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ABSTRACT

To develop and test techniques for easing the shortage of skilled paramedical personnel and to provide career opportunities for the disadvantaged, this study analyzed the job requirements in paramedical occupations at the Cambridge Hospital, with recommendations for improved utilization. Job descriptions were developed from in-depth interviews with supervisors and paramedical personnel. The study found overlapping functions, unnecessary barriers to hiring and upward mobility, and insufficient inservice training. However, efforts were being made to resolve each of these problems. The interview formats are appended. Volume II, which analyzes job functions, is available as VT 014 990. (BH)

RESTRUCTURING PARAMEDICAL OCCUPATIONS: A CASE STUDY

FINAL REPORT

By HAROLD M. GOLDSTEIN and MORRIS A. HOROWITZ

Sally M. Lapan, Research Assistant

Volume I

A Report To The

OFFICE OF RESEARCH AND DEVELOPMENT
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NORTHEASTERN UNIVERSITY
BOSTON, MASSACHUSETTS 02115

January 1972

ERRATA

on page 108, Table VII-1

Column on Percentage Change should read:

Orderly	-79.3
X-ray Technician	- 8.3
Surgical Technician	-12.5

ACKNOWLEDGEMENTS

This project began in June 1969 and ran for a 31-month period ending January 31, 1972. It is a follow-up of a pilot study financed by the Manpower Administration and completed in September 1968 under the title, Hiring Standards for Paramedical Manpower. The basic idea for the present study developed from a challenge by Dr. Howard Rosen, Director, Office of Research and Development, Manpower Administration, U.S. Department of Labor, to implement the recommendations of the pilot study.

We are indebted to a large number of persons who gave freely of their time and ideas. Dr. Rosen, along with his staff of Mr. William Paschell, Mr. Jesse Davis, Mr. Joseph Collins and Mr. Jack Newman, was extremely helpful in designing the research plan of this project. Mr. Joseph Collins was the project officer and he provided friendly advice and suggestions to the principal investigators during the two and one-half years of the project. Without the assistance of these persons this project could not have succeeded.

A special acknowledgement is also due Dr. James Hartgering, Commissioner of Health for the City of Cambridge, whose cooperation and assistance were instrumental in providing the project investigators access to the information needed in the research. Mr. Les MacLeod, Hospital Director, and Miss Sandra Dodd, Director of Nursing, were cooperative and patient with our endless list of questions, requests and recommendations. They gave generously of their time and their intimate knowledge of the functioning of The Cambridge Hospital.

We are indebted to many persons within The Cambridge Hospital, with whom we had regular contact. Among them are Dr. Alan Spievack, Assistant Director of Surgery and Head of Intensive Care Unit; Dr. Philip Porter, Chief of Pediatrics, Consultant to Neighborhood Health Center; Dr. Francis Comunale, Chief of Anesthesia; Dr. Charles Robinson, former Chief of Pathology; Dr. George C. Hori, Chief of Pathology; Dr. Francis Herzan, Chief of Radiology; Dr. Rahim Aghai, Head of Inhalation Therapy; Mrs. Margaret Murphy, Director of Nursing, City of Cambridge; Mr. John Tenney, Business Manager; Miss Gretchen Heinritz, Director of Social Service; Miss Toni Harris, Supervisor of Neighborhood Health Center; Mrs. Carol Straszheim, Clinical Supervisor of Maternal and Child Health; Mr. Alfred Velucci, Supervisor of Data Processing; Miss Elena Canacari, Clinical Supervisor of Operating Room; Mrs. Sandra Taylor, Administrative Supervisor of Nursing Service; Mrs. Emma Pointdexter, Supervisor of X-Ray Department; Mr. William McCarron, Administrative Lab Assistant; and Miss Michalina Frassa, Personnel. Several head nurses and nurses also aided us greatly. Included in this group are: Miss Beecher, Miss McKinney, Mrs. Lucido, Mrs. Puzo, Mrs. Greene, Mrs. Kirchmyer, Mrs. Fay, Mrs. MacLeod, Mrs. McCarthy, Mrs. Hodges, Miss Rossi, and Miss Miller.

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Research Associate in the Graduate School of Public Administration, Harvard University; Mr. George Lunn, Director of Personnel, Children's Medical Center and a director of the New England Paramedical School; Mr. Robert Morgan, Director of the New England Hospital Paramedical School; Miss Sue Levin of the Massachusetts Nursing Association; Mr. Frank Traverse, former business agent for the AFSCME; Mr. Donald Hull, the AFSCME Director of the paramedical study at the Boston City Hospital; Dr. Eleanor Gilpatrick, Director, Health Service Mobility Study, New York; Mr. Martin Karp, Social Development Corporation; Dr. Fred Klanit, Social Development Corporation; Mr. Harold G. Levine, Director of Education for the American Society of Medical Technologists; Mr. Harvey Berman, business agent for AFSCME.

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U.S.N.H., Chief of Personnel; Lieutenant D. Bohner, U.S.N.H., Administrative Assistant, Radiology Service; and Lieutenant D. E. Klima, U.S.N.H, Assistant Chief of Personnel.

We are indebted for the efforts of our research assistants at Northeastern University: Mr. Paul Webby, Mr. Bruce Webb, Mr. Edward Shea, Mr. Donald Satz, Miss Marie Collings, and Miss Marjorie Stone. We are also indebted to Mrs. Ruth Bougas, R.N., who did most of the observations of paramedical employees at The Cambridge Hospital.

The preparation and typing of the numerous tables and manuscript of this report were done by Miss Domenica Amato, Miss Rosalie Parechanian, and Mrs. Sylvia Goldberg. Their assistance in these chores is hereby acknowledged.

The views and judgments of this study are ours alone and do not necessarily represent those of our consultants or their institutions, the Manpower Administration, the United States Navy, or the Bethesda Naval Hospital. All those who assisted in this project undoubtedly contributed in giving this project whatever success it has. We alone bear the responsibility for the complete study, including the conclusions and recommendations, as well as the errors of omission and commission.

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KEY FINDINGS
BASED ON STUDY OF CAMBRIDGE HOSPITAL

1. THERE IS A SUBSTANTIAL AMOUNT OF OVERLAPPING FUNCTIONS BETWEEN NURSES' AIDE, LPN AND RN, AND SMALLER AMOUNTS BETWEEN OTHER PARAMEDICAL OCCUPATIONS.

2. ARTIFICIAL HIRING STANDARDS, HIGHER THAN NEEDED TO PERFORM THE BASIC FUNCTIONS OF OCCUPATIONS, ARE RELATIVELY COMMON FOR VARIOUS PARAMEDICAL OCCUPATIONS. DESPITE THE CAMBRIDGE HOSPITAL'S FORMAL REQUIREMENTS OF A HIGH SCHOOL DIPLOMA, ABOUT ONE-THIRD OF THE NURSES' AIDES, ONE-EIGHTH OF THE ORDERLIES AND ONE-THIRD OF THE WARD SECRETARIES HAD NOT FINISHED HIGH SCHOOL.

3. THERE ARE EDUCATIONAL REQUIREMENTS AND INSTITUTIONAL BARRIERS THAT PREVENT THE UPWARD MOBILITY OF PARAMEDICAL PERSONNEL FROM ONE OCCUPATION TO ANOTHER.

4. RELATIVELY LITTLE IN-SERVICE OR ON-THE-JOB TRAINING IS OFFERED TO PARAMEDICAL PERSONNEL. THUS, IT IS DIFFICULT TO KEEP UP-TO-DATE IN ONE'S OCCUPATION, AND IT IS DIFFICULT TO ACQUIRE THE REQUIRED TRAINING FOR PROMOTION.

5. DESPITE VESTED INTERESTS AND INSTITUTIONAL BARRIERS, IT IS POSSIBLE TO INSTITUTE CHANGES IN OCCUPATIONAL FUNCTIONS AND STRUCTURE. SUCH CHANGES ARE BEING MADE. A RESTRUCTURING OF FUNCTIONS OF THE RN AND THE LPN HAS BEEN STARTED, AND THE LESS DIFFICULT TASKS ARE TO BE PERFORMED BY THE NURSES' AIDE OR THE NURSING ASSISTANT. ALSO RN'S AND LPN'S ARE BEING TRAINED TO PERFORM FUNCTIONS OF THE EKG TECHNICIAN.

6. IT IS POSSIBLE TO BREAK DOWN THE DUTIES OF EXISTING OCCUPATIONS AND TO INSTITUTE NEW OCCUPATIONS THAT PROVIDE A CAREER LADDER. SUCH CHANGES ARE BEING MADE. A NEW PROMOTIONS LADDER THROUGH IN-SERVICE TRAINING IS NOW PROVIDED BY THE ESTABLISHMENT OF THREE NEW OCCUPATIONS: NURSING ASSISTANT, MEDICAL ASSISTANT AND PHYSICIAN'S ASSISTANT. THE ORDERLY OCCUPATION IS BEING PHASED OUT.

7. HIRING-IN STANDARDS HAVE RECENTLY BEEN LOWERED FOR SOME OCCUPATIONS, MAKING IT POSSIBLE FOR HIGH-SCHOOL DROPOUTS AND OTHER PREVIOUSLY DISQUALIFIED APPLICANTS TO OBTAIN EMPLOYMENT IN OCCUPATIONS THAT ARE NOT DEAD-END. NURSES' AIDES NO LONGER ARE REQUIRED TO HAVE A HIGH SCHOOL EDUCATION, AND THEY HAVE THE OPPORTUNITY OF UPWARD PROMOTION THROUGH IN-SERVICE TRAINING.

8. ON-THE-JOB TRAINING PROGRAMS HAVE RECENTLY BEEN INSTITUTED AT THE CAMBRIDGE HOSPITAL THAT WILL PERMIT DISADVANTAGED MINORITY PERSONS TO OBTAIN EMPLOYMENT IN A PARAMEDICAL OCCUPATION, AND PARAMEDICAL PERSONNEL IN GENERAL TO MOVE UP A CAREER LADDER.

CHAPTER I

GENERAL SUMMARY AND CONCLUSIONS

This research project covered a period of two and one-half years, from June 1969 through January 1972, and its basic objectives were to study and analyze the hiring-in requirements and the functions of paramedical personnel in a single hospital, and to recommend improvements in the utilization of manpower in that hospital. Other objectives were to evaluate the efforts at implementation of the recommendations and to measure the effects of the implementation on the quantity and quality of medical services. The occupations included in this project were: registered nurse, licensed practical nurse, nurses' aide, orderly, ward secretary, surgical technician, psychiatric attendant, X-ray technician, EKG technician, inhalation therapy technician, neighborhood health worker, laboratory technician, and administrative and supervisory personnel.

During the interview period (fall of 1969), a total of 204 paramedical personnel were employed at The Cambridge Hospital. Of these, 179 (87.7 percent) were interviewed.

In addition, approximately 300 hours were spent observing the functions of 75 paramedical personnel, who were also interviewed. The observations were made to verify the in-depth interviews.

Summary

Based on the interviews and observations, detailed job descriptions, including specific job functions, were compiled. An analysis was then made of the job structures, and of the efficiency of the existing allocation of specific job functions.

In December 1970 thirteen specific recommendations were made to The Cambridge Hospital. The recommendations were concerned with the need for a personnel department, an organizational chart, the establishment of three new paramedical occupations (nursing assistant, medical assistant, physician's assistant), and in-service training programs to facilitate vertical mobility. We also recommended the restructuring of certain occupations (registered nurse, licensed practical nurse, and nurse's aide), the elimination of the job category of orderly, and a reorganization of the laboratory to encourage contract laboratory work for neighboring hospitals (for specific recommendations, see Chapter VI in this volume).

The period from December 1970 until July 1971 was spent in aiding and observing the implementation of our recommendations. The reactions of various administrative and other personnel at the hospital to our recommendations were recorded and can be found in Chapter VII.

The changes that were made at The Cambridge Hospital during this period must be attributed principally to the Commissioner of Health, the marked change in the medical staff of the hospital, and the nursing and administrative personnel. Without their willingness to encourage change and to experiment with change, our recommendations, good or bad, would never have received a test. We believe that our presence at the hospital and our interviews and conversations with many of the paramedical personnel provided some motivating force toward the institution of changes and reorganization. Nevertheless, the medical staff and the administration of the hospital must be credited with the progress made.

The hierarchy in general nursing at The Cambridge Hospital and at most other hospitals in the United States is as follows:

Group A 1) Nurses' Aide
2) Orderly

Group B	3)	Licensed Practical Nurse
Group C	4)	Registered Nurse; Graduate Registered Nurse
	5)	Head Nurse
	6)	Nurse Supervisor
	7)	Director of Nursing
Group D	8)	Interns
	9)	Residents
	10)	Chiefs of Medicine

With few exceptions, there is no upward mobility between Groups A, B, C, and D. Should a nurses' aide or an orderly have the desire and ability to rise to the position of LPN, his or her previous training and experience cannot be credited towards the requirements of the higher occupation. Should an LPN have the desire and ability to become a registered nurse or any of the occupations in Group C, her previous training and experience are of no formal value. The LPN must start from scratch at a traditional school of nursing in order to earn her degree as a registered nurse or graduate registered nurse.[1]

Our findings in this research project lead us to the conclusion that this lack of vertical mobility is inefficient and wasteful in the use of paramedical manpower.

Our recommendations in December 1970 to The Cambridge Hospital were aimed at the more efficient utilization of paramedical manpower. Specifically, we recommended:

1. An increased use of lower level personnel such as nurses' aides and nursing assistants to complement and, to a certain extent, supplant the use of registered nurses and LPNs on lower level, "easy" functions;

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1. There are several programs in the United States which do give advanced credit to LPNs who wish to become RNs. One such program has recently been started at Northeastern University; however, the program is very limited (15 students). In general, such programs are full time and require the participants to give up their jobs.

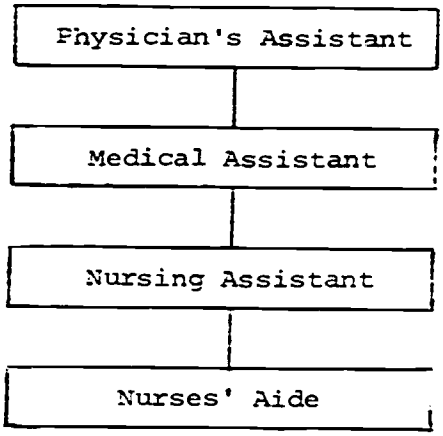
2. A restructuring of the jobs of RNs and LPNs, so they would perform fewer of the lower level, "easy" functions;

3. In-service training which would allow nurses' aides to advance to the position of nursing assistant;

4. In-service training which would allow a nursing assistant to rise to the position of medical assistant;

5. In-service training which would allow a medical assistant to rise to the position of physician's assistant.

In effect, our recommendations included a new occupational ladder parallel to the traditional occupational hierarchy of the hospital. This new set of occupations as indicated below, would allow upward job mobility by permitting experience and on-the-job training as a basis for promotion.



A person with desire and ability could climb successive steps by receiving in-service training and education with no loss of income and no duplication of formal training.

In summary, the state of our December 1970 formal recommendations to Cambridge Hospital is as follows:

1. A hospital personnel director will be requested from the City of Cambridge by the hospital, and a personnel department will be established;

2. An organizational chart has been accepted by the administration of the hospital. It will be used in structuring future staffing policy;

3. An in-service training program will begin in September 1971 to upgrade nurses' aides, who are entry-level personnel, to the new occupation of Nursing Assistant.

   The position of physician's assistant has been established in the medical department of the hospital and at present three ex-corpsmen are receiving in-service training for this new occupation. In-service education programs have been instituted, as recommended, for RNs and LPNs;

4. RNs are now performing fewer Group I functions ("easy" functions), while a significant number of nurses' aides have been hired to perform these tasks;

5. Approval has been given to provide increases in salary for all those paramedical personnel who successfully complete any in-service, upgrading program;

6. The AFSCME union, representing the nurses' aides and orderlies, has strongly endorsed the proposal for training and upgrading paramedical employees;

7. The hospital administration will combine this study's detailed interview formats with the less detailed job descriptions arrived at by the hospital's Job Description Committee;

8. Orderlies at the hospital are now being phased out;

9. The radiological technicians are now attending weekly conferences of surgeons to receive explanations of new procedures and techniques;

10. A number of various paramedical employees (RNs, LPNs) have been exposed to previously non-existent training in the use of EKG equipment;

11. An additional neighborhood health worker has been employed and several others will be employed by the fall of 1971;

12. The inhalation therapy technicians are now exposed to occasional lectures on techniques by the department head. However, no formal, in-service training program has been instituted as yet;

13. The hospital's laboratory has actively sought the laboratory work of neighboring institutions, and this effort has been successful.

Over this two-year period, 1968-1970, hospital costs and utilization at The Cambridge Hospital have changed as follows:

1. A 19.7 percent increase in bed complement;

2. A 38 percent increase in in-patient days;

3. A reduction of the average length of stay from 9.6 to 9.3 days;

4. A 34 percent increase in out-patient clinic visits;

5. A reduction of the hospital's loss as a percent of expenses from 23 percent to 4.3 percent.

Due largely to our presence, the following job requirements were changed during the period from September 1969 to June 1971:

1. The requirement of a high school education for NAs was dropped;

2. Specialized practical experience for a hematology laboratory specialist was reduced from two to one year;

3. Psychiatric attendants no longer require a high school education;

4. Entry requirements are now formally set up for physician's assistants;

Entry requirements for all paramedical personnel included in this study were reviewed by the newly-formed Job Description Committee.

During the same period when both of the above sets of changes were taking place at the hospital, a significant change in staffing was also made, primarily in the following areas:

1. The number of orderlies was reduced from 14.5 (full-time equivalent) to 3;
2. The number of RNs increased by only 6.7 percent;
3. The number of LPNs increased by 67.5 percent;
4. The number of NAs increased by 70.9 percent;
5. The number of ward secretaries increased by 40 percent;
6. The average increase for all the paramedical workers included in this study during the period September 1969 to June 1971 was 28.9 percent.

Conclusions

While the use of hospital facilities has increased and the quality of medical care has probably not declined, there has been a disproportionate increase in the use of paramedical personnel with little formal training. The following general conclusions can be drawn from this research:

1. Hiring-in standards at The Cambridge Hospital were unnecessarily high. Employees with less than the specified required experience and training were found to be sufficiently competent to perform functions of a difficult nature, not commonly associated with entry-level occupations.
2. Those paramedical employees with more sophisticated training and experience (i.e., RNs, LPNs, ex-corpsmen) were found to be under-utilized. A reorganization of their functions (i.e., eliminiation of "easy" tasks) could lead to a more efficient utilization of their training and experience.

3. Restructuring paramedical occupations can lead to greater hospital efficiency, the elimination of possible shortages of paramedical personnel, and the minimization of dead-end, entry-level jobs.

4. A liberalization of hiring-in requirements and the establishment of vertical mobility (with in-service training) should make possible greater utilization of persons from minority and disadvantaged groups.

5. Realistic career ladders are possible once the traditional hospital hierarchy has been short-circuited. For example, in-service education and training for nursing assistants, medical assistants, and physician's assistants can provide entry-level personnel with attainable upward mobility.

6. The end result of successful restructuring of paramedical occupations could mean a more efficient health care delivery system, i.e., increased quality and quantity.

7. There has not been sufficient time for the hospital to implement all the changes recommended. Many changes and their results will not occur or surface for at least a year or two.

CHAPTER II

INTRODUCTION

This study has focused on one facet of American health care -- the utilization of paramedical manpower and the restructuring of paramedical occupations. The significance of this single aspect of health care is indicated by the following quotation:[1]

> There is a crisis in American health care. The intuition of the average citizen has foundation in fact. He senses the contradiction of increasing employment of health manpower and decreasing personal attention to patients. The crisis, however, is not simply one of numbers. It is true that substantially increased numbers of health manpower will be needed over time. But if additional personnel are employed in the present manner and within the present patterns and 'systems' of care, they will not avert, or even perhaps alleviate, the crisis. Unless we improve the system through which health care is provided, care will continue to become less satisfactory, even though there are massive increases in cost and in numbers of health personnel.

Undoubtedly, changes in various aspects of health care and its delivery to the public are important. Isolating one set of factors, viz, paramedical manpower, for study and analysis may overlook other interrelated factors, but at a minimum such a research project concentrates an effort on a manageable research item. However, it may be important to set the scene, or perhaps the framework, within which paramedical manpower functions.

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1. Report of the National Advisory Commission on Health Manpower (Washington, D.C.: U.S. Government Printing Office, 1967, p. 2).

There are a number of health care indicators which present a general picture of the health situation in the United States:

1. The Magnitude and Growth of Health Expenditures. Health care expenditures grew from 4.6 percent of gross national product in 1950 to 5.3 percent in 1960.[2] By 1969 they were approximately 7 percent of the GNP, and by projection will be 8 percent to 10 percent by 1980.[3]

2. Death Rates and Infant Mortality Rates. In 1968, of 70 countries listing crude death rates, 44 had lower rates than that of the United States, and ten countries had lower infant mortality rates than that of the United States.[4] Within the United States the nonwhite death rate for both the general population and infants was about twice that of the white rate.[5]

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2. Alfred M. Skolnik and Sophie R. Dales, "Social Welfare Expenditures, 1968-1969," Social Security Bulletin, Vol. 32 (December 1969), p. 12.

3. Dorothy P. Rice and Mary F. McBee, "Projections of National Health Expenditures, 1975 and 1980," Research and Statistics, Note No. 18, U.S. Department of Health, Education and Welfare, Social Security Administration (Washington, D.C.: Government Printing Office, October 30, 1970), passim.

4. United Nations, Statistical Yearbook: 1969 (New York: 1970), pp. 72-80.

5. U.S. Bureau of the Census, Statistical Abstract of the United States: 1970 (Washington, D.C.: U.S. Government Printing Office, 1970), p. 49.

3. Per Capita Hospital Facilities and Health Personnel. In 1967, of 206 countries listing hospital beds per capita and physicians per capita, 45 had more beds per capita than the United States, and 9 had more physicians per capita than the United States.[6] In 1960 the estimated number of persons employed in various occupations in the health field represented 3.7 percent of the civilian labor force; by 1968 the percentage had increased to 4.7 percent.[7] See Table II-1 for estimated and projected employment in health career jobs, and for estimated shortages.

4. Geographical Distribution of Health Care Facilities and Manpower. In 1968 the average for the United States showed 7.9 beds per 1,000 population; among individual states the rate per 1,000 population ranged from a low of 5.3 beds in New Hampshire to a high of 19.6 beds in the District of Columbia. In 1967 the United States averaged 158 active physicians per 100,000 population; but Mississippi had a low of 82, while New York had a high of 228 physicians per 100,000 population. The national average of registered nurses per 100,000 population was 313; in Mississippi there were only 157 per 100,000 while in Connecticut there were 536 per 100,000.[8]

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6. United Nations, Yearbook: 1969, p. 84.

7. U.S. Department of Health, Education and Welfare, Health Resources Statistics: 1969, (Washington, D.C.: U.S. Government Printing Office, 1970), passim.

8. Ibid., passim.

Table II-1 Projected Health Career Employment Requirements

Occupation	Estimated employment, 1968	Projected employment requirements, 1980	Percent change, 1968-80	Average Annual Openings, 1968-80		
				Total	Caused by employment change	Caused by death and retirement
Physicians	295,000	450,000	53.1	20,000	13,000	7,000
Osteopathic physicians	12,000	18,500	54.2	800	500	300
Dentists	100,000	130,000	31.7	4,900	2,600	2,300
Dental hygienists	16,000	33,500	109.4	2,400	1,500	900
Dental laboratory technicians	27,000	37,500	38.9	2,100	900	1,200
Registered nurses	660,000	1,000,000	51.5	65,000	28,000	37,000
Optometrists	17,000	21,000	23.5	800	300	500
Pharmacists	121,000	130,000	7.0	4,400	700	3,700
Podiatrists	8,500	9,500	11.8	200	100	100
Chiropractors	16,000	19,000	18.8	900	250	650
Occupational therapists	7,000	19,000	171.4	1,500	1,000	500
Physical therapists	14,000	36,000	157.1	2,800	1,800	1,000
Speech pathologists and audiologists	18,000	33,000	83.3	2,300	1,300	1,000
Medical laboratory workers	100,000	190,000	90.0	12,800	7,500	5,300
Radiological technologists	75,000	120,000	60.0	7,300	3,800	3,500
Medical record librarians	12,000	20,000	66.7	1,400	700	700
Dietitians	30,000	42,100	40.3	2,700	1,000	1,700
Hospital administrators	15,000	22,000	46.7	900	600	300
Sanitarians	10,000	14,000	41.0	600	300	300
Veterinarians	24,000	34,000	41.7	1,400	800	600
Licensed practical nurses	320,000	600,000	87.5	48,000	23,000	25,000
Hospital attendants	800,000	1,500,000	87.5	100,000	58,000	42,000

Today's Personnel Shortages

Occupation	Additional personnel needed in 1969			Total needs as a percent of employment in each occupation
	Total	To fill budgeted vacancies	Vacancies not budgeted[1]	
Registered nurses	39,400	32,300	7,100	8.5
Nursing aides, orderlies and attendants	26,000	16,800	9,200	4.6
Licensed practical nurses	19,200	15,300	3,900	9.4
Clinical laboratory technologists	2,700	2,300	400	6.1
Social workers	2,300	1,200	1,100	15.1
Physical therapists	1,600	1,300	300	18.6
Inhalation therapists and aides	1,400	900	500	9.6
Surgical aides	1,200	900	300	5.1
Occupational therapists	900	600	300	16.7
Physical therapy assistants and aides	600	400	200	6.9
Social work assistants and aides	500	200	300	11.6
Occupational therapy assistants and aides	400	200	200	7.8
Speech pathologists and audiologists	200	100	100	11.1

rce: Health Manpower Resources, Report No. 1, Preliminary Tabulations from the Survey of Health Manpower in Hospitals, Public Health Service, Bureau of Health Profession Education and Manpower Training, July 1970.

1. However, needed in order to provide optimum care.

5. Fiscal Capacity to Bear Costs of Medical Care. In 1969 the average per capita income in the United States was $3,680, ranging from a low of $2,192 in Mississippi to a high of $4,537 in Connecticut. However, even the low per capita income in Mississippi was surpassed by only eight countries out of 85 listing per capita income.[9]

The Utilization of Medical Manpower

Restructuring paramedical personnel and other problems in the health field are related in great measure to a single issue - the doctor shortage. Rashi Fein summarizes this unstudied problem area as follows:

A. Are there tasks now performed by the physician which could be done as well, or even better, by others?

B. Are there tasks which the physician performs and which could generally be done as well by others but which on relatively rare (and perhaps unpredictable) occasions involve complications which those less trained could not handle?

C. Are there tasks done by physicians which, if done by others, would be performed less well, but would, as a result of the increase in manpower supply, be done more often?[10]

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9. U.S. Bureau of the Census, Abstract of U.S., pp. 320 and 810.

10. Rashi Fein, The Doctor Shortage (Washington, D.C.: Brookings Institute, 1967), p. 116.

This questioning of the functions of the physicians brings into focus the problems of the functions and duties of paramedical personnel. The key purpose of interest in better utilization of paramedical personnel is to improve and increase medical services. If medical costs were to fall with improved utilization, such a saving would be a positive by-product.

Under a grant from the Manpower Administration, U.S. Department of Labor in 1967, the Department of Economics of Northeastern University investigated on a pilot basis one aspect of the difficulties hospitals faced in filling job vacancies. That research report was completed September 1968 under the title, Hiring Standards for Paramedical Manpower.

The key objective of that study was to explore the duties performed by employees in selected paramedical occupations and the characteristics and skills that hospitals required of these employees. A second objective was to compare the hiring standards, as measured by the required education, training, and work experience, with the actual duties and functions performed on the job. The hypothesis tested was that the hiring standards established by hospitals were higher than necessary for the duties performed, with the result that it was difficult to fill many paramedical jobs.

The findings and conclusions of that pilot study showed that, despite manpower shortages in many of the paramedical occupations, various barriers existed which made it difficult to fill these shortages. Arbitrary licensing of personnel was sometimes required in certain occupations. At

times, an unnecessarily high level of education and training was set as a prerequisite for entering some occupations. Paramedical personnel were frequently not utilized efficiently, and there was considerable overlap of job functions between occupations which had significantly different hiring-in standards. Training programs with unduly high entrance requirements had lengthened training time beyond the reasonable need of the occupation. Paramedical jobs were so structured that there were few opportunities for upgrading and promotion.

On the basis of these findings and conclusions, we made the following recommendations on hospital administration:

1. Hospitals should re-examine their paramedical occupational structure to determine the job functions required of each occupation.

2. Hospitals should re-structure the functions of various occupations, making better use of the skills acquired by greater amounts of education and training. This would increase the need for persons with less education and less training who could, over time, be trained on the job for the higher-rated occupations.

3. Hospitals should establish hiring-in standards that are relevant to the functions to be performed by the occupation; licensing and education requirements that are not needed for satisfactory performance should be eliminated.

4. Hospitals should coordinate their hiring standards at some minimum which will still provide the needed quality of service while utilizing a greater proportion of disadvantaged persons. This may help eliminate the manpower shortage.

5. Where relevant, hospitals should expand their on-the-job training programs for more of the paramedical occupations, and workers should be trained in the functions significant to the occupation.

6. Wherever possible, hospitals should develop a job promotion ladder, with the necessary training furnished on the job. Thus, by eliminating dead-end jobs and creating promotion opportunities, hospitals will attract better personnel and reduce turnover.

After a number of discussions and meetings with Dr. Howard Rosen and his staff at the Manpower Administration, the objectives and research design of this project were formalized.

Objectives

The principal objectives of this research project, entitled Restructuring Paramedical Occupations, are the following:

1. To study and analyze the hiring-in requirements and the duties and functions of paramedical personnel in a single hospital;

2. To recommend changes to restructure occupations and to improve the utilization of manpower in that hospital;

3. To evaluate the successes and failures involved in the implementation of the recommendations;

4. To measure changes in quantity and quality of medical services resulting from the implementation of the recommendations; and to relate changes in service to such factors as changes in hiring-in standards, job duties and functions, and job structure.

The duration of this project was two and one-half years from June 1969 through December 1971. Our greatest research effort was devoted to objectives one and two listed above. In this effort we interviewed 179 paramedical and related employees out of a total of 204, or about 87 percent. (See Table II-2). While the major set of recommendations was made to The Cambridge Hospital in December 1970, other recommendations had been made prior and subsequent to December. Finally we had to determine the impact our recommendations had on solving the

Table II-2 Number and Percentage of Personnel Interviewed by Occupation

OCCUPATION	NUMBER INTERVIEWED	TOTAL NUMBER EMPLOYED	PERCENTAGE INTERVIEWED
Registered Nurse	45	51	88.2
Licensed Practical Nurse	10	17	58.8
Nurses' Aide	28	31	90.3
Orderly	8	8	100.0
Ward Secretary	6	9	66.7
Surgical Technician	7	8	87.5
Psychiatric Attendant	7	7	100.0
X-Ray Technician	12	12	100.0
EKG Technician	1	1	100.0
Inhalation Therapy Technician	4	4	100.0
Neighborhood Health Worker	1	1	100.0
Laboratory Technician:			
1. Hematology Technician	2	2	100.0
2. Blood Bank Technician	2	3	66.7
3. Bacteriology Technician	2	2	100.0
4. Cytology Technician	1	1	100.0
5. Histology Technician	2	2	100.0
6. Urinalysis and Parasitology Technician	1	1	100.0
7. Chemistry	2	2	100.0
Administrative and Supervisory Personnel	38	42	90.5
TOTAL	179	204	87.7

hospital's shortage of paramedical personnel and on the delivery of health services to the community.

An additional objective of the project was to study and analyze the problems encountered when a hospital introduces some basic changes in its occupational structure. Such an analysis may help determine whether obstacles to implementation are unique to a specific hospital or are basic to all hospitals. After we recommended changes, our main effort was to aid the hospital to implement the recommendations and to maintain a detailed account of the ease and difficulties encountered in the efforts at implementation. Implementation by one hospital could have a "demonstration" effect upon all other hospitals which have the same or similar problems with paramedical personnel and with the delivery of quality medical service to the community. Also, our findings can point up the legal, institutional and other barriers that have impeded the recommended changes in The Cambridge Hospital and are likely to impede similar changes in other hospitals.

Our interest was to develop recommendations that would be applicable to and implemented by many hospitals across the nation. It was therefore important to select a hospital that was somewhat typical or representative of many others in the United States and that was prepared to cooperate in our research project. The following criteria were developed for the selection of a hospital:

1. A modest size hospital;
2. A hospital with progressive and forceful administration;

3. A hospital administration with a genuine interest in efficiency, equitable employment opportunities and, most importantly, the delivery of quality service to the public for a reasonable and equitable cost.

Crucial to the research was the complete and enthusiastic cooperation of a hospital with characteristics such as those listed above. The Cambridge Hospital, Cambridge, Massachusetts, under the supervision of Dr. James Hartgering, Commissioner of Health, Hospital and Welfare for the City of Cambridge, met these criteria.

We should not leave the impression that, because the administration of The Cambridge Hospital and several of the professional organizations, unions and physicians cooperated in this project, there was or is now complete harmony at the institution. The Cambridge Hospital faces problems similar to those of most hospitals in this country; however, since it is a city hospital, many of its problems are compounded. Unlike many hospitals, The Cambridge Hospital and its administrators were willing to cooperate in the study, and from the start they indicated a willingness to implement recommended changes.

On October 15, 1969, the Final Report Phase I -- Restructuring Paramedical Occupations (2 volumes) was submitted to the Office of Research and Development, Manpower Administration, U.S. Department of Labor. This report covered essentially item number (1) under objectives. Final Report Phase II -- Restructuring Paramedical Occupations, which was submitted in December 1970, dealt primarily with item (2) of the principal objectives. The final report, Restructuring Paramedical

Occupations, incorporates all phases of the project and makes findings and recommendations which may be of value to the federal government, hospitals and others across the nation.

CHAPTER III

BACKGROUND

Before the Manpower Administration granted funds for this research contract, an appropriate hospital had to be located that was prepared to cooperate in the investigation. This proved to be a difficult undertaking. The principal investigators first approached a large metropolitan private, non-profit hospital. After a detailed explanation of the proposed project, we were refused entry on the grounds that "the hospital was too busy and the project would take up too much time of the administrators and the paramedical personnel within the hospital." We received a similar reply from several other large metropolitan private, non-profit hospitals.[1]

We then approached a smaller private, non-profit hospital. After the project was carefully explained to the Hospital Administrator, she realized that the hospital might benefit from this project and supported our proposal. However, the board of directors of the hospital rejected the idea on the grounds that "it would unduly disrupt the hospital and would bring undesirables into the area." Several weeks later, during the next meeting of the hospital's board of directors, several board members who had been absent from the first meeting reopened the subject because

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1. We were refused entry by several hospitals on the grounds that the project "would be disruptive," "would create tensions among various factions within the hospital," or "would bring undesirables into the area."

they were "furious" that the proposal to cooperate had been rejected initially. More discussion ensued, and a second vote was taken which approved the project. However, by that time The Cambridge Hospital had been approached and had given its approval to the project.

We approached The Cambridge Hospital in early spring of 1969, and our principal contact was with the Commissioner of Health and Hospital for the City of Cambridge. We described the objectives of our research and the methodology we planned to use. We explained the possible benefits to the hospital that could result from the project, but we also noted the possible problems that could occur. Any changes in job duties and functions recommended by the study would be impinging on vested interests and could cause discontent and concern among personnel. Nevertheless, the Commissioner of Health and Hospital supported the project from the beginning and was eager to participate.

After the research contract was awarded by the Manpower Administration, the Commissioner continued to give his enthusiastic support to the project. However, the Assistant Administrator of the hospital and the Director of Nursing took a more cautious approach to the research. We did receive their cooperation, but at times it was given either skeptically or grudgingly.

