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A COMPARATIVE ANALYSIS OF NURSING MANPOWER REQUIREMENTS: TRADITIONAL STAFFING METHODOLOGY VS. PATIENT CLASSIFICATION SYSTEM AT MADIGAN ARMY MEDICAL CENTER

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In Partial Fulfillment of the

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of

Master of Health Administration

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As of mid-1983, it was estimated that approximately 1,000 civilian hospitals in the U.S. utilized some form of a patient classification system to assist with nurse staffing, productivity monitoring, and budgeting justification. Several of these systems had been developed for use within Army MTFs, but no system was promulgated for Army-wide use. Manpower requirements for Army MTFs are determined by applying staffing guidelines developed for various functional areas. For nursing service units, average daily occupied beds represent the principal quantitative yardstick employed in determining manpower staffing levels. This does not conform with JCAH standards. This study compares and contrasts these two methods for determining nurse staffing and ascertains the cost in terms of manpower requirements generated by each system.

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TABLE OF CONTENTS

ACKNOWLEDGEMENTS ii

LIST OF TABLES v

LIST OF ILLUSTRATIONS viii

CHAPTER

I. INTRODUCTION 1

Background Information 2
Conditions Which Prompted the Study 5
Statement of the Problem 7
Purpose of the Study 8
Objectives 8
Criteria 9
Assumptions 9
Limitations 10
Literature Review 10
Research Methodology 23

FOOTNOTES 26

II. DISCUSSION 30

FOOTNOTES 53

III. CONCLUSIONS & RECOMMENDATIONS 54

APPENDIX

A. Madigan Army Medical Center Acuity Based Care Patient Categorization Policy 60

B. Nursing Activity Work Sample Survey Instrument and Definitions 69

C. Development of Nursing Personnel Requirements With AMEDD Staffing Guide Criteria 74

D. Nursing Activity Work Sample Survey Observations 89

E. Selected Examples of Acuity Based Care Daily and Monthly Reports 103

F. Development of Personnel Requirements For Direct Patient Care By Ward 107

APPENDIX (Cont'd)

G. Development of Nursing Personnel Requirements With MAMC Patient Classification System Criteria and Allowance for Indirect and Nonproductive Time 122

H. Selected Statistics and Utilization Ratios 126

SELECTED BIBLIOGRAPHY 131

LIST OF TABLES

TABLE

1. Factors/Variables Affecting Nurse Staffing Determinations . . . 12

2. Nursing Staff Assignment Based on a Patient Classification System 16

3. Nursing Personnel Requirements (FTEs) Developed With Staffing Guide Yardstick and Documented Local Appraisal Factors 32

4. Nursing Activity Work Sample Survey, 7-13 June 1983, Observation Schedule 34

5. Nursing Activity Work Sample Survey, All Personnel 35

6. Nursing Activity Work Sample Survey, RN Personnel 35

7. Nursing Activity Work Sample Survey, LPN Personnel 36

8. Nursing Activity Work Sample Survey, Nursing Assistant Personnel 36

9. Average Daily Nursing Staff Required to Provide Direct Patient Care as Determined by Patient Acuity Categories, April 1982 - March 1983 38

10. Patient Classification Distribution By Ward, Percent by Category, April 1982 - March 1983 39

11. Adjustment Factors to Convert Direct Care Requirements to FTEs 40

12. Nursing Full Time Equivalents by Ward Required for Staffing, Based on Average Patient Acuity Categories 41

13. Comparison of FTEs/Requirements Based on AMEDD Staffing Guide and MAMC Patient Classification System 42

14. Comparison of RN FTEs Per 100 Average Daily Census 49

15. Comparison of LPN FTEs Per 100 Average Daily Census 50

16. Comparison of RN FTE Per 100 Average Daily Adjusted Census 50

17. Comparison of LPN FTE Per 100 Average Daily Adjusted Census 50

18. RN/LPN FTE Expense Per 100 Average Daily Census 51

19. Authorized RN/LPN FTEs Per 100 Average Daily Census 52

20. Pediatric Care (Ward 1), Average Daily Staff Required Per Month to Provide Direct Patient Care as Determined by Patient Acuity Classification 108

21. Maternity Care (Ward 2), Average Daily Staff Required Per Month to Provide Direct Patient Care as Determined by Patient Acuity Classification 109

22. Newborn Nursery (Ward 3), Average Daily Staff Required Per Month to Provide Direct Patient Care as Determined by Patient Acuity Classification 110

23. Newborn Intensive Care Unit (Ward 3A), Average Daily Staff Required Per Month to Provide Direct Patient Care as Determined by Patient Acuity Classification 111

24. Minimal Care (Ward 5), Average Daily Staff Required Per Month to Provide Direct Patient Care as Determined by Patient Acuity Classification 112

25. Pre-Operative Care (Ward 7), Average Daily Staff Required Per Month to Provide Direct Patient Care as Determined by Patient Acuity Classification 113

26. Intermediate Surgical Care (Ward 9), Average Daily Staff Required Per Month to Provide Direct Patient Care as Determined by Patient Acuity Classification 114

27. Intensive Care Unit (Ward 10A), Average Daily Staff Required Per Month to Provide Direct Patient Care as Determined by Patient Acuity Classification 115

28. Moderate Surgical Care (Ward 11), Average Daily Staff Required Per Month to Provide Direct Patient Care as Determined by Patient Acuity Classification 116

29. Moderate Surgical Care (Ward 13), Average Daily Staff Required Per Month to Provide Direct Patient Care as Determined by Patient Acuity Classification 117

30. Psychiatry (Ward 17), Average Daily Staff Required Per Month to Provide Direct Patient Care as Determined by Patient Acuity Classification 118

31. Coronary Care Unit (Ward 19A), Average Daily Staff Required Per Month to Provide Direct Patient Care as Determined by Patient Acuity Classification 119

32. Intermediate Medical Care (Ward 20), Average Daily Staff Required Per Month to Provide Direct Patient Care as Determined by Patient Acuity Classification 120

33. Moderate Medical Care (Ward 21), Average Daily Staff Required Per Month to Provide Direct Patient Care as Determined by Patient Acuity Classification 121

34. RN Full Time Equivalent Staffing Required for Direct/Indirect Care and Nonproductive Time Based on Average Patient Acuity Categories 123

35. LPN/91C Full Time Equivalent Staffing Required for Direct/Indirect Care and Nonproductive Time Based on Average Patient Acuity Categories 124

36. NA/91B Full Time Equivalent Staffing Required for Direct/Indirect Care and Nonproductive Time Based on Average Patient Acuity Categories 125

LIST OF ILLUSTRATIONS

FIGURE

1. Evolution of Methodologies for the Study of Nurse Staffing; Application of Logic and Increases in Abstractions to Problem Resolution 13

2. Nursing Workload Analysis: "Strategic" System 14

3. Conceptual Model of the Relationship of the Army Manpower System and MAMC Patient Classification System to Administration in the Department of Nursing 55

CHAPTER I

INTRODUCTION

Today, health care managers are faced with increasing governmental regulation, heightened competition, inflation, and significant efforts to restructure the hospital finance system to a prospective payment/ reimbursement model. Energy is being directed to improve the relationship between the level of resources consumed and the level of service provided. Inherent in this productivity enhancement action is an intense effort to understand and contain health care costs that affect all activities within a hospital.

Generally, the nursing activity of a hospital comprises the largest single grouping of hospital staff and is one of the most significant cost centers, accounting for approximately 23 percent of a hospital's total cost. Nursing is a labor intensive hospital function, with salaries constituting over 90 percent of the departmental budget.[1] It follows that the nurse-staffing system utilized by a hospital represents an important management tool for monitoring performance as well as forecasting and controlling costs.

During the past three decades hospitals have actively designed and implemented inpatient classification systems to assist with nurse staffing, productivity monitoring, and budget justification. Recent estimates indicate that approximately 1,000 hospitals (20 percent of accredited facilities) in the United States utilize some form of a patient classification system.[2] Interest in this area has been promoted

by the Joint Commission on Accreditation of Hospitals (JCAH). The interpretation of Nursing Services Standard III states that "the nursing department/service shall define, implement, and maintain a system for determining patient requirements for nursing care on the basis of demonstrated patient needs, appropriate nursing intervention, and priority of care."[3]

Background Information

Patient classification involves the categorization of patients based on observable or presumed characteristics. Traditional classifications have been based on medical diagnosis, age, and sex. Within nursing the term refers to "the categorization of patients according to some assessment of their nursing care requirements over a specified period of time."[4] The immediate aim of this grouping is to assist with determining requirements and assignments for nursing personnel. A patient classification system then "refers to the identification and classification of patients into care groups or categories, and to the quantification of these categories as a measure of nursing effort."[5]

Although the concept of utilizing a patient classification process to predict nursing care requirements has been actively developed within the past thirty years, the basic concept dates back at least to Florence Nightingale.[6] At that time early classification effort culminated with patients classified as more seriously ill being placed closer to the ward nurse's desk for observation. A 1922 study by the New York Academy of Medicine reported that five hours and four minutes of nursing care

per 24 hour period was deemed adequate care. However, none of the New York City hospitals reached that level of care.[7]

In 1936 the first published nurse staffing guidance for hospital administrators and nursing directors was released by the National League of Nursing in conjunction with the American Hospital Association.[8] The publication included data and guidelines pertaining to the average number of bedside nursing hours per patient day for eight different age and disease categories; the preferred ratio of graduate nursing hours to student bedside hours; the number of patients per day for nurses and orderlies; and sample job descriptions for nursing personnel. This group also recommended further study to determine appropriate nursing hours for other patient categories.[9]

In the 1950s there was a shift in emphasis from assessing the stage of illness to assessing the services required.[10] Two basic types of classification instruments have emerged in the nursing arena and have been identified as "prototype evaluation" and "factor evaluation" instruments.[11] Although both seek the same end, the difference relates to the design of the assessment device. Prototype evaluation places the patient into one of several mutually exclusive and exhaustive categories. Factor evaluation assesses a number of specific elements of care and results in a composite score or rating to identify the appropriate amount of care required. The two types are also referred to as "subjective" and "objective" instruments, although in the case of the latter the state-of-the-art has not yet progressed to absolute objectivity.[12]

The goal of patient classification is to identify the nursing care needs of patients and match these needs to available nursing resources. This entails development of an estimation of nursing time for tasks associated with different patient categories. As a patient's needs change, the level of nursing care provided can be commensurately adjusted. Studies have indicated that shifts in patient demands occur independent of the number of patients on a ward.[13] However, this does not hold true for units such as an intensive care ward where nursing care requirements are relatively constant. Nevertheless, the variability is such that the number of patients on a ward may not be an accurate indication of the amount of nursing care required.[14]

The U.S. Army has been a forerunner in the development of patient classification methodology.[15] Research conducted in several Army medical treatment facilities between 1951 and 1955 resulted in the development and employment of a four category prototype scale. Elements influencing nursing care consisted of (1) nursing procedural requirements, (2) physical restrictions, (3) instructional needs, and (4) emotional needs. Patients were categorized into one of the following groups:[16]

<u>Patient Category</u>

Category A:	Intensive Care
Category B:	Moderate Care
Category C:	Minimal Care
Category D:	Supportive Care

This methodology enabled estimation of nursing requirements by classifying patients into one of the categories and multiplying by a factor representing average hours of care for each group. The time factor was derived by studies of nursing tasks associated with each category.[17] Although the Army did not implement this system to develop staffing requirements, it did represent a significant advancement in the process of patient categorization and has served as a model for subsequent work in the area.[18]

Since the latter 1950s, research and proliferation of patient classification systems have steadily increased. The primary goal in developing this methodology has been to enable nursing administrators to determine appropriate staffing levels based on objective data. Other advantages realized are:

- planning nursing assignments
- effective personnel utilization
- improved patient billing systems
- patient placement
- admission scheduling
- budgeting and planning
- productivity monitoring[19]

Conditions Which Prompted the Study

Although several patient classification systems have been developed within various Army medical treatment facilities, no one system is

currently promulgated Army wide. Manpower requirements for Army Medical Department (AMEDD) treatment facilities are determined through application of Army developed staffing guidelines for various functional areas.[20] Quantitative yardsticks are used extensively. For nursing service units, average daily occupied beds represent the principal quantitative yardstick employed to determine manpower staffing levels. This procedure does not conform to the Joint Commission on Accreditation of Hospitals Nursing Service Standard III requirement for use of a patient classification system;[21] more importantly, it does not provide manpower managers with a barometer to assess patient needs in establishing staffing levels.

The Army Medical Department is genuinely concerned with this situation. Several studies to develop a patient classification system have been accomplished. In 1982 a civilian consultant, Health Management Systems Associates, was contracted to review and analyze two Army systems for possible implementation throughout the AMEDD. Recommendations included adoption of a single patient classification system developed from the best parts of each methodology, as well as design of supporting programs for implementation.[22]

One of the patient classification systems evaluated in the aforementioned study has been utilized at Madigan Army Medical Center (MAMC) since 1981. The system employs a concept referred to as "acuity based care" to provide nursing care through better utilization of staff. With this system each patient is assessed daily, utilizing a classification

tool to determine direct nursing care hours required. Direct care refers to the time spent performing tasks in the presence of the patient. Preparation and tear down time for patient specific tasks are included in the MAMC standard. Wards are identified as Intensive Care, Intermediate Care, Moderate Care, and Minimal Care to correspond to patient acuity categorizations. Patients are assigned to wards according to care required. Nurse staffing is then determined according to the categories of patients on the wards.[23] A description of the MAMC patient classification system is contained at Appendix A.

The demand for nursing resources documented by the MAMC patient classification procedure had not been evaluated against the Army staffing guidelines in determining aggregate medical center nursing requirements as well as the resultant mix of professional and paraprofessional personnel. The general perception was that although both methodologies purported to determine the minimal staff necessary for adequate care, resource requirements developed with patient classification criteria exceeded those derived under the traditional average workload method. Since the implementation of an Army-wide patient classification system appears plausible, the potential manpower and fiscal impacts resulting from such an action warranted a comparison.

Statement of the Problem

The problem was to determine if a significant difference exists between the number and mix of nursing personnel required to achieve

minimum staffing levels developed from the Staffing Guide for U.S. Army Medical Department Activities, as compared to the Acuity Based Care system at Madigan Army Medical Center, Tacoma, Washington.

Purpose of the Study

The purpose of this study was to compare the two methods for determining nurse staffing and ascertain the cost in terms of manpower requirements generated by each system.

Objectives

The objectives of this study were to:

1. Update local requirements for inpatient nursing personnel based on staffing guide criteria. Since the last Health Services Command Manpower Survey was conducted in 1979, this adjusted the recognized staffing level in line with the current published yardstick.

2. Conduct a work sample survey to ascertain the proportionate amount of time spent by the nursing staff in direct care, indirect care, other activities, and personal time. The MAMC patient classification system addresses only direct patient care needs.

3. Determine nursing personnel requirements utilizing the MAMC patient classification policy with an adjustment factor for indirect nursing time.

4. Develop manpower costs in terms of Full Time Equivalent (FTE) personnel associated with each method.

5. Statistically compare and analyze the results of these two staffing methodologies.

6. Contrast results with the average regional civilian utilization of nursing resources to determine how closely manpower requirements computed with these methods approximate the non-governmental health care sector. FTEs for registered nurses and licensed practical nurses compiled by the American Hospital Association Annual Hospital Survey were used for this comparison.

Criteria

The criteria for the conduct and evaluation of this study were:

1. A ninety percent confidence interval was utilized to construct the sample size for the work sample survey of nursing tasks.

2. A five percent level of significance utilizing a Student t paired data test was employed to statistically compare nursing requirements/FTEs derived from the AMEDD Staffing Guide and the MAMC Patient Classification System.

3. FTE utilization statistics for RN and LPN personnel per average daily census and per average daily adjusted census as reported by The American Hospital Association in Hospital Statistics, 1982 Edition for 300-399 bed, short-term, general hospitals, affiliated with medical schools, located in Census Division 9 (western United States), was employed to construct mean utilization ratios for contrast with the two methods under study.

Assumptions

Period selected for collection of the historical data pertaining to average daily patient load and patient categorizations was assumed to be

representative of nursing workload. It was also assumed that the work sample survey method provided an accurate picture of direct and indirect nursing tasks.

Limitations

The study limited analysis to the inpatient units at Madigan Army Medical Center. Historical workload data for ward census and patient classifications was confined to a twelve month period, April 1982 through March 1983. Random work sample observations were conducted during a seven day period by one researcher; observations were limited to activities occurring during 0700 hours to 2300 hours daily. This recognizes the constraint of a single researcher but does provide for inclusion of all nursing shifts in the sample.

Literature Review

The literature reviewed for this study concentrated on nurse staffing methodologies, patient classification systems, Army Medical Department staffing procedures, and patient classification research within the Army. The organization of this review follows that order.

Nurse Staffing Methodologies

Several different approaches to determining nurse staffing requirements have been employed in the management of health care delivery systems. The aim of these approaches is reported to achieve at a reasonable cost a standard of nursing care acceptable to both the internal

and external publics.[24] The ideal nurse staffing methodology should encompass an orderly, systematic process, developed from sound rationale, applied to determine the number and mix of nursing personnel required to achieve nursing care of a predetermined standard. The end product is a prediction of the number and kind of staff to care for patients.[25]

The methodologies described in the literature can be classified into four groups:

- descriptive
- industrial engineering
- management engineering
- operations research

The descriptive methodology utilizes a number of devices to collect information about a large number of variables. Table 1 provides an overview of variables affecting staffing determinations. The relationships of these variables are not always specified. On site analysis and survey data may be gathered to establish staffing tables, although ultimate staffing decisions often rest on subjective judgements of individuals with background experience in this arena. This approach does not provide for direct quantification of nursing tasks nor does it employ patient classification systems. The industrial engineering approach is directed at analyzing nursing unit work. Techniques such as work measurement, work distribution, and task/procedure analysis are employed. With operations research, mathematical models to depict potential situations are developed to test staffing decisions. The

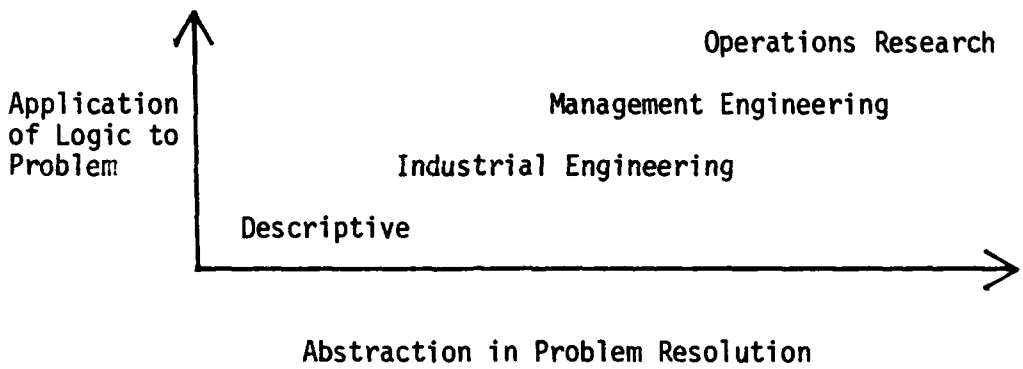
TABLE 1

FACTORS/VARIABLES AFFECTING NURSE STAFFING DETERMINATIONS

NURSING ORGANIZATION FACTORS	PATIENT FACTORS	STAFF FACTORS	HEALTH CARE ORGANIZATION FACTORS	ENVIRONMENTAL FACTORS
- Patient Care Objectives	- Diagnosis	- Job descriptions/ Classifications	- Financial Resources	- Staff Mix available in the community
- Determined "levels of patient care"	- Acuity	- Education level	- Personnel policies	- Coordinating Patterns with Community Health Agencies (home health care)
- Nursing department/unit Functions	- Length of Stay	- Experience level	- Ancillary/support Services	- Other Facilities, Competition
- Assignment Systems	- Number of Patients	- Work Ethics of Group	- Information System	- Community Expectations
- Service to Staff, Inservice Training	- Age Groups	- Expectations from Organization	- Number of Beds	
	- Health Status and Health Goals		- Architecture and Functional Space Management	
	- Care Expectations			
	- Level of Fluctuation in Numbers, Acuity, Length of Stay			

SOURCE: Adapted from Barbara J. Stevens, The Nurse as Executive, 2d ed. (Wakefield, MA: Nursing Resources, Inc., 1980): pp 98-99

management engineering methodology attempts to integrate results of industrial engineering studies and operations research predictions under the umbrella of a systems analysis to arrive at objective staffing levels.[26] Figure 1 portrays progression in the area of planning and programming nurse staffing needs.



