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PROJECT 32 - PRELIMINARY REPORT

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SUMMARY

University Hospitals staff recognized the need for more effective delivery of health care and other hospital services at the station level. This program was given the highest priority in terms of investigations and resource allocations. In early 1968, a series of studies was conducted at a pilot inpatient unit to determine areas where improvement was needed and to collect base line data as a means to measure subsequent changes. Information acquired in the studies shows station staff attitudes, leadership patterns, patient and medical staff evaluations of nursing and other station services, patterns of medical record data recording by nurses and the categorized, detailed activities of station personnel. Systems studies and experimentation to improve delivery of services are now under way. Projects include a nursing service program to develop a greater degree of professional nursing practice through changes in the organization of nursing care at the station level. Further experimentation is planned to improve patient care through more effective use of professional and departmental resources.

INTRODUCTION

There has long been a need for review of activities at inpatient units as a first step toward the hospital objective of more effective services at this focal point of hospital operations. Of particular concern is the organization and use of staff at the patient station and the systems through which services are provided to patients. This need is especially apparent to nurses who, while attempting to closely examine their professional objectives and programs to provide patient care, have felt that their time is largely taken by activities inappropriate to their professional training.

Hospital administration, while acknowledging the importance of station activities as the delivery point of hospital services and professional teamwork, has delegated management of these activities to nursing service departments and to date has had little involvement in the organization or administration of services at the inpatient unit. As a university hospital, responsibility was acknowledged to study station activities in order to develop a more effective organization for delivery of health care at the patient unit.

Unit management programs have been used at some hospitals to improve at least one aspect of patient care delivery, the provision of more nursing time for patients. These programs enable the transfer of responsibility for certain non-nursing functions from the head nurse or staff nurses to a non-nurse unit manager who works either within the nursing department structure or directly under hospital administration.

Evidence does exist that unit managers can free nursing time for non-management activities. Cynthia Henderson reviews the effects of unit management program on nursing time in an article entitled "Freeing the
Nurse to Nurse”. She provides convincing information that these programs do give nursing personnel more time to care for patients by allocating management tasks to non-nursing staff.¹

Equally convincing evidence also exists, however, that providing more nursing care time does not necessarily increase either the quality or quantity of nursing care. Studies at the University of Iowa convincingly documented that neither added staff nor special inservice programs significantly changed the amount of time nurses spent with patients.² Richard Durbin and Herbert Springall, in discussing the patient care system, also caution that more nursing time does not ensure more effective nursing practice.³

Another study by Virginia Walker, reported in Nursing and Ritualistic Practice, shows that although the addition of a station manager decreased the amount of time spent by the head nurse in administrative activities, it did not bring about a comparable increase in direct patient care activities.⁴ This author maintains that unless certain role expectations which hospital and medical staff hold for the head nurse are transferred to another person, the role of the head nurse will not become more patient care centered.

Perhaps because unit manager programs are usually initiated through efforts of nursing departments, less concern and evidence is documented regarding the effectiveness of these programs in improving the management of non-nursing activities. The transfer of non-nursing functions to unit managers in itself provides no solution to other considerations in the delivery of services, such as station responsibilities and service activities of other hospital departments, improved systems for the delivery of services and more appropriate use of all levels of hospital staff.

With these concerns as background, an analysis and evaluation of activities at the patient level was undertaken at University of Minnesota Hospitals. The objectives of the studies conducted were:

1. To determine in detail how station personnel spend their time.
2. To attempt a limited assessment of the quality and quantity of nursing care and hospital services provided to patients.

3. To determine specific areas where improvements in systems or organization are needed.

4. To provide base line information through which changes in unit organization and systems can be evaluated.

A pilot station, Station 32, was selected as the site for analysis and the subsequent testing of changes. Station 32 is felt to be as representative a station as can be found in this specialty setting, and staff on the station were willing to participate in what was viewed as beneficial but potentially time consuming and sometimes disrupting studies.

