgeted FTE allocation by using the following equation: hours per day the employee works multiplied by days per pay period the employee works divided by 80 hours.

Example:

- 8 hours per day × 6 days per pay period = 48 hours per pay period/80 hours = 0.6 FTE
- 12 hours per day × 6 days per pay period = 72 hours per pay period/80 hours = 0.9 FTE

A common mistake is to count the 12 hours per day, 6 days per pay period employee as 1.0 FTE. This mistake is made because these employees receive full-time benefits. Don't make this error! At this point, you aren't calculating benefits but how many hours you can expect the employee to be at the bedside providing care. The following example shows what can happen if you make this error in counting the 12-hour employee as a 1.0 FTE instead of a 0.9 FTE.

Example:

- 10 employees × 72 hours per pay period or 0.9 FTE = 9 FTEs or 720 hours per pay period
- 10 employees × 80 hours per pay period or 1.0 FTE = 10 FTEs or 800 hours per pay period

The result of the previous error would be 80 fewer hours per pay period of staff at the bedside providing care to patients. This demonstrates the importance of calculating the FTE consumed by each employee on your staffing roster to give you a very accurate account of current FTEs in the department. For some of you, your organization may have a position control system that's linked to your hiring process to easily identify how many FTEs you have in each job class. For those who don't, it's important to do this calculation by "long hand" to know exactly how many FTEs you have on your roster. You can then compare this total with the total employees needed to staff the department.

Calculating how many FTEs your unit needs

The million dollar question most nurse leaders struggle with is: "How many FTEs do I need on my position control (staffing roster) to cover my daily needs?" Although unit census may fluctuate, you must make an educated guess as to how many FTEs you need to cover the departmental needs the majority of the time and not create too many low census situations. This question leads us into the complicated discussion of units of service and what drives the intensity of staffing needs, otherwise known as hours per patient day (HPPD).

Units of service

The unit of service is the activity that determines the measurement of work in each department. (See *Table 1.*) On most inpatient nursing units, the unit of service is the midnight census. Every nurse leader struggles with the midnight census being the measurement of work for the department because it doesn't reflect the activity on the unit throughout the day (admissions, discharges, and transfers [ADT]). In next month's article, we'll discuss ADT and another formula to help you determine what this activity on the unit does to drive nurse staffing needs. It's important for you to understand and believe that the measurement of work actually does reflect the activity of the department.

Table 1: Units of service

Med-surg unit:	Midnight census
Surgery:	OR minutes
Outpatient oncology:	Treatments
Lab:	Tests run
Dietary:	Meals served
ED:	Patient visits
Maintenance:	Work orders
Presurgical/outpatient:	Patient encounters

HPPD

Determining and agreeing on how many HPPD it takes to care for your patient population is another challenging aspect of our work as nurse leaders. HPPD isn't the total number of staff needed on the unit; rather, it's a measurement of the average number of hours needed to care for each patient on the unit. Unlike the unit census, this number takes into consideration several factors that drive the need for care hours. (See *Table 2.*) Many variables affect the HPPD

needed and no one unit is exactly the same as another unit. All variables need to be considered when agreeing on the budgeted HPPD to be used for unit staffing. Benchmarking (using best practice from other facilities) is useful, but you need to ask: "Is the department with which I'm comparing my department the same?" It's clear that the nurse leader who knows his or her department, patients, functions, and staff must be involved in the determination of the correct HPPD required for his or her unit.

Determining the number of FTEs needed on a staffing roster

There are several formulas necessary to determine the number of FTEs needed on the staffing roster. At first, the process may seem complicated, but each formula builds a logical case for the staffing needed to provide adequate patient care. Having the ability to develop and defend a staffing plan that supports patient care is worth every formula. Using this logical step-by-step method will get you to how many FTEs you need on your unit and enable you to explain how you came to this number to nursing administration and the finance department.

Step 1: Determine average daily need

To determine how many staff members are required to meet the needs of the patients on the unit, you must have two points of measurement: the selected measurement of work and the budgeted HPPD required to deliver care to patients on the unit.