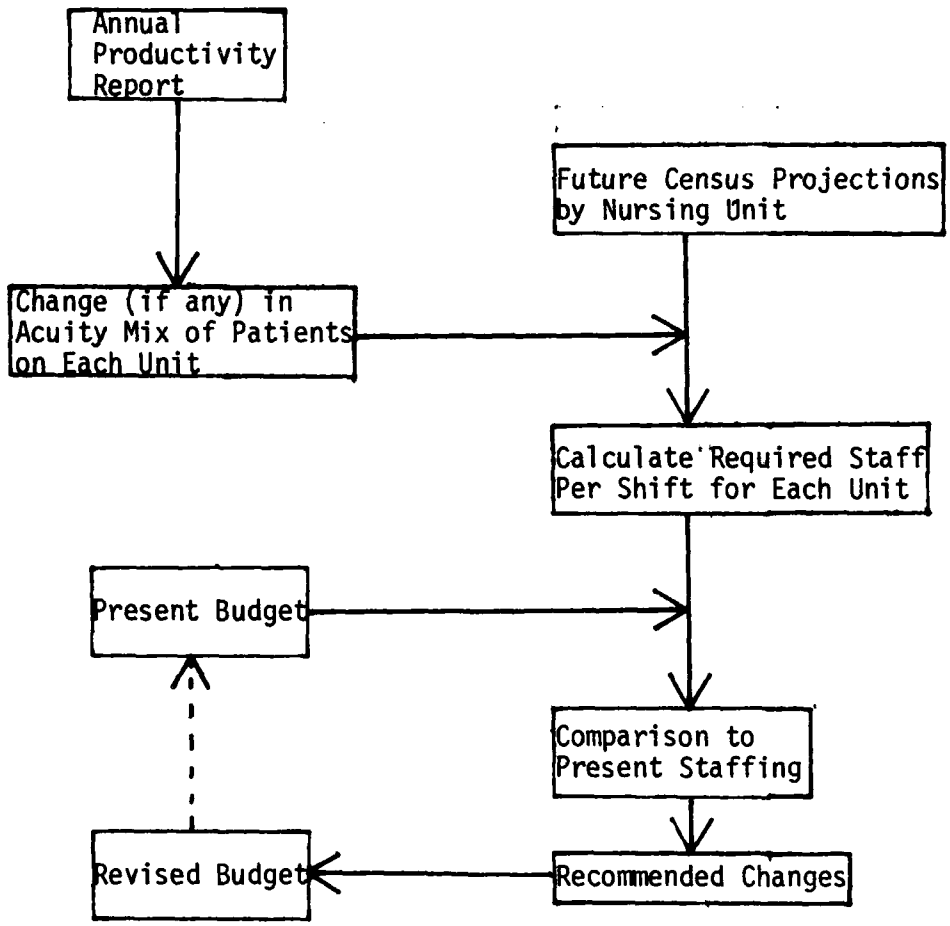
SOURCE: Adapted from U.S. Department of Health, Education, and Welfare. Health Resources Administration, Division of Nursing. Nurse Staffing Methodologies: A Review & Critique of Selected Literature. DHEW Publication No. (HRA) 73-433, by Myrtle K. Aydelotte. (Washington, D.C.: Government Printing Office, 1973), p. 45.

Fig. 1. Evolution of methodologies for the study of nurse staffing; application of logic and increases in abstractions to problem resolution.

Patient Classification Systems

The trend within the health care industry has been toward the utilization of patient categorization systems to budget for nursing staff requirements.[27-31] The inherent objectives of staffing studies directed at this end are both tactical and strategic uses. The short term objective is to establish a system to allocate available nursing

personnel against immediate requirements. Realization of the strategic objective is achieved with the ability to summarize data on "actual" versus "required" staff to influence program decisions concerning budgeted staff for nursing units.[32] Figure 2 illustrates this process.



SOURCE: Robert G. Vaughan and Vernon MacLeod. "Nurse Staffing Studies: No Need to Reinvent the Wheel." Journal of Nursing Administration 10 (March 1980): p. 11.

Fig. 2. Nursing Workload Analysis: "Strategic" System

The shift to staffing based on patient categorization according to nursing care needs is considered to be an advancement over previous systems based on number of beds or average census per unit. Requirements for nursing care are focused on criteria such as the patient's physical restrictions, institutional requirements, nursing procedures, and emotional factors. The degree of illness the patient is experiencing and how much care is required determine supporting nursing staff levels. In turn, aggregate demand on the nursing staff is measured by the sum of direct and indirect care needs of each patient.[33] The basic process can be identified through the systems approach set forth in Table 2.

Patient classification systems aim to provide an objective measure of a patient's physiological and medical needs upon which staffing can be based. Critical indicators of care are used to study direct patient requirements. Developed through observational studies, these indicators include activities such as bathing, feeding, walking, observation, special treatments, and pre-operative preparation. The use of these indicators has been criticized because they do not include the psychosocial and teaching components of nursing care. However, patient classification is not intended to replace detailed assessments for individual care plans. It is also noted that psychosocial and teaching needs are often met while technical aspects of care are performed.[34]

To refine staffing estimates, attempts to measure indirect care activities have been undertaken. These activities include nursing duties normally performed outside of direct contact with a patient. Charting, medication preparation, administrative/messenger activities, communications

TABLE 2

NURSING STAFF ASSIGNMENT BASED ON
A PATIENT CLASSIFICATION SYSTEM

INPUT	TRANSFORMATION PROCESS	OUTPUT	CONTROL
- Indicators of Patient Needs	- Convert indicators of patient need into the quality and quantity of staff to be allocated	- Specific quality and quantity of staff to be allocated	- Short-term; concurrent individual evaluation of performance to determine the actual need met in relation to the staff provided
- Quality and quantity of staff available	- Match the staff needed to the staff available		- Long-term; retrospective, collective evaluation of overall performance to determine the actual need met in relation to the staff provided

SOURCE: June B. Somers, "Purpose and Performance: A System Analysis of Nurse Staffing." Journal of Nursing Administration 7 (February 1977): pp 8-9

and consultations, and equipment preparation are examples of these activities. The amount of time involved with indirect care activities varies directly with census and from hospital to hospital, dependent on management and facility characteristics. As with direct care, an average amount of time can be established for indirect care.[35]

As previously noted, the literature has well documented the benefits of patient classification systems. Nevertheless, several shortcomings associated with their use have been identified. Of concern to many administrators is the difficulty establishing that a patient classification scale actually measures that for which it was designed. Giovannetti points out that validity related to measuring patients' actual needs has not been shown to date and that "it is unlikely that this validation can ever be shown satisfactorily."[36] The predictive validity reported in the research relates to providing care according to patients' perceived needs or predetermined standards of care.[37]

The validity problem is exacerbated by hospitals that implement an existing categorization system without modification of the classification scale for the particular nursing service. While requirements based on direct task time are exportable between facilities, variables among nursing divisions such as philosophy, standards, care delivery systems, skill mix, medical staff demands, physical plant design, equipment, and support services (or lack thereof) necessitate tailoring of the classification instrument to the individual hospital.[38]

Patient classification systems have also been criticized as weak because they tend to measure only the "demand" element of managing

nursing resources. Some systems may disregard requirements for operating within budgetary restraints.[39] In a recent survey the inability to recruit and staff at levels prescribed by patient classification instruments due to budgetary constraints was identified as the major stressful situation among nurse administrators utilizing such systems.[40] Perhaps this is reflective of potential risk management concerns that a hospital would be liable for failure to staff to the level indicated.

This survey also reported that a significant positive relationship exists between difficulty in recruitment/budget and difficulty in getting nurses to classify patients. It is of note that the <u>most</u> stressful variable reported by respondents representing government hospitals was <u>budgetary difficulties</u>.[41]

Another limitation ascribed to patient classification systems is that they tend to formalize the practice of nursing in terms of the status quo.[42] Other problems identified for resolution include: (1) generalization of data in excess of what is needed for practical application, (2) variations in methodology among hospitals, (3) unclear distinction between patient groups, (4) workload analysis systems tailored to single institutions, (5) difficulty updating systems as changes occur, and (6) lack of verification means to ascertain that classification of patients is accurately accomplished.[43]

With regard to quality, Giovannetti states there is no indication that efficient utilization of nursing personnel through patient classification has a direct relationship to quality of care.[44] However, several attempts to document improvements in quality of patient care after

implementing staff changes based on patient classification systems have been reported.[45-46] These involve concurrent observations to determine if care required was actually provided. Such procedures provide feedback relative to staffing decisions, but presume that the scheduled nursing tasks are the standard of quality.

Schmult advises that discussions of the quality of care relating to patient classification should recognize that quality is dependent on the staff's abilities and skills in providing patient care as well as their motivation to do so. Classification systems represent an instrument to document and assign personnel and do not assure quality care. Effective nursing leadership is the catalyst for achieving quality care.[47]

Army Medical Department Staffing Procedure

As described by Department of Army Pamphlet 570-4, Manpower Procedures Handbook, the current practice within the AMEDD to determine manpower requirements for medical treatment facilities is primarily through on-site appraisal of mission and workload by a team of manpower analysts. In this process, Department of Army Pamphlet 550-557, Staffing Guide for Medical Department Activities is utilized extensively to provide guidance on the number and types of personnel required to perform specific functions. Manpower allowances expressed by yardsticks in this staffing guide represent a national standard based on Army-wide requirements for specific functions. In the case of inpatient units average daily occupied beds is the quantitative measure to which nursing staff is related. It is

also noted that although this staffing guide is designed for Medical Department Activities (i.e., community hospitals), the standards may be, and in practice are applicable with some deviation based on local conditions to Army Medical Centers.[48-49]

Yardstick standards established by this staffing guide are reviewed and updated every three years. This is accomplished through a retrospective regression analysis resulting in a trend line equation based on established requirements during the past 30 months. Thus yardstick modifications are limited to approved requirements established by the survey process.[50]

The objective of the survey process is to establish the minimum number of personnel to provide adequate staffing for the average workload. In the case of nursing units, staffing requirements are established by nurse analysts. The yardstick represents a point of departure. Other criteria considered include but are not limited to: historical workload, patient acuity, type of nursing unit, accreditation and professional association standards, availability of logistical, dietary, and ancillary support systems, workload trends (e.g., weekday vs weekend), and limitations imposed by the physical facility.[51] The general practice is to use the yardstick to support positional staffing by operating shift.

Aydelotte has classified the Army approach within the realm of descriptive methodologies.[52] This process leads to a staffing program that is based on judgement and experience.

Development of Army Patient Classification Systems

Over the past thirty years several research efforts within the Army have been directed at patient categorization and determining hours of nursing care required to meet patient needs. Between 1951 - 1956 four such studies were undertaken at Walter Reed, Valley Forge, Fort Belvoir, and Brooke Army Hospitals. Clausen reported on the results of a prototype patient categorization study at Fort Belvoir.[53] Patients were classified into four categories representative of nursing care needs. Although no definitive hours of care requirements were established as a result of this study, it was found that categorization of patients according to nursing care requirements assists nursing administrators to manage workload and available nursing resources.

More recent efforts in this area include the MAMC Patient Classification System which was developed from research conducted during the early seventies.[54] This system employs a factor evaluation instrument encompassing nursing care activities within eight general areas. Patients are scored based on nursing needs in each of these categories and placed into one of six classes. Direct nursing hours (including preparation, activity and tear-down time) per patient day were developed to correspond with each patient class. The proportion of hours required by staff mix (RN, LPN, Nursing Assistant) was also determined. Direct nursing hours were derived through timed observations of over 100 direct nursing tasks. Expert nurses were paneled to ascertain activities appropriate for safe minimal nursing care for each class of patient. Safe minimal

care was defined as: accomplishment of physician orders and providing for basic physiological needs/activities of daily living.[55] The system provides data on required and actual nursing hours provided for use in productivity monitoring and staff assignment. Giovannetti has noted that due to the evolutionary development of this system, the methodology and data used to compute standard times are not well documented.[56]

The most recent, extensive Army research effort is the Nursing Care Hour Standards Study conducted over a four year period (1977-1981), encompassing nine medical treatment facilities.[57] The purpose of the study was to develop a multidimensional factor evaluation patient classification system to determine direct nursing care requirements and staffing mix for critical care, medical/surgical, obstetric, psychiatric, neonatal, and pediatric inpatient services. A retrospective record review resulted in identification of 357 direct nursing tasks upon which some 37,000 timed observations were compiled. Measurements were analyzed with one-way analysis of variance to assess differences between and among facilities. Measurements falling within a 95 percent confidence interval were utilized to develop minimal essential mean tasking times. These tasks, as well as documented direct care requirements were reviewed by expert nurse panels to establish hours of care required for categories of patients within each of the six clinical services. Subsequent to this phase, factor evaluation patient classification instruments for these clinical services to determine required hours of care and provider mix were developed and tested.[58] Giovannetti noted that validity and reliability

of this system is high and that classification time averaged ten minutes per patient.[59]

These recent Army studies of patient classification systems have addressed the direct care component of nursing activities. It has been pointed out by Giovannetti[60] that an equation to address nursing care needs must consist of at least three components: (1) direct care; (2) indirect care; and (3) time when assigned personnel are unavailable for patient care. A research project conducted by the U.S. Army Health Care Studies Division to study time spent in indirect nursing care activities as well as staff time unavailable for patient care is ongoing. Results are expected to be available by mid-1983.[61]

Several studies to identify nursing care activities and establish patient classification systems for Army-wide implementation have been conducted over the past three decades. Some of these studies resulted in classification systems utilized to assist with management of nursing activities at select hospitals. To date, patient classification systems have not been employed to establish nursing manpower requirements within the Army.

Research Methodology

The study commenced with a work sample survey to ascertain how available nursing time was distributed among direct and indirect nursing tasks, other administrative duties, and personal time. Random observations were made during a one week time frame to record activities by personnel mix (RN, LPN, Nursing Assistant). Selection of days, wards, and observation times was through the use of a random sample program.[62]

Observer presence on the selected unit occurred in ten minute intervals. The work sample survey instrument, definitions of activity categories, and examples of nursing tasks are contained at Appendix B.

Staff requirements were determined by the AMEDD staffing procedure using the average daily patient load for each inpatient ward for comparison with requirements developed utilizing MAMC patient classification system data. An allowance for indirect nursing time to complement direct nursing care hours derived from the patient classification system was developed from data generated in the work sample survey. Resulting staff levels were compared and analyzed as to composition in total staff and personnel mix (RN, LPN, Aide). A Student t paired data statistical test was employed to ascertain if a significant staffing difference resulted from either methodology. Results were further evaluated to determine manpower costs associated with each method.

Manpower requirements identified with these methods along with existing administrative, ancillary and ambulatory RN and LPN requirements were stated as FTEs for approximation with statistics reflecting the FTE utilization of RNs and LPNs within comparable region hospitals. Specific statistics compared were RN/LPN FTEs per 100 average daily census and RN/LPN FTEs per 100 average daily adjusted census. Utilization statistics pertinent to nursing assistant personnel were not employed in this comparison due to nonavailability of comparable civilian data.

"Adjusted census" as defined by the American Hospital Association is an aggregate figure reflecting inpatient workload with an estimate of

outpatient volume in terms of the ratio of revenue per outpatient visit to inpatient revenue per inpatient day.[63] Uniform Chart of Account (UCA) expense data was used to approximate "revenue" for inpatient and outpatient workload since military hospitals do not generate "revenue" per se.

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CHAPTER II

DISCUSSION

The first step in the study was to establish and refine nursing personnel manpower requirements with the AMEDD Staffing Guide procedures and the MAMC Patient Classification System. These requirements provide the basis for comparison.

Requirements Identified With Staffing Guide Process

There was a need to update nursing personnel requirements based on AMEDD staffing guide criteria and workload data from the period selected for comparison. Existing requirements were established during an on-site Health Services Command Manpower Survey conducted in October 1979. Since that time revised AMEDD staffing tables have been published. Organizational changes to nursing units under the "Acuity Based Care" concept as well as relocation/closure of wards to accommodate renovation projects have also occurred.

Workload statistics for each nursing unit were extracted from the Daily Patient Status Report to derive the monthly and annual average daily patient load. Pertinent staffing table yardsticks were applied to the average daily workload to derive manpower yield. Surveyor's comments documented during the last on-site analysis were reviewed to determine "local appraisal" factor impacting on the unit which were not provided by the staffing table. Where appropriate the yardstick yield was adjusted (increased/decreased) by the researcher to conform with the survey findings.

Total requirements were apportioned as RN, LPN, Nursing Assistant (NA) and Ward Clerk positions in proportion to staff mix identified by the applicable staffing table.

Requirements identified through this process are documented at Appendix C. Table 3 presents a recapitulation of these staffing estimates.

Work Sample Survey

A work sample survey was performed to ascertain the proportion of nursing staff time devoted to direct care, indirect care, other administrative duties, and personal activities. The MAMC patient classification system only identifies hours required for direct care. Therefore it was necessary to determine an adjustment factor representing indirect care tasks which could be applied to obtain total nursing hours required with this classification system. Work sampling has been cited as an appropriate mechanism for developing such an allowance. It has been estimated that indirect care activities consume up to sixty percent of nursing staff time.[1] Appendix B contains a copy of the survey instrument, activity definitions, and examples of typical nursing tasks categorized by activity.

The number of observations necessary for the satisfactory completion of this survey was obtained via a formula for determining sample size for estimating proportions as follows:[2]

$$n = \frac{z^2 p(1-p)}{d^2}$$

TABLE 3

NURSING PERSONNEL REQUIREMENTS (FTEs) DEVELOPED WITH STAFFING GUIDE YARDSTICK AND DOCUMENTED LOCAL APPRAISAL FACTORS

WARD	RN	LPN	NA	TOTAL
Peds, Wd 1	9	12	7	28
OB, Wd 2	10	4	12	26
NBN, Wd 3	11	5	15	31
NICU, Wd 3A	19	10	12	41
Min Care, Wd 5	1	6	4	11
Pre-op, Wd 7	6	2	5	13
Intermed Surg, Wd 9	17	8	10	35
ICU, Wd 10	18	10	13	41
Mod Surg, Wd 11	13	5	16	34
Mod Surg, Wd 13	11	10	5	26
Psychiatry, Wd 17	7		16	23
CCU, Wd 19	15	10	4	29
Intermed Med, Wd 20	14	4	13	31
Mod Med, Wd 21	14	4	13	31
TOTAL	165	90	145	400

SOURCE: Workload - MAMC Form 84N, Daily Patient Status Report; Staffing Guide Yardstick - C5, DA Pam 570-557; Local Appraisal - HSC Manpower Survey Report, 1979.

Where: n = sample size/number of observations

z = confidence level

p = estimated proportion

d = interval width/degree of accuracy

A ninety percent confidence level with an interval width of .1 was selected for this survey. Direct care time was estimated to be approximately twenty-five percent by the Director of Nursing. The resulting sample size was determined to be 50.7 or 51 observations.

The survey was designed for a seven day period, between 0700 - 2300 hours daily. A random sample program[3] utilizing a TRS-80 microcomputer was employed to select days, wards and observation times. Fifty-one days categorized as one through seven (Tuesday - Monday) were randomly selected with replacement via the sample program and listed. Selected days were matched with wards identified as one through fourteen, also randomly chosen with replacement. Ninety-six ten minute intervals were established for possible observation each day (e.g., interval 1 @ 0700, interval 2 @ 0710, etc.). The number of observations required for each day were noted and randomly identified without replacement from the available intervals. Table 4 indicates the survey schedule.

Data was collected as prescribed by the survey schedule. A total of 316 nursing personnel observations were recorded during the survey. The activity engaged in by each subject when first observed by the researcher was recorded and classified within the possible categories. Personnel were also identified as RN, LPN/91C, or NA/91B/91F. Time

TABLE 4

NURSING ACTIVITY WORK SAMPLE SURVEY
7 - 13 JUNE 1983
OBSERVATION SCHEDULE

TUE		WED		THU		FRI		SAT		SUN		MON	
Time	Ward	Time	Ward	Time	Ward	Time	Ward	Time	Ward	Time	Ward	Time	Ward
0720	1	1010	17	0720	3A	0700	21	1150	5	0720	19	0730	10
0800	2	1030	17	0740	5	0730	21	1300	13	0810	20	0900	13
1140	3	1050	20	0910	7	1340	1	1420	3A	0820	21	0920	13
1350	3A	1110	21	1240	9	1400	2	1540	9	1020	20	1220	20
1520	5	1410	21	1330	11	1410	3A	1820	11	1050	1	1510	21
1620	7	1910	1	1530	17			2220	13	1630	2	2150	21
1640	9	2020	2	1840	19					1740	3A		
2240	10	2110	3	1950	20					1850	5		
										1900	7		
										1950	9		

WARD IDENTIFICATION:

Ward 1 - Pediatrics
Ward 2 - Obstetrics
Ward 3 - Newborn Nursery
Ward 3A - Newborn Intensive Care
Ward 5 - Minimal Care
Ward 7 - Pre-Operative
Ward 9 - Intermediate Care
Ward 10 - Intensive Care
Ward 11 - Moderate Surgical Care
Ward 13 - Moderate Surgical Care
Ward 17 - Psychiatric
Ward 19 - Cardiac Care
Ward 20 - Intermediate Medicine
Ward 21 - Moderate Medicine

spent on each unit did not exceed ten minutes per observation period. Eleven personnel surveyed were on authorized meal time (lunch/dinner); these observations were excluded from final computations since this time is not part of the normal eight hour shift.

The survey results are presented in Tables 5 through 8. Copies of the completed survey instrument are included at Appendix D.

