APPENDIX F:

POST-ANESTHESIA CARE STAFFING SYSTEM

This Appendix contains sections that correlate to major components of the PACU model.

TERMS:

PACS - POST-ANESTHESIA CARE SYSTEM
PACU - POST-ANESTHESIA CARE UNIT

NOTE: THE PACS CURRENTLY SERVES AS THE FOUNDATION FOR MANPOWER REQUIREMENTS DETERMINATION IN THE POST-ANESTHESIA CARE UNIT.

SECTION I: Purpose of PACS

PACS was developed to provide (a) an acuity based method of determining nurse staffing needs and (b) a method of evaluating the work process in the Post-anesthesia Care Unit.

SECTION II: Measuring Nursing Workload

Nursing workload is measured in nursing care hours and includes both direct and indirect care time. Direct care time refers to patient care activities performed in the presence of the patient.

Indirect care time includes time spent performing nursing activities away from the patient in support of patient care or unit management. Indirect care time most often reflects administration, communication, conferences, documentation and clerical support, the environment, patient support, supplies, travel and transportation. In PACS, indirect care time also includes personal, fatigue, and delay time--such as time spent waiting for patients. An indirect care formula is used to calculate indirect care time.

SECTION III: Recording Patient Volume Information

1. Because of the high correlation between the volume of post-anesthesia patients and workload, the only reporting requirement of the PACS is the volume of patients and the categories of anesthesia. The volume is separated into two primary categories: 1) the number of patients recovered who received general and/or spinal/regional anesthesia and 2) the number of patients recovered who received **only** local or sedation anesthesia. The first category is reported in the PACS module under the general anesthesia column while the second category is reported under the local anesthesia column.

2. These instructions are for recording patient volume information on PACU patients who receive routine post-anesthesia care from PACU nursing staff. **Patient volume information needs to be recorded separately for patients who receive post-anesthesia care from other than PACU staff.**

a. Separate columns need to be provided so that patient volume can be reported by the number of patients per day who receive the two primary categories of anesthesia. (Figure F-1)

(1) The first column is used to record the volume of patients who received general and/or regional/spinal anesthesia.

(2) The second column is used to record the volume of patients who received local anesthesia and/or sedation. In this column, record patients who received only local anesthesia and/or sedation.

b. For recording purposes, each day begins at 0001 and ends at 2400 hours. Record each patient visit in the PACU only once even if the visit extends past midnight. A patient visit is defined as an episode of care that includes admission to the PACU, an initial assessment, routine post-anesthesia care, and discharge to another unit.

c. If a patient begins surgery under IV sedation or local anesthesia but eventually receives general anesthesia, you should select the more complicated anesthesia. In these cases, the patient would have his anesthesia recorded under the general anesthesia column.

d. It is not uncommon for patients to be recovered in a variety of areas beyond the recovery room and by a variety of different types of staff. (This most often occurs for patients who receive surgery after PACU normal duty hours.) Regardless of recovery location or the staff who recovers them, the entire volume of post-anesthesia recovered patients must be entered into the PACS. The staff involved in performing the recovery rather than the location of the recovery, determines where the data is to be recorded in the system. All patients who are recovered by PACU staff, regardless of location, must have their volume entered into the columns marked for PACU staff. Conversely, all other "consolidated" patient recovery data is recorded on the sheet and columns marked for Non-PACU staff.

3. Local policy should determine the length of time that PACS data should remain at the Medical Treatment Facility (MTF), however, it should remain on site long enough to assist with the assessment of the adequacy of staffing during a JCAHO review.

4. Unless specifically requested, it is no longer necessary to routinely submit PACS data to any organization beyond your MTF.

Figure F-1. Patient Volume Worksheet Example

Date	General & Regional/ Spinal Patients	Local/ Sedation Patients	Date	General & Regional/ Spinal Patients	Local/ Sedation Patients
1			17		
2			18		
3			19		
4			20		
5			21		
6			22		
7			23		
8			24		
9			25		
10			26		
11			27		
12			28		
13			29		
14			30		
15			31		
16					

*** Separate columns or worksheets are needed for PACU Staff and non-PACU staff**

SECTION IV: Calculating Staffing Requirements

Staffing Profile

The staffing profile is a description of the number, skill mix, and shift distribution of nursing personnel to schedule on a daily basis. The staffing profile refers to the variable nursing staff--those staff whose primary responsibility is to provide nursing care to patients. The number of variable staff needed depends upon the workload. Fixed nursing staff are those staff whose need is recognized regardless of variation in workload. These staff have primarily an administrative role. The head nurse, wardmaster, and ward clerk are fixed staff. Fixed staff are earned at specific staffing thresholds. (Refer to Table F-1)

(Monthly PACU NCHs divided by 145 hours = FTRs)

