A DESCRIPTION OF THE PATTERNS OF SELECTED ANCILLARY SERVICES UNDER CONSIDERATION FOR TRANSFER TO NURSING

by

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CHAPTER I

Introduction

In October 1983, as a response to spiraling health care costs, the Federal government changed the system for Medicare reimbursement to hospitals. The new system, referred to as the prospective payment system, sets a ceiling for reimbursement per case based on the patient's diagnosis. This amount per Diagnostic Related Group (DRG) is intended to cover all expenses incurred during care of the patient such as daily room and nursing care costs, special treatments, and diagnostic tests. A hospital must keep its patient care costs per DRG at or below the ceiling amount in order to recover all money spent for the care of each Medicare patient. This situation has prompted hospital and nursing administrators to examine the cost effectiveness of service delivery systems within their institutions. Although some service delivery systems have been shown to be cost effective, including intravenous (IV) admixture, transportation, materials management, food tray services and single shift IV teams, the cost effectiveness of other services has not been demonstrated.

Several management strategies for reducing the costs of inpatient service delivery systems have been considered by nursing administrators including reduction of the non-nursing tasks done by nurses, reduction in the number of nursing staff, consolidation of like jobs, and alteration of the staff mix on clinical units (Davis, 1983; Herzog, 1985; Franz, 1984; Shaffer, 1984; Sovie, 1985, Madsen & Harper, 1985; van Servellen & Mowry, 1985).

Since ancillary services such as intravenous services and respiratory therapy are no longer exempt from the Medicare ceiling, another strategy which has gained the attention of some administrators is the shifting of selected ancillary department services to the nursing staff (Sovie, 1985; Shaffer, 1984). The rationale for shifting selected services to the nursing department is to reduce the number of ancillary staff needed and to reduce the overhead costs for that department. Assuming that no additional nursing staff would be required to perform these services, there would be a net savings to the hospital. The logic supporting this management strategy is that certain of these services were performed exclusively by clinical nurses in the past and had been shifted to departments ourside nursing to facilitate recovery of costs through Medicare; therefore, nurses could provide these services now and maintain quality. If the services were shifted to nurses at this time, there would be more coordination of care because the primary or associate nurse could schedule these services based on the patient's needs. An overall assumption is that the quality of care will be maintained at an acceptable level after the shift in services.

From a management perspective, the positive consequence of this strategy is an increased productivity of the nursing staff. The same number of nurses would be delivering more services. Administrators are assuming that nurses can provide these additional services because of overstaffing resulting from positive staffing variances. A potentially negative consequence is that the resource demands created by the

patients' needs may be greater than can be met by the existing staff. The result is that work will go undone or it will be lower in quality. While the literature suggests that nurses can provide more services with no additional staff, it also identifies the need for further evaluation. No evaluative studies, however, are available in the literature. Therefore, this study was designed to address several factors which seem to be related to the impact of shifting services. The frequency with which selected services under consideration for shifting occur in one acute care hospital are counted. The relationship between the resources needed to perform those services and the available resources are discussed.

Review of the Literature

A review of the literature provides little direction for evaluation. In a March-April 1985 article in Nursing Economics, Sovie stated, "Every institution must do its own analysis and make decisions after considering the quality assurance and risk management implications of the proposed actions as well as the cost control or cost reduction implications." (p. 86) While this gives general guidance, the specific factors to consider are not identified. Factors which would appear to influence the extent to which services can be shifted at a cost savings without a loss in quality include: 1) the skill required to perform the service; 2) the time required to perform the service; 3) the frequency of occurrence of the service; 4) the time of day at which the services are administered and the flexibility

in moving the service to another time; 5) the case mix of the individual units; and 6) the method used for allocating nursing staff. The review of literature will be organized around these factors.

Skill

One of these factors, the skill level required to perform the service, is determined by the type of service involved. Services which have been considered for shifting cluster in specific categories which are: intravenous therapy (IV), respiratory therapy (RT), physical therapy (PT), occupational therapy (OT), and social services (Shaffer, 1984; Sovie, 1985, Madsen & Harper, 1985). Some of the specific services such as routine IV starts which have been considered for shifting have been described in the literature (Madsen & Harper, 1985). Other services have been described by administrative planning groups and in interdepartmental communications within hospitals (N. Madsen, personal communication, April 1984).

The specific services which have been identified in the intravenous category are IV starts, assisting with peripheral central venous (CVP) line insertion, IV site checks, IV dressing changes and patient teaching in preparation for discharge with an IV (IV Planning Task Force, U.H., July 10, 1984; M. Sovie, personal communication, May 13, 1985). The RT services which have been considered are starting oxygen, checking oxygen flowmeter, incentive spirometry treatment, tracheal suctioning, ultrasonic nebulizer treatment, sputum induction with an ultrasonic nebulizer and chest physiotherapy with postural drainage

(M. Sovie, personal communication, May 13, 1985, Interdepartmental communication, U.H., June, 1984).) The PT and OT services which have been considered for shifting are range of motion exercises, ambulation with assistance, evaluation of activities of daily living (ADL) and the progressive relaxation and energy conservation classes (Interdepartmental communication, July, 1984). Although these services have been identified, the literature did not address the number of these services which could be shifted or how much additional resource demand these services would represent.

The shifting of these services from ancillary departments to nursing departments seems appropriate. Many of these services are still done by nurses in some hospitals and at least shared with ancillary departments during 3-11 and 11-7 shifts and on weekends in other hospitals. In hospitals where these services are being provided by ancillary departments, the services in many cases are delivered by nurses, e.g., IV therapy. In addition, the skills are among those generally included in schools of nursing curricula. See Appendix A for sample skill lists.

Services which are complex and performed infrequently have not been suggested in the literature. It may be that they are not under consideration for shifting because they would require the nurse to relearn the procedure each time it was done, thereby increasing the time required to perform the service, with a possible increase in cost or loss in quality.

Time and Frequency

Although the skill level required to perform these services is critical, there are other factors which affect the extent to which the services can be absorbed by the clinical nursing staff. Two of these factors are the time required to perform a service and the frequency with which the service is performed. Through a multiplier effect, these factors influence the number of additional services which nurses could add to their current workload. More total time may be required to perform the added services than is available. Services which require a short time and occur frequently may be more readily absorbed than those services occurring in large blocks, such as patient classes.

Time has been described as varying with the service provided and the acuity of the patient (Julian, 1968; Aydelotte, 1973). Standard times, derived from time studies, have been assigned to many services, such as checking the oxygen flowmeter, 0.76 minutes, and changing a central line IV (hyperalimentation) dressing, 28 minutes (L. Nelson, Administrative Strategies, 1979). This wide range in time standards suggests that the impact of shifting services to nurses might vary with the amount of time required to perform each service. The time standards for various services were derived by repeatedly timing each of the procedures separately . This process has been described in the literature; however, most of the individual time standards are proprietary information and are not published (Sheedy & Whitinger, 1983; Larson & Hargis, 1984; CASH, CSF, cited in Aydelotte, 1973).

A gap in the literature also exists in the area of standard times for combinations of services performed concurrently. If nurses are going to add services to their existing workloads, they will need to perform work more efficiently by grouping services together. Grouping of services would allow the frequent services to be absorbed more easily. While grouping of services is an issue, the methodology to study it is complex, and will not be addressed in this study.

Time of Day and Flexibility

In addition to the time required to perform a service, two other factors, time of day in which a service is provided and flexibility in moving the service to another time of day, contribute to the ease with which a service could be absorbed. These two factors are closely related though not identical. Time of day is important because shifted services which must be performed concurrently with existing nursing care may create a resource demand which cannot be met by the nursing staff. Flexibility is important because shifted services may be more easily absorbed if they can be moved to times when the volume of existing nursing care service is low.

Flexibility in moving a service to another time can logically be related to the time of day in which it is performed. Some services are flexible and may be moved to various points in time to equalize resource demand without jeopardizing the quality of care. Other services are less flexible and may not be moved to another time to equalize resource demand because of a higher priority of the patient's

need. Patient teaching classes, for example, could be provided at alternate times of the day or week while IV starts and oxygen starts should be provided based on a higher priority. Nothing has been written in the literature related to flexibility and the shifting of ancillary services.

While time of the day in which a service is performed has been recognized as influencing staffing needs, nothing has been written in relationship to the interdeparmental shifting of services. Many staffing methodologies reflect the time of day in which services are provided by dividing the known workload derived from time and frequency studies into three portions which represent the usual division of work over the 24 hour period (Williams, 1977; Aydelotte, 1973). Examination of the time of day in which services or activities occur has been used in other studies such as time spent on computer information systems (Ogonowski, master's thesis, cited in Birckhead, 1978) and time spent on IV related activities (Larson & Hargiss, 1984).

Although the services under consideration for shifting have been studied in relation to time of day the service is performed specific data has not been reported. The actual distribution of each of these services of 24 hours has not been described. Additionally, the time distribution of other services such as RT has not been described in the literature.

Case Mix

Case mix has been described as a factor which influences resource consumption. Several types of case mix systems have been used to sort

patients; for example, the DRG case mix system is used to separate surgical patients from non-surgical patients based on differences in their resource consumption (Plomann & Shaffer, 1983). Another type of case mix system which has been used in hospitals is designed to separate patients into groups based on the type of nursing care needed. Those categories have traditionally differentiated among medical, surgical, obstetrical and pediatric patient needs. Grouping of patients into medical and surgical categories would seem to be a factor in the shifting of services because some of the services which have been considered for shifting are generally thought to be performed more frequently on surgical units than on medical units. Thus, if services were shifted, uneven resource demands could be created between the two units. As an example, post-operative surgical patients are known to require more respiratory services than medical patients; therefore, these services would be performed more often by nurses on the surgical units (Horsley and Crane, 1981). The frequency and time of day of RT Services and IV, PT and OT services in relationship to the case mix on clinical units has not, however, been described in the literature. Again, this leaves the nurse administrator with limited information regarding how the shifted services could relate to the available nursing hours on the units.

Resource Allocation

Thus far, the review of the literature has related the factors of the skill and the time required to perform a service, the frequency of

the service, the time of day a service is provided, the flexibility in moving that time and the case mix of the clinical units to the selected services which may be shifted. These factors indirectly impact the cost effectiveness of shifting selected services.

In contrast, the method used to allocate nursing personnel directly impacts the cost effectiveness of shifting selected services. Using the nurse patient ratio method of staffing, a shift in services would likely be cost effective because it would not create a corresponding increase in staff or nursing resources. Using a patient classification method, a shift in services might or might not be cost effective.

The patient classification system is the method which has been used by many hospitals to allocate staff. One of the early systems used was developed by the Commission for Administrative Services in Hospitals (CASH). Other systems have been derived from this early work (Aydelotte, 1973). Patient classification systems consist of three main components. These components are: 1) an instrument on which to determine a patient's acuity; 2) a method of assigning hours of care to patients based on acuity; and 3) a method of assigning nursing resources based on the hours of care (Giovannetti, 1979). Two of these components, the instrument used to determine the patient's acuity and the method of assigning nursing resources, would seem to have an impact on the cost effectiveness of shifting services.

The instruments used in patient classification systems fall into two general categories - 'prototype evaluation," commonly called descriptive, and 'factor evaluation' (Abdellah & Levine, 1965,

pp. 449). The descriptive instrument with its broad groupings of patient characteristics and nursing care needs is less likely to identify the shifted services. A shift in service is therefore less likely to be reflected in a higher acuity score and an increase in the hours of care for the patient. The 'factor' instrument with its individual elements is more likely to include the shifted services. If the services are included, the shift in service might be reflected in a higher acuity score and a corresponding increase in the hours of care assigned to that patient. The increase could neutralize or reduce the cost savings achieved by shifting the services from the ancillary departments.

The method of translating patient acuity scores into nursing resources can also effect the cost effectiveness of shifting services. All institutions asign hours of care to patients based on acuities. Those hours of care are translated into nursing full time equivalents (FTE), and in some hospitals by category of nursing personnel (Higgerson & Van Slyck, 1982). Although the FTE needed is often expressed in a decimal fraction, nursing resources are customarily allocated by a full FTE. This practice results in discrepency or variance between the needed and actual nursing staff assigned to each unit. A positive variance represents overstaffing and a negative variance represents understaffing. With a positive variance one could assume time would be available to perform some extra services. With a negative variance, there would be less time than prescribed by the hours of care to perform the existing services. If the method of

allocating resources permits positive variances, the services may be more readily absorbed. If negative variances are allowed, the shifted service may be more difficult to absorb. While an overall positive variance for a day or a week night appear to allow shifted services to be absorbed, this may not be true on a shift by shift basis.

In summary, it would seem that services could be shifted from ancillary departments to nursing without loss in quality and with a cost savings if the following conditions exist:

- the skill required to perform the service is within the knowledge and abilities of registered nurses;
- the time required to perform the shifted services and the frequency with which the services occur are known;
- the services occur at a time of day when the volume of existing services is low or either the existing services or shifted services are flexible;
- services are evenly distributed among units due to case mix;
- the patient classification instrument used does not include the shifted services.
- the method of allocating nursing resources allows positive variance equal to the time required to perform the services.