Several individuals and three committees participated in determining the approach to analyzing station activities and in selecting and developing the specific studies used. The first, an internal committee, consists of representatives of hospital and a clinical department which, in a direct and scheduled manner, provide services at the patient unit. These individuals include Florence Julian, Nursing Services; Leonard Leipus, Central Sterile Supply; Marie Perreault, Pharmacy; Angeline Felknor, Dietary; Donna Wieb, Clinical Laboratories; Wally Petrykowski, Hospital Maintenance; Margaret McHugh, Housekeeping; and Paul Winchell, M.D., Department of Medicine. As the action committee involved in this project, this group has assisted in developing the project, reviewing the data obtained, and approving initial recommendations which followed the station studies.

A second committee was formed consisting of non-hospital staff representatives of disciplines concerned with activities at the station. This group provided advice regarding the need for study and the testing of specific changes at a pilot station. As individuals, they assisted in the development and selection of the studies undertaken. Members of this committee were George S. Michaelson, Director, Environmental Health and Safety, School of Public Health; Mary Lou Freeberg, Faculty, School of Nursing; Russell Nyquist, Faculty, School of Industrial Engineering; Pearl Rosenberg, Clinical Psychologist, Department of Physical Medicine and Rehabilitation; and Bright Dornblaser, Director, Program in Hospital Administration, School of Public Health.

In addition to the studies and concurrent with them, the Director of Nursing Service appointed a committee of nursing supervisors, head nurses, nurse clinicians and a representative of the faculty of the School of Nursing to review the effectiveness of nursing service at the station level, to identify the factors which influence nursing practice and to recommend programs to improve the quality of nursing care.

Summary and Conclusions of Studies and Nursing Service Committee Deliberations

1. Study Descriptions, Findings and Conclusions

Seven studies, including surveys and observations, were conducted to provide the necessary base line information for future evaluation and to assist in determining problem areas. Problem areas were determined from data obtained in a continuous observation study and a fifteen minute work sampling activity analysis. Attempts to assess quality of care were accomplished through a patient satisfaction survey, a physician questionnaire
and a chart audit. In addition to the other studies, a sociometric test and a semantic differential were used to assist in an evaluation of the effects of future changes. Information regarding the studies is summarized below, while more detailed data may be found in individual study reports.

A. Continuous Observation Study

This study was undertaken to provide a detailed description of activities of the head nurse, charge nurses and station assistants. Activities were categorized by hospital system orientation, e.g., drugs, laboratory, dietary, etc.; the action being performed; the level of activity or appropriate job classification for each activity; the related department, defined as the department of the individual with whom communication was exchanged; and the mode or method of communication. By describing in detail the kinds of activities which command the time of these key personnel at the station, it was hoped that needs for improvements in specific systems and/or organization would be shown.

The results show that 50% of the staffs' time was spent in four systems; activities with physicians relating to medical care (15%), activities relating to the hospital system of drugs (14%), activities relating to lab tests (12%), and activities relating to nursing care of patients and to nursing staff management (9%).

Although fifty-five percent of all time studied was at the clerical level, only 43% of the total study time was worked by station assistants. The head nurse spent 15% of her time in clerical level activities, while the evening charge nurse spent 9% of her time in clerical activities. Sixty-five percent of the activities studied were communicative activities. The head nurse, charge nurse and nursing station assistants spent the largest portion of their time (38.7%) in communications with nursing service personnel. Much of this communication related to non-nursing hospital systems, since only 9% of their time was actually spent in the category called nursing service.

The continuous observation study calls attention to several areas where a more detailed analysis of systems appears warranted, e.g., drug system, laboratory test system, patient admission, transfer and discharge systems, etc. The study also illustrates inconsistencies between job classifications and actual duties performed in terms of job levels. It suggests that excessive amounts of time are spent in communication activities relating to some hospital systems. This categorization of activities of key personnel in the delivery of inpatient service does show a need for a closer look at the organization and systems through which these services are provided to patients.

B. Semantic Differential

The Semantic Differential was used to quantitatively measure the attitudes of station personnel toward concepts related to functions and positions in the hospital. The individuals attitudes were measured
in terms of their evaluation (good-bad) of the concept; their view of the power (strong-weak) of the concept; and their view of the activity (active-passive) of the concept.