The Cambridge Hospital

The Cambridge Hospital was established in 1917 under a State Charter for the purpose of providing for the "sick poor" of the City of Cambridge. Its small, three-strory, rectangular building housed some fifty hospital beds and was conveniently located in the center of the city. It was owned, operated and financed by the City of Cambridge, and staffed, for the most part, by civil service employees.

Eventually, the hospital felt the need to expand, and in 1946 two additional wings were added -- a diploma school of nursing and a new 100-bed building, mainly designed for maternity cases. The hospital then consisted of three buildings -- Main, Maternity, and Nurses' Residence -- and could accommodate approximately 250 patients, in large open wards. The intern and resident medical staff were predominantly foreign-trained, and they frequently encountered language difficulties in communicating with patients. The attending staff spent as much time with the house staff as their private practices would permit, but the overall situation left much to be desired, both in terms of patient care and staff education.

As the years passed, it became increasingly evident that some important changes had to be made. The physical facilities were either deteriorating or becoming obsolete; the annual hospital deficit was increasing; the overall reputation of the hospital was poor; and an adequate house staff was becoming harder to recruit.

The Hospital Director, James Collins, a physician, had repeatedly requested that the City Council appropriate funds for the construction of a new hospital. Although the proposal was seriously considered on several occasions, the request was never approved. In 1962 the director resigned.

Not long thereafter, the city manager appointed an experienced lay hospital administrator, Theodore Austin; and plans for the construction of a new hospital soon were approved by the City. The situation in general began to look promising. What seemed like a sudden turn of events may not have been coincidental with the fact that, shortly before, the National Broadcasting Company had selected the old Cambridge City Hospital as the site of a nationally televised "White Paper" documentary which depicted in a somewhat embarrassing light, the plight of the modest-sized urban hospital.

In the three years from 1963 to 1966, the hospital saw more change than it had experienced in the 46 years of its existence. Harvard Medical School agreed to an affiliation whereby it would appoint full-time chiefs of services and would supply the hospital with residents. Data processing procedures were introduced on a large scale, and the financial picture improved. One of the old buildings was razed, and a new $10 million facility was begun in its place.

The impact of these rapid changes overwhelmed many of the hospital staff. Most of the employees were older (over 50) and had worked for

the hospital for many years with little or no change in their functions and responsibilities. Suspicion and some fear were not uncommon reactions to the changes.

The community physicians also were affected by the basic changes. Harvard appointed new chiefs of various medical services and filled the hospital with bright, energetic residents. New policies were issued, new procedures instituted, and new systems, implemented. Thus, the local doctors, as well as the hospital employees, became wary of the new medical environment.

During this transition period, a number of strains became evident, and people began "taking sides." Local politics became enmeshed with some of the issues, notably the closing of the nursing school, allegedly for economic reasons. For a number of reasons, some of which are still unclear, the director of the hospital resigned in late 1966 and moved to a more lucrative position at a considerably larger institution out of state. A new, relatively inexperienced administrator was soon appointed; but after a short period of status quo administration, he was asked to resign by city officials. Allegedly he was not sufficiently qualified for the position and was judged to be "too nice a fellow" and "too easy a mark" to maintain sufficient stature for the job. It was not until January 1970 that another administrator, Leslie MacLeod, was appointed as director.

In early 1967 after a Harvard-directed comprehensive study was completed of the overall health needs of the Cambridge community, several municipal ordinances were amended which had an important impact on the hospital. The previously autonomous Health Department, Cambridge Hospital and Welfare Department were combined into a single unit under the direct charge and supervision of a Commissioner of Health, Hospital and Welfare. This legislation set the stage for a new concept in the delivery of health services, the operational impact of which remains to be seen.

In the same year (1967), Dr. James T. Hartgering, a physician unusually well-versed in both administrative and medical matters, was appointed as commissioner. Being a strong advocate of the potential of technology in medicine, he wasted little time in contracting for high speed computer services, automated clinical laboratory testing, and proceeded to investigate computerized multiphasic screening (which is still in the planning/development stage). Between 1967 and 1970 Dr. Hartgering also acted as director of the hospital.

Rapid change with resulting stress situations on all levels -- political, professional and social -- is still one of the most striking characteristics of The Cambridge Hospital.

CHAPTER IV

METHODOLOGY

In order to develop a methodology for the analysis of the paramedical job structure, we spent considerable time reviewing the literature on job analysis and occupational structures. Of the many conceptual frameworks reviewed, three--those of Dr. Sidney A. Fine, Dr. Eleanor Gilpatrick, and Dr. John P. Decker--seemed possibly adaptable to our study.

Other Relevant Studies

Sidney A. Fine's conceptual system, Functional Job Analysis (FJA), provides the researcher with these tools: "(1) a conceptual system defining dimensions of work activity and thus a way of conceiving the world of work, (2) an observational method and thus a way of looking at people at work, and (3) a method of analysis, of evaluating the design of work and its performance." The primary elements in Fine's Functional Job Analysis system are as follows:

1. A fundamental difference must be made between what gets done and what workers do to get work done.

2. What workers do, insofar as their job content is concerned, they do in relation to three primitives: things, data, and people.

3. Workers function in different ways in relation to each of these primitives. Thus, in relation to things, workers draw on physical resources; in relation to data, on mental resources; and in relation to people, on interpersonal resources.

4. Although the tasks performed by workers appear infinite in number, it is possible to isolate a small number of common definitive functions.

5. The functions related to each primitive are hierarchical and ordinal, proceeding from simple to complex. Thus, to indicate a particular function as reflecting the requirements of a job is to say that it includes the requirements of lower functions and excludes the requirements of higher functions.

6. The three hierarchies provide two measures for a job:

   Level: a measure of relative complexity in relation to things, to data, and to people.

   Orientation: a measure of relative (proportional) involvement with things, data, and people.

7. The hierarchies of functions also describe a progression from much prescription/little discretion in terms of worker instructions at the least complex level to much discretion/little prescription at the most complex level.

8. Human performance is seen as involving three types of skills: adaptive, functional, and specific content:

   Adaptive skills refer to those competencies which enable an individual to accept and adjust to the physical, interpersonal, and organizational arrangements and conditions in which a job exists, or to manage himself in a job environment.

   Functional skills refer to those competencies which enable an individual to relate to things, data, and people (orientation) in some combination and to a degree of complexity appropriate to their abilities (level).

   Specific content skills refer to those competencies required to perform a specific job according to the specifications of the employer and according to the standards required to satisfy the market.

Dr. Eleanor Gilpatrick has developed a methodology which she used in her Health Services Mobility Study, City University of New York. The basic unit of her job analysis method is the task, which she

defined as "that set of elements all of which would be needed to produce an identifiable output which would be used, acted upon, or advanced in production by an individual who may be the performer or someone else."

A task may be identified "in terms of (1) the output produced; (2) what is used in its performance; and (3) the special kind of co-workers, recipients or respondents involved (if any)." Tasks may be subdivided into elements which have no purpose or output outside the context of the task. Tasks may also be clustered into a task conglomerate, defined as two or more tasks done by the same performer. Tasks may be further classified by type. A preparation task has as its purpose the making ready of materials, instruments, equipment, information or people so that the same task performer can perform an execution task or a series of execution tasks. An execution task has as its output a new condition, a performed service, a new physical or mental state, or a physical good that is usable by itself or as a unit in a series of production steps. A termination task has as its purpose the return of equipment, materials, information or people to an appropriate inactive state, such as storage or rest.

In Dr. Gilpatrick's method, tasks are identified independently by a team of analysts, or observers, and further clarified and specified by an interview with the performer whose work has been observed. The analysts then compare their resulting lists of tasks for reliability.

Factor analysis may then be applied to identify the interrelation of skills and knowledge categories of tasks to develop "skill families" and task clusters. The data outputs can be used for job restructuring and/or the development of logical job ladders, as well as the reasonable alteration of job education and training requirements.

The methodology of Dr. John P. Decker, Professor of Human Engineering at Arizona State University, relies heavily on interviewing. His procedure is termed evental analysis. Essentially, evental analysis reduces or simplifies intangibles, abstract key statements to statements about observable, fundamental real objects and real events. Every object is seen as a system of component objects and is itself a component of a larger system, and there is a natural size-ordering for both systems and events. A problem thus becomes an undesired object or event, the solution to which becomes a series of events by which an undesired object or event is transformed to or replaced by a desired one.

> A skill "can be defined in terms of performance of a practical test where the examinee is required to perform a complete procedure within specified limits of time and accuracy. These two measurables, time and accuracy, provide an overall test for competence on all steps of the procedure, and thus steps need not be considered individually."

Decker's study was confined to distinguishing experience and skill levels among laboratory workers. He developed a list of problems (observations with erroneous results) with explanations and corrective actions by searching standard textbooks and corroborating the list of problems with several technologists. Decker's assumption was that

that the demand for laboratory assistants is great and the demand will continue.

Productivity, Personnel, and Problems of Hospital Clinical Laboratories -- A Study of the Working Patterns of Hospital Laboratory Technicians and the Factors that Influence Them is the title of a research project completed January 1969 by Dean S. Ammer, Bureau of Business and Economic Research, Northeastern University. The project was supported by the Public Health Service, Division of Physician Manpower, Bureau of Health Manpower.

In this study, about 300,000 observations were made of about 200 technicians and the typical technician was observed for the equivalent of about 400 working hours. Dr. Ammer states, "the simple fact is that laboratory technicians spend about 80 percent of their time on activities that cannot be directly related to any useful output."

One recently completed study focuses on employed LPNs. The Final Report-Part I, Functions of Employed LPNs by Tomlinson, Bailey, Hindhede and Langdon, University of Illinois, College of Education, January 1969, was completed under a contract with the U.S. Department of Health, Education, and Welfare, Office of Education, Bureau of Research. The main thrust of the research project was and is curriculum organization and re-evaluation:

> Statistical analysis of the importance rankings of functions by LPNs provided conceptual clusters of activities and subsequent identification of roles.

> This framework along with the degree of responsibility in performance and the extent of functions performed should provide indices for evaluation of present curricula and organizational patterns for educating practical nurses. Increasing numbers of practical nurses are in roles of assistants to physicians and in administrative-supervisory capacities. Insistence upon narrow and unrealistic definitions of performance, contrary to observed and reported evidence by LPNs and RNs actually employed in the field, will contribute to inappropriate educational experiences for job requirements.

The methodology and general procedures used were developed by Professor William J. Schill in a prior study of industrial technicians. A detailed report of this investigation may be found in Schill and Arnold, Curricula Content for Six Technologies (Schill, 1965).

For our project the following of Schill's conclusions is important:

> Personal interviews were utilized to obtain data which permitted the identification of major experiences, educational variables, and personal characteristics that were related to the current positions and functions of the LPNs. The value of the personal interview in a one-to-one relationship was conceived to be of significant importance to obtain consistent and accurate classification of data and the opportunity to pursue a response for clarification.

Our methodology goes one step further, by using the interview method (with limited amounts of observation) along with a much more complete and exacting definition of each function. In this way we hope to avoid any bias or personal interpretation by the interviewer on exactly what was

meant by the response of each performer.

Another recently completed research effort is Allied Health Manpower: Trends and Prospects, a project completed in 1969 by Harry I. Greenfield and Carol A. Brown, for the Manpower Administration, U.S. Department of Labor. This study covers a broad range of subjects with emphasis on improvement in recruitment, education and training, and utilization of allied health manpower. Of particular note for our project's purpose are their recommendations on future research needs. They are as follows:

(1) More demonstration projects utilizing different core and non-core staffing patterns are needed to yield information on optimum utilization and on productivity.

(2) Studies of job dissatisfaction among those currently employed would also reveal a great deal about internal hospital management problems as well as about allied health personnel in general -- their organizations, their aspirations, and the like.

(3) Although there is information readily available concerning the amount of education and training desired or required for the various occupations, there is almost no information on how much education the workers actually have, how much they actually need, or how much they actually utilize. Support for research in this area should be expanded.

Methodology and Procedures

Developing a sound methodology that was feasible in the milieu of a hospital and that would furnish us with reliable information, was an arduous task. By using relevant ideas from other research we developed our own methodology for the various phases of our research project.

A. Methodology Used in Gathering Initial Basic Data -- Phase I

1. In-depth interviews were held with supervisors of the eleven paramedical categories included in this study in order to elicit from them a complete and exact list of assigned tasks and responsibilities of the employees under their jurisdiction (the terms function and task are used interchangeably throughout this study).

2. In-depth interviews (ranging in time from 1½ to 2½ hours each) were held with several paramedical employees in each of the eleven occupational categories to elicit from them a complete and exact list of performed duties, tasks and responsibilities.

3. These two independently arrived at job descriptions were then compared. If one included a task or an element of a task not described by the other, it was checked (e.g., the hematology technician under your jurisdiction states that he operates an autoclave; you, his supervisor, did not list this task at all in our interview. Does he or does he not use the autoclave?).

4. After analyzing and cross-checking the results for each occupational category, the tasks were then compared with the lists of functions compiled in our pilot study, Hiring Standards for Paramedical Manpower. The listed functions in that study were the result of detailed interviews with approximately 450 performers and 150 supervisors, specialists, administrators and pathologists.

5. To be certain that each interviewer and each performer would interpret each task in the identical way, we defined each task in terms of the elements of every function. This proved to be an enormous project. With the aid of private consultants and of senior nursing and administrative personnel at The Cambridge Hospital, each task was defined in detail. The interviewer then had an accurate description of each task (Appendix C, Volume II).

6. All the specific functions for each of the occupations studied were ranked in order of difficulty, using such criteria as practical experience, educational exposure and general responsibilities. This ranking was completed by the researchers with the assistance of supervisory personnel (both nursing and medical) at The Cambridge Hospital and at several other medical centers. Further, a sample of the performers was also asked to aid in this ranking.

7. The interview formats were then prepared, and all responses were obtained and recorded by the interviewer. No performer was asked to fill out or in any way complete a questionnaire. Each performer was shown the list of functions and asked if they represented 95 percent of the tasks he or she performed over an average workweek. In several instances we found that performers could add one or two new items. However, significant additions to the interview format were made in only two areas - the psychiatry department and the ward secretaries.

8. On the possibility that some individual performers might tend to exaggerate their own areas of authority and responsibility, observations of approximately 50 percent of the sample were made. These observations were made by a graduate registered nurse and our research assistant. At times, one performer was observed for a period of four to five hours. However, in most cases, two or three performers in one ward or unit were observed by both the registered nurse and our research assistant for a period of four or five hours. Approximately 300 hours of observations were conducted during a two-month period at The Cambridge Hospital. The graduate registered nurse was an outside consultant to the project, not an employee or former employee of the hospital.

B. Methodology Used for Phase II

After completing Phase I, we found that we had gathered a massive amount of information (approximately 4,500 pages of material). This information was then sorted into meaningful units and placed in the following set of tables:

1. Tables 5 through 16[1] represent a breakdown by units (Surgical, Medical, Pediatrics, Labor and Delivery, Out-Patient and Emergency Room) of the specific functions and tasks performed by registered nurses (RNs), licensed practical nurses (LPNs), nurses' aides (NAs) and orderlies (these tables are summarized in Tables 1 and 2).

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1. All numbered tables compiled for Phase II are in Appendix D, Volume II.

These tables indicate:

a. Percent of each specific occupational title performing each function;

b. Percent of each specific occupational title not performing each function;

c. Percent who consider that function is not applicable;

d. Percentage of total working time spent on various functions by those who perform the function.

For the tables estimating time, all sub-sections of each function were combined because each performer found it easier to estimate the time factor for the entire function rather than for each element of a function. The columns in these tables referring to percentage of total working time spent on functions generally add up to less than 100 percent of all the performers' time (average 40-hour week), because we considered only the persons performing each task.

Several questions on our interview format and the performers' answers to them proved to be of little value. We therefore excluded the following items:

a. "Do you perform this task:
   i. alone
   ii. with a co-worker
   iii. under supervision
   iv. some combination of the above?"

b. "What equipment, instruments or supplies do you use in performing this function?"

c. "What is the end result of this function?"

d. "Is there any type of patient on whom or with whom you cannot perform this task?"

e. Question number 40 on the General Nursing format.

Because it was difficult for each performer to estimate the amount of time he or she spent in the average week on each of the more than sixty functions, we developed the code indicated below to make this selection somewhat easier and more accurate.

Time Spent/Week (40 Hours)	Percent
Under 30 minutes	Less than 1
30 minutes - 2 hours	1 - 5
2 hours - 4 hours	6 -10
4 hours - 6 hours	11 - 15
6 hours - 10 hours	16 - 25
Over 10 hours	Greater than 25

In estimating time spent on each function, performers were asked to make their estimates in hours or percentages, whichever they found easier. Any performer who estimated "over 10 hours" or "greater than 25 percent" was asked to be more specific (e.g., "Would you estimate 20 hours out of 40 hours or 50 percent of your time?"). A specific number of hours over 10 or a specific percentage of time over 25 percent was finally obtained from each performer.

2. Tables 1 and 2 represent a summary of all nursing personnel represented in Tables 5 through 16. Here again, a comparison is made between the percentage of RNs, LPNs, NAs and orderlies performing each group of functions and the percentage of total working time each group spends on each specific function. Tables 3 and 4 represent the responses of RNs, LPNs, NAs and orderlies to the question, "Who usually and, in your opinion, who should perform each specific function?" The percentages in these tables do not add up to 100 percent because more than one answer was usually given. The percentages in Table 3 represent those interviewed who felt that occupation X usually performs the function. These tables were used when the restructuring of various positions was being considered.

3. Tables 17-50 concern ward secretaries, surgical technicians, RNs and NAs in the operating room, psychiatric attendants and RNs in the psychiatric unit, X-ray technicians, inhalation therapy technicians, laboratory technicians, the EKG technician, and the neighborhood health worker. These tables indicate:

a. The percent of personnel performing a function;

b. Average percent of time spent on each function by those who perform the function;

c. Percentage of personnel not performing each function;

d. In the opinion of each performer, who usually and who should perform the various functions.

4. Tables 51 through 64 deal with the personal characteristics, opinions and aspirations of all those interviewed. The tables include:

a. Age distribution by occupation;

b. Sex;

c. Level of education and occupational training;

d. Years employed at present occupation;

e. Years employed at The Cambridge Hospital;

f. Employment at other health-related occupations;

g. Type of orientation received at The Cambridge Hospital;

h. Type of orientation performers feel they should receive;

i. Formal level of education performers feel should be required in each respective field;

j. Personal qualities performers feel are necessary or helpful to have in their own fields;

k. Occupational level performers in all of the various fields feel they can realistically hope to attain with their present educational and professional training;

l. The extent to which various educational exposures prepared each category of personnel for the functions they presently perform;

m. Future employment plans of the performers.

5. Tables 65 through 70 represent the results of our observations in the various departments. Each "X" simply means that the respective performers were seen performing the specific function. Observations were done in the following areas:

   a. General Nursing: RN, LPN, NA, Orderly (Table 65);

   b. Ward Secretary (Table 66);

   c. Operating Room: RN, Surgical Technician (Table 67);

   d. X-Ray Technician (Table 68);

   e. Inhalation Therapy Technician (Table 69);

   f. Laboratory Technician (Table 70).

After completing the organization and the tabulation of all the data, we consulted with independent medical experts, familiar with the paramedical manpower problems. Following these interviews, we developed our recommendations.

After submitting our recommendations to The Cambridge Hospital, we maintained a detailed record of the significant events that followed. Statistical measures and a close scrutiny of events at the hospital were then used to obtain a rough estimate of the changes in quantity and quality of health care delivery.

CHAPTER V

ANALYSIS OF DATA THROUGH PHASE II

The analysis and evaluations presented below are based on the statistical material gathered through interviews plus the day to day information and impressions formed by our staff while working in the hospital over the project period. Reference is made to specific tables or groups of tables when analyzing the results.

General Nursing
Registered Nurses, Licensed Practical Nurses, Nurses' Aides, Orderlies

Thirty-eight RNs, 10 LPNs, 27 NAs and 8 orderlies were interviewed in the general nursing area. All but the eight orderlies are female. A substantial proportion of the RNs (45 percent), orderlies (63 percent) and LPNs (80 percent) are young, i.e., between 18 and 25 years of age, while almost 50 percent of the NAs are 41 and over (Table 51).[1]

Ninety-two percent of the RNs are products of a three-year diploma nursing school, while 10[illegible] percent of the LPNs are graduates of a 15- or 18-month LPN school. NAs and orderlies have a lower level of formal education; 63 percent of the NAs and 88 percent of the orderlies have received no more than a high school diploma. In general, it appears that the orderlies have a moderate edge in educational exposure over the aides. Fifty percent of the orderlies have attended college compared to 11 percent of the NAs. The orderlies have been exposed to graduate school, military training courses and formal nurses' aide training courses to a greater extent than have the NAs (Table 52).

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1. All the numbered tables, e.g., Table 50, referred to in this chapter can be found in Appendix D, Volume II. All numbered tables preceded by a Roman numeral, e.g., Table V 1, can be found in the body of the chapter.

The LPNs as a group have been employed at The Cambridge Hospital and elsewhere a considerably shorter period of time than the RNs. Fifty percent of the LPNs, but only 5.2 percent of the RNs have been employed at their present occupation less than one year. Ninety percent of the LPNs have been employed at The Cambridge Hospital for less than one year, while the comparable figure for the RNs is 31.5 percent (Table 55).

A similar relationship is found between NAs and orderlies. Fifty percent of the orderlies have been employed in their present occupation one year or less; however, only 3.7 percent of the NAs have been employed for that short a period of time. Sixty-three percent of the orderlies but only 38 percent of the NAs have been at The Cambridge Hospital for one year or less (Table 55).

No formal orientation period now exists at The Cambridge Hospital for any of the paramedical occupations included in this study. Whatever orientation is given to some individuals is on a casual basis with little if any structure. The majority of the RNs, LPNs, NAs and orderlies in general nursing received either no orientation whatsoever or only a few hours (Table 57).

As one would expect, the performers in each of these four paramedical occupations rank the educational requirements for each of their respective fields in a manner which perpetuates the existing structure of medical education, i.e., RNs feel either a college degree or nursing diploma is necessary, LPNs feel diploma school

training is necessary (18 months), and NAs and orderlies see little need for any requirements at all. The majority of NAs and orderlies feel that not even a high school diploma should be a requirement (Table 60).

A considerable majority of RNs (85 percent) feel they could rise to a higher positic ible 62). The same is true of the LPNs (70 percent). The majority of the NAs consider their position a dead end; however 61.5 percent would like to go higher, while 34.6 percent consider their job a dead end and are satisfied. Twenty-five percent of the orderlies consider their job a dead end but would like to rise, while 63 percent consider their job a dead end and are relatively satisfied. Obviously, not everyone has a burning desire to climb some real or mythical occupational ladder. Many persons interviewed had become conditioned to their occupational status and realized the present realistic limits to any upward mobility.

As indicated in Chapter IV, Tables 5 through 16 represent:

1. The percentage of RNs, LPNs, NAs and orderlies in the Surgical, Medical, Pediatrics, Labor and Delivery, Outpatient and Emergency Departments performing various functions;

2. The approximate time spent on these various functions by those RNs, LPNs, NAs and orderlies in all the departments mentioned in 1 above who perform the functions.

Tables 1 and 2 represent a summary of Tables 5 through 16. Table V 1 represents a further summary of Table 2. Item I, General Nursing in Table V 1, includes all of the personnel of the six units listed in the table. Each of the RNs, LPNs, NAs and orderlies interviewed were shown exactly the same list of functions

The purpose was to determine the degree of overlap in functions for each of the different occupations.

Table V 1 combines general nursing functions by degree of difficulty into six groups. The first four are of primary interest. Each of these four groups of functions represents duties increasing in difficulty (i.e., group 1, functions 1-18, the easiest functions, group 4, functions 48-63, the most difficult in terms of required training, on-the-job training and professional skill).

Almost all persons in the four occupations (RNs, LPNs, NA, Orderlies) perform the easiest function. For example, Table 1 indicates that function 1 (straightening up and cleaning patient's immediate furniture) is performed by:

91 percent of the RNs interviewed;
100 percent of the LPNs interviewed;
96 percent of the NAs interviewed;
100 percent of the orderlies interviewed.

The RNs and LPNs spend a larger percentage of time on this easiest function than NAs and orderlies. For example, Table 2 indicates that, for those who perform function 1, the following average time is spent on that function:

RNs, 7.1 percent;
LPNs, 9.2 percent;
NAs, 6.0 percent;
Orderlies, 4.9 percent.

Table V - 1 Average Percent of Time Spent on Six Groups of Functions by Registered Nurses, Licensed Practical Nurses, Nurses' Aides and Orderlies[1]

I. General Nursing[2]		R.N.	L.P.N.	Nurses' Aide	Orderly
Groups of Functions	Functions				
(Ranked From Easiest to Most Difficult)					
1	(1 -18)	24.7	31.5	40.8	40.8
2	(19-30)	26.3	28.2	38.2	26.1
3	(31-47)	20.3	22.5	6.4	15.6
4	(48-63)	16.6	8.8	3.0	3.1
5	(64-69)	3.1	0.1	2.7	5.2
6	Lunch & Break	8.8	8.8	8.8	8.8
II. Surgical Unit		R.N.	L.P.N.	Nurses' Aide	Orderly
Groups of Functions	Functions				
(Ranked From Easiest to Most Difficult)					
1	(1 -18)	21.6	28.0	39.4	36.7
2	(19-30)	31.3	33.7	41.9	29.1
3	(31-47)	22.8	17.2	7.9	16.5
4	(48-63)	14.7	12.0	1.6	1.5
5	(64-69)	0.8	0.3	0.3	7.5
6	Lunch & Break	8.8	8.8	8.8	8.8
III. Medical Unit		R.N.	L.P.N.	Nurses' Aide	Orderly
Groups of Functions	Functions				
(Ranked From Easiest to Most Difficult)					
1	(1 -18)	23.4	27.4	36.3	39.0
2	(19-30)	27.4	28.9	47.2	27.7
3	(31-47)	20.6	28.6	4.5	15.2
4	(48-63)	18.8	6.2	0.5	3.8
5	(64-69)	0.8	----	2.7	5.6
6	Lunch & Break	8.8	8.8	8.8	8.8
IV. Pediatrics Unit		R.N.	L.P.N.	Nurses' Aide	Orderly
Groups of Functions	Functions				
(Ranked From Easiest to Most Difficult)					
1	(1 -18)	32.8	42.9	51.7	----
2	(19-30)	23.7	21.5	24.2	----
3	(31-47)	17.6	12.7	7.4	----
4	(48-63)	12.6	12.0	4.8	----
5	(64-69)	4.9	2.0	3.1	----
6	Lunch & Break	8.8	8.8	8.8	----

[1] & footnotes at the end of table.

Table V-1 Average Percent of Time Spent on Six Groups of Functions by Registered Nurses, Licensed Practical Nurses, Nurses' Aides and Orderlies[1]

V. Labor and Delivery Unit		R.N.	L.P.N.	Nurses' Aide	Orderly
Groups of Functions	Functions				
(Ranked From Easiest to Most Difficult)					
1	(1 -18)	19.4	----	35.4	----
2	(19-30)	15.4	----	25.9	----
3	(31-47)	17.3	----	7.5	----
4	(48-63)	19.6	----	6.7	----
5	(64-69)	19.5	----	15.7	----
6	Lunch & Break	8.8	----	8.8	----
VI. Emergency Unit		R.N.	L.P.N.	Nurses' Aide	Orderly
Groups of Functions	Functions				
(Ranked From Easiest to Most Difficult)					
1	(1 -18)	----	39.1	----	43.2
2	(19-30)	----	23.6	----	21.4
3	(31-47)	----	20.2	----	20.5
4	(48-63)	----	7.8	----	5.9
5	(64-69)	----	0.4	----	----
6	Lunch & Break	----	8.8	----	8.8
VII. Out-Patient Department		R.N.	L.P.N.	Nurses' Aide	Orderly
Groups of Functions	Functions				
(Ranked From Easiest to Most Difficult)					
1	(1 -18)	26.5	----	49.5	----
2	(19-30)	24.3	----	30.5	----
3	(31-47)	21.3	----	10.2	----
4	(48-63)	17.0	----	0.9	----
5	(64-69)	2.0	----	----	----
6	Lunch & Break	8.8	----	8.8	----

1. This table is the average of all performers' time whether they perform the function or not; therefore, it should add up to 100 percent. These figures were adjusted proportionate to add up to 100 percent because we felt that there was no reason to believe that disproportionate bias occurred in estimation of time for each group as a whole. Group 6 was not adjust because this is a specifically allocated period of time.

2. This section is a summary of all specific units, i.e., Surgical, Medical, Pediatrics, Labor and Delivery, Emergency and Out-Patient Department. The R.N. column also includes I.C.U Recovery Room and "floats."

If we then go on to a more difficult function, demanding more skill and training, such as function 41e (Table 1), we find that the function "discontinuing I.V. service" is performed by all the LPNs, almost all the RNs, and slightly more than half of the NAs and orderlies. Table 2 indicates that, for those who perform function 42, the following average time is spent on that function:

RNs, 5.1 percent;
LPNs, 5.1 percent;
NAs, 1.9 percent;
Orderlies, 2.7 percent.

The groupings in Table V 1 indicate that (for I. General Nursing) on the simplest functions (1-18):

RNs spend 24.7 percent of their time;
LPNs spend 31.5 percent of their time;
NAs spend 40.8 percent of their time;
Orderlies spend 40.8 percent of their time.

If we now go to the more "difficult" functions (ones that are not supervisory), such as Group 3 (31-47), we see that on such functions:

RNs spend 20.3 percent of their time;
LPNs spend 22.5 percent of their time;
NAs spend 6.4 percent of their time;
Orderlies spend 15.6 percent of their time.

The following figures, based upon our observations, indicate the percentage of the tasks performed by employees in each of the four occupations:

General Nursing

Groups of functions	Functions	R.N.	L.P.N.	Nurses' Aide	Orderly
(Ranked From Easiest to Most Difficult Tasks for Groups 1, 2, and 3)					
1	(1 -18)	94.4%	77.8%	88.9%	61.1%
2	(19-30)	75.0	41.7	58.3	25.0
3	(31-47	93.8	37.5	25.0	25.0
4	(48-63)	81.3	31.3	----	----
Total Percent of Functions Observed		87.1	48.4	43.5	29.0
Number of Personnel Observed		20	7	13	3
Number Interviewed		38	10	27	8
Percent Observed		52.6	70.0	48.1	37.5

Our observations indicate that LPNs, NAs and orderlies perform more of the easier functions and less of the more difficult functions. Yet, we did observe a number of LPNs, NAs and orderlies performing some of the more difficult functions, even in the short period of time that we spent on observations.

In general, we believe that task analysis by observation could be used only if a long period of time for observation were allocated to each performer in each occupation; by long, we envision a minimum of one month for each performer.

From these statistical data we reached the following conclusions:[1]

1. There is indeed a great deal of overlap in the performance of various functions irrespective of the degree of difficulty and the educational exposure, formal or otherwise, by various categories of paramedical personnel (RNs, LPNs, NAs and orderlies) at The Cambridge Hospital.

2. Although the "more difficult" functions do tend to be performed more by personnel with higher levels of professional training and knowledge, the lesser-skilled paramedical employee does perform these functions more than occasionally.

3. The more highly-skilled persons in this sample do spend large blocks of their time on functions they themselves and most other authorities consider to be well below their technical capabilities (see Tables 3 and 4).

4. All four of these paramedical occupations (RNs, LPNs, NAs and orderlies) perform most of their high level functions during shifts other than the day shift. This is especially true of the LPNs, NAs and orderlies. During the shift from 11 p.m. to 7 a.m., RNs, LPNs, NAs and orderlies are called upon to perform functions that only physicians or RNs would normally perform during the day.

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1. It may be relevant to note here some of the conclusions of a recent progress report of the Social Development Corporation entitled, Final Progress Report, Phase I, Technical Assistance to Comprehensive Health Services Projects on Manpower Development. This project used the Gilpatrick methodology (cited in Chapter IV), which was more dependent on observations than our study. Its conclusions were:

(1) "With reference to these 51 items, at least one Registered Nurse, Licensed Practical Nurse, and Nurse Aide are performing identical tasks in 14 cases (27.4%).

(2) In 45 of 51 cases (88.2%) Registered Nurses and Licensed Practical Nurses are performing identical tasks.

(3) In 18 of 51 cases (35.3%) Registered Nurses and the Nurse Aide are performing identical tasks.

(4) In 19 of 51 cases (37.2%) Licensed Practical Nurses and the Nurse Aide are performing identical tasks."

Ward Secretaries

The ward secretary is a relatively new job category at The Cambridge Hospital. Of the nine employed at the hospital, six were interviewed. All are women, and half of those interviewed are between the ages of 18 and 25, while the other half are between 41 and 55 (Table 51).

Two-thirds of the ward secretaries have a high school diploma or its equivalent. All those interviewed received some type of informal on-the-job training at The Cambridge Hospital (Table 52). All the ward secretaries have been at the hospital less than one year and at their present occupation less than one year (Table 55). Fifty percent of the ward secretaries never had any gainful employment before their present job (Table 56).

The secretaries admit to having had no more than a few hours of orientation. Although all claimed to have gone through some type of training program at the hospital, none had had any formal classes conducted by a specific trainer; none had been introduced to hospital or ward policies by a supervisor or nurse; none had been exposed to any type of training film; and none had attended any regular orientation meetings. Apparently what the ward secretaries meant by training program was only an "assignment to follow fellow worker in his tasks" (Table 57).

Almost all of the ward secretaries felt there is a definite need for a training manual to outline the routine (e.g., medical terminology, sample charts and records, Table 58). All felt their position was a dead end, but they were satisfied nevertheless (Table 62).

Table 17 indicates that most of those interviewed perform all of the functions listed. However, Table 18 indicates that a significant number of ward secretaries claim that many of these functions are also performed by RNs, LPNs and NAs. Observation and discussions with head nurses and supervisors at the hospital indicate a reluctance on the part of supervisory personnel to allow ward secretaries more non-nursing, administrative responsibilities. The reasons given were the secretaries' lack of experience and of training.

Tables 1 and 2 indicate that nursing personnel (RNs, LPNs, NAs and orderlies perform many functions that are being performed by qualified ward secretaries (see Table 18). Since ward secretaries do perform many of these functions, the nursing personnel could be released to perform more patient-care functions. Our observations tend to support the information collected in interviews with ward secretaries.

Operating Room
Registered Nurses, Surgical Technicians, Nurses' Aide

Since the functions of nursing personnel in the surgical unit were found to be quite different from those of personnel in the other units, an entirely different set of functions was used for RNs, surgical technicians and the NA employed in surgery (Tables 19 through 22). These tables refer to the four RNs, seven surgical technicians and one NA of the operating room.

All of the RNs in this unit are female, more than half of the surgical technicians are male and the NA is female. Approximately three-quarters of the RNs and surgical technicians are young (between the ages of 18 and 25, Table 51). All the RNs have at least completed a three-year diploma nursing school. Over half of the surgical technicians have earned an undergraduate

degree (4 or 5 years of college); one had graduate training; and one had no formal schooling beyond high school (Table 53). Three of the seven surgical technicians have been at their occupation for less than one year, while two have been at it for 1-3 years and two for 4-6 years. Half of the RNs have been at their occupation 1-3 years, while one has been at it 5 years. Three-quarters of the RNs have been employed at The Cambridge Hospital for less than one year, and one for 5 years. Half of the surgical technicians have been employed at The Cambridge Hospital less than 1 year, two, from 1-3 years, and one, for 5 years (See Table 55).

Table 57 shows the various types of orientation received by the personnel in surgery. Three of the seven surgical technicians received little if any orientation in the way of regular meetings, educational films and pamphlets, formal introduction to wards and policies by supervisor or nurses or formal classes held by specific trainer. All were assigned to follow fellow workers in their work. All the RNs employed in the OR believed their orientation to be adequate, while only three of the seven surgical technicians considered the period of orientation to be adequate (Table 59).

