

113

TESTING OF A METHOD OF PRESENTING INSERVICE
EDUCATION TO PROFESSIONAL NURSES
IN SMALL HOSPITALS

by

DUANE DENNIS ALEXENKO

A paper submitted to the Graduate Faculty in partial
fulfillment of the requirements for the degree

of

MASTER OF NURSING

Approved:

Mrs. Laura Walker
Head, Major Department

Anne P. L. Sherrick, R.N., Ed.D.
Chairman, Examining Committee

Louis D. Smith
Graduate Dean

MONTANA STATE UNIVERSITY
Bozeman, Montana

August, 1966

ACKNOWLEDGEMENT

I am grateful to Dr. Anna Pearl Sherrick, Dr. Laura Walker, and Mrs. Eleanore Mode for guidance and assistance during the writing of this paper, to Dr. Raymond Henjum for his help with the analysis and interpretation of the data collected, and to Mrs. Herva Simpson who helped with material distribution and data collection.

Duane D. Alexenko

1098P

TABLE OF CONTENTS

CHAPTER	PAGE
I. INTRODUCTION	1
Review of Literature	2
Definition of Terms	4
The Problem	5
The Method of Procedure of the Study	5
Justification for the Study	6
The Study	9
Limitations of the Study	11
II. ANALYSIS AND INTERPRETATION OF DATA	13
III. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS	16
APPENDIX	20
Pre-test	21
Inservice Sheets	23
Post-test	33
LITERATURE CONSULTED	35

LIST OF TABLES

TABLE

PAGE

- I. Scores Achieved by Professional Nurses on Tests for
Current Nursing Knowledge

15

ABSTRACT

The problem of this study was one of developing a practical method of stimulating professional nurses to keep themselves better informed of recent changes in medical practice and technology affecting nursing.

The study was based on results from a test given the participating nurses at the beginning of the study compared with results from a similar test at the conclusion of the study.

The method tested was the preparation of brief informative papers and their distribution monthly to the professional nurses employed in staff positions in the hospital where the study was conducted.

TESTING OF A METHOD OF PRESENTING INSERVICE
EDUCATION TO PROFESSIONAL NURSES
IN SMALL HOSPITALS

CHAPTER I

INTRODUCTION

We live today in a world of rapid change. The increase in technical knowledge seen in the past forty years is without parallel in history. Along with the advances in many other fields have come major developments in the practice of medicine, and consequently in associated and allied health fields. Historically nurses have assumed the role of physician's helper, obediently carrying out the orders left on the patient's chart and thereby contributing to the well being of the sick and injured. In the days before World War II, nurses were often poorly prepared for independent thinking and any resultant modification of their role. In 1948 Dr. Esther Lucille Brown, in writing of the future role of the professional nurse said:

. . . nurses will be given a better opportunity to devote themselves to those aspects of clinical practice that require true professional skills; . . . still more will be expected of them than now in supervisory, administrative, teaching, writing, and research roles.¹

A grave problem faced today by hospital nursing service administrators and other employers of nurses involves taking steps to be certain the nurses in their employment are keeping pace with scientific developments and technical discoveries that modify patient care and the role of the

¹Esther Lucille Brown, Nursing for the Future (New York: Russell Sage Foundation, 1948), p. 73.

nurse. A nurse who has completed her prescribed course of study and has successfully written State Board Examinations for licensure finds herself prepared for a variety of skills at a beginner's level. She soon realizes that nursing is rapidly changing to keep pace with innovations in medicine. Continuing learning with redefining of her role and functions is necessary if the nurse is to keep "up-to-date" with professional nursing practice.

In many ways the role of today's practitioner of nursing is being modified, while neither her consent nor her opinion is being sought. To many persons in administrative positions in nursing service and in nursing education the fast-changing world of nursing has meant one thing--provide some type of educational program whereby nurses will be kept current on changes that affect their practice.

A general shortage of nurses is recognized, but it is also recognized that ". . . the quality of nursing care depends upon the quality of those giving the care,"² and an active inservice education program could most certainly improve the quality of nursing care given.

Review of Literature

A review of nursing literature reveals many articles describing the typical ways in which inservice education is being carried out in hospitals throughout the country. One source warns of making inservice education so formal that its only justifiable purpose--better patient care--might be

²Virginia Henderson, "The Nature of Nursing," The American Journal of Nursing, 63:62-8 August, 1963.

lost sight of.³ One report lists personnel from various hospital departments and members of the medical staff presenting lectures to nurses.⁴ One hospital uses films followed by discussion groups led by a doctor or a nurse. The film is shown four times in order to reach the maximum number of personnel.⁵

Most published articles on inservice education deal with the major problems presented by a program that takes personnel away from their post of duty. These problems include:

1. Meaningful topics to be presented and by whom they should be presented.
2. Whether attendance should be compulsory.
3. Whether off-duty personnel should be paid or get time back for attending.
4. How frequently the sessions should be held, and best times to hold them.
5. How to reach personnel on the night and evening shifts.
6. How many times a session needs to be repeated to ensure maximum attendance.
7. What evaluating tools are best suited to determining program effectiveness.

Long has identified poor motivation as a major factor in inservice education program failures. Some of the points he sets forth as important

³Editorial, Nursing Outlook, 7:133, March, 1959.

⁴Betty Hiner, "Inservice for Good Service" Nursing Outlook, 5:219, April, 1957.

⁵Gladys Nite, "Learning Every Day" The American Journal of Nursing, 60:1761-64, December, 1960.

for a program of this type are:

1. Help nurses identify areas of deficiency in their knowledge.
2. Stimulate the nurses to want to keep current in their field.
3. The individual should be allowed to set the pace at which he wishes to educate himself.
4. Recognize that behavior patterns are modified slowly and that the process of change cannot be hurried.
5. Set up a comprehensive goal and work toward it a step at a time.
6. Reward the participants in some manner. A tangible reward is most desirable.⁶

An extensive search of nursing and related literature has failed to uncover a study aimed at developing a new method of presenting pertinent material to nurses. All programs described have had someone presenting information in a classroom setting.