Seventeen key words or concepts were used. Included were all job titles of persons taking the test, as well as several health professionals, hospital departments and functions at the unit.

The term "doctor" was rated highest in activity, strongest, and most favorable. Also rated strongly and favorably were the concepts "hospital administrator" and "patient teaching". Words that were considered not very powerful included "head nurse", "licensed practical nurse", "dietician", "nurses notes", "patient", and "nurse aide". The term "patient" was seen as not at all powerful, not active and not as favorable as most of the other terms. All categories of employees rated their own positions as very favorable, but not very powerful; this was especially true of the head nurse. In fact, all concepts viewed in this study were considered favorable, but there was wide variation as to their powerfulness and activity.

The primary purpose and value of this study is to provide base line data regarding specific attitudes of station personnel. The merit and consequences of organization, system and responsibility changes made at the pilot station can be measured in part by attitude changes shown in a repeat of this study after changes are made at the unit.

C. Sociometric Study

This study examined the social structure of personnel assigned to Station 32 by determining to whom the station personnel relate in terms of work-oriented leadership, social activity and personal counseling preferences. The study also provides an indication of group cohesiveness and specific leadership patterns within the group.

Study results show that personnel on Station 32 form a cohesive group. Station personnel, as opposed to hospital staff not assigned to the station, were chosen 84% of the time in a question relating to individuals with whom the respondent would most like to work. Station personnel selected other station personnel 70% of the time for social activity preference and 63% of the time as personal counseling preferences. In terms of work-oriented leadership, the staff of station 32 selected a small group of individuals, including the head nurse and three staff nurses.

As anticipated, this study depicted a cohesive group which has informal leadership consistent with the formal organization. A repeat of this study following changes in organization, (such as inclusion of management personnel in the station structure), responsibility or systems will assist in evaluating the changes in terms of their effect on leadership within the group and the functioning of station personnel as a cohesive team.
D. Chart Audit

Charts of patients discharged from Station 32 were reviewed to determine the accuracy and thoroughness of nurses' charting. This largely quantitative review provides a base line to measure changes in specific medical record data recording by nurses.

Analysis of fifty-seven discharged patients' charts showed the recording of admission notes to be complete and of high quality. Daily charting was less consistent and less complete. Discharge charting was almost non-existent; in many charts there was no indication of the date and time of discharge. On the medication record, there was a high incidence of errors in the transcription of drug information, while fewer errors were found in the day-to-day record of drugs administered. Because it was often difficult to read the medication record form, the number of counted errors may not truly reflect the number of times drugs were administered incorrectly.

The chart audit points out station-wide charting practices in addition to individual deviations from standard practice. Thus, the general high quality of admission charting and inferior discharge charting is not characteristic of a few nurses, but rather an indication of general practice on this station. The drug charting problems seem largely related to inadequacies in the amount of space available for charting. A new form has been developed and is being tested that will provide more space for drug charting.

E. Fifteen Minute Activity Analysis

Observations of all station personnel (head nurse, staff nurses, practical nurses, aides and station assistants) were made every fifteen minutes, sixteen hours a day for five days. Activities recorded during these observations showed amounts and percent of time spent in patient versus non-patient activities, as well as the job level appropriate to the activity. This analysis provides a means to determine the appropriateness of activity at specific job levels and a means to review changes in terms of their effect on the amount of time spent in patient centered versus non-patient centered activities.

This study shows that if all nursing personnel time (excluding station assistants) was devoted to patient care, each patient would receive an average of 3.7 hours of care each 16 hour day. Actually, nursing personnel spent 2.8 hours per patient in patient centered activities; the other 1.1 hours (per patient) was spent in either personnel, unit centered, or personal activities. The time spent in patient-centered activities was evenly divided between time spent in the presence of patients (1.4 hours per patient) and the time spent in indirect patient care activities (1.4 hours).