The majority of surgical technicians feel they would have to leave The Cambridge Hospital to rise to a higher position (Table 62), and the majority consider the job a dead end but would like to go higher.

It is interesting to note that substantial proportions of RNs and surgical technicians consider practical experience very high on their respective lists for job preparation (see Table 63).

Table [illegible] compares the average percentage of time spent on four groups of tasks by registered nurses and surgical technicians in the operating room. Again, the groups of functions are analyzed in order of difficulty, from low to high. The data show that the RNs with more professional training spend less time on the most complex functions (group 3) than do the on-the-job trained surgical technicians. Perhaps this could be explained by the fact that surgical technicians have been exposed to more years of general education (college).

Four operations were actually observed by our staff. The following figures, based on observations, indicate the percentage of the tasks performed by each of the two occupations.

Operating Room

Groups of Functions	Functions	R.N.	Surgical Technician
1	(1-13)	23.1%	23.1%
2	(14-24)	72.7	18.2
3	(25-41)	58.8	29.4
Average Percent of Functions Observed		51.2	24.4
Number of personnel observed		4	6
Number interviewed		4	7
Percent observed		100.0	85.8

These observations indicate that RNs were seen performing as many or more of the functions than surgical technicians in all three groups.

Table V 2 Average Percent of Time Spent on Four Groups of Tasks by Registered Nurses and Surgical Technicians in the Operating Room[1]

Groups of Functions (Ranked From Easiest to Most Difficult)	Functions	R.N.	Surgical Technician
1	(1-13)	27.7	26.5
2	(14-24)	33.8	23.7
3	(25-41)	17.8	32.3
4	(Waiting for work, lunch and break)	20.6	17.5

1. These figures were adjusted proportionately to add up to 100 percent because we felt that there was no reason to believe that disproportionate bias occurred in estimation of time for each group as a whole.

However, our interviews indicate that surgical technicians perform as many of the more sophisticated functions as RNs (Table 19).

Psychiatry
Registered Nurses and Psychiatric Attendants

Three RNs and seven psychiatric attendants were interviewed for this project Most of the psychiatric attendants are male, while all of the RNs are female. A the same time, both groups are young, mostly between the ages of 18 and 25 (Tabl 51).

It is impossible to equate the educational experience of the RNs and the psychiatric attendants. The former are products of a three-year diploma nursing school, while all of the latter had some college education and three received college degrees (Table 53). Based on this difference in education, it appears that the RNs are more qualified to care for psychiatric patients who also have medical problems. However, it is difficult to state which occupation is more qualified to service the psychiatric patient with no medical problems.

All of the RNs interviewed have been employed at their present occupation from 1 to 3 years. Four of the seven attendants have been at their present occupation less than one year. All persons in both categories have been at The Cambridge Hospital less than three years (Table 55). Most of the attendants received only a few hours of orientation.

This particular department is new and still expanding. Many of the personnel represent original hires for the department (Table 57).

Almost seventy-five percent of the psychiatric attendants believe no formal requirements are necessary in order to fulfill their responsibilities (Table 60). At the same time, they express rather unique attitudes on what qualities a psychiatric attendant should have; namely, openness and warmth, intelligence, perception, emotional stability and maturity (Table 61).

Most of the RNs in this department feel they would like to rise to a higher position and could. All of the psychiatric attendants interviewed feel their position represents a dead end, but they all would like to go higher (Table 62). Practical experience seems to rank high in the minds of both the RNs and attendants as a factor which prepared them for their present functions (Table 63).

Table V 3 shows the average percent of time spent on five groups of tasks by RNs and psychiatric attendants. The attendants seem to spend 10 percent more time than the RNs waiting for work, perhaps because many of the psychiatric attendants cover the night shift while most patients are asleep. There is only slight indication that the RNs perform more "difficult" functions than the attendants. Giving medication seems to be the only function borne solely by the RNs (Table 23).

Observations were not completed in the psychiatry department because the presence of our observer seemed to place a strain on the RNs and the

Table V 3 Average Percent of Time Spent on Five Groups of Tasks by Registered Nurse and Psychiatric Attendants in the Psychiatry Department[1]

Groups of Functions (Ranked From Easiest to Most Difficult)	Functions	R.N.	Psychiatric Attendant
1	(1-6, 31c, 31d)	12.7	16.7
2	(7-13)	27.2	24.5
3	(14-19, 31a, 31b)	32.8	25.3
4	(20-29)	12.1	8.4
5	(Waiting for work, lunch and break)	15.2	25.0

1. These figures were adjusted proportionately to add up to 100 percent because we felt that there was no reason to believe that disproportionate bias occurred in estimation of time for each group as a whole.

psychiatric attendants. There is little formal structure to work assignments in the department and in order to observe most of the functions performed one would have to make long-term observations.

X-Ray Technicians

All of the twelve X-ray technicians at the hospital were interviewed. Half of these technicians are between the ages of 18-25, and over forty percent are between the ages of 26-40.

Two-thirds of the technicians have professional certification (R.T., R.R.T., A.R.R.T.); and the remaining third are in training. Almost half of the technicians have been at their specific occupation and at The Cambridge Hospital for over four years (Table 55). Several of the X-ray technicians are former military corpsmen (Table 56).

The twelve X-ray technicians admit to having had less than a few hours of orientation at the hospital (Table 57). Over 90 percent of this group feel that an orientation period should include formal classes held at the hospital (Table 59). All of the technicians feel that a hospital-based (66%) or college-based (41%) training program would be most desirable (Table 60). Over ninety percent feel a need for an associate's degree program as a requirement for their occupation (Table 60). Two-thirds of the technicians feel they can rise to higher positions if they wish to do so, although half of these people are apparently satisfied with their present status. Practical experience (27%) and on-the-job training (30%) are considered to be most important by this group in preparing them for their present responsibilities. Finally, almost sixty

percent of the X-ray technicians expect to remain at the hospital. This figure is relatively high compared to most other groups at the hospital.

The majority of technicians in this department are products of a two-year program given at Northeastern University. In the first year, the student spends two weeks in didactic lectures at the University for each four weeks of on-the-job training at the hospital. The complete second year is spent at the hospital in on-the-job training.

Tables 27 and 28 show a distribution of the specific functions of the X-ray technicians. Most of the technicians perform a majority of the functions regardless of the degree of difficulty. Function 1 (cleaning and putting away equipment and supplies), 10 (taking routine X rays) and 18 (waiting for work) amount to over fifty percent of the technicians' time. The other eighteen functions are evenly distributed with respect to time. Table 41 indicates most of the technicians believe they usually perform and should continue to perform all of the functions listed.

In a rather limited time span, 4 of 12 technicians were observed and they performed 70.6 percent of the functions.

Inhalation Therapy Technicians

All of the five inhalation therapy technicians at The Cambridge Hospital were interviewed. Four of the five technicians are between the ages of 18-25. Three are female, two are male (Table 51). Four of the five technicians

received informal on-the-job training at The Cambridge Hospital; the fifth technician, a male RN, supervised most of the training and originally received his training from the hospital medical staff (Table 54).

Four of the five technicians have been employed at the hospital for less than one year; and three of the five have been employed at this particular occupation less than one year (Table 55). Four of the five technicians claim they received a few hours of orientation (Table 57). The remaining technician (RN) was involved in setting up the original program. All five of the technicians believe that the on-the-job training they received is appropriate for future trainees (Table 59).

Three of the five technicians consider their job to be a dead end, and they are satisfied; one says he would have to leave the hospital to go higher; and the fifth technician considers his position a dead end but would like to go higher (Table 62). Three of the five technicians plan to stay on at the hospital indefinitely, while two plan to stay for the immediate future (Table 64).

Tables 30 and 31 show a breakdown of the allocation of time and of the distribution of functions performed by the five inhalation therapy technicians. These tables indicate that, as the functions grow in degree of difficulty, there is no apparent reduction in the number of technicians performing the function. All the technicians perform almost all the functions regardless of the degree of difficulty, and on the average they appear to spend a substantial amount

of time on the more difficult functions. Table 32 indicates that the inhalation therapy technicians usually do and feel they should perform the majority of functions listed. However, they also indicate that RNs and LPNs also do and should perform many of these same functions (functions 8-12, 13c, 14c, 15c and 16c). It appears these technicians believe they are responsible for the care and setting up of most of the equipment used in their field, but they also believe the RNs and LPNs should perform more of the maintenance of equipment (that is, while in patient use) than at present.

Inhalation therapy technicians were observed performing 61.5 percent of the functions.

Laboratory Personnel

Twelve of the thirteen laboratory technicians at the hospital were interviewed. All twelve technicians are women. Four are in the 18-25 age group; four, in the 26-40 age group; and four, in the 41-55 age group (Table 51). Almost eighty-five percent of these technicians have no professional certification. One-third of the technicians have received informal on-the-job training at The Cambridge Hospital, while twenty-five percent have had formal on-the-job training courses elsewhere (Table 54). Only one technician has any professional certification. The turnover for these technicians is fairly high; fifty percent of them have been at The Cambridge Hospital less than one year (Table 55).

Almost sixty percent of these technicians received absolutely no orientation to the hospital (Table 57). All of the technicians felt that laboratory personnel should have training with some combination of formal classes (either at the hospital or at a special school) and practical experience (Table 59).

One-half of these technicians consider their job a dead end but are satisfied, while one-third feel they can rise to a higher position (Table 62). Approximately sixty-four percent of the lab technicians are prepared to remain at the hospital; the main reason expressed was that they "liked the work, surroundings and fellow workers" (Table 64).

The thirteen technicians in the laboratory have been concentrated into seven specialized fields. Obviously the degree of specialized knowledge required by each technician is reduced significantly by limiting the responsibilities of the technician to several specific areas.

Tables 33 through 46 indicate a breakdown of the specific functions of each of the seven specialties within the laboratory. Table 33 represents a set of general functions common to all the seven specialties, and the majority of technicians spend a significant amount of time performing these general functions. While the number of functions are rather limited within each specialty (usually with two performers in each), both performers usually perform all functions listed for the specialty.

Laboratory personnel were observed performing over 90 percent of the general functions and an average of almost 50 percent of the more specific functions.

EKG Technician

The only EKG technician at Cambridge is a woman who has been at the hospital for over ten years. All of her experience and training has been on-the-job training under the direction of various physicians for whom she has worked.

All of the functions listed in Table 47 are performed by the EKG technician. Our experience at other hospitals indicates that these functions can be performed well by individuals with a minimum of formal education and a modest amount of formal training or on-the-job training or some combination of both. Since the physician makes a substantial amount of diagnosis based on the results of an EKG examination, dependability, accuracy and reliability are assets required of an EKG technician. There is obviously no necessary correlation between these characteristics and any level of formal educational experience.

There does seem to be a reluctance on the part of other potentially qualified paramedical personnel at the hospital to get involved in the functions of the EKG technician. They consider it to be one more responsibility which, considering their present workload, they would just as soon not have. The EKG technician works at the hospital 37 hours per week (a normal daytime shift). When there is a need for this type of service during the other 131 hours of the week, these functions are performed by a physician.

Neighborhood Health Worker

During the period when our interviews were being conducted, there was only one NHW employed at the only Neighborhood Health Center in Cambridge. She is an older woman with informal nurses' aide training. At the time of the interview she was enrolled in a formal program at an educational institution. She feels her position is a dead-end job, but is satisfied. She also feels that practical on-the-job experience best prepares a NHW.

Since completion of our interviews, an additional neighborhood health center connected with The Cambridge Hospital was opened. A third center was opened during October 1970 in North Cambridge. It appears that this relatively new paramedical occupation does aid the registered nurses and public health nurses at the centers. It is also possible that the responsibilities of the NHW could be extended, further assisting the centers.

CHAPTER VI

PHASE II RECOMMENDATIONS TO THE CAMBRIDGE HOSPITAL

In our judgment, the objectives of the health resources of any city should include the following:

1. To minimize the discomfort and costs of hospitalization of patients, by the dissemination of preventive medicine information through the city's Public Health Service and the city's medical facilities.

2. Once a patient is admitted to the hospital, the principal aim should be to make this stay as comfortable, brief, inexpensive and successful as medical technology and human patience can achieve.

The City of Cambridge recently replaced the main hospital complex with a twelve million dollar facility, and we believe the City's objectives do include those listed above. There are no indications that any attention was given to the possibility of eliminating dead-end, low-paying jobs or of creating occupational ladders for paramedical personnel.

This project is concerned with the problem of operating a city hospital efficiently and humanely by utilizing its manpower in the most effective manner possible. Based upon our analysis of the information collected through Phase II, we made the following recommendations to The Cambridge Hospital in December 1970:

Recommendation 1. The hospital has no personnel director, and personnel structure is extremely informal and haphazard. When a supervisor, physician, director of nursing or the hospital director has a request or sees a need for a new position or a replacement, each becomes his own personnel administrator. Four or five separate files exist in the hospital for

each employee. No formal and systematic employee performance review exists. The precious and costly time of many in the hospital is spent in duplicative and, quite often, unproductive personnel work. When an employee has a problem or question, she quite often goes for advice to the person she knows best, and frequently the answers received are wrong, misleading or distorted.

We, therefore, recommend that a permanent personnel office be established at the hospital with a personnel director at its head. He should be responsible directly to the administrator of the hospital. No additional funds would be required to set up this office and position since there are presently at least three unrelated positions in the hospital which have personnel responsibilities. This personnel director should maintain the only complete set of records for each employee in the hospital. This personnel director should have a voice, if not control, over:

a. Setting up hiring standards in conjunction with supervisors of the appropriate departments;

b. Conduct of personnel;

c. Orientation of new personnel;

d. In-service and OJT programs;

e. Performance reports at least once each year on each employee;

f. The initial contact with all prospective employees (obviously, the final approval of any employee would be made by the supervisor or physician for whom she or he would work);

g. Keeping all employees of the hospital informed of their rights, privileges, and obligations.

Recommendation 2. Lines of authority are not well known nor are they publicized in the hospital. No formal organization charts indicating lines of authority and responsibility exist. We recommend that a formal organization chart for The Cambridge Hospital be developed.

Recommendation 3. Our data indicate that various categories of paramedical personnel at The Cambridge Hospital are underutilized and numerous functions are misallocated. The most frequently mentioned reasons for these conditions are tradition and the unwillingness of supervisory personnel to allocate more sensitive and responsible functions to persons considered untrained or insufficiently trained.

In some instances the concern on the part of supervisory personnel appears to be justified. On the other hand, in many instances responsible and sensitive functions are now being performed by nurses' aides, orderlies, inhalation therapy technicians, surgical technicians, psychiatric attendants and corpsmen-types at the hospital. The question to answer is how can we eliminate the apprehension of supervisory personnel while allocating to all categories of paramedical personnel responsibility commensurate with their present or post-training capabilities? We believe that the best route to this goal is threefold: (a) the establishment of three new paramedical occupations at The Cambridge Hospital; (b) the restructuring of four existing occupations at the hospital; and (c) the establishment of formal training programs for the three new occupations and four existing occupations.

a. New Paramedical Occupations

The new paramedical occupations we recommend are: Nursing Assistant; Medical Assistant (Medics); and Physician's Assistant. Persons employed in these occupations could be male or female.

The nursing assistant would be trained to perform some of the moderately sophisticated functions now performed by LPNs and RNs and some of the more sophisticated functions now performed by NAs. The minimum entrance requirement for the nursing assistant training program should be the equivalent of a five-week training program as a nurses' aide. For an indication of the specific duties envisioned for the nursing assistant, see the sample training program in Appendix E, Vol. I.

The medical assistants, including corpsmen-types, should be divorced from the Nursing Department and placed in the Department of Medicine. The medical assistants (and physician's assistants) should be under direct control of the medical staff who would be responsible for their training and supervision. After their formal training program, medical assistants would be in a position to aid substantially the medical staff in functions now normally performed by physicians. The minimum entrance requirements for the medical assistants should be the equivalent of the successful completion of a nursing assistant program. For an indication of the specific duties envisioned for

the medical assistant, see the sample training program in Appendix E, Vol. I.

The physician's assistant should be one level above the medical assistant. After being exposed to a two-year training program, the physician's assistant would be in a position to substantially assist the physician in some of the more sophisticated functions traditionally performed by physicians alone. Specific training programs for physician's assistants have recently been instituted in several states with promising results. We suggest that the "Medex" training program at the University of Washington or the "Physician's Associate Program" at Duke University could be used as a basis for training the physician's assistant.

b. Restructuring of Occupations

In order to provide a better quality of medical care within the hospital and to carry out the three occupations suggested above, we recommend restructuring the positions of nurses' aide, ward secretary, licensed practical nurse and registered nurse. The specific changes in functions for each of these occupations are noted in the training programs, descriptions of new occupations and examples of training programs - see Appendix E, Vol. I.

In summary, we are recommending a downgrading of nurses' aides and an upgrading of ward secretaries, licensed practical nurses and registered nurses.

c. Training Programs

The seven training programs recommended are the following:

i. NURSES' AIDES - a five-week training program for entry-level personnel, consisting of one hour of lecture and six hours of supervised work per day. It makes little sense in terms of delivery of quality medical care to allow entry-level personnel to wander about the hospital with no exposure to some basic policies and medical procedures within their occupation. Entry requirements for this position should be set so as to include those with no previous medical training and high school diploma. For an indication of the specific duties envisioned for the nurses' aide, see the Job Description Committee's outline in Appendix E, Vol. I.

ii. NURSING ASSISTANTS - a twelve-week training program for persons completing the nurses' aide program or its equivalent, consisting of one hour of lecture and six hours of supervised work per day. This is a newly-recommended occupation (see section a above).

iii. MEDICAL ASSISTANTS - a twelve-week training program for persons completing the nursing assistants program or its equivalent, consisting of one hour of lecture and six hours of supervised work per day. This is a newly-recommended occupation (see section a above).

iv. PHYSICIAN'S ASSISTANTS - a two-year training program for persons completing the medical assistants program or its equivalent. This is a newly-recommended occupation (see section a above).

v. WARD SECRETARIES - an eight-week training program for entry-level personnel with some basic reading and writing skills. The program should consist of one hour of lecture and six hours of supervised work per day.

In the past, orientation for the ward secretaries was minimal (Table 57 - Appendix D, Volume II). A large majority of this group felt a definite need for training in their present function (Table 62 - Appendix D, Volume II). RNs, LPNs and NAs now spend considerable time on non-nursing functions which should be assigned to ward secretaries. Head nurses and supervisors indicate a reluctance to allow ward secretaries more non-nursing, administrative responsibilities. Very often, the lack of experience and training of ward secretaries is given as the reason for this condition. We believe the eight-week training program for ward secretaries would be appropriate in an attempt to alleviate the above-mentioned condition. For an explicit statement of the functions envisioned for the ward secretaries, see Appendix E, Vol. I.

vi. LICENSED PRACTICAL NURSES - an ongoing, in-service education program consisting of one class hour per week.

vii. REGISTERED NURSES - an ongoing, in-service education program consisting of one class hour per week.

At present, no in-service education is offered LPNs and RNs; we recommend such a program be established. In light of all the new techniques and tools that are being developed in this field, RNs and LPNs who have no ongoing, in-service education will soon find themselves and their previous training inadequate for delivering quality medical care.

It would be best to begin the seven above-mentioned programs in selected wards or units simultaneously and as soon as possible.

The training program should be designed to extend the knowledge and to give assurance to those already performing high-level functions in their respective fields. In this way, each performer will be more readily accepted in his or her respective department with some degree of confidence not now existing among superiors and supervisors.

A small committee of qualified personnel should shoulder the responsibility of sifting through all candidates to determine their qualifications and acceptability. We see no need to place any formal educational requirements on a prospective applicant. Each applicant should be judged on his own merits, capabilities and recommendations.

Recommendation 4. We strongly recommend that RNs be eased out of Group I functions (functions 1-18, Table V 1) as soon as possible.

During our interviews, RNs claimed they did perform all the functions in group I (General Nursing, functions 1-18, the least difficult tasks, time spent - 24.7 percent), and our observations substantiated this claim. We believe these functions can be readily assigned to either nurses' aides or nursing assistants. We do not believe that any additional training of other paramedical personnel at the hospital is needed to effect this reassignment.

Recommendation 5. In order to motivate personnel to undertake and complete training programs, some monetary incentive must be offered, in addition to a certificate and a title. We, therefore, recommend that salary differential be established so that those who complete training and are advanced to a higher position receive appropriate salary increases.

Recommendation 6. We recommend that the training programs be well publicized throughout the hospital and that qualified paramedical personnel be encouraged to enroll, but absolutely no pressure should be used to enroll candidates.

Recommendation 7. We recommend that the interview formats used in this study be used as a basis for a detailed job description of each of the eleven paramedical occupations. It is true that the same list of functions was constructed for RNs, LPNs, NAs and orderlies; however, this was done to determine any degree of overlap of functions. This overlap does exist, and all four occupations do perform all the functions with only several exceptions out of the sixty items.

The real difference in the performance of these functions by the performers mentioned above is the degree of authority and responsibility each performer carries. This degree of responsibility should also be explicitly noted in the job descriptions which the hospital will use.

Recommendation 8. We recommend the elimination of the job category of orderly. The functions normally performed by the orderly can easily be done by nurses' aides or nursing assistants.

Recommendation 9. We recommend that periodic updating of radiological techniques be permanently established at the hospital; a minimum of one hour per month should be set aside so that the radiologist in charge may present the technicians with new techniques in the field.

The complete qualifying program for a radiological technician is spread over two years. The majority of the 12 X-ray technicians at the hospital are products of a two-year program at Northeastern University - The Cambridge Hospital. During the first year, for every two weeks spent at the University, four weeks are spent at the hospital on OJT. The second year is spent entirely at the hospital on OJT. The didactic portion of the entire program is only sixteen weeks. This division seems reasonable, and we believe that it should be maintained.

Recommendation 10. The sole EKG technician at the hospital covers her responsibilities 37 hours per week. There is an obvious need for increased coverage in this area. We recommend that the in-service education programs for RNs and LPNs include EKG training. We also recommend that training programs for the nursing assistant, medical assistant and physician's assistant include EKG training.

Recommendation 11. There is presently only one neighborhood health worker under the jurisdiction of The Cambridge Hospital. Her work does appear to aid the RNs and public health nurses at the Center. We recommend that additional NHWs be used at the two new centers, provided that meaningful functions can be prescribed. Many of the functions at the new centers have been inappropriately assigned.

Recommendation 12. The unstructured OJT program in inhalation therapy should be improved. Experience with U.S. Navy corpsmen at the U.S. Naval Medical Center indicates that a three-year, full-time program for the inhalation therapy technician is unnecessary. We recommend that trainees in inhalation therapy be encouraged to enroll in a more formal program, similar to one offered by the United States Navy.

Recommendation 13. Damon Engineering Incorporated originally performed routine chemistry, hematology and esoteric tests for The Cambridge Hospital. At the present time, The Cambridge Hospital laboratory under the direction of its new pathologist, Dr. Hori, performs all hematology work plus some of the chemistry. This turnabout has occurred because the hospital is now in a position to do this work as well or better, in the same time or less and for the same price or less than Damon. The floor space allocated to the hospital laboratory has very recently been doubled. Dr. Hori has purchased or leased all the automated equipment he felt was needed.

The pathologists who were consultants for this study indicated that a 200-bed hospital, such as The Cambridge Hospital, is not large enough to maximize the use of an efficiently run laboratory. There are several hospitals in the immediate area of The Cambridge Hospital that maintain laboratories without the services of a full-time pathologist.

We recommend that The Cambridge Hospital laboratory actively seek the laboratory work of Holy Ghost Hospital (one block in distance - 290 beds, recently renamed Youville Hospital) and Sancta Maria Hospital

(1 mile in distance - 124 beds), both of which have no full-time pathologist and less than adequate laboratory facilities. If The Cambridge Hospital laboratory did obtain this additional laboratory work, it would then be feasible to restructure the laboratory occupations.

CHAPTER VII

CHANGES AND RESULTS

A wide range of changes occurred at The Cambridge Hospital during the two and one-half years of this project, although the cause of most changes was unrelated to our study. Nevertheless, many of the changes did have some effect upon aspects of our research. These changes, along with our analysis of the situation and our recommendations to the hospital did have some immediate results in the manpower structure and operation of The Cambridge Hospital. These changes and results are described in the following sections of this chapter.

Administrative Personnel Changes

A number of significant administrative personnel changes occurred at The Cambridge Hospital while this study was in progress. Since many of these changes affected key positions, they obviously had some impact on this project's ultimate goals.

1. When we began our study in The Cambridge Hospital, the post of Hospital Director had been vacant for two years, and the Commissioner of Health and Hospital had been serving as the Hospital Director. In January 1970 the former Assistant Administrator, who has been associated with the hospital since the early 1960s, was promoted to the post of Hospital Director. Since he is not a physician, he may therefore face special types of difficulties. The newly appointed director, however, has a good reputation among community political leaders and a good working relationship with physicians, nurses, and other employees of The Cambridge Hospital.

The quality of a hospital director depends not on whether he is a physician, but on the character of the man. At The Cambridge Hospital, the Commissioner of Health and Hospital is a physician who is also a forward-looking, strong-minded administrator. This combination of traits has served to weaken the position of the Hospital Director. At The Cambridge Hospital it appears that the more important decisions relating to the functioning of the hospital are made by the Commissioner, not by the Hospital Director or the Director of Nursing. Both the Hospital Director and the Director of Nursing are in their late 20's, while the Commissioner is a seasoned veteran of medical affairs. His previous experiences include those of military physician, White House aide, and director of the American Hospital Association. It is not surprising that a man of his ability and experience would find it difficult to relinquish control of hospital administration.

2. The Director of Nursing at the hospital when we began this project was promoted to Director of the Department of Nursing for the city of Cambridge. She is now responsible for all nursing personnel employed by the city of Cambridge except those employed directly in the hospital.

On October 1, 1969, a younger RN was hired by the Commissioner; and on January 1, 1970, she assumed the role of Director of Nursing. The

transition in nursing administration was somewhat difficult because of the former director's long-standing, rigid control over the hospital nursing service. The new Director of Nursing was bright, energetic and appeared to be eager to implement constructive change within the department. In most decisions within the hospital, however, she was forced to accept the leadership and direction of the Commissioner. Although the Director of Nursing and the new Hospital Director had developed a good working relationship, the Nursing Director resigned her position after only 18 months of service (from January 1970 to June 1971) in order to assume a similar position at Whidden Hospital, a private, non-profit institution in Everett, Massachusetts.

It is too early to determine what impact the Director of Nursing's resignation will have on this project's recommendations. It is clear that the absence of a director of nursing puts an additional burden on all the nursing supervisors. They now have less time to do long-range planning since their duties have temporarily expanded to include payroll, personnel screening, application review, interviews, and the director's work.

3. The Chief of Pathology was asked to resign in November 1969 because his performance had been unacceptable to many of the hospital physicians. A new Chief of Pathology, a former resident at the hospital, was appointed soon after. The organizational structure in the lab has changed considerably since the appointment of the new Chief of Pathology. Physicians and administrators within the hospital are extremely pleased with the performance of the laboratory and the new Chief of Pathology.

4. In 1970 the Department of Psychiatry was awarded a substantial staffing grant from the federal government. As a result, its bed capacity and staff have doubled. In addition, one half of a floor in the old section of the hospital was converted into a unit for alcoholics, while the other half of the floor has been converted to orthopedic surgery beds.
5. In May 1971, The Cambridge Hospital received a $67,000 federal grant to start a methadone drug rehabilitation program. The program combines the use of methadone with psychiatric therapy. The methadone unit is staffed by one psychiatrist, one registered nurse, two senior non-professionals, one job counselor, and one junior non-professional. The two senior non-professionals have had previous experience working with addicts. The junior non-professional is receiving on-the-job training conducted by the staff.
6. For a three-year period ending in the winter of 1971, The Cambridge Hospital lacked a permanent Chief of Medicine. This absence of medical leadership within the hospital for such a long period led to poor morale and disorganization within the medical staff.

The Commissioner spent much of his time searching for a physician to fill the vacancy; unfortunately, he was hampered by certain individuals from the Harvard Medical School staff who have veto power over such appointments. When arrangements for the appointment of a Chief of Medicine were almost complete in December 1970, the physician being considered suddenly decided to reject the offer. According to the hospital administration, a variety of factors entered into his decision.

Among them were the friction that developed between the candidate and a member of the Harvard teaching system, the resistance of various members of the medical staff at the hospital to him (because his major interest was in preventive or community medicine), and the candidate's own uneasiness with his future working atmosphere. In January 1971, a Chief of Medicine was finally appointed. To date, he has developed a good working relationship with the hospital administration and the Commissioner; in addition, he has a strong following of students from Harvard Medical School. The long-range impact of this appointment has yet to be determined.

7. During the winter of 1970, the Chief of Surgery announced his retirement and he recommended the Assistant Chief of Surgery as his replacement. Because of some friction between the Commissioner and the Assistant Chief of Surgery, he was not appointed. An assistant professor of surgery at Harvard Medical School and Peter Bent Brigham Hospital was appointed Chief of Surgery in the spring of 1970, and he has proven to be a strong asset to the hospital staff.
8. The Assistant Commissioner of Health and Hospital, who was also Chief of Ambulatory Services, resigned his position in February 1971 to assume a position at Yale University. A replacement has not been named.

The Initial Reactions of Various Individuals and Groups Within the Hospital to This Project's Recommendations

The formal recommendations were submitted to The Cambridge Hospital during December 1970. We allowed several weeks to pass before contacting the various individuals in the hospital.

Our first meeting after presenting our recommendations to the hospital was with the Hospital Director. He was mildly opposed to the three new occupational titles, feeling that they were passing fads. He hypothesized that ours was an academic study and we were therefore obliged to come up with new and popular ideas. Our position was that the three occupational titles had been used successfully elsewhere in a very limited fashion, and therefore they were neither "new" nor "popular." The director also felt that the ex-corpsmen "are really doing no more than what a good general duty (RN) nurse does." He went on to say that training funds would be hard to obtain, and "since The Cambridge Hospital is relatively small, it is not economically feasible to run a large number of training programs." He also felt city politics would preclude the establishment of a personnel office and director. He suggested that some sort of reciprocal arrangement with neighboring hospitals could be developed, whereby each would provide one or two different training programs, thus eliminating duplication of effort and minimizing costs. On the whole, the Hospital Director favored most of our other recommendations.

On January 8, 1971, a meeting was held with the Commissioner, the Director of Nursing, and the Hospital Director. The Commissioner's reaction was extremely positive. He was pleased with the recommendations and quite anxious to begin implementation. He expressed concern over the cost of

several of the recommendations and indicated that it would be difficult to establish a personnel office with a director in the hospital until the present City of Cambridge Personnel Director retires. In general, the Commissioner showed optimism over the implementation of many of our other recommendations.

We informed the Commissioner of some earlier conversations with representatives of the Social Development Corporation (SDC) of New York City. In the fall of 1970, a representative of the SDC called us and suggested that we apply to the SDC for funds (supplied by a contract from the U.S. Department of Labor) to upgrade paramedical personnel at The Cambridge Hospital. At that time we indicated to SDC that when our recommendations were complete we would forward them a copy and then, perhaps, we could discuss a funding agreement. Later an SDC representative came to Boston and met with the Hospital Director and the Director of Nursing to discuss possible funding of upgrading programs by SDC.

In order to be funded by SDC, however, the hospital would have to sign a contract to increase the salary of those who successfully complete any upgrading programs. At that time, the Commissioner felt that the salary issue would present no problem; he was confident that he could get salary adjustments for upgraded employees in next year's budget, and he was fairly confident that he could get funding even in the current year's budget. The Hospital Director again suggested that several local hospitals should make a joint effort to provide training programs in order to minimize costs, avoid duplication of effort and maximize the training capabilities of the participating hospitals. All present agreed the idea should be pursued, and

plans were made for a meeting with the directors of several local hospitals to explore the suggestion further.

It was agreed that:

1. The principal investigator of this study would proceed with negotiations with the SDC.

2. The Commissioner would arrange a luncheon for local hospital directors to explore further the sharing of training capabilities.

Our third meeting was held soon after with the Director of Nursing. While being enthusiastic about the recommendations, she was somewhat pessimistic about the feasibility of implementing some of them. She, too, felt that a personnel director is badly needed, but the hospital cannot override the City Manager. She stated that RNs could not be used to train physician's assistants. We explained to her that we felt the physician's assistants should be shifted to the department of medicine and should be supervised by the medical staff. We all agreed that physician's assistant (PAs) should not be under the sole jurisdiction of the interns, as they are now. She explained that interns were training the PAs by quickly demonstrating a procedure (e.g., thoracentesis, paracentesis, lumbar puncture) and then leaving the PAs on their own (without proper supervision) to perform the task. The Director of Nursing felt that if funds could be found, she was prepared to begin the Nursing Assistant program immediately.

We next had a meeting with the Chief of Pathology to learn his reactions to our recommendations concerning the hospital laboratory. He was very receptive to our recommendation of phasing out Damon Lab because the hospital lab was in a position to do the work more efficiently and at a lower cost. He also was receptive

to the idea of seeking laboratory work from several neighboring hospitals but stressed that his lab was not yet prepared to do a large volume of tests.

Negotiations with the Social Development Corporation

We approached the Social Development Corporation again, and on January 15, 1971, we were informed by the SDC that $8,000 to $10,000 were still available for upgrading programs at the hospital. On February 15, 1971, the Commissioner gave his approval to proceed with contract negotiations with the SDC. Prior to this, he had determined that funds would be available for salary increases for the upgraded nurses'aides (new title - nursing assistants). A representative of the SDC then drew up a contract and was prepared to come to Boston on March 1, 1971, so that both the Commissoner and the union president (AFSCME) could sign the agreement.

During this same period, our research assistant and one of the in-service education RNs agreed to the following procedure concerning the upgrading program:

1. To schedule an entrance exam;
2. To discuss all procedures and the program at a head nurses' meeting;
3. To gear the program so as to provide the nursing assistants with a better understanding of nursing care.
4. To make class attendance mandatory.

At this point, the AFSCME business agent demanded a meeting of representatives of the union, the Hospital Director, the Commissioner and ourselves. The purpose

of the meeting, held on March 8, 1971, was to come to an agreement (written and signed) on certain aspects of the upgrading program. In essence, the participants agreed to the following terms:

1. Entrance into the upgrading program would be based on:

Seniority	20-40 percent
Interview	20-40 percent
Written examination	20-40 percent

2. Prospective candidates would be canvassed in the following order: nursing department, all other departments in the AFSCME bargaining unit, and departments not in the bargaining unit. This procedure would be followed until all slots were filled.

3. Personnel from the 11 p.m. - 7 a.m. shift and the City Infirmary must not necessarily be excluded from the upgrading program.

4. Should trainees attend classes on their own time, they should receive compensation in the form of time off.

5. The Cambridge Hospital must in good faith attempt to provide an ongoing program, either by seeking outside funds or by developing an in-service education staff.

6. The final grade (pass-fail) for each trainee would be based on:
   (1) Job evaluation - 50 percent
   (2) Final exam and quizzes - 50 percent.

The Commissioner and the business agent of AFSCME both agreed to the six points mentioned above. Salary considerations were omitted from this agreement since the union preferred to negotiate for them during normal contract negotiations.

This meeting between the hospital and the union delayed the SDC's representative by one week. He arrived in Boston on March 9, 1971, the day after the Commissioner and the union agreed to sign the contract.

The president of the AFSCME union signed the contract in the morning. We then met with the Commissioner, the Hospital Director, and the SDC representative. At that time, the Hospital Director indicated that several of the nursing supervisors had reservations concerning the proposed training program. The Commissioner called in one of the nursing supervisors (the Director of Nursing was on vacation) to determine her reservations. The supervisor was rather indefinite but eventually indicated that the training program would be difficult to schedule and impossible to prepare within a three-week period (this was the time alloted by SDC). The Commissioner, who knew this supervisor quite well, perceived that these were not her only reservations and was unwilling to press her further during this meeting. The representative of the SDC was then asked to leave the unsigned contracts with us, so that a decision could be made within the next few days.