Definition of Terms

Inservice Education: "It is a planned way of meeting such needs as those voiced when an employee asks: . . . 'Do I know enough to do my job properly?'"⁷ A method of helping nurses to realize they need guidance and direction in keeping up to their employer's expectations of their personal knowledge and job performance--a way of providing such guidance and direction.

⁶Lewis M. K. Long, "Motivating Personnel for Inservice Education" Nursing Outlook, 7:333 June, 1959.

⁷Mary Annice Miller, Inservice Education for Hospital Personnel, (New York: Department of Hospital Nursing, The National League for Nursing, 1958), p. 1.

Professional Nurse: One who is licensed to practice the profession of nursing.

The Problem

It is difficult for small hospitals to provide an inservice educator to help nurses "keep current" on changes in technology and medicine that affect their practice. Many working nurses have growing families which give them dual responsibilities, and the burden of meeting the professional person's responsibility in nursing may prove too great for them. Small hospitals do hire inservice educators, but they are frequently burdened with so many additional duties that they are unable to devote much time to the specific purpose for which they were employed. The problem of this study was one of developing a practical method of stimulating nurses to keep themselves informed of recent changes in medical practice affecting nursing. The problem was studied through the development of a method which involved three operations on the part of the investigator.

The Method of Procedure of the Study

The three operations of the study were: (1) to determine by testing, the knowledge level of practicing nurses in, a) selected recent advances in technology and medicine that would affect nursing practice and, b) the physiological actions of the drugs they routinely administer, (2) to employ a method of introducing nurses to recent medical advances and to information of drugs administered by nurses in their hospital, and (3) to post-test the nurses to determine whether there had been an increase in knowledge presented in this study and in additional pertinent knowledge in related areas.

Justification for the Study

Nursing leaders and educators have long been concerned with the problem of assisting nurses to keep their professional knowledge current. As more technical comprehension becomes part of the routine duties expected of nurses, the practitioner must be somehow aided in her effort to keep up with changes in her field. A workshop organized by the Executive Secretary of the National Nursing Council met in the Spring of 1947. An excerpt from a statement prepared by the workshop appears below, as reported by Brown, describing in more detail the responsibility nurses as members of the health team should assume in the present world.

She (the nurse) will possess a body of scientific nursing knowledge based upon and keeping pace with general scientific advancement, and she will be able to apply this knowledge in meeting the nursing needs of a person and a community.

She must be able to exert leadership in at least four different ways: (1) in making her unique contribution to the preventive and remedial aspects of illness; (2) in improving those nursing skills already in existence and developing new nursing skills; (3) in teaching and supervising other nurses and auxiliary workers; and (4) in cooperating with other professions in planning for positive health on community, state, national, and international levels.

. . . In past eras, nurses, like other groups, have often been expected to fit into traditional niches in a relatively static situation. In that kind of society the nurse might fill her place satisfactorily if she were a passive, obedient, and unquestioning individual. In a rapidly changing world the nurse's activities will require that she be alert and self-directing.⁸

The problems faced by nurses and nurse-employing agencies was recognized by Kuehn, who reported:

One study of the communication of new knowledge in a profession showed that slow transmittal of new information, insufficient mobility of existing knowledge, lack of knowledge available

⁸Brown, op. cit., pp. 73-4.

in many fields, and increasing difficulty of comprehension of relationship patterns were four factors of this problem. The coordination and utilization of educational resources and facilities with the nurse's jobs and their hospital is another difficulty encountered in continuing education. Nurses working in hospitals must be prepared to function effectively in the changing complex health organization presently evolving in the western world.⁹

In speaking of professional people Thurman has said:

Persons who practice professions in any society do so by virtue of skill, techniques and the knowledge which they have developed as a result of particular disciplines. Further, they practice the profession for considerations which would not be permitted them if they were not so equipped and trained.¹⁰

But what of the professional nurse who has been in nursing for a number of years? If a reasonable method of presenting new and changing information to her is neglected, knowledge possessed may soon become obsolete and the individual may be functioning at a level below that of one new to the field, so far as patient care is concerned.

Leaders in nursing have long recognized the need for comprehensive inservice education, and many such programs exist. Many hospitals, however, have only limited inservice programs or no such program at all. When there is no inservice education offered nurses employed in a given hospital, and when nurses do not assume their individual professional responsibility for continuous growth, their knowledge of current events in the world of nursing practice will become out-dated. This may be due to

⁹Ruth Perkins Kuehn, "Continuing Education in Nursing," The Journal of the American Medical Association, 190:544, November 9, 1964.

¹⁰Howard Thurman, "The Responsibility of the Professional Nurse to Society," Nursing Outlook, 5:334, June, 1957.

many factors such as; family responsibilities and failure to hold active membership in professional nursing organizations. At a meeting of the Western Council of Higher Education for Nursing held in San Francisco in 1958, Dr. Cyril M. Francis of the Veteran's Administration said in part:

. . . if we can get the educator to develop what we have, we can do much to develop our administrators within our own organization. This is not to say that our nurse administrators alone will not need outside training; they will, but if we, through a sound and well-supervised inservice training program give out nurses all we have to offer within the organization, the amount of training they will need outside can be provided for the most part on a part-time basis or during periods of leave.¹¹

It is recognized by nursing educators that the Veteran's Administration has been leading the nation in inservice education programs for nurses. It is also recognized that small private hospitals find it difficult to hire full-time inservice educators to help nurses keep their knowledge current and thus provide an optimum level of patient care in the institution.