Table 2: Variables impacting HPPD

Patient care unit–related variances
- Number of patients
- Levels of intensity of the patients for whom care is being provided
- Contextual issues, such as the architecture/geography of the environment and technology

Patient-specific physical and psychosocial variances
- Age and functional ability
- Communication skills
- Cultural and linguistic diversities
- Severity and urgency of admitting condition
- Scheduled procedures
- Availability of social support

Unit function variances (hours worked away from the bedside; these may be considered nonproductive hours in your organization)
- Unit governance
- Involvement in quality measurement activities
- Development of critical pathways or protocols
- Evaluation of practice outcomes

Unit role variances (whose hours are included in the productive hours)
- RN
- UAP
- Student externs
- Educator
- Manager

Unit hour variances (what hours are included in your HPPD)
- Bedside care hours
- Orientation
- Education and training
- PTO

Staff-related variances
- Experience with the population served
- Level of experience (novice to expert)
- Education, preparation, and certification
- Tenure on the unit
- Level of control of practice environment
- The number of competencies and necessary learning assessment

Organization-related variances
- Effective and efficient support services
- Access to timely, accurate, relevant information
- Sufficient orientation
- Preparation specific to technology
- Necessary time to collaborate with and supervise other staff
- Support for ethical decision making
- Sufficient opportunity for care coordination
- A logical method for determining staffing levels and skill mix

Let's consider the measurement of work. Do you want to use the mean (the average), the median (the number that falls in the middle of the number set), or the mode (the most frequently occurring census point)? Consider this: A nurse leader reviewed her previous 24 days of midnight census points and finds them to be as follows:

29	27	25	20
28	27	24	20
28	27	24	20
28	25	24	17
28	25	22	16
28	25	22	15.

The mean for this number set is 23.9. If the nurse leader staffed the unit every day to the mean, there would be 16 out of 24 days where the staffing needs wouldn't be met. The median is 25. If the nurse leader staffed the unit every day to the median, there would be 11 days where the staffing needs wouldn't be met. Finally, if the nurse leader chose to use the mode to staff the unit, there would be just 1 day that the staffing need would exceed the prediction. The nurse manager must know the team and answer

the question: "Is it easier to get staff to come in when census goes up or is it easier to send staff home when census is under the predicted level?"

Once the nurse leader determines what measurement of work she's going to use, she must determine how many staff members are needed to cover that need. For this example, the nurse leader has decided to use the mode midnight census for the unit. The formula for the first step in determining staffing for an inpatient nursing unit is: Mode midnight census multiplied by budgeted HPPD equals 24-hour need.

Example: Med-Surg 2 South

Our example unit is a med-surg unit with a mode census of 30 patients and a budgeted HPPD of 9.5.

Measurement of work = 30

HPPD = 9.5

30 × 9.5 = 285 hours per 24-hour period needed

Step 2: Calculate productive hours

Now that the nurse leader knows how many staff hours are needed to provide 24 hours of care, it's necessary to determine the shifts per 24 hours using the following formula: 24-hour need divided by productive hours per shift.

Example: Med-Surg 2 South productive hours

- 12-hour shift model: 285 hours/12 productive hours = 23.8 12-hour shifts
- 8-hour shift model: 285 hours/8 productive hours = 35.63 8-hour shifts

Step 3: Allocate FTE to shifts and skill mix

Skill mix is a term used to describe the different levels of qualified staff working on the unit. On most inpatient units, this includes the manager, RN, LPN/LVN, unlicensed assistive personnel (UAP), and unit secretary. Evidence-based research has proven that a skill mix higher in RNs results in improved patient outcomes.[1] Measurements of patient outcomes include patient falls, medication errors, infection rates, patient and family complaints, and deaths. With that understood, you must also be responsible for providing care on the unit at the lowest cost possible while maintaining the quality desired. Understanding patients' acuity level, or severity of illness, and the kinds of procedures performed on the unit will help you make an accurate plan for the skill mix needed. A staffing plan that optimizes each staff member's ability to practice at the top of his or her skill level will lead to quality patient care and fiscal responsibility.

