ADMINISTRATIVE

COST ANALYSIS

FOR

NURSING SERVICE

AND

NURSING EDUCATION

R 192 8591351

ADMINISTRATIVE COST ANALYSIS

FOR

NURSING SERVICE AND NURSING EDUCATION

A Study to Develop Methods for Finding Out the Costs
of Nursing Service and Nursing Education
Sponsored by the American Hospital Association
and the National League of Nursing Education
in cooperation with
the American Nurses' Association

BLANCHE PFEFFERKORN, A.M., R.N.

Director of Study
Director of Studies, National League of Nursing Education

CHARLES A. ROVETTA, M.B.A.

Associate Director of Study
Assistant Professor of Accounting, The University of Chicago



 $\begin{array}{c} \textit{Published by the} \\ \text{AMÉRICAN HOSPITAL ASSOCIATION, CHICAGO, ILL.} \\ \textit{and} \end{array}$

NATIONAL LEAGUE OF NURSING EDUCATION, NEW YORK, N. Y.

COPYRIGHT 1940 BY THE AMERICAN HOSPITAL ASSOCIATION AND NATIONAL LEAGUE OF NURSING EDUCATION

RT51 .952

PRINTED AND BOUND IN THE U. S. A. BY THE KINGSPORT PRESS, INC., KINGSPORT, TENNESSEE

ADMINISTRATIVE COST ANALYSIS

FOR

NURSING SERVICE AND NURSING EDUCATION



JOINT COMMITTEE ON THE COSTS

OF

NURSING SERVICE AND NURSING EDUCATION

Nellie X. Hawkinson, R.N., *Chairman*, Professor of Nursing Education, The University of Chicago, *Chicago*, *Illinois*

AMERICAN HOSPITAL ASSOCIATION

- E. Muriel Anscombe, R.N., Formerly Administrator, The Jewish Hospital, St. Louis, Missouri
- NATHANIEL W. FAXON, M.D., 2 Director, Massachusetts General Hospital, Boston, Massachusetts
- C. W. Munger, M.D., Director, St. Luke's Hospital, New York, New York
- ROBERT E. NEFF, Administrator, State University of Iowa Hospitals, Iowa City, Iowa
- C. Rufus Rorem, Ph.D., Director, Commission on Hospital Service, American Hospital Association, 18 East Division Street, Chicago, Illinois

NATIONAL LEAGUE OF NURSING EDUCATION

- MARIAN R. FLEMING, R.N., 1 New York, New York
- Stella Goostray, R.N., Principal, School of Nursing, The Children's Hospital, *Boston, Massachusetts*
- Nellie X. Hawkinson, R.N., Professor of Nursing Education, The University of Chicago, Chicago, Illinois
- ELIZABETH MELBY, R.N., Associate Professor, Yale University School of Nursing, New Haven, Connecticut
- Effie J. Taylor, R.N., Dean, Yale University School of Nursing, New Haven, Connecticut
- CLARIBEL A. WHEELER, R.N., Executive Secretary, National League of Nursing Education, 50 West 50 Street, New York, New York

AMERICAN NURSES' ASSOCIATION

- Susan C. Francis, R.N., Superintendent, The Children's Hospital, *Philadelphia*, *Pennsylvania*
- ALMA H. Scott, R.N., Director of Headquarters, American Nurses' Association, 50 West 50 Street, New York, New York

¹ Member, March 1937-September 1938

² Appointed September 1938

HOW TO READ THIS BOOK

THE SUBJECT presented in this book will be of interest to hospital trustees, hospital administrators, nursing administrators, hospital accountants, and others who are concerned with nursing service and nursing education.

Some individuals in each of these groups will undoubtedly wish to give more attention to certain sections of the book than to others. It is recommended that all individuals read the report through in order to see each problem in relation to all other problems. After this over-all reading they should then study that section which pertains to their special interest.

The report is presented in three parts.

Part I, Scope of Study and Accounting Principles Applied to Nursing Service and Nursing Education, gives a few pertinent facts to orient the reader, and then proceeds to a discussion of the accounting problems involved in determining nursing service and nursing education costs and certain important principles that underlie cost methods and affect cost results. In the main, Part I is an explanation of the accounting procedure outlined in Part III.