TABLE 5

NURSING ACTIVITY WORK SAMPLE SURVEY
ALL PERSONNEL

ACTIVITY	DIRECT CARE	INDIRECT CARE	OTHER/ADMIN TASKS	PERSONAL	TOTAL
# Observations	135	113	31	26	305
Percent	44.3	37.0	10.2	8.5	100

TABLE 6

NURSING ACTIVITY WORK SAMPLE SURVEY
RN PERSONNEL

ACTIVITY	DIRECT CARE	INDIRECT CARE	OTHER/ADMIN TASKS	PERSONAL	TOTAL
# Observations	45	47	15	6	113
Percent	39.8	41.6	13.3	5.3	100

TABLE 7

NURSING ACTIVITY WORK SAMPLE SURVEY
LPN PERSONNEL

ACTIVITY	DIRECT CARE	INDIRECT CARE	OTHER/ADMIN TASKS	PERSONAL	TOTAL
# Observations	33	26	9	8	76
Percent	43.4	34.2	11.8	10.5	100

TABLE 8

NURSING ACTIVITY WORK SAMPLE SURVEY
NURSING ASSISTANT PERSONNEL

ACTIVITY	DIRECT CARE	INDIRECT CARE	OTHER/ADMIN TASKS	PERSONAL	TOTAL
# Observations	57	40	7	12	116
Percent	49.1	34.5	6.0	10.4	100

Requirements Identified With MAMC Patient Classification System

Data to establish nursing manpower requirements with the MAMC Patient Classification System was obtained in part from records and reports generated by this system. Patients are assessed and categorized daily according to their nursing needs by the head nurse on each ward. Appendix A contains policy for patient classification. Patient census and categories are subsequently reported to Department of Nursing for summarization and data input/collection to an automated microcomputer

nurse staffing/productivity monitoring system. Examples of the Daily Patient Status Report, Monthly Summary Report, and Monthly Patient Classification Distribution Report are contained at Appendix E. The system primarily provides information pertaining to patients' direct care nursing requirements.

Monthly average requirements for RNs, LPNs and nursing assistants were compiled to arrive at the average daily manpower requirement for direct care. Tabulations by ward for each personnel category are provided at Appendix F. Table 9 contains the distribution of these nursing requirements by ward. The average patient acuity classification by percent is presented at Table 10. This data was also derived in the manner described above.

Requirements displayed in Table 9 reflect the number of personnel to provide direct care 24 hours per day. These figures were adjusted to provide for coverage seven days per week. Since a full time employee works five days or shifts per week, the remaining two days represent 2/5 or .4 of a workweek. Thus coverage for seven days is represented by 1.4 requirements. Multiplying the daily requirement by 1.4 adjusts the base figure to provide for seven day staffing.

The same process was followed to augment the direct care requirement with a provision for indirect care/other task time as well as personal, fatigue and delay time or nonproductive time. Data obtained from the work sample survey was utilized to develop adjustment factors for indirect/other task time. The Army established standard of eleven percent was

TABLE 9

AVERAGE DAILY NURSING STAFF REQUIRED
TO PROVIDE DIRECT PATIENT CARE
AS DETERMINED BY PATIENT ACUITY CATEGORIES
APRIL 1982 - MARCH 1983

UNIT	RN	LPN	NA	TOTAL
Peds, Wd 1	8.42	5.88	3.18	17.48
OB, Wd 2	7.84	6.76	7.13	21.73
NBN, Wd 3	13.44	9.12	5.28	27.84
NICU, Wd 3A	7.90	4.98	1.17	14.06
Min Care, Wd 5	1.06	2.59	3.57	7.22
Pre-op, Wd 7	1.16	2.16	3.10	6.43
Intermed Surg, Wd 9	8.87	5.84	1.82	16.53
ICU, Wd 10	6.52	3.88	.56	10.96
Mod Surg, Wd 11	6.68	7.63	9.80	24.11
Mod Surg, Wd 13	6.86	7.27	9.14	23.26
Psychiatry, Wd 17	2.42	2.78	3.64	8.84
CCU, Wd 19	6.61	4.58	2.26	13.45
Intermed Med, Wd 20	11.08	8.45	6.44	25.96
Mod Med, Wd 21	2.34	3.39	4.63	10.36
TOTAL	91.20	75.31	61.72	228.23

SOURCE: MAMC Form 84-N, Daily Patient Status Report; and Department of Nursing Monthly Summary of Staffing/Productivity Averages Report

TABLE 10

PATIENT CLASSIFICATION DISTRIBUTION BY WARD
PERCENT BY CATEGORY, APRIL 1982 - MARCH 1983

	1A	1B	I	II	III	IV
Pediatrics, Wd 1	24.8	8.1	36.6	20.8	4.1	5.6
Maternity, Wd 2	--	--	33.7	46.3	17.9	2.1
NB Nursery, Wd 3	19.6	5.0	59.1	16.2	.1	--
NB ICU, Wd 3A	38.4	51.1	9.2	.8	.5	--
Minimal Care, Wd 5	--	--	.1	6.4	36.1	57.4
Pre-Op, Wd 7	--	--	2.2	7.4	74.3	16.1
Intermediate Care, Wd 9	58.8	21.6	16.7	2.9	--	--
Intensive Care, Wd 10	1.6	98.1	3.7	--	--	--
ModSurg Care, Wd 11	.2	.3	8.0	50.1	34.4	7.0
ModSurg Care, Wd 13	.4	--	10.3	67.3	16.4	5.6
Psychiatry, Wd 17	.05	.05	8.7	50.1	40.2	.9
CCU, Wd 19	28.3	16.2	23.8	29.9	1.6	.2
Inter Med, Wd 20	14.5	2.6	33.4	42.0	6.8	.7
Mod Med, Wd 21	.5	--	4.1	22.9	57.8	14.7
AVERAGE	13.4	14.5	16.8	25.8	21.7	7.8

SOURCE: MAMC Form 84-N, Daily Patient Status Report; and Department of Nursing, Monthly Classification Distribution Report.

applied to adjust for nonproductive time. Table 11 lists allowances used in this process; Table 12 tabulates total requirements generated. Appendix G documents the development of these requirements.

TABLE 11

ADJUSTMENT FACTORS TO CONVERT DIRECT CARE REQUIREMENTS TO FTEs

FACTOR	PERSONNEL CATEGORY RN	LPN	NA
Weekend Allowance	1.4	1.4	1.4
Indirect Care/Other Tasks	1.549	1.46	1.405
Nonproductive Allowance	1.11	1.11	1.11

Full-time Equivalent (FTE) Manpower Cost

Nursing personnel requirements constructed with these two staffing methods represent the number and mix necessary for the assigned patient care mission. Within the Army manpower system, requirements are defined as the minimum essential number of personnel needed to perform valid functions effectively. However, actual manpower allocations available within the Army resource system do not always parallel manpower requirements. The current MAMC percentage of allocations to requirements is 78.37 percent.

Full-time equivalents (FTEs) represent full-time employees working five shifts per week or the combination of part-time employees totaling five shifts per week. Manpower requirements in this analysis represent full-time employees which are synonymous with FTEs. A FTE comparison of the two staffing methods is presented in Table 13.

TABLE 12

NURSING FULL TIME EQUIVALENTS BY WARD
REQUIRED FOR STAFFING
BASED ON AVERAGE PATIENT ACUITY CATEGORIES

UNIT	RN	LPN	NA	TOTAL
Peds, Wd 1	20	13	7	40
OB, Wd 2	19	15	16	50
NBN, Wd 3	32	21	12	65
NICU, Wd 3A	19	11	3	33
Min Care, Wd 5	3	6	8	17
Pre-op, Wd 7	3	5	7	15
Intermed Surg, Wd 9	21	13	4	38
ICU, Wd 10	16	9	1	26
Mod Surg, Wd 11	16	17	21	54
Mod Surg, Wd 13	17	17	20	54
Psychiatry, Wd 17	6	6	8	20
CCU, Wd 19	16	10	5	31
Intermed Med, Wd 20	27	19	14	60
Mod Med, Wd 21	6	8	10	24
TOTAL	221	170	136	527

TABLE 13

COMPARISON OF FTEs/REQUIREMENTS BASED ON
AMEDD STAFFING GUIDE AND MAMC PATIENT CLASSIFICATION SYSTEM

STAFFING METHOD	CATEGORY OF PERSONNEL RN	LPN	NA	TOTAL
AMEDD Staffing Guide	165 (41%)	90 (23%)	145 (36%)	400 (100%)
MAMC Patient Classification	221 (42%)	170 (32%)	136 (26%)	527 (100%)

Both military and civilian personnel are employed at MAMC. Within the Department of Nursing, the military to civilian ratio is 3:2. Manyear expenses are different for these two categories. However, to facilitate comparison, cost figures were limited to those for civilian personnel. Current manyear expense obtained from the MAMC Comptroller for this analysis are:

RN GS9/Level 5 = $23,220

LPN GS5/Level 5 = $17,627

Statistical Comparison

An analysis was conducted to test for differences between nursing staff requirements developed with the two staffing methodologies. Several Student t paired data tests were performed to accept or reject the null hypothesis that significant variance in number and mix of personnel required with either system did not exist.

Registered Nurses:

H_o: $\mu_d \leq o$; there is not a significant difference between the number of RNs required for patient care as determined by two distinguishable staffing methods.

H_A: $\mu_d > 0$; there is a significant difference.

Level of significance = .05

Degrees of freedom = 13

Critical value of t = 1.77

WARD	PATIENT CLASSIFICATION (X)	STAFFING GUIDE (Y)	DIFFERENCE (X-Y)
1 - Peds	20	9	11
2 - OB	19	10	9
3 - NBN	32	11	21
3A- NICU	19	19	0
5 - Min Care	3	1	2
7 - Pre-op	3	6	-3
9 - Intermed Surg	21	17	4
10 - ICU	16	18	-2
11 - Mod Surg	16	13	3
13 - Mod Surg	17	11	6
17 - Psychiatry	6	7	-1
19 - CCU	16	15	1
20 - Intermed Med	27	14	13
21 - Mod Med	6	14	-8
			$\Sigma d = 56$

$$\bar{d} = 4.00, \quad s_d = 7.50$$

$$\text{Test Statistic} = t = \frac{\bar{d} - \mu_d}{s_d/\sqrt{n}} = \frac{4 - 0}{7.5/\sqrt{14}} = \frac{4}{2.00445} = 1.995$$

Since $t = 1.995 > 1.77$, Reject H_o; there is a significant difference; p value = $.025 < p < .05$.

Licensed Practical Nurses:

H_o: $\mu_d \leq 0$; there is not a significant difference between the number of LPNs required for patient care as determined by two distinguishable staffing methods.

H_A: $\mu_d > 0$; there is a significant difference.

Level of significance = .05

Degrees of freedom = 13

Critical value of t = 1.77

WARD	PATIENT CLASSIFICATION (X)	STAFFING GUIDE (Y)	DIFFERENCE (X-Y)
1 - Peds	13	12	1
2 - OB	15	4	11
3 - NBN	21	5	16
3A- NICU	11	10	1
5 - Min Care	6	6	0
7 - Pre-op	5	2	3
9 - Intermed Surg	13	8	5
10 - ICU	9	10	-1
11 - Mod Surg	17	5	12
13 - Mod Surg	17	10	7
17 - Psychiatry	6	0	6
19 - CCU	10	10	0
20 - Intermed Med	19	4	15
21 - Mod Med	8	4	4
			$\Sigma d = 80$

$\bar{d} = 5.71$, $s_d = 5.73$

$$\text{Test Statistic} = t = \frac{\bar{d} - \mu_d}{s_d/\sqrt{n}} = \frac{5.71 - 0}{5.73/\sqrt{14}} = \frac{5.71}{1.5314} = 3.73$$

Since 3.73 > 1.77, Reject H_o: There is a significant difference; p value = $p < .005$.

Nursing Assistants:

H_o: $\mu_d \geq 0$; there is not a significant difference between the number of Nursing Assistants required for patient care as determined by two distinguishable staffing methods.

H_A: $\mu_d < 0$; there is a significant difference.

Level of Significance = .05

Degrees of freedom = 13

Critical value of t = 1.77

WARD	PATIENT CLASSIFICATION (X)	STAFFING GUIDE (Y)	DIFFERENCE (X-Y)
1 - Peds	7	7	0
2 - OB	16	12	4
3 - NBN	12	15	-3
3A- NICU	3	12	-9
5 - Min Care	8	4	4
7 - Pre-op	7	5	2
9 - Intermed Surg	4	10	-6
10 - ICU	1	13	-12
11 - Mod Surg	21	16	5
13 - Mod Surg	20	5	15
17 - Psychiatry	8	16	-8
19 - CCU	5	4	1

WARD	PATIENT CLASSIFICATION (X)	STAFFING GUIDE (Y)	DIFFERENCE (X-Y)
20 - Intermed Med	14	13	1
21 - Mod Med	10	13	-3
			Σ d = -9

$\bar{d} = -0.64$, $s_d = 6.93$

$$\text{Test Statistic} = t = \frac{\bar{d} - \mu_d}{s_d/\sqrt{n}} = \frac{-0.64 - 0}{6.93/\sqrt{14}} = \frac{-0.64}{1.85} = 0.345$$

Since $-0.35 < 1.77$, Accept H_o; there is not a significant difference; p value = $p > .10$.

Total Nursing Requirements:

H_o: $\mu_d \leq 0$; there is no significant difference between the number of nursing personnel required for patient care as determined by two distinguishable staffing methods.

H_A: $\mu_d > 0$; there is a significant difference.

Level of significance = .05

Degrees of freedom = 13

Critical value of t = 1.77

WARD	PATIENT CLASSIFICATION (X)	STAFFING GUIDE (Y)	DIFFERENCE (X-Y)
1 - Peds	40	28	12
2 - OB	50	26	24
3 - NBN	65	31	34
3A- NICU	33	41	-8
5 - Min Care	17	11	6

WARD	PATIENT CLASSIFICATION (X)	STAFFING GUIDE (Y)	DIFFERENCE (X-Y)
7 - Pre-op	15	13	2
9 - Intermed Surg	38	35	3
10 - ICU	26	41	-15
11 - Mod Surg	54	34	20
13 - Mod Surg	54	26	28
17 - Psychiatry	20	23	-3
19 - CCU	31	29	2
20 - Intermed Med	60	31	29
21 - Mod Med	24	31	-7
			Σ d = 127

$$\bar{d} = 9.07, \; s_d = 15.56$$

$$\text{Test statistic} = t = \frac{\bar{d} - \mu_d}{s_d \sqrt{n}} = \frac{9.07 - 0}{15.56/\sqrt{14}} = \frac{9.07}{4.1585} = 2.181$$

Since 2.18 > 1.77, Reject H_0: there is a significant difference; p Value = .025 > p > .01.

Results of statistical analysis indicate that there is a significant difference in number and mix of nursing personnel requirements developed with the two methods for total personnel, RNs and LPNs. This was not substantiated for Nursing Assistants.

Contrast With Civilian Sector

Requirements obtained with these two methods were further compared to the regional civilian utilization rate to ascertain how closely these Army

systems paralleled the civilian health care sector. To properly conduct this comparison it was necessary to augment inpatient nursing unit requirements with existing RN and LPN requirements within other nursing service activities (e.g., operating room, labor & delivery, clinics). With the exception of requirements for nurse administrators, practitioners, and anesthetists, as well as those on inpatient units, all military and civilian RN/LPN requirements contained in the current Table of Distribution and Allowances within the Army Management Structure Code (Program Element) 847711 - Medical Care were tabulated. A total of 74 RN and 46 LPN requirements were identified in this process. Requirements developed for inpatient units with the two methods were adjusted as follows:

	STAFFING GUIDE	PATIENT CLASSIFICATION
RNs	165	221
	74	74
	239	295
LPNs	90	170
	46	46
	136	216

Average daily census and average daily adjusted census for MAMC were computed for Fiscal Year 1982 for comparison with civilian data. Data for these computations were obtained from hospital medical summary reports

and The Uniform Chart of Accounts Medical Expense and Performance Reports. Newborn statistics were not utilized in order to conform with American Hospital Association definitions of inpatient days. Computation of these statistics is presented in detail at Appendix H. Development of regional civilian utilization statistics are also included.

Data pertaining to 300-399 bed, short-term, general hospitals, affiliated with medical schools, located in Census Division 9 (western U.S.) as reported by the American Hospital Association in Hospital Statistics, 1982 Edition was chosen as the regional mean for comparison. This selection is appropriate for contrast with MAMC. MAMC operates a 394 bed short-term general hospital with an extensive graduate medical education program.

Utilization ratios developed from requirements established with the two staffing methods are presented and contrasted with actual region practice in Tables 14 - 17.

TABLE 14

COMPARISON OF RN FTEs PER 100 AVERAGE DAILY CENSUS

STAFFING GUIDE	PATIENT CLASSIFICATION	REGION MEAN
82.9	102.4	110.1

TABLE 15

COMPARISON OF LPN FTEs PER 100 AVERAGE DAILY CENSUS

STAFFING GUIDE	PATIENT CLASSIFICATION	REGION MEAN
48.3	75.0	36.7

TABLE 16

COMPARISON OF RN FTEs PER 100 AVERAGE DAILY ADJUSTED CENSUS

STAFFING GUIDE	PATIENT CLASSIFICATION	REGION MEAN
48.4	59.7	95.9

TABLE 17

COMPARISON OF LPN FTEs PER 100 AVERAGE DAILY ADJUSTED CENSUS

STAFFING GUIDE	PATIENT CLASSIFICATION	REGION MEAN
27.5	43.7	32.0

Comparisons based on "adjusted census" do not appear meaningful due to the extensive outpatient services provided by military medical treatment facilities. However, this statistic would be appropriate for comparison with Health Maintenance Organization systems.

The cost relationship for RN and LPN personnel was also compared in terms of MAMC manyear expense for these personnel categories. It is noted that due to number of LPN requirements generated with the Patient Classification System this approach appears more costly in terms of nursing personnel expense. Table 18 presents this comparison.

TABLE 18

RN/LPN FTE EXPENSE PER 100 AVERAGE DAILY CENSUS

CATEGORY	STAFFING GUIDE	PATIENT CLASSIFICATION	REGION MEAN
RN @ $23,220	$1,924,938	$2,377,728	$2,556,522
LPN @ 17,627	851,384	1,322,025	646,911
TOTAL	$2,776,322	$3,699,753	$3,203,403

Patient length of stay was checked as an indicator of output between these utilization ratios. MAMC length of stay is slightly less than the region average.

Length of Stay

MAMC = 6.2 days

Region Mean = 6.6 days

Comparison of these utilization ratios indicates that with both military systems RN requirements are less than actual utilization in the civilian health care sector. The difference between the Staffing Guide and the civilian average is appreciable. Conversely, LPN

utilization requirements exceed those actually employed in the region. A contributing factor for higher LPN utilization at MAMC is that LPN requirements contain 21 wardmasters/senior wardmasters. Within the civilian community, such positions are generally classified as unit managers, which do not require LPN skills.

A shift in the civilian health care arena to increased RN staffing may be reflected in this comparison. Studies report that RN staffs experience reduced nonproductive time, require less supervision and training, and are less frequently interrupted from clinical activity to supervise or assist lower trained personnel.[4] Improved "quality" and patient satisfaction were also noted with a highly concentrated RN staff. It appears that marginal benefits outweigh marginal costs between RN and LPN/nursing aide staffing. The manyear expense data presented in Table 18 supports this development.

As previously noted, actual allocations rarely match requirements. Considerable disparity results between these utilization ratios when compared with authorized FTEs (78.37 percent of required). Table 19 highlights this situation.

TABLE 19

AUTHORIZED RN/LPN FTEs PER 100 AVERAGE DAILY CENSUS

CATEGORY	STAFFING GUIDE	REGION MEAN
RN	64.8	110.1
LPN	36.9	36.7
TOTAL	101.7	146.8

FOOTNOTES

[1]Phyllis Giovannetti, Forbes W. Pollard, Gloria Mayer, and Barton Burkhalter. An Analysis of Two Patient Classification Systems Volume I, Draft Final Report and Volume II, Draft Attachments. (Minneapolis: Health Management Systems Associates, 1982) 8-5.

[2]Wayne W. Daniel. Biostatistics: A Foundation for Analysis in the Health Sciences, Second Edition. New York: John Wiley and Sons, Inc., 1978.

[3]Stephen W. Hebbler, "Advanced Statistical Analysis Software Program," Radio Shack TRS-80 Micro Computer System, Catalog #26-1705, Fort Worth, Texas, Tandy Corporation, 1979: 37-40.

[4]Elsie G. Osinski and Jill G. Powals, "The Cost of All R.N. Staffed Primary Nursing." Supervisor Nurse 11 (January 1980): 16-21.

CHAPTER III

CONCLUSIONS & RECOMMENDATIONS

The intent of this research effort was to apply staffing methodologies characterized by the AMEDD staffing guide and the MAMC Patient Classification System to ascertain if a significant difference exists between the number and mix of nursing personnel required to achieve minimum staffing levels at Madigan Army Medical Center. The project focused on a comparison of the two systems in terms of manpower costs and contrasted these results with actual utilization practice in the civilian environment. The study does not attempt to address which system is more appropriate; it does, however, identify explicit nursing resource costs with each.