2. Determination of Fixed Staff: Once the variable staff is determined, you will need to make the determination of the corresponding fixed staff. In order to determine fixed staff requirements, you must apply the FTRs earned in step 1 to the requirements listed in Table F-1. An explanation of Table 2 follows:

a. Table F-1. Discussion: When the average of staffing is less than 2.5, the staff serve both as the fixed staff--i.e., the head nurse and/or wardmaster--and the variable staff. When the average of the staffing is 2.5 - 3.4, a wardmaster is added and separated out from the variable staff. In this case, 1 paraprofessional staff member is needed in addition to the number of staff indicated by the staffing range. When the average of the staffing range is 3.5 or more, both a head nurse and wardmaster are added and separated out from the variable staff. In these cases, 1 professional and 1 paraprofessional staff member are needed in addition to the number of staff indicated by the staffing requirements. Additionally, a ward clerk may be needed when the workload is sufficient to generate a need for 6.5 or more **variable** nursing staff per day.

3. The determination of manpower requirements should be accomplished by computing the average monthly workload for the most recent twelve months. Using a twelve month average ensures that the normal ebb and flow cycles of workload, that are inherent in all MTFs, are accounted for in the data. However, if some condition, such as construction, occurs within the medical treatment facility that artificially changes workload during that reporting period, the effected month or months may be excluded from consideration. However, it is not permissible to arbitrarily exclude selected months from the workload average

calculations just because a month or months displays unusually low workload.

*** NOTE: PACU staffing is based upon PACU workload and effort. Non-PACU recovery data is presented to give the MTF the complete picture of post-anesthesia workload that is being performed throughout the MTF.**

Table F-1
Recommendations for number of professional and paraprofessional fixed staff positions to add to the staffing range

AVERAGE OF STAFFING RANGE [1]	ADDITIONAL PROFESSIONAL STAFF (RN)	ADDITIONAL PARAPROFESSIONAL STAFF	CLERK
1-2 (1 - 2.4)			
3 (2.5-3.4)		1	
4-6 (3.5-6.4)	1	1	
≥7 (≥ 6.5)	1	1	1

[1] Average of Staffing Range is rounded to nearest whole number. Actual values of the average staffing range before rounding are in parentheses.

Skill Mix

Skill mix refers to the proportion of professional to paraprofessional nursing staff needed to provide patient care. It is recommended that a minimum of 50 percent of the variable staff scheduled daily should be registered nurses. This would give a professional : paraprofessional skill mix of 50:50. The recommended LPN/91C : Nursing Assistant/91B skill mix is 60:40.

Shift Distribution

Shift distribution refers to the manner in which nursing personnel are scheduled to work different shifts throughout the day. In general, the number of patients in a PACU gradually increases--stays at a high level for a period of time--and then gradually decreases throughout the day. The time period during the day with the greatest patient volume varies from one PACU to another.

PACUs need staggered shifts that best cover their typical

daily workload pattern. Staggered shifts permit most nursing personnel to work during the period of the day with the greatest workload. The recommended skill mix should be maintained throughout the day, with at least one professional and one paraprofessional staff member on duty whenever patients are in the PACU. Figure F-2 demonstrates one example of a possible daily PACU workload pattern and the corresponding shift distribution.

This workload distribution can be determined by estimating the average number of patients in the unit for each hour of the day that the PACU is open. In order to calculate these averages, the head nurse first gets an hourly count of the number of patients in the PACU. Once each hour (e.g., at 0730, 0830, 0930, 1030 hours, etc.) the nurse counts the number of patients in the unit. At the end of a 2 to 3 week period, the nurse calculates the average of each hourly count. The pattern of the typical distribution of daily workload will be evident.

Adjustment Method

The adjustment method is the procedure used to increase or decrease the number of staff during periods of the day when there are changes in the typical daily workload pattern. Nurses continuously review their operating room schedule throughout the day to identify changes in the workload pattern. They use their clinical judgment to determine the point at which the number and type of increased or decreased patients expected in the unit requires an adjustment of the staff.

For example, if several operating rooms have more than the usual number of short cases scheduled first on the operating room schedule, there will be an increased number of patients to recover in the PACU during a short period of time in the morning. Staff are adjusted for short periods of increased or decreased workload (a) by changing a shift to start earlier or later so that more staff are present during the time of increased workload and (b) by the head nurse and wardmaster helping with patient care.