Part II, Results of Investigations, presents the results of the studies basic to a reliable cost analysis and essential to cost comparisons. It also includes an illuminating chapter on the comparative costs in three institutions.

Part III, Cost Procedures, is exactly what the title states. It gives procedures—the end toward which the entire study was directed. It describes in detail the accounting procedure developed by the Committee, applies the procedure to a particular institution, and describes methods for determining nursing facts essential to the accounting plan. It ends with a chapter showing the relationship between cost accounting and administrative budgeting.

In the General Summary and Conclusions, presented at the end

of the study, suggestions are included as to general principles and methods that will aid in carrying out the accounting plan.

The report is both a reference book and a procedure guide. As such, it should be readily available to all individuals who are concerned with the problems of nursing service and nursing education costs.

CONTENTS

		PAGE
Joint Committee on the Costs of Nursing Service and Nursing Education		
How to Read This Book		
	PART I	
	SCOPE OF STUDY AND ACCOUNTING PRINCIPLES	
	APPLIED TO NURSING SERVICE AND	
	NURSING EDUCATION	
CHAI	PTER	
I.	EVENTS LEADING TO THE STUDY	3
2.	ACCOUNTING PROBLEMS	6
3.	BEHAVIOR OF COSTS	14
	PART II	
	RESULTS OF INVESTIGATIONS	
4.	EFFECTIVENESS OF STUDENT NURSING SERVICE	23
5.	ADMINISTRATIVE MEASURES FOR NURSING SERVICE	52
6.	PROPORTION OF TIME GIVEN TO NURSING SERVICE AND NURSING EDUCATION	93
7.	COMPARISON OF COSTS IN THREE INSTITUTIONS	101
	PART III	
	COST PROCEDURES	
8.	ACCOUNTING PROCEDURE FOR DETERMINING NURSING SERVICE AND NURSING EDUCATION COSTS	119
9.	APPLICATION OF THE ACCOUNTING PROCEDURE IN AN ACTUAL INSTITUTION	127
10.	PROCEDURE TO DETERMINE THE EFFECTIVENESS OF STUDENT NURSING SERVICE	149
II.	PROCEDURE FOR ACCUMULATING NURSING DATA	164
12.	COST ACCOUNTING AS A BASIS FOR ADMINISTRATIVE BUDGETING	180
Gen	General Summary and Conclusions	
Inde	Index	

LIST OF TABLES

TABI	JE	PAGI
I.	Bed capacity, census, and general staff and student nurses in school on the day the effectiveness study was made	2(
2.	Effectiveness of hours given by all, third-year, second-year, first-year, and affiliating students	27
3.	Effectiveness of hours given by each student class group on different services, 7 A.M7 P.M.	32
4.	Effectiveness of hours given by each student class group on different services, 7 P.M11 P.M.	39
5.	Effectiveness of hours given by each student class group on different services, 11 P.M7 A.M.	40
6.	Percentage of all students assigned to service who have from o to 100 per cent effectiveness	48
7.	Comparison in three hospitals of effectiveness of student hours during two different periods of the year	44
8.	Medical ward and semiprivate patients—average bedside hours per patient	55
9.	Surgical ward and semiprivate patients—average bedside hours per patient	56
10.	Medical and surgical private patients—average bedside hours per patient	57
II.	Obstetric ward and semiprivate patients, mothers—average bed- side hours per patient	58
12.	Obstetric private patients, mothers—average bedside hours per patient	59
13.	Obstetric service, newborn infants—average bedside hours per patient	60
14.	Pediatric ward patients, all ages—average bedside hours per patient	60
15.	Pediatric infants—average bedside hours per patient	61
16.	Older pediatric ward patients—average bedside hours per patient	61
7.	Communicable disease patients—average bedside hours per patient	62
<i>t</i> 8.	Proportion of student and graduate hours provided on medical ward and semiprivate units	64
19.	Proportion of student and graduate hours provided on surgical ward and semiprivate units	65
20.	Proportion of student and graduate hours provided on medical and surgical private units	66