The impact of both systems on the administration of MAMC nursing services was realized during the study. Organization of the Nursing Department is derived in part from the Army Manpower System, while day to day management or tactical decisions are facilitated by the Acuity Based Care System. A conceptual model describing this interaction is presented by Figure 3. Inherent cognitive dissonance results from the variance of each staffing method.

Findings

Statistical analysis confirmed the perception that requirements developed with the MAMC Acuity Based Care System significantly exceed those derived under the traditional average workload staffing methodology.

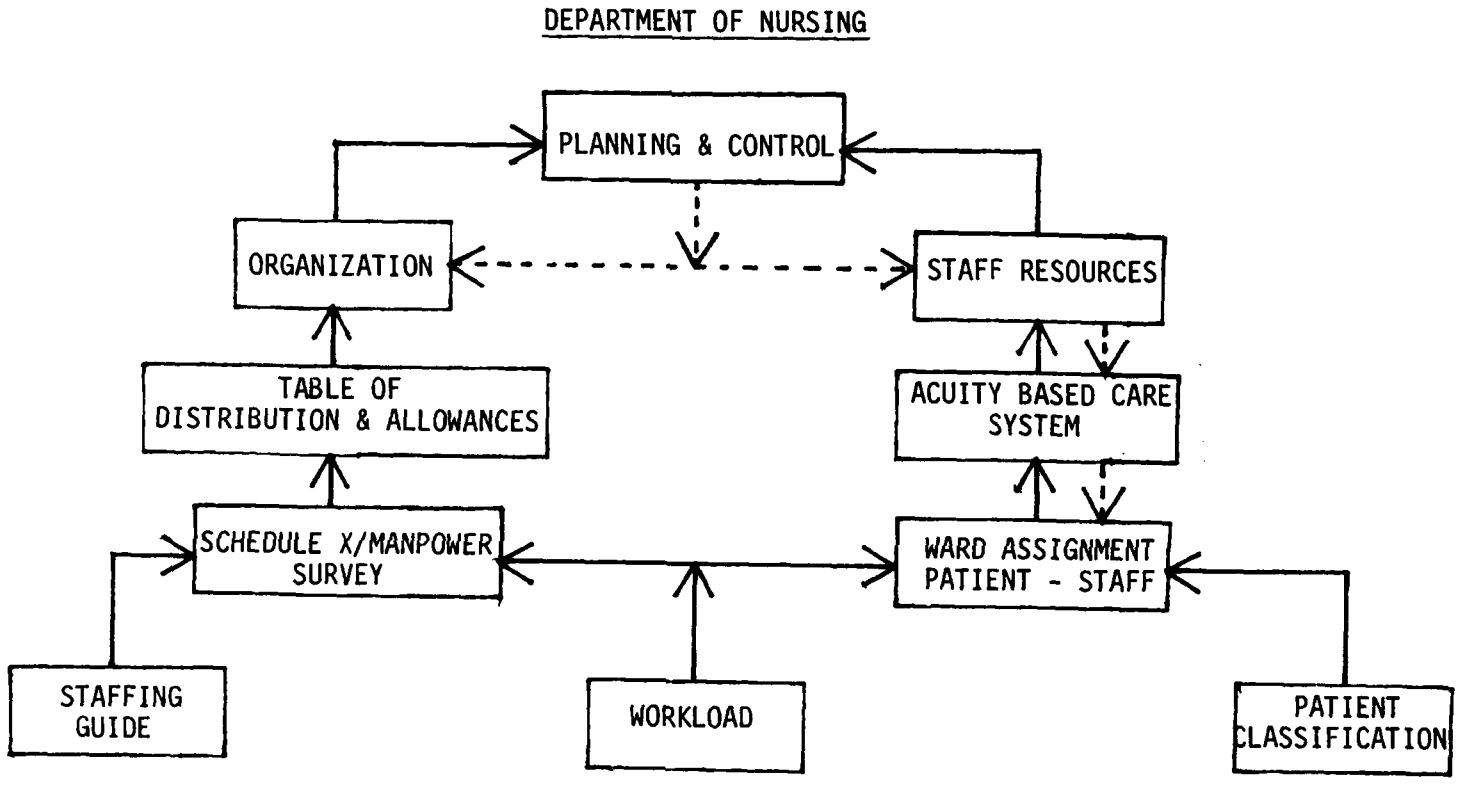

Fig. 3. Conceptual Model of the relationship of the Army Manpower System and MAMC Patient Classification System to administration in the Department of Nursing.

It was found that total requirements for nursing personnel, registered nurses, and licensed practical nurses were statistically greater with the application of MAMC Patient Classification criteria; requirements for nursing assistants were greater but not statistically significant with the AMEDD Staffing Guide.

Requirements for registered nurses and licensed practical nurses on intensive care units (e.g., ICU, CCU, NICU) were approximately the same with each methodology. However, wide variation exists on this type unit for nursing assistants. The Staffing Guide makes greater use of this personnel category. The net result is that the Staffing Guide yields more requirements than the MAMC Patient Classification process for intensive care units.

On both the intermediate care medical wards and the moderate care medical ward, Staffing Guide requirements were equal at 31. Whereas, requirements varied from 60 to 24 respectively with Patient Classification. This highlights the disparity which may result between the two systems.

A significant finding was that when compared with the civilian utilization ratio, cost for the MAMC Patient Classification System was greater. Although fewer RNs are required under MAMC's Patient Classification System the number of LPNs is more than double the civilian utilization pattern. This factor contributes to the potential higher operating cost.

Considerations

The explicit issue of which staffing methodology is preferable can only be determined in terms of resource utilization and outcome. This determination involves value judgements about the availability, accessibility, acceptability, appropriateness, and affordability of nursing care to be provided. Quality assurance standards and assessment as well as risk management precautions impact on this decision.

Utilization ratios of nursing staff to patient census were applied to compare results of the staffing methods with actual practice in the civilian community. The presentation of these and similar ratios as indicators of the community "standard of practice" in litigious situations is conceivable. Productivity measures which indicate significant deviation from the community norm, such as the requirements and authorizations derived with the Staffing Guide, warrant investigation to determine if something is superior or inferior to the "standard." Certainly, a hospital confronted with this data in litigation may have to present documentation as to how the "standard" is met or exceeded.

Length of stay data was evaluated as a measure of output in conjunction with the FTE utilization ratio. Based on observed data it may be concluded that MAMC patients have fewer nursing resources devoted to their care and that they experience a shorter hospitalization period. Although the merit of this situation is beyond the scope of this project, the outcome of these hospitalizations should be compared to resolve this issue. An appropriate mechanism to serve as an indicator of patient

outcome is an analysis of hospital readmission rates. An "acceptable" rate should be established against which results can be internally evaluated as a quality assurance/risk management criterion as well as externally compared as a measure to aid management with resource distribution and utilization.

Recommendations

In light of observations and results of this project, several recommendations for further study are appropriate. The MAMC Patient Classification System ratio of licensed practical nurses and nursing assistants should be reassessed to determine if overall savings in manpower requirements and expenses can be realized with increased utilization of registered nurses. Experience in the civilian sector suggests that the benefits are not proportionate to costs incurred with the interchange of RNs with other nursing personnel. This recommendation transcends the MAMC System and may impact on other AMEDD classification systems which identify and assign tasks to the lowest personnel skill level capable of fulfilling the patients' need for care.

Results of the work sample survey underscores the need to minimize the amount of time spent in other than direct care tasks by nursing personnel. Ancillary, administrative, and logistical functions may be streamlined and economies-of-scale achieved with the development of support services and systems to augment the nursing staff. Basic examples of these services include unit dose, supply/linen cart delivery-exchange, patient escort/messenger service, and an automated hospital information

system. These are not utopian systems but rather available, proven, cost-containment, productivity enhancing mechanisms which promote "quality" patient care. In light of constrained personnel resources, MAMC should seriously schedule and undertake a series of work method studies to identify such systems, redistribute resources, and implement efforts to improve the proportion of time available for direct patient care.

The project raises legitimate concern that considerable disparity in the amount of professional nurse staffing at MAMC and possibly other military medical treatment facilities exists in relation to comparable civilian hospitals. This conclusion suggests that the Army should re-address the adequacy of staffing tables for nursing units.

APPENDIX A

MADIGAN ARMY MEDICAL CENTER ACUITY BASED CARE PATIENT CATEGORIZATION POLICY

DEPARTMENT OF THE ARMY
MADIGAN ARMY MEDICAL CENTER
DEPARTMENT OF NURSING
TACOMA, WASHINGTON 98431

Nursing Administrative Guide #43 15 April 1982

ACUITY BASED CARE CATEGORIZATION POLICY

1. PURPOSE: To establish guidelines for utilizing the patient categorization system to objectively identify the nursing care staffing requirements for patient care and appropriately placing the patient in the Acuity Based Care System.

2. OBJECTIVE: The patient categorization is a tool for assessing the acuity of the patient and documentation of the Nursing Care Hours required for that patient. This documentation then becomes a tool for predicting and identifying patterns and trends in staffing requirements and placement by ward of patients in the Acuity Based Care System. The categories are simply numbers that reflect Nursing Care Hours required for each patient. They DO NOT indicate severity of illness (as do SI and VSI) nor should they identify a particular group or type of patient (such as newborns or pediatric). The only groupings that they can be equated with are these found in progressive patient care terminology that address the acuity of the patient (intensive, intermediate, minimal).

3. PROCEDURE:

a. Nursing activities are rated with-in the following:

Major Areas of Nursing Intervention and Support:

1. Comfort and safety
2. Personal Hygiene
3. Nutrition
4. Elimination
5. Movement
6. Health Teaching
7. Therapeutic Activities/Modalities
8. Observation and Assessment

b. Definition of the Categories are as follows:

Category 1 - Patient is totally dependent on nursing staff for comfort and safety, personal hygiene, nutrition, elimination, movement, and therapeutic activities. Observations and assessment are required every four hours or more often.

Department of Nursing, Madigan Army Medical Center, Nursing Administration Guide #43, 15 April 1982

Category II - Patient is significantly dependent on nursing staff for assistance with comfort and safety, personal hygiene, nutrition, elimination, movement, health teaching, and therapeutic activities. Observation and assessment is required every six hours or QID.

Category III - Patient is partially dependent on nursing staff for assistance with health teaching and therapeutic activities. Observation and assessment is required BID, daily or weekly.

Category IV - Patient is essentially independent and requires only limited assistance from nursing staff for health teaching and therapeutic activities. Observation and assessment is infrequent.

c. Based upon data from the tasking document, essential minimal nursing care requirements for the following types of patients place them in a Category I status.

Patients in Active Labor
Patients 16 hours Post-Partum
Patients on Respirators
Newborns During 1st 24 hours of Life
All Premature Infants
Any Newborn Infant with Injuries or Complications
Patients receiving Peritoneal Dialysis
Patients Having Both Eyes Covered
Patients on Hypothermia
Patients on Frames requiring Turning q2 hours or more often

d. Determination of the patient category will be accomplished by selecting the most appropriate description code in each of the designated major areas of nursing intervention and support. As each code is given a value, the sum of the codes selected for all eight areas - will numerically place each patient in the appropriate categorization. Scoring for the description code is as follows:

Code A = 4 points - which indicates the patient has multiple complex, care needs, life supporting care.

Code B = 3 points - which signifies complex care needs with special treatments, or monitoring.

Code C = 2 points - which identifies patients with multiple routine care needs and ADL dependencies.

Code D = 1 point - which designates care without special treatments or monitoring.

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Scoring for Patient Categorization is as Follows:

Total Score	Category
0-8	IV
9-13	III
14-18	II
19-23	I
24-27	IA
28 or over	IB

For example: A patient who is 10 days post-op pancreatic abscess with complicated dressing changes, on hyperalimentation and strict Intake and Output, but requires partial assistance with Activities of Daily Living is classified in the following manner:

Comfort and safety	2
Personal Hygiene	2
Nutrition	4
Elimination	3
Movement/Activity	2
Health & Teaching Support	4
Therapeutic Activities/ Modalities	3
Observation	3
Total	23

which classifies patient as Category 1.

e. Descriptive Code for Each Area of Nursing Intervention and Support:

1. Comfort and Safety

CODE (A) Patient requires frequent linen changes, positional support, may require restraints and/or side rails and/or emotional support is required frequently (at least one encounter per shift).

CODE (B) Patient may require positional support in bed or chair, infrequent linen changes other than daily and/or some emotional support is required frequently (at least one encounter per 24 hours).

CODE (C) Patient may require positional support in chair, daily linen change, and emotional support and reinforcement occasionally.

CODE (D) Patient has no special requirements for comfort or safety. May require limited emotional support and reinforcement.

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2. Personal Hygiene:

CODE (A) Patient requires complete bed bath, oral care, back care, am and pm care.

CODE (B) Patient requires partial bed bath, partial am and pm care, back care but can do own oral care.

CODE (C) Patient requires limited assistance with bath, back care, but can do am and pm and oral care.

CODE (D) Patient can assume total responsibility for own personal hygiene.

3. Nutrition:

CODE (A) Patient requires feedings/is receiving IV Therapy/ hyperalimentation/tube feedings and/or intake monitoring more often than TID.

CODE (B) Patient requires assistance at mealtime for preparation of food (cutting meat, opening containers) and/or eating, may have IV Therapy which is supplemental and/or intake monitoring TID or less often.

CODE (C) Patient may require some help in the preparation of food (cutting meat, etc) but can feed self and/or IV Therapy which is supplemental.

CODE (D) Patient can feed self or take meals at the mess hall.

4. Elimination:

CODE (A) Patient requires total assistance with toileting activities, is incontinent or involuntary, or has an indwelling catheter or external drainage, or output monitoring, specific gravity or fractional urines TID or more often.

CODE (B) Patient requires partial assistance with toileting activities (getting to bathroom, getting on and off bedpan, perineal care, etc) or may have invasive drainage device and/or output monitoring TID or less often.

CODE (C) Patient requires limited assistance with toileting activities (getting to bathroom, getting on and off bedpan, etc) or does own perineal care and irrigations.

CODE (D) Independent use of bedpan, urinal or commode. Bathroom privileges.

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5. Movement:

CODE (A) Patient cannot ambulate or move about in bed without full assistance, requires passive exercise TID or more often, and/or requires frequent turning and attention to body alignment.

CODE (B) Patient requires some assistance with ambulation (getting in and out of bed, walking, etc) or movement in bed, can do limited active exercise or requires passive exercise BID or less often.

CODE (C) Patient requires limited assistance with ambulation and transportation and/or bedrest.

CODE (D) Up ad lib, independent, and ward privileges.

6. Health Teaching:

CODE (A) Structures one-on-one teaching and/or emotional support TID or more often.

CODE (B) Structured one-on-one teaching and/or emotional support daily.

CODE (C) Unstructured one-on-one teaching or emotional support from other care.

CODE (D) Routine explanations of care and routine emotional support.

7. Therapeutic Activities/Modalities:

CODE (A) Patient requires nursing intervention for more than 3 complicated and/or life supporting treatments and/or procedures and/or drugs or stryker frame. An example of procedures included in this category are the following:

1. Frequent dressing changes
2. Decubitius care
3. Oral-naso-tracheal suctioning q4 hours or oftener
4. Continuous oxygen therapy
5. Isolation care
6. Initial colostomy/ileostomy care
7. Patient on Stryker Frame or circo-electric bed
8. Irrigations q4 hours or oftener
9. Hourly CVP
10. IV drugs (chemotherapy, aramine, Levephed, insulin, etc)

CODE (B) Patient requires 3 or less complicated treatments and/or procedures and/or drugs. Examples include the following:

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1. Daily or minor dressing changes
2. P.O. monitored drugs
3. PRN suctioning
4. PRN or intermittent O_2 Therapy
5. Anticoagulant therapy
6. Medications q 4-6 hours
7. Tracheostomy care
8. Pin or tong care
9. BID or daily EKG
10. Liver biopsy, thoracentesis, or paracentesis
11. Irrigations QID or TID
12. Chest PT QID or TID
13. IPPB QID or oftener
14. Chest tube or N/G tube

CODE (C) Requires more than 3 simple procedures and/or treatments and/or drugs. Examples are:

1. EKG twice weekly or less
2. Medications QID or less frequent
3. Self treatments (soaks, colostomy care, sitz baths, dressings, etc.)
4. IPPB or chest PT BID or less frequently

CODE (D) Patient requires routine care/treatments/procedures/drugs. (3 or less).

8. Observation and Assessment:

CODE (A) Patient requries vital signs or other monitoring assessment more often than q4 hours. Examples are: Cardiac or respiratory monitoring or neuro.

CODE (B) Patient requires VS or other monitoring/assessment q4 hours or moderately disoriented/confused.

CODE (C) Patient requires VS or other monitoring/assessment q6 hours or QID or occasionally disoriented.

CODE (D) Patient requires VS TID or less often and oriented.

4. SPECIAL INFORMATION:

a. Acuity Based Care is a concept of providing higher quality nursing care through better utilization of staff. Under this system patients are assigned to wards according to the nursing care hours required.

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b. Wards are identified as Intensive Care (ICU, CCU, NICU) where Category IA and IB patients are found, Intermediate Care with Category IA, I and II patients, Moderate Care for patients in Category II and III, and Minimal Care with Category III and IV patients. Patients are moved through the system according to the nursing care required. For example a Radical Neck Patient: Initially may be a Category IB patient requiring intensive nursing care immediately post-op. As the patient begins to recover and becomes Category IA, he/she is transferred to the Intermediate Care Ward where patient care requirements continue to be demanding. Recovery continues for the patient and his nursing care requirements fall into Category II or III and the patient is then transferred to the Moderate Care area where emphasis focuses on patient teaching and discharge planning. Patients requiring further hospitalization for rehabilitation, wound isolation or limited nursing care are Category III or IV and are assigned to a Minimal Care Ward. Staffing for nursing personnel is then determined according to the categories of patients on that ward.

c. The Safe minimal standard proposal for the hours of Nursing Care required by category of patients and level of personnel in relation to Acutal Needs are as follows:

HOURS REQUIRED BY CATEGORY						
Type of Personnel	* IA	** IB	I	II	III	IV
Professional	7.0	9.9	4.7	1.7	0.8	0.5
LVN/91C30	4.5	5.9	2.9	2.3	0.9	0.4
Other Para-professional	1.1	0.6	1.3	1.2	1.0	0.5
TOTALS	12.6	16.4	8.9	5.2	2.7	1.4

*Intensive Care Units
** Critical Care Units

The staffing requirements are then identified by adding the number of patients in each category on a given ward. That number is then multiplied by the total number of nursing care hours required for each patient in that category (i.e. 4 category IA patients in ICU require 4 X 12.6 = 50.4 total hours care for a 24 hour period).

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The percentage of hours of professional care is then determined by dividing the number of professional hours by the total nursing hours. (i.e. Category IA patients require 7.0 hours of professional care in a total of 12.6 hours, therefore, 7.0 ÷ 12.6 = 56%).

The next step is to divide the total hours for the number of patients in that category by the percentage of professional hours needed (i.e. 50.4 hours ÷ 56% = 28.2 hours). That figure represents the number of professional hours needed for a 24 hour period to care for these patients. Since 8 hours is the work period for nursing personnel, that number is divided into the professional hours needed for the number of professional nurses required to give care to those patients for a 24 hour period (i.e. 8 ÷ 28.2 hours = 3.5 professionals to cover a 24 hour period to care for 4 Category IA patients).

The process is then applied to the other levels of nursing personnel to determine the safe minimal staffing requirements for each ward.

APPENDIX B

NURSING ACTIVITY WORK SAMPLE SURVEY INSTRUMENT AND DEFINITIONS

WORK SAMPLE SURVEY ACTIVITY DEFINITIONS

DIRECT PATIENT CARE - Time spent in the presence of the patient and/or family; preparation and tear-down time for direct care tasks are included since these times are integrated with MAMC direct care hours per patient category.

INDIRECT PATIENT CARE - All nursing care time not in contact with a patient. It includes activities associated with a particular patient, such as charting, but not a specific direct care task.

OTHER/ADMINISTRATIVE TASKS - Time when personnel are engaged in tasks other than direct or indirect care.

PERSONAL - Nonproductive time.

The following list categorizes examples of direct and indirect nursing tasks as well as other/administrative activities nursing personnel would be expected to be engaged in. The direct and indirect tasks were identified in the development of the MAMC Patient Classification System.