When the head nurse worked week-days she spent the majority of her time (82%) in communicative activities. When she worked week-ends (as charge nurse and team leader), the head nurse spent almost 40% of her time in drug related activities. Because the observers were not usually able to tell which activities were appropriate to the head nurse level,
levels of head nurse activities are not reported in this study.

Staff nurses working from 7-3:30 spent 68% of their time in patient centered activities; 22% of their total time was in direct patient care. Staff nurses working from 3-11:30 spent 90% of their time in patient centered activities; 50% of their total time was in direct patient care.

Licensed practical nurses on both shifts spent 23% of their time in dietary, messenger, housekeeping and clerical level activities, and 40% of their time in direct patient care activities. Indirect patient care accounted for 27% of their time; unit centered and personal time accounted for the other 10%.

Nurses aides on both shifts spent approximately 50% of their time in non-nursing tasks at the clerical, dietary, messenger and housekeeping levels. Aides working from 7-3:30 spent 23% of their time giving direct care to patients, those working from 3-11:30, 33%. Indirect care accounted for about 11% of the nurses aides' total working time.

This study shows that patients receive a small portion of the total amount of nurses' time available. Nurse aides and licensed practical nurses spend large amounts of time in activities that relate functionally to other departments, while registered nurses spend large amounts of time in indirect care activities. The activities include shift reports, counting narcotics, charting and handling supplies and equipment used for the care of the particular patient. Reductions in these activities for all categories of nursing personnel would greatly increase the amount of time available for direct patient care. The Nursing Service Committee has concerned itself with ways to improve the utilization of time spent giving nursing care.

F. Patient Satisfaction Survey

A questionnaire sent to patients discharged from Station 32 attempts to determine the patients' evaluation of nursing care and other hospital services provided to them. This survey shows specific need for change from the patient's viewpoint and provides the base for measurement of changes as they relate to satisfaction of patients.

General conclusions drawn from the first 33 responses of patients discharged indicate that patients are quite satisfied with most services provided on the station. A high degree of satisfaction with nursing care was indicated. Patients were also satisfied with the reception in the admitting office, room cleanliness, visiting hours, room temperature, billing and insurance services, and care of valuables. They were less satisfied with the room noise level, food temperature, hospital provision of television and telephones, and procedures relating to tests and treatments, e.g., confused schedules and waits for transportation and tests. Comments also included criticism of communication between doctors and patients and between doctors and nurses.
This questionnaire will be sent to patients discharged from Station 32 until 100 replies have been received. The total results will be summarized in a report and specific comments forwarded to appropriate departments. It is anticipated that this questionnaire will be used again to assess patient satisfaction as changes are made and to continue to provide patients an opportunity to identify areas where other improvements may be needed.

G. Survey of Station 32 Physicians

A questionnaire was sent to physicians, including faculty, residents, and interns who care for patients on Station 32, for their evaluation of nursing care and other hospital services on that station. The questions also elicited suggestions for changes which would improve the quality of services at the station. Again, this survey is intended to provide an evaluation of services as they now exist and will be repeated as changes in these services are made.

The majority of responses indicated satisfaction with nursing care on Station 32. Most of the physicians were satisfied with the way orders are carried out and felt that nurses have enough time to care for patients. The physicians indicated that Station 32 is well-managed, but suggested that station management could be improved by the provision of more secretarial help, especially for physicians. Most physicians feel that the physical layout of Station 32 is not satisfactory, and many suggestions for improvements were made. Physicians commented on many of the hospital services and made several suggestions for change, among them a reduction in the time patients spend in admissions, more coverage on weekends and nights in X-ray, laboratories and the pharmacy, and faster service in medical records and the stenographic unit. Several physicians also pointed out the need for more patient care by nurses.

Specific conclusions which relate to problem areas or the need for further study are described in the preceding paragraphs. In general, opinion surveys indicate overall satisfaction with hospital and nursing services provided at Station 32. Other studies do, however, point to a need for re-alignment of staff responsibilities and the improvement of hospital systems through which services are provided at the patient unit.