The next day we interviewed several of the nursing supervisors to discuss the reasons for their resistance to the SDC contract. Their lack of support for the program was based on the following:

1. Although the nursing assistant program was a nursing program, nursing supervisors had not been sufficiently involved in the planning stages;

2. Many commitments previously made by the hospital administration were later rescinded. Several of the supervisors believed the financial commitment made to the upgraded employees and the union would not be met and the Nursing Department would unjustly bear the brunt of the blame;

3. There was a lack of adequate planning of the program because of time constraints;

4. The scheduling of the program would be difficult, if not impossible, to arrange;

5. Some of the terms agreed upon by the AFSCME business agent and the hospital administration could not be fulfilled;

6. One supervisor was particularly miffed because she had not been present at the original meeting between the Hospital Director and the AFSCME Union;

7. Two supervisors felt that the headaches of the program outweighed any benefits;

8. One nurse resented what she termed "the condescending and condemning attitudes toward nursing personnel and nursing education by the hospital administration;"

9. Finally, it was apparent that many other reservations would remain untold.

Several days later the Commissioner informed us that he would not sign the contract. He was obviously reluctant to give us this reply; however, the supervisors had convinced him not to sign at this time.

The Hospital Director, Director of Nursing, nursing supervisors, and the Commissioner agreed the program would begin as of September 1, 1971. This would allow sufficient time for the nursing supervisors to select the candidates, solve the scheduling problems, and prepare a quality upgrading program. The Commissioner, the Hospital Director, and the nursing supervisors were confident that the two RNs (in-service education) would be capable of providing the training without outside funding.

Progress on Recommendations

One particularly promising development occurred in the early stages of the study, before any formal recommendations were made to the hospital. The Director of Nursing appointed our research assistant to serve as chairman of the newly-formed Job Description Committee. This committee is composed of six members: two RNs, two NAs, one LPN, and our research assistant. Its objective is to de-

lineate job functions. This committee can be used as a vehicle to implement our recommendations for restructuring the functions of the nursing service personnel. Thus far, the Job Description Committee has recommended job descriptions for the following:[1]

1. Head Nurse
2. Staff Nurse
3. Licensed Practical Nurse
4. Nurses' Aide
5. Ward Secretary

The following is a progress report on each of the 13 recommendations made to The Cambridge Hospital, but it should be noted that these comments are being made only seven months after the recommendations were made.

1. The Commissioner and hospital administration agree that a permanent personnel office should be established at the hospital with a personnel director at its head. They also agree that this personnel director should have a voice, if not control, over:

   a. Setting up hiring standards in conjunction with supervisors of the appropriate departments;

   b. Conduct of personnel;

   c. Orientation of new personnel;

   d. In-service and OJT programs;

   e. Performance reports at least one each year on each employee;

   f. The initial contact with all prospective employees;

   g. Keeping all employees of the hospital informed of their rights, privileges and obligations.

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1. See Appendix E for job descriptions.

The reason for the delay in implementing this recommendation is the City of Cambridge personnel office. The political control held by that office will soon be relinquished, and included in the 1972 budget for the hospital will be a request for a hospital personnel department and director.

2. The Commissioner and the Hospital Director concur with the organizational chart indicating lines of responsibility. The Commissioner intends to use this organizational chart as a guide for the hospital. See Figure VII A.

3. The administration of the hospital was receptive to the notion of establishing three new paramedical occupations:

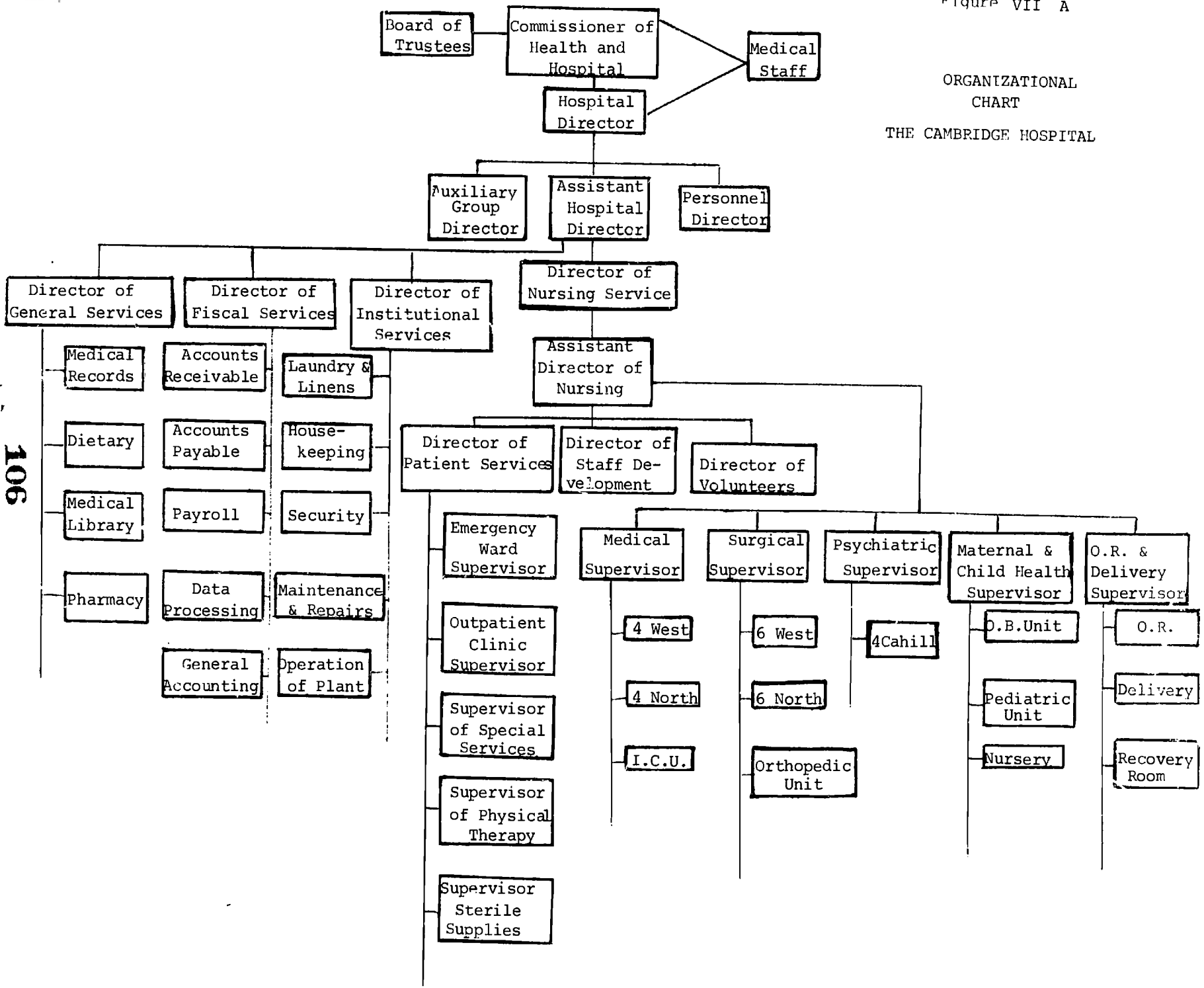
   a. Nursing Assistant
   b. Medical Assistant
   c. Physician's Assistant

The medical technicians, all former corpsmen, at the hospital have been transferred to the Department of Medicine and are now involved in a physician's assistant training program under the direction of the medical staff. The nursing assistant training program involving forty trainees received a false start in the spring of 1971. Because of the difficulties mentioned earlier in this chapter, this program will not begin until September 1, 1971, and in-service RNs will train the personnel (with no outside funding). By then, the hospital will have two full-time, in-service education RNs. These two RNs will also provide in-service education for the licensed practical nurses and the registered nurses.

Figure VII A

ORGANIZATIONAL CHART

THE CAMBRIDGE HOSPITAL



4. The Director of Nursing has made a strong effort to move RNs out of the least difficult tasks (functions 1-18, Table 1, Appendix D). These functions will be performed by nurses' aides or nursing assistants.
5. The Commissioner has approved the recommendation that upgraded paramedical personnel should receive appropriate increases in salary. This has already been implemented for the physician's assistants.
6. The AFSCME union has strongly endorsed the proposal for training programs and the upgrading of paramedical workers at The Cambridge Hospital. It, along with the hospital administration, will attempt to publicize the existence of these programs.
7. The hospital administration has indicated that it will combine this study's detailed interview formats with the less detailed job descriptions arrived at by the hospital's Job Description Committee. As stated in our recommendations, the same list of functions was constructed for the RNs, LPNs, NAs and orderlies; this was done to determine the degree of overlap of functions. The overlap can be minimized by the degree of authority and responsibility given each category of paramedical workers. This degree of responsibility and authority has been delineated by the Job Description Committee (see Appendix E).

8. We recommended the elimination of the job category of orderly. His functions can be performed more readily by the nursing assistant (male or female). The administration of the hospital concurred. As soon as the government's case is finally adjudicated, the orderlies will be phased out of the hospital. Their functions will be taken over by nurses' aides and nursing assistants.

9. We recommended that periodic updating of radiological techniques be permanently established at the hospital. The current policy of the radiology department allows the chief technician and one or two technicians to attend seminars and conferences about three times per year. The chief technician, upon returning from these seminars, conducts her own sessions in order to familiarize The Cambridge Hospital radiological technicians with new procedures in the field. There is also a weekly conference of surgeons which the radiological technicians take turns attending. During these meetings, the surgeons explain to the technicians why certain procedures are done, what symptoms to be aware of, and how to improve their X-ray techniques.

10. Since only one full-time EKG technician was employed by the hospital, we recommended in-service training programs be established to train RNs and LPNs to perform this function. An in-service training program was established and already has successfully trained numerous RNs and LPNs to perform EKG functions.

11. At the time our recommendations were made, The Cambridge Hospital employed only one neighborhood health worker. We suggested that the number be increased, particularly since several new health centers were opening. Since then, a second neighborhood health worker has been hired. As a Portuguese-speaking person, she is actively trying to develop and organize the Portuguese-speaking community: Much of her time is spent making home visits where she performs some of the simpler tasks that nurses usually perform. In addition, she helps the nurses in the Portuguese-speaking health center.

12. The inhalation therapy program at the hospital remains essentially unchanged. Aside from the fairly unstructured OJT program that previously existed, the department head now occasionally gives lectures to the technicians.

13. Our final recommendation concerned the hospital laboratory. Specifically our recommendation was:

> Since the professional efficiency of The Cambridge Hospital laboratory has improved considerably because of staff changes and space and equipment additions, the hospital should actively seek the laboratory work of neighboring institutions whose conditions are far less acceptable than those at The Cambridge Hospital. We also recommend the elimination of the lab contract with the private firm, Damon Engineering Inc.

The Cambridge Hospital now does practically all of its own laboratory work. The hospital is also doing lab work for the Holy Ghost Hospital (recently renamed

Youville Hospital). Negotiations are going on for performing the laboratory work of the Sancta Maria and Somerville Hospitals as well. The Chief of Pathology, the person responsible for these changes, stresses that his lab is not yet prepared to do a large volume of laboratory work for a number of other hospitals. However, his staffing changes suggest that he is moving in this direction.

When we first entered The Cambridge Hospital, the lab employed 14 technicians and no technologists. At that time Damon Engineering Inc. was doing a substantial portion of the hospital's lab work. Because Damon lost specimens, created long delays in transmitting lab information, had no quality control, and often gave doubtful test results, the contract with the firm was terminated. By June 1971, The Cambridge Hospital lab employed 34 technicians (FTE 28) and 10 technologists. The numerous complaints, previously leveled at the hospital laboratory by the staff and physicians have ceased.

New Programs at The Cambridge Hospital

The Nurse Practitioner Training Program:

The purpose of this program is to get nurses out of their task-oriented role and into a role that demands decision-making. The Cambridge Hospital is working with Boston University under a grant from Tri-State

Medical Programs to provide theoretical and didactic training to six registered nurses presently employed by the City of Cambridge. At the end of the four-month training period, Cambridge expects to employ these nurse practitioners in several geriatic nurse clinics to be established throughout the city. The nurse practitioners, under physician supervision, will provide continuing ambulatory patient care to the elderly who have certain chronic illnesses; their role will primarily be one of supportive maintenance. See Appendix E for a job description of the nurse practitioner.

The Cambridge Hospital - School of Medical Technology:

Beginning in July 1971, The Cambridge Hospital will offer a one-year intensive course in medical technology leading to certification by the Registry of Medical Technologists of the American Society of Clinical Pathology (ASCP). The school will train students for positions as laboratory senior technologists or supervisors and will assist them to obtain further training in a specialized field of medical technology leading toward a higher degree. The training will be affiliated with Boston's Suffolk University which grants one year of credit for the year's training in medical technology and awards a Bachelor of Science degree with a major in Biology. Prior to admission into the program, a student must have completed three years of college, including several courses in chemistry and biology and one course each in mathematics and physics. The main emphasis of the program will be placed on correlation of both academic and technical instruction, understanding of quality control, and development of the student's professional sense of responsibility to the needs of the hospital and the patient. The Cambridge Hospital expects to employ some of the students who successfully complete the program.

Costs for The Cambridge Hospital[2]

A substantial amount of cost data for The Cambridge Hospital for 1968 and 1970 used in this chapter and its appendix was secured from statistical forms commonly referred to as HCF-400 forms, which must be completed annually by each hospital in the state of Massachusetts. It should be noted that the figures and HCF-400 forms for 1968 were compiled before this project began at The Cambridge Hospital. While the HCF-400 forms for 1970 were completed during this project's stay at the hospital, our specific recommendations to the hospital were made just after the completion of the 1970 forms. Therefore, these figures and comparisons do not reflect the specific recommendations made to the hospital by this study. The presence of this project at The Cambridge Hospital, it is hoped, did have some catalytic effect before our formal recommendations were made.

A comparison of 1968 and 1970 in-patient statistics for The Cambridge Hospital indicates that during this period:[3]

1. The hospital increased its bed complement by 19.7 percent (from 147 to 176 beds).

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2. For a complete analysis and explanation of these HCF-400 forms, see Cost Finding for Hospitals, American Hospital Association, Chicago, 1966.

3. See Appendix Table F-1.

2. The hospital experienced a 38 percent increase in total in-patient days (from 37,367 days in 1968 to 51,559 days in 1970).

3. The average length of stay at the hospital declined from 9.6 days in 1968 to 9.3 days in 1970.

4. The average length of stay for maternity cases declined from 4.6 days in 1968 to 4.3 in 1970.

Ambulatory statistics for 1968 and 1970 indicate a marked rise in total visits over this period. The most substantial increase was in clinic patient visits. In 1968 there were 19,088 clinic patients visits; by 1970 the figure had risen to 25,529, an increase of 34 percent.

A review of hospital expenditure shows increases in expenses in every department of the hospital. The most substantial increases were in the following areas: (1) operating rooms (from $180,480 in 1968 to $415,931 in 1970, representing a 130 percent increase) and (2) laboratory (from $378,376 in 1968 to $680,722 in 1970, representing an 80 percent increase). See Appendix Table F-2.

The per diem costs of accomodation during the 1968-1970 period showed a substantial increase. For example, in 1968 a routine semi-private accomodation was $65.55; by 1970 the same accommodation had risen to $82.97, an increase of 26.6 percent. See Appendix Table F-3.

Total general fund income for The Cambridge Hospital during 1968 and 1970 is shown in Appendix Tables F-4 and F-5. The distribution of expenses and apportionment of overhead for the same periods is shown in Appendix Tables F-6 and F-7. In brief, these income and expense calculations show the following:

	1968	1970
Total General Fund Income	$2,836,531	$6,271,258
Total Expenses	$4,104,890	$6,553,922

In 1968 the hospital suffered a loss of $1,268,359; but in 1970 its loss amounted to only $282,664. During a two-year period in which The Cambridge Hospital experienced a 38 percent increase in total in-patient days and a 34 percent increase in out-patient clinic visits, its expenses increased by 121 percent. In 1968 the hospital's loss represented 23 percent of its expenses; in 1970 it represented only 4.3 percent.

Mortality Rates

During the period (1965-71) when changes in wage and occupational structures were taking place, the mortality rate at the hospital changed as follows:

Mortality Rate	Percentage of All Patients Discharged
1965	5.4
1966	5.5
1967	5.3
1968	5.2
1969	5.8
1970	3.6
January 1 to May 30, 1971	3.5

Infant Mortality	Percentage of All Newborn Discharged
1965	2.5
1966	2.1
1967	0.9
1968	1.7
1969	2.2
1970	1.7
January 1 to May 30, 1971	

Entry Requirements

Appendix Tables F-8 through F-21 compare 1969 and 1971 entry requirements for various paramedical personnel at The Cambridge Hospital. Of major importance are the following:

1. In 1969 a high school education was a requirement for NAs. In June 1971, there were no formal educational requirements.

2. Psychiatric attendants no longer require a high school education.

3. The specialized practical experience for a laboratory specialist (hematology) has been reduced from two to one year.

4. Entry requirements are now (June 1971) formally set up for physician's assistants. There are no formal educational requirements. The three physician's assistants presently employed at the hospital are all former corpsmen. Corpsmen training is given in all three military services to individuals with no educational requirement.

Northeastern University began to train physician's assistants in June 1971. The program accepted 14 candidates, all former corpsmen, out of 200 qualified applicants. The program, which is being conducted in cooperation with the Massachusetts Medical Society, is an 18-month session consisting of didactic and clinical training. The Cambridge

Hospital (among others) has given a letter of intent to employ graduates of this program. The letters of intent to employ physician's assistants came from a number of physicians, hospitals, group practices, and health care centers and indicate a salary range of $9,000 to $12,000 annually.

Number of Persons Employed

Employment of paramedical personnel at the hospital and percentage change from 1969 to 1971 are shown in Table VII 1. Of significance are:

1. The substantial change in the distribution of RNs, LPNs, NAs, orderlies, and ward secretaries employed in general nursing between 1969 and 1971. Over this period, the number of orderlies decreased from 14.5 to 3 (FTE - Full-Time Equivalent). The number of RNs increased by only 6.7 percent, while NAs experienced the largest percentage increase -- 70.9 percent.

2. During these two years, the hospital doubled its number of laboratory personnel.

3. There was a significant increase in the number of psychiatric attendants, from 6 in 1969 to 11 in 1971.

Salary Scales

Table VII 2 shows salary scales at The Cambridge Hospital for various paramedical occupations for 1969 and 1971. These figures were used to calculate the general nursing wage bill shown on Table VII 3.

One can legitimately ask what has been the financial impact of the significant change in the staffing pattern in General Nursing which now uses a greater percentage of personnel with less formal training and few license requirements? If General Nursing personnel were still distributed (in 1971) according to the 1969 pattern, the wage bill (using the mid-point of the 1971 salary ranges) would have amounted to

$27,466.23 (Table VII 3, column J). We then calculated the 1971 weekly wage bill using the 1971 (FTE) personnel distribution, and the mid-point of the 1971 salary ranges (Table VII 3, column I). This wage bill amounted to $26,805.81. A comparison of these two wage bills (columns I and J, Table VII 3) indicates that as a result of the structural personnel changes from 1969 to June 1971, the wage bill was 2.5 percent lower.

Table VII 1 Number and Percent of Persons and Percentage Change in Various Paramedical Occupations Employed at The Cambridge Hospital -- 1969, 1971

OCCUPATIONS (FTE = Full-Time Equivalent)	October 1969		June 1971		Percentage Change
	No.	%	No.	%	
General Nursing:					
RN	67	47.0	71.5	40.9	+ 6.7
LPN	20	14.0	33.5	19.1	+ 67.5
NA	31	21.7	53.0	30.3	+ 70.9
Orderly	14.5	10.1	3.0	1.7	-383.3
Ward Secretary	10	7.0	14.0	8.0	+ 40.0
General Nursing Subtotal	142.5	100.0	175.0	100.0	+ 22.8
Laboratory:					
General Lab Technician	11	73.3	14.5	49.2	+ 31.8
Lab Specialist (Senior Technician):Chemistry Bacteriology,Cytology,Blood Bank Supervisor	2	13.3	4	13.6	+100.0
Lab Specialist: Hematology, Histology	1	6.7	2	6.8	+100.0
Clinical Lab Supervisor	1	6.7	2	6.8	+100.0
Medical Technologist, MT (ASCP)	0	-	7	23.7	Not relevant
Laboratory Subtotal	15	100.0	29.5	100.0	+ 96.6
X-Ray Technician	12		11		- 9.1
Head X-Ray Technician	1		1		-
EKG Technician	1		1		-
Inhalation Therapy Technician	4		5		+ 25.0
Surgical Technician	8		7		- 14.3
Neighborhood Health Worker	1		2		+100.0
Psychiatric Attendant	6		11		+ 83.3
Physician's Assistant	0		3		Not relevant
TOTAL (FTE)	190.5		245.5		+ 28.9

Table VII. Weekly Salary Scales at The Cambridge Hospital
1969, 1971

	1969 Weekly Salary			1971 Weekly Salary		
	Minimum	Maximum	Mid-Point	Minimum	Maximum	Mid-Point
Head Nurse	$152.31	$194.69	$170.50	$181.31	$231.15	$206.23
R.N.	141.73	184.04	162.89	168.74	218.59	193.67
L.P.N.	122.00	146.00	134.00	144.94	173.45	159.20
Nurses' Aide	86.25	92.02	89.14	102.06	113.65	107.86
Orderly	94.52	100.67	97.60	111.84	125.03	118.44
Ward Secretary	86.25	92.02	89.14	102.06	109.35	105.71
Surgical Technician	100.00	115.00	107.50	118.80	136.62	127.71
Psychiatric Attendant	122.00	146.00	134.00	144.94	173.45	159.20
X-Ray Technician	115.19	126.73	120.96	136.87	150.57	143.72
EKG Technician	100.77	110.00	105.39	119.73	130.64	125.19
Inhalation Therapist[1]	134.61	146.15	140.38	159.92	173.62	166.77
Inhalation Technician[1]	105.77	117.30	111.54	125.65	139.35	132.50
Lab Technicians (Chiefs) Bacteriology Hematology Chemistry Cytology	132.40	143.94	138.17	157.32	171.03	164.18
Lab Technician	115.38	126.92	121.15	137.07	150.57	143.82
Medical Technologist[2]				162.00		
Physician's Assistant[3]	122.00	146.00	134.00	144.94	173.45	159.20

1. Position was established in 1969.

2. Position was established in 1970. The salary range for Medical Technologist has not yet been established. All technologists presently employed are being paid at the rate of $162.00 per week.

3. One corpsman was employed as a medical technician in the Department of Nursing during the latter part of 1969. It was not until 1971 that the group of corpsmen was transferred to the Department of Medicine and given the title of Physician's Assistant.

Table VII 3 General Nursing Wage Bill Comparisons - 1969, 1971

	Number of Personnel (FTE)		%		Midpoint of Weekly Salary Ranges		1971 Total Empl. Allocated According to % Distribution of 1969 Employment	1969 Weekly Wage Bill (Using 1969 Employment and 1969 Salary)	1971 Weekly Wage Bill (Using 1971 Employment and 1971 Salary)	Calculated Wage Bill for 1971, Assuming Occupational Distribution of 1969
	1969	1971	1969	1971	1969	1971				
Column	A	B	C	D	E	F	G	H (Column AxE)	I (Column BxF)	J (Column ExG)
RN Head Nurse	6	6	4.2	3.4	173.50	206.23	7.4	$ 1,041.00	$ 1,237.38	$ 1,526.10
Registered Nurse	61	65.5	42.8	37.4	162.89	193.67	74.9	9,936.29	12,685.39	14,505.88
LPN	20	33.5	14.0	19.1	134.00	159.20	24.6	2,680.50	5,333.20	3,916.32
NA	31	53	21.7	30.3	89.14	107.86	38.1	2,763.34	5,716.58	4,109.47
Orderly	14.5	3	10.1	1.7	97.60	118.44	17.8	1,415.20	353.32	2,108.23
Ward Secretary	10	14	7.0	8.0	89.14	105.71	12.3	891.40	1,479.94	1,300.23
TOTAL	142.5	175.0	100.0	100.0			175.1	$18,727.73	$26,805.81	$27,466.23

CHAPTER VIII

POLICY IMPLICATIONS OF THE STUDY

As in most social science field research, one of our goals is to focus attention upon the policy implications of our findings. Our research provides a methodology which can be used to evaluate the hiring-in standards and the utilization of paramedical personnel. This project, however, is a pilot one, limited to our experience in a single hospital, The Cambridge Hospital. How valid our findings are for other hospitals in this and other areas is still to be tested. Nevertheless, the findings in The Cambridge Hospital appear to have a number of policy implications for government, for hospitals and for further research.

Implications for Government Policy

1. Where licensing is deemed necessary in order to maintain professional standards or quality, the government should develop a uniform licensing law for the nation. Only in this manner could standards be maintained and could the needed mobility of paraprofessionals be furthered.

2. Personnel for many of the newer paramedical occupations can be trained on the job, thereby giving advancement opportunities to the disadvantaged who lack the formal education requirements. Government financial support of such training programs would expand the job opportunities in the paramedical field for the disadvantaged.

3. The restructuring of paramedical occupations was performed in one hospital, The Cambridge Hospital. Success in this hospital does not assure success in others. The government should underwrite the cost of this experiment in a sample of hospitals across the nation.

Implications for Hospitals

1. We recommend that commissioners of health, chiefs of medicine and hospital administrators study these recommendations to determine the feasibility of implementing some or all of them in their own hospitals. Many of the recommendations have already been implemented in The Cambridge Hospital.

2. Since there apparently is a relative shortage of RNs and LPNs, we recommend that these two occupations be eased out of low-level functions in general nursing; these functions should be performed by persons in occupations requiring less education and training.

3. Paramedical employees and their supervisors are very sensitive to their job titles, descriptions, and functions. In a number of occupations paraprofessional organizations and unions have been brought in to protect the "job" interests of their members. Hospitals should explain in detail to the individual employees the possible effects of utilizing the findings of this study. The employees should be assured that their status and salary will not be affected adversely.

4. Where unions or professional organizations represent paramedical personnel, the hospitals should obtain their cooperation before attempting to restructure jobs, change hiring-in requirements, or establish in-service training programs. These organizations are useful channels of communication between administration and employees.

5. Any significant change in occupational structure or functions has an effect upon the wage relationships among the various occupations. Hospitals should be sensitive to the need to reexamine and, if necessary,

change the wage structure when changes are made in the occupational structure or functions.

6. Since the traditional occupational hierarchy prohibits vertical mobility, hospitals should juxtapose an alternative which permits upward mobility through in-service training and education. Such alternatives could include the establishment of new paramedical occupations, such as nursing assistant, medical assistant, and physician's assistant.

7. Hospitals should re-examine their paramedical occupational structure to determine realistic job requirements for each occupation.

8. Hospitals should establish hiring-in standards that are relevant to the functions to be performed by each occupation. Arbitrary licensing and unnecessary education requirements should be eliminated.

9. Hospitals should expand their in-service training programs for selected paramedical employees where it is clear that these employees can be trained for better paying positions. For paramedical occupations, in-service training is likely to be more efficient and economical.

10. Hospitals should improve their in-service education programs for paramedical and medical workers, in order to permit them to keep abreast of the constantly changing techniques and technology.

11. In many instances hospitals find themselves insufficiently financed or too small to assume the financial burden of in-service training and education. In these cases, hospitals should provide in-service training and education through arrangements with neighboring hospitals and educational institutions on a cooperative basis.

Implications for Research

1. The present research was a pilot project in one hospital. Successful changes in this hospital are no assurance of success in different types of hospitals in different areas. Further research in a sample of hospitals across the nation will provide evidence whether the methodology and techniques can be applied successfully elsewhere.

2. To increase the possibilities that hospitals will attempt to implement our recommendations, the federal government should utilize change agents to contact and work with commissioners of health and hospitals, chiefs of medicine, chiefs of other services, administrators, professional medical organizations, unions and legislators. Research teams could then analyze the factors leading to success and failure.

3. The period available to evaluate the implementation of our recommendations at The Cambridge Hospital was too short. Structual changes in the occupational hierarchy at The Cambridge Hospital will continue to be made and will have an impact on the quality and quantity of services offered for years to come. We therefore recommend a longitudinal study be made of the changes and their results.

4. With a more rational utilization of paramedical occupations, persons in the higher-level occupations start encroaching on the functions normally performed by the physician. There is no hard and fast rule that defines all the specific functions of the physician. The question raised is: Are there tasks performed by physicians which could be performed as well, or even better, by others with less education and training? Research should be done on the functions normally done by physicians to determine which can be readily transferred to the subprofessionals.

APPENDIXES

APPENDIX A

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APPENDIX B

Interview Formats

BACKGROUND INFORMATION COMMON TO ALL OCCUPATIONS

1. Name: _____

2. Job Title: _____

3. Age: _____ 4. Sex: _____

5. Education:

	No. of Years	Name of School or Hospital	Degree Completed
Grammar School	_____	_____	_____
High School	_____	_____	_____
College	_____	_____	_____

6. Additional Professional Training: (explain) _____

_____

_____

_____

7. On-the-Job Training: (explain) _____

_____

_____

_____

8. Professional Certification: (specify) _____

_____

9. Are you a student at present?

Name of Program	Institution
_____	_____
Date Started	Completion Date
_____	_____

10. Do you receive a stipend or other form of financial support? _____

_____

11. Do you pay tuition? (specify) _____

_____

12. What is your present salary (per year)? _____

At your present job, what will your salary probably be:

1 year from now? _____

5 years from now? _____

13. How long have you been employed at your present profession? _____

a. At this hospital? _____

b. Elsewhere? (specify) _____

c. If elsewhere, how or why did you come to Cambridge Hospital? _____

_____

_____

14. Have you been employed at any other health-related occupation? _____

Specify: _____

When: _____

Where: _____

How long: _____

15. Exactly how detailed was your orientation after accepting your present job? _____

a. Length of orientation: _____

b. Class work involved: _____

c. Other: _____

16. Exactly how would you train a new employee in your field?

a. On-the-Job: _____

_____

b. Classes in hospital: _____

_____

c. Other: _____

_____

17. What formal level of education should be required in your field?_____

18. What personal qualities should be required in your department or field?_____

19. What occupational level can you realistically hope to attain with your present educational and professional training? (Explain fully. Up some existing occupational ladder? Dead-end? If dead-end, why?)_____

20. To what extent did exposure to the following prepare you for the function you are presently performing?

	Percent
High School	
College	
Vocational/Technical Training	
On-the-Job Training	
Professional Training	
Practical Experiences	
Other	

21. Do you expect to remain at Cambridge Hospital? Why or why not? _____

22. General Comments: _____

The following is a list of the questions that were deleted from the original questionnaire (as explained in the section entitled, "Methodology Used for Phase II").

1. What is the end result of this function?

2. What equipment, instruments or supplies do you use in performing this function?

3. Do you perform this task alone, with a co-worker, only under supervision, or some combination of these?

4. Is there any type of patient on whom or with whom you cannot perform this task?

B6

N O R T H E A S T E R N U N I V E R S I T Y

INTERVIEW FORMAT FOR PARAMEDICAL MANPOWER STUDY

CAMBRIDGE HOSPITAL

I. Name: _____

II. Job Title: RN, LPN, NA, Od.

III. Department: GENERAL NURSING SERVICE

IV. Shift: _____

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Interview Administered by: _____ Date: _____

Time Started: _____ Time Finished: _____

Which of the following functions are you presently performing?	Yes or No	Not Done This Department	Hours/Week Spent on Function	If Under 5%, Specify How Often	Who Usually Performs This Task?	Who Do You Think Should Perform This Task?
1. Straightening up and cleaning the following:						
a. Patients' immediate furniture						
b. Nurses station						
c. Utility rooms						
d. Treatment rooms						
e. Nourishment center						
f. Litters						
g. Other.						
2. Distributing mail and flowers.						
3. Doing departmental errands:						
a. Going to pick up orthopedic equipment						
b. Going to Central Supply or laundry						
c. Going to IBM or records office						
d. Going to the operating room to help bring back a patient						
e. Other.						
4. Doing errands for patients:						
a. Making phone calls						
b. Refilling water jugs						
c. Preparing snacks or drinks from nourishment station						
d. Getting an extra pillow						
e. Other.						
5. a. Giving and removing bedpans						
b. Assisting patient to use bedpan or urinal						
c. Helping patient to and from bathroom.						

Which of the following functions are you presently performing?	Yes or No	Not Done This Department	Hours/Week Spent on Function	If Under 5%, Specify How Often	Who Usually Performs This Task?	Who Do you Think Should Perform This Task?
6. Making beds: a. Unoccupied b. Occupied c. Post-operative d. Other.						
7. Answering patient calls.						
8. Admitting patient: a. Completing clothes list or valuables list b. Getting patient comfortably settled in bed c. Notifying intern d. Other.						
9. Discharging patient: a. Returning clothes and valuables b. Accompanying patient from floor c. Other.						
10. Locating and setting up simple equipment: a. Bed rails b. Footboards c. Sandbags d. Heel coverlets e. Other.						

Which of the following functions are you presently performing?

	Yes or No	Not Done This Department	Hours/Week Spent on Function	% of Time Spent on Function	If Under 5%, Specify How Often	Who Usually Performs This Task?	Who Do You Think Should Perform This Task?
11. a. Taking patient to X-ray:							
1. Walking with him							
2. By wheelchair							
3. By litter							
b. Taking lab specimens to lab.							
12. Assisting in moving patient to another floor.							
13. Measuring food and fluid intake and output and totaling:							
a. Urine jugs							
b. Tube drainage							
c. IV intake							
at the end of each shift.							
14. a. Checking food trays							
b. Delivering food trays							
c. Picking up food trays							
d. Feeding patients.							
15. Putting away the following:							
a. Supplies							
b. Equipment							
c. Instruments.							

B10

Which of the following functions are you presently performing?	Yes or No	Not Done This Department	Hours/Week Spent on Function	% of Time Spent on Function	If Under 5%, Specify How Often	Who Usually Performs This Task?	Who Do you Think Should Perform This Task?
16. a. Washing or soaking equipment and supplies b. Putting them on the cart to be returned to Central Supply to be autoclaved.							
17. Caring for deceased persons: a. Notifying appropriate persons b. Washing and tying patient c. Removing IV's, tubes, dressings d. Going to morgue to get litter e. Taking deceased person to morgue.							
18. Giving information or directions to patients or visitors, or directing them to the correct source of information if it is impossible or inappropriate for you to answer the question.							
19. a. Collecting urine, stool or sputum specimens to be sent to lab b. Performing routine tests: 1. Pre-meal glucose 2. Guiac 3. Albumen 4. PH 5. Hematocrits 6. Other tests c. Obtaining a culture.							

Which of the following functions are you presently performing?	Yes or No	Not Done This Department	Hours/Week Spent on Function	% of Time Spent on Function	If Under 5%, Specify How Often	Who Usually Performs This Task?	Who Do You Think Should Perform This Task?
20. Giving routine morning care:							
a. Assisting patient in bathing and dressing, brushing teeth							
b. Turning or positioning patient							
c. Giving massages or alcohol rubs							
d. Walking with patients							
e. Getting patients in and out of bed							
f. Assisting with range of motion or other exercises							
g. Caring for bed sores with tincture of benzoin							
h. Other.							
21. Preparing patients for bed at night:							
a. Changing or straightening linen							
b. Turning or positioning patient							
c. Assisting patient in washing and brushing teeth							
d. Giving massages							
e. Other.							
22. Assisting patients with the following:							
a. Walkers							
b. Wheelchairs							
c. Crutches							
d. Braces							
e. Artificial limbs							
f. Other.							
23. Lifting patients on and off litters.							