Therefore, in a setting which categorizes patient's needs into medical and surgical groupings, this study addresses the potential impact of shifting selected services from ancillary departments back to nursing. The patient classification instrument used in this setting is a factor evaluation tool with eight groups of factors. Since these

factors do not include the services under consideration for shifting, use of this instrument is less likely to lead to increased allocation of nursing resources. Also, the method of allocating nursing resources allows positive staffing variances which could allow time for the shifted services to be performed. The specific research questions are:

1. How much time is required to perform IV, RT, PT and OT categories of services per shift per day on one medical unit and one surgical unit?
2. How much cumulative time is required to perform the selected IV, RT, PT and OT services per shift per day on one medical unit and one surgical unit?
3. What is the correspondence between the cumulative time required to perform the selected IV, RT, PT and OT services and the staffing variances per shift per day on one medical unit and one surgical unit?

CHAPTER II

METHODS

Design

A descriptive case study design involving the collection of secondary data from patient and administrative hospital records was employed in the study. The advantages of this design are that it can be completed by one researcher at a moderate cost within a short time frame. This made the results available to the nursing administration for making resource allocation decisions at a time when they were most useful. Disadvantages generally associated with use of secondary data are compensated by those which might have been introduced through the collection of primary data on the clinical units.

Setting and Unit of Analysis

The setting for this study was a 350-bed university teaching hospital in the Pacific Northwest. While this hospital provides care for individuals with special needs such as corrective surgery for congenital anomalies and experimental chemotherapy, care is also provided for a large population who have diagnoses which are similar to a community hospital The patient population on the clinical units selected for this study reflected the general medical and surgical diagnoses found on such units in other hospitals. It is expected, therefore, that the findings of this study may be generalized to clinical units of community hospitals to the extent that the case mix

on the study units is similar to the case mix of clinical units in community hospitals.

The two clinical units selected for study from the University Hospital were a medical unit with 24 beds and a surgical unit with 30 beds. The patient diagnoses on these units are those common to medical and surgical units, such as myocardial infarctions, deep vein thromboses, femoral-popliteal bypass surgeries, and cholecytectomies. While there are medical and surgical patients on units other than the study units, they are mixed with patients who have unusual service needs such as medical and surgical oncology. The case mixes on the study units most closely resembled those found in community hospitals. One medical and one surgical unit were chosen explicitly because it can be assumed that differences in utilization of services such as intravenous and respiratory therapy exist between these two populations.

Data for the study were collected during the month of June, 1984. This month was selected for two reasons. 1) Beginning in July, 1984, the responsibility for one intravenous service was shifted to nursing. Data collection in June provided baseline data on the service utilization patterns and the volume of all intravenous services which might be shifted. This allowed evaluation of the impact of shifting additional intravenous services plus selected respiratory, occupational and physical therapy services to the staff nurses. 2) Although it might have been desirable to collect data over a longer period of time, the administrative data used in the study were not saved on a permanent basis.

The data used in this study represent services delivered over seven consecutive days. By studying weekday and weekend shifts, the usually high and low admission days and the normal fluctuations in services over the 24 hour period were reflected. The week selected in June had the highest patient census for the study units in that month resulting in a larger sample size.

Sample

The sample was obtained by selecting the total patient population who received services on either of the two units during the seven days of the study. This data was obtained from census and room control reports. All patients present on the first day of the study were included in the sample. Thereafter, all patients admitted or transferred into either of the units were included. Patients were included in the study if they were on the unit any portion of the day.

The sample was comprised of 70 patients which represented 76 admissions into the study units. Five of these patients were either readmitted or transferred a second time. One patient with incomplete data, who had been admitted to both units, was omitted from analysis. Therefore, the analysis was based on a sample of 69, a total of 37 patients from the medical and 32 from the surgical unit.

The patients' ages on the medical unit ranged from 18-92 with a median of 60, a mean of 56 and a standard deviation of 15. On the surgical unit the ages ranged from 14-90 years with a median of 53, a mean of 51 and a standard deviation of 20. On each unit the largest

percentage of patients was in the 60-69 age group with 25% on the medical unit and 29% on the surgical unit. There were 22 females and 15 males on the medical unit and 21 females and 12 males on the surgical unit.

Nineteen of the 37 primary diagnoses on the medical unit were related to the cardiovascular system including 5 arrhythmias (DRGs, 138 and 139), 2 congestive heart failures (DRG 127), 2 acute myocardial infarctions (DRG 121), 2 angina (DRG 140) and 2 post-operative heart valve replacements (DRG 104). The second most common group of diagnoses were kidney and bladder disorders. Of the seven diagnoses, two were AV fistula insertion (DRG 315), 2 were end-stage renal failure (DRGs 331 and 332) and two were urinary tract infections (DRG 320).

The diagnoses on the surgical unit were distributed more evenly within the major diagnostic groups. Eight diagnoses were diseases or disorders of the cardiovascular system with 3 major vascular reconstructions (DRGs 110 and 111) and 3 peripheral vascular disorders (DRGs 130 and 131). Two groups of diagnoses had 7 patients each. These were the digestive disorders with 3 maxillofacial reconstructive surgeries (DRG 169); 1 gastrectomy (DRG 154) and 1 herniorrhaphy (DRG 160); and skin related disorders with 2 advancement of myocutaneous gluteal flaps (DRG 269) and 2 cellulitis (DRG 277 and 281),(Hospital Utilization Project (HUP) 1983).

No patient was excluded from the sample by diagnosis. While three patients on the surgical unit had maxillofacial surgery which is not

typically done in community hospital settings, they were included in the sample because their post surgical needs are not dissimilar to surgical patients in general. See Appendices B and C for complete lists of diagnoses and DRGs per clinical unit.

Approximately 50% of the individual patient acuity scores for both units were classed in the moderate resource need level, level II, for the seven days period. However, the two units differed with respect to the acuity patterns for the remaining portion of acuity scores. On the surgical unit, there was more fluctuation among acuity levels with more scores at the higher resource need level of III. While on the medical unit, there was less fluctuation among levels with more scores at the lower resource need level of I.

Variables and Data Sources

This study examined two kinds of variables, service variables and staffing variables.

Service Variables

The services selected for study were those which were available at least one 8-hour shift per day, were performed by and recorded by ancillary department personnel on a chart form used by that department, and could be provided safely by nurses. For the purpose of this study, the operational definitions of the service variables are the generally accepted definitions found in the Lippincott Manual of Nursing Practice

(3d ed.) See Appendix D for these operational definitions. The service variables are:

Intravenous Therapy

IV start

IV start, 16 gauge catheter

heparin lock, IV start

peripheral CVP line start

checking IV site

IV dressing change, peripheral

IV dressing change, central

patient teaching in preparation for discharge with an IV

Respiratory Therapy

start oxygen including aerosol, heated and cool

check oxygen flowmeter for correct liter flow

incentive spirometry treatment

chest physiotherapy and postural drainage

nasotracheal or orotracheal suctioning

sputum induction with ultrasonic nebulizer

ultrasonic nebulizer treatment

Physical Therapy

range of motion exercises

ambulation with assistance

evaluation of activities of daily living

Occupational Therapy

evaluation of activities of daily living

relaxation class (post myocardial infarction)

energy conservation class

Staffing Variables

The staffing variables are data recorded on nursing administrative records prior to each shift for purposes of assigning nursing staff.

nursing resources	The total number of registered nurses and licensed practical nurses per shift on each of the study units. The fraction represents overlap time for nurses on 10 hour shifts.
staffing variance	The difference between the number of staff required based on unit acuity scores and census, and the number of staff who worked on each unit per shift. Positive

variance means that more nursing hours than required by the acuity-based unit staffing guide are available on the unit. A negative variance indicates that fewer nursing hours than required are available. Negative variances greater than 0.5 FTE are usually reduced by floating a nurse from another unit. This decision is at the discretion of the charge nurse.

Data Collection

The study used secondary data obtained from University Hospital patient records and from Nursing Division staffing records. The data were of two types: 1) nursing resources and staffing variance, and 2) sample services and demographic descriptors.

Data on unit nursing resources and staffing variance were analyzed directly from existing staffing reports. These reports are instruments used by staffing office personnel to allocate nursing staff prior to

each shift according to the current patient acuity levels. A set of decision rules are used to compute the number of staff required based on the hours of care for each classification (acuity) level, shift and unit. The data collected from this instrument were the number of staff assigned and the staffing variance for the study units. See Appendix E for this instrument.

Patient records were reviewed for frequency of services and demographic information. Decision rules for determining if a service had occurred and a simple instrument for tallying service frequency were developed. Demographic data were collected on the individual patients in the sample. See Appendix E for this instrument.

The demographic data were collected from the charts in the following manner:

1. The age, sex, admitting medical service, admission and discharge dates and the ICD- 9CM List A code numbers and diagnoses were obtained from the Inpatient Attendance Record. Age was calculated according to the most recent birthday.
2. The shift on which the patient was admitted and the acuity scores per 8 hour shift were obtained from the Patient Acuity Record for Nursing Classification. If the patient was discharged or transferred and readmitted to the study unit during the collection period, a new demographic form was started. When questions arose regarding the date or time of discharge or transfer, clarification was gained by checking the Physicians' Order sheet, the Nursing Progress record, the (Medical) Progress record and the Discharge record.

The occurrence of the service variables was obtained from the chart forms used by each department. Any service variable provided between the hour and 59 minutes after the hour was recorded on the hour. If the service was recorded on the chart form, it was assumed to have been provided by staff from that department. The service data were collected in the following manner:

1. The occurrence of the OT service variables, was obtained from the Occupational Therapy Referral and Treatment record. The terms accepted for the progressive relaxation class and energy conservation class were PR and CEC. The Progress record was checked for entry of PR and CEC in patients not having an OT record. The term accepted for evaluation of ADL's was SIL (Skills in Independent Living).
2. The PT service variables were obtained from the Physical Therapy record or the Occupational Therapy Referral and Treatment record. The term acceptable for range of motion were ROM and UE; the terms for assistance with ambulation were ambulation and gait training, and for activities of daily living was ADL.
3. The RT service variables were gathered from the Respiratory Therapy Department, Treatment and Procedure Record. The terms or abbreviations accepted were:

   CPT as chest physiotherapy/postural drainage;

   IS as incentive spirometry;

   UN or UNeb as ultrasonic nebulizer;

NT suctioning as naso/orotracheal suctioning;

O_2 at L/min as check oxygen flowmeter;

Services refused by patients or deferred by therapists were not tallied.

4. The IV service variables were obtained from the Intravenous Fluid and Service Record. It was assumed that IV starts were performed by IV nurses unless a physician's name was recorded. IV starts not specified as heparin locked (HL) were recorded as IV starts. IV attempts were recorded as IV starts. IV variables which were not charted with a specific time were recorded for each shift as time missing. Terms accepted for these service variables were:

   HL start or restart as heparin lock start;

   IV start or restart as IV start;

   Intrasil as peripheral CVP line;

   No redness, swelling or tenderness; phlebitis or infiltration present; IV site OK; IV dressing dry and intact; as check IV site

See Appendix F for sample chart forms.

Protection for human subjects was provided by using a numerical code for each patient and placing this code on the demographic and service variable forms. Records identifying patients have been destroyed.

Analysis

The data collected on the service variables consisted of the frequencies and times of the day for each unit for each shift on each day of the study period. The number of services in each category were multiplied times the frequency to obtain a total frequency for each category of service and for all the services, for each of the two units. The frequencies for each category were multiplied by standard times (CASH from Administrative Strategies, Thousand Oaks, CA 1979) or average times to obtain the total time required to perform these services in each of the categories - IV, RT, PT and OT. See Appendix G for times used in this study. For the overall shift times per category of service, the range, median, mean and standard deviation were computed for each unit. For each day and for each shift per category of service, the range, median and mean were calculated per category of service for overall times for each day and for each shift. The total times for each category were totalled to obtain the cumulative time in minutes required to perform the IV, RT, PT and OT services studied. For the cumulative times, the range, median and mean were computed for the overall shift times; range and median for each day and range per shift per each unit.

The data collected on the staffing variables were the number of nursing resources (FTEs) and the staffing variance for each unit per shift per day of the study period. The variances were converted to minutes by multiplying the decimal fraction by 480 minutes (1 FTE). The range, median, mean were computed for the overall shift variances

and the range and median were calculated per day and per shift.

To obtain the variances which would result if service were shifted, the cumulative times were added to the negative variances and subtracted from the positive variances for each unit. The range, median and mean were computed for overall shift variances and the range and median per day and per shift for each unit.

CHAPTER III

RESULTS

Research Question 1

How much time is required to perform IV, RT, PT, OT categories of services per shift per day on one medical unit and one surgical unit?

IV Services

On the medical unit for IV services under consideration, the total time required to perform the IV services over the 21 shifts is 430 minutes and ranges from 0-64 minutes; the median is 23 minutes, mean 20.48 minutes and standard deviation 15.25. For each day, the times range from 12 minutes (Friday) to 124 minutes (Tuesday); the median time is 49 minutes and the mean is 61 minutes. By each shift the total minutes are 86 (11-7), 169 (3-11), and 175 (7-3); the median time is 169 minutes and the mean is 143.3 minutes (see Table 1).