2. Nursing Service Committee

The primary goal of the Nursing Service Committee is to develop an organization for nursing care at the station level that will provide more effective utilization of nursing resources. In trying to identify problems in nursing services, the committee focused on several indicators that suggest inadequacies in the present organization. These are:

A. Nursing services are fragmented. Patients receive nursing care from several different members of the nursing staff each day.
B. Nurses frequently have little knowledge about their patients. The team leader may not be aware of the diagnosis, the disease process or the medical treatment plan for many of the patients assigned to her team.

C. Nursing care planning is often vague, non-specific and over-generalized.

D. Nurses are almost always rushed and "short staffing" is often cited as the reason. It is not clear if this shortage exists as a numerical fact or if the shortage exists in terms of how effectively the time available is used.

E. As team leaders, nurses are responsible for developing and revising nursing care plans for all the patients on their team. Thus, for each eight hour shift this primary responsibility for over-all planning of nursing care for a group of 11-15 patients is shifted from one registered nurse to another. The result of this wide dispersal of responsibility is the virtual non-existence of nursing care plans.

These indicators point to problems in the allocation of responsibility for care planning and in the assignment of nursing care tasks. In team nursing theory, the team leader is expected to be knowledgeable about all the patients on her team in terms of their diagnosis, medical care plan, and clinical symptoms, as well as their personality, emotional stability and reaction to illness. With the large number of patients on a team, the high turnover of patients and current nurse staffing patterns complicating the situation, this expectation can no longer be considered practical theory, but should be viewed as unrealistic. The problem with the assignment of tasks occurs because assignments are made on the basis of the tasks to be done rather than on the needs of the patients who require certain kinds of care.

The committee approached these two problems by returning to concepts that were previously found to be useful in nursing: the total care method of work assignment and the concept of comprehensive care. The total care method of assignment makes each member of the staff responsible for most or all of the direct nursing care given to a group of patients in a specific time period (an eight hour shift). Staff members are assigned to patients on the basis of their skill level and the needs of the patients. Thus, nurses administer drugs to their group of patients, give them morning care and take their vital signs, etc. During the day shift, nurse aides are usually busy with transportation and cleaning activities, but if they have time for patient care they are assigned to help nurses with more routine tasks.

The comprehensive care approach focuses on the allocation of responsibility for care planning. Essentially, it provides that each registered nurse will have a "case load" of three to six patients for whom she has primary responsibility. The patient is selected and interviewed by his "principal nurse" as soon after admission as possible. The care
plan is started by his nurse on the basis of the information obtained during the initial interview. The "principal nurse" is responsible for informing the nursing staff about the patient and his illness and for compiling the relevant data they will need to care for him. She assumes responsibility for communications with other members of the health team and for coordinating this patient's daily activities. When she is not on duty, care of her patients is delegated to other nurses.

The patient, the nursing staff and the medical staff know the name of the patient's "principal nurse." Her identity as the "principal nurse" is maintained 24 hours a day, throughout the patient's stay on that station; her care plan is operative 24 hours a day.

In addition to the approaches just described, the committee has also worked on ways to increase the competence of staff nurses in caring for patients with very complicated treatment plans, or patients who are having a great deal of difficulty adapting to the hospital or to their illness. To perform at this higher level of clinical practice, staff nurses must know and understand in more depth the disease process and the medical treatment plan for each of their patients.

**Pilot Programs on Station 32**

Following completion of studies, pilot projects were undertaken on Station 32 to test new approaches in the delivery of more effective nursing and hospital services.

At this time, the total care method of nurse assignment is in effect on Station 32. As described above, this means moving away from the "functional-team" concept, where the team leader passed all medications, an aide took all temperatures, etc. to the assignment of all care tasks for a group of patients to an individual staff member. This changes the organization of work during each eight hour shift. In mid-January the comprehensive care planning component will be added, through which a nurse will have a case load of patients for whom she is responsible throughout their hospitalization. This care planning responsibility begins as soon after admission as possible, continues throughout hospitalization and concludes with the activation of a discharge plan. To prepare for this change, the nurse clinician and the head nurse on Station 32 are helping staff nurses learn to systematically acquire information about the patient, his disease, and the implications it has for the patient and his family. They are also helping staff nurses to analyze the information and select the most appropriate nursing measures for their patients, as well as the most effective way to administer a nursing or medical treatment measure to a particular patient. A new Kardex form for the patient information has been developed and guidelines for its use are being prepared.