In speaking of nursing's future role Watt has said:

Nurses will have to assume more and more technical responsibilities and nurses should give more thought to preparing themselves for these responsibilities and volunteering to assume them before they are simply 'shunted off by the doctors.'¹²

In regard to the nurse's role in detecting adverse reactions from drugs Pike writes:

. . . the nurse observes the patient more frequently than any other

¹¹Proceedings of the First Annual Conference (New York: The Western Council on Higher Education for Nursing, 1958), p. 62-3.

¹²James Watt, "Report of the National League for Nursing Third Biennial Convention," 1957, Nursing Outlook, 5:354, June, 1957.

personnel in the hospital and can therefore be the observation post in the detection of drug reactions and toxicity. This makes it necessary for the nurse to be acquainted with all phases of drug activity, especially toxicity.¹³

It seems abundantly evident that a simple, effective method of presenting pertinent material to nurses in small hospitals is needed. This method should be easily implemented, should not require the services of a full-time educator, should be acceptable to those being helped by it, and should stimulate professional nurses to put forth greater effort in "keeping current" on new advances in technology and medicine affecting their practice.

The Study

This study explored a means of informing professional nurses of recent medical innovations affecting nursing practice and stimulating them to assume individual responsibility for gaining further knowledge in their changing field. The inservice education method tested consisted of the following: A short test was prepared to determine the professional nurse's present awareness of recent medical innovations affecting their practice and their knowledge of drugs then being administered in the hospital in which they were employed. Monthly papers containing drug reviews, nursing innovations, and selected recent medical and technical advances were then prepared and given to these nurses as a method of inservice education. In a five-month period five such papers were given the nurses participating in

¹³Maxwell Pike, "Hospital Pharmacy Educational Programs," Hospital Topics, 43:73-5, January, 1965.

the study. These papers were not discussed with the participants at any time. At the end of the study another test, similar to the initial one, was given without the nurse's prior knowledge. The items on the second test duplicated seven items from the first test; but did not contain items to test the respondents knowledge of materials included in the five papers. The post test items were an attempt to elicit information about the respondents current information at the end of the five month period. The results of the pre-test were then compared with those of the post-test to determine whether knowledge in the areas mentioned increased during the five month period of the study.

The sample selected for the study was composed of nurses representing the day, evening and night shifts on the medical and surgical units in one small Montana hospital. One nurse employed in the obstetrical department participated at her request. The nurses selected were those who were willing to take part in the study and would most likely still be employed in the hospital at the end of the study period. Of the total number of nurses employed in the hospital, seventeen, or 40 per cent took the pre-test and fourteen or 33 percent completed the study and took the post-test. The nurses participating were told simply that the writer was attempting to develop a practical, non time-consuming method of presenting inservice education to nurses in small hospitals and that the test would point out areas in which education was needed. No mention was made of another test following a period of material presentation. Each test sheet carried a code figure for ease of identification later. The tests were designed to evaluate knowledge of drugs being administered and of recent innovations in

medical and nursing practice. The first page of each test contained several questions to which there were no "right" answers. These questions were designed primarily to determine whether reading habits and attitudes were commensurate with the times in which practicing nurses live; and no attempt was made to analyze the responses to these questions in this study. Other questions in this section were specifically designed to evaluate knowledge of recent innovations mentioned above. On the second page of each test was a list of thirty-seven (37) drugs. The nurses were asked to briefly state the physiological action of these drugs that were being given on the hospital units during the time the tests were given. The first section of the post-test did not contain any of the same questions asked in the first section of the pre-test. The section on the physiological action of drugs on the post-test contained seven (7) of the same drugs that appeared on the pre-test. Questions requiring a "right" answer on the post-test did not pertain to any information presented the study participants during the period of inservice sheet presentation.

When the study period was ended and the post-test given, the two sets of tests were paired to facilitate making a comparison between the two test scores achieved by the same person. This task was accomplished by comparing the papers for: (1) Stated years in nursing practice, (2) the unit (medical or surgical) to which usually assigned, and (3) a careful comparison for handwriting similarity. Findings of the study are reported in chapter II. Copies of the tests may be found in the appendix.

Limitations of the Study

The study was confined to a small group of nurses in a small

Montana hospital. Although the findings reported here may be applicable to small hospitals in other areas, or even to larger hospitals, further study would be required to substantiate that possibility. Among the variables that may have had some influence on this study is the fact that nursing students were studying drugs in the hospital used for the study during the period of inservice sheet presentation. Other unknown factors may have influenced the nurses tested to attempt to "keep current" with professional nursing trends. The investigator's assumption that both of the tests given were of comparable difficulty was not verified.

CHAPTER II

ANALYSIS AND INTERPRETATION OF DATA

The first section of the pre-test contained 10 questions. Four of these questions were included to determine whether the reading habits and attitudes of the nurses participating in the study were commensurate with the times in which they live and work. No "correct" responses were possible for these questions. On the remaining 6 questions a score of 13 was possible.

The second section of the test was made up of a list of 37 drugs for which the physiological action was requested. With a total of 50 points possible, the scores ranged from 1 to 23. The mean score on the pre-test was 13.57. An attempt was made to correlate the scores achieved with the years in nursing practice. It was found that in the group of nurses with 1 to 5 years of experience the mean score was 12.66. There were no nurses in the study with 6, 7, or 8 years experience. The group with from 9 to 20 years experience achieved a mean score of 10.28, and the group with over 20 years experience had a mean score of 9.5. A Pearson correlation was done to determine whether years experience had any bearing on scores achieved. The correlation was found to be negative.

