



A STUDY OF STAFFING
AND SCHEDULING IN THE DIETARY DEPARTMENT,
UNIVERSITY OF KANSAS MEDICAL CENTER, KANSAS CITY, KANSAS

I would like to express my appreciation to Mr. Herman Jones,
Assistant Administrator, University of Kansas Medical Center, Kansas
City, Kansas, for his cooperation, courtesy, and assistance during my
two visits at the hospital.

A Problem Solving Thesis

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By

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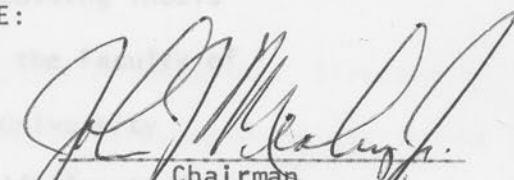
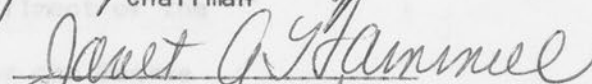
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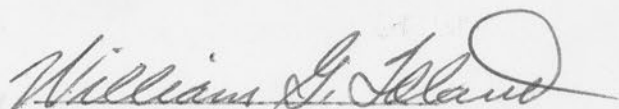
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ACKNOWLEDGMENTS

Chapter

I. INTRODUCTION

ACKNOWLEDGMENTS

I would like to express my appreciation to Mr. Herman Jones, Assistant Administrator, University of Kansas Medical Center, Kansas City, Kansas, for his cooperation, courtesy, and assistance during my two visits at the hospital.

I am especially grateful to Miss Ruth Gordon, Director, Department of Dietetics and her staff, without whose assistance it would have been impossible to complete this study.

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Hospital Setting

The University of Kansas Medical Center at Kansas City, Kansas, is a legislatively controlled institution. State controls affect personnel rules, regulations, and policy. Wage rates are similarly affected and have direct bearing on labor availability. The Medical Center is composed of the University of Kansas School of Medicine and the patient treatment facility. The employee population of some 3500 persons supports the medical school and the hospital. Patient bed capacity is 540.

CHAPTER I

INTRODUCTION

General Information

The economic reality that available resources are less than the need for those resources has been present with man throughout history. The demands on today's modern hospital and on the hospitals' assets are extreme. The expert management of a hospital's resources is necessary if that facility is to exist as an economic entity.

The labor force in the United States from which a hospital must draw its personnel is not only expensive but is often lacking in quality or quantity desired. The market is competitive, employment is plentiful and labor is scarce.¹ Therefore, it behooves the medical facility to manage its available personnel with skill and understanding. The development of personnel schedules which place the labor resource where and when it is needed, and considers the preferences of employees, is a necessary step in the management of this viable asset.

Hospital Setting

The University of Kansas Medical Center at Kansas City, Kansas, is a legislatively controlled institution. State controls affect personnel rules, regulations, and policy. Wage rates are similarly affected and have direct bearing on labor availability. The Medical Center is composed of the University of Kansas School of Medicine and the patient treatment facility. The employee population of some 3500 persons supports the medical school and the hospital. Patient bed capacity is 540.

Conditions Which Prompted the Study

The management of the Department of Dietetics is concerned with employee morale, which appears to be deteriorating. It is their belief that the present scheduling system has resulted in some personnel dissatisfaction. The desire to improve this situation and to allocate manpower resources more efficiently during weekends and holiday periods has been the major motivating factor leading to this study. An increase in the number of weekends an employee is scheduled off duty is held as an important morale building device.

Statement of the Problem

The problem is to determine a scheduling pattern which will meet the desires of workers and demands of jobs within the Administrative Section of the Department of Dietetics, University of Kansas Medical Center, Kansas City, Kansas.

Definitions

When writing in a specialized area, certain terms must be clarified. The following definitions are therefore cited:

1. A cross-trained work force refers to a group of employees trained in each other's job skills.
2. A decentralized food service is a hospital dietary service whereby all food preparation and service does not take place in one area.
3. Duty tour is a period of time within which an employee is scheduled for work.

4. A rotating schedule refers to an employee duty schedule wherein the scheduled employee's name is moved from position to position eventually returning to the starting position.

6. Result in written Objectives which are easily understood. In order to determine the most effective and desirable scheduling pattern for this department, the following must be ascertained and analyzed:

1. Employee preferences as to work days, off days, work hours, and certain work rules.

2. Employee problems related to duty shifts.

3. Management's desires as they pertain to adequate personnel coverage.

4. Composition of work force.

5. The techniques which the dietary department may use in gaining employee acceptance and cooperation of a scheduling method or methods.

Finally, the interrelation of the above factors will be evaluated.

During the Initial Interview Criteria the director of the Department of Dietetics Any proposed solution to the above problem should:

1. Maintain or enhance the quality of the dietary service to the patients and staff.

2. Support the educational mission of the dietary department.

3. Increase off duty weekends for each dietary employee to at least two per month.

4. Shorten the work interval between days off to no more than seven days.
5. Eliminate the scheduling of single (split) days off duty.
6. Result in written duty schedules which are easily understood by employees and supervisors of the dietary department.

Assumptions

To limit the number of variables which could affect the solution to this problem, the following assumptions are made:

1. Workload will remain at or near present levels.
2. Personnel positions now determined as necessary will continue to be so held.

Research Methodology

To determine a solution to the problem stated above, the administrative section of the department of dietetics has been closely analyzed. This section is composed of the food production, patient food service and purchasing units. Within these three units are found 148 of the 190 non-professional food service employees of this department.

During the initial interview with the director of the Department of Dietetics in February, 1970, and during subsequent interviews with dietitians responsible for each of the three units, the present schedule system was discussed. Inherent problems were recognized and defined. The dietary department's organizational structure and scheduling interrelationships were investigated and staffing requirements ascertained.

Employees' preferences were assessed through use of a questionnaire (Appendix A). The total population of 148 employees was surveyed. This survey was administered by dietitians of the dietary department. Verbal explanations were given to questions raised by employees in regard to specific questionnaire items. Employees' preferences were summarized and tabulated during the subsequent visit to this center.

Prior to actual use at the University of Kansas Medical Center, this questionnaire was field tested at Brooke General Hospital, Fort Sam Houston, Texas. This field test consisted of selecting five dietary employees and administering the questionnaire to them. It was specified that these five employees should consist of two tray service employees, two dishroom employees, and one cook. In this way a representative sample of the Kansas University Department of Dietetics Administration Section was realized. A complete explanation and reasons for the test were given to these personnel. All questions were answered and a critique of each question ensued.

Personal interviews with supervisors were conducted to determine skill level and ability of employees to assume one another's jobs. The effect on scheduling was resolved through these discussions.

Personal factors in addition to skill and ability were investigated. Such factors as public transportation availability (weekend, holiday and weekday), the amount of private transportation utilized, personal employee problems, facilities to be manned, overtime and differential monies paid, limitation of older workers, supervisory

levels, turnover rate in association with training programs, and the use of written policies and procedures were investigated. The techniques of personal interview, and the above mentioned questionnaire were utilized to gather information of relevance in these areas.

Absenteeism was surveyed through use of the individual time record card to support or disprove a belief of dietary management that absenteeism is greater on weekends. Results of this study have in part helped to determine weekend staffing recommendations.

All data thus collected has been utilized to aid in the development of an equitable scheduling system.

Literature Review

Scheduling of personnel is a task which is interrelated and in many situations dependent upon other factors. Such factors as turnover and training of personnel, absenteeism, skill and ability of work force and the work force composition (male or female) have bearing on employee scheduling as will be shown later in this study. Therefore, the review of literature has been approached with these specific areas in mind.

Turnover and training

There appears to be a general agreement that the turnover rate of employees is directly affected by the amount and quality of training to which an employee is exposed. Training in this context includes an orientation program, formal training and informal training. It is felt that the expenditure of greater time and energy

in training programs will reap benefits from decreased employee separations.

Methods of calculating turnover rates differ. However, turnover is usually defined as the per cent of terminations in relationship to the number of positions authorized.³ The rate of turnover varies widely from industry to industry and fluctuates from department to department in hospitals. This rate, however, does appear uniformly high throughout the mass feeding industry.⁴

Absenteeism

Absenteeism is defined and formulated in numerous ways. Methods of calculations vary and many different mathematical formulas exist for such calculations. When an employee is scheduled for duty and does not present himself for such duty then absenteeism is exhibited. Employee sickness of three consecutive days or longer is usually excluded from this definition. Rates of absenteeism are shown to differ from the male to the female work force. Rates are usually higher for the female force but differ for age, marital status and type of absence. It has been shown that a strong relationship exists between a worker's attitude toward his immediate supervisor and absence from the job. A good attitude has been shown to result in decreased absence.⁵

Scheduling

Prior to development of an employee schedule, objectives must be established. Desires of employees should be ascertained and incorporated into such objectives. Adequate personnel coverage to meet peak and low workloads is a paramount consideration.⁶

Footnotes

1. Ruth Gordon, private interview held at Kansas University Medical Center, Kansas City, Kansas, February, 1970; G. Lattin, "Manpower Projection for the Food Service Industry," Cornell Hotel and Restaurant Administration Quarterly, X (January, 1969), 49.
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3. J. P. Hyden, "Learning Where the Problems Are," Hospitals, XXXV (September, 1961), 38; Virginia A. Martin and Marjorie M. McKinley, "Survey of Dietary Labor and Employment in Nursing Homes in Iowa," Hospitals, XLII (May, 1969), 93.
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5. Arthur Gertenfeld, "Employee Absenteeism in: New Insights," Business Horizons, XII (October, 1969), 51; John Halperin, "Absenteeism," Personnel Journal, XLII (November, 1963), 499; John N. Simpson, "Finding Rates of Absenteeism is First Step to a Program of Control," Modern Hospitals, CV (September, 1965), 88; H. B. Wright, "Sick Society," Director, XIX (October 3, 1966), 90; U.S. Department of Labor, Womens Bureau, Facts About Womens Absenteeism and Labor Turnover (Washington, D.C.: Government Printing Office, 1969).
6. J. P. Howell, "Cyclical Scheduling of Nursing Personnel," Hospitals, XL (July 16, 1966), 108; L. Livengood, "Planned Shifts Save Nurses and Dollars," Modern Hospitals, CIV (February, 1965), 101; Bessie Brooks West, Levelle Wood, and Virginia F. Harger, Food Service in Institutions (New York: John Wiley and Sons, 1966), pp. 330-333.