Which of the following functions are you presently performing?

	Yes or No	Not Done This Department	Hours/Week Spent on Function	% of Time Spent on Function	If Under 5%, Specify How Often	Who Usually Performs This Task?	Who Do You Think Should Perform This Task?
24. Taking and recording: a. Temperature b. Pulse c. Respiration rate d. Blood pressure e. Weight.							
25. Assisting patient with Sitz bath.							
26. Applying or changing: a. Ice bags b. Hot water bottles c. Ace bandages d. Elastic stockings e. Binders f. Slings g. Restraints h. Other.							
27. Giving cleansing treatments: a. Enemas b. Douches c. Other.							
28. Caring for wounds: a. Dressing wounds b. Irrigating wounds c. Changing dressings.							

Which of the following functions are you presently performing?	Yes or No	Not Done This Department	Hours/Week Spent on Function	% of Time Spent on Function	If Under 5%, Specify How Often	Who Usually Performs This Task?	Who Do You Think Should Perform This Task?
29. Feeding patient by tube.							
30. Caring for precaution or reverse precaution patients.							
31. a. Setting up suture sets b. Assisting doctor in removing sutures.							
32. a. Doing cervical smears b. Venereal disease smears c. Other.							
33. Assisting doctor in dermatology problems: a. Wart removal b. Skin biopsies c. Other.							
34. Caring for lacerations: a. Wash laceration b. Dress laceration.							
35. Using EKG equipment: a. Bringing equipment to bedside b. Setting up equipment c. Attaching electrodes to patient d. Operating EKG equipment.							
36. Drawing blood.							

Which of the following functions are you presently performing?	Yes or No	Not Done This Department	Hours/Week Spent on Function	% of Time Spent on Function	If Under 5%, Specify How Often	Who Usually Performs This Task?	Who Do You Think Should Perform This Task?
37. a. Ordering drugs from pharmacy b. Receiving drugs c. Putting drugs away.							
38. a. Administering specified medication b. Noting time and amounts on patients' charts.							
39. Performing functions related to oxygen masks, catheters: a. Bringing equipment to bedside b. Assembling c. Inserting or applying d. Adjusting or caring for equipment e. Removing.							
40. Performing functions related to complex equipment such as tracheotemy tubes, suction equipment, oxygen equipment, monitors, defibrillators: a. Bringing equipment to bedside b. Assembling c. Inserting, applying or attaching d. Adjusting, caring for equipment e. Removing, discontinuing.							

Which of the following functions are you presently performing?

	Yes or No	Not Done This Department	Hours/Week Spent on Function	% of Time Spent on Function	If Under 5%, Specify How Often	Who Usually Performs This Task?	Who Do You Think Should Perform This Task?
41. Performing functions relating to IV's:							
a. Bringing equipment to bedside							
b. Assembling							
c. Inserting needle, starting IV, hanging bottles							
d. Changing labeled bottles							
e. Discontinuing IV service.							
42. Assisting physicians during treatment and examination of patients:							
a. Bringing equipment to bedside							
b. Preparing equipment or patient, assembling equipment							
c. Holding or restraining patient as necessary							
d. Removing and cleaning equipment afterwards							
e. Other.							
43. Counting narcotics and barbiturates at the change of each shift.							
44. Observing and reporting to supervisor or physician:							
a. Patient's condition							
b. Patient's reaction to drugs, treatments, IV's							
c. Significant incidents.							
45. a. Serving emotional support to patients							
b. Entertaining patients (particularly children).							

Which of the following functions are you presently performing?	Yes or No	Not Done This Department	Hours/Week Spent on Function	% of Time Spent on Function	If Under 5% Specify How Often	Who Usually Performs This Task?	Who Do You Think Should Perform This Task?
46. Participating in cardiac arrest team: a. Bringing equipment to bedside b. Call "444" c. Start external cardiac massage d. Use Ambu-bags, apply oxygen treatment, mouth-to-mouth resuscitation e. Remove, clean equipment, restock emergency cart afterwards f. Other.							
47. Beginning preparations for patient scheduled for surgery: a. Wash operative area b. Shave operative area c. Instruct patient not to eat or drink d. Remove jewelry, bobby pins, dentures or other prostheses e. Other.							
48. Filling out accident reports.							
49. Filling out: a. Stamping lab slips and requisitions b. Making necessary arrangements for X rays, lab work.							
50. Checking and posting orders in MD order books.							
51. Checking off diet manual each shift.							

Which of the following functions are you presently performing?	Yes or No	Not Done This Department	Hours/Week Spent on Function	% of Time Spent on Function	If under 5%, Specify How Often	Who Usually Performs This Task?	Who Do You Think Should Perform This Task?
52. a. Recommending (or) b. Arranging for a consultation with medical specialists, social service, psychiatry, etc.							
53. Assigning and coordinating nursing activities, including making out daily assignment sheet.							
54. Evaluating quality of nursing care.							
55. Observing nursing care and visiting patients regularly to ensure proper nursing care.							
56. Regularly inspecting rooms and wards for cleanliness and comfort.							
57. Accompanying physicians on rounds.							
58. Investigating and adjusting complaints.							
59. Supervising preparation and maintenance of patients' clinical records.							

Which of the following functions are you presently performing?	Yes or NO	Not Done This Department	Hours/Week Spent on Function	% of Time Spent on Function	If Under 5%, Specify How Often	Who Usually Performs This Function?	Who Do You Think Should Perform This Task?
60. Giving change-of-shift report.							
61. Teaching: (explain)							
62. Research: (explain)							
63. Supervisory duties: (explain)							
64. Waiting for work: (specify) LABOR, DELIVERY, OBSTETRICS, NURSERY, PEDIATRICS							
65. Caring for a mother in labor: a. Admitting patient b. Obtaining necessary information from patient c. Checking vital signs and fetal heart frequently d. Prepping patient, giving enema e. Providing emotional support f. Other.							

Which of the following functions are you presently performing?	Yes or No	Not Done This Department	Hours/Week Spent on Function	% of Time Spent on Function	If Under 5%, Specify How Often	Who Usually Performs This Task?	Who Do You Think Should Perform This Task?
66. Assisting in delivery room: a. Assisting in transferring patient to delivery room; and positioning, securing and draping patient as necessary on table b. Setting up delivery room c. Directly assisting doctor as necessary d. Receiving baby from doctor, place in heated crib e. Giving suction and oxygen as necessary f. Putting silver nitrate in eyes of baby g. Clamping umbilical cord h. Measuring baby, taking footprints i. Cleaning up both patient and used equipment, instruments afterwards j. Other.							
67. Caring for newborn: a. Moving baby from delivery room to nursery b. Washing, diapering c. Feeding d. Teaching mother how to breast-feed, bottle-feed, bathe and generally care for baby.							
68. Caring for mother after delivery: a. Encouraging mother to get up, take showers, force fluids, etc. b. Checking perineum sutures, breasts, fundus and flow of patient.							
69. Preparing babies or children for afternoon naps, including: a. Bathe them b. Change diapers c. Giving them bottle, if applicable d. Other.							

N O R T H E A S T E R N U N I V E R S I T Y

INTERVIEW FORMAT FOR PARAMEDICAL MANPOWER STUDY

CAMBRIDGE HOSPITAL

I. Name: _____

II. Job Title: RN, ATTENDANT

II. Department: PSYCHIATRY DEPARTMENT

IV. Shift: _____

Interview Administered by: _____ Date: _____

Time Started: _____ Time Finished: _____

Which of the following functions are you presently performing?

	Yes or No	Not Done This Department	Hours/Weeks Spent on Function	% of Time Spent on Function	If Under 5%, Specify How Often	Who Usually Performs This Task?	Who Do You Think Should Perform This Task?
1. a. Answering telephone b. Taking messages, notifying appropriate personnel c. Giving information or directions d. Making phone calls.							
2. Taking and recording: a. Temperature b. Pulse c. Respiration rate d. Blood pressure e. Weight.							
3. a. Collecting urine specimens b. Taking specimens to lab c. Taking patient to X-ray.							
4. Admitting new ward patients.							
5. Assisting in transferring patient to or bringing patient from another floor.							
6. Doing errands for department staff: a. Going to Central Supply b. Going to laundry c. Going to various departments or floors to obtain equipment, supplies.							

Which of the following functions are you presently performing?	Yes or No	Not Done This Department	Hours/Week Spent on Function	% of Time Spent on Function	If Under 5%, Specify How Often	Who Usually Performs This Task?	Who Do You Think Should Perform This Task?
7. Maintaining daily or weekly progress notes on selected in-patients and out-patients.							
8. Talking with patient's family casually or professionally, helping them to understand patient's condition, feelings, progress, problems, therapy.							
9. a. Knowing where any ward patient is at any given time b. Checking on his condition casually or formally and frequently (as with a suicidal patient).							
10. Supervising, evaluating and making recommendations about a patient with "outside hospital" privileges.							
11. Observing and reporting to head nurse or psychiatrist patient's mood changes, reactions and significant incidents.							
12. a. Assisting in planning a specific therapy for a patient b. Implementing the plan c. Motivating or encouraging patient to accept or involve himself in the therapy.							
13. a. Going to the emergency ward to evaluate a patient b. Notifying psychiatrist and discussing results with him.							
14. Assisting patients with occupational therapy.							

Which of the following functions are you presently performing?	Yes or No	Not Done This Department	Hours/Week Spent on Function	% of Time Spent on Function	If Under 5%, Specify How Often	Who Usually Performs This Task?	Who Do You Think Should Perform This Task?
15. a. Carrying out individual therapy with patient b. Discussing results, problems and progress with assigned supervisor afterwards.							
16. Participating in weekly community meeting with all in-patients.							
17. Participating in group therapy sessions.							
18. Responding to a call from any part of the hospital to go there and: a. Restrain b. Manage c. Evaluate d. Treat a medical or surgical patient.							
19. Teaching medical or surgical staff in any part of the hospital how to handle, deal with, react to or help one of their patients.							
20. Community work: (specify)							
21. Home visits:							

Which of the following functions are you presently performing?	Yes or No	Not Done in This Department	Hours/Week Spent on Function	% of Time Spent on Function	If Under 5%, Specify How Often	Who Usually Performs This Task?	Who Do You Think Should Perform This Task?
22. Coordinating psychiatric care of all patients.							
23. Giving approval to any therapy treatment or project.							
24. a. Functioning as a co-therapist or primary therapist b. Carrying out intensive therapy (as opposed to supportive therapy).							
25. Evaluating quality of work done by nurses and attendants.							
26. Investigating and adjusting complaints and problems.							
27. a. Developing plans for the expansion of the department b. Participating in administrative meetings concerned with hospital problems or policies.							
28. Teaching: (specify)							

Which of the following functions are you presently performing?

	Yes or No	Not Done This Department	Hours/Week Spent on Function	% of Time Spent on Function	If Under 5%, Specify How Often	Who Usually Performs This Task?	Who Do You Think Should Perform This Task?
29. Research: (specify)							
30. Waiting for work: (specify)							
31. Other functions:							
a. Administering medications.							
b. Giving change-of-shift report.							
c. Straightening up the area.							
d. Giving routine morning care.							

B26

N O R T H E A S T E R N U N I V E R S I T Y

INTERVIEW FORMAT FOR PARAMEDICAL MANPOWER STUDY

CAMBRIDGE HOSPITAL

I. Name: _____

II. Job Title: RN, LPN, SURGICAL TECHNICIAN

III. Department: OPERATING ROOM

IV. Shift: _____

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Interview Administered by: _____ Date: _____

Time Started: _____ Time Finished: _____

Which of the following functions are you presently performing?

	Yes or No	Not Done This Department	Hours/Week Spent on Function	% of Time Spent on Function	If Under 5%, Specify How Often	Who Usually Performs This Function?	Who Do You Think Should Perform This Function?
1. Clean the following: a. Dirty work rooms b. Lavatories c. Halls d. Lounges e. Litters.							
2. a. Clean operating room area and equipment b. Rewrap equipment to be sent to Central Supply c. Remake room for next operation.							
3. Care for used instruments after operation in the following ways: a. Account for them b. Clean c. Rewrap d. Autoclave.							
4. Use autoclave to sterilize instruments during operation.							
5. a. Order supplies from storeroom or Central Supply b. Receive supplies c. Arrange them on shelves in proper storage position.							

B28

Which of the following functions are you presently performing?	Yes or No	Not Done This Department	Hours/Week Spent on Function	% of Time Spent on Function	If Under 5%, Specify How Often	Who Usually Performs This Task?	Who Do You Think Should Perform This Task?
6. a. Check supplies and equipment after operation b. Restock cabinets if necessary c. Check for outdated supplies.							
7. a. Type out schedules for the following day b. List daily operations and daily patients.							
8. a. Make out list of supplies used during operation b. Make out and record charges to patients c. Distribute this information to the appropriate departments.							
9. Take dictation and type correspondence as necessary.							
10. a. Answer phone calls and notify appropriate personnel b. Make phone calls as requested (including calling in medication orders to the floor one hour preceding surgery).							
11. Keep clean, but unsterile, equipment or instruments dust free.							
12. Go to surgical floor to pick up pre-operative patient by litter.							
13. Prepare surgical kits for upcoming operations: a. Select, gather instruments b. Put them on cart to be picked up by Central Supply.							

Which of the following functions are you presently performing?

	Yes or No	Not Done This Department	Hours/Week Spent on Function	% of Time Spent on Function	If Under 5%, Specify How Often	Who Usually Performs This Task?	Who Do You Think Should Perform This Task?
14. Wash and shave operative area of patient, going to the surgical floor prior to the operation.							
15. a. Wash b. Shave c. Assist in sterilizing the operative area when the patient is properly positioned on the table.							
16. Place equipment and instruments in operating room for upcoming operations and arrange them according to the requirements of the operation.							
17. a. Move patient onto operating room table from litter b. Position, secure and drape patient as necessary.							
18. Aid surgical team to don gowns and gloves.							
19. Adjust the following during operation: a. Lights b. Suction c. Oxygen equipment d. Tables e. Other equipment.							

B30

Which of the following functions are you presently performing?	Yes or No	Not Done This Department	Hours/Week Spent on Function	% of Time Spent on Function	If Under 5%, Specify How Often	Who Usually Performs This Task?	Who Do You Think Should Perform This Task?
20. Leave operating room during operation: a. To obtain additional supplies, instruments b. To order additional units of blood, glucose, plasma or saline c. Arrange to have an X ray or a lab test done.							
21. Obtain a culture during an operation.							
22. Accept, label and record all specimens received from surgeon.							
23. Set up and adjust a cautery under surgeon's directions.							
24. Care for a deceased person: a. Notify appropriate personnel b. Tie and pad person c. Remove IV's and dressings d. Take person to morgue.							
25. a. Assist in moving post-operative patient from operating table to litter b. Assist in moving litter to recovery room.							
26. Keep track of needles and instruments used during operation.							
27. Assist in sponge count after operation.							

Which of the following functions are you presently performing?

	Yes or No	Not Done This Department	Hours/Week Spent on Function	% of Time Spent on Function	If Under 5%, Specify How Often	Who Usually Performs This Task?	Who Do You Think Should Perform This Task?
28. a. Hand instruments and supplies to surgeon b. Hold retractors c. Cut sutures as directed during operation.							
29. Assist surgeon or anaesthesiologist in administering: a. Plasma b. Blood c. Glucose d. Medications, other injections or transfusions during operation.							
30. Assist surgical team in case of patient's cardiac arrest: a. Assist in passing instruments b. Bring in, assemble equipment c. Operate equipment d. Draw up medications e. Other.							
31. Check or double check patient's chart upon his or her arrival to the operating room area to be sure lab work is done, his operative permit is signed, pre-operative medications have been given and so on.							
32. Book operations in conjunction with anaesthesiology.							
33. Schedule and assign personnel to scrub, to circulate or to assist in operating rooms.							

Which of the following functions are you presently performing?

	Yes or No	Not Done This Department	Hours/Week Spent on Function	% of Time Spent on Function	If Under 5%, Specify How Often	Who Usually Performs This Task?	Who Do You Think Should Perform This Task?
34. Inspect operating rooms and work rooms for order and cleanliness.							
35. Orient and train new employees.							
36. Supervise and evaluate quality of the work done by operating room personnel.							
37. Supervise maintenance of records.							
38. Investigate and adjust complaints and problems.							
39. Other functions:							
40. Research: (specify)							
41. Teaching: (specify)							
42. Waiting for work: (specify)							

B33

N O R T H E A S T E R N U N I V E R S I T Y

INTERVIEW FORMAT FOR PARAMEDICAL MANPOWER STUDY

CAMBRIDGE HOSPITAL

I. Name: _____

II. Job Title: WARD SECRETARY

III. Department: _____

IV. Shift: _____

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Interview Administered by: _____ Date: _____

Time Started: _____ Time Finished: _____

Which of the following functions are you presently performing?	Yes or No	Not Done This Department	Hours/Week Spent on Function	% of Time Spent on Function	If Under 5%, Specify How Often	Who Usually Performs This Task?	Who Do You Think Should Perform This Task?
1. Charting vital signs, intake and output and weights.							
2. Preparing admission and discharge records, transfer records.							
3. Ordering Central Supplies as requested by head nurse.							
4. Checking diet chart twice a day for correctness.							
5. Inserting completed Lab and X-ray slips on patients' charts.							
6. Straightening up nurses' station.							
7. Collecting and sorting patients' records; calling dispatcher to come to pick up old records, if necessary.							
8. Maintaining a current Kardex.							
9. Answering questions, giving information to patients or visitors or directing the questions to appropriate personnel.							
10. Answering the telephone and the intercom and notifying appropriate personnel.							

Which of the following functions are you presently performing?

	Yes or No	Not Done This Department	Hours/Week Spent on Function	% of Time Spent on Function	If Under 5%, Specify How Often	Who Usually Performs This Task?	Who Do You Think Should Perform This Task?
11. Making phone calls as requested by department staff or patients.							
12. Ordering stationery, supplies for the nursing unit.							
13. Operating the addressograph.							
14. Filling out condition sheet.							
15. Booking appointments outside the hospital (e.g., a brain scan at Mt. Auburn Hospital); arranging for transportation.							
16. Putting away supplies and equipment or making sure they are put away.							
17. Other functions: a. Ward secretary meeting b. Taking patient down after discharge c. Going to Central Supply or lab; departmental errands d. Distribute mail and flowers e. Training new ward secretaries.							

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N O R T H E A S T E R N U N I V E R S I T Y

INTERVIEW FORMAT FOR PARAMEDICAL MANPOWER STUDY

CAMBRIDGE HOSPITAL

I. Name: _____

II. Job Title: INHALATION THERAPY TECHNICIAN

III. Department: INHALATION THERAPY DEPARTMENT

IV. Shift: _____

175

Interview Administered by: _____ Date: _____

Time Started: _____ Time Finished: _____

Which of the following functions are you presently performing?

	Yes or No	Not Done This Department	Hours/Week Spent on Function	% of Time Spent on Function	If Under 5%, Specify How Often	Who Usually Performs This Task?	Who Do You Think Should Perform This Task?
1. Check oxygen cylinders, nitrous oxide bank and nitrous oxide cylinders to make sure supply is adequate.							
2. Make rounds at 8a.m. and 3p.m.: a. Check warning lights in operating room, oxygen and nitrous oxide in delivery room, Ambu-bags and laryngoscopes on emergency carts, and permanent equipment in Recovery Room, Emergency and I.C.U. b. Pick up used equipment from floors c. Visit inhalant patients d. Make any necessary adjustments, repairs (if possible) on equipment e. Restock any supplies on floors.							
3. Wash, sterilize and put away used equipment.							
4. Order, receive and put away supplies.							
5. Examine patients' charts, record treatments given, and insert pulmonary lab function reports and pulmonary consultation sheets.							
6. a. Record cost of materials and equipment used b. Make out patient charge slips for inhalants, equipment used or treatments given.							

Which of the following functions are you presently performing?	Yes or No	Not Done This Department	Hours/Week Spent on Function	% of Time Spent on Function	If Under 5%, Specify How Often	Who Usually Performs This Task?	Who Do You Think Should Perform This Task?
7. a. Maintain a current Inhalation Therapy Kardex b. Maintain ongoing records of patients serviced, of charges made to patients and of pulmonary function sheets.							
8. Care for suction machines, including wall suction units, thoracic suction units: a. Check and clean b. Set up c. Initially operate d. Repair if necessary.							
9. Care for oxygen mask, nasal cannula: a. Set up, attach, initially operate b. Adjust or regulate flow of gases c. Remove, dispose of, or clean.							
10. Care for aerosols, administering both heated and cooled oxygen: a. Set up, attach and initially operate b. Adjust or regulate flow and temperature of gases c. Remove and clean.							
11. Care for incubators: a. Check and clean b. Set up c. Repair if necessary.							

Which of the following functions are you presently performing?	Yes or No	Not Done This Department	Hours/Week Spent on Function	% of Time Spent on Function	If Under 5%, Specify How Often	Who Usually Performs This Task?	Who Do You Think Should Perform This Task?
12. Care for croup tents in pediatrics: a. Check set up b. Repair if necessary.							
13. Care for ultrasonic nebulizers: a. Check and clean b. Set up and initially operate c. Adjust and regulate, including turning knobs or valves to regulate flow of gases d. Repair if necessary.							
14. Care for air mattress and hypothermia blanket: a. Check and clean b. Set up and initially operate c. Adjust and regulate temperature and flow of gases d. Repair if necessary.							
15. Care for Emerson volume ventilator a. Check and clean b. Set up and initially operate c. Adjust and regulate flow of gases, speed of ventilation, amount of ventilation d. Repair if necessary.							

Which of the following functions are you presently performing?

	Yes or No	Not Done This Department	Hours/Week Spent on Function	% of Time Spent on Function	If Under 5%, Specify How Often	Who Usually Performs This Task?	Who Do You Think Should Perform This Task?
16. Care for Bird and Bennet respirators: a. Check and clean b. Set up and initially operate c. Adjust and regulate flow of gases d. Repair if necessary.							
17. Administer gases other than oxygen, including: a. Compressed air b. Carbon dioxide c. Other.							
18. Informally instruct trainees, nurses, interns and residents in the operation and care of equipment.							
19. Discuss treatments with physicians; make recommendations.							
20. Administer medication via inhalation therapy equipment, including: a. Determine amount of medication necessary b. Draw up medication c. Put medication in equipment.							
21. Run blood gases on patients to determine PO_2, PCO_2, pH, HCO_3 and so on.							

Which of the following functions are you presently performing?

	Yes or No	Not Done This Department	Hours/Week Spent on Function	% of Time Spent on Function	If Under 5%, Specify How Often	Who Usually Performs This Task?	Who Do You Think Should Perform This Task?
22. Assist physician in doing lung profile, including measuring air capacity, flow rates and so on.							
23. Assist physician or nurse in resuscitation of a patient a. Ambu the patient b. Other.							
24. Other functions.							
25. Supervisory (specify):							
26. Teaching (specify):							
27. Waiting for work (specify):							

B42

NORTHEASTERN UNIVERSITY

INTERVIEW FORMAT FOR PARAMEDICAL MANPOWER STUDY

CAMBRIDGE HOSPITAL

I. Name: _____

II. Job Title: X-RAY TECHNICIAN

III. Department: X-RAY DEPARTMENT

IV. Shift: _____

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Interview Administered by: _____ Date: _____

Time Started: _____ Time Finished: _____

Which of the following functions are you presently performing?

	Yes or No	Not Done This Department	Hours/Week Spent on Function	% of Time Spent on Function	If Under 5%, Specify How Often	Who Usually Performs This Task?	Who Do You Think Should Perform This Task?
1. Cleaning and putting away equipment and supplies.							
2. Preparing and positioning patient on X-ray table.							
3. Adjusting immobilization devices such as restraints or chest straps if necessary.							
4. Protecting the area not to be x-rayed with lead shield, as with children or pregnant women.							
5. a. Check requisitions for good clinical history b. Check developed films for markers, numbers and dates.							
6. Booking appointments.							
7. Answering phone calls, taking messages, notifying appropriate personnel.							
8. a. Locating and supplying physicians with X-ray examinations from files b. Putting up completed films for doctors to observe c. Filing X-ray examinations and records.							

Which of the following functions are you presently performing?	Yes or No	Not Done This Department	Hours/Week Spent on Function	% of Time Spent on Function	If Under 5%, Specify How Often	Who Usually Performs This Task?	Who Do You Think Should Perform This Task?
9. a. Maintaining records of drugs, supplies and equipment used, and X-rays taken. b. Going to Central Supply to get routine supplies, drugs, and equipment c. Ordering drugs, supplies or equipment outside hospital d. Checking for outdated supplies: returning them to Central Supply.							
10. Taking a routine X-ray, including: a. Checking the patient's identification b. Measuring the size of the patient c. Centering the patient to the table, the film to the patient and centering the tube on the area to be x-raved d. Inserting the Cassette into the Bucky e. Selecting a technique on the control panel (appropriate quantity or milliamperage; length of exposure; penetration or KV) f. Instructing patient through microphone to take and hold a deep breath g. Assisting patient in getting off table and into wheelchair, onto stretcher h. Labeling X-ray film, taking it to developer.							
11. Developing X-ray films: a. Inserting exposed film into processor b. Removing developed film c. Labeling, recording or distributing film to appropriate persons d. Replenishing supply of film in filming drawer.							

Which of the following functions are you presently performing?	Yes or No	Not Done This Department	Hours/Week Spent on Function	% of Time Spent on Function	If Under 5%, Specify How Often	Who Usually Performs This Task?	Who Do You Think Should Perform This Task?
12. Go to the operating room to take an X ray with a portable X-ray machine, using sterile technique.							
13. Go to the floors to take an X ray with a portable X-ray machine.							
14. Mixing and administering (under physician's directions) barium enemas or barium meal.							
15. Assisting physician in fluoroscope examination: a. Getting necessary equipment and supplies b. Adjusting cameras, table, television screens, patients and overhead and side tubes c. Inserting appropriate film d. Other.							
16. Assisting physician in special procedures (selective arteriograms, aortagrams): a. Getting necessary equipment and supplies b. Adjusting cameras, table, television screens, overhead and side X-ray tubes, and the patient. c. Inserting appropriate X-ray film into magazine d. Checking number of needles, catheters used and so on e. Other.							

Which of the following functions are you presently performing?

	Yes or No	Not Done This Department	Hours/Week Spent on Function	% of Time Spent on Function	If Under 5%, Specify How Often	Who Usually Performs This Task?	Who Do You Think Should Perform This Task?
17. Teaching (specify):							
18. Waiting for work. (specify)							

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N O R T H E A S T E R N U N I V E R S I T Y

INTERVIEW FORMAT FOR PARAMEDICAL MANPOWER STUDY

CAMBRIDGE HOSPITAL

I. Name: _____

II. Job Title: LAB TECHNICIAN

III. Department: LABORATORY

IV. Shift: _____

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Interview Administered by: _____ Date: _____

Time Started: _____ Time Finished: _____

Which of the following functions are you presently performing?	Yes or No	Not Done This Department	Hours/Week Spent on Function	% of Time Spent on Function	If Under 5%, Specify How Often	Who Usually Performs This Task?	Who Do You Think Should Perform This Task?
I. General							
a. Gather supplies, instruments and equipment in preparation for tests.							
b. Clean and put away equipment and supplies after use.							
c. Care for and maintain equipment.							
d. Check stock levels.							
e. Order and put away supplies, equipment and biological items.							
f. Record and report tests.							
g. Prepare standards and reagents.							
h. Draw blood: (excluding Blood Bank)							
1. From outpatients							
2. Morning - daily orders							
3. Afternoon - pre-operative.							
i. Other.							

Which of the following functions are you presently performing?

	Yes or No	Not Done This Department	Hours/Week Spent on Function	% of Time Spent on Function	If Under 5%, Specify How Often	Who Usually Performs This Function?	Who Do You Think Should Perform This Function.
II. Bacteriology (includes mycology and serology)							
a. Receive and process routine cultures.							
b. Antibiotic sensitivity test.							
c. Antibiotic blood level.							
d. Prepare and stain smears.							
e. Colony count.							
f. "C" reactive protein test.							
g. Complement fixation test.							
h. 1. Infectious mononucleosis heterophile and monospot							
2. Heterophile presumptive and differential antibody test.							
i. Febrile agglutinin.							
j. Rheumatoid arthritis test.							
k. Strep MG test.							
l. Antistreptolysin "O" titre.							
m. Pregnancy test.							
n. Sperm count.							
o. Prepare culture media.							
p. Cultivate mycology specimens, and examine mycology specimens microscopically.							
q. Other.							

Which of the following functions are you presently performing?

III. Blood Bank	Yes or No	Not Done This Department	Hours/Week Spent on Function	% of Time Spent on Function	If Under 5%, Specify How Often	Who Usually Performs This Task?	Who Do You Think Should Perform This Task?
a. Attach serial numbers to units.							
b. Store blood according to grouping and factor.							
c. Prepare blood for shipment.							
d. Dispose of blood after time limit.							
e. Screen and process blood donors.							
f. Draw patient's blood for grouping, typing and cross-matching.							
g. Draw blood from donors.							
h. Perform direct and indirect Coombs test.							
i. Group and type blood of donors and recipients.							
j. Antibody screen.							
k. Cord blood.							
l. Cold agglutinins.							
m. Rapid Hinton.							
n. Rho Gam Studies.							
o. Rh Genotype.							
p. Crossmatch blood.							
q. Fractionate blood products.							
r. Rh titre.							
s. Follow-up transfusing reactions.							
t. Other.							

Which of the following functions are you presently performing?

	Yes or No	Not Done This Department	Hours/Week Spent on Function	% of Time Spent on Function	If Under 5%, Specify How Often	Who Usually Performs This Task?	Who Do You Think Should Perform This Task?
IV. Chemistry							
1. Cephalin Flocculation.							
2. PH urine.							
3. Protein, total.							
4. Protein, qualitative urine.							
5. Specific gravity.							
6. Albumin:							
a. Qualitative							
b. Quantitative.							
7. Albumin and globulin.							
8. BSP (Bromsulphalein)							
9. B.U.N. (Urea Nitrogen).							
10. Calcium:							
a. Qualitative urine							
b. Quantitative.							
11. Chloride.							
12. Gastric contents.							
13. Hemoglobin, plasma.							
14. Occult blood.							
15. Thymol turbidity.							
16. Amylase.							
17. Bilirubin.							
18. Carbon dioxide.							
19. Gastric Analysis, Diagnex.							
20. Glucose:							
a. Serum and CSF							
b. Urine qualitative							
c. Glucose tolerance test: (3 hours)							
d. Glucose tolerance test: (longer than 3 hours),							

Which of the following functions are you presently performing?	Yes or No	Not Done This Department	Hours/Week Spent on Function	% of Time Spent on Function	If Under 5%, Specify How Often	Who Usually Performs This Task?	Who Do You Think Should Perform This Task?
21. PH blood.							
22. Phosphatase, acid.							
23. Potassium.							
24. Protein, CSF.							
25. Salicylates.							
26. Sodium.							
27. Urea clearance.							
28. Uric acid.							
29. Urobilinogen.							
30. Spinal fluid, complete examination.							
31. Osmolarity.							
32. Cholesterol.							
33. Cholesterol total and esthers.							
34. Colloidal gold.							
35. Creatine.							
36. PCO_2 and PO_2.							
37. Phosphatase, alkaline.							
38. Platelet antibody.							
39. Transaminase (SGO-T).							
40. Transaminase (SGP-T).							
41. Creatinine clearance.							
42. Red cell survival.							
43. Schilling test.							
44. Other.							

Which of the following functions are you presently performing?

V. Cytology							
a. Maintain file card on each patient.							
b. Number and prepare smears:							
1. Non-gynecological							
2. Pap smears.							
c. Stain and mount smears:							
1. Non-gynecological							
2. Pap smears.							
d. Screen smears for cellular changes.							
e. Hormonal studies.							
f. Sex chromatin studies.							
g. Ohter.							

Which of the following functions are you presently performing?	Yes or No	Not Done This Department	Hours/Week Spent on Function	% of Time Spent on Function	If Under 5%, Specify How Often	Who Usually Performs This Task?	Who Do You Think Should Perform This Task?
VI. Hematology							
a. Stain blood smears:							
1. By hand							
2. Using automatic staining machine.							
b. Identify:							
1. Immature blood cells							
2. Morphological variations of blood cells.							
c. Bleeding and clotting tests:							
1. Capillary fragility tests							
2. Clot retraction							
3. Prothrombin time and prothrombin consumption tests							
4. Thromboplastin generation							
5. Fibrinogen estimation							
6. Partial thromboplastin.							
d. Erythrocytes (red blood cells):							
1. Hematocrit							
2. Erythrocyte fragility							
3. Erythrocyte sedimentation rate							
4. Erythrocyte indices.							
e. Blood cell counts:							
1. Red blood cell count							
2. White blood cell count							
3. Differential leukocyte count							
4. Platelet count							
5. Eosinophil count.							
f. Sickle cell preparation.							
g. Spinal fluid cell count and differential.							

Which of the following functions are you presently performing?

h. Spinal fluid hemat/crit.						
i. L.E. preparation.						
j. Leukocyte alkaline phosphatase.						
k. Other.						
	Yes or No	Not Done This Department	Hours/Week Spent on Function	% of Time Spent on Function	If Under 5%, Specify How Often	Who Usually Performs This Task?	Who Do You Think Should Perform This Task?

Which of the following functions are you presently performing?

VII. Histology	Yes or No	Not Done This Department	Hours/Week Spent on Function	% of Time Spent on Function	If Under 5%, Specify How Often	Who Usually Performs This Task?	Who Do You Think Should Perform This Task?
a. Prepare specimens for processing.							
b. Embed tissue in paraffin.							
c. Section tissue in microscopic blocks.							
d. Prepare stains:							
1. Routine							
2. Special.							
e. Stain specimens.							
f. Mount stained specimens.							
g. Prepare frozen sections.							
h. Assist in bone marrow examination.							
i. Assist pathologist at autopsy.							
j. Decalcify specimens of bone and teeth.							

Which of the following functions are you presently performing?

VII. Urinalysis and Parasitology	Yes or No	Not Done This Department	Hours/Week Spent on Function	% of Time Spent on Function	If Under 5%, Specify How Often	Who Usually Performs This Task?	Who Do You Think Should Perform This Task?
a. Examine urine specimens macroscopically and microscopically.							
b. Urine acidity (pH).							
c. Urine specific gravity.							
d. Occult blood.							
e. Albumin.							
f. Hemoglobin.							
g. Glucose.							
h. Bile.							
i. B.U.N. (Urea Nitrogen).							
j. Calcium.							
k. Bilirubin.							
l. Porphyrins.							
m. Ketones.							
n. Bence - Jones protein.							
o. Phenolsulfonphthalein (PSP) excretion test.							
p. Identify parasit[illegible] and disease-carrying arthropods.							
q. Identify protozoans, cestodes, nematodes, trematodes.							
r. Scotch tape test.							
s. Stain parasitological smears.							
t. Fat, fatty acids only (microscopic).							
u. Fat, neutral fat only (microscopic).							
v. Fat and meat fibers (microscopic).							
w. Concentration technique.							

Which of the following functions are you presently performing?

	Yes or No	Not Done This Department	Hour/Week Spent on Function	% of Time Spent on Function	If Under 5%, Specify How Often	Who Usually Performs This Task?	Who Do You Think Should Perform This Task?
IX. Teaching (specify).							
X. Research (specify).							
XI. Supervisory duties (specify).							
XII. Waiting for work (specify).							