In the first section of the post-test there were again 4 questions to which correct responses were not possible and the possible score on this section was again 13. On the second section dealing with the physiological action of drugs, the number of drugs listed was again 37. The scores on this test ranged from 11 to 36, with a mean score of 25.14. It was interesting to note that the nurse who received a score of 1 on the pre-test

received the lowest score on the post-test with a score of 11. The two test scores for each individual were paired as described on page 11 of this study. The table on page 15 shows the scores achieved on the two tests and the differences between individual scores as well as the sum of the differences between the total pre-test and post-test scores.

The sum of the differences between the two sets of test scores was analyzed by using a correlated t test recommended by Ferguson.¹⁴ The results of the statistical interpretation indicate that the degree of test score increase is significant at the .001 level. The changes in all test scores implies that the nurses, for some reason, demonstrated a significantly higher score as related to the content tested by the items of the post-test.

¹⁴George A. Ferguson, Statistical Analysis in Psychology and Education (second edition; St. Louis: McGraw-Hill, 1966), pp. 170 & 406.

TABLE I

SCORES ACHIEVED BY PROFESSIONAL NURSES ON TESTS
FOR CURRENT NURSING KNOWLEDGE*

Nurse number	Pre-test Score	Post-test Score	Difference Between Scores
1	15	26	/ 11
2	22	34	/ 12
3	15	23	/ 8
4	22	30	/ 8
5	23	34	/ 11
6	18	23	/ 5
7	14	20	/ 6
8	1	11	/ 10
9	7	36	/ 29
10	13	19	/ 6
11	19	33	/ 14
12	6	26	/ 20
13	8	24	/ 16
14	7	13	/ 6
Total	190	352	/ 162

*Sample tests may be found in the appendix.

CHAPTER III

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

A study was undertaken to test a method of presenting inservice education to professional nurses in small hospitals. A sample of fourteen (14) subjects were selected from those nurses working on medical and surgical units in one small Montana hospital. One obstetrical nurse participated at her request. A pre-test was given to determine knowledge of: (1) The physiological action of drugs being administered, and (2) recent medical innovations affecting nursing practice.

Over a five month period five brief papers were prepared and presented to the study participants. The information presented was concerned with technical and medical advances affecting nursing practice, and drug reviews.

At the end of the study a post-test very similar to the pre-test was given the participants without their prior knowledge. All subjects achieved higher scores on the post-test than on the pre-test. The amount of increase ranged from 5 to 29 points, with a mean increase of 11.57 points. On the pre-test the scores ranged from 1 to 23 points with a mean score of 13.57, while on the post-test the scores ranged from 11 to 36 with a mean score of 25.14 points. This data was subjected to a correlated t test to determine whether the results were statistically significant. The results were significant at the .001 level. That this method stimulated individual study not confined to the material presented became evident from impromptu interviews with several of the study participants. Those interviewed uniformly felt this method was novel and helpful.

Reasons stated for endorsing this method of inservice education were:

- (1) It eliminates the necessity for meeting in a group. It is often difficult or impossible to attend meetings at specific times while working;
- (2) It points up areas in which the participants lack knowledge. Some stated they had begun independent study programs after this study began;
- (3) Someone is not required to present a topic several times to assure reaching the maximum number of personnel.

While the study was in progress the writer was approached by several nurses who wanted to know why they were not receiving the papers they had seen others receive. Although several topics were presented in the geographical area of this study by conferences and meetings while this study was in progress, and the regular inservice program at the hospital continued, none of the material presented by other means was included in the inservice sheets given the study participants, nor was it included on either of the tests given. On several occasions while the study was in progress, copies of the inservice sheets were found posted on bulletin boards on the hospital units. This action probably indicates interest in the type of material presented to persons outside of the study sample. The writer was informed that on one occasion a group of nurses had met to discuss the medication review presented on one of the inservice sheets. The hospital pharmacy reported an increase in requests for information on new drugs as they are ordered for patients.

Conclusions

This study shows that the type of inservice education employed by the writer significantly altered the test scores achieved by professional nurses

in one small hospital. The time spent in preparing each inservice sheet was about 3 hours. This method did not take personnel from their duty post, and nurses on the 3 tours of duty--the day, evening and night shifts--were reached with equal ease. Days off and vacations did not interfere with the program, as the papers were available long after a formal class presentation would have passed.

Most of the nurses who participated in this study said they felt badly after taking the pre-test because they were faced with questions pertaining to their profession for which they had no answers. Some said it made them realize that they had become lax in keeping up with changes in nursing. It was interesting to note that several felt they had done as poorly on the post-test as they had on the pre-test, when in reality all achieved better scores on the post-test.

Recommendations

The writer suggests that further testing with a control group and validation of the items in the pre and post exams be done before any definitive statement about the value of the method be made. It is also suggested that this type of inservice education for professional nurses might be tested in small hospitals in other areas, or even in larger hospitals. The method tested in this study might be used to supplement existing hospital inservice education programs. Hospitals with established programs of inservice education usually have a committee to plan what topics should be presented. It might be profitable for small hospitals to have such a committee to prepare inservice sheets similar to those used in this study. If this committee was composed of rotating members, in time all nurses on

the staff would become acquainted with the technic of searching literature and might become more interested in reading a variety of publications when they were no longer serving on the committee. There is evidence to support the idea that independent study may be stimulated and professional nurses may be led to realize the need for "keeping current" in their field by the means outlined here. This need might be pointed out to nurses initially by using a test such as the ones prepared by the writer for this study.

It might be of interest to give another test to the subjects who participated in this study after a time lapse, to see if their knowledge continues to increase without benefit of additional external stimulation.

APPENDIX

PRE-TEST

Floor on which you usually work: ___ Medical ___ Surgical

Length of time in nursing _____.

Please answer the following questions as briefly as possible.