List of Tables 1X TABLE PAGE Proportion of student and graduate hours provided for mothers 27. on obstetric ward and semiprivate units 66 Proportion of student and graduate hours provided for mothers 22. on obstetric private units 67 23. Proportion of student and graduate hours provided for newborn infants on obstetric service 67 Proportion of student and graduate hours provided on pediatric 24. ward and semiprivate units 68 Proportion of student and graduate hours provided for patients 25. on communicable disease service 69 Ward and semiprivate patients per one day supervisor 26. 71 Private patients per one day supervisor 27. 72 Ward and semiprivate patients per one head nurse 28. 73 Private patients per one head nurse 29. 73 Ward and semiprivate patients per one day supervisor and head 30. 74 Private patients per one day supervisor and head nurse combined 31. 75 Patients per night supervisor 32. 78 Average nursing hours per operation and percentage of all 33. operations that were major 79 Average nursing hours per operation in hospitals where less than 34. half and where half or more of all operations are major 80 Available operating rooms and nursing hours per operation in 35. each hospital 81 Percentage of nursing hours per operation given by graduates 36. and by students and average hours per operation 82 Average number of operations performed per head nurse, per 37. supervisor, and per head nurse and supervisor combined 83 38. Relationship of graduate nursing hours per operation to provision for head nurses and supervisors 84 Patients per orderly on men's ward and semiprivate units 39. 87 Patients per ward helper on the women's units 40. 87 Patients per orderly and per ward helper on mixed private serv-4I. ice for both men and women 88 Patients per ward helper on the pediatric wards 88 42. Annual expense per student 43. 101 Per cent of time given to nursing education and nursing service 44. by group functioning in both 103 Per cent of total bedside hours which should be and which are 45.

given by graduates in the three hospitals where cost analyses

Graduate general staff nursing expenses

104

107

were made

TABL	E	PAGE
47.	Percentage distribution of total nursing service costs among different activities	108
48.	Average bedside hours per patient during 24 hours according to norm and as provided in the three hospitals where cost analyses were made	100
49.	Variables in the three institutions where cost analyses were made	112
50.	Effectiveness of student service in terms of graduate service	150
51.	Effectiveness of student service in terms of graduate service according to personnel and hours	157
52.	Average effectiveness percentage of the hours of all students	159
53.	Effectiveness of student hours according to class groups	160
54.	Effectiveness of student hours according to service, student class group, and time of day or night	161
	LIST OF EXHIBITS	
EXHI	BIT	PAGE
A.	Special Hospital—Summary statement of income and expense for year ended November 30, 1938	128
В.	Summary nursing service and nursing education cost sheet	131
C.	Summary sheet for calculating total nursing service and net education costs	133
BI.	Analysis and apportionment of administrative expense	135
В2.	Analysis and apportionment of dietary expense	136
в3.	Analysis and apportionment of laundry expense	138
B4.	Analysis and apportionment of plant operation expense	140
B5.	Analysis and apportionment of maintenance and repairs	141
в6.	Schedule of depreciation expense	142
в7.	Analysis and apportionment of insurance expense	143
в8.	Personnel residence—Summary sheet	144
в9.	Personnel functioning in both nursing service and nursing education	146
BIO.	Calculation of additional illness expense	147
	LIST OF FORMS	
FORM		PAGE
I.	Daily time and census record	165
2.	Monthly record	170
3.	Yearly record	172
4.	Hours required and provided	174

LIST OF DIAGRAMS

DIAGRAM		
I.	Per cent effectiveness of all student hours in terms of graduate hours in each of the twelve hospitals	28
2.	Per cent effectiveness of third-year, second-year, and first-year student hours in each hospital	30
3.	Effectiveness percentage of all students in the same hospital at four different times during the year and the average effectiveness percentage	46
	1	40

PART I

SCOPE OF STUDY AND ACCOUNTING PRINCIPLES

APPLIED TO

NURSING SERVICE AND NURSING EDUCATION



EVENTS LEADING TO THE STUDY

THE SUBJECT of nursing costs is not new. Abundant historical evidence exists to show that the method of providing nursing care for patients and the cost of the particular method employed have occupied the minds of hospital administrators over many years. A study of early nursing school developments would disclose hesitation on the part of hospital authorities in permitting the training of nurses in hospital wards. During the quarter of a century preceding 1900, less than 500 nursing schools had been established; during the quarter of a century following 1900, the number had risen to more than 2,000. What was the reason for this large increase? Was there a cost significance to the nursing school movement? If so, what was it?