CHAPTER II

DISCUSSION

Problem as it Exists

The Department of Dietetics within the University of Kansas Medical Center is a decentralized food service operation. Food items are prepared in the main kitchen and sent in bulk to small kitchenettes located on patient floors. Patient trays are then individually set with the required food items and served to the patient by dietary personnel of the Patient Food Service Unit.

The Food Production Unit operates a large dining room and cafeteria consisting of a snack line and a main service line, the latter available to hospital staff and employees. Food items for patients, staff and employees are prepared in one kitchen of adequate size adjacent to the dining area. This cafeteria is in operation from 6:30 A.M. to 8:00 P.M. seven days per week (Appendix B). The Purchasing and Vegetable Preparation Unit is located at ground level just below one area of the kitchen.

The above operations are organized under the Administrative Section of the Department of Dietetics. This section is divided into three units, namely Patient Food Service Unit, Food Production Unit, and Purchasing and Vegetable Preparation Unit. Each unit, as well as the Administrative Section, is supervised by a dietitian (Appendix C). Based on the records for the month of January, 1970, the number of patient trays prepared for one meal averages 430 on weekdays with an average decrease of 10 per cent on Saturday and Sunday. Cafeteria daily meals served average 1683 on weekdays with a decrease to 674 on weekends (Appendix D).

In addition to the above responsibilities, the Department of Dietetics conducts a dietetic internship which offers a Master's degree in nutrition. Twelve students are presently enrolled in this program.

High quality standards are set for this department by its director. The physical layout, workload and quality standards require a well staffed operation. Weekend staffing is not decreased even though workload is less during Saturday and Sunday. This is the result of a belief by management that absenteeism is greater on weekends. Therefore, this rationale dictates that more employees than actually needed be scheduled so that a minimum required are available.

A management assumption that weekend work is not desired by the vast majority of employees in this department is substantiated by the employee questionnaire and personal interview. A number of reasons can be given for this. The dietary workforce consists primarily of women, many with child care problems. Bus transportation is greatly curtailed on Sundays with only 48 of the normal 148 buses in operation. If a bus is missed a wait of 1½ hours results before the next bus arrives.

No extra wages, such as differential pay, are received for Sunday work. State legislative action is required to change this situation. Church activities are engaged in by a number of women and this also makes Sunday work distasteful. However, a 7-day operation is a necessity; therefore, an equitable Sunday schedule is needed. An equitable schedule is one which will meet the criteria established in this study.

Absence from work may occur for a variety of reasons. Employee excuses are legion. In this study the reason for absence is not relevant, but the amount exhibited is.

The number of dietary employees authorized is slightly greater than the national average of one dietary employee per five patient beds.¹ The average for this dietary department is 1.7 per 5 patient beds. This is not considered excessive in light of the training mission and decentralized operation. Therefore, any scheduling method adopted should not decrease the personnel deemed necessary by management. However, an exception here might be possible through the control of absenteeism.

Employee Absenteeism

When employees are scheduled for duty and do not appear as scheduled, a problem of workload distribution occurs. Either the work force present for duty will assume the additional tasks imposed by the vacant position or off-duty individuals are requested to come to work. The latter situation would result in overtime rates of pay for these workers or in compensatory time off duty being authorized at a later date. To avoid this condition in the face of a high degree of absenteeism, padding of the work schedule often occurs. That is, more employees are scheduled for duty than are actually justified. In this way management develops a safety level by scheduling in advance for the anticipated absence. Thus, a scheduling crisis is avoided. Such a procedure may be justified as good use of the management principle of planning.² Nevertheless, more employees are required to do the job than would be if absenteeism were controlled.³

Absence from work may occur for a variety of reasons. Employee excuses are legion. In this study the reason for absence is not relevant, but the amount exhibited is.

In particular, the number of individuals scheduled for work on weekends might be reduced if absenteeism during Saturday and Sunday were shown to be no greater than weekdays. Fewer personnel would be needed due to the reduced workload which exists during weekend days.

A discussion with management personnel of the Department of Dietetics revealed the aforementioned conviction by management that weekend absenteeism was a good deal higher than that demonstrated during week days.

This resulted in the collection of data to substantiate or disprove the so stated conviction. The time record cards of 103 employees of the Administrative Section were gathered and used for the 6-month period of July through December, 1969. This was the most recent data available. Cards of supervisors were not utilized. Likewise, individuals not employed as dietary employees for the entire six month period were discarded. Absenteeism, by definition, is present when an employee scheduled for duty does not report for such duty. Sickness of two or less consecutive days was calculated as absenteeism. A period of sickness of three or more consecutive days was not so construed. This is due to the accepted belief that short periods of sickness are usually not verified by a physician's certificate and the possibility of malingering exists.⁴ A half day of work in which the employee was sent home sick was not counted as absenteeism.

A statistically significant difference, if observed, would indicate that these differences did not occur as a result of chance or random processes.

The objective of this data collection was to compare absenteeism on Saturday and Sunday with two weekdays and with each other. The weekdays selected for comparison were Tuesday and Wednesday. Tuesday was selected through the process of drawing from a folded group of five papers with a weekday name on each. The decision had previously been made to select subjectively either the day preceding or the day subsequent to the one chosen at random. Wednesday was thus selected and paired with Tuesday for purposes of comparison. An array was formed for each of the four days by date for the 6-month period. A frequency of absence was listed for each day and date. For example, two employees absent on Tuesday, 8 July would be shown as a frequency of two for that date.

The following null hypotheses were tested:

- a) Absenteeism on Saturday is no different than absenteeism on Sunday.
- b) Absenteeism on Saturday is no different than absenteeism on Tuesday.
- c) Absenteeism on Saturday is no different than absenteeism on Wednesday.
- d) Absenteeism on Sunday is no different than absenteeism on Tuesday.
- e) Absenteeism on Sunday is no different than absenteeism on Wednesday.

A 5 per cent standard was adapted as the level of significance. A statistically significant difference, if observed, would indicate that these differences did not occur as a result of chance or random processes. of the other three days is not particularly great. The difference of

A verdict of nonsignificant difference indicates that the observed differences could often be produced by random processes alone; therefore, the data would not prove conclusively that anything other than a random process or chance was responsible.⁵

Results were determined by use of the normal formula:

$$Z = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{S_1^2}{N_1} + \frac{S_2^2}{N_2}}}$$

A Z value less than -1.96 or greater than 1.96 indicates a rejection of the null hypothesis and thus a statistically significant difference in absenteeism observed.

Statistical information relevant to these calculations is enumerated in Appendix E. Results of the calculations are summarized as follows:

A. Absenteeism of Saturday is significantly higher than absenteeism observed for each of the other 3 days having greater Z values than 1.96 in all 3 cases.

B. Absenteeism of Sunday is not significantly different from the absenteeism of Tuesday or Wednesday. In both cases the Z value fell well within the range ± 1.96 .

The opinion of management that absenteeism is greater on weekends is substantiated for Saturdays, but is refuted for Sundays. However, by observing the mean of each day studied a particular factor emerges. The mean difference of Saturday's frequency of absence and each of the other three days is not particularly great. The difference of

means ranges from 0.88 to 1.34. This represents the additional average of individuals that may be expected to remain away from their job on Saturday. Within the sample consisting of 27 Saturdays, the highest frequency of absence was 6 and this appeared in 3 observations. The Saturday mean absence equalled 3.38. By noting these factors and associating them with the decreased weekend work load data, conclusions may be drawn regarding staffing and scheduling requirements.

In effect, the results indicate higher absenteeism on Saturday than on other days and a "usual" amount of absenteeism on Sunday. However, the higher absenteeism on Saturday, when considering averages, only represents .88 to 1.34 more persons who may be expected to stay away from work on that day, rather than on other days. For example, management could expect to observe 3-4 (3.38) persons absent on Saturday and 2-3 (2.37) persons absent on Wednesday (Appendix E). Therefore, in light of the reduced workload on Saturday and Sunday, and the absentee data presented, reduced staffing during weekends is a distinct possibility. There is little if any indication that full staffing is required on either Saturday or Sunday to compensate for expected absenteeism.

Employee Training and Turnover

All newly hired employees receive some degree of initial training. Even those employees with past food service experience require a degree of orientation type training. When turnover is high, much time must be spent in such introductory training of employees. Cross-training cannot start until introductory training is completed. This

results in limiting the amount of cross training which can be accomplished for efforts are directed toward the unending stream of new arrivals. Employees who are not cross trained are restricted to the performance of a particular job. This, then, results in an inflexible schedule, for employees cannot be shifted as needed to fill vacant positions. Backup coverage for vacations and sickness becomes difficult.

As previously mentioned, turnover rate calculation methods are not uniform.⁶ Rates likewise vary throughout the mass feeding industry. Turnover rates from 300 per cent to 6 per cent are reported.⁷ However, a rate of 3 per cent or higher is worthy of the attention of management and may be considered as excessive.⁸

A survey of 130 employee positions of this Medical Center's Department of Dietetics showed 118 terminations or personnel job changes during the period July 1968 through June 1969. By use of the following accepted turnover formula a rate of 90.7 per cent was determined:⁹

$$\text{Turnover} = \frac{\text{Number of terminations}}{\text{Number of employee positions}} \times 100$$

To develop more scheduling flexibility, a decrease in this excessive turnover rate is a necessity. By so doing, a cross training program may be pursued without the continued loss of personnel and the resultant need to initially train new personnel.