1. Do you feel competent to administer closed-chest cardiac compression and mouth-to-mouth resuscitation?
2. What is the latest procedure for locating and diagnosing tumors of the breast?
3. List some indications for kidney dialysis.
4. For what conditions is regional perfusion used?
5. Would you feel competent if placed in charge of a shelter in case of nuclear attack?
6. List a few of the conditions that may be easily diagnosed by the use of radio-isotopes.
7. How can whole blood be kept indefinitely? Or can it?
8. How can we be assured an unlimited supply of whole blood?
9. Do you have periodic Pap. smears taken for examination? How long has it been since you had a Pap. taken?
10. Do you subscribe to or read the nursing journals?

Pre-test continued:

Please state briefly what the physiological action of the following drugs is:

Phenoxene	Eldec
Cyclospasmol	Torecan
Robaxin	Carbrital
Doxinate	Norflex
Pertofrane	Aldomet
Naturetin	Wyamine
Serax	Exna
Teldrin	Soma
Decholin	Bonadexin
Trinsicon	Negram
Marplan	Lomotil
Combid Spans	Mylicon
Aldoril	Pabirin
Tandearil	Surbex $\bar{c}$ C
Mycostatin	Robinul
Stress Caps	Metamine
Peritrate	Fulvicin
Tofranil	Norlestrin
Cytomel	

Do you look up medications you aren't familiar with before administering them?

INSERVICE SHEET #1

Isolation Perfusion: Taken from A. J. N. August, 1964.

The increasing use of chemotherapy in the treatment of cancer means that, sooner or later, all nurses are going to find themselves caring for patients receiving this highly specialized therapy. This makes it mandatory that they understand the rationale of this treatment, the basic principles on which it is based, the various techniques of administration, the effects of the individual drugs, and--perhaps most important at the present time--the early signs of toxicity.

Although chemotherapy as a form of treatment for cancer is not yet curative and is generally not used when such procedures as surgery and irradiation might be effective, it is nevertheless a treatment of major importance because of the large number of patients for whom surgery, irradiation, and hormonal therapy are neither applicable nor helpful. Techniques for perfusing every area of the body now exist, and there is no question that as more effective drugs become available, the use of perfusion, frequently in conjunction with other methods of therapy, will become more prevalent.

Isolation perfusion is the isolation of a particular segment or organ of the body from the systemic circulation and administering the drug only to that area. This technique allows the administration of a much higher concentration of a particular drug to the tumor than is possible when the whole body is exposed to the same agent. Thus, a totally occlusive tourniquet may be placed on an extremity, and the artery and vein leading to it cannulated. Oxygenated blood with a chemotherapeutic agent added is pumped into the artery, passed through the extremity involved by the tumor, and out through the vein where the blood is again re-oxygenated and recirculated. At the present time there is virtually no organ or region of the body for which a technique of perfusion has not been developed.

What does all this mean to the practicing nurse? First she must be aware of the availability of chemotherapy for cancer treatment and channel appropriate patients to sources of treatment. Second, because the nurse is the person who is most likely to first observe changes in a patient's condition, she must be thoroughly familiar with evidences of toxicity of various drugs in order to be able to record and report such manifestations promptly. Obviously, not every patient undergoing perfusion is going to develop complications. However, the alert nurse who is aware of these possibilities will be able to offer patients the best in nursing care. This technique is now being used successfully for acute localized infections anywhere in the body, as well as for cancer.

Drug Review: Medications used for pathology involving the heart.

Digitalis--Slows heart rate and strengthens contractions. Side effects,

due to overdose are: nausea, vomiting, headache, cardiac irregularities and a heart rate below 60 per minute.

Cedilanid--Parenteral digitalis used for rapid digitalization.

Quinidine--Useful in auricular fibrillation. It stops the fibrillation and produces a regular heart rate. Toxic effects are demonstrated by a rapid pulse and a fall in blood pressure.

Metamine--Reduces number and severity of chronic anginal attacks. Side effects, as with all nitrites, are first characterized by headache. Severe drops in blood pressure may be seen, but usually only in patients who do not need the drug.

Cardilate--An effective vasodilator which produces its action slowly and for a long time. Overdosage may produce a drop in blood pressure and methemoglobinemia.

Nitroglycerine--Relaxes smooth muscles, especially those of the finer blood vessels. Occasional headaches may result from its use.

Peritrate--Long acting coronary vasodilator. Increases myocardial oxygenation.

Butiserpine--Hypotensive agent. Often used as a sedative in coronary occlusion and heart failure.

Coramine--Respiratory and cardiac stimulant. Elevates blood pressure. Overdose may produce convulsions.

Persantin--Dilates coronary arteries without altering systemic blood pressure. Rare side effects include dizziness and G. I. distress.

Isordil--Coronary vasodilator. Often relieves anginal attack when other medications fail. Side effects are as for Persantin.

INSERVICE SHEET #2

Preservation of Whole Blood:

A development clearly destined to rank as one of the top achievements of the 20th-century medical research--frozen blood--will soon be ready for mass use. Thanks to new instant-freezing techniques, tomorrow's blood will last for years, perhaps for centuries. What's more, frozen blood promises to have more lifesaving qualities than whole blood itself. Instead of a year-round parade of donors, a single annual drive can provide enough for a year or more. With such a supply rare types will always be available.

The secret of blood preservation is to freeze it so quickly that damaging ice crystals do not have time to form in the cells. Under the direction of investigators at the Chelsea Naval Hospital over 3000 transfusions of frozen blood have been given. This blood was in storage for periods ranging up to 5 years! The reactions to transfusions from frozen blood have been extremely rare. This is due to the fact that the cells are washed clean of all undesirable elements present in normal donor blood. This blood can be given safely as rapidly as a unit every 10 minutes. Not one case of serum hepatitis has been reported among the recipients, although the disease is endemic in the donor population. When red cells were mixed with fresh donor plasma, 2 patients out of 500 came down with the disease. Apparently something in the freezing and washing process destroys or otherwise eliminates this virus.