N O R T H E A S T E R N U N I V E R S I T Y

INTERVIEW FORMAT FOR PARAMEDICAL MANPOWER STUDY

CAMBRIDGE HOSPITAL

I. Name: _____

II. Job Title: EKG TECHNICIAN

III. Department: EKG

IV. Shift: _____

Interview Administered by: _____ Date: _____

Time Started: _____ Time Finished: _____

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Which of the following functions are you presently performing?	Yes or No	Not Done This Department	Hours/Week Spent on Function	% of Time Spent on Function	If Under 5%, Specify How Often	Who Usually Performs This Task?	Who Do You Think Should Perform This Task?
1. Cleaning and putting away equipment and supplies.							
2. Checking equipment, re-stocking supplies on EKG machines.							
3. Making minor adjustments and repairs to machines or notifying repair company.							
4. Checking and sorting requisitions in the morning prior to going to floors.							
5. a. Examining patient's chart, indicating completed EKG b. Using addressograph to stamp patient charge slip.							
6. a. Bringing EKG machine to patient's bedside b. Attaching electrodes to legs and arms c. Attaching and moving chest cups to successive positions.							
7. Doing a rhythm strip at the verbal request of a physician.							
8. Operating the EKG machine: a. Turning knob to select appropriate leads b. Marking the strip to indicate the lead being recorded c. Checking the stylus as necessary d. Removing and wiping off electrodes; cleaning paste off patient and remaking bed.							

Which of the following functions are you presently performing?	Yes or No	Not Done This Department	Hours/Week Spent on Function	% of Time Spent on Function	If Under 5%, Specify How Often	Who Usually Performs This Function?	Who Do You Think Should Perform This Function?
9. Assisting physician or cardiologist by reporting unusual abnormalities immediately.							
10. Performing step test: a. Taking complete EKG first b. Instructing patient to walk up and down steps c. Taking five or six chest and limb leads, according to physician's request, after three minutes and after five minutes.							
11. Other functions.							
12. Teaching (explain).							
13. Supervisory duties.							
14. Waiting for work (specify).							

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N O R T H E A S T E R N U N I V E R S I T Y

INTERVIEW FORMAT FOR PARAMEDICAL MANPOWER STUDY

CAMBRIDGE HOSPITAL

I. Name: _____

II. Job Title: NEIGHBORHOOD HEALTH WORKER

III. Department: _____

IV. Shift: _____

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Interview Administered By: _____ Date: _____

Time Started: _____ Time Finished: _____

Which of the following functions are you presently performing?	Yes or No	Not Done This Department	Hours/Week Spent on Function	% of Time Spent on Function	If Under 5%, Specify How Often	Who Usually Performs This Task?	Who Do You Think Should Perform This Task?
1. a. Straightening up, cleaning the clinic area b. Cleaning used equipment and instruments c. Putting away supplies and equipment.							
2. Booking appointments.							
3. Answering the telephone, taking messages, notifying appropriate personnel.							
4. Receiving, welcoming and processing patients; and directing them to appropriate medical personnel in health center.							
5. Maintaining current records.							
6. Accompanying child or adult to Cambridge Hospital.							
7. Measuring and recording the following: a. Height and weight b. Temperature, pulse, respiration c. Blood pressure.							
8. Performing the following tests: a. Tine test b. Eye test c. Ear test d. Urine test e. Hematocrit f. Other.							

Which of the following functions are you presently performing?	Yes or No	Not Done This Department	Hour/Week Spent on Function	% of Time Spent on Function	If Under 5%, Specify How Often	Who Usually Performs This Task?	Who Do You Think Should Perform This Task?
9. Participating in weekly conferences with other health workers in the health center.							
10. Making rounds in Headstart program: a. Take care of minor illnesses (specify)							
b. Report more serious illnesses to public health nurses or supervisors c. Make referrals to Cambridge Hospital.							
11. Assisting nurse or physician in treatment or examination of patient (specify).							
12. Making home visits relating to health problems in Headstart children.							
13. Other functions.							
14. Teaching (specify).							
15. Waiting for work.							

APPENDIX C

Definitions of Tasks and Functions

See Volume II.

APPENDIX D

Phase II Tables

See Volume II.

APPENDIX E

Sample Training Program for:

A. Medical Assistants
B. Nursing Assistants
C. Ward Secretaries

These training programs were developed by the Social Development Corporation of New York City in conjunction with Beth Israel Hospital, Boston, Massachusetts. Some modifications were made by the medical and nursing staffs at The Cambridge Hospital.

Job Descriptions for:

1. Head Nurse
2. Staff Nurse
3. Licensed Practical Nurse
4. Nurses' Aide
5. Ward Secretary
6. Nurse Practitioner

These job descriptions were compiled by the Job Description Committee at The Cambridge Hospital. The committee was established in the fall of 1969, shortly after this project's inception. This committee is composed of six members: two RNs, two NAs, one LPN, and this project's research assistant.

A. Medical Assistants Sample Program 16 weeks

I. First Week
General: vital signs, state of consciousness, integument, venous pattern

II. Second Week
Pulmonary: heart rate and rhythm, heart size, extra heart sounds, murmurs, adventitious sounds

III. Third Week
Respiratory pattern, general auscultation

IV. Fourth Week
Abdomen: organ and mass palpitation, rebound and tenderness, bowel sounds

V. Fifth Week
Rectal: general, guiac examination

VI. Sixth Week
Extremities: edema, state of circulation

VII. Seventh Week
Neurology: general, deep tendon, reflexes, motor and gross sensory response

VIII. Eighth Week
Triage

IX. Ninth Week
EKG, IV

X. Tenth Week
Oxygen, naso-gastric tube, catheter

XI. Eleventh Week
Drawing blood, fluid and blood replacement, IV medication

XII. Twelfth Week
Obtaining fluid samples for culture, lumbar puncture

XIII. Thirteenth Week
Urinary catheterization, thoracenteses

XIV. Fourteenth Week
Paracentesis
Initiating peritoneal dialysis

XV. Fifteenth Week
Assisting physician in cut-down procedure, biopsy (liver, pleura and peritoneum) and bone marrow

XVI. Sixteenth Week
Dressing change, debridement
Review and Final Examination

B. Nursing Assistant Sample Program — 12 weeks

I. First Week
- a) Preparation as an employee
- b) Philosophy of nursing care
- c) Appearance of nursing assistant
- d) Lines of communication
- e) Understanding the patient as a person
- f) Orientation to physical set-up of nursing units
- g) Preparing the unit

II. Second Week
- a) Making unoccupied beds
- b) Asepsis
- c) Personal care
- d) Morning care
- e) Back care
- f) Food service

III. Third Week
- a) Intake and output
- b) T.P.R.
- c) Urine testing, stool testing
- d) Bed bath
- e) Occupied bed

IV. Fourth Week
- a) Tub bath
- b) Partial bath
- c) Shower
- d) Sitz bath
- e) Blood pressure
- f) Weights

V. Fifth Week
- a) Giving and removing bedpans and urinals
- b) Specimen collection
- c) Diabetic foot care
- d) Elastic stockings
- e) Ace bandages
- f) Footboards, cradles
- g) Orthopedic equipment

VI. Sixth Week
- a) Transporting patient
- b) Admission of patient
- c) Charting nurses' notes
- d) Transfer, discharge

VII. Seventh Week
- a) Enemas, douches
- b) Hot and cold packs
- c) Foley catheter care
- d) Evening and bedtime care

VIII. Eight Week
- a) Positioning
- b) Incontinent care
- c) Range of motion exercises
- d) Special mouth care

IX. Ninth Week
- a) Isolation technique
- b) Pre-and post-operative care
- c) Anesthesia bed
- d) I.V. observation
- e) Drainage tubes, urimeter

X. Tenth Week
- a) Use of EKG machine
- b) Use of inhalation therapy equipment
- c) Oral suction

XI. Eleventh Week
- a) Care of the dying
- b) Postmortem care
- c) Spiritual needs of patients
- d) Monitor care

XII. Twelfth Week
- a) Assisting with examination
- b) Safety
- c) Review
- d) Final examination

We recommend as a text, "Student Manual - Training the Nursing Aide" published by the Hospital Research and Educational Trust.

C. Ward Secretaries Sample Program 8 Weeks

I. First Week
   a) Introduction and orientation
   b) Communications
   c) Working environment
   d) Patients and visitors

II. Second Week
   a) Introduction to clerical responsibilities
   b) Standard chart forms
   c) Supplemental chart forms
   d) Patient-centered activities

III. Third Week
   a) Relations with dietary department
   b) Relations with pathology department
   c) Relations with other technical service departments
   d) Additional departmental contacts

IV. Fourth Week
   a) Introduction to medical terminology
   b) Formulating medical terms
   c) Introduction to transcription of orders
   d) Understanding medication orders
   e) Transcribing medical orders

V. Fifth Week
   a) Treatment orders
   b) Diet, activity and miscellaneous orders
   c) Common order groups
   d) Supervised review and drill

VI. Sixth Week
   a) Maternity
   b) Outpatient department
   c) Emergency department
   d) Psychiatry department

VII. Seventh Week
   a) Operating room and recovery room
   b) Surgical specialties
   c) Personnel forms

VIII. Eighth Week
   a) Pediatric ward
   b) Nursery
   c) Review
   d) Final Examination

JOB TITLE: HEAD NURSE

ANALYST: Job Description Committee

RESPONSIBLE TO: NURSING SUPERVISOR

APPROVED:

DATE:

JOB DESCRIPTION

SUMMARY:

A Registered Nurse who is responsible for managing, coordinating, and supervising all activities related to patient care within an organized nursing unit. Assists in orienting and instructing new personnel. Promotes good personnel relationship. Strives to improve nursing care.

MAJOR TASKS:

1. Assumes responsibility for adequate nursing care of all patients within assigned unit and takes immediate action to reduce adverse changes in patients' conditions.

2. Supervises, or ensures the supervision of, all permanent and temporary personnel in her unit area on all shifts.

3. Incorporates and interprets hospital policies, procedures, and their revisions to staff, patients, families, visitors, and doctors.

4. Receives and reports pertinent information concerning patients, personnel, and unit management problems to nursing service administration, and initiates corrective action as appropriate and necessary.

5. Plans the staffing pattern for her nursing unit to meet the total nursing needs of the patient and to ensure the continuity of nursing care for a twenty-four hour period.

6. Assigns responsibilities and tasks to unit personnel in accordance with their ability to perform the functions; organizes activities on the ward for maximum utilization of personnel.

7. Makes rounds with doctors and supervises the accomplishment of their orders; reports pertinent information concerning patients to the doctors.

8. Supervises, or ensures the supervision of, the recording of patients' symptoms, reactions, and progress.

9. Supervises the ordering of hospital equipment and supplies within the nursing unit, and ensures their appropriate use.

10. Ensures that a clean, neat, comfortable, and attractive environment is maintained within the nursing unit.

11. Incorporates and interprets hospital procedures for handling patient valuables and for making charges to patients.

12. Gives and receives change-of-shift report, ensuring continuity of nursing care.

13. Makes patient rounds.

14. Promotes good interpersonal relationships within the unit and with other departments in the hospital; determines and interprets preferences and grievances.

15. Offers support to patients and their families especially with critically ill or disturbed patients, and assists nursing personnel in the health teaching of patients and their families.

16. Assists in administering nursing care in emergencies, or as necessary.

17. Assists in coordinating the learning experiences of student nurses assigned to her unit.

18. Evaluates the performance of personnel under her supervision, the effectiveness of nursing care to the patient, and the effectiveness of the management of her nursing unit.

19. Assists in orienting and training new unit personnel in coordination with the in-service education staff.

20. Encourages the personal and professional development of her staff by:
    (a) Making provisions for them to attend inservice education programs;
    (b) Reviewing meeting minutes and communications with personnel;
    (c) Instructing staff in nursing care procedures and problems;
    (d) Identifying staff weaknesses and assisting personnel in correcting them.

21. Allows for her own professional self-development by attending workshops, inservice education programs, and nursing service meetings, and by keeping abreast of developments in the nursing profession.

22. Participates in the improvement of the hospital nursing service by maintaining standards on her unit and by making suggestions and recommendations to the nursing administration.

JOB TITLE: STAFF NURSE (R.N.)

ANALYST: Job Description Committee

RESPONSIBLE TO: HEAD NURSE

APPROVED:

DATE:

JOB DESCRIPTION

SUMMARY:

Gives direct and indirect nursing care within an organized patient care unit. In the absence of the Head Nurse, may be required to take charge of that unit after appropriate orientation and supervision by the Head Nurse. Assists in orienting and instructing new personnel. Promotes good personnel relationships. Strives to improve nursing care.

MAJOR TASKS:

1. Knows the philosophy, objectives, policies, and procedures of the nursing service department and provides for their implementation in carrying out her duties as staff nurse and by assisting her fellow workers as necessary.

2. Participates in planning, directing, and coordinating total patient care; assists with health teaching of patient and family and with patient discharge plans.

3. Gives direct nursing care as indicated by the needs of the patients, and generally supervises the care of patients and other related unit activities performed by unit staff personnel.

4. Understands the legal aspects of nursing (policies, directives, patient safety, narcotic control, etc.), and demonstrates this in her work.

5. Is responsible for the accurate reporting and recording of the patient's symptoms, reactions, and progress (may include posting doctors' orders and charting medications and treatment).

6. Actively supports and/or contributes to all activities which promote her own nursing proficiency and that of her fellow workers by participating in inservice education programs, conducting patient care conferences, attending workshops if possible, and by making appropriate suggestions and recommendations to the in-service education staff.

7. Exercises leadership and sets a good example by conforming to all personnel regulations: e.g., those regarding clean and complete uniform, meal and rest periods, locker facilities, shift duty, and overtime.

8. Assists in the economical use and care of equipment, facilities, and supplies.

9. Assists in maintaining a clean, neat, comfortable and attractive environment in the nursing unit and in the hospital.

10. Assists in the orientation and training of new unit personnel.

11. After proper orientation, knows how to operate and use sophisticated medical equipment such as monitors, defibrillators, and respiratory therapy equipment.

12. After appropriate orientation, knows emergency procedures and equipment; may be required to initiate resuscitory measures.

13. Assumes other duties as assigned by her immediate supervisor.

JOB TITLE: LICENSED PRACTICAL NURSE (L.P.N.) ANALYST: Job Description Committee

RESPONSIBLE TO: HEAD NURSE APPROVED:

DATE:

JOB DESCRIPTION

SUMMARY:

Gives direct and indirect nursing care within an organized patient care unit. In the absence of the Head Nurse, may be required to take charge of that unit after appropriate orientation and supervision by the Head Nurse. Assists in orienting and instructing new personnel. Promotes good personnel relationship. Strives to improve nursing care.

MAJOR TASKS:

1. Knows the philosophy, objectives, policies, and procedures of the nursing service department and provides for their implementation in carrying out her duties as staff nurse and by assisting her fellow workers as necessary.

2. Participates in planning, directing, and coordinating total patient care; assists with health teaching of patient and family and with patient discharge plans.

3. Gives direct nursing care as indicated by the needs of the patients, and generally supervises the care of patients and other related unit activities performed by unit staff personnel.

4. Understands the legal aspects of nursing (policies, directives, patient safety, narcotic control, etc.), and demonstrates this in her work.

5. Is responsible for the accurate reporting and recording of the patient's symptoms, reactions, and progress (may include posting doctors' orders and charting medications and treatment).

6. Actively supports and/or contributes to all activities which promote her own nursing proficiency and that of her fellow workers by participating in inservice education programs, conducting patient care conferences, attending workshops if possible, and by making appropriate suggestions and recommendations to the in-service education staff.

7. Exercises leadership and sets a good example by conforming to all personnel regulations: e.g., those regarding clean and complete uniform, meal and rest periods, locker facilities, shift duty, and overtime.

8. Assists in the economical use and care of equipment, facilities, and supplies.

9. Assists in maintaining a clean, neat, comfortable and attractive environment in the nursing unit and in the hospital.

10. Assists in the orientation and training of new unit personnel.

11. Upon completion of orientation program and after appropriate supervision, may be responsible for administering and charting medications, including mixing and hanging IV's; administering and charting treatments and routine tests; and assisting doctors as necessary in examinations and special procedures.

12. After proper orientation, knows how to safely operate and use sophisticated medical equipment such as monitors, defibrillators, and respiratory therapy equipment.

13. After appropriate orientation, knows emergency procedures and equipment; may be required to initiate resuscitory measures.

14. Assumes other duties as delegated by her immediate supervisor.

JOB TITLE: NURSES' AIDE ANALYST: Job Description Committee

RESPONSIBLE TO: HEAD NURSE APPROVED:

DATE:

JOB DESCRIPTION

SUMMARY:

The Nurses' Aide, after appropriate inservice education, gives patient care within an organized nursing unit. Assists nursing personnel. Assists in orienting and instructing new personnel. Promotes good personnel relationship.

FUNCTIONS:

1. Gives patient care under the supervision of Head Nurse or charge nurse.
2. Knows hospital policies and responsibilities.
3. Knows correct use of addressograph, intercoms, telephone, and pneumatic tube system.
4. Uses accepted abbreviations and terminology.
5. Responsible for keeping patients' units and utility rooms clean, neat, and well stocked.
6. Cleans instruments and equipment to be returned to Central Supply for sterilization.
7. Serves trays, feeds patients, removes trays, assists patients in making out menus, gives patients extra nourishments and fresh water.
8. Prepares patients for admission and discharge, and understands hospital policy and procedure for handling patients' valuables.
9. Gives bedpan or urinal.
10. Measures and records intake and output, except IV's and tube feedings.
11. Gives routine morning care to patients, providing for total personal hygiene as in care of hair, hair shampoo, care of nails, oral hygiene, perineal care, and skin care.
12. Gives baths: complete bed bath, partial bed bath, sitz bath, shower, and tub bath.
13. Makes beds: occupied, unoccupied, and post-operative.

14. Assists patients in moving, using principles of correct body mechanics (e.g., in and out of bed).

15. Weighs patients.

16. Measures vital signs: temperature, pulse, respiration, and blood pressure.

17. Collects specimens: urine, stool, and sputum.

18. Knows how to do simple tests: clinitest, acetest, testate procedures, guiac test, and labsticks.

19. Reports and records vital signs, weights, guiac test, and pre-meal glucose tests in appropriate desk books.

20. Assists in pre-operative and post-operative care of patients.

21. Assists in post-mortem care of the patient.

22. Knows isolation techniques, and cares for patients in isolation.

23. Uses patient safety equipment: bed siderails, restraints, Posey belt.

24. Assists patient in using bed cradle, foot board, rubber ring, sheep skin, walker, crutches, wheelchairs, and the trapeze.

25. Assists in the care of decubitus ulcers.

26. Applies hot water bottle, ice bag, ice cap, and ice collar.

27. Applies abdominal binder, ace bandages, scultetus binder, tucks, vaginal pads, elastic stockings, and slings.

28. Gives enemas, inserts rectal tubes.

29. Is familiar with oxygen equipment, and knows how to remove it.

30. Observes IV's for proper flow, possible infiltration, and so on, and understands how to turn the IV off if necessary.

31. Assists doctor or nurse in physical examination of patients.

32. Observes patient's condition, reaction to drugs, treatment, IV's and reports any significant incidents to Head Nurse or nurse in charge.

33. Understands procedure for resuscitation, including location and use of emergency cart.

34. Performs additional duties and functions as assigned by Head Nurse or nurse in charge.

JOB TITLE: WARD SECRETARY ANALYST: JOB DESCRIPTION COMMITTEE

RESPONSIBLE TO: HEAD NURSE APPROVED:

DATE:

JOB DESCRIPTION

SUMMARY:

The Ward Secretary is responsible for the clerical duties of a specific nursing unit, unless otherwise indicated.

QUALIFICATIONS:

The Ward Secretary should be a high school graduate; she should be emotionally stable and mature, accurate and organized, and flexible in her dealings with other people.

MAJOR TASKS:

1. Knows the philosophy, purposes, policies, and standards of The Cambridge Hospital. Knows existing lines of communication and authority.

2. Communications: Acts as unit receptionist and hostess; handles incoming and outgoing communications on the nursing unit, including condition sheet, and routes information through proper channels; asks patients to use pay telephones; and knows correct use of Executone and Intercom systems.

3. Takes care of new admissions, including: assembling chart properly, preparing binder, stamping each sheet with addressograph plate, preparing graphic sheet, obtaining old records, getting patient's birth date and address, taking care of census sheet, obtaining patient package from Central Supply, transcribing vital signs from clothes slip into Temp Book, notifying house officer when patient is admitted.

4. Charts T.P.R. (temperature, pulse, respiration), B.P. (blood pressure), Intake and Output weight, diabetic sheet information (when applicable) daily. Adds lab slips and X-ray slips to the chart as soon as the technicians deliver them to the units.

5. Checks daily for old charts which have not been sent to the Record Room, and sees that the Record Room receives them.

6. Checks pre-op clinical charts of patients scheduled for surgery, making sure graphic chart is up to date and lab work is done.

7. On discharge of patient, ensures that all charge slips are collected and stamped; notifies Admitting Office; takes old records to Record Room and notifies Housekeeping Department of the number of discharges for the day. If a patient expires, the Ward Secretary, after checking with the Head Nurse, notifies the appropriate departments (i.e., Admitting, Nursing Office, operator, front desk).

8. Knows locations of patients who are off the nursing unit.

9. Maintains an accurate census sheet, filling it out as changes occur.

10. Answers patient calls (using intercom), and directs the appropriate personnel to meet the patients' needs.

11. Coordinates and provides services, supplies (including stationery), and equipment to nursing unit and patient care unit. Responsible for taking care of the charges.

12. Checks on Central Supply needs daily, and checks on storeroom needs twice a week. Orders and maintains proper quota of supplies.

13. Requests repairs through maintenance department.

14. Keeps the Nursing Station neat, clean, and orderly.

15. Delivers mail and flowers.

16. Keeps bulletin board neat and up to date. Keeps room control board current.

17. Participates actively in inservice education programs.

18. Works in partnership with Head Nurse to provide accurate and immediate carrying out of Doctors' Orders.

19. Assists and performs other duties as requested.

JOB DESCRIPTION

AGENCY: Department of Health, Hospital and Welfare

DEPARTMENT: Nursing

TITLE: Nurse Practitioner

NATURE AND PURPOSE OF WORK

INTRODUCTION:

The purpose of the Nursing Department is to provide comprehensive, effective, and well organized health care to the community within which it operates. It is the responsibility of the nursing department personnel to define this program, to establish standards for evaluating it and to coordinate the program with other care disciplines involved.

The Nurse Practitioner is one who is responsible for the effective performance of these objectives and the primary source of health care for the adult ambulatory patient who has entered the health system and progressed through the acute intensive phase of his illness under the supervision of a physician. The Nurse Practitioner thus assumes complete responsibility for the intermediate level of care by monitoring the pathological process, assessing therapeutic activities and rendering general support. This may or may not evolve to a third phase of self care in which the goal-directed activities of the Nurse Practitioner would be health education, health promotion and the prevention of disease.

FUNCTIONS:

1. Assumes the responsibility for the clinical management of patients with selected chronic illnesses.

2. Provides a periodic monitoring of the pathological processes.

3. Provides a feedback of pertinent information necessary to evaluate progress and adjust therapy.

4. Initiates or alters medication or medical care within the limits defined by the physician after diagnosis has been established and therapy initiated.

5. Provides psychological support by working directly with the family or patient to reassure, support, and alleviate concern.

6. Seeks ways to be involved with the physician in the initial definition of needs during the diagnostic level to achieve improved continuity of care.

7. Acts as a family advocate to coordinate the care of patient and family by defining total family needs.

8. Analyzes all the factors in the patient's environment that influences compliance with the biomedical regimen.

9. Provides guidance and direction to the neighborhood aide assigned to the facility within which patient service is being delivered.

10. Plans, directs and maintains an effective out-reach program for reinforcing optimum health care in the home setting utilizing family, neighborhood aides, and other professional and para-professional members of the health team.

SUPERVISION AND GUIDANCE RECEIVED

1. Direct supervision and guidance in work performance is derived from the Director of the Nursing Department.

2. Medical supervision and guidance for clinical management of the biomedical regimen is received directly from the referring physician and/or the Medical Director of the Ambulatory Care Department of Health, Hospital and Welfare.

3. Written evaluations of work performance by the Medical Director of Ambulatory Care Services and the Director of Nursing are discussed in private conference four times per annum.

4. Sources of information include facilities of the Medical Library of The Cambridge Hospital and the regional Countway Library.

5. Consultative services with the Boston University School of Nursing Faculty, Harvard University Chiefs of Service at The Cambridge Hospital.

6. Guidelines and standing orders written by the Director of the Ambulatory Services at The Cambridge Hospital.

7. Personnel policies are defined in the nursing contract negotiated by the Massachusetts Nurses Association and the City of Cambridge.

MENTAL DEMANDS

1. In-depth and relevant knowledge of the clinical management of patients with chronic illness as well as advanced knowledge of clinical pharmacology is required.

2. Knowledge of the community and all resources for health care is required.

3. A working knowledge of the principles of counseling is desired and encouraged.

4. Leadership skills and mature evaluation of self leading to a satisfactory level of responsibility and resulting in originality and initiative in performance is encouraged.

5. The ability to establish effective interpersonal relationships with all members of the health team is seen as conducive to a clear identification of objectives and goals of quality patient care.

6. Familiarity with behavioral science concepts related to patient care is essential.

7. The ability to use the knowledge, methods and techniques pertinent to directing, guiding and assisting neighborhood aides to fulfill their responsibilities for patient care.

MINIMUM QUALIFICATIONS

1. Registered in Massachusetts or eligible for same.

2. Baccalaureate degree in nursing from an approved school of nursing.

3. Successful completion of a post-Baccalaureate training program sponsored by the Cambridge Department of Health, Hospital and Welfare.

4. At least 6 months clinical experience in a public health program and hospital nursing.

APPENDIX F

SPECIAL TABLES INVOLVING CHANGES AND RESULTS

Table F1 In-Patient Statistics - 1968, 1970

1. Statistics by Class of Accomodation (Total In-Patients, Exclusive of Newborn Infants Included in Item 4):

1968:	Average Bed Complement	Maximum Bed Days Available	Total In-Patient Days	Percentage of Occupancy	Discharges (Including Deaths)	Average Length of Stay
Private	22	6,778	3,076	45.3	302	10.19
Semi-Private	125	46,478	34,291	73.8	3,574	9.59
Total	147	53,256	37,367	70.2	3,876	9.64
1970:						
Private	27	9,817	4,387	44.7	397	11.1
Semi-Private	149	54,361	47,172	86.8	5,174	9.1
Total	176	64,178	51,559	80.3	5,571	9.3

2. Maternity Statistics (In-Patients, Exclusive of Newborn Infants):

1968:	Average Bed Complement	Maximum Bed Days Available	Total In-Patient Days	Percentage of Occupancy	Discharges (Including Deaths)	Average Length of Stay
Private	3	1,462	121	8.3	19	6.37
Semi-Private	10	5,480	3,293	60.1	721	4.56
Total	13	6,942	3,414	49.2	740	4.61
1970:						
Private	2	730	280	38.4	63	4.4
Semi-Private	20	7,300	4,563	62.5	1,052	4.3
Total	22	8,030	4,843	60.3	1,115	4.3

Table F1 In-Patient Statistics - 1968, 1970 (Cont'd)

	1968	1970
3. New born infant days after the discharge of mother (included in item 1).	1,087	1,091
Newborn infant discharges applicable to the above (included in item 1).	109	117
4. Newborn infant statistics (excluding count in item 3):		
Total newborn infant days.	2,804	3,666
Total newborn infant discharges.	543	856
5. Ambulatory Statistics		
a. Clinic patient visits	19,088	25,529
b. Emergency patient visits	24,400	26,760
c. Private clinic patient visits	---	---
d. Private referred patient visits	---	---
Total ambulatory visits	43,488	68,985

Table F2 Allocation of Special Service Departmental Costs 1968, 1970

	1968			1970		
	STATISTICS	%	TOTAL EXPENSE	STATISTICS	%	TOTAL EXPENSE
Operating Rooms:	Number of Operations Weighted[1]			Number of Operations Weighted[1]		
In-Patients: Adults and children	915	71.1	$128,321	1,438	99.52	$413,935.00
Ambulatory Services	372	28.9	52,159	7	.48	1,996.00
Total	1,287	100.0	$180,480	1,445	100.00	$415,931.00
Delivery Rooms:	Number of Deliveries & Weighted Circumcisions[2]			Number of Deliveries & Weighted Circumcisions[2]		
In-Patients: Adults and children	728	96.3	$ 87,745	945	100.00	$122,919.00
Newborn infants	28	3.7	3,371	---	----	
Total	756	100.00	$ 91,116	945	100.00	$122,919.00
Anesthesiology:	Number of Weighted Operations & Weighted Deliveries			Number of Weighted Operations & Weighted Deliveries		
In-Patients: Adults and children	980	64.09	$ 89,919	1,769	99.61	$177,198.00
Ambulatory Services	549	35.91	50,382	7	.39	694.00
Total	1,529	100.00	$140,301	1,776	100.00	$177,892.00

1. Three minor operations equal one operation. Cesarean section is considered to be a major operation, while two normal births are considered to be one operation.

2. Seven circumcisions equal one delivery.

Table F2 Allocation of Special Service Departmental Costs - 1968, 1970 (Cont'd.)

	1968			1970		
	STATISTICS	%	TOTAL EXPENSE	STATISTICS	%	TOTAL EXPENSE
Radiology-Diagnosis:	Number of Films Weighted[1]			Number of Films Weighted[1]		
In-Patients:						
Adults and children	31,412	35.8	$ 91,286	48,925	38.17	$151,247.00
Ambulatory Services	56,336	64.2	163,702	79,255	61.83	245,000.00
Total	87,748	100.0	$ 254,988	128,180	100.00	$396,247.00
Physical Therapy:						
In-Patients:	Number of Treatments			Number of Treatments		
Adults and children				1,947	97.50	$ 38,862.00
Ambulatory Services				50	2.50	996.00
Total	None			1,997	100.00	$ 39,858.00
Ambulance:	Percentage of Use or Number of Trips			Percentage of Use or Number of Trips		
In-Patients:						
Adults and children		100.0	$ 50,496			
Newborn infants						
Ambulatory Services						
Total		100.0	$ 50,496			
Medical & Surgical Supplies (Special):						
In-Patients:						
Adults and children		94.58	$ 242,933		84.20	$ 37,929.00
Newborn infants		0.17	436			
Ambulatory Services		5.25	13,485		15.80	7,117.00
Total		100.00	$ 256,854		100.00	$ 45,046.00

[1] Twenty dental films equals one normal X ray.

Table F2 Allocation of Special Services Departmental Costs - 1968, 1970 (Cont'd.)

	1968			1970		
	STATISTICS	%	TOTAL EXPENSE	STATISTICS	%	TOTAL EXPENSE
Pharmacy (Special):						
In-Patients:						
Adults and children		94.38	$103,950		96.00	$112,835.00
Newborn infants		0.20	220		1.61	1,892.00
Ambulatory Services		5.42	5,970		2.39	2,809.00
Total		100.00	$110,140		100.00	$117,536.00
Inhalation Therapy:	Revenue			Revenue		
In-Patients:						
Adults and children				$ 144,832.60	99.94	$ 65,890.00
Newborn infants				48.00	.03	20.00
Ambulatory Services				42.50	.03	20.00
Total				$ 1 ,923.10	100.00	$ 65,930.00
	Number of Laboratory Tests			Lab & Blood Bank: Number of Laboratory Tests		
Laboratory:						
In-Patients:						
Adults and children	158,752	71.45	$270,350	233,514	74.72	$508,635.00
Newborn infants	2,605	1.18	4,465	1,610	.52	3,540.00
Ambulatory Services	60,804	27.37	103,561	77,374	24.76	168,547.00
Total	222,161	100.00	$378,376	312,498	100.00	$680,722.00
Emergency Room:	Revenue			Revenue		
In-Patients:						
Adults and children				$ 24,021.00	10.98	$ 30,527.00
Ambulatory Services				194,702.50	89.02	247,501.00
Total				$ 218,723.50	100.00	$278,028.00

Table F2 Allocation of Special Services Departmental Costs - 1968, 1970 (Cont'd.)

	1968			1970		
	STATISTICS	%	TOTAL EXPENSE	STATISTICS	%	TOTAL EXPENSE
Electrocardiology:	Number of Examinations			Number of Examinations		
In-Patients:						
Adults and children	3,223	76.71	$16,435	4,405	78.63	$28,227.00
Newborn infants	6	0.15	32	1	.02	7.00
Ambulatory Services	972	23.14	4,958	1,196	21.35	7,664.00
Other Non-Patient Services						
Total	4,201	100.00	$21,425	5,602	100.00	$35,898.00
Intravenous Solutions:	Revenue			Revenue		
In-Patients:						
Adults and children				$59,704.27	99.03	$27,659.00
Newborn infants				3.00	----	
Ambulatory Services				584.25	.97	271.00
Total				$60,291.52	100.00	$27,930.00

Table F3 Per Diem Costs By Accomodations - 1968, 1970

	1968 PER DIEM COSTS	1970 PER DIEM COSTS
A. Private		
1. Routine	$65.55	$82.97
2. Special	99.90	$120.09
B. Semi-Private		
1. Routine	$57.00	$72.15
2. Special	86.87	$104.43

Table F4

THE CAMBRIDGE Hospital

General Fund Income Summary

For the year ended DECEMBER 31, 1968

	TOTAL GENERAL FUND INCOME	IN-PATIENTS ADULTS AND CHILDREN** TOTAL ADULTS AND CHILDREN	PRIVATE	SEMI-PRIVATE	WARD	NEWBORN INFANTS
GROSS EARNINGS FROM ROUTINE SERVICES	$ 1,724,356.50	$ 1,453,736.00	$ 160,620.00	$ 546,392.00	$ 746,724.00	$ 56,814.00
GROSS EARNINGS FROM SPECIAL SERVICES:						
OPERATING ROOMS	117,483.35	115,753.35	13,780.00	49,291.00	52,682.35	10.00
DELIVERY ROOMS	37,036.00	35,706.00	720.00	16,440.00	18,546.00	1,330.00
ANESTHESIOLOGY	22,060.50	21,938.00	1,211.00	8,172.00	12,555.00	
RADIOLOGY:						
DIAGNOSIS	377,980.45	167,357.95	15,067.00	52,632.00	99,658.95	808.00
THERAPY	280.00	280.00	130.00	10.00	140.00	
LABORATORY	702,623.10	559,860.60	47,447.50	156,760.70	355,652.40	10,987.50
BASAL METABOLISM						
ELECTRO-CARDIOLOGY	26,131.00	21,716.00	2,310.00	6,156.00	13,250.00	55.00
BLOOD BANK	18,749.00	18,649.00	1,335.00	7,016.00	10,298.00	25.00
PHYSICAL THERAPY						
AMBULANCE SERVICE	18,730.75	4,212.50	263.00	1,487.00	2,462.50	28.00
MEDICAL & SURGICAL SUPPLIES AND SERVICES:						
OXYGEN THERAPY						
INTRAVENOUS THERAPY	33,915.38	33,887.04	2,826.59	9,699.63	21,360.82	28.34
CENTRAL STERILE SUPPLY	183,218.39	171,865.68	16,094.75	48,538.59	107,232.54	340.05
MISC	63.55	63.55		42.00	21.55	
PHARMACY	121,650.46	118,052.38	8,690.95	36,945.02	72,416.41	904.70
OTHER (SPECIFY): CAST ROOM	3,108.00					
TOTAL SPECIAL SERVICES	$ 1,663,029.93	$ 1,269,342.05	$ 109,875.79	393,189.74	766,276.52	14,516.59
TOTAL GROSS EARNINGS	$ 3,387,386.43	$ 2,723,078.05	$ 270,495.79	939,581.74	1,513,000.52	71,330.59
DEDUCTIONS FROM GROSS EARNINGS:						
ADJUSTMENTS - CONTRACTUAL:						
MASSACHUSETTS HOSPITAL SERVICE, INC.						
WORKMEN'S COMPENSATION	10,713.09	8,838.29	854.90	2,970.74	5,012.65	
STATE, CITY AND TOWN WELFARE	79,776.74	64,132.52	6,366.18	22,122.09	35,644.25	1,683.29
OTHER (SPECIFY): MEDICARE	71,484.90	58,975.04	5,704.50	19,822.76	33,447.78	
TOTAL ADJUSTMENTS - CONTRACTUAL	$ 161,974.73	$ 131,945.85	$ 12,925.58	44,915.59	74,104.68	1,683.29
FREE SERVICE AND ALLOWANCES:						
FREE SERVICE - GENERAL PATIENTS	63,915.58	51,381.73	5,100.46	17,723.79	28,557.48	1,348.62
COURTESY AND MISC. ALLOWANCES	584.17	469.62	46.62	161.99	261.01	12.32
FREE SERVICE AND ALLOWANCES - EMPLOYEES						
OTHER (SPECIFY): BAD DEBTS	356,259.08	286,396.67	28,429.47	98,790.64	159,176.56	7,517.07
TOTAL FREE SERVICE AND ALLOWANCES	$ 420,758.83	$ 338,248.02	$ 33,576.55	116,676.42	187,995.05	8,878.01
PROVISION FOR UNCOLLECTIBLE RECEIVABLES						
TOTAL DEDUCTIONS FROM GROSS EARNINGS	$ 582,733.56	$ 470,193.87	$ 46,502.13	161,592.01	262,099.73	10,561.30
NET EARNINGS FROM SERVICES TO PATIENTS	$ 2,804,652.87	$ 2,252,884.18	$ 223,993.66	777,989.73	1,250,900.79	60,769.29
OTHER INCOME (PER SCHEDULE II-A)	31,878.81	xxx	xxx	xxx	xxx	xxx
TOTAL GENERAL FUND INCOME	$ 2,836,531.68	$ 2,252,884.18	$ 223,993.66	$ 777,989.73	$ 1,250,900.79	$ 60,769.29

* INCLUDING CLINICS, PRIVATE CLINICS, AND PRIVATE REFERRED.