TABLE 1

Total Time (in minutes) Required to Perform Selected IV Services per Shift per Day on the Medical Unit

Day of the Week	Shift 11-7	7-3	3-11	Total
		Medical Unit		
Monday	12	16	12	40
Tuesday	36	64	24	124
Wednesday	26	26	31	83
Thursday	0	23	24	47
Friday	12	0	0	12
Saturday	0	26	49	75
Sunday	0	20	29	49
				430

On the surgical unit, the total time required to perform the IV services over the 21 shifts is 831.38 minutes and ranges from 0-100.08 minutes; the median time is 37 minutes; the mean is 39.59 and the standard deviation is 30.6. For each day the times range from 61 minutes (Monday) to 191.046 (Saturday); the median time is 109.04 minutes and the mean is 119 minutes. By shift the total time is 123.04 (11-7); 207.04 (3-11) and 501.02 (7-3); median time is 207.04 and the mean is 277.09 minutes (see Table 2).

Table 2

Total Time (in minutes) Required to Perform Selected IV Services per Shift per Day on the Surgical Unit

Day of the Week	Shift 11-7	7-3	3-11	Total
		Surgical Unit		
Monday	12	37	12	61
Tuesday	4	64.04	26	94.04
Wednesday	4	91.04	14	109.04
Thursday	8	79.04	0	87.04
Friday	28	66	41.04	135.04
Saturday	51.04	64	76	191.04
Sunday	16	100.08	38	154.08
				831.28

On both the medical and surgical units, the most frequently performed services are the IV starts and heparin lock starts. On the

medical unit, the total number of IV starts and heparin lock starts is 26. That number is fairly evenly distributed over all days and shifts. On the surgical unit, the overall number of IV starts and heparin lock starts is 48, with 29 occurring on the 7-3 shift. By day the most frequent number (12) of IV starts and heparin lock starts is on Saturday. See Tables 13-20 in Appendix H for frequencies of specific IV services.

RT Services

On the medical unit the total time required to perform the RT services over the 21 shifts is 152.9 minutes and ranges from 0.76 - 45.49 minutes; the median is 4.56 minutes; the mean is 7.28 minutes and the standard deviation is 10.59 minutes. Per day the times range from 10.81 minutes (Monday) to 54.53 minutes (Wednesday) with a median of 14.44 minutes and a mean of 21.84 minutes. By shift, the times are 24.92 minutes (11-7); 52.52 (3-11) and 76.06 (7-3); median time is 52.52 minutes and the mean is 51.17 minutes (see Table 3).

TABLE 3

Total Time (in minutes) Required to Perform Selected Respiratory Services on the Medical Unit

Day of the Week	Shift 11-7	7-3	3-11	Total
Monday	1.52	7.77	1.52	10.81
Tuesday	2.28	.76	27.52	30.56
Wednesday	1.52	45.49	7.52	54.53
Thursday	5.32	4.56	4.56	14.44
Friday	4.56	5.32	3.04	12.92
Saturday	3.04	6.08	2.28	11.4
Sunday	6.08	6.08	6.08	18.24
				152.9

On the surgical unit, the total time required to perform the RT services over 21 shifts is 830.85 minutes and ranges from 0.76-109.63 minutes, with a median of 35.8 minutes, a mean of 39.56 minutes and a standard deviation of 31.19. For each day, the range in times is 6.84 minutes (Monday) to 43.48 minutes (Sunday); the median time is 121.88 minutes and the mean is 118.69 minutes. By shift the total time is 193.8 minutes (11-7) to 337.29 minutes (3-11); 299.76 minutes (7-3); median time is 193.8 minutes and the mean is 51.17 minutes (see Table 4).

TABLE 4

Total Time (in minutes) Required to Perform Selected Respiratory Services on the Surgical Unit

Day of the Week	Shift 11-7	7-3	3-11	Total
Monday	2.28	3.04	1.52	6.84
Tuesday	2.28	21.52	22.28	46.08
Wednesday	43.04	55.04	34.28	132.36
Thursday	42.28	35.8	43.8	121.88
Friday	.76	39.26	33.77	73.79
Saturday	27.08	69.78	109.63	206.49
Sunday	76.08	75.32	92.01	243.48
				830.85

For specific RT services, oxygen checks were the most frequent service on both units with 94 on the medical unit and 90 on the surgical unit (see Tables 21-27 in Appendix H for frequencies).

PT Services

On the medical unit, the total time required to perform PT services is 31.06 minutes and ranges from 7.02 minutes to 24.04 minutes with a median of 0 and a mean of 15.53 minutes. Only two PT services occurred and these were on the 7-3 shift (see Table 5).

TABLE 5

Total Time (in minutes) Required to Perform Selected Physical Therapy Services on the Medical Unit

Day of the Week	Shift 11-7	7-3	3-11	Total
Monday	0	0	0	0
Tuesday	0	24.04	0	24.04
Wednesday	0	7.02	0	7.02
Thursday	0	0	0	0
Friday	0	0	0	0
Saturday	0	0	0	0
Sunday	0	0	0	0
				31.06

On the surgical unit, the total time required to perform PT is 75 minutes and ranges from 0 minutes to 35 minutes with a median of 0 and a mean of 3.57. Only three PT services occurred and these were on the 7-3 shift (see Table 6).

TABLE 6

Total Time (in minutes) Required to Perform Selected Physical Therapy Services on the Surgical Unit

Day of the Week	Shift 11-7	7-3	3-11	Total
Monday	0	0	0	0
Tuesday	0	35	0	35
Wednesday	0	35	0	35
Thursday	0	5	0	5
Friday	0	0	0	0
Saturday	0	0	0	0
Sunday	0	0	0	0
				75

OT Services

On the medical unit the total time required to perform OT services is 150 minutes and ranges from 0-90 minutes with a median 0 and mean of 7.14 minutes. There were only two OT services which occurred and these were on the 7-3 shift. No OT services were performed on the surgical unit (see Tables 7 and 8).

TABLE 7

Total Time (in minutes) Required to Perform Selected Occupational Therapy Services on the Medical Unit

Day of the Week	Shift 11-7	7-3	3-11	Total Minutes	Hours
Monday	0	0	0	0	0
Tuesday	0	0	0	0	0
Wednesday	0	0	0	0	0
Thursday	0	60	0	60	1.0
Friday	0	90	0	90	1.5
Saturday	0	0	0	0	0
Sunday	0	0	0	0	0
				150	2.5

TABLE 8

Total Time (in minutes) Required to Perform Selected Occupational Therapy Services on the Surgical Unit

Day of the Week	Shift 11-7	7-3	3-11	Total
Monday	0	0	0	0
Tuesday	0	0	0	0
Wednesday	0	0	0	0
Thursday	0	0	0	0
Friday	0	0	0	0
Saturday	0	0	0	0
Sunday	0	0	0	0
				0

Research Question 2

How much cumulative time is required to perform the selected IV, RT, PT and OT services per shift per day on one medical unit and one surgical unit?

On the medical unit, the total cumulative time required to perform IV, RT, PT & OT services over the 21 shifts was 763.96 minutes or 12.73 hours and ranges from 3.04 minutes to 95.32 minutes; the median time is 28-56 minutes and the mean is 37-31 minutes. By day the times range from 50.81 minutes or 0.847 hours (Monday) to 178.6 minutes or 2.977 hours (Tuesday) with a median time of 114.92 minutes or 1.915 hours. Per day of the week, there were 6 positive variances and 1 negative variance. By shift the total time is 110.32 minutes (11-7) to 432.12 minutes (7-3) with 221.52 minutes (3-11) (see Table 9).

TABLE 9

A Comparison of Staffing Variance (in minutes) and the Cumulative Time Required to Perform Selected IV, PT, RT and OT Services per Shift per Day on the Medical Unit

DAY OF THE WEEK	SHIFT 11-7		7-3		3-11		TOTAL TIME REQUIRED		
	Time Required	Variance	Time Required	Variance	Time Required	Variance	Minutes	Hours	Variance
Monday	13.52	(+144)	23.77	(+192)	13.52	(+192)	50.81	0.847	(+528)
Tuesday	38.28	(+48)	88.8	(-96)	51.52	(+144)	178.60	2.977	(+96)
Wednesday	27.52	(+288)	78.51	(+96)	38.52	(+240)	144.55	2.409	(+336)
Thursday	5.32	(+336)	87.56	(+96)	28.56	(+144)	121.44	2.024	(+576)
Friday	16.56	(+240)	95.32	(+144)	3.04	(-240)	114.92	1.915	(+144)
Saturday	3.04	(-48)	32.08	(+192)	51.28	(+96)	86.4	1.44	(+240)
Sunday	6.08	(+338)	26.08	(-432)	35.08	(-336)	67.24	-1.12	(-432)
	110.32	(+1344)	432.12	(+192)	221.52	(+240)	763.96	12.73	(+1776)

Note. Negative variances of greater than 240 minutes are usually covered by float nurses.

On the surgical unit, the total time required to perform the IV, RT, PT and OT services is 1737.13 minutes and ranges from 6.28 minutes to 185.63 minutes; the median time is 74.81 minutes and the mean is 81.77 minutes. The total cumulative time for the week is 1737.13 or 28.96 hours. Per day the times range from a low of 67.84 minutes or 1.13 hours (Monday) to a high of 397.53 minutes or 6.629 hours (Saturday) with a median of 213.92 minutes or 3.565 hours. By shift the cumulative times range from a low of 316.84 minutes (11-7) to a high of 875.94 minutes (7-3) with 544.33 minutes (3-11) (see Table 10 columns labeled time required).

TABLE 10
A Comparison of Staffing Variance (in minutes) and the Cumulative Time Required to Perform Selected IV, PT, RT and OT Services per Shift per Day on the Surgical Unit

DAY OF THE WEEK	SHIFT 11-7		7-3		3-11		TOTAL TIME REQUIRED		
	Time Required	Variance	Time Required	Variance	Time Required	Variance	Minutes	Hours	Variance
Monday	14.28	.(0)	40.04	(+288)	13.52	(+144)	67.84	1.131	(+432)
Tuesday	6.28	(-48)	120.56	(+240)	48.28	(+96)	175.12	2.919	(+288)
Wednesday	47.04	(-288)	181.08	(+384)	48.28	(-144)	276.4	4.607	(-48)
Thursday	50.28	(+48)	119.84	(+96)	43.8	(-240)	213.92	3.565	(-288)
Friday	28.76	(+144)	105.26	(-336)	74.81	(-48)	208.83	3.481	(-240)
Saturday	78.12	(+144)	133.76	(0)	185.63	(+48)	397.53	6.626	(+192)
Sunday	92.08	(-48)	175.40	(-48)	130.01	(+144)	397.49	6.629	(+48)
	316.84	(-48)	875.94	(+624)	544.33	(0)	1737.13	28.96	(+576)

Note. Negative variances of greater than 240 minutes are usually covered by float nurses.

Research Question 3

What is the correspondence between the cumulative time required to perform select IV, RT, PT and OT services and the staffing variances per shift per day on one medical unit and one surgical unit?

The correspondence between the cumulative times and the staffing variances was derived by subtracting the cumulative time from the existing variances. The existing variances for the medical unit over the 21 shifts range from - 432 minutes (- .9 FTE) on Sunday for the 7-3 shift to + 336 minutes (+ .7 FTE) on Thursday and Sunday for the 11-7 shift. The median for the overall variance is +144; the mean is 84.57 minutes. The range over the 21 shifts within the negative variances is - 432 minutes (- .9 FTE) to - 48 minutes (- .1 FTE) and within the positive variances is + 48 minutes (+ .1 FTE) to + 336 minutes (+ .7 FTE). There are 16 positive variances and 5 negative. Per day of the week the variances range from - 432 (- .9 FTE) to + 576 (+ 1.2 FTE) and the median was + 240 minutes (+ .5 FTE). The variances per shift over the seven days range from + 192 minutes (+ .4 FTE) 7-3 to + 1344 minutes (+ 2.8 FTE) for the 11-7 shift with + 240 minutes for the 3-11 shift. (See Table 9).

For the surgical unit, the overall variances range from - 336 minutes (- .7 FTE) on Friday for the 7-3 shift to + 384 minutes (+ .8 FTE) on Wednesday for the 7-3 shift. The overall range within the negative variances is - 336 minutes (- .7 FTE) to - 48 minutes (- .1 FTE) within the positive variances is + 48 minutes (+ .1 FTE) to

+ 384 minutes (+ .8 FTE). The median for the overall variances is 0; the mean is 18.29 minutes. There are 13 positive variances and 8 negative variances. The variances per day of the week range from -288 minutes (- .6 FTE) for Thursday to + 432 minutes (+ .9 FTE) for Monday. Over the seven days the range in variance for the three shifts is - 48 for the shift 11-7 to + 432 for the shift 7-3 with 0 for the shift 3-11. (See Table 10 columns labeled variance and see Table 33, Appendix H for variance per FTE).