The equipment needed to process and reconstitute blood in this manner may be operated by personnel who have not had previous scientific, technical, or medical training and at an acceptable operating cost. The frozen blood has a red cell survival rate of 82 per cent after at least two years of storage. Seventy per cent is the acceptable limit for fresh blood.

The Use of Cadaver Blood for Transfusion:

It has been long believed that blood from cadavers was poisonous: then in 1928 a Soviet surgeon named Shamov discovered that exsanguinated dogs could be revived if they received transfusions of blood from recently killed dogs. This accomplishment seems to have escaped the notice of most physicians until March of 1930, when Yudine, of the Sklifosovsky Institute in Moscow, performed the first transfusion of cadaver blood to a human being. A patient attempted suicide and had lost a large amount of blood by severing the antecubital veins. He was saved by the administration of 420 ml. of blood drawn from the body of a man who had died six hours earlier from a fracture of the base of the skull. Russian physicians were quick to take advantage of this previously untapped source of blood for transfusions. Studies of cadaver blood and its use continued, and it was

reported in 1959 that the Sklifosovsky Institute had procured and transfused cadaver blood for 28 years. More than 27,000 transfusions had been performed, and the amount of blood had reached 25 tons.

During this period it was found that cadaver blood not only retains its sterility for several hours after death, but also retains and begins to carry out its basic function as an oxygen carrier immediately after transfusion. It is hardly necessary to say that the corpse, the medical history, and the blood are thoroughly tested for compatibility, infection or hereditary disease which might be detrimental to the recipient. These tests and the method of storage and preservation are practically the same in Russia as those used in the United States for blood from living donors. The bodies of those dying suddenly from heart failure, infarct of the myocardium, hypertension, cerebral hemorrhage, alcohol intoxication, electrical shock and other similar causes are most suitable for the procurement of blood. The "six-hour postmortem" rule is observed and autopsy must be done to rule out the presence of any contagious or potentially hazardous disease. Since embalming is required in this country, with removal of blood which is washed down the drain, permission of next of kin is not needed if the blood is taken for storage and transfusion. The routine consent of the recipient is no more necessary than if regular bank blood is used. Any repugnance attached to the procedure should be overcome by the facts: that with adequate precautions and autopsy control it is perfectly safe and beneficial. Furthermore, as the investigators point out, it is a successful form of homotransplantation no more objectionable than is the use of cadaver corneas, skin, vessels or bone. The blood costs nothing in cases where autopsy is routinely done in the event of sudden death. The only expense involved is the time of the technician, if any, and the cost of bottles, bags, and tubes, and these are inexpensive. Although the carrier state cannot be ruled out, cadaver blood offers the least possible chance for the transmission of infectious hepatitis because there has been detailed gross and microscopic autopsy verification of the donor's state of health and of each individual organ.

This information was taken from Abbott Laboratories' publication, What's New, January, 1962, and from The Journal of the American Medical Association, August 13, 1960, p. 1657.

Drug Review: Drugs used for the control of hypo and hypertension.

Aramine--A potent vasopressor. Useful in hypotension from many causes. It increases both systolic and diastolic blood pressure. Overdosage may produce hypertension, headache and projectile vomiting.

Vasoxyl--Produces a prompt and prolonged rise in blood pressure.

Aldomet--Gently lowers blood pressure without affecting cardiac output. May produce sedation initially. To be used with caution in hepatic disease and pregnancy.

Aldoril--Lowers blood pressure without affecting blood flow to vital organs. Same precautions as for aldomet.

Benuron--A potent diuretic and hypotensive. Contraindicated in renal and hepatic disease. May produce weakness and muscle cramps.

Enduron--Another diuretic and hypotensive. May produce nausea, anorexia and headache.

Ser-Ap-Es--For all hypertension except the mildest and most severe. Used with care in patients with C. V. A., coronary artery disease and disease of the kidney.

Eutonyl--lowers blood pressure without depressing the patient. May cause agitation in excitable patients.

INSERVICE SHEET #3

Hemodialysis has been used for the treatment of chronic kidney disease leading to uremia for many years. The trend today is to allow these patients to live at home and to treat themselves with an artificial kidney when the need arises. A study reported in the Journal of the American Medical Association, November 2, 1964, p. 468 tells of three such patients who receive dialysis twice weekly. Their BUN values average about 70 to 100 mg. per cent before dialysis, and 20 to 50 mg. per cent after the procedure. These patients all worked about 6 hours daily between periods requiring dialysis. The procedure lasts from four to six hours. A total of 30 dialyses were performed on these three patients. The results were in every way comparable with those obtained after dialysis in the hospital. A private duty nurse monitors the procedure. It seems reasonable to assume that many of these procedures will be done in the homes of people suffering from chronic kidney disease, and nurses will find it necessary to assist with them. In Seattle 2,800 dialyses have been done without the supervision of a physician. One patient was maintained in good health for six months prior to the availability of a cadaver kidney, which was successfully transplanted.

Drug Review: Anti coagulants and hemostatics

Adrenosem Salicylate--Used for the control of capillary bleeding. No side effects have been reported.

Amicar--For bleeding resulting from hyperfibrinolysis. Not to be used in the presence of intravascular clotting.

Koagamin--Prevents post-operative oozing. Provides a clear operative field.

Premarin "IV"--Controls capillary bleeding and dysfunctional bleeding. Occasional nausea may result.

Synkayvite--For treatment of bleeding due to hypoprothrombinemia.

Hykinone--For treatment of circulatory deficiency of prothrombin and intestinal malabsorption of vitamin K.

Panwarfin--Hypoprothrombinemia producing agent for treatment of intervascular clotting conditions.

Heparin--An essentially non-toxic anti coagulant.

Coumadin--A very nearly perfect anti coagulant. It is highly predictable and safe.