INCLUDING WORK DONE FOR OTHER HOSPITALS AND INSTITUTIONS, DOCTORS, EMPLOYEES (NOT AS PATIENTS), ETC.

** INCLUDING GROSS EARNINGS OF NEWBORN INFANTS AFTER THE DISCHARGE OF MOTHER.

COMPUTATION OF GROSS EARNINGS PER DIEM:

	IN-PATIENTS ADULTS AND CHILDREN TOTAL ADULTS AND CHILDREN	PRIVATE	SEMI-PRIVATE	WARD	NEWBORN INFANTS
PATIENT DAYS	37,367	3,076	13,079	21,212	2,804
ROUTINE SERVICE PER DIEM - GROSS EARNINGS	$ 38.90	$ 52.22	$ 41.78	$ 35.20	$ 20.26
SPECIAL SERVICE PER DIEM - GROSS EARNINGS	33.97	35.72	30.06	36.12	5.18
COMBINED PER DIEM - GROSS EARNINGS	$ 72.87	$ 87.94	$ 71.84	$ 71.32	$ 25.44

THE CAMBRIDGE Hospital

General Fund Income Summary

For the year ended DECEMBER 31, 1968

TOTAL ULTS AND CHILDREN	IN-PATIENTS ADULTS AND CHILDREN** PRIVATE	SEMI-PRIVATE	WARD	NEWBORN INFANTS	AMBULATORY SERVICES EMERGENCY	OTHER*	OTHER NON-PATIENT INCOME #
,453,736.00	$ 160,620.00	$ 546,392.00	$ 746,724.00	$ 56,814.00	$ 116,364.50	$ 97,742.00	$
115,753.35	13,780.00	49,291.00	52,682.35	10.00	105.00	1,615.00	
35,706.00	720.00	16,440.00	18,546.00	1,330.00			
21,938.00	1,211.00	8,172.00	12,555.00			122.50	
167,357.95	15,067.00	52,632.00	99,658.95	808.00	118,642.00	91,172.50	
280.00	130.00	10.00	140.00				
559,860.60	47,447.50	156,760.70	355,652.40	10,987.50	31,963.40	99,811.60	
21,716.00	2,310.00	6,156.00	13,250.00	55.00	1,675.00	2,685.00	
18,649.00	1,335.00	7,016.00	10,298.00	25.00	75.00		
4,212.50	263.00	1,487.00	2,462.50	28.00	14,165.25	325.00	
33,887.04	2,826.59	9,699.63	21,360.82	28.34			
171,865.68	16,094.75	48,538.39	107,232.54	340.05	10,399.56	613.10	
63.55		42.00	21.55				
118,052.38	8,690.95	36,945.02	72,416.41	904.70	2,686.63	6.75	
						3,108.00	
,269,342.05	$ 109,875.79	393,189.74	766,276.52	14,516.59	179,711.84	199,459.45	
2,723,078.05	$ 270,495.79	939,581.74	1,513,000.52	71,330.59	295,776.34	297,201.45	
8,838.29	854.90	2,970.74	5,012.65		935.26	939.54	
64,132.52	6,366.18	22,122.09	35,644.25	1,683.29	6,964.51	6,996.42	
58,975.04	5,704.50	19,822.76	33,447.78		6,240.63	6,269.23	
131,945.85	$ 12,925.58	44,915.59	74,104.68	1,683.29	14,140.40	14,205.19	
51,381.73	5,100.46	17,723.79	28,557.48	1,348.62	5,579.83	5,665.40	
469.62	46.62	161.99	261.01	12.32	51.00	51.23	
286,396.67	28,429.47	98,790.64	159,176.56	7,517.07	31,101.42	31,243.92	
338,248.02	$ 33,576.55	116,676.42	187,995.05	8,878.01	36,732.25	36,900.55	
470,193.87	$ 46,502.13	161,592.01	262,099.73	10,561.30	50,872.65	51,105.74	
2,252,884.18	$ 223,993.66	777,989.73	1,250,900.79	60,769.29	244,903.69	246,095.71	
XXX	XXX	XXX	XXX	XXX	XXX	XXX	31,878.81
2,252,884.18	$ 223,993.66	$ 777,989.73	$ 1,250,900.79	$ 60,769.29	$ 244,903.69	$ 246,095.71	$ 31,878.81

S, EMPLOYEES (NOT AS PATIENTS), ETC.
OF MOTHER.

TOTAL OULTS AND CHILDREN	IN-PATIENTS ADULTS AND CHILDREN PRIVATE	SEMI-PRIVATE	WARD	NEWBORN INFANTS
37,367	3,076	13,079	21,212	2,804
38.90	$ 52.22	$ 41.78	$ 35.20	$ 20.26
33.97	35.72	30.06	36.12	5.18
	$ 87.94	$ 71.84	$ 71.32	$ 25.44

Table F5

THE CAMBRIDGE Hospital

General Fund Income Summary

For the year ended DECEMBER 31, 1970

	TOTAL GENERAL FUND INCOME	IN-PATIENTS ADULTS AND CHILDREN** TOTAL ADULTS AND CHILDREN	PRIVATE	SEMI-PRIVATE	WARD	NEWBORN INFANTS
GROSS EARNINGS FROM ROUTINE SERVICES	$ 4,213,610.00	$ 3,724,768.00	$ 320,720.00	$ 3,404,048.00	$ ---	$ 124,228.00
GROSS EARNINGS FROM SPECIAL SERVICES:					---	---
OPERATING ROOMS and Recovery Rooms	253,743.50	252,223.50	15,920.00	236,303.50		
DELIVERY ROOMS	59,360.00	59,360.00	3,290.00	56,070.00		
ANESTHESIOLOGY	117,271.00	116,227.50	5,880.00	110,347.50	---	
RADIOLOGY:						
DIAGNOSIS	512,166.25	238,575.00	18,568.00	220,007.00	---	1,025.00
THERAPY						
LABORATORY	778,418.25	598,374.50	44,033.98	554,340.52	---	7,415.50
BASAL METABOLISM						
ELECTRO-CARDIOLOGY EKG	80,975.00	64,725.00	4,410.00	60,315.00	---	150.00
BLOOD BANK	12,762.00	12,708.00	1,044.00	11,664.00	---	45.00
PHYSICAL THERAPY	17,048.50	16,616.50	1,393.00	15,223.50		10.00
CIRCS	2,070.00					2,070.00
AMBULANCE SERVICE						
PSY-TESTING	250.00	150.00	75.00	75.00	---	
MEDICAL & SURGICAL SUPPLIES AND SERVICES:						
OXYGEN THERAPY	144,923.10	144,832.60	9,552.00	135,280.60	---	48.00
INTRAVENOUS THERAPY	60,291.52	59,704.27	4,686.27	55,018.00	---	3.00
CENTRAL STERILE SUPPLY	83,807.10	70,534.35	5,514.45	65,019.90		20.00
	2,645.00	2,100.00	90.00	2,010.00		35.00
PHARMACY	177,728.69	170,626.86	12,113.17	158,513.69		2,863.90
OTHER (SPECIFY):						
TOTAL SPECIAL SERVICES	2,303,459.91	1,806,758.08	126,569.87	1,680,188.21	---	13,685.40
TOTAL GROSS EARNINGS	6,517,069.91	5,531,526.08	447,289.87	5,084,236.21	---	137,913.40
DEDUCTIONS FROM GROSS EARNINGS:						
ADJUSTMENTS - CONTRACTUAL:						
MASSACHUSETTS HOSPITAL SERVICE, INC.	825.33	822.33	55.81	766.52	---	
WORKMEN'S COMPENSATION	19,326.04	13,943.28	12,143.25	1,800.03		(1.90)
STATE, CITY AND TOWN WELFARE	(39,505.96)	(44,092.75)	2,032.76	(46,125.51)		
OTHER (SPECIFY): MEDICARE	5,840.42	5,825.42	1,080.48	4,744.94		
TOTAL ADJUSTMENTS - CONTRACTUAL	(13,514.17)	(23,501.72)	15,312.30	(38,814.02)	---	(1.90)
FREE SERVICE AND ALLOWANCES:						
FREE SERVICE - GENERAL PATIENTS	2,309.76	1,511.26	447.00	1,064.26		
COURTESY AND MISC. ALLOWANCES	2,126.51	2,126.01	1,839.44	286.57		
FREE SERVICE AND ALLOWANCES - EMPLOYEES	5,922.50					
OTHER (SPECIFY):	20,218.70	49.50		49.50		
TOTAL FREE SERVICE AND ALLOWANCES	30,577.47	3,686.77	2,286.44	1,400.33	---	
PROVISION FOR UNCOLLECTIBLE RECEIVABLES	265,230.19	113,290.23	6,938.98	106,351.25	---	2,104.50
TOTAL DEDUCTIONS FROM GROSS EARNINGS	282,293.49	93,475.28	24,537.72	68,937.56	---	2,102.60
NET EARNINGS FROM SERVICES TO PATIENTS	6,234,776.42	5,438,050.80	422,752.15	5,015,298.65	---	135,810.80
OTHER INCOME (PER SCHEDULE II-A)	36,481.91	XXX	XXX	XXX	XXX	XXX
TOTAL GENERAL FUND INCOME	$ 6,271,258.33	$ 5,438,050.80	$ 422,752.15	$ 5,015,298.65	$ ---	$ 135,810.80

* INCLUDING CLINICS, PRIVATE CLINICS, AND PRIVATE REFERRED.

INCLUDING WORK DONE FOR OTHER HOSPITALS AND INSTITUTIONS, DOCTORS, EMPLOYEES (NOT AS PATIENTS), ETC.

** INCLUDING GROSS EARNINGS OF NEWBORN INFANTS AFTER THE DISCHARGE OF MOTHER.

COMPUTATION OF GROSS EARNINGS PER DIEM:

	IN-PATIENTS ADULTS AND CHILDREN TOTAL ADULTS AND CHILDREN	PRIVATE	SEMI-PRIVATE	WARD	NEWBORN INFANTS
PATIENT DAYS	51,813	4,387	47,426	---	3,666
ROUTINE SERVICE PER DIEM - GROSS EARNINGS	$ 71.88	$ 73.10	$ 71.77	$ ---	$ 33.88
SPECIAL SERVICE PER DIEM - GROSS EARNINGS	34.87	28.85	35.42	---	3.73
COMBINED PER DIEM - GROSS EARNINGS	$ 106.75	$ 101.95	$ 107.19	$ ---	$ 37.61

THE CAMBRIDGE Hospital

General Fund Income Summary

For the year ended DECEMBER 31, 1970

TAL ERAL UND COME	IN-PATIENTS ADULTS AND CHILDREN** TOTAL ADULTS AND CHILDREN	PRIVATE	SEMI-PRIVATE	WARD	NEWBORN INFANTS	AMBULATORY SERVICES EMERGENCY	OTHER*	OTHER NON-PATIENT INCOME #
,610.00	$ 3,724,768.00	$ 320,720.00	$ 3,404,048.00	$ ---	$ 124,228.00	$ 194,702.50	$ 169,911.50	$
,743.50	252,223.50	15,920.00	236,303.50	---	---	230.00	1,290.00	
,360.00	59,360.00	3,290.00	56,070.00					
,271.00	116,227.50	5,880.00	110,347.50	---		796.00	247.50	
,166.25	238,575.00	18,568.00	220,007.00	---	1,025.00	161,877.00	110,689.25	
,418.25	598,374.50	44,033.98	554,340.52	---	7,415.50	63,761.00	108.867.25	
,975.00	64,725.00	4,410.00	60,315.00	---	150.00	7,020.00	9,080.00	
,762.00	12,708.00	1,044.00	11,664.00	---	45.00	9.00		
,048.50	16,616.50	1,393.00	15,223.50		10.00		422.00	
,070.00					2,070.00			
250.00	150.00	75.00	75.00	---			100.00	
923.10	144,832.60	9,552.00	135,280.60	---	48.00	-	42.50	
291.52	59,704.27	4,686.27	55,018.00	---	3.00	569.25	15.00	
807.10	70,534.35	5,514.45	65,019.90		20.00	12,694.85	557.90	
645.00	2,100.00	90.00	2,010.00		35.00	30.00	480.00	
728.69	170,626.86	12,113.17	158,513.69		2,863.90	3,947.78	290.15	
459.91	1,806,758.08	126,569.87	1,680,188.21	---	13,685.40	250,934.88	232,081.55	
069.91	5,531,526.08	447,289.87	5,084,236.21	---	137,913.40	445,637.38	401,993.05	
825.33	822.33	55.81	766.52	---		3.00		
326.04	13,943.28	12,143.25	1,800.03		(1.90)	4,730.96	653.70	
505.96)	(44,092.75)	2,032.76	(46,125.51)			2,919.64	1,667.15	
840.42	5,825.42	1,080.48	4,744.94			15.00		
514.17)	(23,501.72)	15,312.30	(38,814.02)	---	(1.90)	7,668.60	2,320.85	
309.76	1,511.26	447.00	1,064.26				798.50	
126.51	2,126.01	1,839.44	286.57			.50		
922.50						920.00	5,002.50	
218.70	49.50		49.50			15.043.20	5,126.00	
577.47	3,686.77	2,286.44	1,400.33	---		15,963.70	10,927.00	
230.19	113,290.23	6,938.98	106,351.25	---	2,104.50	74,124.58	75,710.88	
293.49	93,475.28	24,537.72	68,937.56	---	2,102.60	97,756.88	88,958.73	
776.42	5,438,050.80	422,752.15	5,015,298.65	---	135,810.80	347,880.50	313,034.32	
481.91	XXX	XXX	XXX	XXX	XXX	XXX	XXX	36,481.91
258.33	$ 5,438,050.80	$ 422,752.15	$ 5,015,298.65	$ ---	$ 135,810.80	$ 347,880.50	$ 313,034.32	$ 36,481.91

ERRED.
TIONS, DOCTORS, EMPLOYEES (NOT AS PATIENTS), ETC.
HE DISCHARGE OF MOTHER.

	IN-PATIENTS ADULTS AND CHILDREN TOTAL ADULTS AND CHILDREN	PRIVATE	SEMI-PRIVATE	WARD	NEWBORN INFANTS
	51,813	4,387	47,426	---	3,666
	$ 71.88	$ 73.10	$ 71.77	$ ---	$ 33.88
	34.87	28.85	35.42	---	3.73
	$ 106.75	$ 101.95	$ 107.19	$ ---	$ 37.61

Table F6

LINE	1	2	3	4	5	6	7
	HOSPITAL: THE CAMBRIDGE HOSPITAL				**DISTRIBUTION of EXPENSES and APPORTIONM** For the year ended December		
	ACCOUNT AND BASIS FOR APPORTIONMENT	GENERAL LEDGER EXPENSES	ADJUSTMENTS ADDITIONS DR.	ADJUSTMENTS DEDUCTIONS CR.	NET EXPENSE FOR APPORTION.	APPORTIONED EXPENSES	TOTAL COLUM PLUS C
1	**DEPARTMENTAL EXPENSES:**						
2	Administration and General	561,551		723	560,828		560
3	Rep'rs & Maint. of B'ld'gs, Equip. & Grds.	111,600			111,601	18,262	129
4	Operation of Plant	155,409			155,409	21,895	177
5	Motor Service						
6	Laundry	72,988			72,989	7,034	80
7	Linen Service	34,767		105	34,663	4,182	38
8	Housekeeping	200,214			200,215	41,746	241
9	Dietary	371,705		22,036	349,670	86,082	435
10	Maintenance of Personnel	11,763		2,184	9,579	44,558	54
11	**PROFESSIONAL CARE – GENERAL:**						
12	Medical & Surgical Service:						
13	Salaries – Physicians	299,151			299,152	93,924	393
14	Sup. & Exp. (Gen) (incl. wages-other)	232,029	3	206,419	25,614	6,297	31
15	Nursing Service	823,326	20,291	72,638	770,980	167,707	938
16	Nursing Education						
17	Pharmacy Department (General)	112,249		104,916	7,334	694	8
18	Medical Records & Library	81,008			81,008	23,520	104
19	Social Service Department	23,336			23,336	6,647	29
20	Other (Specify):						
21	Blood Bank	29,888			29,888	3,295	33
22	**PROFESSIONAL CARE – SPECIAL:**						3,258
23	Operating Rooms	108,335	1,718		110,054		
24	Delivery Rooms	51,205	543		51,748		
25	Anesthesiology	112,824	124		112,949		
26	Radiology:						
27	Diagnosis	189,082	54		189,137		
28	Therapy						
29	Laboratory	309,719	202		309,922		
30	Basal Metabolism						
31	Electrocardiology	18,347			18,348		
32	Physical Therapy						
33	Ambulance	50,495			50,496		
34	Medical & Surgical Service (Special)		206,419		206,419		
35	Pharmacy Department (Special)		100,575		100,575		
36	Other (Specify):						
37							
38	**PROFESSIONAL CARE – AMBULATORY:**						
39	Emergency	56,877	1,150		58,027		
40	Other (Specify):	83,690	232	2,673	81,249		
41							
42							
43	**ROUTINE SERVICE – IN-PATIENTS:**						
44	Adults and Children						
45	Newborn Infant Expense (Nursery)		72,936	20,291	52,643		
46	Other (Specify):						
47	**TOTAL DEPARTMENTAL EXPENSES**						
48	**NON-PATIENT EXPENSES (Per Sch V-A)**	3,319			3,319		
49	**RECOVERY OF EXPENSES (Per Sch V-C)**		27,738		27,738		
50	**TOTAL BEFORE OTHER EXPENSES**	4,104,890	431,985	431,985	4,104,890		
51	**TOTAL OTHER EXPENSES (Per Sch V-B)**	244,312					
52	**TOTAL GENERAL LEDGER EXPENSES**	4,349,202			TOTAL EQUALS COL. 2 PLUS COL. 3 MINUS COL. 4		

TOTA
Sum of
9-26 app
on Lin

(1) Enter Line 3, Col. 9

(2) Enter Line 4, Col. 9 on Line 4, Col. 6.

(3) Enter Line 5, Col. 9 plus Line 5, Col. 11

(4) Enter Line 6, Col. 9 plus Line 6, Col. 11 on Line 6, Col. 6.

(5) Enter Line 7, Col. 9 plus Line 7, Col. 11 on Line 7, Col. 6.

(6) Continue in same fas until all "Professio functions have been remaining departmen appearing on Lines

2	3	4	5	6	7	8	9	10	11

DISTRIBUTION of EXPENSES and APPORTIONMENT of OVERHEAD
For the year ended December 31, 1968

GENERAL LEDGER EXPENSES	ADJUSTMENTS		NET EXPENSE FOR APPORTION.	APPORTIONED EXPENSES	TOTAL for APPORTIONMENT		ADMINISTRATION AND GENERAL	REPRS. & MAINT. OF BUILDINGS EQUIP. & GRDS.	OPERATIO OF PLAN
	ADDITIONS DR.	DEDUCTIONS CR.			COLUMN 5 PLUS COL. 6	IN COLUMN INDICATED BELOW	PAYROLL DOLLARS	FLOOR AREA	FLOOR ARE
561,551		723	560,828		560,828	COLUMN 9			
111,600			111,601	18,262	129,863	" 10	18,262		
155,409			155,409	21,895	177,304	" 11	13,913	7,982	
						" 12			
72,988			72,989	7,034	80,023	" 13	5,551	604	879
34,767		105	34,663	4,182	38,845	" 14	2,699	604	879
200,214			200,215	41,746	241,961	" 15	39,027	833	1,212
371,705		22,036	349,670	86,082	435,752	" 16	48,152	8,177	11,895
11,763		2,184	9,579	44,558	54,137	" 17	2,254	9,255	13,464
299,151			299,152	93,924	393,076	" 18	62,989		
232,029	3	206,419	25,614	6,297	31,911	" 19	1,205	1,138	1,656
823,326	20,291	72,638	770,980	167,707	938,687	" 20	157,541	544	791
						" 21			
112,249		104,916	7,334	694	8,028	" 22	404	65	94
81,008			81,008	23,520	104,528	" 23	15,414	1,812	2,636
23,336			23,336	6,647	29,983	" 24	4,912	388	564
						" 25			
29,888			29,888	3,295	33,183	" 26	3,295		
					3,258,109				
108,335	1,718		110,054				20,501	5,182	7,538
51,205	543		51,748				10,593	3,338	4,856
112,824	124		112,949				19,618		
189,082	54		189,137				29,586	7,905	11,500
309,719	202		309,922				43,998	5,316	7,733
18,347			18,348				2,266	181	264
50,495			50,496						
	206,419		206,419				9,652	9,116	13,262
	100,575		100,575				5,539	900	1,309
56,877	1,150		58,027				11,800	1,824	2,653
83,690	232	2,673	81,249				17,045	8,091	11,770
								53,634	78,022
	72,936	20,291	52,643				14,612	2,974	4,327
3,319			3,319						
	27,738		27,738						
4,104,890	431,985	431,985	4,104,890				560,828	129,863	177,304
244,312									
4,349,202			TOTAL EQUALS COL. 2 PLUS COL. 3 MINUS COL. 4				TOTAL EQUALS LINE 2, COL. 7	TOTAL EQUALS LINE 3, COL. 7	TOTAL EQU LINE 4, CO

TOTAL = Sum of Cols. 9-26 appearing on Line 50.

(1) Enter Line 3, Col. 9 on Line 3, Col. 6.

(2) Enter Line 4, Col. 9 plus Line 4, Col. 10 on Line 4, Col. 6.

(3) Enter Line 5, Col. 9 plus Line 5, Col. 10 plus Line 5, Col. 11 on Line 5, Col. 6.

(4) Enter Line 6, Col. 9 plus Line 6, Col. 10 plus Line 6, Col. 11 plus Line 6, Col. 12 on Line 6, Col. 6.

(5) Enter Line 7, Col. 9 plus Line 7, Col. 10 plus Line 7, Col. 11 plus Line 7, Col. 12 on Line 7, Col. 6.

(6) Continue in same fashion from left to right until all "Professional Core-General" functions have been apportioned to the remaining departments and functions appearing on Lines 23-49.

7	8	9	10	11	12	13	14	15	16
ONMENT of OVERHEAD r 31, 1968		GENERAL SERVICE DEPARTMENTS							
		ADMINISTRATION AND GENERAL	REPRS. & MAINT. OF BUILDINGS EQUIP. & GROS.	OPERATION OF PLANT	MOTOR SERVICE	LAUNDRY DEPARTMENT	LINEN SERVICE	HOUSEKEEPING DEPARTMENT	DIETARY DEPARTMENT
L for APPORTIONMENT		PAYROLL DOLLARS	FLOOR AREA	FLOOR AREA	PERCENTAGE OF USE	LBS. OF LAUNDRY PROCESSED	LBS. OF LAUNDRY PROCESSED	FLOOR AREA OR HOURS OF SER.	NUMBER OF MEALS SERVED
LUMN 5 COL. 6	IN COLUMN INDICATED BELOW								
60,828	COLUMN 9								
29,863	" 10	18,262							
77,304	" 11	13,913	7,982						
	" 12								
80,023	" 13	5,551	604	879					
38,845	" 14	2,699	604	879					
41,961	" 15	39,027	833	1,212		454	220		
35,752	" 16	48,152	8,177	11,895		908	440	16,510	
54,137	" 17	2,254	9,255	13,464		605	294	18,686	
93,076	" 18	62,989							
31,911	" 19	1,205	1,138	1,656				2,298	
38,687	" 20	157,541	544	791				1,097	
	" 21								
8,028	" 22	404	65	94				131	
04,528	" 23	15,414	1,812	2,636				3,658	
29,983	" 24	4,912	388	564				783	
	" 25								
33,183	" 26	3,295							
58,109									
		20,501	5,182	7,538		12,711	6,170	10,462	
		10,593	3,338	4,856		4,025	1,954	6,740	
		19,618							
		29,586	7,905	11,500		605	294	15,961	
		43,998	5,316	7,733		454	220	10,733	
		2,266	181	264				366	
		9,652	9,116	13,262				18,405	
		5,539	900	1,309				1,817	
		11,800	1,824	2,653		3,601	1,748	3,682	
		17,045	8,091	11,770		1,362	661	16,336	
			53,634	78,022		48,943	23,759	108,291	435,752
		14,612	2,974	4,327		6,355	3,085	6,005	
		560,828	129,863	177,304		80,023	38,845	241,961	435,752
		TOTAL EQUALS LINE 2, COL.7	TOTAL EQUALS LINE 3, COL.7	TOTAL EQUALS LINE 4, COL.7	TOTAL EQUALS LINE 5, COL.7	TOTAL EQUALS LINE 6, COL. 7	TOTAL EQUALS LINE 7, COL. 7	TOTAL EQUALS LINE 8, COL. 7	TOTAL EQUALS LINE 9, COL. 7

TAL =
of Cols.
appearing
ine 50.

9 on Line 3, Col. 6.

9 plus Line 4, Col. 10

9 plus Line 5, Col. 10
11 on Line 5, Col. 6.

9 plus Line 6, Col. 10
11 plus Line 6, Col. 12

9 plus Line 7, Col. 10
11 plus Line 7, Col. 12

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en apportioned to the
ents and functions
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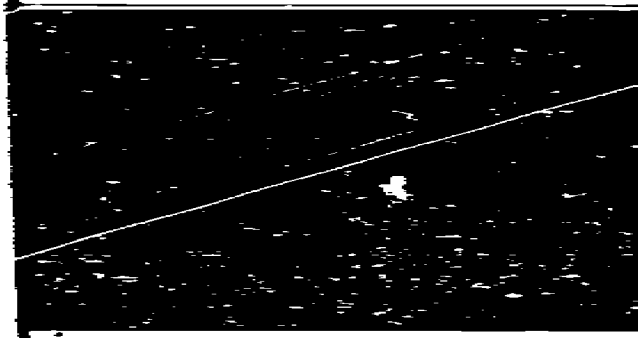

TOTAL EQUA
LINE 10, COL

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Table F7

LINE	1	2	3	4	5	6
	HOSPITAL: THE CAMBRIDGE HOSPITAL				**DISTRIBUTION of EXPENSES and APPORTI** For the year ended December	
	ACCOUNT AND BASIS FOR APPORTIONMENT	GENERAL LEDGER EXPENSES	ADJUSTMENTS ADDITIONS DR.	ADJUSTMENTS DEDUCTIONS CR.	NET EXPENSE FOR APPORTION.	APPORTIONED EXPENSES	TOT CO PLU
1	**DEPARTMENTAL EXPENSES:**						
2	Administration and General	1,034,696			1,034,696		1,0
3	Rep'rs & Maint. of B'ld'gs, Equip. & Grds.	169,018			169,018	33,205	2
4	Operation of Plant	290,755			290,755	54,924	3
5	Motor Service	612			612	--	
6	Laundry	101,968			101,968	16,295	1
7	Linen Service	44,185			44,185	4,988	
8	Housekeeping	266,271			266,271	75,308	3
9	Dietary	557,304		30,104	527,199	105,193	6
10	Maintenance of Personnel	--			--		
11	**PROFESSIONAL CARE – GENERAL:**						
12	Medical & Surgical Service:						
13	Salaries – Physicians	366,422			366,422	95,808	4
14	Sup. & Exp. (Gen) (incl. wages-other)	263,096		45,046	218,050	170,822	3
15	Nursing Service	1,463,048		54,152	1,408,895	698,816	2,1
16	Nursing Education	--			--		
17	Pharmacy Department (General)	145,882		109,411	36,470	4,419	
18	Medical Records & Library	137,407		3,809	133,597	55,720	1
19	Social Service Department	65,816			65,816	30,807	
20	Other (Specify):						
21							
22	**PROFESSIONAL CARE – SPECIAL:**						
23	Operating Rooms	230,419			230,419		
24	Delivery Rooms	50,890			50,890		
25	Anesthesiology	140,560			140,560		
26	Radiology:						
27	Diagnosis	298,587			298,587		
28	Therapy						
29	Laboratory	540,162			540,162		
30	~~Basal Metabolism~~ Blood Bank	5,901			5,901		
31	Electrocardiology	30,441			30,441		
32	Physical Therapy	19,478			19,478		
33	Ambulance	--			--		
34	Medical & Surgical Service (Special)		45,046		45,046		
35	Pharmacy Department (Special)		105,035		105,035		
36	Other (Specify): Inhal. Therapy	49,064			49,064		
37	I.V. Solutions	27,929			27,929		
38	**PROFESSIONAL CARE – AMBULATORY:**						
39	Emergency	130,224	2,611		132,836		
40	Other (Specify): Out Patient Clinic	111,753			111,753		
41							
42							
43	**ROUTINE SERVICE – IN-PATIENTS:**						
44	Adults and Children						
45	Newborn Infant Expense (Nursery)		55,917		55,917		
46	Other (Specify):						
47	**TOTAL DEPARTMENTAL EXPENSES**	6,541,902			6,507,988		
48	**NON-PATIENT EXPENSES** (Per Sch V-A)	12,019			12,019		
49	**RECOVERY OF EXPENSES** (Per Sch V-C)		33,914		33,914		
50	**TOTAL BEFORE OTHER EXPENSES**	6,553,922			6,553,922		
51	**TOTAL OTHER EXPENSES** (Per Sch V-B)	564,767			TOTAL EQUALS COL. 2 PLUS COL. 3 MINUS COL. 4		
52	**TOTAL GENERAL LEDGER EXPENSES**	7,118,689					

TO Sum 9-26 on

(1) Enter Line 3, Co

(2) Enter Line 4, Col on Line 4, Col. 6

(3) Enter Line 5, Co plus Line 5, Col.

(4) Enter Line 6, Co plus Line 6, Col. on Line 6, Col. 6

(5) Enter Line 7, Co plus Line 7, Col on Line 7, Col. 6

(6) Continue in some until all "Profes functions have b remaining deport appearing on Lin

3	4	5	6	7	8	9	10	11	12
DGE HOSPITAL	DISTRIBUTION of EXPENSES and APPORTIONMENT of OVERHEAD For the year ended December 31, 1970								GENERAL
	ADJUSTMENTS					ADMINISTRATION AND GENERAL	REPRS. & MAINT. OF BUILDINGS EQUIP. & GRDS.	OPERATION OF PLANT	MOTOR SERVICE
	ADDITIONS DR.	DEDUCTIONS CR.	NET EXPENSE FOR APPORTION.	APPORTIONED EXPENSES	TOTAL for APPORTIONMENT COLUMN 5 PLUS COL. 8	IN COLUMN INDICATED BELOW	PAYROLL DOLLARS	FLOOR AREA	FLOOR AREA	PERCENTAGE OF USE
96			1,034,696		1,034,696	COLUMN 9				
18			169,018	33,205	202,223	" 10	33,205			
55			290,755	54,924	345,679	" 11	32,166	22,758		
12			612	--	612	" 12	--	--	--	
58			101,968	16,295	118,263	" 13	10,282	2,055	3,958	--
85			44,185	4,988	49,173	" 14	4,550	150	288	--
71			266,271	75,308	341,579	" 15	65,171	3,464	6,673	--
04		30,104	527,199	105,193	632,392	" 16	77,245	9,551	18,397	
-			--			" 17	--	--	--	--
22			366,422	95,808	462,230	" 18	95,808	--		
96		45,046	218,050	170,822	388,872	" 19	13,215	25,856	49,802	
48		54,152	1,408,895	698,816	2,107,711	" 20	354,901	68,700	132,334	
-			--			" 21	--	--	--	--
82		109,411	36,470	4,419	40,889	" 22	2,643	355	683	
07		3,809	133,597	55,720	189,317	" 23	30,254	5,087	9,799	
16			65,816	30,807	96,623	" 24	17,070	2,744	5,286	
						" 25				
						" 26				
19			230,419				40,343	9,495	18,288	
90			50,890				11,788	4,098	7,892	
60			140,560				31,787	1,108	2,133	
87			298,587				49,006	9,706	18,695	
62			540,162				70,346	11,952	23,021	
01			5,901				1,243	634	1,221	
41			30,441				4,192	253	487	
78			19,478				4,946	3,083	5,938	
-			--				--	--	--	
	45,046		45,046							
	105,035		105,035				7,929	913	1,759	
64			49,064				7,730	1,825	3,515	
29			27,929				--			
24	2,611		132,836				29,899	4,236	8,160	
53			111,753				25,942	7,665	14,764	
										613
	55,917		55,917				13,036	2,569	4,948	
02			6,507,988							
19			12,019					3,966	7,639	
	33,914		33,914							
22			6,553,922				1,034,697	202,223	345,680	613
67										
89			TOTAL EQUALS COL. 2 PLUS COL. 3 MINUS COL. 4				TOTAL EQUALS LINE 2, COL. 7	TOTAL EQUALS LINE 3, COL. 7	TOTAL EQUALS LINE 4, COL. 7	TOTAL EQUALS LINE 5, COL. 7

TOTAL = Sum of Cols. 9-26 appearing on Line 50.

(1) Enter Line 3, Col. 9 on Line 3, Col. 6.

(2) Enter Line 4, Col. 9 plus Line 4, Col. 10 on Line 4, Col. 6.

(3) Enter Line 5, Col. 9 plus Line 5, Col. 10 plus Line 5, Col. 11 on Line 5, Col. 6.

(4) Enter Line 6, Col. 9 plus Line 6, Col. 10 plus Line 6, Col. 11 plus Line 6, Col. 12 on Line 6, Col. 6.

(5) Enter Line 7, Col. 9 plus Line 7, Col. 10 plus Line 7, Col. 11 plus Line 7, Col. 12 on Line 7, Col. 6.

(6) Continue in same fashion from left to right until all "Professional Care-General" functions have been apportioned to the remaining departments and functions appearing on Lines 23-49.