Variances which would result if services were shifted differs by units. For the medical unit, the total variances over the 21 shifts range is + 1174.28 minutes and from - 458.08 minutes on Sunday on the 7-3 shift to + 330.68 minutes for Thursday for 11-7 shift; the median is + 92.48 and the mean is + 48.19 minutes. There are 16 positive variances and 5 negative variances. By day the range is - 499.24 minutes (- 1.04 FTE) on Sunday to + 477.19 minutes (+ 0.99 FTE) on Monday with a median of + 454.56 minutes. For the three shifts over seven days, the variances range from - 240.23 (0.5 FTE) for the 7-3 shift to 1233.72 minutes (2.57 FTE) for 11-7 and 18.48 minutes (0.04 FTE) for 3-11 (see Table 11). It should be noted that negative staffing variances greater than 0.5 FTE are generally corrected by increasing staff. If this correction had occurred, the variance on Sunday (7-3) would have been changed from - 458.08 minutes to + 22 minutes.

TABLE 11

Staffing Variances (in minutes) which would Result if IV, RT, PT, OT Services Were Shifted on the Medical Unit

Day of the Week	SHIFT 11-7 Variance	7-3 Variance	3-11 Variance	24 Hour Variance
		Medical Unit		
Monday	+ (130.48)	+ (168.23)	+ (178.48)	+ 477.19
Tuesday	+ (9.72)	- (184.8)	+ (92.48)	+ 82.6
Wednesday	+ (260.48)	+ (17.49)	+ (201.48)	+ 476.45
Thursday	+ (330.68)	+ (8.44)	+ (115.44)	+ 454.56
Friday	+ (223.48)	+ (48.68)	- (243.04)	+ 29.12
Saturday	- (51.04)	+ (159.92)	+ (44.72)	+ 153.6
Sunday	+ (329.92)	- (458.08)	- (371.08)	- 499.24
	+ 1233.72	- 240.12	+ 18.48	+ 1174.28

For the surgical unit, the total variances over the 21 shifts is - 1353.11 minutes and ranges from - 441.28 minutes (- .92 FTE) on Friday for the 7-3 shift to + 247.96 minutes (+ 0.52 FTE) on Monday for the 7-3 shift; the median was - 23.84 minutes and the mean was - 55.29 minutes. There were 8 positive variances and 13 negative variances. Per day the range is - 501.92 minutes (- 1.05 FTE) on Thursday to + 364.16 minutes (+ 0.76 FTE) on Monday with a median of - 324.4 minutes

(- .68 FTE). Over the three shifts the variances range from - 544.33 minutes (1.13 FTE) for the 3-11 shift to - 251.94 minutes (-0.53 FTE) for the 7-3 shift and - 364.84 minutes (- .76 FTE) for the 11-7 shift (see Table 12).

TABLE 12

Staffing Variances (in minutes) which would Result if IV, RT, PT, OT Services Were Shifted on the Surgical Unit

Day of the Week	SHIFT 11-7 Variance	7-3 Variance	3-11 Variance	24 Hour Variance
		Surgical Unit		
Monday	- (14.28)	+ (247.96)	+ (130.48)	+ 364.16
Tuesday	- (54.28)	+ (119.44)	+ (47.42)	+ 112.88
Wednesday	- (335.04)	+ (202.92)	- (192.28)	- 324.4
Thursday	- (2.28)	- (23.84)	- (283.8)	- 501.92
Friday	+ (115.24)	- (441.26)	- (122.81)	- 448.83
Saturday	+ (65.88)	- (133.76)	- (137.63)	- 205.51
Sunday	- (140.08)	- (223.40)	+ (13.99)	- 349.49
	- 364.84	- 251.94	- 544.33	- 1353.11

DISCUSSION

Of the four categories of services under consideration for shifting, the IV and RT services required the most time to perform over the 21 shifts. The surgical unit, however, had approximately twice the time required to perform IV services and five times the time required to perform RT services than the medical unit. The PT services, although few occurred, required approximately twice the time to perform on the surgical unit than on the medical unit. OT services, the relaxation and energy conservation classes, occurred only on the medical unit. Overall, this distribution would seem to indicate that if services were shifted, the surgical unit would need to absorb more services than the medical unit.

A finding of particular interest in the IV services category is the distribution of IV and heparin lock starts on the surgical unit. These occurred more frequently on Saturday and Sunday than would be expected. For these days there were two shifts with negative staffing variances; however, if all services had been shifted, there would have been four shifts with negative variances or - 1.3 FTE. This indicates fewer nursing resources than needed to provide these services. Since IV starts and heparin lock starts could be considered less flexible and since 7-3 is considered a busy shift, the shifting of these services to the surgical unit at this time could have led to lower quality of care or to work being left undone.

The OT services, the relaxation and energy conservation classes, occurred infrequently, but required 90 and 60 minutes respectively.

Although the content could be taught by primary nurses, the large blocks of time on the 7-3 shift might be difficult to absorb. Since these classes are flexible, they could be moved to another day and time where they would be incorporated more easily.

PT services occurred infrequently and were of short duration; therefore, it would seem that they could be incorporated. Since nurses currently assist with ambulation for most of the patients requiring this service, these would seem logical to shift. Overall, the RT services required only short times, with the exception of chest physiotherapy, and were distributed fairly evenly across the shifts. It would seem these services could be absorbed. However, chest physiotherapy requires 20 minutes of time in one block and occurs every 4 hours to 2-3 times a day. This service could be absorbed if it did not occur during busy times on the unit, but would be difficult to absorb on the 7-3 shift.

The cumulative times required to perform the services show the same general pattern as the categories of service. If all the services had been shifted, the resource demand on the surgical unit would have been 2 times as great as the demand on the medical unit. In addition, there was greater variation in the time across the days of the week on the surgical unit than on the medical unit, with the largest amount of time occurring on Saturday and Sunday. These case mix differences may, however, reflect the differences in the severity of illness between the medical and surgical patients in this study. As previously noted, the surgical patients tended to have higher acuity ratings on the average.

On the medical unit, the staffing variances which would result if IV, RT, PT and OT services were shifted seem to indicate sufficient nursing resources to absorb the services on most of the shifts. On 16 shifts, the variance would remain positive and would range from + 8.44 (.02 FTE) to + 329.42 (+ .69 FTE). On five shifts the variance would become negative and would range from - 184.8 to - 458.08 minutes (- .95 FTE). This raises serious question about the availability of nursing resources to provide shifted services without lowering quality of care.

On the surgical unit, it appears that shifted services could be absorbed for 8 of the shifts. If nursing staff grouped services together, services could possibly be absorbed for 4 additional shifts which have small negative variances. On 12 shifts, the variances would be positive and would range from + 13.99 (+ .03 FTE) to + 247.96 (+ .52 FTE). On 9 shifts, the variance would be negative - 120.8 (- .25 FTE) to - 441.26 minutes (.92 FTE). It would appear that services could not be absorbed on these shifts.

Findings of the study indicate that the time and frequency of some of the selected services would allow them to be absorbed relatively easily. Other services, which occur in blocks, although infrequent, should be studied in relationship to the nursing care pattern on the units to determine if they can be incorporated. Also, the findings suggest that the surgical units needs more shifts which have a positive variance to be able to absorb shifted services. This would help to balance the nursing resources with the resource demands. In summary, shifting of some services which have been considered would seem

possible without loss in quality of care. Since this study took place over a short period of time, it would be useful to study other times of the year and for longer periods to determine the patterns of ancillary services. Also, since patients on the surgical unit had higher acuity levels which might account for the difference in resource consumption between the two units, a study over a longer period and of other groupings of medical and surgical patients might provide clearer results.

Since this study was carried out on two units in a single setting at one point in time, in medical and surgical units only, the findings may not be generalizable to all settings. The case mixes on the study units may not be comparable to other settings or to the same setting over time. In addition, the method used for allocating staff in this institution is likely to be different than that employed in other institutions. This difference could also influence the amount of variances which would occur and the staff resources assigned to the units. Each of these differences would affect the type and amount of services which could be shifted without jeopardizing quality of care. The approach used in this study, however, would be useful in other settings as a method to examining the impact of shifting ancillary services back to nursing.

CHAPTER IV

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Appendix A

Skill Lists

1984 - 1985

THE OREGON HEALTH SCIENCES UNIVERSITY
SCHOOL OF NURSING

TABLE I STANDARDS FOR THE PERFORMANCE OF PSYCHOMOTOR SKILLS

	CLINICAL SKILLS LABORATORY				CLINICAL SETTING				
	COGNITIVE TEST	DEMONSTRATION	PRACTICE	MOTOR PERFORMANCE TEST	PRACTICE	PRACTICE	PRACTICE	COMPETENCY	CHANGES
I. MEDICAL ASEPSIS									
A. Management of the Environment									
1. Handwashing	X	X	X	X	X	X	X	X	
2. Patient Unit									
B. Isolation									
1. Strict	X	X	X	X					
2. Respiratory	X								
3. Protective	X	X	X	X					
4. Enteric	X								
5. Standard	X							X	
6. Skin and Wound	X	X	X	X	X				
II. PERSONAL HYGIENE									
A. Care of the Skin									
1. Bed bath	X	X	X	X	X	X	X	X	
2. Towel bath	X	X							
3. Back massage	X	X	X	X	X	X	X	X	
4. Male perineal care	X	X	X	X	X	X	X	X	
5. Female perineal care	x	X	X	X	X	X	X	X	
6. Catheter care									Delete
B. Care of the Mouth									
1. Conscious patient	X	X	X	X	X	X	X	X	
2. Unconscious patient	X	X							
3. Denture care	X	X	X	X					

	CLINICAL SKILLS LABORATORY				CLINICAL SETTING				
	COGNITIVE TEST	DEMONSTRATION	PRACTICE	MOTOR PERFORMANCE TEST	PRACTICE	PRACTICE	PRACTICE	COMPETENCY	CHANGES
C. Making a bed									
1. Unoccupied bed		X	X	X				X	
2. Occupied bed		X	X	X				X	
3. Surgical bed		X							
III. MOBILITY									
A. Range of motion	X	X	X	X				X	
B. Muscle Setting Exercises	X	X							
C. Use of restraints	X	X							
D. Body Mechanics									
1. Alignment	X	X	X	X				X	
2. Transfer techniques	X	X	X					X	
IV. DIAGNOSTIC MEASURES									
A. Vital signs									
1. Temperature	X	X	X	X	X	X	X	X	
a) Rectal	X	X	X	X	X	X	X	X	
b) Oral	X	X	X	X	X	X	X	X	
c) Axillary	X	X	X	X	X	X	X	X	
2. Pulse	X	X	X	X	X	X	X	X	
a) Apical	X	X	X	X	X	X	X	X	
b) Radial	X	X	X	X	X	X	X	X	
c) Dorsals pads	X	X	X	X	X	X	X	X	
3. Blood pressure	X	X	X	X	X	X	X	X	
B. Monitoring	X	X							Add

	CLINICAL SKILLS LABORATORY				CLINICAL SETTING				
	COGNITIVE TEST	DEMONSTRATION	PRACTICE	MOTOR PERFORMANCE TEST	PRACTICE	PRACTICE	PRACTICE	COMPETENCY	CHANGES
B. Collection of Specimens									
1. Clean catch	X	X							
2. Sputum	X	X							
3. Specific gravity	X	X	X						
4. Clinitest	X	X	X						
5. Acetest	X	X	X						
6. Chemstix	X	X	X						
7. Hemoccult	X	X	X						
V. CHARTING									
A. Problem-oriented	X	X	X	X	X	X	X	X	
B. Traditional									Delete
VI. RESPIRATORY THERAPY									
A. Tank oxygen supply									
B. Wall oxygen supply	X	X	X	X	X	X	X	X	
C. Oxygen therapy	X	X	X	X	X	X	X	X	
D. Coughing and deep breathing	X	X	X	X	X	X	X	X	
E. Postural drainage	X	X	X	X					
F. Chest physiotherapy	X	X	X	X					
VII. MEDICATIONS									
A. Oral	X	X	X	X	X	X	X	X	
B. Parenteral									
1. Subcutaneous	X	X	X	X	X	X	X	X	
2. Intramuscular	X	X	X	X	X	X	X	X	
3. Z-track	X	X							
4. Mixing medications	X	X	X	X	X	X	X	X	

	CLINICAL SKILLS LABORATORY				CLINICAL SETTING				
	COGNITIVE TEST	DEMONSTRATION	PRACTICE	MOTOR PERFORMANCE TEST	PRACTICE	PRACTICE	PRACTICE	COMPETENCY	CHANGES
C. Insulin									Must demonstrate competency in at least one type of subcutaneous injection.
1. Single dose	X	X	X	X					
2. Mixed dose	X	X	X	X					
3. Site rotation	X	X	X	X					
4. Injection	X	X	X	X					
D. Heparin	X	X	X	X					
VIII. GASTROINTESTINAL INTUBATION									
A. Nasogastric	X	X	X	X					Must demostrate competency in at least one skill requiring GI intubation
1. Intubation	X	X	X	X					
a) Adults	X	X	X	X					
b) Infants	X	X	X	X					
2. Irrigation	X	X	X	X					
3. Removal of tube	X	X	X	X					
4. Gavage									
a) Adults	X	X	X	X					
b) Infants	X	X	X	X					
B. Enema	X	X	X	X					
C. Ostomy Care									
1. Appliance application	X	X	X	X					
2. Appliance care	X	X	X	X					
3. Irrigation	X	X	X	X					