The Department of Dietetics does not have a formal training program for non-supervisory personnel. A coaching system of on-the-job informal training is utilized. A formalized general orientation program for new employees is offered through the hospital personnel office.

The Department of Dietetics does not orient employees to all areas of their own department. Employees are given a small booklet entitled "Glad To Have You," which is well written and adequately explains work rules, leave policies and other items. The new dietary employee is turned over to the particular area supervisor where orientation is conducted through the coaching method. The employee is not provided with copies of standard operating procedures.

At the present time two supervisory employees are enrolled in a food service management program off the premises. Fees for this program are financed by the University of Kansas Medical Center. No other formal training program is conducted at this time for supervisors or employees.

Numerous studies previously credited indicated the value of training and orientation programs in decreasing employee turnover. New employees should be oriented not only to their own position in the organization, but also given the chance to see the overall operation. In this way the employee is made to realize where he fits in and why his job is important. Formal training programs in which the employee is placed into the classroom situation with fellow workers allows for interchange of ideas and discussions of ways to improve the different tasks.¹⁰

When this is coupled with cross training on the job, a highly skilled, more flexible work force results. In this manner, not only is the possibility of job improvement realized but the employee is reinforced in his feeling of being part of the team effort. True, time is

Saturday and Sunday as regularly scheduled off days. These positions

taken away from the work area and this often influences management to put off formal training programs. However, the long term benefit of decreased separations, lowered direct cost and improved job techniques outweigh the immediate loss of work hands.¹¹ The impact of this training is also felt in the area of personnel scheduling. It will allow in-depth coverage for all positions by developing trained employees who are capable of performing more than one job.

Analysis of Present Scheduling Method

A 4 week rotating type personnel schedule is in effect (Appendix F). Schedules are slightly different for each of the three administrative units. Not all individuals are on the rotating schedule due to the nature of the work position. However, the scheduling base is the 4 week rotation and the following observations generally apply:

Days off duty are assigned to a new employee. Once assigned these days are not changed except one time each month. Every four weeks employees with weekdays off duty assigned will work these days and be given Saturday and Sunday off duty. In this manner each employee receives a minimum of one weekend off duty each month. Schedules are not printed or posted for employee use. When hired, the employee is told which days off-duty are his and he is expected to remember these. Just prior to the week that the employee is to work his regular days off he is reminded of this fact by his work supervisor. Personal interviews indicated that this procedure works well and no real problem has been encountered with it.

Days off duty are assigned by position. Certain positions have Saturday and Sunday as regularly scheduled off days. Those positions

which are deemed not necessary on weekends are excluded from the rotating schedule. An example of this is the decreased need of personnel assigned to the cafeteria line during weekends. Certain positions, such as one cashier, are not required on Saturday or Sunday and the person is not placed on the rotating schedule.

Some disadvantages of this schedule are as follows:

A. Consecutive days worked each four weeks:

Position # 1 : 10 days once per month

Position # 2 : 9 days once per month

Position # 3 : 8 days once per month

Position # 4 : 7 days once per month

Position # 5 : 7 days once per month

Position # 6 : 7 days twice per month and 6 days once per month.

B. Split days scheduled off duty each four weeks:

Position # 5 : Split days three times per month

Position # 7 : Split days off one time per month.

C. Only one weekend per month is scheduled off duty for rotating group employees.

There are some positive attributes of this schedule. Workers in the # 1 and # 6 position receive one 4 day period off duty each month. Split days off duty are routinely limited to position # 5; and position # 6 has split days off only one time during the month. Relief positions are included in the schedule.

Analysis of Questionnaire Data

In developing an equitable schedule, the preferences of the employees must be determined. Desires of the majority when possible

should be considered. Individual likes or dislikes, when they deviate from those of the majority, are difficult to reconcile. A schedule which is pleasing and acceptable to the greatest number while accomplishing the organizational mission is the ultimate goal. To determine these preferences, a questionnaire (Appendix A) was developed and administered to employees of the Administrative Section of the Department of Dietetics. Dietitians of this department handed out the questionnaire to their employees and made themselves available for the purpose of clarifying any questions which their employees might have.

There were 145 questionnaires handed out and 138 returned. Of the number returned, 23 were from supervisory personnel. A number of employees answered the questionnaire on duty while others waited until they were at home. Some employees gave more than one response to a question. A complete tally of responses may be found in Appendix G. A summary of pertinent factors follows:

A. A high majority of employees desire Saturday and Sunday off duty, 70 per cent so stating.

B. Difficulty of getting to work on Sunday is a factor of concern to 37 per cent of those responding.

C. Bus transportation is a problem for 80 per cent of those individuals in B above, who find it difficult getting to work on Sunday.

D. Forty percent of employees travel to work by automobile. The next highest category is bus transportation with 33 per cent so traveling.

E. When weekend work is required, 56 per cent feel willing changing days off. As 49 per cent of the employees are not adverse to

to work 2 weekends per month while only 10 per cent are willing to work 3 weekends.

F. A raise in the rate of pay for Sunday work would result in most employees favoring this work requirement more than at present, but still preferring not to perform Sunday work.

G. Split days off are particularly disliked as indicated by 81 per cent of responding employees.

H. Consecutive days worked should be 7 or less as showed by the preference of 71 per cent of the employees answering question number 10.

I. The preferences for or against changing days off are divided almost equally. Employees disliking the change of off days accounted for 51 per cent. Those liking or not caring made up the other 49 per cent.

J. Very few workers desire part time work as opposed to full time. Only 8 of 130 individuals expressed a desire for a shorter work week.

Results of the employee survey substantiate the worth of criteria established for this study. The development of a schedule meeting the established criteria will, it appears, satisfy the majority of dietary department employees and may be considered an improved method of scheduling.

The emphasis in schedule development has been placed on increasing off-duty weekends to at least 2 in a 4-to 5-week period, eliminating split days off duty and limiting consecutive work days to no more than 7. These advantages are achieved by use of a schedule incorporating changing days off. As 49 per cent of the employees are not adverse to

having their days off changed, and these advantages are so strongly desired by all employees, it is felt that such a schedule should be attempted.

An Improved Scheduling Method

Within each of the 3 units of the Administrative Section are numerous work groups. These groups are formed either as a result of the physical plant requirements or due to the functional specialty or common skill of the workers. To maintain group stability and receive the benefits of efficiency developed through a team effort, scheduling methods should not disrupt this ordered arrangement.

The present method of scheduling must be modified and improved to meet criteria established in this study. As mentioned previously, by reaching the established criteria, the preferences of a majority of employees would appear to be satisfied.

The present schedule utilizes groups of 7 rotating through a 4 week period. It is not practical to establish a schedule with one particular sized group. The rotating base is a good foundation but must be modified to accommodate work groups of different size.

The assumption made earlier that work positions now held as necessary will continue to be so held, is an important factor in schedule development. The improved scheduling method which shall be discussed in detail on the following pages is based on the number of employees now deemed necessary.

In developing this schedule, each work group within each administrative unit (Patient Food Service Unit, Food Production Unit, and Purchasing Unit) was analyzed separately and a rotating schedule established.

Shift times were used to develop these schedules, but only to determine the number of employees desired on duty at any one time (Appendix H). Each rotating group schedule utilizes only two code letters. To illustrate a scheduled off-day, the letter 'X' is placed under the desired day. To show a scheduled work day, the small letter 'w' is placed in the appropriate space.

It has been found unnecessary to utilize a time of entry on duty and a time of shift completion. Scheduling for duty the number of employees required for any one day and not delineating a specific tour of duty will allow management flexibility in shift allocation. For example, if 6 employees are required, and are scheduled to work, each 'w' can easily be replaced with an established code letter representing a specific tour of duty. Such a code system utilizing the 24 hour clock might appear as follows:

<u>Code</u>	<u>Tour of Duty</u>
A	0545 - 1345
B	0730 - 1600
C	1030 - 1930
D	1100 - 1930
E	0630 - 1530

This list, of course, might be extended to include any tour of duty which management desires. This complete code list would be posted along side employee duty schedules for easy reference.

In establishing each rotating schedule, the days of the week are represented by the first letter of each day's title as:

However, once the rotating groups are decided upon, along with tours of duty, preprinted schedules (Appendix I) can be established and

1. Saturday S
2. Sunday S
3. Monday M
4. Tuesday T
5. Wednesday W
6. Thursday T
7. Friday F

The days of the week will appear along the upper margin of each schedule and the employee positions along the left hand margin. The following is an example of a rotating group of 3 individuals, one of whom is considered a relief position:

	S	S	M	T	W	T	F
Position # 1	X	X	w	w	w	w	w
Position # 2	w	w	X	X	w	w	w
Relief	w	w	w	w	X	X	w
	2	2	2	2	2	2	3

It can be easily observed that this group allows 2 individuals on duty 6 days per week and 3 persons 1 day per week. The employee in the number one position will move downward in the schedule to the number two position after 7 days. Likewise, the other 2 individuals move through the schedule, number two going to relief and the relief individual moving to the number one position. Totals of on-duty personnel are given below each day of the schedule. All subsequent schedules appearing in this study are of the same pattern. However, a 7-day rotation can be easily modified by extending each position's schedule for an additional 7 days. In this way rotation occurs every 2 weeks and will lessen the administrative burden entailed with schedule writing and posting. However, once the rotating groups are decided upon, along with tours of duty, preprinted schedules (Appendix I) can be established and

employee names filled in prior to posting. It may be observed that in most schedules established in this study, the number of personnel appearing on duty each Friday is higher than other days. In this way, an opportunity is presented for a formal period of training. Such a program can be aimed at the extra Friday personnel and others who may be spared from the job. It would be expected that more employees could be released from their duties to engage in such a training program due to the greater number of employees on the job.

In the development of the following schedules, the number of personnel available within each group (personnel now authorized) and the position requirement (number of positions to be covered) were considered. As a guide to the minimum number of personnel required to adequately cover necessary positions, the following formula, developed by Mr. J. P. Harwell, was utilized:¹²

$$X = P \left(\frac{D}{W} \right)$$

X = Required number of personnel

P = Positions to be covered per week.