8	9	10	11	12	13	14	15	16
	GENERAL SERVICE DEPARTMENTS							
	ADMINISTRATION AND GENERAL	REPRS. & MAINT. OF BUILDINGS EQUIP. & GRDS.	OPERATION OF PLANT	MOTOR SERVICE	LAUNDRY DEPARTMENT	LINEN SERVICE	HOUSEKEEPING DEPARTMENT	DIETARY DEPARTMENT
	PAYROLL DOLLARS	FLOOR AREA	FLOOR AREA	PERCENTAGE OF USE	LBS. OF LAUNDRY PROCESSED	LBS. OF LAUNDRY PROCESSED	FLOOR AREA OR HOURS OF SER.	NUMBER OF MEALS SERVED
	33,205							
	32,166	22,758						
	--	--	--					
	10,282	2,055	3,958	--				
	4,550	150	288	--				
	65,171	3,464	6,673	--	--	--		
	77,245	9,551	18,397				--	
	--	--	--	--	--	--	--	
	95,808	--						
	13,215	25,856	49,802		1,053	437	53,772	26,687
	354,901	68,700	132,334				142,881	
	--	--	--	--	--	--	--	
	2,643	355	683				738	
	30,254	5,087	9,799				10,580	
	17,070	2,744	5,286				5,707	
	40,343	9,495	18,288		9,599	3,986	19,746	
	11,788	4,098	7,892		2,166	900	8,521	
	31,787	1,108	2,133				2,303	
	49,006	9,706	18,695		47	20	20,185	
	70,346	11,952	23,021		47	20	24,855	
	1,243	634	1,221				1,319	
	4,192	253	487				525	
	4,946	3,083	5,938				6,412	
	--	--	--		--	--	--	
	7,929	913	1,759				1,900	
	7,730	1,825	3,515				3,795	
	--							
	29,899	4,236	8,160		4,119	1,711	8,810	
	25,942	7,665	14,764				15,941	
				613	96,817	40,267		605,706
	13,036	2,569	4,948		4,415	1,833	5,342	
		3,966	7,639				8,247	
	1,034,697	202,223	345,680	613	118,263	49,174	341,579	632,393
	TOTAL EQUALS LINE 2, COL. 7	TOTAL EQUALS LINE 3, COL. 7	TOTAL EQUALS LINE 4, COL. 7	TOTAL EQUALS LINE 5, COL. 7	TOTAL EQUALS LINE 6, COL. 7	TOTAL EQUALS LINE 7, COL. 7	TOTAL EQUALS LINE 8, COL. 7	TOTAL EQUALS LINE 9, COL. 7

...ENT of OVERHEAD
1970

...for APPORTIONMENT

...IN 5 ...OL. 6	IN COLUMN INDICATED BELOW
,696	COLUMN 9
,223	" 10
,679	" 11
612	" 12
,263	" 13
,173	" 14
,579	" 15
,392	" 16
	" 17
,230	" 18
,872	" 19
,711	" 20
	" 21
,989	" 22
,317	" 23
,623	" 24
	" 25
	" 26

...L = ...Cols. ...earing ...50.

...on Line 3, Col. 6.

...lus Line 4, Col. 10

...plus Line 5, Col. 10 ...on Line 5, Col. 6.

...plus Line 6, Col. 10 ...plus Line 6, Col. 12

...plus Line 7, Col. 10 ...plus Line 7, Col. 12

...ion from left to right ...al Care-General" ...pportioned to the ...s and functions ...3-49.

MAINTENANCE OF PERSONNEL	ME
AVERAGE NUM. LIVING-IN	
[redacted]	
30,935	
7,734	
[redacted]	
7,734	
[redacted]	
[redacted]	
7,734	
[redacted]	
54,137	
TOTAL EQUALS LINE 10, COL. 7	

...SER-...MENT	25 OTHER (SPECIFY)	26 OTHER (SPECIFY)
...OR ...OF ...CE	Blood Bank Income	
	133	
,497		
,486	33,006	
	44	
,983	33,183	
...EQUALS ...9, COL. 7	TOTAL EQUALS LINE 20, COL. 7	TOT. EQUALS LINE 21, COL. 7

LINE
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TABLE F8

Entry Requirements for Various Occupations at The Cambridge Hospital
September 1969; June 1971

	1969		1971	
	RN	LPN	RN	LPN
1. Total Number Employed	60 FT 17 PT 67 FTE	17 FT 7 PT 20 FTE	55 FT 33 PT 71.5 FTE	33 FT 1 PT 33.5 FTE
a. Male	---	---	---	1
b. Female	All	All	88	33
2. Number of Vacancies	17	4	3 FT 1 PT	---
3. Number holding professional license or certification (specify license or certification agency)	All	All	All	All
4. Who sets job requirements?				
a. Individual Department				
b. Hospital Administration			X	X
c. Professional Accrediting Agency	X	X		
d. Civil Service				
5. How long have these requirements been in effect?	2 yrs.	2 yrs.	4 yrs.	4 yrs.
6. Formal education and training requirements (specify number of years if necessary)				
a. No education requirement				
b. No training requirement				
c. Some formal education, 8th grade or less				
d. High School				
e. College				
f. Professional training (post-undergraduate)				
g. Vocational training				
h. Technical training				
i Practical experience				
j. In-plant on-the-job training in lieu of past high school education (specify length)				
k. In-plant on-the-job training in addition to past high school education				
l. Professional license or certification	License	License	License	License
m. Successful completion of Civil Service examination (70%)				
n. Physical fitness, as determined by physical examination			X	X
o. Specialized practical experience in one's field in a hospital				
p. Practical experience in one's specialty in a university or industrial setting				
q. Supervisory experience				
r. References (character and work)			X	X
s. 18 years of age			X	X

TABLE F9

Entry Requirements for Various Occupations at The Cambridge Hospital
September 1969, June 1971

		1969			1971	
		NA	Orderly	Ward Secret.	NA	Ward Secret.
1.	Total Number Employed	31 FT	14.5 FTE	9 FT 3 PT	54	14
	a. Male		All			1
	b. Female	All		All	All	13
2.	Number of Vacancies	7	3	1	--	--
3.	Number holding professional license or certification (specify license or certification agency)	None	None	None	None	None
4.	Who sets job requirements?					
	a. Individual Department	X	X	X		Billing
	b. Hospital Administration				X	
	c. Professional Accrediting Agency					
	d. Civil Service					
5.	How long have these requirements been in effect?	2 yrs.	2 yrs.	1 yr.	2 yrs.	6/71
6.	Formal education and training requirements (specify number of years if necessary)					
	a. No education requirement				X	
	b. No training requirement	X	X	X		
	c. Some formal education, 8th grade or less					
	d. High school	X	X	X		X
	e. College					
	f. Professional training					
	g. Vocational training					
	h. Technical training					
	i. Practical experience					
	j. In-plant on-the-job training in lieu of past high school education (pecify length)					
	k. In-plant on-the-job training in addition to past high school education	X	X	X		X
	l. Professional license or certification					
	m. Successful completion of Civil Service examination (70%)					
	n. Physical fitness, as determined by physical examination				X	X
	o. Specialized practical experience in one's field in a hospital					
	p. Practical experience in one's specialty in a university or industrial setting					
	q. Supervisory experience					
	r. References (character and work)				X	X
	s. 18 years of age	X	X	X	X	X

TABLE F10

Entry Requirements For Various Occupations at The Cambridge Hospital
June 1971

		PHYSICIAN'S ASSISTANT[1]
1.	Total Number Employed	
	a. Male	3
	b. Female	3
2.	Number of Vacancies	
3.	Number holding professional license or certification (specify license or certification agency)	2
4.	Who sets job requirements?	None
	a. Individual Department	Medical Staff
	b. Hospital Administration	
	c. Professional Accrediting Agency	
	d. Civil Service	
5.	How long have these requirements been in effect?	1 year
6.	Formal education and training requirements (specify number of years if necessary)	
	a. No education requirement	X
	b. No training requirement	
	c. Some formal education, 8th grade or less	
	d. High School	
	e. College	
	f. Professional training (post-undergraduate)	
	g. Vocational Training	
	h. Technical training[1]	X
	i. Practical experience[1]	X
	j. In-plant on-the-job training in lieu of past high school education (specify length)[1]	X

1. This occupation was formally established in winter of 1970. The three physician's assistants (PAs) were employed by The Cambridge Hospital before this occupation was established. They were called Aides but were paid the salary of an LPN. All three were former corpsmen. They are now called physician's assistants and are receivin in-service training by the medical staff. At present (summer 1971) only former corpsmen can qualify for this position. The Cambridge Hospital has given letters of intent to employ the PAs who successfully graduate from Northeastern University's PA program. Again, at present the only persons who can qualify to enter the PA program at Northeastern are former corpsmen. Although there are large numbers of corpsmen available and interested in the PA program, it is hoped that eventually the program will be open to others not having their training.

TABLE F10 (Cont'd.)

Entry Requirements For Various Occupations at The Cambridge Hospital
June 1971

	PHYSICIAN'S ASSISTANT
k. In-plant on-the-job training in addition to past high school education	
l. Professional license or certification	
m. Successful completion of Civil Service examination (70%)	
n. Physical fitness, as determined by physical examination	X
o. Specialized practical experience in one's field in a hospital	
p. Practical experience in one's specialty in a university or industrial setting	
q. Supervisory experience	
r. References (character and work)	X
s. 18 years of age	X

TABLE F11

Entry Requirements For Various Occupations at The Cambridge Hospital
September 1969, June 1971

		1969		1971	
		INHALATION TECHNICIAN	SURGICAL TECHNICIAN	INHALATION TECHNICIAN	SURGICAL TECHNIC.
1.	Total Number Employed	4	8	5	6
	a. Male	1	6	1	2
	b. Female	3	2	4	4
2.	Number of Vacancies	0	0	0	0
3.	Number holding professional license or certification (specify license or certification agency)	0	0	0	1
4.	Who sets job requirements?				
	a. Individual Department	X	X	X	
	b. Hospital Administration				X
	c. Professional Accrediting Agency				
	d. Civil Service				
5.	How long have these requirements been in effect?	2yrs.	5yrs.	4yrs.	7yrs.
6.	Formal education and training requirements (specify number of years if necessary)				
	a. No education requirement				
	b. No training requirement	X		X	
	c. Some formal education, 8th grade or less				
	d. High School	X	X	X	X
	e. College	Preferable		Preferable	
	f. Professional training (post-undergraduate)				
	g. Vocational training				
	h. Technical training				
	i. Practical experience		Preferable		
	j. In-plant on-the-job training in lieu of past high school education (specify length)				
	k. In-plant on-the-job training in addition to past high school education				
	l. Professional license or certification				
	m. Successful completion of Civil Service examination (70%)				
	n. Physical fitness, as determined by physical examination				X
	o. Specialized practical experience in one's field in a hospital				
	p. Practical experience in one's specialty in a university or industrial setting				
	q. Supervisory experience				
	r. References (character and work)		X		X
	s. 18 years of age				X

TABLE F12

Entry Requirements For Various Occupations at The Cambridge Hospital
September 1969, June 1971

		1969		1971	
		NEIGHBORHOOD HEALTH AIDE	PSYCHIATRIC ATTENDANT	NEIGHBORHOOD HEALTH AIDE	PSYCH ATTEN
1.	Total Number Employed	1	6	2	6
	a. Male		5	0	6
	b. Female	1	1	2	0
2.	Number of Vacancies	0	0	0	1
3.	Number holding professional license or certification (specify license or certification agency)	0	0	0	0
4.	Who sets job requirements?				
	a. Individual Department	X	X	x	x
	b. Hospital Administration				
	c. Professional Accrediting Agency				
	d. Civil Service				
5.	How long have these requirements been in effect?	1yr.	1vr.	3vrs.	1½vrs.
6.	Formal education and training requirements (specify number of years if necessary)				
	a. No education requirement	X		X	X
	b. No training requirement	X		X	
	c. Some formal education, 8th grade or less				
	d. High School		X		
	e. College		Preferable		
	f. Professional training (post undergraduate)		Preferable		
	g. Vocational Training				
	h. Technical training				
	i. Practical experience		X		Pref.
	j. In-plant on-the-job training in lieu of past high school education (specify length)				
	k. In-plant on-the-job training in addition to past high school education				X
	l. Professional license or certification				
	m. Successful completion of Civil Service examination (70%)				
	n. Physical fitness, as determined by physical examination				X
	o. Specialized practical experience in one's field in a hospital				X
	p. Practical experience in one's specialty in a university or industrial setting				
	q. Supervisory experience				X
	r. References (character and work)				X (?
	s. 18 years of age				X

TABLE F13

Entry Requirements For Various Occupations at The Cambridge Hospital
September 1969, June 1971

		1969	1971
		EKG TECHNICIAN	EKG TECHNICIAN
1.	Total Number Employed	1	1
	a. Male		0
	b. Female	1	1
2.	Number of Vacancies	0	0
3.	Number holding professional license or certification (specify license or certification agency)	1	1
4.	Who sets job requirements?		
	a. Individual Department	X	X
	b. Hospital Administration	X	X
	c. Professional Agency		
	d. Civil Service	X	X
5.	How long have these requirements been in effect?		Over 10 years
6.	Formal education and training requirements (specify number of years if necessary)		
	a. No education requirement		
	b. No training requirement		
	c. Some formal education, 8th grade or less		
	d. High school		
	e. College		
	f. Professional training (post-undergraduate)		
	g. Vocational Training		
	h. Technical training		
	i. Practical experience		
	j. In-plant on-the-job training in lieu of past high school education (specify length)		
	k. In-plant on-the-job training in addition to past high school education		
	l. Professional license or certification		
	m. Successful completion of Civil Service examination (70%)	X	X
	n. Physical fitness, as determined by physical examination	X	X
	o. Specialized practical experience in one's field in a hospital		
	p. Practical experience in one's specialty in a university or industrial setting		
	q. Supervisory experience		
	r. References (character and work)		
	s. 18 years of age		

TABLE F14

Entry Requirements For Various Occupations at The Cambridge Hospital
September 1969, June 1971

	1969				1971	
	X-RAY TECHNICIAN			HEAD X-RAY TECHNICIAN	X-RAY TECHNICIAN	HEAD X-RAY TECH.
		PATHWAYS[1]				
		1	2			
1. Total Number Employed	12			1	11	1
a. Male	5				4	0
b. Female	7			1	7	1
2. Number of Vacancies	0			0	2	0
3. Number holding professional license or certification (specify license or certification agency)	10			1	11	1
4. Who sets job requirements?						
a. Individual Department	X			X		X
b. Hospital Administration	X			X		X
c. Professional Accrediting Agency					X	
d. Civil Service	X			X	X	
5. How long have these requirements been in effect?		Over 10 years			Over 10 years	
6. Formal education and training requirements (specify number of years if necessary)						
a. No education requirement		X		X		X
b. No training requirement						
c. Some formal education, 8th grade or less						
d. High School					X	
e. College						
f. Professional training (post-undergraduate)						
g. Vocational Training						
h. Technical training					1yr. (theory)	
i. Practical experience		1yr.		5yrs.	2yrs.	5yrs.
j. In-plant on-the-job training in lieu of past high school education (specify length)						
k. In-plant on-the-job training in addition to past high school educ.						
l. Professional license or certification			X	X	X	X
m. Successful completion of Civil Service examination (70%)		X	X	X	X	X
n. Physical fitness, as determined by physical examination		X	X	X	X	X
o. Specialized practical experience in one's field in a hospital					X	
p. Practical experience in one's specialty in a university or industrial setting						
q. Supervisory experience						
r. References (character and work)						
s. 18 years of age						

1. Pathways indicate different methods which may be used to achieve entry requirements.

TABLE F15

Entry Requirements For Various Occupations at The Cambridge Hospital
September 1969, June 1971

		1969 GENERAL LAB TECHNICIAN					1971 GENERAL LAB TECHNICIAN
			PATHWAYS				
			1	2	3	4	
1.	Total Number Employed	11					14.5
	a. Male	3					2.0
	b. Female	8					12.5
2.	Number of Vacancies	3					1
3.	Number holding professional license or certification (specify license or certification agency)	0					1 AMT 1 CMT
4.	Who sets job requirements?						
	a. Individual Department	X	X	X	X	X	X
	b. Hospital Administration	X	X	X	X	X	X
	c. Professional Accrediting Agency						
	d. Civil Service	X	X	X	X	X	X
5.	How long have these requirements been in effect?		Over 10 years				Over 10 years
6.	Formal education and training requirements (specify number of years if necessary)						
	a. No education requirement		X				
	b. No training requirement						
	c. Some formal education, 8th grade or less						
	d. High School						
	e. College			1yr.			X
	f. Professional training (post-undergraduate)						
	g. Vocational training						
	h. Technical training				1yr.		1 year
	i. Practical experience		2yrs.	1yr.	1yr.		2 years
	j. In-plant on-the-job training in lieu of past high school education (specify length)						
	k. In-plant on-the-job training in addition to past high school education						
	l. Professional license or certification					X	X
	m. Successful completion of Civil Service examination (70%)		X	X	X	X	Yes
	n. Physical fitness, as determined by physical examination		X	X	X	X	Yes
	o. Specialized practical experience in one's field in a hospital						Yes
	p. Practical experience in one's specialty in a university or industrial setting						
	q. Supervisory experience						
	r. References (character and work)						Yes
	s. 18 years of age						

TABLE F16

Entry Requirements for Various Occupations at The Cambridge Hospital
June 1971

		Medical Technologist[1] MT (ASCP)
1.	Total Number Employed	7
	a. Male	
	b. Female	7
2.	Number of Vacancies	0
3.	Number holding professional license or certification (specify license or certification agency)	(American Society of Clinical Pathologists) 7
4.	Who sets job requirements?	
	a. Individual Department	X
	b. Hospital Administration	X
	c. Professional Accrediting Agency	
	d. Civil Service	X
5.	How long have these requirements been in effect?	Less than one year
6.	Formal education and training requirements (specify number of years if necessary)	
	a. No education requirement	
	b. No training requirement	
	c. Some formal education, 8th grade or less	
	d. High school	
	e. College	4 years
	f. Professional training (post undergraduate)	
	g. Vocational training	
	h. Technical training	
	i. Practical experience	
	j. In-plant on-the-job training in lieu of past high school education (specify length)	
	k. In-plant on-the-job training in addition to past high school education	
	l. Professional license or certification	X MT (ASCP)
	m. Successful completion of Civil Service examination (70%)	X
	n. Physical fitness, as determined by physical examination	X
	o. Specialized practical experience in one's field in a hospital	
	p. Practical experience in one's specialty in a university or industrial setting	
	q. Supervisory experience	
	r. References (character and work)	X
	s. 18 years of age	

1. This occupation was established in 1970.

TABLE [illegible]

Entry Requirements for Various Occupations at The Cambridge Hospital
September 1969, June 1971

	1969								1971
	Lab Specialist (Senior Technician): Chemistry, Bacteriology, Cytology, Blood Bank								Lab Specialist (Senior Technician) Chemist.
1. Total Number Employed	2	PATHWAYS							1
a. Male	2	1	2	3	4	5	6	7	
b. Female									1
2. Number of Vacancies	2								0
3. Number holding professional license or certification (specify license or certification agency)	0								0
4. Who sets job requirements?									
a. Individual Department	X								X
b. Hospital Administration	X								X
c. Professional Accrediting Agency									
d. Civil Service	X								X
5. How long have these requirements been in effect?		Over 10 Years							Over 6 years
6. Formal education and training requirements (specify number of years if necessary)									
a. No education requirement		X							
b. No training requirement									
c. Some formal education, 8th grade or less									
d. High School									
e. College					3yrs.				4 years
f. Professional training (post undergraduate)									
g. Vocational training			X	X		1yr.			4 years
h. Technical training									
i. Practical experience		3yrs.	X						4 years
j. In-plant on-the-job training in lieu of past high school education (specify length)									
k. In-plant on-the-job training in addition to past high school education									
l. Professional license or certification							X		Yes MT(ASCP)
m. Successful completion of Civil Service examination (70%)		X	X	X	X	X	X	X	X
n. Physical fitness, as determined by physical examination		X	X	X	X	X	X	X	X
o. Specialized practical experience in one's field in a hospital		1yr.		X	2yr.	1yr.		1yr.	1 year
p. Practical experience in one's specialty in a university or industrial setting								X	1 year
q. Supervisory experience									
r. References (character and work)									X
s. 18 years of age									

TABLE F18

Entry Requirements for Various Occupations at The Cambridge Hospital
September 1969, June 1971

		1969								1971
		Lab Specialist (Senior Technician): Chemistry, Bacteriology, Cytology, Blood Bank								Lab Specialist (Senior Technician) Bacteriologist
1.	Total Number Employed	2	PATHWAYS							1
	a. Male	2	1	2	3	4	5	6	7	
	b. Female									1
2.	Number of Vacancies	2								0
3.	Number holding professional license or certification (specify license or certification agency)	0								0
4.	Who sets job requirements?									
	a. Individual Department	X								X
	b. Hospital Administration	X								X
	c. Professional Accrediting Agency									
	d. Civil Service	X								X
5.	How long have these requirements been in effect?		Over 10 years							Over 10 years
6.	Formal education and training requirements (specify number of years if necessary)									
	a. No education requirement		X							
	b. No training requirement									
	c. Some formal education, 8th grade or less									
	d. High School									
	e. College					3yrs.				4 years
	f. Professional training (post undergraduate)									
	g. Vocational training			X	X		1yr.			4 years
	h. Technical training									
	i. Practical experience		3yrs.	X						4 years
	j. In-plant on-the-job training in lieu of past high school education (specify length)									
	k. In-plant on-the-job training in addition to past high school education									
	l. Professional license or certification							X		Yes MT(ASCP)
	m. Successful completion of Civil Service examination (70%)		X	X	X	X	X	X	X	X
	n. Physical fitness, as determined by physical examination		X	X	X	X	X	X	X	X
	o. Specialized practical experience in one's field in a hospital		1yr.		X	1yr.	1yr.		1yr.	1 year
	p. Practical experience in one's specialty in a university or industrial setting								X	1 year
	q. Supervisory experience									
	r. References (character and work)									X
	s. 18 years of age									

TABLE F19

Entry Requirements for Various Occupations at The Cambridge Hospital
September 1969, June 1971

		1969								1971
		Lab Specialist (Senior Technician): Chemistry, Bacteriology, Cytology, Blood Bank								Lab Specialist (Senior Technician) Cytologist
1.	Total Number Employed	2	PATHWAYS							1
	a. Male	2	1	2	3	4	5	6	7	
	b. Female									1
2.	Number of Vacancies	2								0
3.	Number holding professional license or certification (specify license or certification agency)	0								1
4.	Who sets job requirements? a. Individual Department	X								X
	b. Hospital Administration	X								X
	c. Professional Accrediting Agency									
	d. Civil Service	X								X
5.	How long have these requirements been in effect?		Over 10 years							Over 6 years
6.	Formal education and training requirements (specify number of years if necessary) a. No education requirement		X							
	b. No training requirement									
	c. Some formal education, 8th grade or less									
	d. High School									
	e. College					3 yrs.				4 years
	f. Professional training (post undergraduate)									
	g. Vocational training			X	X		1yr.			4 years
	h. Technical training									
	i. Practical experience		3yrs.	X						4 years
	j. In-plant on-the-job training in lieu of past high school education (specify length)									
	k. In-plant on-the-job training in addition to past high school education									
	l. Professional license or certification							X		Yes MT (ASCP)
	m. Successful completion of Civil Service examination (70%)		X	X	X	X	X	X	X	X
	n. Physical fitness, as determined by physical examination		X	X	X	X	X	X	X	X
	o. Specialized practical experience in one's field in a hospital		1yr.		X	1yr.	1yr.		1yr.	1 year
	p. Practical experience in one's specialty in a university or industrial setting								X	1 year
	q. Supervisory experience									
	r. References (character and work)									X
	s. 18 years of age									

TABLE F20

Entry Requirements For Various Occupations at The Cambridge Hospital
September 1969, June 1971

	1969				1971
	LAB SPECIALIST HEMATOLOGY PATHWAYS				LAB SPECIALIST (SENIOR TECHNICIAN) HEMATOLOGY
		1	2	3	
1. Total Number Employed	1				1
a. Male					
b. Female	1				1
2. Number of Vacancies	0				0
3. Number holding professional license or certification (specify license or certification agency)	0				0
4. Who sets job requirements?					
a. Individual Department	X				X
b. Hospital Administration	X				X
c. Professional Accrediting Agency					
d. Civil Service	X				X
5. How long have these requirements been in effect?		Over 10 years			
6. Formal education and training requirements (specify number of years if necessary)					
a. No education requirement		X			
b. No training requirement					
c. Some formal education, 8th grade or less					
d. High School				4yrs.	Preferable
e. College					
f. Professional training (post undergraduate)					
g. Vocational Training					
h. Technical training					
i. Practical experience		2yrs.		1yr.	X
j. In-plant on-the-job training in lieu of past high school education (specify length)					
k. In-plant on-the-job training in addition to past school education					
l. Professional license or certification			X		
m. Successful completion of Civil Service Examination (70%)		X	X	X	X
n. Physical fitness, as determined by physical examination		X	X	X	X
o. Specialized practical experience in one's field in a hospital		2yrs.	2yrs.	2yrs.	2yrs.
p. Practical experience in one's specialty in a university or industrial setting					
q. Supervisory experience					
r. References (character and work)					
s. 18 years of age					

TABLE F21

Entry Requirements For Various Occupations at The Cambridge Hospital
September 1969, June 1971

		1969			1971
			CLINICAL LAB SUPERVISOR PATHWAYS		SUPERVISOR
			1	2	
1.	Total Number Employed	1			2
	a. Male				
	b. Female	1			2
2.	Number of Vacancies	0			0
3.	Number holding professional license or certification (specify license or certification agency)	1			2 MT (ASCP)
4.	Who sets job requirements?				
	a. Individual Department	X			X
	b. Hospital Administration	X			X
	c. Professional Accrediting Agency				
	d. Civil Service	X			X
5.	How long have these requirements been in effect?				Less than one year
6.	Formal education and training requirements (specify number of years if necessary)				
	a. No education requirement		X		
	b. No training requirement				
	c. Some formal education, 8th grade or less				
	d. High School				
	e. College				4 years
	f. Professional training (post-undergraduate)				
	g. Vocational Training				
	h. Technical training				
	i. Practical experience		4yrs.		
	j. In-plant on-the-job training in lieu of past high school education (specify length)				
	k. In-plant on-the-job training in addition to past high school education				
	l. Professional license or certification			X	
	m. Successful completion of Civil Service Examination (70%)		X	X	X
	n. Physical fitness, as determined by physical examination		X	X	X
	o. Specialized practical experience in one's field in a hospital				
	p. Practical experience in one's specialty in a university or industrial setting				
	q. Supervisory experience		1yr.	1yr.	X
	r. References (character and work)				X
	s. 18 years of age				

TABLE F16

Entry Requirements for Various Occupations at The Cambridge Hospital
June 1971

	Medical Technologist[1] MT (ASCP)
1. Total Number Employed	7
a. Male	
b. Female	7
2. Number of Vacancies	0
3. Number holding professional license or certification (specify license or certification agency)	(American Society of Clinical Pathologists) 7
4. Who sets job requirements?	
a. Individual Department	X
b. Hospital Administration	X
c. Professional Accrediting Agency	
d. Civil Service	X
5. How long have these requirements been in effect?	Less than one year
6. Formal education and training requirements (specify number of years if necessary)	
a. No education requirement	
b. No training requirement	
c. Some formal education, 8th grade or less	
d. High school	
e. College	4 years
f. Professional training (post undergraduate)	
g. Vocational training	
h. Technical training	
i. Practical experience	
j. In-plant on-the-job training in lieu of past high school education (specify length)	
k. In-plant on-the-job training in addition to past high school education	
l. Professional license or certification	X MT (ASCP)
m. Successful completion of Civil Service examination (70%)	X
n. Physical fitness, as determined by physical examination	X
o. Specialized practical experience in one's field in a hospital	
p. Practical experience in one's specialty in a university or industrial setting	
q. Supervisory experience	
r. References (character and work)	X
s. 18 years of age	

1. This occupation was established in 1970.

TABLE [illegible]

Entry Requirements for Various Occupations at The Cambridge Hospital
September 1969, June 1971

	1969								1971
	Lab Specialist (Senior Technician): Chemistry, Bacteriology, Cytology, Blood Bank								Lab Specialist (Senior Technician) Chemist.
1. Total Number Employed	2	PATHWAYS							1
a. Male	2	1	2	3	4	5	6	7	
b. Female									1
2. Number of Vacancies	2								0
3. Number holding professional license or certification (specify license or certification agency)	0								0
4. Who sets job requirements?									
a. Individual Department	X								X
b. Hospital Administration	X								X
c. Professional Accrediting Agency									
d. Civil Service	X								X
5. How long have these requirements been in effect?		Over 10 Years							Over 6 years
6. Formal education and training requirements (specify number of years if necessary)									
a. No education requirement		X							
b. No training requirement									
c. Some formal education, 8th grade or less									
d. High School									
e. College					3yrs.				4 years
f. Professional training (post undergraduate)									
g. Vocational training			X	X		1yr.			4 years
h. Technical training									
i. Practical experience		3yrs.	X						4 years
j. In-plant on-the-job training in lieu of past high school education (specify length)									
k. In-plant on-the-job training in addition to past high school education									
l. Professional license or certification							X		Yes MT(ASCP)
m. Successful completion of Civil Service examination (70%)		X	X	X	X	X	X	X	X
n. Physical fitness, as determined by physical examination		X	X	X	X	X	X	X	X
o. Specialized practical experience in one's field in a hospital		1yr.		X	2yr.	1yr.		1yr.	1 year
p. Practical experience in one's specialty in a university or industrial setting								X	1 year
q. Supervisory experience									
r. References (character and work)									X
s. 18 years of age									

TABLE F18

Entry Requirements for Various Occupations at The Cambridge Hospital
September 1969, June 1971

		1969								1971
		Lab Specialist (Senior Technician): Chemistry, Bacteriology, Cytology, Blood Bank								Lab Specialist (Senior Technician) Bacteriologist
1.	Total Number Employed	2	PATHWAYS							1
	a. Male	2	1	2	3	4	5	6	7	
	b. Female									1
2.	Number of Vacancies	2								0
3.	Number holding professional license or certification (specify license or certification agency)	0								0
4.	Who sets job requirements?									
	a. Individual Department	X								X
	b. Hospital Administration	X								X
	c. Professional Accrediting Agency									
	d. Civil Service	X								X
5.	How long have these requirements been in effect?		Over 10 years							Over 10 years
6.	Formal education and training requirements (specify number of years if necessary)									
	a. No education requirement		X							
	b. No training requirement									
	c. Some formal education, 8th grade or less									
	d. High School									
	e. College					3yrs.				4 years
	f. Professional training (post undergraduate)									
	g. Vocational training			X	X		1yr.			4 years
	h. Technical training									
	i. Practical experience		3yrs.	X						4 years
	j. In-plant on-the-job training in lieu of past high school education (specify length)									
	k. In-plant on-the-job training in addition to past high school education									
	l. Professional license or certification							X		Yes MT(ASCP)
	m. Successful completion of Civil Service examination (70%)		X	X	X	X	X	X	X	X
	n. Physical fitness, as determined by physical examination		X	X	X	X	X	X	X	X
	o. Specialized practical experience in one's field in a hospital		1yr.		X	1yr.	1yr.		1yr.	1 year
	p. Practical experience in one's specialty in a university or industrial setting								X	1 year
	q. Supervisory experience									
	r. References (character and work)									X
	s. 18 years of age									

TABLE F19

Entry Requirements for Various Occupations at The Cambridge Hospital
September 1969, June 1971

		1969								1971
		Lab Specialist (Senior Technician): Chemistry, Bacteriology, Cytology, Blood Bank								Lab Specialist (Senior Technician) Cytologist
1.	Total Number Employed	2	PATHWAYS							1
	a. Male	2	1	2	3	4	5	6	7	
	b. Female									1
2.	Number of Vacancies	2								0
3.	Number holding professional license or certification (specify license or certification agency)	0								1
4.	Who sets job requirements? a. Individual Department	X								X
	b. Hospital Administration	X								X
	c. Professional Accrediting Agency									
	d. Civil Service	X								X
5.	How long have these requirements been in effect?		Over 10 years							Over 6 years
6.	Formal education and training requirements (specify number of years if necessary) a. No education requirement		X							
	b. No training requirement									
	c. Some formal education, 8th grade or less									
	d. High School									
	e. College					3 yrs.				4 years
	f. Professional training (post undergraduate)									
	g. Vocational training			X	X		1yr.			4 years
	h. Technical training									
	i. Practical experience		3yrs.	X						4 years
	j. In-plant on-the-job training in lieu of past high school education (specify length)									
	k. In-plant on-the-job training in addition to past high school education									
	l. Professional license or certification							X		Yes MT (ASCP)
	m. Successful completion of Civil Service examination (70%)		X	X	X	X	X	X	X	X
	n. Physical fitness, as determined by physical examination		X	X	X	X	X	X	X	X
	o. Specialized practical experience in one's field in a hospital		1yr.		X	1yr.	1yr.		1yr.	1 year
	p. Practical experience in one's specialty in a university or industrial setting								X	1 year
	q. Supervisory experience									
	r. References (character and work)									X
	s. 18 years of age									

TABLE F20

Entry Requirements For Various Occupations at The Cambridge Hospital
September 1969, June 1971

	1969				1971
	LAB SPECIALIST HEMATOLOGY PATHWAYS				LAB SPECIALIST (SENIOR TECHNICIAN) HEMATOLOGY
		1	2	3	
1. Total Number Employed	1				1
a. Male					
b. Female	1				1
2. Number of Vacancies	0				0
3. Number holding professional license or certification (specify license or certification agency)	0				0
4. Who sets job requirements?					
a. Individual Department	X				X
b. Hospital Administration	X				X
c. Professional Accrediting Agency					
d. Civil Service	X				X
5. How long have these requirements been in effect?		Over 10 years			
6. Formal education and training requirements (specify number of years if necessary)					
a. No education requirement		X			
b. No training requirement					
c. Some formal education, 8th grade or less					
d. High School				4yrs.	Preferable
e. College					
f. Professional training (post undergraduate)					
g. Vocational Training					
h. Technical training					
i. Practical experience		2yrs.		1yr.	X
j. In-plant on-the-job training in lieu of past high school education (specify length)					
k. In-plant on-the-job training in addition to past school education					
l. Professional license or certification			X		
m. Successful completion of Civil Service Examination (70%)		X	X	X	X
n. Physical fitness, as determined by physical examination		X	X	X	X
o. Specialized practical experience in one's field in a hospital		2yrs.	2yrs.	2yrs.	2yrs.
p. Practical experience in one's specialty in a university or industrial setting					
q. Supervisory experience					
r. References (character and work)					
s. 18 years of age					

TABLE F21

Entry Requirements For Various Occupations at The Cambridge Hospital
September 1969, June 1971

		1969			1971
			CLINICAL LAB SUPERVISOR PATHWAYS		SUPERVISOR
			1	2	
1.	Total Number Employed	1			2
	a. Male				
	b. Female	1			2
2.	Number of Vacancies	0			0
3.	Number holding professional license or certification (specify license or certification agency)	1			2 MT (ASCP)
4.	Who sets job requirements?				
	a. Individual Department	X			X
	b. Hospital Administration	X			X
	c. Professional Accrediting Agency				
	d. Civil Service	X			X
5.	How long have these requirements been in effect?				Less than one year
6.	Formal education and training requirements (specify number of years if necessary)				
	a. No education requirement		X		
	b. No training requirement				
	c. Some formal education, 8th grade or less				
	d. High School				
	e. College				4 years
	f. Professional training (post-undergraduate)				
	g. Vocational Training				
	h. Technical training				
	i. Practical experience		4yrs.		
	j. In-plant on-the-job training in lieu of past high school education (specify length)				
	k. In-plant on-the-job training in addition to past high school education				
	l. Professional license or certification			X	
	m. Successful completion of Civil Service Examination (70%)		X	X	X
	n. Physical fitness, as determined by physical examination		X	X	X
	o. Specialized practical experience in one's field in a hospital				
	p. Practical experience in one's specialty in a university or industrial setting				
	q. Supervisory experience		1yr.	1yr.	X
	r. References (character and work)				X
	s. 18 years of age				