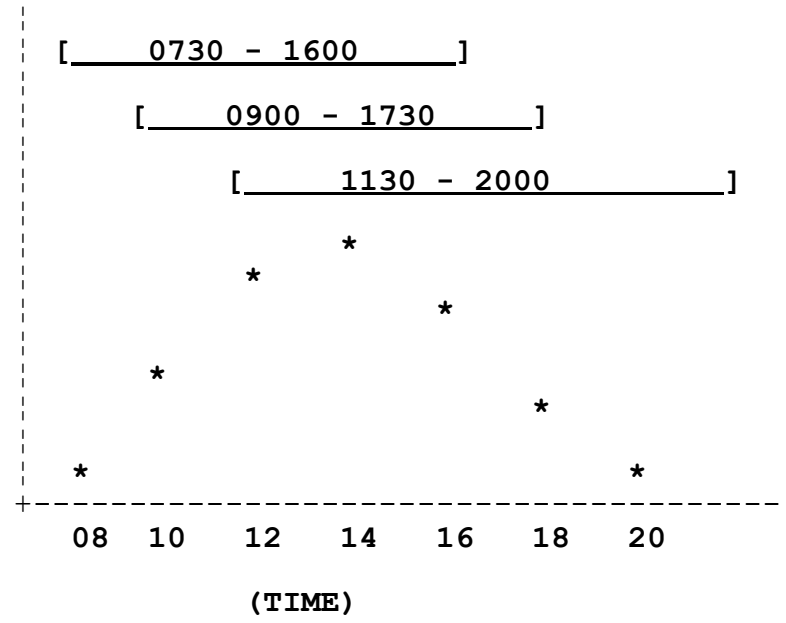
Workload Not Captured by the PACS

Occasionally, PACUs perform missions beyond traditional post-anesthesia care. Patients who are in the PACU for other than routine post-anesthesia care generate workload for the PACU that is **not** captured by the PACS. Head nurses who manage PACUs with this circumstance should analyze the possible need for additional staff (not identified by the PACS) to perform the mission beyond that of normal post-anesthesia recovery.

a. Remain Overnight patients (RONs) are those patients who are identified to remain overnight for postoperative care in the PACU from the day of their surgery until the following morning. These patients may be counted once on the patient volume worksheet to account for the workload involving their routine post-anesthesia care. However, the workload resulting from their extended post-operative care in the PACU is **not** captured by the staffing system.

b. Same Day Surgery (SDS) patients are counted once on the patient volume worksheet to account for the workload resulting from their routine post-anesthesia nursing care. However, workload generated by SDS preadmission, preoperative, or extended postoperative care is **not** captured by PACS.

Figure F-2. Shift Distribution of Patients & Staff



SECTION V: Quality Management of PACS

All PACU nursing staff need to be instructed in the procedure for recording patient volume information. All nursing staff members may identify patients on the operating room schedule who are admitted to the PACU and record the type of anesthesia each patient had.

One nursing staff member should be designated as the unit recorder. The recorder is responsible for recording patient volume by anesthesia type on a patient volume worksheet and for entering this information into the automated system.

At least once each month, the head nurse--or another registered nurse who the head nurse designates as an auditor--checks one day's records of patients recovered in the PACU. The auditor identifies the accuracy of the patient volume and type of anesthesia for each patient by comparing (a) the patient volume worksheet, and (b) the standard operating room forms (DA 4107) that identify patients seen in the operating room and the type of anesthesia they received. (A patient log book may be substituted if form DA 4107 is not maintained in the PACU.)

A 100 percent agreement between these three sources of information is expected. If 100 percent agreement is not attained, nursing staff need to be given additional instructions in the collection of patient volume information. After the auditor provides the staff with the necessary training, the audit needs to be repeated until 100 percent agreement is attained.

SECTION VI: Formulas for PAC Nursing Care Hours

A. Nursing Care Hours by PACU Staff

1. Direct care nursing hours for patients who received General anesthesia and/or Regional/Spinal anesthesia.

(Y1) is the direct care hours per day for these patients

(0.485687) is the constant

(X1) is the number of patients

Formula: Y1 = 0.485687 + [0.694732 (X1)]

2. Direct care nursing hours for patients who received Local anesthesia and/or Sedation.

(Y2) is the direct care hours per day for these patients

(0.124070) is the constant

(X2) is the number of patients

Formula: Y2 = 0.124070 + [0.419431 (X2)]

3. Y3 is the total direct care hours per day for all patients

Formula: Y3 = Y1 + Y2

4. To obtain the total nursing care hours (NCH) per day for all patients multiply the total direct care hours (Y3) by the Indirect Care Multiplier (ICM).

Formula: Y3 * 4.31

B. Nursing Care Hours for Non-PACU Staff

a. Non-PACU Nursing Care Hours are based upon direct care hours.

Formulas are the same as steps 1, 2, & 3 above.

Step 4 is not applied for Non-PACU staff.

NOTE: When calculating the PACS by hand, the answer will be slightly different than the computer. The

computer rounds the PACS formulas at the 3rd place.