D = number of days coverage desired
per week for each position

W = number of working days per
week per employee

Results of the formula application were compared with the personnel available to determine if sufficient numbers of employees were allocated. This requirement will be referred to as "X required." A different figure would indicate more (or less) personnel than are necessary and some

reallocation of personnel into (or out of) that work group might be required. The phrase, "number required on duty," refers to the number of personnel management is now scheduling in that particular area. The excess or deficiency of personnel is a result of the difference between personnel available and the "X required." A deficiency of personnel can be compensated for by scheduling fewer individuals on weekends when workload is at a minimum.

Scheduling within the Patient Food Service Unit

General information

The Patient Food Service Unit is responsible for preparation and service of patient food trays. To accomplish this effectively, the personnel of the unit are presently divided into six work groups. These groups are designated as follows:

1. Second floor preparation group
2. Third floor preparation group
3. Fourth floor preparation group
4. Contagious area group
5. Urology area group
6. Nourishment preparation group

To efficiently schedule the personnel of this unit, a seventh group consisting of supervisory personnel is added. Each group has been treated as a separate entity with its own employees assigned their own schedule.

Group schedule-supervisory personnel

Within the Patient Food Service Unit the following supervisors are authorized and required as indicated:

Food Service Manager		
2. Number available		1
3. Number required on duty		1
Food Service Supervisors I		
Food Service Number available		8
Individuals Number required on duty		6
Position X required		8.4
2 Deficiency		(.4)

Food Service Supervisor II

Characteristics Number available		3
1. Off Number required on duty		2
2. X required		2.8
3. All Excess		.2

Group Schedules devised as below will provide desired supervisory coverage of this unit. The letter "R" will be used to designate the relief position.

Food Service Manager: No rotation, a flexible schedule as desired by the responsible dietitian.

Food Service Supervisor I : a 7-day rotation, 2 groups of 4 individuals required. One such group of 4 follows:

Position	S	S	M	T	W	T	F
1	X	X	w	w	w	w	w
2	w	w	X	X	w	w	w
3	w	w	w	w	X	X	w
R	X	X	w	w	w	w	w
	2	2	3	3	3	3	4

A repeat of the above rotation for the second shift should be utilized. Characteristics of this schedule are:

- Group 1. Off-duty weekends appear 2 out of 4 weekends.
2. Consecutive work day periods of 7 days appear twice.
3. All personnel are present on Friday (training day).
4. Decreased coverage on weekends.

Food Service Supervisor II : a 7 day rotation of 1 group of 3 individuals would appear as follows:

Position	S	S	M	T	W	T	F
1	X	X	w	w	w	w	w
2	w	w	X	X	w	w	w
R	w	w	w	w	X	X	w
	2	2	2	2	2	2	3

Characteristics of this schedule are:

1. Off duty weekends appear once every 3 weeks.
2. Maximum consecutive work day periods of 7 days appear twice.
3. All personnel are present on Friday (training day).

Group schedule-second floor personnel

The following employees are available and required as listed:

Employees available:	8
(Hot food servers)	(2)
(Set up position)	(2)
(Loader position)	(2)
(Relief)	(2)
Required on duty:	6
X required	8.4
Deficiency	(.4)

The same rotating group schedule as established for the Supervisory 1 group would be used here. This is a 7 day rotation incorporating 2 groups of 4 individuals. Schedule characteristics are not altered.

Group schedule-third floor personnel

The following employees are required and available:

Employees available	10
(Hot food servers)	(2)
(Set up position)	(3)
(Loader position)	(2)
(Relief)	(3)
Required on duty	7
(early shift)	(3)
(late shift)	(4)
X required	9.8
Excess	.2

A 7-day rotation incorporating 1 group of 10 individuals will result in adequate coverage as indicated below.

Position	S	S	M	T	W	T	F
1	X	X	w	w	w	w	w
2	w	w	X	X	w	w	w
3	w	w	w	w	X	X	w
4	X	X	w	w	w	w	w
5	w	w	X	X	w	w	w
6	w	w	w	w	X	X	w
7	X	X	w	w	w	w	w
R	w	w	X	X	w	w	w
R	w	w	w	w	X	X	w
R	X	X	w	w	w	w	w
	6	6	7	7	7	7	10

Characteristics of this schedule are:

1. Required early and late coverage can easily be scheduled through correct use of tour codes.

2. Off-duty weekends appear 2 out of 5 weekends.

3. All personnel are present on Friday (training day).

4. Maximum consecutive work day periods of 7 days appear 6 out of 10 weeks.

Group schedule-fourth floor personnel

The following employees are available and required.

Employees available 14

Required on duty 10

(Early shift) (5)

(Late shift) (5)

X required 14

Excess-deficiency schedules of 3 individuals each will 0

A 7-day rotation incorporating 2 groups of 7 individuals will result in adequate coverage as follows:

Position	S	S	M	T	W	T	F
1	X	X	w	w	w	w	w
2	w	w	X	X	w	w	w
3	w	w	w	w	X	X	w
4	X	X	w	w	w	w	w
5	w	w	X	X	w	w	w
R	w	w	w	w	X	X	w
R	X	X	w	w	w	w	w
	4	4	5	5	5	5	7
	4	4	5	5	5	5	7
Day total	8	8	10	10	10	10	14

Characteristics displayed by this schedule include the following:

1. Off duty weekends appear 3 out of 7 weekends.
2. Maximum consecutive work day periods of 7 days appear 4 times.
3. Decreased coverage on weekends.
4. All personnel present on Fridays (training day).

Group scheduling-contagious area and Urology section

Employees available 6

(contagious area) (3)

(Urology area) (3)

Required on duty	4
(contagious area)	(2)
(Urology area)	(2)
X required	5.6
(contagious area)	(2.8)
(Urology area)	(2.8)
Excess	.4

Use of 2 7-day rotating schedules of 3 individuals each will allow for sufficient coverage.

Position	S	S	M	T	W	T	F
1	X	X	w	w	w	w	w
2	w	w	X	X	w	w	w
R	w	w	w	w	X	X	w
	2	2	2	2	2	2	3

Characteristics of this study are:

1. Off-duty weekends appear once every 3 weeks.
2. Maximum consecutive work day periods of 7 days result 2 out of 3 weeks.
3. All personnel are present on Friday (training day).

Nourishment area scheduling

A requirement exists for one position to be filled in this area. Personnel available are 2 in number. A 7 day rotating schedule of these 2 individuals will meet this requirement.

Position	S	S	M	T	W	T	F
1	X	X	w	w	w	w	w
R	w	w	X	X	w	w	w
	1	1	1	1	2	2	2

Characteristics of this schedule include every other weekend off duty and 1 maximum consecutive work period of 7 days. Both personnel are present for duty on Friday.

Scheduling within the Food Production Unit

General Information

The Food Production Unit is composed of the kitchen area and the cafeteria. This unit consists of different work groups performing specialized tasks. These groups have been identified and a rotating schedule established for each such entity.

The work groups which are of concern in this schedule development are the following:

1. Supervisory personnel.
2. Bakers.
3. Sanitation personnel.
4. Salad and sandwich personnel.
5. Dishroom personnel.
6. Cooks.
7. Cook helpers.
8. Cafeteria line personnel.
9. Cashiers and checkers.
10. Elevator operators.

Schedules are developed in the same manner as utilized for the Patient Food Service Unit.

Group schedules - supervisory personnel

Supervisory personnel of this unit include a cafeteria manager, 2 cafeteria supervisors, 1 production supervisor and 1 relief supervisor. A second relief supervisor is available 1 day per week. The cafeteria manager is given a permanent tour of duty (3 P.M. to 11:30 P.M.) and will be excluded from the rotating group. Adequate coverage will be

achieved by use of the rotating group of 4 individuals established for Food Service Supervisors I in the previous section. (1.2)

Group scheduling - bakers

The personnel of this work group may be divided into a rotating group of 4 bakers and a rotating group of bakers' helpers. Required personnel and available personnel figures follow:

Employees available	8
(Bakers)	(4)
(Bakers' helpers)	(4)
Required on duty	6
X required	8.4
Deficiency	(.4)

The same rotating schedule of 4 established for Food Service Supervisors I of the Patient Food Service Unit would provide adequate coverage. However, 2 rotating groups would be used here, one for bakers and one for bakers' helpers. Schedule characteristics would, likewise, remain the same as for the previously given schedule. Decreased coverage on weekends would correspond to decreased workload.

Group scheduling - dishroom personnel

By dividing the personnel of this work group into 2 rotating groups of 5 individuals sufficient coverage is obtained. Requirements and schedule follows:

Employees available	10
Required on duty	8
(Early)	(4)
(Late)	(4)

Cook IV X required 11.2
 Position S S M T W T F
 Deficiency (1.2)

Position	S	S	M	T	W	T	F
1	X	X	w	w	w	w	w
2	w	w	X	X	w	w	w
3	w	w	w	w	X	X	w
4	w	w	w	w	w	X	X
R	X	X	w	w	w	w	w
	3	3	4	4	4	3	4
	3	3	4	4	4	3	4
	6	6	8	8	8	6	8

Characteristics of this schedule are:

1. Off duty weekends appear 2 out of 5 weeks.
2. Maximum consecutive work day periods of 7 days appear twice.
3. A consecutive work day period of 6 days appears once.
4. Reduced personnel on weekends.
5. Additional staffing might be required on Thursday.