Measures of effectiveness of nursing care are almost non-existent at this point, but staff nurses are being encouraged to try to evaluate the effectiveness of their care plan.

Another pilot project on Station 32 evolved from the interest of faculty
from the School of Industrial Engineering in the use of a hospital setting as a laboratory for industrial engineering graduate study. This interest acknowledges the growing role of industrial engineering in the development of improved hospital systems. In addition to their assistance in development of the continuous observation study, two industrial engineering graduate students have now been assigned to work on specific projects relating to hospital systems. Data from the continuous observation study was used to select specific projects. The base of the students work is Station 32, however, they are assigned projects relating to overall hospital systems, and their work extends into hospital departments which relate closely to station activities.

One student has been assigned the project of x-ray scheduling as the first step in a more disciplined scheduling of inpatient activities. At the present time, diagnostic radiology examinations for inpatients are not normally scheduled, which is a major problem in the planning of patient time. The second student is currently assigned to a project relating to the drug distribution system at patient units.

An administrative trainee has, as a prime responsibility, the supervision and coordination of industrial engineering studies. This individual, an industrial engineer by training, is also undertaking independent systems studies and may, in the future, assume responsibility for certain management functions at the station level.

The drug distribution system at the station has undergone some changes on an experimental basis, including a new system for the procurement of drugs. This system enables the pharmacist to work directly from the physicians order and eliminates the station staff reordering and crediting patient medications. A new narcotic sign-out form has been implemented which decreases the time for counting narcotics and permits the charging for narcotics. Pharmacy, nursing and industrial engineering personnel are now studying the possibility of decentralizing the location of patient drugs from the station to patient room areas.

A study of linen inventory has been completed and plans have been made to change the linen inventory amounts and to change the location of linen storage.

Other studies are being conducted regarding the feasibility of locating additional items at the patient room, rather than in a central station location. The location of patient charts at the patient room has been tested at another station and, with certain improvements in chart holders, this change may also be made at the study station. The Nursing Department is now testing a new "Clinical Sheet and Medication Record" on Station 32 which provides additional space for charting medications, allows more accurate temperature and blood pressure charting, and more thorough intake and output recording. Plans are also underway to test a new diabetic management form.

An initial meeting has been held with the Housekeeping Department director to explore the use of Station 32 for testing changes in environmental control, as envisioned by the Housekeeping Department. An exploratory meeting of this nature has also been held with the Dietary Department and
involvement of other departments is planned.

Outlook

The development of improved hospital and nursing inpatient services will be continued on Station 32. Experimentation on this unit will provide a means for testing improvements prior to their implementation throughout the hospital.

An approach to be pursued will be the establishment of a research project at Station 32. If initiated, research in the delivery of inpatient care would be conducted under a research director, with grant funding. Through this arrangement, more sophisticated study and group dynamics techniques could be applied to experimentation with the roles of management, nursing and other health disciplines represented in the inpatient unit health team. Participation in a research project of this nature might also be of interest to other units of the health sciences.

Plans for the immediate future include continuation of changes now being tested at the unit as well as the initiation of new programs. Emphasis will be placed on the investigation of five areas of potential improvement: 1) Improved systems to relieve personnel of unnecessary activities and to provide better hospital services to patient units, 2) New nursing care programs to provide more patient-oriented, comprehensive care, 3) Decentralization of patient unit activities, records, supplies, etc. to patient room areas, in cases where this decentralization will facilitate patient care, 4) Changes in duties of personnel to relieve professional staff of clerical and other duties which may be inappropriate to their training and primary responsibilities and 5) The alignment of departmental service responsibilities at patient units more consistent with departmental roles.