None of the anti coagulants should be used in the presence of any condition that may become hemorrhagic. These include ulcers, acute irritations or infections and trauma of any kind.

INSERVICE SHEET #4

Organ Transplanting and Artificial Organs:

A report in The Journal of the American Medical Association, January 25, 1965 tells of work done by a team of four surgeons in transplanting the lower left lobe of the lung in several dogs. One group of dogs, untreated with any immunosuppressive agent, averaged 13 days before death. Some of the dogs who received immunosuppressive drugs have survived 10 months. More and more of this type of surgery is being done on humans. Over 400 mitral valves have been successfully grafted from cadavers, and we can expect to see more transplanting being done as better techniques are developed.

In Abbotempo, June, 1963 is an article describing some of the artificial organs being used experimentally. Heart valves are being replaced with good artificial ones with a great deal of success in carefully selected patients. An artificial pancreas with an automatic glucose analyzer and insulin injector has been used successfully in a dog.

These and many other artificial organ experiments may one day present us with patients wearing these devices. It seems wise to familiarize ourselves with these modern innovations, so that we will be prepared to cope with them when we see patients with them.

Drug Review: Some of the steroids

Side effects to watch for when using these drugs are: Moon facies, supraclavicular fat pads, hirsutism, striae, acne, abdominal distention, convulsions, hypertension, edema, polyphagia and weight gain from increased appetite, aggravation of infection, petechiae or purpura, insomnia, activation or complications of peptic ulcer, psychic disturbance or, rarely, menstrual irregularity. High doses of corticosteroids given continuously for prolonged periods may cause protein depletion, osteoporosis, spontaneous fractures and, rarely, posterior subcapsular cataracts. Since suppression of growth in children under long-term treatment with steroids has been reported, prolonged use of these drugs in children should be limited to the most necessary cases. In individuals exposed to, or in the active phase of chickenpox or other exanthematous disease, it may be desirable to temporarily reduce or discontinue corticosteroid therapy.

Some of the commonly used steroids are:

Celestone	Kenocort	Aristocort	Sterane
Cortef	Prednisolone	Cortril	
Decadron	Prednisone	Depo-medrol	

INSERVICE SHEET #5

An often spoken of but too seldom effectively practiced area of nursing is the practice of the art of interpersonal relations. Many books have been written on this subject, but I fear they go largely unread by the nurses who could benefit most by applying the principles presented by their authors--the nurses who daily deal with sick patients. In their dual role as public servants and professional persons the nurse is in a position to do a great deal of health teaching and promoting of good will between the public she serves and the hospital.

Patients interviewed following hospitalization frequently report the following: The nurses are too busy to spend much time with patients. They are reluctant to ask questions of nurses because they feel the nurse is too busy to take time to talk with them. Little or nothing is told them by nurses regarding their illness and any post-hospital adjustments necessary. Many diagnostic and therapeutic procedures are carried out with no explanation of what is being done, or why. Patients find they have to cope with their fears as best they can, as no one will tell them much about their illness or treatment.

A brief review of recent publications reveals the following succinct passages: "In the nursing profession, . . . there are no tricks, no infallible techniques of nonverbal communication. There are such terms as 'empathy', 'role playing'. Like an actor's lines, delivered meaninglessly, these terms mean nothing unless the nurse understands people because she understands herself. She observes another's helplessness, apathy, fear, loneliness: In his stare, inert body, limp hands. By a glance, gentle touch, gracious gesture, she tells him that she understands. There are no words to communicate such empathy. Sympathy is not the word. She plays her role by 'distilling all she ever observed--by perceiving another's unuttered feeling. She is moved by this perception to communicate responsive Nursing Care'.

A patient wrote about his hospitalization in these words: "I seldom rang and so was seldom visited. Once I had a bath. This was the second morning after the operation. A nurse came in early. Without a word she flung open the door of the commode and extracted a basin, a washcloth, and a piece of soap. 'Can you take your bath?' she asked briskly. 'I always have, in recent years,' I replied. She placed the bathing equipment on the rude table that arched the bed, and handed me a towel. 'Take off your uppers and work down. Then roll up your lowers and work up,' she snapped. 'And don't get the bed wet!' I waited till she disappeared, then got noiselessly out of bed, removed the basin, emptied it, went into the bathroom that I shared with another fellow, drew a tub, and had a nice bath. Nurses are such formalists."

Perhaps the thought of being a human relations expert might be frightening to a young nurse. If being an expert in human relations to her means assisting people in solving severe emotional or guidance problems for which she has not been professionally trained, any nurse, not only a student, might well be frightened at this prospect. But in our consideration of human relations we mean something much broader, much less specific than this. A nurse is responsible for improving human relations by making a patient feel at home in the hospital or comfortable with his illness wherever he is. In all probability we will not be able to alleviate all of a patient's apprehension; but we can relieve a great deal of it by simple explanation, "You are going to the X-ray department now. So-and-so will wheel you there, and when you have finished, the X-ray department will notify us and someone will come for you." "This is Miss Y. She is a laboratory technician and will stick your finger to get a little blood sample for a test." "Your breakfast will be served later this morning because you have to have an X-ray (or a blood test or whatever it is) while your stomach is still empty." how long did it take to read each of the above statements? Just that long would it take to make the brief explanations. But the comfort the average patient may receive by having something explained is immeasurable.

Books reviewed for this paper:

Burton, Genevieve Personal, Impersonal, and Interpersonal Relations. New York: Springer Publishing Company, 1964

Lockerby, Florence K. Communication for Nurses. St. Louis: C. V. Mosby Company, 1958

Orlando, Ida Jean The Dynamic Nurse-Patient Relationship. New York: G. P. Putnam's Sons, 1961

Ujhely, Gertrud B. The Nurse and Her Problem Patients. New York: Springer Publishing Company, 1963

POST-TEST

Floor on which you usually work. _____ Medical _____ Surgical

Length of time in nursing _____.