Group scheduling - cooks and cook helpers

The personnel in this area consist of the following categories and number of personnel required and available:

Position	Available	Required
Cook IV	1	1
Cook III	1	1
Cook II	4	4
Relief	3	-
Cook helpers	5	5
Relief	2	-
X required		16.8
Deficiency		(.8)

Schedules established as follows will provide adequate coverage:

Cook IV							
Position	S	S	M	T	W	T	F
1	X	X	w	w	w	w	w
R	w	w	X	X	w	w	w
	1	1	1	1	2	2	2

Cooks II and III							
Position	S	S	M	T	W	T	F
1	X	X	w	w	w	w	w
2	w	w	X	X	w	w	w
3	w	w	w	w	X	X	w
4	X	X	w	w	w	w	w
5	w	w	X	X	w	w	w
R	w	w	w	w	X	X	w
R	X	X	w	w	w	w	w
	4	4	5	5	5	5	7

A rotating group of 7, as above, would be utilized for cooks' helpers. A duplicate number of cooks' helpers would then be available. These schedules are identical to those of the fourth floor personnel with characteristics as stated therein. Reduced weekend staffing corresponds to decreased workload. All weekday on duty requirements are met.

Group schedules - salad and sandwich personnel

Personnel of this work group number 7 with an on duty requirement of 5. The X requirement is equal to 7 and as such no deficiency or excess of personnel exists in this area.

A rotating group of 7 employees, as given for the Cooks II and III, should be utilized here. Adequate weekday coverage and reduced coverage on weekends will result.

Group schedules - sanitation personnel

Total personnel in this work group are 7 plus 1 part time. The part time employee has been excluded from the rotating schedule. This part time employee is utilized for night cleaning and his schedule should remain as is in the present system.

Group The on duty requirement, excluding the above mentioned part time employee, is 5. The X requirement is 7; therefore no excess or deficiency of personnel is present in this area.

The on duty requirement of 5 is easily met through the rotating group of 7 as utilized for the Cooks II and III.

Group scheduling - cafeteria line personnel

The personnel available to staff this work area number 12 employees. The on duty requirement is for 10 employees. The X requirement indicates a need of 14 personnel to meet a 7-day daily requirement of 10 employees. However, greatly reduced staffing is possible on weekends and some benefit is derived here. By use of a rotating group of 12 employees, 6 are available Saturday and Sunday, 8 Monday and Tuesday, 10 on Wednesday and Thursday, and 12 on Friday. 6 employees should be adequate on Saturday and Sunday. By manipulation of duty tour times the number of Monday and Tuesday personnel should be acceptable. The rotating schedule of 12 employees follows:

Position	S	S	M	T	W	T	F
1	X	X	w	w	w	w	w
2	w	w	X	X	w	w	w
3	X	X	w	w	w	w	w
4	X	X	w	w	w	w	w
5	w	w	X	X	w	w	w
6	w	w	w	w	X	X	w
7	X	X	w	w	w	w	w
8	w	w	X	X	w	w	w
9	w	w	w	w	X	X	w
10	w	w	X	X	w	w	w
R	X	X	w	w	w	w	w
R	X	X	w	w	w	w	w
	6	6	8	8	10	10	12

This schedule will allow 6 out of 12 weekends off-duty. Maximum consecutive days worked are 7 and these periods appear 5 times. All employees are present on Friday.

Group schedules - cashiers and checkers

Tray checkers and cashiers are required for each cafeteria line. On duty requirements call for 2 cashiers and 3 checkers. There are a total of 7 personnel including relief employees assigned to this area. The X requirement indicates that the 7 personnel are sufficient to give needed coverage. Two rotating groups are established as follows:

Cashiers

Position	S	S	M	T	W	T	F
1	X	X	w	w	w	w	w
2	w	w	X	X	w	w	w
R	w	w	w	w	X	X	w
	2	2	2	2	2	2	3

This cashier schedule allows one of 3 weekends off duty. All cashiers are present on Friday.

Checkers

Position	S	S	M	T	W	T	F
1	X	X	w	w	w	w	w
2	X	X	w	w	w	w	w
3	w	w	X	X	w	w	w
R	w	w	w	w	X	X	w
	2	2	3	3	3	3	4

The schedule for the checker personnel allows reduced coverage on Saturday and Sunday. Weekends scheduled off duty number 2 out of 4. Maximum consecutive days worked equal 7 days on 2 occasions.

Group schedule - elevator operators

The requirement for operation of 1 elevator exists. On duty requirement calls for 2 employees. Available personnel equal 3. The X requirement indicates a need of 2.8 personnel. Therefore, the 3 assigned are adequate to meet the need.

A rotating schedule of 3 employees will provide sufficient coverage. The same schedule as developed for the cashier personnel will apply.

Scheduling within the Purchasing Unit

The Purchasing Unit is divided into 2 major organizational entities. The salad and vegetable area consists of 3 personnel and 1 supervisor. A storekeeper has responsibility for the receiving section which also consists of 3 employees. There exist 2 Food Service Supervisor II positions. These individuals function directly under the dietitian in charge of the unit.

Adequate supervisory and employee staffing of this unit can be achieved through the use of rotating schedules. The storekeeper position and the salad supervisor will be exceptions to this. These individuals must work the tour of duty most desired by management as no relief exists for either position. Rotating schedules follow for all other positions:

Food Service Supervisor II

Position	S	S	M	T	W	T	F
1	X	X	w	w	w	w	w
2	w	w	X	X	w	w	w
	1	1	1	1	2	2	2

This schedule will allow every other weekend off duty with 1 7-day consecutive work period.

Salad preparation employees will be scheduled as follows:

Position	S	S	M	T	W	T	F
1	X	X	w	w	w	w	w
2	w	w	X	X	w	w	w
3	w	w	w	w	X	X	w
	2	2	2	2	2	2	3

This schedule will allow for one of 3 weekends off-duty with 2 periods of 7 consecutive work days.

The employees assigned to the area of receiving should be scheduled as above, that is, a rotating schedule of 3 personnel is to be utilized.

Summary

In schedule development, factors which affect personnel flexibility and availability were considered. The amount of absenteeism has pertinence as it indicates the number of employees who may be expected not to report to duty when scheduled. The arithmetic mean and the upper range of employee absences are numbers which have been shown to have relevance. The number of employees absent from their jobs is significantly greater on Saturday than during other days of the week. However, the decreased work load on Saturday is such that even with an anticipated mean absenteeism of 3.38 individuals, reduced staffing is possible. Likewise, Sunday, with a low workload situation in conjunction with a lack of significant absenteeism, will also lend itself to a reduced staffing situation.

An excessive rate of employee turnover has been documented in this study. The relationship between employees leaving their jobs and training programs has been discussed. A high turnover rate results in limited cross training of employees. A work force exhibiting little cross training will cause scheduling problems due to its inflexibility, as employees can not be shifted to fill vacant positions. Formal training programs have been shown to decrease employee turnover while developing a more flexible work force.

The analysis of the present scheduling system pointed out factors which are inconsistent with preferences of the majority of employees. The preferences were ascertained by use of the questionnaire technique.

As a result of the preference survey a rotating schedule was developed for each work group within the dietary department. Such a rotating schedule is based on a seven-day time period and the number of personnel in the work group. This type schedule incorporates the changing of days off duty each week. Forty-nine per cent of the employees are not adverse to this method of scheduling. Even though 51 per cent do not favor the changing of off days, the increased benefits derived from such a schedule will outweigh the critical feelings.

All rotating group schedules developed in this study will meet established criteria except the rotating group of 3. This group receives 1 of 3 weekends off duty. This falls short of the goal of 2 off duty weekends per month. However, it exceeds the present schedule of 1 weekend per month off-duty. In addition, the rotating group schedules allow for reduced staffing on weekends and maximum staffing 1 day per week. A training program may be conducted on the day when a maximum staff is present for duty.

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12. J. P. Howell, "Cyclical Scheduling of Nursing Personnel," Hospitals, XL (January 16, 1966), 77.

CHAPTER III

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The following conclusions are made as a result of this study:

1. The most desirable scheduling pattern to meet the desires of workers and demands of jobs within the Administrative Section of the Department of Dietetics, University of Kansas Medical Center, Kansas City, Kansas is a rotating employee schedule with changing days off duty.

2. A formal training program aimed at reduction of employee turnover is needed.

3. Employee absenteeism is significantly greater on Saturday than absenteeism on either Tuesday, Wednesday or Sunday.

4. Reduced staffing is possible on both Saturday and Sunday.

Recommendations

The following is recommended in order that the Department of Dietetics may accomplish the implementation of the rotating schedules described in this study:

1. All employees and the labor union representative should be informed of the type of schedules that will be followed.

2. Pre-printed schedules should be developed for all work groups.

3. Schedules should be posted in an area of common employee use at least two weeks prior to implementation date.

4. The date of implementation should be well understood by all personnel.

5. An employee formal training program with emphasis on cross training of personnel should be developed.

6. Supervisory personnel should be informed of the importance of developing good rapport with subordinates as a step toward decreased absenteeism.

7. Written procedural guides for scheduling of personnel should be developed.

8. Those individuals who will be responsible for personnel scheduling should be selected and informed of their responsibility.

9. "Deadline dates" for schedule preparation completion should be established and adherence to these dates should be enforced.

APPENDIX A

EMPLOYEE QUESTIONNAIRE

Dietary Department Employee Questionnaire

Your Department of dietetics would like to develop a work schedule which would give you the days off you most like. Of course, not everyone can be off the same day. To help in developing a schedule which will be fair to all employees, please answer the following questions. It is not necessary for you to sign your name. Check the block which tells best how you feel about each question.

APPENDIX A

1. What is your job? **EMPLOYEE QUESTIONNAIRE** (If you are responsible for the work of others, check supervisor.)

Supervisor ☐

Not a Supervisor ☐

2. When do you like to have your days off?

A. On the weekend (Saturday and Sunday) ☐

B. On weekdays ☐

C. Do not care if my days off are on the weekend or during the week ☐

3. Is it more difficult for you to get to work on Saturday or Sunday than it is on other days?

Yes ☐

No ☐

4. If you answered yes to question #3, please say why it is more difficult.

A. Transportation problem ☐

B. Child care problem ☐

C. Other ☐ (write why it is) _____

Dietary Department Employee Questionnaire

Your department of dietetics would like to develop a work schedule which would give you the days off you most like. Of course, not everyone can be off the same day. To help in developing a schedule which will be fair to all employees, please answer the following questions. It is not necessary for you to sign your name. Check the block which tells best how you feel about each question.