	CLINICAL SKILLS LABORATORY				CLINICAL SETTING				
	COGNITIVE TEST	DEMONSTRATION	PRACTICE	MOTOR PERFORMANCE TEST	PRACTICE	PRACTICE	PRACTICE	COMPETENCY	CHANGES
VX. SURGICAL ASEPSIS									
A. Scrubbing, Gowning, and Gloving									Must demonstrate competency in at least one of these skills in order to demonstrate the application of principles of surgical asepsis.
1. Scrubbing	X	X	X	X					
2. Donning gloves	X	X	X	X	X	X	x	X	
3. Donning gown	X	X	X	X					
B. Urinary Catheterization									
1. Children	X	X	X	X					
2. Males	X	X	X	X					
3. Females	X	X	X	X					
4. Irrigation	X	X	X	X					
5. Change to leg bag	X	X	X	X					
C. Sterile Dressings									
1. Sterile field	X	X	X	X	X	X	X	X	
2. Sterile gloves	X	X	X	X	X	X	X	X	
3. Dressing change	X	X	X	X					
D. Tracheal Suctioning									
1. Tracheal care	X	X	X	X					
2. Nasopharyngeal suctioning	X	X	X	X					
3. Tracheal tube suctioning	X	X	X	X					

	CLINICAL SKILLS LABORATORY				CLINICAL SETTING				
	COGNITIVE TEST	DEMONSTRATION	PRACTICE	MOTOR PERFORMANCE TEST	PRACTICE	PRACTICE	PRACTICE	COMPETENCY	CHANGES
XI. CRITICAL CARE SKILLS									
A. Chest Tubes									
1. Three chamber	X	X							
2. Insertion									Delete
3. Management	X	X							
4. Removal									Delete
5. Troubleshoot	X	X							
B. CVP									
1. Set up									Delete
2. Measure	X	X							
C. Tracheal Suctioning									See under Surgical Asepsis
1. Tracheostomy care									
2. Nasopharyngeal suctioning									
3. Tracheal suctioning									
D. Advanced CPR	X	X	X	X					
X. INTRAVENOUS THERAPY									High level of competency is expected in these skills which are used both in the hospital & the community
A. Venipuncture	X	X	X	X					
B. Management									
1. Flow	X	X	X	X	X	X	X	X	
2. Changing bottle and tubing	X	X	X	X	X	X	X	X	
3. Adding medications	X	X	X	X	X	X	X	X	
4. Discontinuing	X	X	X	X	X	X	X	X	

	CLINICAL SKILLS LABORATORY				CLINICAL SETTING				
	COGNITIVE TEST	DEMONSTRATION	PRACTICE	MOTOR PERFORMANCE TEST	PRACTICE	PRACTICE	PRACTICE	COMPETENCY	CHANGES
5. Troubleshooting	X	X	X	X	X	X	X	X	
C. Hyperalimentation									
1. Prime tubing, pump, and filter	X	X	X	X	X	X	X	X	
2. Change tubing	X	X	X	X	X	X	X	X	
3. Change dressing	X	X	X	X	X	X	X	X	
D. Blood Administration									
1. Starting	X	X	X	X					
2. Troubleshooting	X	X	X	X					
3. Transfusion reactions	X	X	X	X					
4. Discontinuing	X	X	X	X					
XII. MISCELLANEOUS TREATMENTS									
A. Binders and bandages									
1. Scultetus binder									Delete
2. Head wrap									Delete
3. Elastic Stockings	X	X	X	X	X	X	X	X	
4. Triangular sling									Delete
5. Ace bandage	X	X	X	X					
6. Arm sling									Delete
B. Application of Heat and Cold									
1. Dry heat	X	X	X	X					
2. Hot moist compress using K-pad	X	X	X	X					
3. Sitz bath	X	X	X	X					

	CLINICAL SKILLS LABORATORY				CLINICAL SETTING				
	COGNITIVE TEST	DEMONSTRATION	PRACTICE	MOTOR PERFORMANCE TEST	PRACTICE	PRACTICE	PRACTICE	COMPETENCY	CHANGES
4. Dry cold	X	X	X	X					
5. Wet cold	X	X	X	X					
C. Pain Management									
1. Relaxation	X	X	X	X	X	X	X	X	
XIII. CPR	X	X	X	X					Competency in this skill must be demonstrated annually in a motor performance test.

Appendix B

Discharge Diagnosis on the Medical Unit

APPENDIX B

Discharge Diagnosis on the Medical Unit

Diagnosis	DRG	Diagnosis	DRG
Transient ischemic attach	015	Angina, recurrent	140
Seizure disorder	024	Angina	140
Chest pain	100	Chest pain	143
Aortic valve replacement and mitral valve replacement	104	Whipple procedure	154
Aortic valve replacement	104	Portacath placement	468
Permanent pacemaker insertion	116	Debridement of leg ulcers	263
Acute M.I., inferior	121	Herpes, disseminated	273
Acute M.I., anterior	121	Pruritis, unknown etiology	283
Dyspnea on exertion	125	Atopic Dermatitis	283
Congestive heart failure	127	Hypokalema	296
Congestive heart failure	127	Bovine AV fistula	315
Deep vein thrombosis	131	AV fistula insertion	315
Mitral valve regurgitation	135	Urinary tract infection	320
Sick sinus syndrome	138	E. coli cystits	320
Atrial fibrillation	138	E. coli sepsis	321
Pacemaker battery replacement	138	Nephropathy, end stage renal disease	331
Palpitations secondary to tachyarrhythmia	138	End stage renal failure	332
Supraventricular tachycardia	139	Mycosis fungoides	404

Appendix C

Discharge Diagnosis on the Surgical Unit

Discharge Diagnosis on the Surgical Unit

Diagnosis	DRG	Diagnosis	DRG
Occlusion of carotid artery with CVA	015	Diverticulitis	183
Respiratory insufficiency postop pneumonectomy	087	Cholecystectomy	197
Diabetic foot ulcer with insulin dependent diabetes	110	Cholelithiasis	208
H. influenza pneumonia	089	Resection metatarsal head right 5th toe	225
Right femoral-popliteal bypass	111	Open reduction, internal fixation, direct wiring	233
Axillo-femoral-femoral bypass graft	111	Myocutaneous gluteal rotation, advancement of flap	263
Revision of femoral-popliteal graft	112	Excision and debridement of ulcers right leg	266
Gram negative septic shock	127	Abdominoplasty, thighplasty	268
Abdominal aortic aneurysm	130	Exploration and evacuation of groin hematoma	269
Arterial insufficiency right foot	131	Readvancement right gluteal myocutaneous flap	269
Venous stasis ulcers	131	Cellulitis right leg involving foot, ankle, knee	281
Lysis of adhesions,excision of fecal lith	151	Cellulitis left hand	281
Gastrectomy with retrocolic Billroth II	154	Punch biopsy vagina	360
		Probable pelvic inflammatory disease	368
Ventral hernia repair	160	Pelvic adhesions	369
Le Forte and mandibular osteotomy	169		
Bilaterial TMJ arthroplasties with menisectomy and silastic implant	169		
Reduction mandibular hypertrophy	169		

Appendix D

Service Variables, Operational Definitions

'IV Start'	Insertion of a metal needle or plastic over-the-needle catheter into a peripheral vein. The needle is then connected to tubing and IV fluid.
'IV Start, #16 Gauge (G) Catheter	Defined as an 'IV Start' with a 16 G over-the-needle catheter.
'Heparin lock, IV Start'	An 'IV Start' which is sealed with a sterile cap and flushed periodically with sterile heparin and saline.
'Peripheral CVP line Start'	Insertion of a silicone catheter into either the basilic or cephalic vein in the antecubital fossa which is threaded to the superior vena cava or right atrium. The catheter may be connected to IV fluid or

'Peripheral CVP line start' (cont.)	sealed with a heparin lock. Nursing staff from the clinical unit assist with this procedure.
'IV Dressing Change-peripheral'	Placement of a new sterile dressing, gauze or transparent, over an IV site after cleansing with an antiseptic solution. Peripheral refers to an IV site in one of the extremities excluding peripheral central venous line sites.
'IV Dressing Change-central'	Same as peripheral dressing change. Central refers to an IV catheter with its tip in the superior vein cava or right atrium. The catheter may be introduced through a peripheral vein, a jugular or subclavian vein or surgically implanted into the cephalic vein.

'Check IV site'	Inspection of the peripheral IV site or peripheral DVP line site for intact dressing phlebitis, IV start date and dressing change date regardless of whether or not a dressing was changed.
'Patient Teaching in preparation for discharge with an IV'	A single session during which the patient or significant other is given instruction in IV care (Fillmore, personal communication, 1985).
'Start Oxygen including aerosol, heated and cool'	Set up of oxygen flow-meter, humidification source including heated and cool aerosol, and mask, cannula, or face tent.
'Check oxygen flowmeter for correct liter flow'	Inspection of flowmeter for liter flow per minute and comparison with prescribed order; addition of sterile water as needed.

'Incentive Spirometry treatment'	Directing the patient in use of a piece of equipment that maximizes voluntary lung inflation.
'Chest physiotherapy and postural drainage'	Placing the patient in specific positions so that the force of gravity assists in removal of bronchial secretions into the main bronchi and trachea. Then, application of clapping and vibration which are manual techniques to the chest wall over the affected lung fields and instruction to the patient to cough. Modified positions may be used and a pneumatic device may be used for clapping.
'Nasotracheal or orotracheal suctioning	Insertion of a suction catheter using sterile technique through the nose or mouth into the naso or

'Nasotracheal or orotracheal suctioning (cont.)	oropharynx and application of intermittent suction to remove accumulated secretions.
'Sputum induction with ultrasonic nebulizer'	Nasotracheal suctioning to obtain a sputum specimen after application of an ultrasonic nebulizer for 10-15 minutes.
'Ultrasonic nebulizer treatment'	Application of a mask connected to device that delivers fine particles which are inhaled.
'Range of Motion Exercises'	Movement of a joint through its full range in all appropriate planes. It may be with passive, active or resistance.
'Ambulation with Assistance'	Providing support with arms or hands to a patient as he/she walks, regardless of whether or not a walker is used.

'Activities of Daily Living - Evaluation of	Assessment of patient's self-care abilities including moving in and out of bed, grooming, toileting, dressing, eating, ambulation and performing certain manual tasks.
'Relaxation class post Myocardial Infarction'	A class taught to a group of patients who have recently had an MI or other cardiovascular problem and which presents basic techniques in stress management (M. Kircher, personal communication, 1985).
'Energy Conservation Class'	A class taught to a group of patients who have debilitating chronic diseases and which presents principles of time management, work efficiency techniques, body mechanics

'Energy Conservation class (cont.)	and precautions to prevent injury (M. Kircher, personal communication, 1985).

NS9433

Appendix E

Data Collection Instruments

CLUSTER STAFFING REPORT

Date_______________ Shift _____________

Unit	Patient Classification	Staff Classification	Staff Required	Variance	Adjustment
	Acuity I_____ II_____ III_____ Census_____ 1:1_____	RN_____ LPN_____ HA _____ CL _____ Overlap_____ Total_____			
	Acuity I_____ II_____ III_____ Census_____ 1:1_____	RN_____ LPN_____ HA _____ CL _____ Overlap_____ Total_____			
	Acuity I_____ II_____ III_____ Census_____ 1:1_____	RN_____ LPN_____ HA _____ CL _____ Overlap_____ Total_____			
	Acuity I_____ II_____ III_____ Census_____ 1:1_____	RN_____ LPN_____ HA _____ CL _____ Overlap_____ Total_____			

	Name	Classification	Unit Assignment	Comments:
F L O A T	1. 2. 3. 4. 5.			

Cluster Coordinator: Upon receipt of information from each area, note adjustments. The Department of Nursing Finance will pick up your report at 0730, 1530, and 2230.