DIRECT

1. Administering O_2 (mask)
2. Administering O_2 (nasal)
3. Administering IPPB
4. Administering IM medications
5. Administering oral medication
6. Administering subcutaneous medication
7. Ambulating patient (1st time)
8. Ambulating patient (bed to floor)
9. Applying elastic stockings.
10. Applying ace bandage (leg)
11. Applying hot compresses (local area)
12. Assessing fetal heart sounds
13. Assessing physical status (nursing physical)
14. Assisting with bone marrow
15. Assisting patient from chair to bed
16. Assisting with lumbar puncture
17. Assisting with thoracentesis
18. Assisting with paracententesis
19. Assisting with removal sutures
20. Back rub

21. Bathing an infant
22. Bed bath (complete - adult)
23. Back bath (partial - legs, back, abdomen)
24. Bed shampoo (female)
25. Catheter care (cleansing)
26. Catheterization (Foley, female)
27. Catheterization (straight, female)
28. Changing dressings (large - abdominal)
29. Changing dressings (small - local)
30. Changing diaper (infant)
31. Changing linen (bottom sheet only)
32. Changing linen (crib)
33. Changing Tracheostomy tube
34. Chest tube care
35. Clean catch urine (male)
36. Clean catch urine (female)
37. Changing patient position in bed
38. Cleaning a wound
39. Cleaning trachestomy canula
40. Decubitus care
41. Drawing blood (1 tube)
42. Evening care (giving basic and straightening linen)
43. Eye irrigation
44. Eye instillation (drops)
45. Feeding patient (adult)
46. Feeding patient (infant)
47. Feeding patient (child)
48. Giving an enema (fleets)
49. Gavage (infant)
50. Gavage (adult)
51. Giving a bed pan
52. Giving chest PT
53. Giving a urinal
54. Inserting a nasal catheter
55. Initiating Hypothermia treatment
56. Inserting a N/G tube
57. Irrigation of wound
58. Irrigation of colostomy
59. Incontinent care (changing linen & bathing)
60. Making an occupied bed
61. Making an unoccupied bed
62. Measuring I&O
63. Monitoring resp. status (bl. gases)
64. Monitoring cardiac activity (including 1 min strip)
65. Monitoring CUP
66. Morning care (basin & oral care)
67. Naso-tracheal suctioning
68. Oral care (given)

69. Oral care (providing utensils)
70. Pin care (Steinonan)
71. Preparing medications (IM)
72. Preparing medications (oral)
73. Preparing medications (subcutaneous)
74. Preparing patients' tray (cutting, opening)
75. Perineal care
76. Post-mortem care
77. Respiratory resuscitation
78. Reinforcing dressing
79. Soaking (hand)
80. Soaking (foot)
81. Special assessment (neuro, etc) Please indicate type
82. Sponging patient (adult)
83. Sponging patient (infant)
84. Starting an IV
85. Suctioning patient (oral)
86. Suctioning patient (tracheostomy)
87. Surgical prep (local or leg)
88. Surgical prep (3 way)
89. Taking vital signs (TPR & BIP)
90. Taking oral temperature
91. Taking rectal temperature
92. Taking blood pressure
93. Taking EKG
94. Taking wound culture
95. Testing urine
96. Transporting patient from bed to cart
97. Turning foster frame
98. Traction (applying Bucks)
99. Tongs (Care of Cushfield)
100. Teaching administration med (IM or subcu)
101. Teaching colostomy care
102. Teaching postural drainage
103. Teaching urine testing (diabetic)
104. Teaching use of blow bottles
105. Teaching (miscellaneous) Indicate type
106. Others not listed or miscellaneous (list as observed)
107. Piggy Back meds
108. Chest P.T.
109. Incentive Spirometer (initiating)
110. Arterial Stick (Blood Gas)
111. Set-up IMED - IVAC
112. Hickman Catheter Care
113. Assist with Swan-Ganz Insertion
114. Peritoneal Dialysis (initiate)
115. Transducer Exchange

116. Irrigation Masogastric tube
117. IV Push meds
118. Changing IV bottles
119. Adjusting IV flow rate
120. Sputum culture
121. Throat culture
122. Routine urine specimen
123. Urine testing for specific gravity
124. Urine testing for protein
125. Guaiac Stool testing
126. Applying condum catheter
127. Removal chest tubes
128. Assisting with vaginal/pelvic examination

INDIRECT

1. Admission of a patient
2. Answering phone
3. Answering patient request (call light)
4. Assigning personnel
5. Change of shift report
6. Charting nurses' notes
7. Charting vital signs
8. Cleaning a unit
9. Completing nursing history
10. Completing 24 hour report
11. Dietary explanation
12. Discharge of a patient
13. Escorting patient to support services (X-ray, etc)
14. Filling out request forms (short)
15. Filling out request forms (long)
16. Initialling doctors' orders
17. Pre-operative care (securing valuables, sk chart, etc.)
18. Securing old records
19. Taking specimens to support areas (lab, etc.)
20. Transfering a patient
21. Ward rounds with physician
22. Ward rounds (nursing)

OTHER/ADMINISTRATIVE

1. Scheduled meetings
2. Logistical activities - linen/supplies
3. Order/inventory/stock supplies
4. Drugs/narcotic inventory/ordering
5. Supervisor duties
6. Ward orientation
7. Staff training
8. Officer/clerical tasks
9. Employee counseling

APPENDIX C

DEVELOPMENT OF NURSING PERSONNEL REQUIREMENTS WITH AMEDD STAFFING GUIDE CRITERIA

REVISION OF RECOGNIZED REQUIREMENTS FOR NURSING PERSONNEL
BASED ON WORKLOAD, APRIL 82-MARCH 83;
AND LOCAL APPRAISAL FACTORS IDENTIFIED BY
HSC MANPOWER SURVEY TEAM, OCTOBER 1979

ACTIVITY: Pediatrics - Ward 1

STAFFING GUIDE TABLE: 557-82.41

WORK UNIT: Daily Average Occupied Beds

AVERAGE DAILY WORKLOAD (APR 82 - MAR 83)*: 16.14 or 16

APR	17.60	OCT	18.81
MAY	16.26	NOV	14.67
JUN	17.50	DEC	12.35
JUL	15.42	JAN	14.94
AUG	18.55	FEB	14.21
SEP	17.60	MAR	15.81

YARDSTICK ALLOWANCE/COMPUTATION: 18 + .7 (16-10) = 22.2 or 22

LOCAL APPRAISAL FACTORS/CONSIDERATIONS:** Plus 7 Requirements

To compensate for
- age of patients
- outpatient workload
- same-day surgery admission
- geographic characteristics

IDENTIFIED REQUIREMENTS: 22 + 7 = 29

9	Registered Nurses
12	"Licensed"/Practical Nurses
7	Nurse Aids/Assistants
1	Medical Clerk(s)
29	TOTAL

*SOURCE: MAMC Form 84-N, Daily Patient Status Report

**Based on additional personnel recognized/Survey Team remarks during last formal survey to allow for facility/mission characteristics.

REVISION OF RECOGNIZED REQUIREMENTS FOR NURSING PERSONNEL
BASED ON WORKLOAD, APRIL 82-MARCH 83;
AND LOCAL APPRAISAL FACTORS IDENTIFIED BY
HSC MANPOWER SURVEY TEAM, OCTOBER 1979

ACTIVITY: Obstetrics (Maternity) - Ward 2

STAFFING GUIDE TABLE: 557-82.42

WORK UNIT: Occupied Beds

AVERAGE DAILY WORKLOAD (APR 82 - MAR 83)*: 31.09 or 31

APR	30.60	OCT	28.52
MAY	28.58	NOV	27.27
JUN	26.30	DEC	33.94
JUL	36.65	JAN	28.10
AUG	35.52	FEB	30.89
SEP	34.07	MAR	32.58

YARDSTICK ALLOWANCE/COMPUTATION: 19 + .3(31-30) = 19.3 or 19

LOCAL APPRAISAL FACTORS/CONSIDERATIONS:** Plus 8 Requirements per Survey

Team Remarks - 3 for Rooming-in requirement recognized by American Academy of Pediatrics

- 5 for Complicated ante-partum patients

IDENTIFIED REQUIREMENTS: 19 + 8 = 27

10 Registered Nurses

4 "Licensed"/Practical Nurses

12 Nurse Aids/Assistants

1 Medical Clerk(s)

27 TOTAL

*SOURCE: MAMC Form 84-N, Daily Patient Status Report

**Based on additional personnel recognized/Survey Team remarks during last formal survey to allow for facility/mission characteristics.

REVISION OF RECOGNIZED REQUIREMENTS FOR NURSING PERSONNEL
BASED ON WORKLOAD, APRIL 82-MARCH 83;
AND LOCAL APPRAISAL FACTORS IDENTIFIED BY
HSC MANPOWER SURVEY TEAM, OCTOBER 1979

ACTIVITY: Newborn Nursery, Ward 3

STAFFING GUIDE TABLE: 557-82.44

WORK UNIT: Bassinets Occupied

AVERAGE DAILY WORKLOAD (APR 82 - MAR 83)*: 25.12 or 25

APR	25.63	OCT	24.03
MAY	23.10	NOV	23.87
JUN	22.03	DEC	26.68
JUL	23.77	JAN	25.35
AUG	26.32	FEB	25.29
SEP	30.10	MAR	25.29

YARDSTICK ALLOWANCE/COMPUTATION: 24 + .9(25-20) = 28.5 or 29

LOCAL APPRAISAL FACTORS/CONSIDERATIONS:** Plus 3 Requirements

Addressed by Survey Team to conform to
American Academy of Pediatric Standards

IDENTIFIED REQUIREMENTS: 29 + 3 = 32

11	Registered Nurses
5	"Licensed"/Practical Nurses
15	Nurse Aids/Assistants
1	Medical Clerk(s)
32	TOTAL

*SOURCE: MAMC Form 84-N, Daily Patient Status Report

**Based on additional personnel recognized/Survey Team remarks during last formal survey to allow for facility/mission characteristics.

REVISION OF RECOGNIZED REQUIREMENTS FOR NURSING PERSONNEL
BASED ON WORKLOAD, APRIL 82-MARCH 83;
AND LOCAL APPRAISAL FACTORS IDENTIFIED BY
HSC MANPOWER SURVEY TEAM, OCTOBER 1979

ACTIVITY: Newborn Intensive Care Unit, Ward 3A

STAFFING GUIDE TABLE: 557-82.23 (Intensive Care Unit - Generic Criteria)

WORK UNIT: Occupied Beds/Bassinets

AVERAGE DAILY WORKLOAD (APR 82 - MAR 83)*: 8.21 or 8

APR	7.23	OCT	8.19
MAY	6.94	NOV	8.40
JUN	7.40	DEC	8.42
JUL	8.61	JAN	9.06
AUG	7.84	FEB	9.39
SEP	9.63	MAR	7.35

YARDSTICK ALLOWANCE/COMPUTATION: 8 Beds Occupied yields 36 Requirements

LOCAL APPRAISAL FACTORS/CONSIDERATIONS:** Plus 6 Requirements per

Survey Team Comments:
- American Academy of Pediatrics
- Additional Staffing for Respiratory Support

IDENTIFIED REQUIREMENTS: 36 + 6 = 42

19	Registered Nurses
10	"Licensed"/Practical Nurses
12	Nurse Aids/Assistants
1	Medical Clerk(s)
42	TOTAL

*SOURCE: MAMC Form 84-N, Daily Patient Status Report

**Based on additional personnel recognized/Survey Team remarks during last formal survey to allow for facility/mission characteristics.

REVISION OF RECOGNIZED REQUIREMENTS FOR NURSING PERSONNEL
BASED ON WORKLOAD, APRIL 82-MARCH 83;
AND LOCAL APPRAISAL FACTORS IDENTIFIED BY
HSC MANPOWER SURVEY TEAM, OCTOBER 1979

ACTIVITY: Minimal Care, Ward 5

STAFFING GUIDE TABLE: 557-82.12

WORK UNIT: Occupied Beds

AVERAGE DAILY WORKLOAD (APR 82 - MAR 83)*: 28.84 or 29

APR	34.97	OCT	33.80
MAY	29.27	NOV	30.81
JUN	21.48	DEC	30.70
JUL	25.70	JAN	23.61
AUG	33.42	FEB	23.10
SEP	35.42	MAR	23.75

YARDSTICK ALLOWANCE/COMPUTATION: Direct Reading = 5

LOCAL APPRAISAL FACTORS/CONSIDERATIONS:** Plus 8 Requirements per Survey Team comments and Interim Schedules X approved for ABC Ward Configuration

IDENTIFIED REQUIREMENTS: 5 + 8 = 13

1	Registered Nurses
6	"Licensed"/Practical Nurses
4	Nurse Aids/Assistants
2	Medical Clerk(s)
13	TOTAL

*SOURCE: MAMC Form 84-N, Daily Patient Status Report

**Based on additional personnel recognized/Survey Team remarks during last formal survey to allow for facility/mission characteristics.

REVISION OF RECOGNIZED REQUIREMENTS FOR NURSING PERSONNEL
BASED ON WORKLOAD, APRIL 82-MARCH 83;
AND LOCAL APPRAISAL FACTORS IDENTIFIED BY
HSC MANPOWER SURVEY TEAM, OCTOBER 1979

ACTIVITY: Pre-op Admission Ward, Ward 7

STAFFING GUIDE TABLE: 557-82.21

WORK UNIT: Occupied Beds

AVERAGE DAILY WORKLOAD (APR 82 - MAR 83)*: 18.92 or 19

APR	17.55	OCT	19.50
MAY	16.35	NOV	19.40
JUN	16.04	DEC	15.45
JUL	17.45	JAN	22.18
AUG	19.17	FEB	22.00
SEP	19.48	MAR	22.48

YARDSTICK ALLOWANCE/COMPUTATION: 12 + .625(19-12) = 16.37 or 16

LOCAL APPRAISAL FACTORS/CONSIDERATIONS:** Minus 1 Requirement

Ward does not provide post operative nursing care.

IDENTIFIED REQUIREMENTS: 16 - 1 = 15

6	Registered Nurses
2	"Licensed"/Practical Nurses
5	Nurse Aids/Assistants
2	Medical Clerk(s)
15	TOTAL

*SOURCE: MAMC Form 84-N, Daily Patient Status Report

**Based on additional personnel recognized/Survey Team remarks during last formal survey to allow for facility/mission characteristics.

REVISION OF RECOGNIZED REQUIREMENTS FOR NURSING PERSONNEL
BASED ON WORKLOAD, APRIL 82-MARCH 83;
AND LOCAL APPRAISAL FACTORS IDENTIFIED BY
HSC MANPOWER SURVEY TEAM, OCTOBER 1979

ACTIVITY: Intermediate Surgical Care, Ward 9

STAFFING GUIDE TABLE: 557-82.21

WORK UNIT: Occupied Beds

AVERAGE DAILY WORKLOAD (APR 82 - MAR 83)*: 10.81 or 11

APR	13.07	OCT	10.90
MAY	11.90	NOV	9.23
JUN	10.83	DEC	9.00
JUL	9.68	JAN	10.24
AUG	10.52	FEB	11.54
SEP	11.10	MAR	11.71

YARDSTICK ALLOWANCE/COMPUTATION: 14 - .625(12-11) = 13.375 or 13

LOCAL APPRAISAL FACTORS/CONSIDERATIONS:** Plus 24 Requirements per

Comments Interim Schedule X. HSC has recognized transfer of existing requirements from closed ward to implement ABC reorganization. Results in ward staffing at 24 requirements beyond yardstick yield.

IDENTIFIED REQUIREMENTS: 13 + 24 = 37

17	Registered Nurses
8	"Licensed"/Practical Nurses
10	Nurse Aids/Assistants
2	Medical Clerk(s)
37	TOTAL

*SOURCE: MAMC Form 84-N, Daily Patient Status Report

**Based on additional personnel recognized/Survey Team remarks during last formal survey to allow for facility/mission characteristics.

REVISION OF RECOGNIZED REQUIREMENTS FOR NURSING PERSONNEL
BASED ON WORKLOAD, APRIL 82-MARCH 83;
AND LOCAL APPRAISAL FACTORS IDENTIFIED BY
HSC MANPOWER SURVEY TEAM, OCTOBER 1979

ACTIVITY: Intensive Care Unit, Ward 10A

STAFFING GUIDE TABLE: 557-82.23

WORK UNIT: Occupied Beds

AVERAGE DAILY WORKLOAD (APR 82 - MAR 83)*: 5.47 or 6

APR	5.57	OCT	5.42
MAY	5.45	NOV	5.50
JUN	5.43	DEC	5.45
JUL	4.58	JAN	5.87
AUG	5.55	FEB	5.50
SEP	5.87	MAR	5.48

YARDSTICK ALLOWANCE/COMPUTATION: 21 + 5.0(6-5) = 26

LOCAL APPRAISAL FACTORS/CONSIDERATIONS:** Plus 19 requirements developed by Survey Team to allow for mission and facility constraints; amended by Interim Schedule X from 19 to 17 requirements.

IDENTIFIED REQUIREMENTS: 26 + 17 = 43

18	Registered Nurses
10	"Licensed"/Practical Nurses
13	Nurse Aids/Assistants
2	Medical Clerk(s)
43	TOTAL

*SOURCE: MAMC Form 84-N, Daily Patient Status Report

**Based on additional personnel recognized/Survey Team remarks during last formal survey to allow for facility/mission characteristics.

REVISION OF RECOGNIZED REQUIREMENTS FOR NURSING PERSONNEL
BASED ON WORKLOAD, APRIL 82-MARCH 83;
AND LOCAL APPRAISAL FACTORS IDENTIFIED BY
HSC MANPOWER SURVEY TEAM, OCTOBER 1979

ACTIVITY: Moderate Surgical Care, Ward 11

STAFFING GUIDE TABLE: 557-82.21

WORK UNIT: Occupied Beds

AVERAGE DAILY WORKLOAD (APR 82 - MAR 83)*: 44.30 or 44

APR	42.97	OCT	46.32
MAY	40.29	NOV	43.57
JUN	46.13	DEC	39.65
JUL	44.26	JAN	43.90
AUG	46.10	FEB	45.11
SEP	46.23	MAR	47.10

YARDSTICK ALLOWANCE/COMPUTATION: 29 + .5(44-40) = 31

LOCAL APPRAISAL FACTORS/CONSIDERATIONS:** Plus 5 Requirements per

Survey Team comments - major surgery patients on ward
- facility layout
- outpatient workload
- surgical prep

IDENTIFIED REQUIREMENTS: 31 + 5 = 36

13	Registered Nurses
5	"Licensed"/Practical Nurses
16	Nurse Aids/Assistants
2	Medical Clerk(s)
36	TOTAL

*SOURCE: MAMC Form 84-N, Daily Patient Status Report

**Based on additional personnel recognized/Survey Team remarks during last formal survey to allow for facility/mission characteristics.

REVISION OF RECOGNIZED REQUIREMENTS FOR NURSING PERSONNEL
BASED ON WORKLOAD, APRIL 82-MARCH 83;
AND LOCAL APPRAISAL FACTORS IDENTIFIED BY
HSC MANPOWER SURVEY TEAM, OCTOBER 1979

ACTIVITY: Moderate Surgical Care, Ward 13

STAFFING GUIDE TABLE: 557-82.21

WORK UNIT: Occupied Beds

AVERAGE DAILY WORKLOAD (APR 82 - MAR 83)*: 37.98 or 38

APR	37.87	OCT	37.55
MAY	40.32	NOV	38.40
JUN	42.67	DEC	36.13
JUL	37.94	JAN	34.68
AUG	39.19	FEB	36.75
SEP	33.67	MAR	40.61

YARDSTICK ALLOWANCE/COMPUTATION: 24 + .5(38-30) = 28

LOCAL APPRAISAL FACTORS/CONSIDERATIONS:** None noted; Interim

Schedules X solely utilized yardstick computation. However, it was noted that on site survey recognized Plus 3 Requirements due to cantonment hospital configuration.

IDENTIFIED REQUIREMENTS: 28

11	Registered Nurses
10	"Licensed"/Practical Nurses
5	Nurse Aids/Assistants
2	Medical Clerk(s)
28	TOTAL

*SOURCE: MAMC Form 84-N, Daily Patient Status Report

**Based on additional personnel recognized/Survey Team remarks during last formal survey to allow for facility/mission characteristics.

REVISION OF RECOGNIZED REQUIREMENTS FOR NURSING PERSONNEL
BASED ON WORKLOAD, APRIL 82-MARCH 83;
AND LOCAL APPRAISAL FACTORS IDENTIFIED BY
HSC MANPOWER SURVEY TEAM, OCTOBER 1979

ACTIVITY: Psychiatric, Ward 17

STAFFING GUIDE TABLE: 557-82.31

WORK UNIT: Occupied Beds

AVERAGE DAILY WORKLOAD (APR 82 - MAR 83)*: 16.003 or 16

APR	20.93	OCT	16.84
MAY	18.10	NOV	16.30
JUN	15.53	DEC	16.19
JUL	14.87	JAN	16.00
AUG	17.52	FEB	11.54
SEP	11.80	MAR	16.42

YARDSTICK ALLOWANCE/COMPUTATION: 16 + .6(16-10) = 19.6 or 20

LOCAL APPRAISAL FACTORS/CONSIDERATIONS:** Plus 4 Requirements -

Survey team commented that yardstick yield is too austere to provide essential staffing to meet the demands of patient care.