1. What is your job level? (If you are responsible for the work of others, check supervisor.)

Supervisor ☐

Not a Supervisor ☐

2. When do you like to have your days off?

A. On the weekend (Saturday and Sunday) ☐

B. On weekdays ☐

C. Do not care if my days off are on the weekend or during the week ☐

3. Is it more difficult for you to get to work on Saturday or Sunday than it is on other days?

Yes ☐

No ☐

4. If you answered yes to question #3, please say why it is more difficult.

A. Transportation problem ☐

B. Child care problem ☐

C. Other ☐ (write why it is) _____

5. If pay for Sunday work could be increased to $1\frac{1}{2}$ times the regular rate, how would you feel about weekend work?

- A. Like it more than now ☐
 B. Like it less than now ☐
 C. Do not care if I work or if I am off on weekends ☐
 D. Dislike Sunday work ☐

6. If pay for Sunday work could be increased to double the regular rate, how would you feel about weekend work?

- A. Like it more than now ☐
 B. Like it less than now ☐
 C. Do not care if I am off or if I work on weekends ☐
 D. Dislike Sunday work ☐

7. If some weekend work is required, what is the greatest number of weekends you would want to work each month?

- A. 3 ☐ B. 2 ☐ C. 1 ☐

8. How do you feel about split days off? (Example: Off Monday and Friday)

- A. Like ☐ B. Dislike ☐ C. Do not care ☐

9. What two days off do you like best each week?
 (Please check two blocks.)

- Monday ☐ Tuesday ☐ Wednesday ☐
 Thursday ☐ Friday ☐ Saturday ☐ Sunday ☐

10. What is the greatest number of days you would be willing to work in a row without a day off so that your weekends off duty could be increased?

- 10 days ☐ 9 days ☐ 8 days ☐ 7 days ☐ 6 days ☐

11. How would you feel about your days off being different each week? (Example: Week I--off Monday and Tuesday; Week II--off Tuesday and Wednesday; Week III--off Saturday and Sunday.) /

A. Like ☐ B. Dislike ☐ C. Do not care ☐

12. Would you rather work part time instead of full time?

Yes ☐

No ☐

13. If you answered yes to question #12, how many hours per day would you rather work?

A. 4 ☐ B. 6 ☐ Other (Please give number) _____

14. How do you now travel to your job?

A. Bus ☐

B. Own car ☐

C. Car pool ☐

D. Walk ☐

E. Other (Please state) _____

Snack Line Weekdays

9:30 a.m. Open

9:30-11:15 a.m. Snack Service

11:15-4:30 p.m. Lunch Service

4:30 p.m. closed.

Snack Line Weekends

9:30 Open

9:30-11:15 a.m. Snack Service

11:15 a.m.-2 p.m. Closed

APPENDIX B

2 p.m.-4:30 p.m. Snack CAFETERIA LINE SCHEDULE

4:30 p.m. Closed

Main Line Service

6:30 a.m. open

6:30-9:30 a.m. Breakfast Service

9:30-11:15 a.m. Closed

11:15 a.m.-2 p.m. Lunch Service

2 p.m.-4:30 p.m. Closed

4:30-8 p.m. Dinner Service

8 p.m. Closed

Snack Line Weekdays

9:30 a.m. Open

9:30-11:15 a.m. Snack Service

11:15-4:30 p.m. Lunch Service

4:30 p.m. closed.