UH 5/83

Unit:

Code number:_____ MCD:

Age:_____ DRG:

Sex: M F

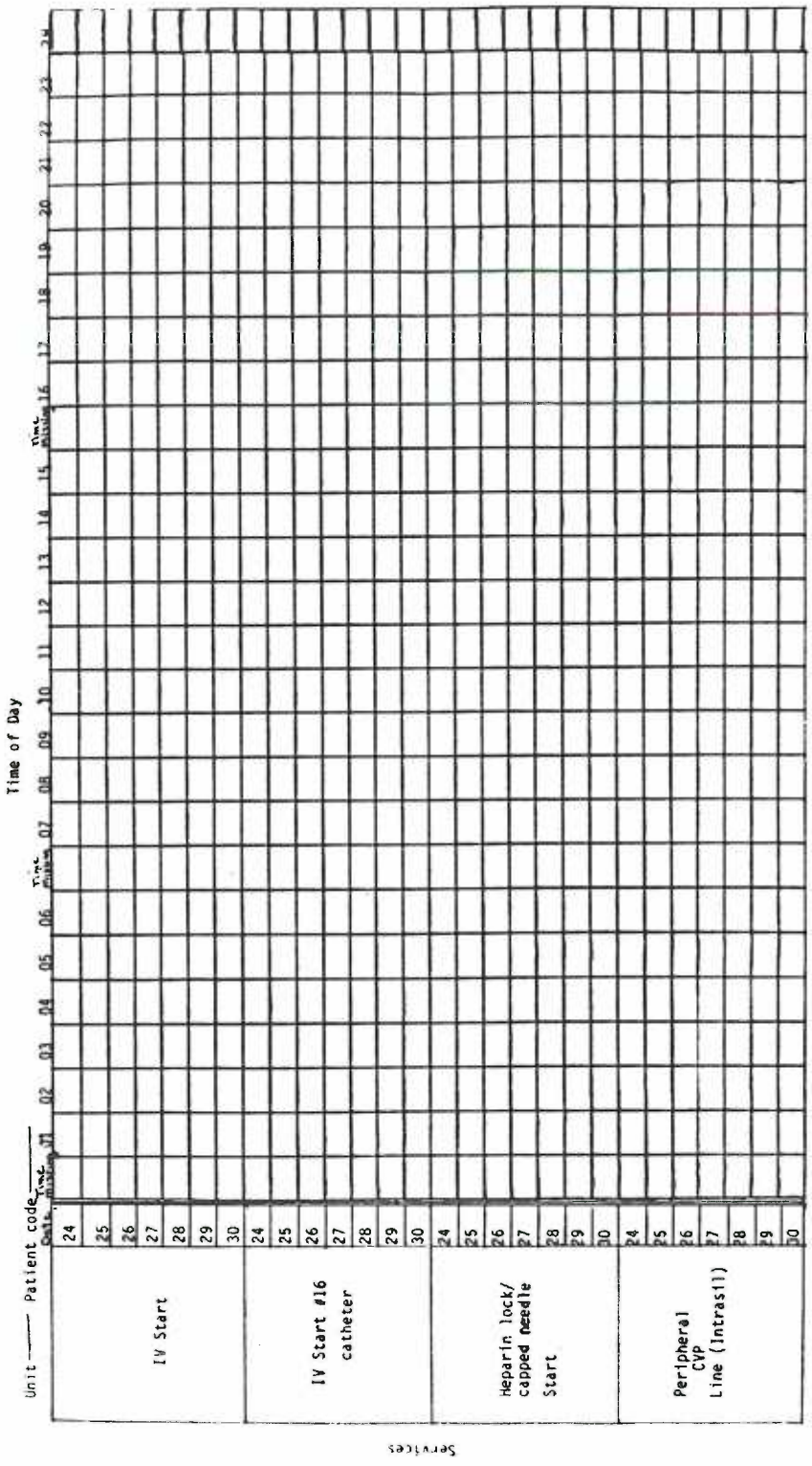
Admitting Medical Service:

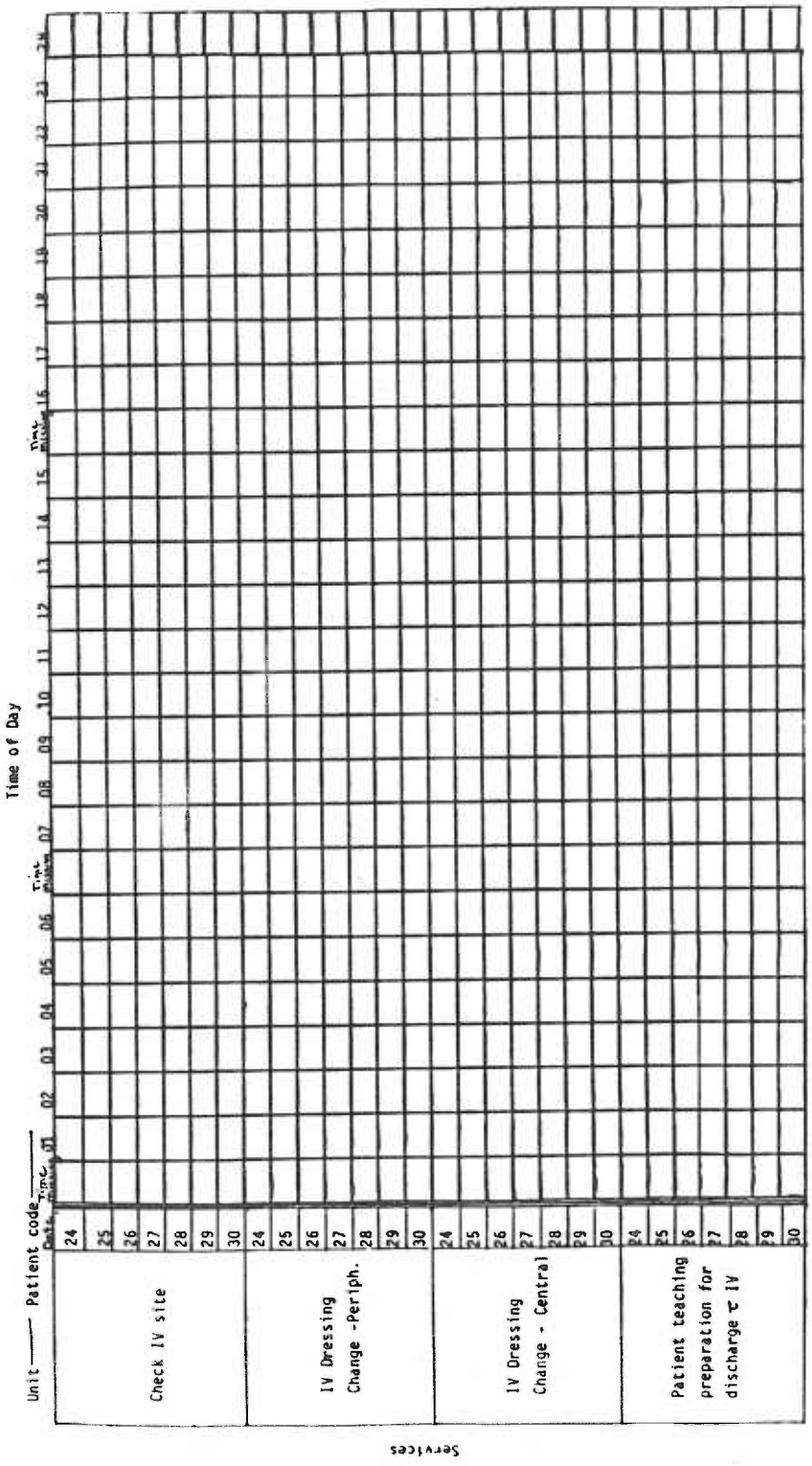
Discharge ICD-9 number and diagnosis:

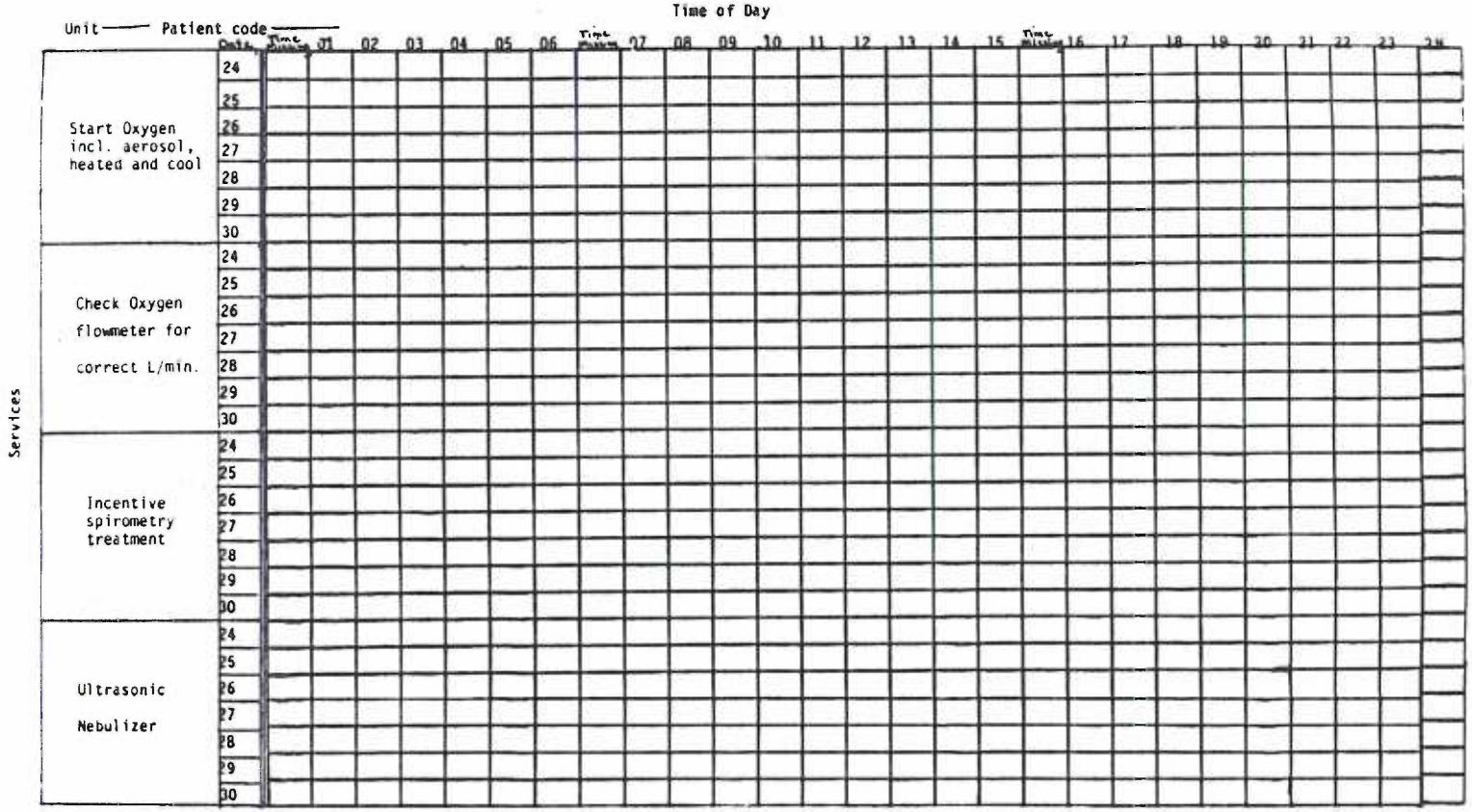
Procedures and ICD-9 numbers:

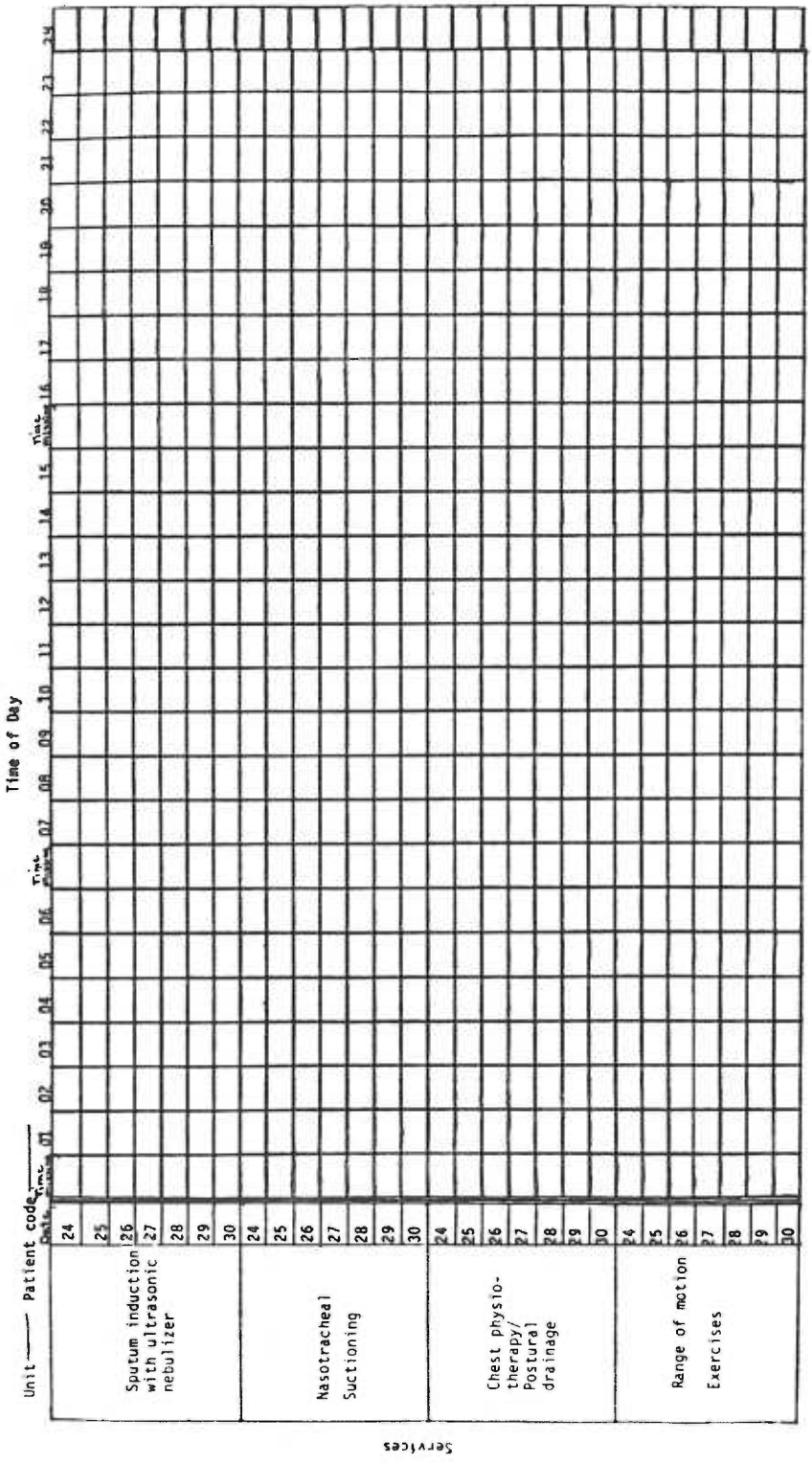
Acuity Scores (from shift of admission):