IDENTIFIED REQUIREMENTS: 20 + 4 = 24

7	Registered Nurses
	"Licensed"/Practical Nurses
16	Nurse Aids/Assistants - Psychiatric Specialists
1	Medical Clerk(s)
24	TOTAL

*SOURCE: MAMC Form 84-N, Daily Patient Status Report

**Based on additional personnel recognized/Survey Team remarks during last formal survey to allow for facility/mission characteristics.

REVISION OF RECOGNIZED REQUIREMENTS FOR NURSING PERSONNEL
BASED ON WORKLOAD, APRIL 82-MARCH 83;
AND LOCAL APPRAISAL FACTORS IDENTIFIED BY
HSC MANPOWER SURVEY TEAM, OCTOBER 1979

ACTIVITY: Coronary Care Unit, Ward 19A

STAFFING GUIDE TABLE: 557-82.23 (Intensive Care Unit Generic Criteria)
557-82.11

WORK UNIT: Occupied Beds

AVERAGE DAILY WORKLOAD (APR 82 - MAR 83)*: 11.18 or 11 (5.1 CCU Beds)
(6.08 Medical Beds)

APR	12.90	OCT	11.26
MAY	9.55	NOV	11.23
JUN	12.03	DEC	10.81
JUL	11.77	JAN	11.45
AUG	11.29	FEB	10.11
SEP	10.90	MAR	10.84

YARDSTICK ALLOWANCE/COMPUTATION: 5 CCU Beds = 21
6 Medical Beds = 19 - .4(20-6) = 13.4 or 13

LOCAL APPRAISAL FACTORS/CONSIDERATIONS:**
Minus 3 Requirements -
Duplicate Head Nurse, Wardmaster, and Medical Clerks included with use of two yardsticks.

IDENTIFIED REQUIREMENTS: 21 + 13 - 3 = 31

15	Registered Nurses
10	"Licensed"/Practical Nurses
4	Nurse Aids/Assistants
2	Medical Clerk(s)
31	TOTAL

*SOURCE: MAMC Form 84-N, Daily Patient Status Report

**Based on additional personnel recognized/Survey Team remarks during last formal survey to allow for facility/mission characteristics.

REVISION OF RECOGNIZED REQUIREMENTS FOR NURSING PERSONNEL
BASED ON WORKLOAD, APRIL 82-MARCH 83;
AND LOCAL APPRAISAL FACTORS IDENTIFIED BY
HSC MANPOWER SURVEY TEAM, OCTOBER 1979

ACTIVITY: Intermediate Medical Care, Ward 20

STAFFING GUIDE TABLE: 557-82.11

WORK UNIT: Occupied Beds

AVERAGE DAILY WORKLOAD (APR 82 - MAR 83)*: 28.37 or 28

APR	26.63	OCT	30.52
MAY	28.19	NOV	30.10
JUN	28.10	DEC	30.35
JUL	30.77	JAN	29.10
AUG	28.06	FEB	25.46
SEP	28.43	MAR	24.74

YARDSTICK ALLOWANCE/COMPUTATION: 19 + .4(28-20) = 22.2 or 22

LOCAL APPRAISAL FACTORS/CONSIDERATIONS:** Plus 11 Requirements based on Survey Team remarks and Interim Schedules X; note that Survey Team increase of 13 Requirements was reduced by 2 on Interim Schedule X.

IDENTIFIED REQUIREMENTS: 22 + 11 = 33

14	Registered Nurses
4	"Licensed"/Practical Nurses
13	Nurse Aids/Assistants
2	Medical Clerk(s)
33	TOTAL

*SOURCE: MAMC Form 84-N, Daily Patient Status Report

**Based on additional personnel recognized/Survey Team remarks during last formal survey to allow for facility/mission characteristics.

REVISION OF RECOGNIZED REQUIREMENTS FOR NURSING PERSONNEL
BASED ON WORKLOAD, APRIL 82-MARCH 83;
AND LOCAL APPRAISAL FACTORS IDENTIFIED BY
HSC MANPOWER SURVEY TEAM, OCTOBER 1979

ACTIVITY: Moderate Medical Care, Ward 21

STAFFING GUIDE TABLE: 557-82.11

WORK UNIT: Occupied Beds

AVERAGE DAILY WORKLOAD (APR 82 - MAR 83)*: 25.12 or 25

APR	27.23	OCT	28.13
MAY	26.55	NOV	20.93
JUN	26.73	DEC	23.90
JUL	26.32	JAN	24.06
AUG	25.03	FEB	21.89
SEP	26.77	MAR	23.90

YARDSTICK ALLOWANCE/COMPUTATION: 19 + .4(25-20) = 21

LOCAL APPRAISAL FACTORS/CONSIDERATIONS:** Plus 12 Requirements -

Established through Manpower Survey/Interim Schedules X; Manpower Survey recognized 13 additional, however reduced this by one through interim process -- advised that requirements exceeded yardstick but will address during next on site survey.

IDENTIFIED REQUIREMENTS: 21 + 12 = 33

14	Registered Nurses
4	"Licensed"/Practical Nurses
13	Nurse Aids/Assistants
2	Medical Clerk(s)
33	TOTAL

*SOURCE: MAMC Form 84-N, Daily Patient Status Report

**Based on additional personnel recognized/Survey Team remarks during last formal survey to allow for facility/mission characteristics.

APPENDIX D

NURSING ACTIVITY WORK SAMPLE SURVEY OBSERVATIONS

NURSING ACTIVITY WORK SAMPLE SURVEY

CATEGORY OF ACTIVITY

DATE 7-13 June 1983

Unit	Comments			Direct Patient Care	Indir Patient Care	Other/ Admin	Personal	Unknown	Time Started	Time Completed	Total Time	
	7 Jun	TUES	37	14	13	7	3					
	8 Jun	WED	45	21	13	6	5					
	9 Jun	THUR	56	23	26	5	2					
	10 Jun	FRI	29	10	14	3	2					
	11 Jun	SAT	34	16	10	3	5					
	12 Jun	SUN	55	32	13	4	6					
	13 Jun	MON	49	19	24	3	3					
		TOTAL	305	135	113	31	26					
		PERCENT		44.3%	37.0%	10.2%	8.5%					
	RN:	TUES	14	6	5	3	Ø					
		WED	14	8	Ø	4	2					
		THUR	20	7	9	4	Ø					
		FRI	13	3	8	1	1					
		SAT	14	6	6	Ø	2					
		SUN	20	11	7	1	1					
		MON	18	4	12	2	Ø					
		TOTAL	113	45	47	15	6					
		PERCENT		39.8%	41.6%	13.3%	5.3%					
	LPN/91C:	TUES	10	3	4	1	2					
		WED	7	4	3	Ø	Ø					
		THUR	13	5	6	1	1					
		FRI	7	2	2	2	1					
		SAT	11	6	2	2	1					
		SUN	18	10	4	2	2					
		MON	10	3	5	1	1					
		TOTAL	76	33	26	9	8					
		PERCENT		43.4%	34.2%	11.8%	10.5%					
	NA/91B/91F:	TUES	13	5	4	3	1					
		WED	24	9	10	2	3					
		THUR	23	11	11	Ø	1					
		FRI	9	5	4	Ø	Ø					
		SAT	9	4	2	1	2					
		SUN	17	11	2	1	3					
		MON	21	12	7	Ø	2					
		TOTAL	116	57	40	7	12					
		PERCENT		49.1%	34.5%	6.0%	10.4%					

NURSING ACTIVITY WORK SAMPLE SURVEY

CATEGORY OF ACTIVITY

DATE TUESDAY 7 JUNE 83

Unit	Comments	Direct Patient Care	Indir Patient Care	Other/ Admin	Personal	Unknown	Time Started	Time Completed	Total Time
1	HILL RN NARCOTICS COUNT			✓			0720		
	CARLSON RN NARCOTICS ORIENTATION			✓					
	KRAFT-91C OFFICE TASKS			✓					
	ORRIEN-91B REPORT		✓						
	BURT-LPN SICK					N/O		0730	10
2	LADU RN SUPV			✓			0800		
	SCHARZ RN CLASS					N/O			
	REED RN MEDICATION CONSLT		✓						
	WINEGAR-91C CLASS					N/O			
	STEWART-91B TEACHING/EVAL PTN/STUD	✓							
	CASTILLO-91B MAKING BED	✓							
	PRENTICE-91B MAKING BED	✓						0810	
NBN	GALIN RN LUNCH				✓		1140		
	SICKAFOOST RN CLASS					N/O			
	HUNTER-91B PHONE-CENSUS UPDATE			✓					
	SAVOY-LPN @BASSINETTE ASSIST PTN	✓						1145	5
NICU	KANZLER-TDY					N/O	1350		
	ARPIN RN VITALS	✓							
	THOMPSON-91C PHONE-PERS				✓				
	EVICK-91C ADMIN INJ	✓							
	LEANDER RN ASSIST MD	✓							
	DAVEY (RES) RN CHARTING		✓					1400	10
5	STEENSON-91C CHARTING		✓				1520		
	WILKINS-91B SUPPLIES			✓					
	TREVA-NA (WIN) MEDS	✓							
	PALS-91B CHARTING		✓						
	TRIMBLE (RES) RN MEDS	✓			✓				
	BAHANG-91B CHARTING		✓						
	HESS-91B IDLE				✓			1530	10
7	ROCHELLE RN TEACHING PTN	✓					1620		
	TSURU RN ADMISSION		✓						
	ZILA 91C CHART		✓						
	AL-JUMAILY-91B SORTING LAB SLIPS		✓					1628	8
9	McANNANY RN CHARTING		✓				1640		
	TAVEAU RN MEDS	✓							
	KRAUS-91B SUPV			✓					
	REDFORD-LPN ✓ CHART [illegible]		✓						
	COX-NA VITALS	✓						1650	10

NURSING ACTIVITY WORK SAMPLE SURVEY

CATEGORY OF ACTIVITY

DATE TUESDAY 7 JUNE 1983

Unit	Comments	Direct Patient Care	Indir Patient Care	Other/ Admin	Person-al	Unknown	Time Started	Time Com-pleted	Total Time
ICU	DRISCOL RN MEDS	✓		-			2240		
	POTTER RN CHARTING		✓						
	JOHNSON LPN CHARTING		✓						
	JOHNSON LPN PERSONAL				✓				
	JENISON LPN TRANSFERRING	✓						2280	10
	43-5 N/O = 38	14	13	7	4				
		37%	34%	18%	11%				
	RN 17-2 N/O = 15	6	5	3	1				
		40%	33%	20%	7%				
	LPN/91C 12-2 N/O = 10	3	4	1	2				
		30%	40%	10%	20%				
	NA/91B 13-[illegible] 13	5	4	3	1				
		38%	31%	23%	8%				

NURSING ACTIVITY WORK SAMPLE SURVEY

CATEGORY OF ACTIVITY

DATE WEDNESDAY 8 JUN 83

Unit	Comments	Direct Patient Care	Indir Patient Care	Other/ Admin	Personal	Unknown	Time Started	Time Completed	Total Time
17	TORGESON RN PHARM				✓		1010		
	WINKLER RN PTN COUNSELING	✓							
	HAMBLA - 91F ASSG PERSONNEL		✓						
	MARBLE - 91F ESCORT/OBS	✓							
	McNAIR - 91F ESCORT/OBS	✓							
	WILSON - 91F ASST NURSE CARE	✓						1020	10
17	TORGESON RN ASST CHARGE			✓			1030		
	WINKLER RN "			✓					
	HAMBLA - 91F ASSG PERS/PHONE		✓						
	MARBLE - 91F ESCORT/OBS	✓							
	McNAIR - 91F ESCORT/OBS	✓							
	WILSON 91F CHARTING		✓					1040	10
20	MOTTA RN SUPV			✓			1050		
	LYONS RN BREAK				✓				
	SIMLER RN DELIVERING ANSWER	✓							
	JOHNS - 91C					N/O			
	EARLY - 91C MEDS	✓							
	BRADLEY - 91B POSTING STATUS BOARD		✓						
	THORTON - 91B BREAK				✓				
	MOSLEY - 91B HOUSEKEEPING		✓						
	BUTLER - 91B ASSG PATIENT	✓							
	PARKS - 91B BREAK				✓				
	KELLEY - 91B ASSIST PTN	✓							
	CHAPMAN - 91B HOUSEKEEPING		✓						
21	BASSETT RN IV PREP	✓					1110		
	AHERN 91C DISCHARGE CONF		✓						
	CORREA - 91B ADMISSION		✓						
	GATES - 91B IDLE				✓				
	ZASIEER - 91B					N/O			
	OLMSTEAD - 91B STUDYING			✓					
	HITE - 91B STUDYING			✓				1120	10
21	BASSETT RN IV MEDS	✓					1410		
	AHERN 91C DIET		✓						
	CORREA 91B CHART		✓						
	GATES 91B TRANSPORTING PTN	✓							
	TAYLOR 91B CHART		✓					1420	10

NURSING ACTIVITY WORK SAMPLE SURVEY

CATEGORY OF ACTIVITY

DATE WEDNESDAY 8 JUN 83

Unit	Comments	Direct Patient Care	Indir Patient Care	Other/ Admin	Personal	Unknown	Time Started	Time Completed	Total Time
1	NEWMAN RN TRANSF PTN CARE	✓		-			1910		
	SLEDGE RN SUPPLY			✓					
	REYNOLDS 91C PTN OBSV	✓							
	ADRIAN 91B PTN OBSV	✓						1918	8
2	BETTS RN PTN TEACHING	✓					2020		
	WARDLE RN VITALS	✓							
	MARQUEZ 91B INSTRUMENT & CHEMISTRY OPC		✓						
	LIMIETON LPN CLEAN-UP		✓					2030	10
NBN	MASELLA RN					N/O	2110		
	BIELSTEIN RN					N/O			
	HANN RN Feeding	✓							
	FERGUSON LPN Feeding	✓							
	PETERSON LPN CHANGING D	✓						2120	10
	49-[illegible] 45	21	13	6	5				
		47%	29%	13%	11%				
	RN 16-2 [illegible] 14	8	Ø	4	2				
		57%	0%	29%	14%				
	LPN/91C 8-1[illegible] 7	4	3	Ø	Ø				
		57%	43%	-	-				
	NA/91B/91F 25-1[illegible] 24	9	10	2	3				
		38%	42%	8%	13%				

NURSING ACTIVITY WORK SAMPLE SURVEY

CATEGORY OF ACTIVITY

DATE THURSDAY 9 JUN 83

Unit	Comments	Direct Patient Care	Indir Patient Care	Other/ Admin	Personal	Unknown	Time Started	Time Completed	Total Time
NICU	WIER RN CHART		✓	-			0720		
	LEANDER RN RESP CARE	✓							
	ARPIN RN VITALS	✓							
	CARROG RN CLEANING		✓					0730	10
5	TORRES RN REPORT		✓				0740		
	S RN (PAS) REPORT		✓						
	STEENSON 91C " "		✓						
	DORSEY 91C ASSG PERS		✓						
	LISTENBERG 91B REPORT		✓						
	TREVA NA (WIN) " "		✓						
	OATHOUT 91B IDLE				✓			0750	10
7	D/S RN PRE-ADMIT LAB SLIDE		✓				0950		
	ROGERS RN CHART		✓						
	REED - 91C PTN ASSESS	✓							
	ST CLAIR LPN MAKING BED	✓							
	MOORE - 91B PTN ASSESS	✓							
	PECK NA (WIN) MAKING BED	✓							
	ROSCH NA (WIN) MAKING BED	✓							
	DAVIS - 91B PTN ASSESS	✓						1000	10
9	HAAS-F RN CHANG IV LINE	✓					1240		
	SANNER RN ASSIST PTN	✓							
	CROWER RN LUNCH				✓				
	PHILLIPS 91C HOUSEKEEPING		✓						
	SCHATZ-T 91C CHARTING		✓						
	OBRIEN LPN ANS CALL LIGHT		✓						
	HOGAN 91B LUNCH				✓				
	ROURKE LPN MEAS I/O	✓							
	BOWMAN 91B ESCORTING PTN X-RAY		✓					1250	10
11	HEROUX RN SURV			✓			1330		
	SAVIN RN REVIEW CHARTS		✓						
	McCLANAHAN RN IRRIGATION	✓							
	MORGAN 91C CHART REVIEW		✓						
	BAPTISTE 91C [illegible]	✓							
	GARNER LPN [illegible]	✓							
	HALE 91B VITALS	✓							
	LATULA 91B [illegible]	✓							
	LAND 91B CHART [illegible]		✓						
	[illegible] 91B PTN LATE [illegible]		✓						
	B- 91B		✓						
	RICHARDSON 91B VITALS	✓						1340	10

NURSING ACTIVITY WORK SAMPLE SURVEY

CATEGORY OF ACTIVITY

DATE THURSDAY 9 JUN 83

Unit	Comments	Direct Patient Care	Indir Patient Care	Other/ Admin	Personal	Unknown	Time Started	Time Completed	Total Time
17	TORGERSON RN REPORT		✓	-			1530		
	BEGGIN RN REPORT		✓						
	HAMELLA 91F PTN [illegible]	✓							
	MARBLE 91F CHARTING		✓						
	DAVILLA 91F PTN [illegible]		✓						
	MCNAIR 91F CHARTING		✓						
	SWEENEY 91F PTN [illegible]		✓						
	WILSON 91F CHARTING		✓					1540	10
19	SAFRANER RN					N/O	1840		
	DOENNEBRINK RN MONITORING CARDIAC ACTY	✓							
	MARK RN SUPPLY ACTY			✓					
	SLAYTON RN [illegible]				✓				
	THYING 91C IDLE				✓			1850	10
20	AMBLER RN FOOD SVC	✓					1950		
	DRAKE RN SUPV			✓					
	MCARTER - 91C COUNSELING			✓					
	[illegible] 91B IV HEDS	✓							
	HOOD - 91B [illegible]	✓							
	ANDERSON - 91C BED PAN	✓							
	ALLEN - RN COUNSELING			✓				2000	10
	[illegible]	23	26	5	5				
		39%	44%	9%	9%				
	RN 23-1 = 22	7	9	4	2				
	LPN 91C 13	5	6	1	1				
	NA/91B/91F 24	11	11	Ø	2				

NURSING ACTIVITY WORK SAMPLE SURVEY

CATEGORY OF ACTIVITY DATE FRIDAY 10 June 83

Unit	Comments	Direct Patient Care	Indir Patient Care	Other/ Admin	Personal	Unknown	Time Started	Time Completed	Total Time
21	BASSETT RN REPORT		✓	-			0700		
	JONES RN					N/O			
	AHERN 91C Locker Cleaning			✓					
	TAYLOR 91B WEIGHER PTN	✓							
	GREGG 91B REPORT		✓						
	MIZOGUCHI RN SUPV			✓				0710	10
21	BASSETT RN REPORT		✓				0730		
	JONES RN REPORT		✓						
	AHERN 91C PTN STATUS BD		✓						
	CORREA 91B REPORT		✓						
	TAYLOR 91B FOOD SVC	✓							
	GREGG 91B REPORT		✓						
	MIZOGUCHI RN REPORT		✓						
	CROUCH LPN INJ MED	✓							
	X - NA/[illegible] REPORT		✓					0740	10
1	HILL RN					N/O	1340		
	[illegible] RN CHARTING		✓						
	LABEL RN PO MEDS	✓							
	KRAFT 91C SUPPLY ACTY			✓					
	[illegible] 91B [illegible]	✓							
	[illegible] LPN [illegible]				✓				
	STEEN 91B OKS/ASSIST	✓							
	RED CROSS RN TEACHING	✓						1350	10
2	LADU RN 24 hr REPORT		✓				1400		
	MOORE RN DISCH CHARTING		✓						
	REED RN 24 hr REPORT		✓						
	WINEGAR - 91C CLEANING		✓						
	PENNINGTON NA MONITOR IV	✓			✓			1409	9
NICU	TALENTINO RN VITALS	✓					1410		
	DIAMOND LPN VITALS	✓							
	[illegible] RN [illegible]				✓			1420	10
	31-2 [illegible] 29	10	14	3	2				
		34%	[illegible]	10%	7%				
	RN 5 [illegible] 13	3	8	1	1				
	LPN/91C 7	2	2	2	1				
	[illegible] 91C 7	5	4	Ø	Ø				