Snack Line Weekends

9:30 Open

9:30-11:15 a.m. Snack Service

11:15 a.m.-2 p.m. Closed

2 p.m.-4:30 p.m. Snack Service

4:30 p.m. Closed

Main Line Service

6:30 a.m. open

6:30-9:30 a.m. Breakfast Service

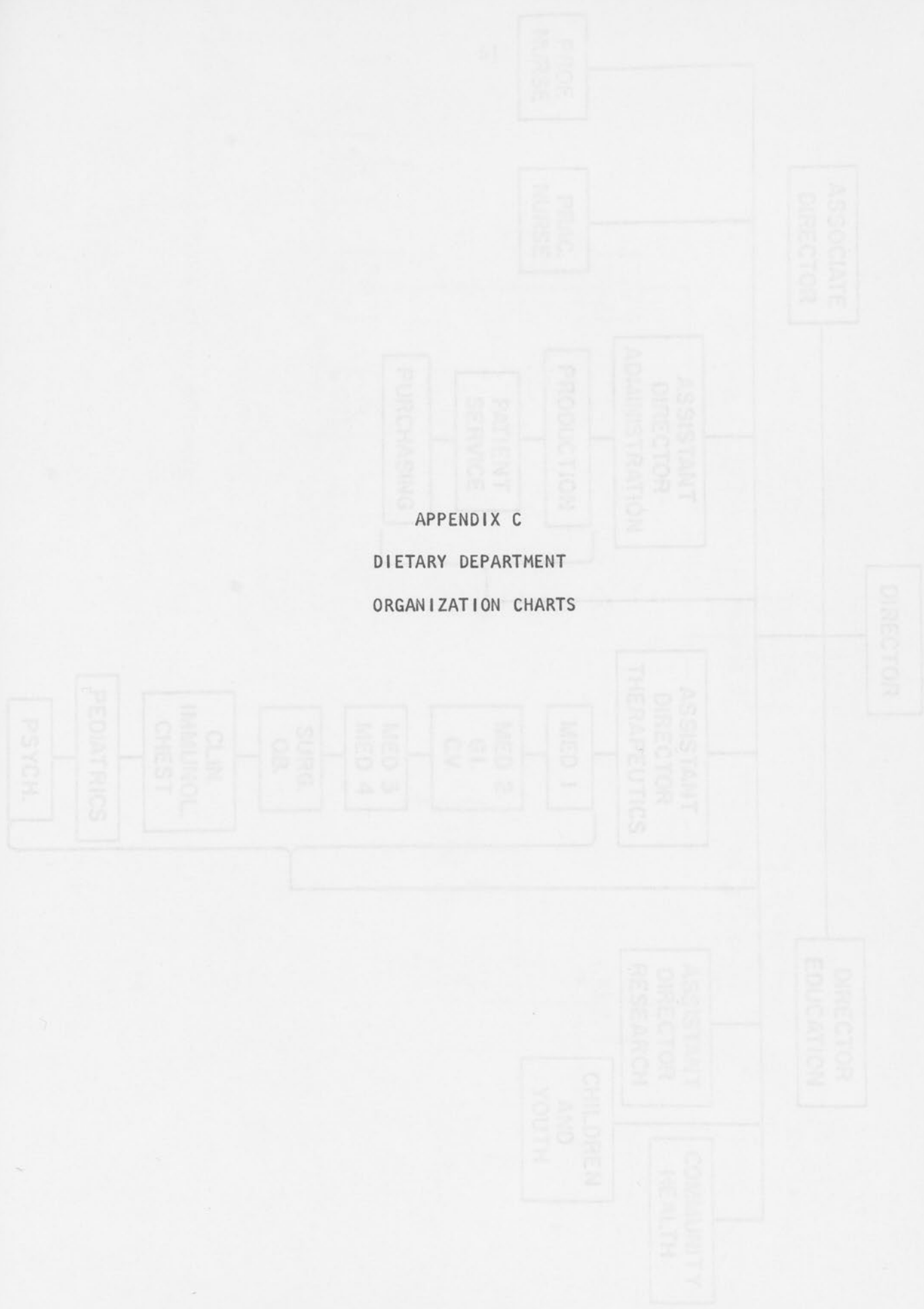
9:30-11:15 a.m. Closed

11:15 a.m.-2 p.m. Lunch Service

2 p.m.-4:30 p.m. Closed

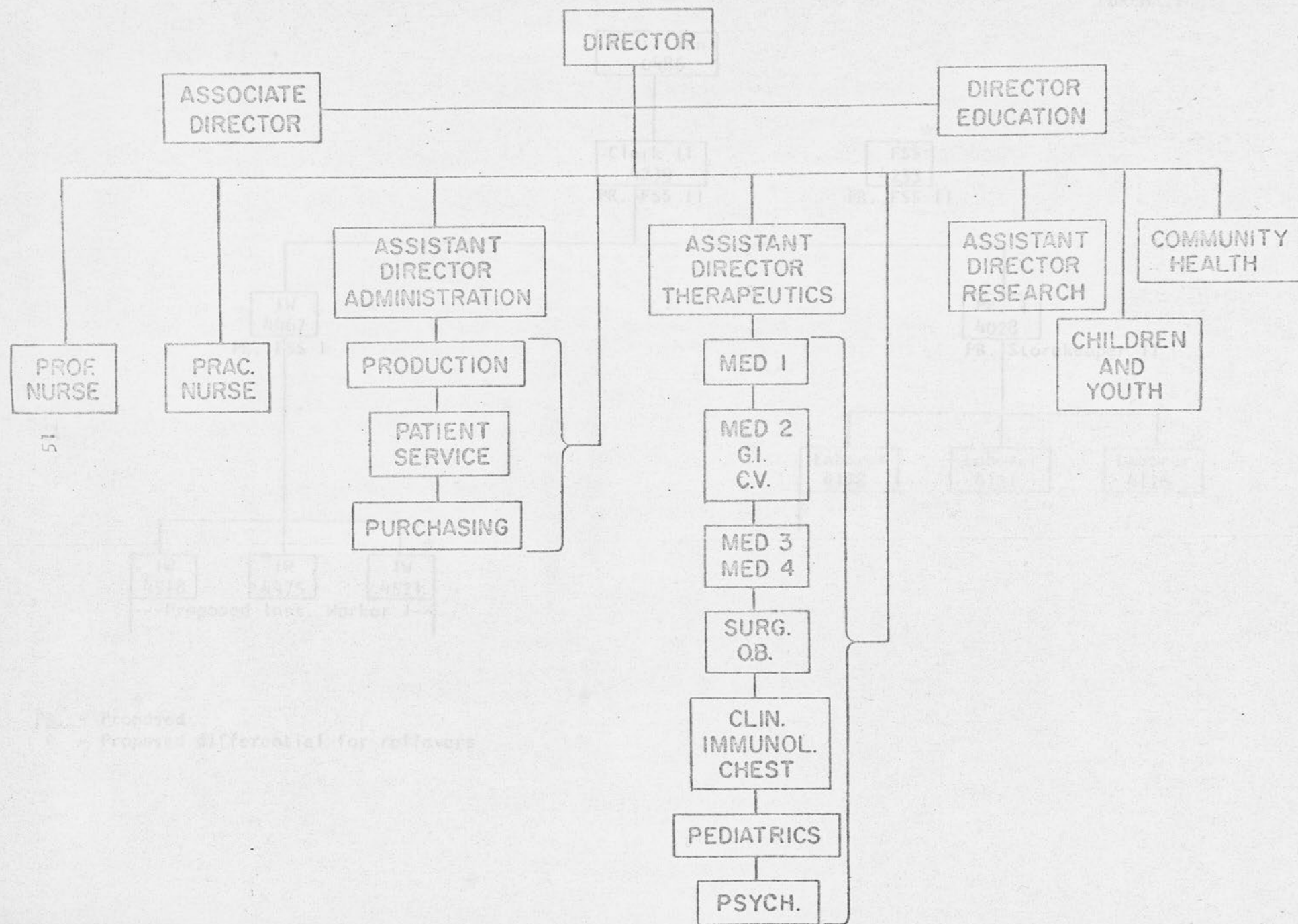
4:30-8 p.m. Dinner Service

8 p.m. Closed



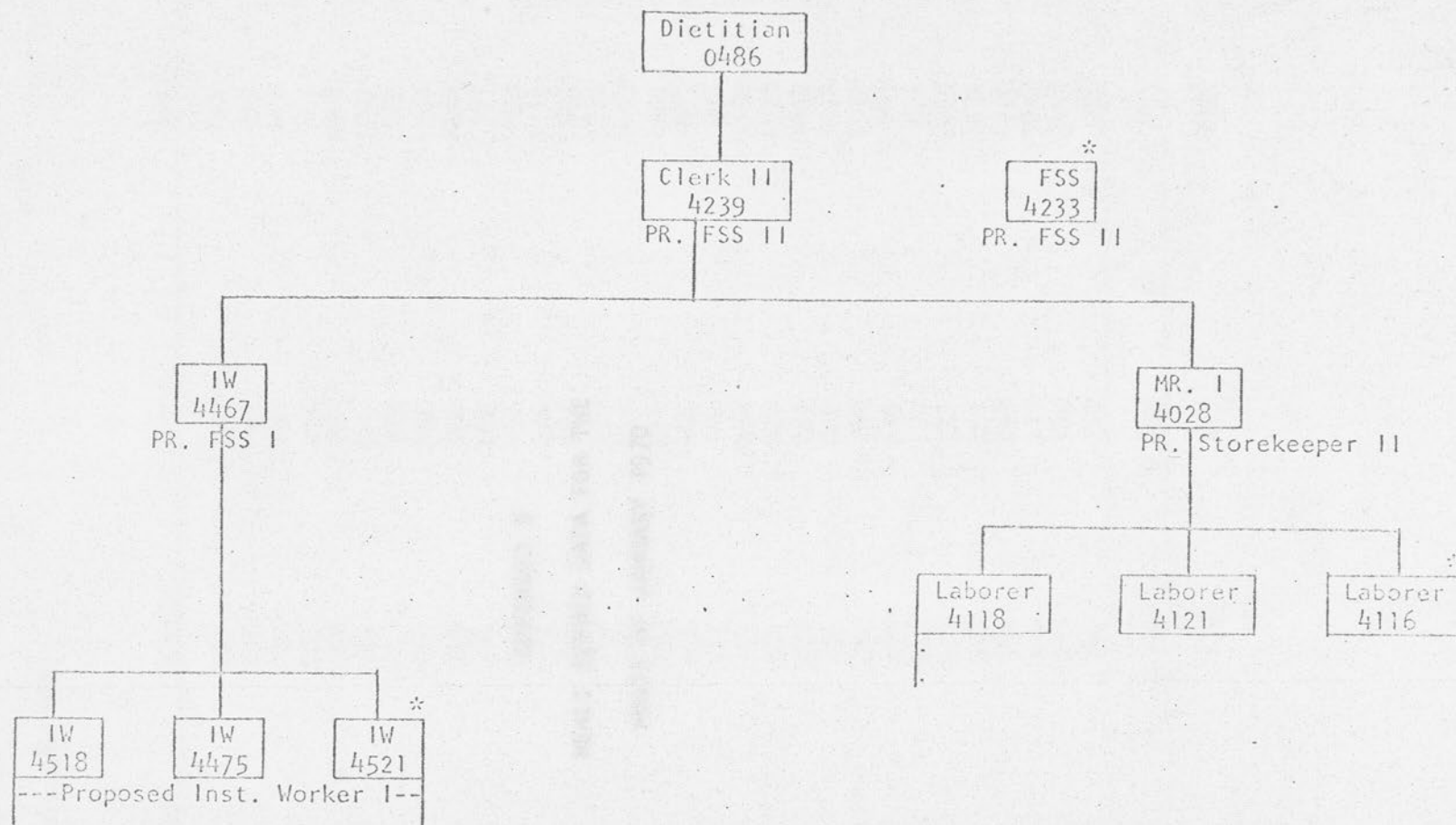
APPENDIX C
DIETARY DEPARTMENT
ORGANIZATION CHARTS

PROFESSIONAL STAFF DEPARTMENT OF DIETETICS AND NUTRITION



PURCHASING UNIT

PROPOSED AUG. 18, 1969
PURCHASING



PR. - Proposed

* - Proposed differential for relievers

Number of Meals Served

For the Month of January 1970

CAFETERIA

	<u>Breakfast</u>	<u>Dinner</u>	<u>Supper</u>	<u>Total</u>
1	144	210	110	464
2	245	455	157	857
3	222	292	140	654
4	170	237	136	543
5	548	1000	292	1840
6	507	986	299	1792
7	506	1042	304	1852
8	408	1015	269	1783
9	470	539	252	1261
10	264	352	159	775
11	180		132	592
12	493		276	1710
13	494			1735
14	500			1739
15	503			1653
16	500			1602
17	271	372	162	805
18	187	262	149	598
19	510	572	298	1780
20	531	576	227	1728
21	558	503	203	1830
22	504	500	200	1604
23	508	242	183	1573
24	255	309	133	747
25	178	268	120	566
26	500	914	221	1635
27	500	926	250	1676
28	509	985	264	1758
29	480	945	233	1658
30	438	832	185	1455
31	281	347	152	780
TOTALS	12,453	22,050	6,600	41,053
Ave Per Day	402	710	213	1325

Number of Meals Served

For the Month of January 1970

CAFETERIA

	Breakfast	Dinner	Supper	Total
1	144	210	110	464
2	245	455	157	857
3	222	292	140	654
4	170	237	136	543
5	548	1008	292	1848
6	507	986	299	1792
7	506	1042	304	1852
8	498	1016	269	1783
9	470	539	252	1261
10	264	352	159	775
11	180	280	132	592
12	492	942	276	1710
13	494	958	283	1735
14	500	963	276	1739
15	503	909	241	1653
16	500	888	214	1602
17	271	372	162	805
18	187	262	149	598
19	510	972	298	1780
20	531	970	227	1728
21	558	989	283	1830
22	504	900	200	1604
23	508	882	183	1573
24	255	359	133	747
25	178	268	120	566
26	500	914	221	1635
27	500	926	250	1676
28	509	985	264	1758
29	480	945	233	1658
30	438	832	185	1455
31	281	347	152	780
TOTALS	12,453	22,000	6,600	41,053
Ave Per Day	402	710	213	1325

Number of Meals Served

For the Month of January 1970

PATIENTS

	<u>Breakfast</u>	<u>Dinner</u>	<u>Supper</u>	<u>Total</u>
1	318	Assumed to be the same as breakfast.		
2	315			
3	319			
4	340			
5	391			
6	404			
7	438			
8	450			
9	422			
10	386			
11	385			
12	421			
13	438			
14	425			
15	438			
16	417			
17	389			
18	403			
19	429			
20	449			
21	434			
22	445			
23	422			
24	379			
25	407			
26	452			
27	446			
28	448			
29	442			
30	429			
31	389			
TOTALS	12,670	12,670	12,670	38,010
Ave. Per Day	409	409	409	1,227

Consolidation of Absentee Data

	<u>Number of Days</u>	<u>Standard Deviation</u>	<u>Mean</u>	<u>Total Frequency</u>
Saturday	27	1.33	3.38	88
Sunday	26	1.58	2.50	65
Tuesday	27	1.32	2.04	55
Wednesday	27	1.73	2.37	64

Number of days = days in the sample (N)

Mean = arithmetic average of absences ($\bar{X}$)

Total frequency = frequency of absences displayed within the sample (f)

APPENDIX E

CONSOLIDATION OF ABSENTEE DATA

Consolidation of Absentee Data

	<u>Number of Days</u>	<u>Standard Deviation</u>	<u>Mean</u>	<u>Total Frequency</u>
Saturday	27	1.33	3.38	88
Sunday	26	1.58	2.50	65
Tuesday	27	1.32	2.04	55
Wednesday	27	1.73	2.37	64

APPENDIX F

Number of days = days in the sample (N)

Mean = arithmetic average of absences ($\bar{X}$)

Total frequency = frequency of absence displayed within the sample (f)