Shift	Date							
	11-7							
	7-3							
	3-11							


Unit
Patient code
Time of Day
Services
IV Start
IV Start #16 catheter
Heparin lock/ capped needle Start
Peripheral CVP Line (Intrasil)


Unit
Patient code
Date
Time started
Time finished
Time of Day
01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
Check IV site
IV Dressing Change -Periph.
IV Dressing Change - Central
Patient teaching preparation for discharge re IV
24 25 26 27 28 29 30
Services


Time of Day
Unit
Patient code
Date
Time
01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
Services
Start Oxygen incl. aerosol, heated and cool
Check Oxygen flowmeter for correct L/min.
Incentive spirometry treatment
Ultrasonic Nebulizer
24
25
26
27
28
29
30


Unit
Patient code
Date
Time
Time of Day
Services
Sputum induction with ultrasonic nebulizer
Nasotracheal Suctioning
Chest physio-therapy/ Postural drainage
Range of motion Exercises

Unit —— Patient code ——

Time of Day

Services

Services	Date	Time Midnight	01	02	03	04	05	06	Time 6 AM	07	08	09	10	11	12	13	14	15	Time Noon	16	17	18	19	20	21	22	23	24
Ambulation - assistance with	24																											
	25																											
	26																											
	27																											
	28																											
	29																											
	30																											
Activities of Daily Living - evaluation of	24																											
	25																											
	26																											
	27																											
	28																											
	29																											
	30																											
Relaxation class post MI	24																											
	25																											
	26																											
	27																											
	28																											
	29																											
	30																											
Energy conservation Class	24																											
	25																											
	26																											
	27																											
	28																											
	29																											
	30																											

Appendix F

Sample Chart Forms

The Oregon Health Sciences University
Hospital and Clinics
Portland, Oregon

INPATIENT ATTENDANCE RECORD

NAME ..... UNIT NO ..... BIRTHDATE .....

12

ALL WRITING below limited to RECORD PERSONNEL

Adm. Date	Disch. Date	Disch. Days Hosp.	Service	ABST.	Code No.	Diagnosis	Completed Date

Op. Date	Surgeon	Code No.	Operative Procedures	Completed Date

12 - Rev. 4 2 82

The Oregon Health Sciences University
Hospital and Clinics

PATIENT ACUITY RECORD FOR NURSING CLASSIFICATION

Date

Unit No.
Name
Birthdate

IN INK, PLACE A (1) IN APPROPRIATE BOX FOR CLASSIFICATION AND SHIFT. RECORD UNIT UPON ADMISSION, TRANSFER, DISCHARGE.							EXPLANATION OF INCREASED ACUITY LEVEL	SIGNATURE
Date	Unit	Shift	I	II	III	IIII		
Date		Nite						
		Day						
		Eve						
Date		Nite						
		Day						
		Eve						
Date		Nite						
		Day						
		Eve						
Date		Nite						
		Day						
		Eve						
Date		Nite						
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		Eve						
Date		Nite						
		Day						
		Eve						
Date		Nite						
		Day						
		Eve						
Date		Nite						
		Day						
		Eve						
Date		Nite						
		Day						
		Eve						

8.0.1–Rev. 1–4/84 5843

8.0-1

The Oregon Health Sciences University
Hospital and Clinics

OCCUPATIONAL THERAPY REFERRAL AND TREATMENT RECORD

Date Bldg. Fl. Rm.

Unit No.
Name
Birthdate

The Oregon Health
Sciences University
Hospital and Clinics

Referral for Rehabilitation Therapy Services

Status _____ P.C. ____PH.____

Referring Service: _____

Date Bldg. Fl. Rm.

Unit No.
Name
Birthdate

PHYSICAL THERAPY___ OCCUPATIONAL THERAPY___ SPEECH ___

Diagnosis: _____

Treatment Objectives: _____

Precautionary Information: _____

Outpatient Clinic Return Date: _____

Physician's Signature: _____ M.D.

HSC-2702—Rev. 5—1/83

3.9C-Rev 4 — 2/83

The Oregon Health Sciences University
Hospital and Clinics

PHYSICAL THERAPY

Date Bldg. Fl. Rm.

Unit No.
Name
Birthdate

Referred by From

Diagnosis

Treatment Objectives

Precautionary Information

3.9

ABBREVIATIONS—PHYSICAL THERAPY

ADL—Activities of daily living
Br. Ex.—Breathing exercise
Conf.—Conference
DC—Dressing change
EDx.—Electrical diagnosis
ES—Electrical stimulation
EV—Evaluation
Ex—Exercise
FBT—Full body rank
GT—Gait
HT—Heat modality
HV—Home visit
IN—Instruction
JB—Jobst pump / measurement
M—Massage
MMT—Manual muscle test
PB—Paraffin bath
PD—Postural drainage
ROM—Range of motion
Tx.—Traction
TT—Tilt table
WC—Wheelchair prescription
WP—Whirlpool

3.9—Rev. 5-8/81

The Oregon Health Sciences University
Hospital and Clinics

PROGRESS RECORD

Date Bldg. Fl. Rm.

Unit No.
Name
Birthdate

Date Time	Problem Number	FORMAT: PROBLEM NUMBER and TITLE: S=Subjective O=Objective A=Analysis P=Plans

3.2

3.2 (MS 1418)-Rev. 3-7/81

The Oregon Health Sciences University
Hospital and Clinics

RESPIRATORY THERAPY DEPARTMENT

TREATMENTS AND PROCEDURES

Date Bldg. Fl. Rm.

Unit No.
Name
Birthdate

Date			Time		Initials
Mo	Day	Year			

8.2A-2—Rev. 1-1/82 8756

8.2A-2

The Oregon Health Sciences University
Hospital and Clinics

INTRAVENOUS FLUID AND SERVICE RECORD

Date Bldg. Fl Rm.

Unit No.
Name
Birthdate

Gummed Labels

Date

	Time	Description of Services	Signature
0600–1400			
1400–2200			
2200–0600			

8.2B

8.2B–Rev. 8/2/82 5761

Appendix G

Standard Times and Average Times for Selected Services

APPENDIX G

Standard Times for Selected Services

Element Description	Standard Minutes	Standard Hours	Patient Classification I	II	III	IV
Ambulate with help	7.02	.117		4.17	7.02	7.02
Dressing change, sterile	11.04	.184	8.95	8.95	11.04	15.77
Hyperalimentation dressing	28.92	.482	-	28.92	28.92	28.92
IV check and regulation	.48	.008	-	.48	.48	.48
IV start	12.00	.200	-	12.00	12.00	12.00
Oxygen start	4.73	.079	4.73	4.73	4.73	4.73
Oxygen - maintain	.76	.013	.76	.76	.76	.76
Postural drainage	15.00	.250	-	15.00	15.00	15.00
Range of motion	5.00	.083	5.00	5.00	5.00	5.00
Respiratory therapy, incentive spirometer	6.60	.110	6.00	6.00	6.00	6.00
Suctioning, nasal	3.84	.064	-	-	3.84	3.84
Suctioning, oral	3.48	.058	-	-	3.48	3.48
Suctioning, tracheostomy	7.50	.125	-	6.72	7.50	10.95

Note: Derived from CASH and checked against national standards. Nelson, L. Administrative Strategies, Inc. Thousand Oaks, California 1979

Average Times for Selected Services

Services		Source
Sputum induction with ultrasonic nebulizer	18.34	Standard times (UN plus suction)
Chest physiotherapy	20"	Standards times (Postural drainage plus clapping)
Peripheral CVP line (Intrasil)	45"	IV Therapy study, UH, March-April, 1984
Patient teaching in preparation for discharge with an IV	60"	IV Therapy study, UH, March-April, 1984
Energy conservation class	90"	M. Kircher, OT, UH May 1985
Relaxation class, post MI	60"	M. Kircher, OT, UH May 1985
Ultrasonic nebulizer	15"	Lippincott Manual of Nursing Practice
Activities of Daily living	15"	Lippincott Manual of Nursing Practice

Appendix H

Tables

TABLE 13

Total IV Starts per Shift per Day

Day of the Week	Shift 11-7	7-3	3-11	Total
		Medical Unit		
Monday	0	0	0	0
Tuesday	0	2	1	3
Wednesday	0	0	1	1
Thursday	0	0	0	0
Friday	0	0	0	0
Saturday	0	0	1	1
Sunday	0	0	0	0
				5
		Surgical Unit		
Monday	1	2	1	4
Tuesday	0	1	1	2
Wednesday	0	3	0	3
Thursday	0	5	0	5
Friday	1	3	0	4
Saturday	2	1	4	7
Sunday	0	3	1	4
				29

TABLE 14

Total IV Starts #16 G. Catheter per Shift per Day

Day of the Week	Shift 11-7	7-3	3-11	Total
		Medical Unit		
Monday	0	0	0	0
Tuesday	0	0	0	0
Wednesday	0	0	0	0
Thursday	0	0	0	0
Friday	0	0	0	0
Saturday	0	0	0	0
Sunday	0	0	0	0
				0
		Surgical Unit		
Monday	0	0	0	0
Tuesday	0	0	0	0
Wednesday	0	0	1	1
Thursday	0	0	0	0
Friday	0	0	0	0
Saturday	1	0	0	1
Sunday	0	0	0	0
				2

TABLE 15

Total Heparin Lock IV Start per Shift per Day

Day of the Week	Shift 11-7	7-3	3-11	Total
		Medical Unit		
Monday	1	1	1	3
Tuesday	3	2	1	6
Wednesday	2	1	1	4
Thursday	0	0	2	2
Friday	1	0	0	1
Saturday	0	1	2	3
Sunday	0	0	2	0
				21
		Surgical Unit		
Monday	0	0	0	0
Tuesday	0	1	1	2
Wednesday	0	2	0	2
Thursday	0	0	0	0
Friday	1	2	2	5
Saturday	0	4	1	5
Sunday	1	2	2	5
				19

TABLE 16

Total Peripheral CVP Line Insertions per Shift per Day

Day of the Week	Shift 11-7	7-3	3-11	Total
		Medical Unit		
Monday	0	0	0	0
Tuesday	0	0	0	0
Wednesday	0	0	0	0
Thursday	0	0	0	0
Friday	0	0	0	0
Saturday	0	0	0	0
Sunday	0	0	0	0
				0
		Surgical Unit		
Monday	0	0	0	0
Tuesday	0	0	0	0
Wednesday	0	0	0	0
Thursday	0	0	0	0
Friday	0	0	0	0
Saturday	0	0	0	0
Sunday	0	0	0	0
				0

TABLE 17

Total IV Site Checks per Shift per Day

Day of the Week	Shift 11-7	7-3	3-11	Total
		Medical Unit		
Monday	0	2	0	2
Tuesday	0	3	0	3
Wednesday	1	7	1	9
Thursday	0	4	0	4
Friday	0	0	0	0
Saturday	0	2	4	6
Sunday	0	5	0	5
				29
		Surgical Unit		
Monday	0	4	0	4
Tuesday	2	7	1	10
Wednesday	2	5	1	8
Thursday	4	4	0	8
Friday	2	3	3	8
Saturday	2	2	3	7
Sunday	2	9	1	12
				57

TABLE 18

Total IV Dressing Changes - Peripheral per Shift per Day

Day of the Week	Shift 11-7	7-3	3-11	Total
		Medical Unit		
Monday	0	0	0	0
Tuesday	0	2	0	2
Wednesday	0	0	1	1
Thursday	0	3	0	3
Friday	0	0	0	0
Saturday	0	2	1	3
Sunday	0	2	1	3
				12
		Surgical Unit		
Monday	0	1	0	1
Tuesday	0	3	0	3
Wednesday	0	2	0	2
Thursday	0	0	0	0
Friday	0	0	0	0
Saturday	0	0	0	0
Sunday	0	0	0	0
				6