NURSING ACTIVITY WORK SAMPLE SURVEY

CATEGORY OF ACTIVITY

DATE SATURDAY 11 JUNE 1983

Unit	Comments	Direct Patient Care	Indir Patient Care	Other/ Admin	Personal	Unknown	Time Started	Time Completed	Total Time
5	TORRES RN CHARTING		✓	-			1150		
	NEWBY 91B CLEAN WOUND	✓						1155	5
13	DORSCH RN MEDS	✓					1300		
	KUNTZE RN PREP MEDS	✓							
	HALL 91C AMBULATING PTN	✓							
	LOPEZ - LPN START IV	✓							
	WILLIAMS - LPN AMBULAT PTN	✓							
	PHILLIPS - 91B					N/O		1310	10
NICU	SAPA RN FEEDING	✓					1420		
	TALVITON RN MONITOR PREP STATUS	✓							
	McLAURIN - LPN ORIENTATION			✓					
	WIER RN FEEDING	✓							
	HAYES - LPN CHART VITALS		✓					1430	10
9	BALDWIN RN REPORT		✓				1540		
	LOPEZ RN REPORT		✓						
	MONTEVERDE 91B " "		✓						
	HOGAN 91B " "		✓						
	REDFORD LPN " "		✓						
	SHELTON LPN DRESSING CHNG	✓							
	ARTHURS LPN DRESSING CHNG	✓							
	SCHAFER-T 91C IDLE				✓				
	McKINLEY RN PRE-OP CARE		✓						
	KEEFE 91B DRESSING CHNG	✓							
	CROWELL RN IDLE				✓				
	SANNER RN REPORT		✓					1550	10
11	DELACRUZ RN CHARTING		✓				1820		
	McQUAID RN BREAK				✓				
	GARCIA LPN [illegible]			✓					
	HARPER 91B [illegible]				✓				
	ABNER NA [illegible]				✓				
	CHAVIS - 91B CLEANING WOUND	✓						1830	10
13	PALMER RN DRESSING CHNG	✓					2240		
	PLEDGER LPN MEDS	✓							
	ABNER NA LINEN SUPPLY			✓					
	MARSHAL 91B VITALS	✓						2250	10
	35 - [illegible] = 34	16	10	3	5				
		47%	29%	9%	15%				
	RN 14	6	6	3	2				
	LPN/91C 11	6	2	2	1				
	[illegible] 9	4	2	1	2				

NURSING ACTIVITY WORK SAMPLE SURVEY

CATEGORY OF ACTIVITY DATE SUNDAY 12 JUN 83

Unit	Comments	Direct Patient Care	Indir Patient Care	Other/ Admin	Personal	Unknown	Time Started	Time Completed	Total Time
19	BREWSTER RN FOOD SVC	✓		-			0720		
	MARTEN PN CONSULT W/MD		✓						
	LOOK RN REPORT		✓						
	YEDO RN REPORT		✓						
	NYSTROM - LPN POSTING ARYTHMIA CHART		✓						
	STILSON - LPN SETUP MONITORING TELEMETRY	✓						0730	10
20	BESS RN JCAH SURVEY QUEST			✓			0810		
	KREHBIEL RN CHANGING PTN POSITION	✓							
	MOSES - LPN AMBULATING PTN	✓							
	MADRID - LPN POSTING MED BOOK			✓					
	ELLIOT - LPN PHONE				✓				
	ANDERSON 91B ✓ IV/PTN	✓							
	GILLIS - 91B CHANGING PATIENT	✓							
	WILSON - 91B LINEN CLEANUP		✓						
	DAGGER (AF RES) NA TREATMENT PLAN		✓						
	[illegible] NA PTN BATH	✓							
	[illegible] RN CHANG PTN POSITION	✓							
	[illegible] RN TEACHING/PLANNING	✓							
	EARLY 91C FLUSH IV LINE	✓						0820	10
21	JONES RN ADMISSION		✓				0820		
	SUTHERLAND 91C MORNING CARE	✓							
	CHEVALIER LPN STAFF TRNG			✓					
	WHITE 91B IDLE				✓				
	(AF RES) NA MAKING BED	✓							
	AF RES NA MAKING BED	✓							
	(AF RES) RN PTN TEACHING	✓							
	TODD (AF RES) NA MORNING CARE	✓						0830	10
21	JONES RN CHARTING		✓				1020		
	SUTHERLAND 91C MEDS	✓							
	CHEVALIER LPN PREP MEDS	✓							
	WHITE - 91B LINEN TRAY FOOD SVC	✓							
	SHADOFF (AF RES) NA MAKING BED	✓							
	KIRKLAND (AF RES) NA MAKING BED	✓							
	TODD (AF RES) NA IDLE				✓			1030	10
1	HILL RN CHARTING		✓				1050		
	[illegible] RN BREAK				✓				
	GOODRICH 91B CHANG PTN POSITION	✓							
	[illegible] 91B BREAK				✓				
	[illegible] LPN MAKING PTN PLAN	✓						1055	5

NURSING ACTIVITY WORK SAMPLE SURVEY

CATEGORY OF ACTIVITY DATE SUNDAY 12 JUNE 83

Unit	Comments	Direct Patient Care	Indir Patient Care	Other/ Admin	Personal	Unknown	Time Started	Time Completed	Total Time
2	HODGSON RN CLEANING WOUND	✓		-			1630		
	HOGBERG RN PREP MEDS	✓							
	LITTLETON LPN VITALS	✓							
	LOUIS-JACQUES LPN VITALS	✓						1640	10
NICU	WEIR RN FEEDING	✓					1740		
	EVICK 91C SPEC TO LAB		✓						
	McLAURIN LPN CHARTING		✓						
	EGGEBROTEN RN MONITOR RESP STATUS	✓						1750	10
5	MORRIS LPN IDLE				✓		1850		
	LONG 91B INJECTION MEDS	✓						1855	5
7	ROGERS RN FILING LAB SLIPS-PRE-OP		✓				1900		
	ZILA-91C CHARTING VITALS		✓					1905	5
9	BALDWIN RN WOUND TREATMENT	✓					1950		
	LOPEZ RN IV MEDS	✓							
	FORTE RN DINNER				✓				
	MONTEFUSCO 91B				✓				
	HOGAN 91B BORROWING SUPPLIES			✓					
	REDFORD LPN - MONITOR I/O	✓							
	57 57	32	13	4	8				
		56%	23%	7%	14%				
	RN 21	11	7	1	2				
	LPN/91C 18	10	4	2	2				
	NA/91B 11	11	2	1	4				

NURSING ACTIVITY WORK SAMPLE SURVEY

CATEGORY OF ACTIVITY

DATE MONDAY 13 JUNE 83

Unit	Comments	Direct Patient Care	Indir Patient Care	Other/ Admin	Personal	Unknown	Time Started	Time Completed	Total Time
ICU	DUNCAN RN REPORT		✓				0730		
	SMITH RN REPORT		✓						
	CULLETON LN "		✓						
	WATSON 91C "		✓						
	SILVAS 91C "		✓						
	McMORROW-LPN "		✓						
	BROWN RN CHARTING		✓						
	ALMAN RN MONITORING CARDIAC	✓							
	PATON LPN IDLE				✓			0740	10
13	DORSCH RN DISCUSS PT SEEKING NO RENEW		✓				0900		
	EDDINGER RN CHARTING MEDS		✓						
	DENNIS - 91C					N/O			
	HALL - 91C AMBULATING PTN	✓							
	ARCHER - 91B BED PAN	✓							
	WILLARD - 91B MAKING BED	✓							
	BERG - RN PHONE MSG		✓						
	KILLINGBURN - 91B MOVING EQUIP		✓						
	CHANDLER - 91B ESCORT PTN		✓					0910	10
13	DORSCH RN PTN STATUS RND		✓				0920		
	EDDINGER RN ✓ IV/HEP LOCK	✓							
	BERG RN CHARTING MEDS		✓						
	DENNIS - 91C TRANSFER		✓						
	HALL 91C SUPV STUDENT			✓					
	WILLARD - 91B TERMINAL CLEAN		✓						
	ARCHER - 91B LAUNDRY/LINEN		✓						
	SALAZAR 91B VITALS	✓							
	DOSCH 91C TERMINAL CLEAN		✓					0930	10
20	MATTA RN SUPV			✓	✓		1220		
	KRUEGER RN STAT IV	✓							
	JONES 91C LUNCH				✓				
	[illegible] 91C				✓				
	ELLIOT LPN FIN. MEDS	✓							
	BRADLEY 91B LUNCH				✓				
	BUTLER 91B FOOD SVC	✓							
	ANDERSON 91B CHANGE PTN POS	✓							
	WILSON 91B PTN ORS	✓							
	SKAGGS 91B LUNCH				✓				
	CHAFFIN 91B FOOD SVC	✓							
	CARROLL 91B LUNCH				✓				
	PARKS 91B FOOD SVC	✓							

NURSING ACTIVITY WORK SAMPLE SURVEY

CATEGORY OF ACTIVITY

DATE MONDAY 13 JUNE 83

Unit	Comments	Direct Patient Care	Indir Patient Care	Other/ Admin	Personal	Unknown	Time Started	Time Completed	Total Time
20	ALDERSON RN MEDS	✓		-					
	RIVERIA (WIN) NA FOOD SVC	✓						1230	10
21	BASSETT RN ORIENTATION			✓			1510		
	FEJERAN RN CHART		✓						
	SUTHERLAND 91C PRE REPORT INSP		✓						
	CHEVALIER LPN BED PAN	✓							
	BROGAN 91B ADMISSION		✓						
	COTE 91B VITALS	✓							
	GREGG 91B REPORT		✓						
	OLMSTEAD 91B IDLE				✓				
	HITE 91B IDLE				✓			1520	10
21	CORBETT RN CHARTING		✓				2150		
	GEORGE RN CHART MED ORDERS		✓						
	GREGG 91B VITALS	✓							
	ZAJIECK 91B VITALS	✓						2200	
	55-1 N/O = ~~55~~ ~~54~~ 54	19	24	3	8				
		35%	44%	6%	15%				
	RN 18 ~~17~~	4	12	2	Ø				
	LPN/91C 13-1 NO = 12	3	5	1	3				
	NA/91B 24	12	7	Ø	5				

APPENDIX E

SELECTED EXAMPLES OF ACUITY BASD CARE DAILY AND MONTHLY REPORTS

DAILY PATIENT STATUS REPORT	TO Commander, Madigan Army Medical Center	FROM Chief, Department of Nursing	AS OF 2400 DATE

TOTAL HOSPITAL SUMMARY	
PREVIOUS CENSUS	
TOTAL ADMISSIONS	
TOTAL DISPOSITIONS	
CURRENT CENSUS	
DELIVERIES	
24 HOURS	MONTH TO DATE

DEATHS IN PAST 24 HOURS		
NAME	WARD	TIME

SELECTED PATIENT CARE AREAS	DAY	EVENING	NIGHT	TOTAL
Patients seen in GOPC				
Patients seen in ER				
Patients adm to Recovery				
Patients rem in Recovery				
Pediatric IN/OUT Pts				

NURSING UNITS	CAPACITY	PREVIOUS CENSUS	TOTAL IN(+)	TOTAL OUT (-)	CURRENT CENSUS	PATIENT CATEGORIES						MANPOWER					
												RN		LPN		OTHER	
						IA	IB	I	II	III	IV	NO	HRS	NO	HRS	NO	HRS
PEDIATRICS (1)	35																
MATERNITY (2)	50																
NEWBORN NURSERY (3)	21																
INTERMEDIATE CARE NURSERY (3)	5																
INTENSIVE CARE NURSERY (3)	10																
LABOR AND DELIVERY																	
MINIMAL CARE (5)	57																
PRE-OP ADMISSION (7)	50																
INTERMEDIATE SURG CARE (9)	28																
INTENSIVE CARE UNIT (10)	6																
MODERATE SURG CARE (11)	62																
MODERATE SURG CARE (13)	58																
PSYCHIATRY (17/18)	25																
CORONARY CARE UNIT (19)	14																
MODERATE MED CARE (20)	38																
INTERMEDIATE MED CARE (21)	34																
TOTALS	493																

MAMC Form 1 Mar 82 84-N

Replaces MAMC Forms 67-N, dtd 26 Sep 80, MAMC Form 379-N, dtd 7 Feb 79, and MAMC Form 84-N, dtd 29 April 81, which are obsolete.

******* M O N T H L Y S U M M A R Y O F A V E R A G E S *******

MONTH NOVEMBER 1982 12/01/82

UNIT	TYPE	STAFF REQUIRED	STAFF PROVIDED	HRS/PT DAY REQUIRED	HRS/PT DAY PROVIDED	PRODUCTIVITY
MIN CARE	PROF	1.24	0.53	0.32	0.14	232.76
MIN CARE	LVN	2.83	3.67	0.74	0.96	77.31
MIN CARE	OTH	3.89	4.30	1.01	1.12	90.45
TOTAL 24 HR		7.97	8.50	2.08	2.21	93.71
AVERAGE CENSUS		30.70				

MONTH NOVEMBER 1982 12/01/82

UNIT	TYPE	STAFF REQUIRED	STAFF PROVIDED	HRS/PT DAY REQUIRED	HRS/PT DAY PROVIDED	PRODUCTIVITY
PRE OP	PROF	1.14	3.73	0.47	1.54	30.51
PRE OP	LVN	2.30	1.90	0.95	0.78	120.97
PRE OP	OTH	3.50	4.10	1.44	1.69	85.37
TOTAL 24 HR		6.93	9.73	2.86	4.01	71.31
AVERAGE CENSUS		19.40				

MONTH NOVEMBER 1982 12/01/82

UNIT	TYPE	STAFF REQUIRED	STAFF PROVIDED	HRS/PT DAY REQUIRED	HRS/PT DAY PROVIDED	PRODUCTIVITY
INTER C	PROF	8.06	6.68	6.98	5.79	120.60
INTER C	LVN	5.36	3.37	4.65	3.09	150.37
INTER C	OTH	1.50	7.23	1.30	6.27	20.72
TOTAL 24 HR		14.92	17.48	12.93	15.15	85.35
AVERAGE CENSUS		9.23				

MONTH NOVEMBER 1982 12/01/82

UNIT	TYPE	STAFF REQUIRED	STAFF PROVIDED	HRS/PT DAY REQUIRED	HRS/PT DAY PROVIDED	PRODUCTIVITY
ICU	PROF	6.60	7.23	9.60	10.51	91.35
ICU	LVN	3.92	6.40	5.70	9.31	61.27
ICU	OTH	0.55	1.30	0.80	1.89	42.31
TOTAL 24 HR		11.07	14.93	16.10	21.71	74.18
AVERAGE CENSUS		5.50				

MONTH NOVEMBER 1982 12/01/82

UNIT	TYPE	STAFF REQUIRED	STAFF PROVIDED	HRS/PT DAY REQUIRED	HRS/PT DAY PROVIDED	PRODUCTIVITY
MOD I	PROF	6.84	6.57	1.26	1.21	104.23
MOD I	LVN	7.56	4.73	1.39	0.87	159.70
MOD I	OTH	9.41	6.20	1.73	1.14	151.84
TOTAL 24 HR		23.82	17.50	4.37	3.21	136.10
AVERAGE CENSUS		43.57				

********** C L A S S D I S T R I B U T I O N **********

MONTH: JANUARY 1983

UNIT	PERCENT BY CATEGORY 1A	1B	I	II	III	IV
PEDS	27.6	4.1	33.9	23.1	5.8	5.4
OB	0.0	0.0	25.0	50.7	20.9	3.3
NBN	22.0	10.3	60.2	7.5	0.0	0.0
ICN	54.4	26.0	16.4	1.1	2.1	0.0
L&D	44.6	0.0	0.9	3.9	50.6	0.0
MIN CARE	0.0	0.0	0.0	9.9	37.7	52.5
PRE OP	0.0	0.0	0.0	6.6	92.4	1.0
INTER C	70.2	23.5	6.3	0.0	0.0	0.0
ICU	0.0	100.0	0.0	0.0	0.0	0.0
MOD I	0.2	0.4	12.1	49.6	29.8	7.9
MOD II	0.1	0.1	12.1	72.7	10.7	4.3
PSYCH	0.0	0.0	9.1	48.4	42.5	0.0
CCU	24.8	21.4	17.7	33.8	2.3	0.0
MED I	18.3	4.2	31.6	40.1	5.2	0.6
MED II	1.5	0.1	8.0	29.2	46.5	14.6
AVERAGE	11.9	5.7	17.3	32.6	24.4	8.1

APPENDIX F

DEVELOPMENT OF PERSONNEL REQUIREMENTS FOR DIRECT PATIENT CARE BY WARD

TABLE 20

PEDIATRIC CARE (WARD 1)
AVERAGE DAILY STAFF REQUIRED PER MONTH
TO PROVIDE DIRECT PATIENT CARE
AS DETERMINED BY PATIENT ACUITY CLASSIFICATION

MONTH	RN	LPN	NA	TOTAL
APRIL	9.68	6.67	3.47	19.83
MAY	7.74	5.44	3.41	16.59
JUNE	8.21	5.84	3.50	17.55
JULY	7.78	5.44	3.00	16.22
AUGUST	9.58	6.66	3.70	19.94
SEPTEMBER	12.00	7.95	3.07	23.01
OCTOBER	11.85	7.99	3.38	23.22
NOVEMBER	10.06	6.72	2.59	19.37
DECEMBER	6.30	4.48	2.59	13.37
JANUARY	7.22	5.19	3.02	15.43
FEBRUARY	4.16	3.42	3.21	10.79
MARCH	6.43	4.77	3.27	14.48
TOTAL	101.01	70.57	38.21	209.80
AVERAGE	8.42	5.88	3.18	17.48

SOURCE: MAMC Form 84-N, Daily Patient Status Report; and Department of Nursing Monthly Summary of Staffing/Productivity Averages Report.

TABLE 21

MATERNITY CARE (WARD 2)
AVERAGE DAILY STAFF REQUIRED PER MONTH
TO PROVIDE DIRECT PATIENT CARE
AS DETERMINED BY PATIENT ACUITY CLASSIFICATION

MONTH	RN	PN	NA	TOTAL
APRIL	11.01	8.01	6.84	25.86
MAY	7.72	6.41	6.48	20.61
JUNE	7.78	6.15	5.86	19.79
JULY	8.22	7.09	7.46	22.78
AUGUST	9.28	7.86	8.12	25.27
SEPTEMBER	9.75	7.91	7.76	25.42
OCTOBER	7.87	6.54	6.68	21.10
NOVEMBER	5.36	5.41	6.63	17.40
DECEMBER	6.54	6.56	7.91	21.01
JANUARY	6.23	5.78	6.52	18.52
FEBRUARY	6.69	6.38	7.47	20.54
MARCH	7.64	6.99	7.85	22.48
TOTAL	94.09	81.09	85.58	260.78
AVERAGE	7.84	6.76	7.13	21.73

SOURCE: MAMC Form 84-N, Daily Patient Status Report; and Department of Nursing Monthly Summary of Staffing/Productivity Averages Report.

TABLE 22

NEWBORN NURSERY (WARD 3)
AVERAGE DAILY STAFF REQUIRED PER MONTH
TO PROVIDE DIRECT PATIENT CARE
AS DETERMINED BY PATIENT ACUITY CLASSIFICATION

MONTH	RN	PN	NA	TOTAL
APRIL	13.74	8.95	5.31	28.00
MAY	12.56	8.22	4.77	25.55
JUNE	12.35	8.13	4.51	24.99
JULY	13.89	9.18	4.77	27.85
AUGUST	13.97	9.50	5.55	29.03
SEPTEMBER	14.99	10.51	6.53	32.02
OCTOBER	10.05	7.55	5.58	23.18
NOVEMBER	13.10	8.94	4.98	27.02
DECEMBER	13.68	9.41	5.70	28.79
JANUARY	15.45	10.16	5.01	30.62
FEBRUARY	14.75	9.96	5.14	29.84
MARCH	12.74	8.95	5.48	27.18
TOTAL	161.27	109.46	63.33	334.07
AVERAGE	13.44	9.12	5.28	27.84

SOURCE: MAMC Form 84-N, Daily Patient Status Report; and Department of Nursing Monthly Summary of Staffing/Productivity Averages Report.

TABLE 23

NEWBORN INTENSIVE CARE UNIT (WARD 3)
AVERAGE DAILY STAFF REQUIRED PER MONTH
TO PROVIDE DIRECT PATIENT CARE
AS DETERMINED BY PATIENT ACUITY CLASSIFICATION

MONTH	RN	PN	NA	TOTAL
APRIL	8.34	4.99	0.78	14.11
MAY	8.32	4.94	0.69	13.94
JUNE	8.78	5.24	0.76	14.77
JULY	8.46	5.32	1.21	14.99
AUGUST	7.42	4.72	1.15	13.29
SEPTEMBER	8.99	5.77	1.42	16.18
OCTOBER	6.98	4.57	1.34	12.90
NOVEMBER	7.70	5.00	1.29	13.99
DECEMBER	8.18	5.19	1.20	14.57
JANUARY	7.59	4.96	1.48	14.03
FEBRUARY	7.83	5.11	1.56	14.50
MARCH	6.21	3.99	1.17	11.38
TOTAL	94.80	59.80	14.05	168.67
AVERAGE	7.90	4.98	1.17	14.06

SOURCE: MAMC Form 84-N, Daily Patient Status Report; and Department of Nursing Monthly Summary of Staffing/Productivity Averages Report.

TABLE 24

MINIMAL CARE (WARD 5)
AVERAGE DAILY STAFF REQUIRED PER MONTH
TO PROVIDE DIRECT PATIENT CARE
AS DETERMINED BY PATIENT ACUITY CLASSIFICATION

MONTH	RN	PN	NA	TOTAL
APRIL	0.84	2.46	3.42	6.72
MAY	0.59	1.73	2.33	4.64
JUNE	0.70	2.11	2.89	5.71
JULY	0.99	2.79	3.82	7.60
AUGUST	1.04	2.96	4.07	8.08
SEPTEMBER	0.80	2.61	3.48	6.88
OCTOBER	1.14	2.75	3.76	7.65
NOVEMBER	1.24	2.83	3.89	7.97
DECEMBER	1.17	2.38	3.32	6.87
JANUARY	1.21	2.68	3.72	7.61
FEBRUARY	1.34	2.52	3.51	7.37
MARCH	1.64	3.27	4.62	9.53
TOTAL	12.70	31.09	42.83	86.63
AVERAGE	1.06	2.59	3.57	7.22

SOURCE: MAMC Form 84-N, Daily Patient Status Report; and Department of Nursing Monthly Summary of Staffing/Productivity Averages Report.