Determining the percentage of staff on each shift is based on the work distribution of the unit. A high-acuity unit, such as a CCU, is more likely to have a flatter, or more equal, need for staff members on each shift. On a CCU, the nursing care required is consistently high and doesn't vary greatly among days, evenings, and nights. Medical-surgical units, however, have a greater need for staffing during daytime hours when meals, a.m. care, physician rounding, activity orders, and patient education needs are being met. Imperative to staffing plan success is your knowledge of how the unit functions, the routine of the physicians, and the needs of the patient population to determine the proper ratios for each shift.

Let's go back to our example unit, Med-Surg 2 South. Step 2 demonstrated that the nurse leader needs 23.8 12-hour shifts in a 24-hour period. Step 3 requires the nurse leader to take the 23.8 shifts and allocate them to the desired shift and skill mix. In order to meet the needs of the patient population, the nurse leader has determined that the unit requires 60% day shift and 40% night shift. She's also determined that the patients can be best cared for by a skill mix of 60% RNs, 30% UAP, and 10% unit secretaries.

The manager for this unit must also be considered in the staffing plan. Starting with the 23.8 FTE shifts previously determined, the

Figure 1: Allocate FTEs to shifts by skill mix

23.8 –1.0 = 22.8 12-hour shifts

	%	Manager	RN 60%	UAP 30%	Unit secretaries 10%
Day (13.7)	60	0.5	8.2	4.1	1.4
Night (9.1)	40	0.5	5.5	2.7	0.9
Totals		1	13.7	6.8	2.3
					Total = 48.8 FTEs

nurse leader first subtracts the manager's FTE from 23.8, leaving the total at 22.8. Then she multiplies 22.8 by the percentage needed per shift. For example, if she needs a total of 22.8 FTE shifts and she wants 60% of that coverage on the day shift, the formula is 22.8 multiplied by 0.60 equals 13.7. These numbers tell the nurse leader how many clinical FTEs that she can have for each shift and stay in budget. (See *Figure 1.*)

Now that the nurse leader knows how many FTEs are needed for each shift, she continues with the math to determine the number of FTEs in each skill mix. This number is calculated by taking the number of FTEs per shift determined previously and multiplying by the percentage, in decimals, as desired in each skill mix column: 13.7 FTEs on days multiplied by 0.6 RN skill mix equals 8.62 FTEs of RNs on day shift.

At this point, minor adjustments can be made by the nurse leader. For example, she's decided to take the secretary position completely off of the night shift and added that fraction of an FTE onto the RN night shift. This determination is made because the nurse leader knows that there aren't many secretarial activities from 7 p.m. to 7 a.m., but 5.5 FTEs of RNs is too little to care for the mode census on nights. The total number of 23.8 FTEs doesn't change. (See *Figure 2.*)

Figure 2: Make adjustments as needed

	%	Manager	RN 60%	UAP 30%	Unit secretaries 10%
Day (13.7)	60	0.5	8.2	4.1	1.4
Night (9.1)	40	0.5	**6.4**	2.7	**0**
Totals		1	14.6	6.8	1.4

Total = 23.8 FTEs

Figure 3: Consider days to staff

23.8 12-hour shifts

	%	Manager	RN 60%	UAP 30%	Unit secretaries 10%
Day	60	1.0	17.2	8.6	2.9
Night	40	0	13.4	5.7	0
Totals		1.0	30.6	14.3	2.9

Total = 48.8 FTEs

Step 4: Consider the number of days to staff per week

The staffing plan for our example unit, Med-Surg 2 South, is complete if this unit is only open 5 days per week. Not likely for an inpatient unit! What does the need for 7 days per week coverage do to the demand for additional FTEs on the staffing plan? Examine the following equation: number of FTEs needed multiplied by hours worked per day multiplied by days to staff divided by 40 hours per week per FTE equals number of days to staff per week. The result of the equation is the number of FTEs the nurse leader needs on each shift and in each skill mix to cover the mode census 7 days a week and 24 hours a day.