PRESENT ROTATING SCHEDULE

4 Week Rotation-Employee maintains same numbered position

Week 1								Week 3							
	H	T	W	T	F	S	S		H	T	W	T	F	S	S
WKR 1	w	w	w	w	w	X	X	1	X	X	w	w	w	w	w
2	w	w	w	w	w	X	X	2	w	X	X	w	w	w	w
3	w	w	X	X	w	w	w	3	w	w	X	X	w	w	w
4	w	w	w	X	X	w	w	4	w	w	w	X	X	w	w
5	X	w	w	w	X	w	w	5	w	w	w	w	w	X	X
6	X	X	w	w	w	w	w	6	w	w	w	w	X	X	w
7	w	X	X	w	w	w	w	7	X	w	w	w	w	w	X
	S	S	S	S	S	S	S		S	S	S	S	S	S	S

APPENDIX F

PRESENT ROTATING SCHEDULE

Week 2								Week 4							
	H	T	W	T	F	S	S		H	T	W	T	F	S	S
WKR 1	X	X	w	w	w	w	w	1	X	X	w	w	w	w	w
2	w	X	X	w	w	w	w	2	w	X	X	w	w	w	w
3	w	w	w	w	w	X	X	3	w	w	X	X	w	w	w
4	w	w	w	w	w	X	X	4	w	w	w	X	X	w	w
5	X	w	w	w	X	w	w	5	X	w	w	w	X	w	w
6	w	w	X	X	w	w	w	6	w	w	w	w	w	X	X
7	w	w	w	X	X	w	w	7	w	w	w	w	w	X	X
	S	S	S	S	S	S	S		S	S	S	S	S	S	S

PRESENT ROTATING SCHEDULE

4 Week Rotation-Employee maintains same numbered position

Week 1

	M	T	W	T	F	S	S
WKR 1	w	w	w	w	w	X	X
# 2	w	w	w	w	w	X	X
3	w	w	X	X	w	w	w
4	w	w	w	X	X	w	w
5	X	w	w	w	X	w	w
6	X	X	w	w	w	w	w
7	w	X	X	w	w	w	w
	5	5	5	5	5	5	5

Week 3

	M	T	W	T	F	S	S
1	X	X	w	w	w	w	w
2	w	X	X	w	w	w	w
3	w	w	X	X	w	w	w
4	w	w	w	X	X	w	w
5	w	w	w	w	w	X	X
6	w	w	w	w	X	X	w
7	X	w	w	w	w	w	X
	5	5	5	5	5	5	5

Week 2

	M	T	W	T	F	S	S
WKR 1	X	X	w	w	w	w	w
# 2	w	X	X	w	w	w	w
3	w	w	w	w	w	X	X
4	w	w	w	w	w	X	X
5	X	w	w	w	X	w	w
6	w	w	X	X	w	w	w
7	w	w	w	X	X	w	w
	5	5	5	5	5	5	5

Week 4

	M	T	W	T	F	S	S
1	X	X	w	w	w	w	w
2	w	X	X	w	w	w	w
3	w	w	X	X	w	w	w
4	w	w	w	X	X	w	w
5	X	w	w	w	X	w	w
6	w	w	w	w	w	X	X
7	w	w	w	w	w	X	X
	5	5	5	5	5	5	5

EMPLOYEE RESPONSES TO SURVEY QUESTIONS

QUESTION	EMPLOYEE	SUPERVISOR	TOTAL
1	115	23	138
2 A	75	13	88
B	20	4	24
C	19	6	25
3 Yes	40	10	50
No	73	13	86
4 A	34	6	40
B	7	7	14
C	3	1	4
5 A	58	13	71
B	2	2	4
C	17	3	20
D	17	6	23
6 A	75	15	90
B	10	0	10
C	14	4	18
D	31	5	36
7 A	13	0	13
B	62	8	70
C	33	9	42
8 A	9	1	10
B	85	21	106
C	14	0	14
9 Monday	23	3	26
Tuesday	22	2	24
Wednesday	13	3	16
Thursday	16	6	22
Friday	22	7	29
Saturday	52	14	66
Sunday	61	11	72
10.			
10 days	6	1	7
9 days	11	1	12
8 days	8	0	8
7 days	29	7	36
6 days	45	13	58

APPENDIX G

TALLY OF RESPONSES TO SURVEY QUESTIONS

EMPLOYEE RESPONSES TO SURVEY QUESTIONS

QUESTION	EMPLOYEE	SUPERVISOR	TOTAL
1	115	23	138
2 A	79	13	92
B	20	4	24
C	19	6	25
3 Yes	40	10	50
No	73	13	86
4 A	34	6	40
B	7	7	14
C	3	1	14
5 A	68	13	81
B	5	2	7
C	17	3	20
D	40	6	46
6 A	75	15	90
B	10	0	10
C	14	4	18
D	31	5	36
7 A	13	0	13
B	62	8	70
C	33	9	42
8 A	9	1	10
B	85	21	106
C	14	0	14
9 Monday	29	3	32
Tuesday	22	2	24
Wednesday	13	3	16
Thursday	16	6	22
Friday	22	7	29
Saturday	52	14	66
Sunday	61	11	72
10.			
10 days	6	1	7
9 days	11	1	12
8 days	8	0	8
7 days	29	7	36
6 days	49	13	62

11.	A	41	2	43
	B	54	15	69
	C	18	5	23
12.	Yes	5	4	9
	No	105	17	122
13.	A	2	1	3
	B	2	2	4
	C	1 - 5 hrs.		
14.	A	39	7	46
	B	51	14	65
	C	9	1	10
	D	14	1	15
	E	1		1

APPENDIX H

AN EXAMPLE OF THE FORMAT USED IN ANALYSIS

OF WORK GROUP SHIFTS

PATIENT FOOD SERVICE SECOND FLOOR

6:15 a.m.

7:45 p.m.

Feeding Supply #1	11:15	2:45	7:45
#2	11:15	2:45	7:45
Hot Food Server #1	11:15	2:45	7:45
#2	11:15	2:45	7:45
Soc. Wp. #1	11:15	2:45	7:45
#2	11:15	2:45	7:45
Loader #1	11:15	2:45	7:45
#2	11:15	2:45	7:45
Ref. #1	11:15	2:45	7:45
#2	11:15	2:45	7:45

APPENDIX H
AN EXAMPLE OF THE FORMAT USED IN ANALYSIS
OF WORK GROUP SHIFTS

PATIENT FOOD SERVICE SECOND FLOOR

6:15 a.m.

7:45 p.m.

Acting Supv.

#1 _____ 2:45

#2 11:15 _____ 7:45

Hot Food Server

#1 _____ 2:45

#2 11:15 _____ 7:45

Set Up

#1 _____ 2:45

#2 11:15 _____ 7:45

Loader

#1 _____ 2:45

#2 11:15 _____ 7:45

Relief

#1

#2

APPENDIX I

AN EXAMPLE OF A PREPRINTED EMPLOYEE ROTATING SCHEDULE

E = 0615-1445
L = 1115-1245
X = Off-day

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August, 1969

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70 Pages

U.S. Department of Labor; Womens Bureau. Facts About Womens Absenteeism and Labor Turnover. Washington: U.S. Government Printing Office, 1969.

This study was undertaken to determine a scheduling pattern which would meet the desires of workers and demands of jobs within the administrative branch of the Department of Statistics, University of Kansas. Authors: Helen, Kansas City, Kansas.

The methods of research included: (1) an analysis of the present scheduling pattern; (2) a study of employee absenteeism and turnover; (3) interviews with various hospital dietitians and administrative personnel; and (4) a survey of employee scheduling preferences through use of the questionnaire technique.

The major findings of this study were: (1) the present scheduling pattern did not meet with the expressed preferences of the majority of employees; (2) absenteeism on Saturday was significantly higher than for other days and must be controlled; (3) the turnover rate was excessive and should be decreased to develop a flexible workforce; (4) a rotating schedule with changing days off would satisfy the schedule desires of a majority of employees.

Recommendations were made to effect the implementation of schedules by rotating employees from position to position within the schedule and incorporating the changing day-off concept. Recommendations were also made concerning: (1) development of in-service training program; (2) increase of supervisor - employee rapport; and (3) instructions for recommended work group schedules.

ABSTRACT

A STUDY OF STAFFING AND SCHEDULING WITHIN THE DIETARY DEPARTMENT, UNIVERSITY OF KANSAS MEDICAL CENTER, KANSAS CITY, KANSAS

A Problem Solving Thesis Submitted to the Faculty of Baylor University
in Partial Fulfillment of the Requirements for the Degree of
Master of Hospital Administration

by

Captain LeRoy J. Braswell, AMSC

August, 1970

70 Pages

A copy of this document may be obtained on interlibrary loan from
Stimson Library, United States Army Medical Field Service School, Brooke
Army Medical Center, Fort Sam Houston, Texas.

This study was undertaken to determine a scheduling pattern which
would meet the desires of workers and demands of jobs within the admini-
strative section of the Department of Dietetics, University of Kansas
Medical Center, Kansas City, Kansas.

The methods of research included: (1) an analysis of the present
scheduling method; (2) a study of employee absenteeism and turnover;
(3) interviews with various hospital dietitians and administrative
personnel; and (4) a survey of employee scheduling preferences through
use of the questionnaire technique.

The major findings of this study were: (1) the present scheduling
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(2) increase of supervisor - employee rapport; and (3) instructions for
recommended work group schedules.

BIOGRAPHICAL SKETCH

LeRoy J. Braswell [REDACTED]

[REDACTED] He attended the State University of New York located in Farmingdale, Long Island, graduating in 1956 with a major in food technology. After a period of employment with General Foods Corporation, he entered the United States Army serving as a food inspection specialist.

In 1962 the author was selected by the Army to attend Florida State University. He graduated with a Bachelor of Science degree in 1964 and was commissioned as a Second Lieutenant, Army Medical Specialist Corps. After a year of dietetic internship at Brooke General Hospital the author served as Chief, Food Production and Service at Fort Gordon, Georgia and at Letterman General Hospital, San Francisco, California.

Captain Braswell is a registered dietitian. He is married and the father of three children.