TABLE 19

Total IV Dressing Changes - Central per Shift per Day

Day of the Week	Shift 11-7	7-3	3-11	Total
		Medical Unit		
Monday	0	0	0	0
Tuesday	0	0	0	0
Wednesday	0	0	0	0
Thursday	0	0	0	0
Friday	0	0	0	0
Saturday	0	0	0	0
Sunday	0	0	0	0
				0
		Surgical Unit		
Monday	0	0	0	0
Tuesday	0	1	0	1
Wednesday	0	1	0	1
Thursday	0	1	0	1
Friday	0	0	1	1
Saturday	1	0	0	1
Sunday	0	2	0	1
				7

TABLE 20

Total Patient Teaching in Preparation for Discharge with an IV

Day of the Week	Shift 11-7	7-3	3-11	Total
		Medical Unit		
Monday	0	0	0	0
Tuesday	0	0	0	0
Wednesday	0	0	0	0
Thursday	0	0	0	0
Friday	0	0	0	0
Saturday	0	0	0	0
Sunday	0	0	0	0
				0
		Surgical Unit		
Monday	0	0	0	0
Tuesday	0	0	0	0
Wednesday	0	0	0	0
Thursday	0	0	0	0
Friday	0	0	0	0
Saturday	0	0	0	0
Sunday	0	0	0	0
				0

TABLE 21

Total Oxygen Starts per Shift per Day

Day of the Week	Shift 11-7	7-3	3-11	Total
		Medical Unit		
Monday	0	1	0	1
Tuesday	0	0	0	0
Wednesday	0	1	0	1
Thursday	0	0	0	0
Friday	0	0	0	0
Saturday	0	0	0	0
Sunday	0	0	0	0
				2
		Surgical Unit		
Monday	0	0	0	0
Tuesday	0	0	0	0
Wednesday	0	0	0	0
Thursday	0	0	0	0
Friday	0	2	1	3
Saturday	0	2	1	3
Sunday	0	0	1	1
				7

TABLE 22

Total Oxygen Checks per Shift per Day

Day of the Week	Shift 11-7	7-3	3-11	Total
		Medical Unit		
Monday	2	4	2	8
Tuesday	3	1	2	6
Wednesday	2	1	2	5
Thursday	7	6	6	19
Friday	6	7	4	17
Saturday	4	8	3	15
Sunday	8	8	8	24
				94
		Surgical Unit		
Monday	3	4	2	9
Tuesday	3	2	3	8
Wednesday	4	4	3	11
Thursday	3	5	5	13
Friday	1	5	4	10
Saturday	8	7	6	21
Sunday	8	7	3	18
				90

TABLE 23

Total Incentive Spirometry Treatments per Shift per Day

Day of the Week	Shift 11-7	7-3	3-11	Total
		Medical Unit		
Monday	0	0	0	0
Tuesday	0	0	1	1
Wednesday	0	0	1	1
Thursday	0	0	0	0
Friday	0	0	0	0
Saturday	0	0	0	0
Sunday	0	0	0	0
				2
		Surgical Unit		
Monday	0	0	0	0
Tuesday	0	0	2	2
Wednesday	0	2	2	4
Thursday	0	2	0	2
Friday	0	1	1	2
Saturday	1	0	2	3
Sunday	0	0	0	0
				13

TABLE 24

Total Ultrasonic Treatments per Shift per Day

Day of the Week	Shift 11-7	7-3	3-11	Total
		Medical Unit		
Monday	0	0	0	0
Tuesday	0	0	0	0
Wednesday	0	0	0	0
Thursday	0	0	0	0
Friday	0	0	0	0
Saturday	0	0	0	0
Sunday	0	0	0	0
				0
		Surgical Unit		
Monday	0	0	0	0
Tuesday	0	0	0	0
Wednesday	0	0	0	0
Thursday	0	0	0	0
Friday	0	0	0	0
Saturday	1	1	2	4
Sunday	2	2	3	7
				11

TABLE 25

Total Sputum Induction with Ultrasonic Nebulizer per Shift per Day

Day of the Week	Shift 11-7	7-3	3-11	Total
		Medical Unit		
Monday	0	0	0	0
Tuesday	0	0	0	0
Wednesday	0	0	0	0
Thursday	0	0	0	0
Friday	0	0	0	0
Saturday	0	0	0	0
Sunday	0	0	0	0
				0
		Surgical Unit		
Monday	0	0	0	0
Tuesday	0	0	0	0
Wednesday	0	0	0	0
Thursday	0	0	0	0
Friday	0	0	0	0
Saturday	0	0	1	1
Sunday	0	0	0	0
				1

TABLE 26

Total Chest Physiotherapy per Shift per Day

Day of the Week	Shift 11-7	7-3	3-11	Total
		Medical Unit		
Monday	0	0	0	0
Tuesday	0	0	1	1
Wednesday	0	2	0	2
Thursday	0	0	0	0
Friday	0	0	0	0
Saturday	0	0	0	0
Sunday	0	0	0	0
				3
		Surgical Unit		
Monday	0	0	0	0
Tuesday	0	1	1	2
Wednesday	2	2	1	5
Thursday	2	1	2	5
Friday	0	1	1	2
Saturday	0	2	2	4
Sunday	2	2	2	6
				24

TABLE 27

Total Naso/orotracheal Suctioning per Shift per Day

Day of the Week	Shift 11-7	7-3	3-11	Total
		Medical Unit		
Monday	0	0	0	0
Tuesday	0	0	0	0
Wednesday	0	0	0	0
Thursday	0	0	0	0
Friday	0	0	0	0
Saturday	0	0	0	0
Sunday	0	0	0	0
				0
		Surgical Unit		
Monday	0	0	0	0
Tuesday	0	0	0	0
Wednesday	0	0	0	0
Thursday	0	0	0	0
Friday	0	0	0	0
Saturday	0	0	0	0
Sunday	0	0	0	0
				0

TABLE 28

Total Range of Motion Exercises per Shift per Day

Day of the Week	Shift 11-7	7-3	3-11	Total
		Medical Unit		
Monday	0	0	0	0
Tuesday	0	2	0	2
Wednesday	0	0	0	0
Thursday	0	0	0	0
Friday	0	0	0	0
Saturday	0	0	0	0
Sunday	0	0	0	0
				2
		Surgical Unit		
Monday	0	0	0	0
Tuesday	0	1	0	1
Wednesday	0	1	0	1
Thursday	0	1	0	1
Friday	0	0	0	0
Saturday	0	0	0	0
Sunday	0	0	0	0
				3

TABLE 29

Total Ambulation with Assistance per Shift per Day

Day of the Week	Shift 11-7	7-3	3-11	Total
		Medical Unit		
Monday	0	0	0	0
Tuesday	0	2	0	2
Wednesday	0	1	0	1
Thursday	0	0	0	0
Friday	0	0	0	0
Saturday	0	0	0	0
Sunday	0	0	0	0
				3
		Surgical Unit		
Monday	0	0	0	0
Tuesday	0	0	0	0
Wednesday	0	0	0	0
Thursday	0	0	0	0
Friday	0	0	0	0
Saturday	0	0	0	0
Sunday	0	0	0	0
				0

TABLE 30

Total Activities of Daily Living - Evaluation of per Shift per Day

Day of the Week	Shift 11-7	7-3	3-11	Total
		Medical Unit		
Monday	0	0	0	0
Tuesday	0	0	0	0
Wednesday	0	0	0	0
Thursday	0	0	0	0
Friday	0	0	0	0
Saturday	0	0	0	0
Sunday	0	0	0	0
				0
		Surgical Unit		
Monday	0	0	0	0
Tuesday	0	1	0	1
Wednesday	0	1	0	1
Thursday	0	0	0	0
Friday	0	0	0	0
Saturday	0	0	0	0
Sunday	0	0	0	0
				2

TABLE 31

Total Relaxation, Group Classes per Shift per Day

Day of the Week	Shift 11-7	7-3	3-11	Total
		Medical Unit		
Monday	0	0	0	0
Tuesday	0	0	0	0
Wednesday	0	0	0	0
Thursday	0	2	0	2
Friday	0	0	0	0
Saturday	0	0	0	0
Sunday	0	0	0	0
				2
		Surgical Unit		
Monday	0	0	0	0
Tuesday	0	0	0	0
Wednesday	0	0	0	0
Thursday	0	0	0	0
Friday	0	0	0	0
Saturday	0	0	0	0
Sunday	0	0	0	0
				0

NOTE. Number represents 2 patients attending 2 classes

TABLE 32

Total Energy Conservation Group Classes per Shift per Day

Day of the Week	Shift 11-7	7-3	3-11	Total
		Medical Unit		
Monday	0	0	0	0
Tuesday	0	0	0	0
Wednesday	0	0	0	0
Thursday	0	0	0	0
Friday	0	1	0	1
Saturday	0	0	0	0
Sunday	0	0	0	0
				1
		Surgical Unit		
Monday	0	0	0	0
Tuesday	0	0	0	0
Wednesday	0	0	0	0
Thursday	0	0	0	0
Friday	0	0	0	0
Saturday	0	0	0	0
Sunday	0	0	0	0
				0

NOTE. Number represents 2 patients attending 1 class

TABLE 33
Nursing Resources (in FTE) and Variances per shift per day

Day of the Week	(FTE)	11-7	(FTE)	SHIFT 7-3	(FTE)	3-11	(FTE)	TOTAL Variance
				Medical Unit				
Monday	(2.3)	+.3	(5.6)	+.4	(4.1)	+.4	(12)	+1.1
Tuesday	(2)	+.1	(5.6)	-.2	(5.9)	+.3	(13.5)	+0.2
Wednesday	(3.2)	+.6	(7.0)	+.2	(6.0)	+.5	(16.2)	+1.3
Thursday	(3.3)	+.7	(7.8)	+.2	(6.8)	+.3	(17.9)	+1.2
Friday	(3.3)	+.5	(7.8)	+.3	(5.5)	-.5	(16.6)	+0.3
Saturday	(2.4)	-.1	(7)	+.4	(6.3)	+.2	(15.7)	+0.5
Sunday	(3.3)	+.7	(6.4)	-.9	(5.6)	-.7	(15.3)	-0.9
				Surgical Unit				
Monday	(3)	0	(6.5)	+.6	(5.1)	+.3	(14.6)	+0.9
Tuesday	(3)	-.1	(7.3)	+.5	(5)	+.2	(15.3)	+0.6
Wednesday	(3.3)	-.6	(8.8)	+.8	(5.3)	-.3	(17.4)	-0.1
Thursday	(3.3)	+.1	(8.8)	+.2	(5.3)	-.5	(17.4)	-0.2
Friday	(4.3)	+.3	(6.8)	-.7	(5.3)	-.1	(16.4)	-0.5
Saturday	(5)	+.3	(9.5)	0	(6.5)	+.1	(21)	+0.4
Sunday	(4.3)	-.1	(7.0)	-.1	(5.2)	+.3	(16.5)	+.1

AN ABSTRACT OF THE THESIS OF

SUSAN WILLIAMS PERHUS

For the MASTER OF NURSING

Date of Receiving this Degree: June 14, 1985

Title: DESCRIPTION OF THE PATTERNS OF SELECTED ANCILLARY SERVICES UNDER CONSIDERATION FOR TRANSFER TO NURSING

Approved: [redacted]

Darlene Schroedl McKenzie, R.N., Ph.D., Thesis Advisor

The changes in Medicare reimbursement have lead hospital and nursing administrators to consider shifting selected ancillary services to nursing to reduce hospital costs. Questions exist regarding the availability of existing nursing resources to provide these services without lowering quality and with a cost savings. A descriptive case study was undertaken in a University teaching hospital on one medical and one surgical unit to answer these questions: 1) How much time is required to provide selected IV, RT, PT, OT categories of service per shift per day? 2) How much cumulative time is required to perform selected IV, RT, PT, OT services per shift per day? 3) What is the correspondence between the cumulative time required to perform the selected services and the staffing variances per shift per day? The data, gathered from secondary sources consisting of patient and administrative records, consisted of time of day and frequency of occurrence for 16 service variables and the nursing resources (FTEs)

and variances for the staffing variables. The sample size was 70 patients representing 76 amissions. Standard times were used to derive total times for each category of service and for cumulative times. Descriptive statistics were used to analyze the findings. Factors limiting generalizability are the single setting, the population limited to medical and surgical patients, the case mix in the setting and the single study period of one week. On the medical and surgical units, IV and RT services required the most time to perform over the 21 shifts. The cumulative time required to perform IV, RT, PT, and OT services over 21 shifts was 763.96 minutes for the medical unit and 1737.13 minutes for the surgical unit. Findings indicate that if services had been shifted on the medical unit, sufficient nursing resources would have been available to provide the services for 16 shifts on the medical unit and for 12 shifts on the surgical unit. For 5 shifts on the medical unit and for 9 shifts on the surgical unit insufficient nursing resources would have been available to provide the services.