TABLE 25

PRE-OPERATIVE CARE (WARD 7)
AVERAGE DAILY STAFF REQUIRED PER MONTH
TO PROVIDE DIRECT PATIENT CARE
AS DETERMINED BY PATIENT ACUITY CLASSIFICATION

MONTH	RN	PN	NA	TOTAL
APRIL	1.41	2.35	3.47	7.23
MAY	0.95	1.94	2.97	5.85
JUNE	0.96	1.92	2.93	5.81
JULY	0.81	1.82	2.69	5.32
AUGUST	2.66	2.89	3.35	8.90
SEPTEMBER	1.59	2.45	3.37	7.41
OCTOBER	1.21	2.36	3.60	7.17
NOVEMBER	1.14	2.30	3.50	6.93
DECEMBER	0.81	1.72	2.59	5.12
JANUARY	1.28	2.62	4.00	7.91
FEBRUARY	0.75	1.98	2.80	5.53
MARCH	0.40	1.56	1.97	3.93
TOTAL	13.97	25.91	37.24	77.11
AVERAGE	1.16	2.16	3.10	6.43

SOURCE: MAMC Form 84-N, Daily Patient Status Report; and Department of Nursing Monthly Summary of Staffing/Productivity Averages Report.

TABLE 26

INTERMEDIATE SURGICAL CARE (WARD 9)
AVERAGE DAILY STAFF REQUIRED PER MONTH
TO PROVIDE DIRECT PATIENT CARE
AS DETERMINED BY PATIENT ACUITY CLASSIFICATION

MONTH	RN	PN	NA	TOTAL
APRIL	8.71	5.74	2.48	16.94
MAY	8.73	5.78	2.14	16.66
JUNE	7.41	4.94	2.04	14.40
JULY	7.53	4.95	1.69	14.17
AUGUST	8.70	5.65	1.75	16.10
SEPTEMBER	10.11	6.59	1.72	18.42
OCTOBER	10.23	6.63	1.64	18.50
NOVEMBER	8.06	5.36	1.50	14.92
DECEMBER	7.60	5.06	1.49	14.15
JANUARY	9.09	6.00	1.64	16.73
FEBRUARY	9.99	6.65	1.88	18.52
MARCH	10.23	6.78	1.89	18.90
TOTAL	106.39	70.13	21.86	198.41
AVERAGE	8.87	5.84	1.82	16.53

SOURCE: MAMC Form 84-N, Daily Patient Status Report; and Department of Nursing Monthly Summary of Staffing/Productivity Averages Report.

TABLE 27

INTENSIVE CARE UNIT (WARD 10)
AVERAGE DAILY STAFF REQUIRED PER MONTH
TO PROVIDE DIRECT PATIENT CARE
AS DETERMINED BY PATIENT ACUITY CLASSIFICATION

MONTH	RN	PN	NA	TOTAL
APRIL	6.51	3.88	0.59	10.98
MAY	6.43	3.84	0.57	10.84
JUNE	6.51	3.87	0.55	10.92
JULY	5.40	3.22	0.48	9.10
AUGUST	6.65	3.95	0.56	11.15
SEPTEMBER	7.04	4.18	0.59	11.81
OCTOBER	6.38	3.82	0.57	10.76
NOVEMBER	6.60	3.92	0.55	11.07
DECEMBER	6.54	3.89	0.55	10.97
JANUARY	7.05	4.19	0.59	11.82
FEBRUARY	6.60	3.92	0.55	11.07
MARCH	6.58	3.91	0.55	11.04
TOTAL	78.29	46.59	6.70	131.53
AVERAGE	6.52	3.88	0.56	10.96

SOURCE: MAMC Form 84-N, Daily Patient Status Report; and Department of Nursing Monthly Summary of Staffing/Productivity Averages Report.

TABLE 28

MODERATE SURGICAL CARE (WARD 11)
AVERAGE DAILY STAFF REQUIRED PER MONTH
TO PROVIDE DIRECT PATIENT CARE
AS DETERMINED BY PATIENT ACUITY CLASSIFICATION

MONTH	RN	PN	NA	TOTAL
APRIL	6.05	7.20	9.40	22.65
MAY	5.77	6.76	8.64	21.17
JUNE	6.54	7.91	10.42	24.88
JULY	5.71	7.17	9.69	22.56
AUGUST	6.12	7.44	9.80	23.36
SEPTEMBER	6.45	7.68	10.14	24.27
OCTOBER	6.50	7.71	10.17	24.38
NOVEMBER	6.84	7.56	9.41	23.82
DECEMBER	6.80	7.17	8.73	22.70
JANUARY	7.38	7.89	9.70	24.97
FEBRUARY	8.33	8.40	10.01	26.74
MARCH	7.67	8.67	11.43	27.77
TOTAL	80.16	91.56	117.54	289.27
AVERAGE	6.68	7.63	9.80	24.11

SOURCE: MAMC Form 84-N, Daily Patient Status Report; and Department of Nursing Monthly Summary of Staffing/Productivity Averages Report.

TABLE 29

MODERATE SURGICAL CARE (WARD 13)
AVERAGE DAILY STAFF REQUIRED PER MONTH
TO PROVIDE DIRECT PATIENT CARE
AS DETERMINED BY PATIENT ACUITY CLASSIFICATION

MONTH	RN	PN	NA	TOTAL
APRIL	4.73	6.20	8.74	19.67
MAY	6.12	7.02	9.16	22.29
JUNE	7.59	8.18	10.51	26.28
JULY	7.03	7.32	9.05	23.40
AUGUST	7.89	7.90	9.30	25.10
SEPTEMBER	6.30	6.55	8.16	21.01
OCTOBER	6.78	7.23	9.22	23.23
NOVEMBER	6.91	7.22	8.77	22.90
DECEMBER	6.46	6.97	9.00	22.43
JANUARY	6.73	6.91	8.60	22.24
FEBRUARY	7.88	7.66	9.16	24.70
MARCH	7.86	8.03	9.95	25.85
TOTAL	82.28	87.19	109.62	279.10
AVERAGE	6.86	7.27	9.14	23.26

SOURCE: MAMC Form 84-N, Daily Patient Status Report; and Department of Nursing Monthly Summary of Staffing/Productivity Averages Report.

TABLE 30

PSYCHIATRY (WARD 17)
AVERAGE DAILY STAFF REQUIRED PER MONTH
TO PROVIDE DIRECT PATIENT CARE
AS DETERMINED BY PATIENT ACUITY CLASSIFICATION

MONTH	RN	PN	NA	TOTAL
APRIL	2.76	3.43	4.67	10.86
MAY	2.13	2.79	3.82	8.74
JUNE	2.03	2.56	3.51	8.11
JULY	1.79	2.40	3.42	7.62
AUGUST	2.35	2.90	3.94	9.19
SEPTEMBER	1.52	1.92	2.61	6.05
OCTOBER	2.95	3.16	3.99	10.10
NOVEMBER	2.86	3.02	3.75	9.64
DECEMBER	2.96	3.09	3.86	9.91
JANUARY	2.40	2.77	3.63	8.80
FEBRUARY	1.79	2.06	2.68	6.53
MARCH	3.48	3.29	3.76	10.53
TOTAL	29.02	33.39	43.64	106.08
AVERAGE	2.42	2.78	3.64	8.84

SOURCE: MAMC Form 84-N, Daily Patient Status Report; and Department of Nursing Monthly Summary of Staffing/Productivity Averages Report.

TABLE 31

CORONARY CARE UNIT (WARD 19)
AVERAGE DAILY STAFF REQUIRED PER MONTH
TO PROVIDE DIRECT PATIENT CARE
AS DETERMINED BY PATIENT ACUITY CLASSIFICATION

MONTH	RN	PN	NA	TOTAL
APRIL	7.06	5.01	2.67	14.74
MAY	5.73	3.93	1.93	11.59
JUNE	6.23	4.48	2.54	13.24
JULY	6.61	4.69	2.44	13.74
AUGUST	6.71	4.70	2.31	13.73
SEPTEMBER	6.29	4.40	2.19	12.89
OCTOBER	6.87	4.73	2.24	13.83
NOVEMBER	7.26	4.90	2.16	14.33
DECEMBER	7.26	4.86	2.06	14.18
JANUARY	6.93	4.79	2.28	14.00
FEBRUARY	6.13	4.21	2.02	12.36
MARCH	6.28	4.31	2.22	12.81
TOTAL	79.36	55.01	27.06	161.44
AVERAGE	6.61	4.58	2.26	13.45

SOURCE: MAMC Form 84-N, Daily Patient Status Report; and Department of Nursing Monthly Summary of Staffing/Productivity Averages Report.

TABLE 32

INTERMEDIATE MEDICAL CARE (WARD 20)
AVERAGE DAILY STAFF REQUIRED PER MONTH
TO PROVIDE DIRECT PATIENT CARE
AS DETERMINED BY PATIENT ACUITY CLASSIFICATION

MONTH	RN	PN	NA	TOTAL
APRIL	10.66	8.00	6.11	24.77
MAY	10.11	7.90	6.75	24.76
JUNE	9.69	7.70	6.71	24.10
JULY	10.78	8.60	7.13	26.51
AUGUST	9.98	7.84	6.62	24.44
SEPTEMBER	10.67	8.39	6.54	25.60
OCTOBER	13.33	9.91	6.74	29.98
NOVEMBER	14.28	10.11	6.35	30.74
DECEMBER	13.59	9.79	6.40	29.78
JANUARY	12.41	9.27	6.50	28.17
FEBRUARY	9.47	7.37	5.92	22.76
MARCH	8.02	6.46	5.47	19.94
TOTAL	132.99	101.34	77.24	311.55
AVERAGE	11.08	8.45	6.44	25.96

SOURCE: MAMC Form 84-N, Daily Patient Status Report; and Department of Nursing Monthly Summary of Staffing/Productivity Averages Report.

TABLE 33

MODERATE MEDICAL CARE (WARD 21)
AVERAGE DAILY STAFF REQUIRED PER MONTH
TO PROVIDE DIRECT PATIENT CARE
AS DETERMINED BY PATIENT ACUITY CLASSIFICATION

MONTH	RN	PN	NA	TOTAL
APRIL	1.92	3.32	4.79	10.02
MAY	2.36	3.61	5.15	11.11
JUNE	1.81	3.19	4.60	9.60
JULY	1.56	3.03	4.48	9.07
AUGUST	1.46	2.86	4.22	8.54
SEPTEMBER	1.75	3.22	4.76	9.73
OCTOBER	2.59	3.79	5.25	11.63
NOVEMBER	2.89	3.31	3.97	10.16
DECEMBER	3.28	3.76	4.55	11.60
JANUARY	3.11	3.72	4.63	11.46
FEBRUARY	2.60	3.31	4.39	10.30
MARCH	2.79	3.58	4.78	11.14
TOTAL	28.12	40.70	55.57	124.36
AVERAGE	2.34	3.39	4.63	10.36

SOURCE: MAMC Form 84-N, Daily Patient Status Report; and Department of Nursing Monthly Summary of Staffing/Productivity Averages Report.

APPENDIX G

DEVELOPMENT OF NURSING PERSONNEL REQUIREMENTS WITH MAMC PATIENT CLASSIFICATION SYSTEM CRITERIA AND ALLOWANCE FOR INDIRECT AND NONPRODUCTIVE TIME

TABLE 34
RN FULL TIME EQUIVALENT
STAFFING REQUIRED FOR DIRECT/INDIRECT CARE
AND NONPRODUCTIVE TIME
BASED ON AVERAGE PATIENT ACUITY CATEGORIES

UNIT	DAILY DIRECT RQMT	X 1.4	WEEKEND COVERAGE FACTOR	X 1.549	INDIRECT CARE FACTOR	X 1.11	NON PRODUCTIVE FACTOR	=	TOTAL RQMT
Peds, Wd 1	8.42		11.79		18.26		20.27		20
OB, Wd 2	7.84		10.98		17.01		18.88		19
NBN, Wd 3	13.44		18.82		29.15		32.36		32
NICU, Wd 3A	7.90		11.06		17.13		19.01		19
Min Care, Wd 5	1.06		1.48		2.29		2.54		3
Pre-op, Wd 7	1.16		1.62		2.51		2.79		3
Intermed Surg, Wd 9	8.87		12.42		19.24		21.36		21
ICU, Wd 10A	6.52		9.13		14.14		15.70		16
Mod Surg, Wd 11	6.68		9.35		14.48		16.07		16
Mod Surg, Wd 13	6.86		9.60		14.87		16.51		17
Psychiatry, Wd 17	2.42		3.39		5.25		5.83		6
CCU, Wd 19	6.61		9.25		14.33		15.91		16
Intermed Med, Wd 20	11.08		15.51		24.02		26.66		27
Mod Med, Wd 21	2.34		3.28		5.08		5.64		6
TOTAL	91.20						219.53		221

TABLE 35
LPN/91C FULL TIME EQUIVALENT
STAFFING REQUIRED FOR DIRECT/INDIRECT CARE
AND NONPRODUCTIVE TIME
BASED ON AVERAGE PATIENT ACUITY CATEGORIES

UNIT	DAILY DIRECT RQMT X 1.4	WEEKEND COVERAGE FACTOR X 1.46	INDIRECT CARE FACTOR X 1.11	NON PRODUCTIVE FACTOR =	TOTAL RQMT
Peds, Wd 1	5.88	8.23	12.02	13.34	13
OB, Wd 2	6.76	9.46	13.81	15.33	15
NBN, Wd 3	9.12	12.77	18.64	20.69	21
NICU, Wd 3A	4.98	6.97	10.18	11.30	11
Min Care, Wd 5	2.59	3.63	5.30	5.88	6
Pre-op, Wd 7	2.16	3.02	4.41	4.90	5
Intermed Surg, Wd 9	5.84	8.18	11.94	13.25	13
ICU, Wd 10A	3.88	5.43	7.93	8.80	9
Mod Surg, Wd 11	7.63	10.68	15.59	17.30	17
Mod Surg, Wd 13	7.27	10.18	14.86	16.49	17
Psychiatry, Wd 17	2.78	3.89	5.68	6.30	6
CCU, Wd 19	4.58	6.41	9.36	10.39	10
Intermed Med, Wd 20	8.45	11.83	17.27	19.17	19
Mod Med, Wd 21	3.39	4.75	6.94	7.70	8
TOTAL	75.31			170.84	170

TABLE 36
NA/91B FTEs REQUIRED FOR DIRECT/INDIRECT CARE
AND NONPRODUCTIVE TIME
BASED ON AVERAGE PATIENT ACUITY CATEGORIES

UNIT	DAILY DIRECT RQMT X 1.4	WEEKEND COVERAGE FACTOR X 1.405	INDIRECT CARE FACTOR X 1.11	NON PRODUCTIVE FACTOR =	TOTAL RQMT
Peds, Wd 1	3.18	4.45	.25	6.94	7
OB, Wd 2	7.13	9.98	14.02	15.56	16
NBN, Wd 3	5.28	7.39	10.38	11.52	12
NICU, Wd 3A	1.17	1.64	2.30	2.55	3
Min Care, Wd 5	3.57	5.00	7.03	7.80	8
Pre-op, Wd 7	3.10	4.34	6.10	6.77	7
Intermed Surg, Wd 9	1.82	2.55	3.58	3.97	4
ICU, Wd 10A	.56	.78	1.10	1.22	1
Mod Surg, Wd 11	9.80	13.72	19.28	21.40	21
Mod Surg, Wd 13	9.14	12.80	17.98	19.96	20
Psychiatry, Wd 17	3.64	5.10	7.17	7.96	8
CCU, Wd 19	2.26	3.16	4.44	4.93	5
Intermed Med, Wd 20	6.44	9.02	12.67	14.06	14
Mod Med, Wd 21	4.63	6.48	9.10	10.10	10
TOTAL	61.72			134.74	136

APPENDIX H

SELECTED STATISTICS AND UTILIZATION RATIOS

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SELECTED STATISTICS AND UTILIZATION RATIOS

Selected Statistics

Utilization/productivity ratios developed to contrast MAMC staffing systems with information presented in Hospital Statistics, 1982 Edition, by the American Hospital Association (AHA) were computed. These statistics were obtained from MAMC Medical Summary Reports and Uniform Chart of Accounts Medical Expense and Performance Reports for FY 82. AHA definitions were reviewed so that statistics and ratios compared would be consistent.

Admissions (excludes newborn):	17,002
Inpatient Days (excludes newborn):	105,475
Outpatient Visits:	778,103
Inpatient Expenses:	$ 31,266,764
Outpatient Expenses:	$ 22,192,587

Utilization Ratios

FTE RN/LPN per 100 average daily census and average daily adjusted census were selected to contrast requirements generated with two different staffing systems with actual FTE utilization with the civilian health care sector in the region. Adjusted Census is described by the AHA as an aggregate figure reflecting inpatient workload coupled with an estimate of outpatient service volume in terms of the ratio of revenue per outpatient visit to inpatient revenue per inpatient day. Since military hospitals do not generate "revenue" in the business sense, UCA expense data was used to approximate "revenue" for inpatient and outpatient services.

Also, the AHA excludes newborns from admission and inpatient day statistics. Accordingly, this workload was deducted from MAMC statistics. Length of stay was used as an indicator or measure of variance in patient day output.

Formulae:

$$\text{Length of Stay} = \frac{\text{Inpatient Days}}{\text{Admissions}}$$

$$\text{Average Daily Census} = \frac{\text{Inpatient Days}}{\text{Days in Period}} \text{ (i.e., year)}$$

$$\text{Adjusted Census} = \text{Inpt Days \& Outpt Visits} \quad \frac{\text{Outpt Expense per Visit}}{\text{Inpt Expense per Day}}$$

$$\text{Average Daily Adjusted Census} = \frac{\text{Adjusted Census}}{\text{Days in Period}}$$

$$\text{FTE RN/LPNs per 100 Average Daily Census} = \frac{\text{Number RN/LPN FTEs}}{\text{Average Daily Census}} \times 100$$

$$\text{FTE RNs/LPNs per 100 Average Daily Adjusted Census} = \frac{\text{Number RN/LPN FTEs}}{\text{Average Daily Adjusted Census}} \times 100$$

Computation:

MAMC.

$$\text{Length of Stay} = \frac{105{,}475}{17{,}002} = 6.20$$

$$\text{Average Daily Census} = \frac{105{,}475}{365} = 288.97 \text{ or } 289$$

$$\text{Adjusted Census} = 105{,}475 + 778{,}103 \frac{\frac{22{,}192{,}587}{778{,}103}}{\frac{31{,}266{,}764}{105{,}475}} = 180{,}229.26$$

$$\text{Average Daily Adjusted Census} = \frac{180{,}339.26}{365} = 494.08 \text{ or } 494$$

Staffing Guide:

$$\text{RN FTEs per 100 Average Daily Census} = \frac{239}{288.97} \times 100 = 82.7$$

$$\text{LPN FTEs per 100 Average Daily Census} = \frac{136}{288.97} \times 100 = 47.1$$

$$\text{RN FTEs per 100 Average Daily Adjusted Census} = \frac{239}{494.08} \times 100 = 48.4$$

$$\text{LPN FTEs per 100 Average Daily Adjusted Census} = \frac{136}{494.08} \times 100 = 27.5$$

Patient Classification:

$$\text{RN FTEs per 100 Average Daily Census} = \frac{295}{288.97} \times 100 = 102.1$$

$$\text{LPN FTEs per 100 Average Daily Census} = \frac{216}{288.97} \times 100 = 74.7$$

$$\text{RN FTEs per 100 Average Daily Adjusted Census} = \frac{295}{494.08} \times 100 = 59.7$$

$$\text{LPN FTEs per 100 Average Daily Adjusted Census} = \frac{216}{494.08} \times 100 = 43.7$$

<u>Civilian Regional Mean*</u>

Length of Stay = 6.6 Days

Average Daily Census = 4,263

Average Daily Adjusted Census = 4,892

RN FTEs = 4,693

LPN FTEs = 1,564

RN FTEs per 100 Average Daily Census = $\frac{4693}{4263}$ X 100 = 110.1

LPN FTEs per 100 Average Daily Census = $\frac{1564}{4263}$ X 100 = 36.7

RN FTEs per 100
Average Daily Adjusted Census = $\frac{4693}{4892}$ X 100 = 95.9

LPN FTEs per 100
Average Daily Adjusted Census = $\frac{1564}{4892}$ X 100 = 32.0

*SOURCE: American Hospital Association, Hospital Statistics, 1982 Edition, Table 8: Utilization in Hospitals Affiliated with Medical Schools, p 180.

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