Using the same example unit, let's look at the table for staffing, now with each job class that's needed 7 days per week. Note: The manager FTE doesn't change because this position isn't often replaced on the weekends. (See *Figure 3.*)

Step 5: Account for productive and nonproductive time

Productive hours are hours spent in the department doing the assigned work for your role. Nonproductive hours are hours that may still be paid, but aren't spent on the unit performing the usual role. Some examples of nonproductive hours are education time, vacation time, bereavement leave, and Family Medical Leave Act (FMLA) leave. There's no standardization in the industry for whether nonproductive hours are coded as productive or nonproductive. Some organizations allow hourly staff to code these hours separately in the payroll system and don't include them in productive time. If your organization allows nonproductive hours to be coded separately, it makes it much easier to determine if needed productivity improvements are related to worked hours (productive hours)

or nonproductive hours. It's important to know what your organization allows, especially when comparing your HPPD with another group.

Accounting for productive and nonproductive hours in the staffing plan allows staff members who've accrued paid time off (PTO) hours to take a vacation. This planning also means that the staff members who are left behind working aren't overworked to compensate for the employees who are on vacation. This results in staff satisfaction.

In most organizations, the human resources department can give you an average percent of nonproductive time as compared with productive hours worked. Some nurse leaders use this organizational average and add it onto the staffing plan developed by steps 1 through 4. However, not every unit is alike; it's recommended that you calculate the nonproductive percentage for your individual department once a year at budget time to determine the exact number. For example, on a CCU that has many employees who are in their childbearing years, the nonproductive percentage may be higher than the hospital average due to staff members taking advantage of FMLA leave. Use historical data during the budget process to give you clear data on which to base nonproductive percentage assumptions.

To determine the nonproductive time used for the previous 12 months, review the payroll report totals for the previous 12-month period. Add up the totals for all hours, paid or unpaid, that weren't spent at the bedside providing patient care. Once you know how many hours were nonproductive for the last year, you need to divide the total nonproductive hours by the number of FTEs who need to be replaced if they aren't at work. Mainly, the total number of FTEs needed per week, excluding the manager. Examine the following equation: total number of nonproductive hours divided by number of clinical FTEs who are replaced if they aren't at work equals hours per FTE lost to nonproductive time.

To determine the impact that this nonproductive time has on the staffing demand, divide the average number of nonproductive hours per FTE by 2,080 hours (number of hours one FTE would work in 1 year without taking any time off). The resulting number is the percentage of lost time. Note: Because fixed positions, such as managers and clinical educators, often aren't replaced when on PTO, their FTE isn't considered in this step. Also, their PTO hours aren't included in the department's total PTO hours.

Example: Med-Surg 2 South

Hours per FTE lost to nonproductive time

13,480 nonproductive hours/47.8 FTEs = 282 hours

Percentage of lost time

282/2,080 = 14% nonproductive time

To complete step 5, take the plan from step 4 and add the nonproductive percentage into each position that needs replacement for PTO time. In our example, that means adding 14% to each clinical job class. (See *Figure 4*.) The completion of step 5 gives you complete information, based on budgeted HPPD and historical data, to build a solid staffing plan for success.

Our example unit started with a mode census of 20 patients and a budgeted HPPD of 9.5. To staff this unit 24 hours per day, 7 days per week and account for nonproductive time, the nurse leader needs 55.5 FTEs on the staffing roster.

Figure 4: Add percentage of nonproductive time

	%	Manager	RN 60%	UAP 30%	Unit secretaries 10%
Day	60	1.0	19.6	9.8	3.3
Night	40	0	15.3	6.5	0
Totals		1.0	34.9	16.3	3.3

Total = 55.5 FTEs

Reality check

Although this process is logically and mathematically sound, many nurse leaders will still have difficulty getting this level of staffing approved. Words of advice: It's still important and necessary to go through these

steps. This prepares you to enter budget meetings with a full understanding of how many FTEs are needed and be confident during negotiations.

Join us next month when we discuss productivity and ideas to keep your department in a productive mode. NM

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