Please answer the following questions as briefly as possible.

1. Would you be willing to accept a transfusion of cadaver blood if both frozen cadaver blood and fresh whole blood were available?
 2. What is your reaction to the ANA's current stand on basic preparation for nursing?
 3. Given one week's time to prepare, would you feel able to supervise patients receiving hemodialysis for uremia in their homes?
 4. The treatment of shock is being updated in keeping with advancing knowledge of circulatory physiology. Can you tell me:
 - (a) Why metabolic acidosis occurs?
 - (b) What is oligemia?
 - (c) What is wrong with the Trendelenburg position?
 - (d) Why a tracheotomy may be done on a patient in shock?
 - (e) The upper safe limit of central venous pressure.
 5. What are some advantages of automated nurse's notes?
 6. How far should a rectal tube be inserted in giving a high enema?
 7. What should appear on a nursing care plan? When and by whom should it be revised?.
 8. Into what anatomical areas may radium be implanted?
 9. What are vincristine and vinblastine?
-

Post-test continued:

Please state briefly the physiological action of the following drugs.

Trinsicon	Lomotil
Tegopen	Cyclospasmol
Terfonyl	Benuron
Negram	Winstrol
Nilevar	Naturetin
Digitalis	Aventyl
Quinidine	Celestone
Daricon	Isordil
Formatrix	Indocin
Kynex	Dexamyl
Frostigmin	Aminophyllin
Cedilanid	Mephyton
Ammonium Chloride	Norflex
Colace	Vigran
Mandelamine	Ritalin
Coumadin	Triavil
Peritrate	Mellaril
Dyazide	Disomer Chronotabs
Arlidin	

Do you habitually look up drugs with which you are not familiar before administering them?

LITERATURE CONSULTED

LITERATURE CONSULTED

Books

- Brown, Esther Lucille. Nursing for the Future. New York: Russell Sage Foundation, 1948. 198 pp.
- Burton, Genevieve. Personal, Impersonal, and Interpersonal Relations. New York: Springer Publishing Company, 1964. 260 pp.
- Ferguson, George A. Statistical Analysis in Psychology and Education, second edition. St. Louis: McGraw-Hill, 1966. 446 pp.
- Lockerby, Florence K. Communication for Nurses. St. Louis: Mosby Company, 1958. 175 pp.
- Medical Economics Incorporated. Physician's Desk Reference. Oradell, New Jersey, 1965. 1131 pp.
- Orlando, Ida Jean. The Dynamic Nurse-Patient Relationship. New York: G. P. Putnam's Sons, 1961. 91 pp.
- Ujhely, Gertrud B. The Nurse and Her Problem Patients. New York: Springer Publishing Company, 1963. 180 pp.

Periodicals

- Abbott Laboratories Publication. What's New. January, 1962. No. 227 pp. 20-21.
- Donaldson, Sharon, and Fletcher, William S. "The Treatment of Cancer by Isolation Perfusion," The American Journal of Nursing. 64:81-4, August, 1964.
- Eagan, Robert L. "Mammography," The American Journal of Nursing. 66:108, January, 1966.
- Eicherly, Elizabeth E. "Living and Nursing in a Fallout Shelter," The American Journal of Nursing. 65:123, November, 1965.
- Fritz, Edna, and Murphy, Marion. "An Analysis of Positions on Nursing Education," Nursing Outlook. 14:20, February, 1966.
- Gago, Otto, Benfield, John R., Nigro, S. L., and Adams, William E. "Left Lower Pulmonary Lobe Transplantation," The Journal of the American Medical Association. 191:130, January 25, 1965.

- Henderson, Virginia. "The Nature of Nursing," The American Journal of Nursing. 63:62, August, 1963.
- Hiner, Betty. "Inservice for Good Service," Nursing Outlook. 5:219, April, 1957.
- Kelly, Nancy Cardinal. "Nursing Care Plans," Nursing Outlook. 14:61, May, 1966.
- Kolff, W. J. Abbotempo. 2:16, June, 1963.
- Kuehn, Ruth Perkins. "Continuing Education in Nursing," The Journal of the American Medical Association. 190:544, November 9, 1964.
- Long, Lewis M. K. "Motivation Personnel for Inservice Education," Nursing Outlook. 7:333, June, 1959.
- Merrill, J. P., Schupak, E., Cameron, E., and Hampers, C. L. "Hemodialysis in the Home," The Journal of the American Medical Association. 190:468.
- Nite, Gladys. "Learning Every Day," The American Journal of Nursing. 60:1761, December, 1960.
- Nursing Outlook. (editorial) Nursing Outlook. 7:133, March, 1959.
- Nowak, Patricia Ann. "Nursing Care in Isolation Perfusion," The American Journal of Nursing. 64:85, August, 1964.
- Pike, Maxwell. "Hospital Pharmacy Educational Programs," Hospital Topics. 43:73, January, 1965.
- Rosenberg, Mervin, and Carriker, Delores. "Automating Nurse's Notes," The American Journal of Nursing. 66:1021, May, 1966.
- Simeone, F. A. "The Nature of Shock," The American Journal of Nursing, 66:1287, June, 1966.
- Simeone, F. A. "The Treatment of Shock," The American Journal of Nursing, 66:1290, June, 1966.
- Sullivan, Catherine M. "Preparadness Means Survival," The American Journal of Nursing. 65:121, November, 1965.
- Thurman, Howard. "The Responsibility of the Professional Nurse to Society," Nursing Outlook. 5:334, June, 1957.
- Tillery, Betty, and Bates, Betty. "Enemas," The American Journal of Nursing. 66:534, March, 1966.

Watt, James. "Report of the National League for Nursing Third Biennial
Convention," Nursing Outlook. 5:354, June, 1957.