Early in the century the cost idea assumed concrete "dollar" expression. In 1911, Annie W. Goodrich reported that the yearly cost of the student to the hospital was \$1,000; that of the graduate, \$2,000.¹ Then there followed a series of reports on costs by hospitals in all sections of the country and, contradictory as it may sound, the chief similarity of these reports was the way in which the findings differed. The annual cost per student ranged from \$459 to \$1,285; the annual cost per graduate from \$1,488 to \$2,000.² Some hospitals reported that they lost and others that they saved large amounts of money in operating a nursing school to provide their nursing service. It was difficult to reconcile the conflicting findings, and the inevitable effect upon a thoughtful reader was confusion.

This very briefly sketches the events leading to the study presented in this report. Up to the present time, hospitals have largely accepted the responsibility for providing funds for nursing education as well as for nursing care of patients. To hospital administrators and to hospital trustees, nursing costs are, therefore, of paramount

¹ National League of Nursing Education. A Study on the Use of the Graduate Nurse for Bedside Nursing in the Hospital, 1933, p. 16.

² Ibid., p. 19.

interest and importance. To the members of the nursing profession, costs also have significance, since the realization of principles and the attainment of standards are in direct proportion to the adequacy of the available resources.

ASSUMPTIONS UNDERLYING THE STUDY

At the first meeting of the Joint Committee on the Costs of Nursing Service and Nursing Education in March, 1937, certain assumptions were laid down. One assumption was that the study of the costs of nursing service and nursing education would be approached as a long-term research problem. Secondly, the Committee assumed that the study was primarily concerned with nursing service and nursing education costs in an institution where the nursing school is operated by the hospital. Such an assumption does not necessarily preclude cost considerations in a hospital associated with a nursing school having a college or university relationship. It does, however, presuppose that the first interest of the Committee was to find out the expenses that a hospital may reasonably be expected to incur if it undertakes to conduct a school of nursing.

A third assumption underlying the study was that, to be meaningful, costs must be related to content and practice. Once this assumption is accepted, the need of a measuring system appears. The basic idea of such a system is that it supplies the measures or tools essential for comparison of costs. These tools would enable Hospital A to compare validly its costs with Hospital B. Nursing costs in one institution should not be compared with the costs in another, unless the component elements making up the costs in both instances are strongly alike.

MAJOR PURPOSES OF THE STUDY

Because of the considerations outlined above, the Joint Committee on the Costs of Nursing Service and Nursing Education accepted as its major purposes:

- 1. To find out the cost to an individual hospital of
 - a. Operating the nursing service without a school;
 - b. Operating the nursing service with a school.3
- 2. To develop methods and criteria which will make possible

³ Students, while learning nursing, participate in the activities of the nursing department and render, during this educational process, varying amounts of nursing service. (See Chapter 4.)

a valid comparison of costs in one institution with the costs in another.

STAGES OF THE STUDY

The Cost Study may properly be considered as having had two stages: the stage of exploration and the stage of application. The first stage, in process for twenty-one months, divided itself into two types of research, classified here for convenience as nursing and accounting. The nursing classification had to do with the development of nursing service and nursing education measures that lend themselves to quantitative treatment and are significant in costs; the accounting classification was concerned with a study of hospital accounting methods, the selection of cost concepts appropriate to the problem, and the development of an accounting procedure that would facilitate cost analyses of nursing service and nursing education as separate entities.

In the second stage of the study the techniques developed during the first period of the project were applied in concrete situations. Consent was obtained from three hospitals to test out the procedures developed by the Committee. All three institutions gave their cordial cooperation to the plan and made accessible to the directors of the study the necessary financial, accounting, and nursing records.

DISCLOSURES OF THE STUDY

The Cost Study had not progressed very far before it was discovered that much of our past thinking as to nursing service and nursing education costs was wrong. An indisputable fact is that the cost of nursing education to any institution, from a "dollar" standpoint, is exactly that amount over and above the cost of nursing service to the institution without a school, assuming always that the same quality of service is maintained. This, in brief, was the fundamental principle upon which each step of the Cost Study was based. Some astonishing results were disclosed—results that will undoubtedly cause departure from traditional thinking on the whole question of nursing costs. In presenting the study, the Committee recognizes that it represents a new approach to the field of nursing cost accounting.