Preoperative Teaching and its Relationship to Postoperative Recovery

Eleanor Wiese
LOMA LINDA UNIVERSITY
Graduate School

PREOPERATIVE TEACHING AND ITS RELATIONSHIP
TO POSTOPERATIVE RECOVERY

by
Eleanor Wiese

A Thesis in Partial Fulfillment
of the Requirements for the Degree
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Each person whose signature appears below certifies that he has read this thesis and that in his opinion it is adequate, in scope and quality, as a thesis for the degree Master of Science.

L. Lucile Lewis, Professor of Nursing

Jeanette Earnhardt, Associate Professor of Nursing

Bruce W. Branson, Associate Professor of Surgery
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# TABLE OF CONTENTS

| LIST OF TABLES | vi |
| LIST OF FIGURES | vii |

## Chapter 1. INTRODUCTION

- Need for the Study .................................................. 1
- Other Studies of Preoperative Teaching ......................... 2
- STATEMENT OF THE PROBLEM ........................................ 4
- Hypotheses .................................................................. 5
- Theoretical Framework .............................................. 5
- Scope and Limitations ................................................ 6
- Scientific Rationale ................................................... 6
  - Turning and bed exercises .................................... 6
  - Deep breathing and coughing ................................. 8

## Chapter 2. METHODOLOGY ..............................................

- SETTING FOR THE STUDY ............................................. 9
- SELECTION OF PATIENTS ............................................ 9
  - Experimental Group ............................................ 10
  - Control Group ................................................... 11
- DEFINITION OF TERMS ............................................... 11
- DATA COLLECTION AND ANALYSIS ............................... 11

## Chapter 3. FINDINGS AND ANALYSIS ............................... 13

- DESCRIPTION OF CLASS SESSIONS ............................... 13
## LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>The Surgical Procedures Performed Showing the Sex and Age Distribution Between the Two Groups</td>
<td>19</td>
</tr>
<tr>
<td>2.</td>
<td>Distribution and Number of Complications in the Control and Experimental Groups</td>
<td>21</td>
</tr>
<tr>
<td>3.</td>
<td>Distribution of Patients Who Progressed to Oral Medication Within the 5-Day Postoperative Period</td>
<td>23</td>
</tr>
<tr>
<td>4.</td>
<td>Mean Values and Standard Deviations for the Variables of the Control and Experimental Groups</td>
<td>29</td>
</tr>
</tbody>
</table>
LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Control Group. Length of Hospital Stay Beginning With Day of Surgery</td>
<td>26</td>
</tr>
<tr>
<td>2.</td>
<td>Experimental Group. Length of Hospital Stay Beginning With Day of Surgery</td>
<td>27</td>
</tr>
</tbody>
</table>
Chapter 1

INTRODUCTION

The preoperative preparation of the surgical patient, both physiologically and psychologically, is an integral part of total nursing care. How much and what type of preoperative instruction the patient needs is not entirely agreed upon. Little is to be gained by explanation of surgical details that the patient does not understand or feels no need of knowing. The nurse, as a member of the surgical team, must work closely with the physician in identifying the patient's preoperative needs.

Need for the Study

Preoperative teaching meant different things to different nurses. To one, it meant telling the patient he would need to deep breathe, cough and turn after surgery; to another it meant answering the patient's questions; to a third it meant attempting to reduce anxiety. The nature, method and content of preoperative instruction was not generally agreed upon.

Nursing personnel were expected to do preoperative teaching, yet there was no clear statement of what preoperative teaching included. The nurse, therefore, taught what she felt was adequate. Because of this haphazard method of preoperative instruction and high incidence of postoperative complications, both respiratory and circulatory, there was interest in developing systematic preoperative teaching programs and
need for investigating their effectiveness (Lindeman and Van Aernam, 1971, p. 320).

Other Studies of Preoperative Teaching

Various criteria have been used to evaluate the content as well as the results of preoperative instruction.

Egbert et al. stated that postoperative pain could be reduced by preoperative instruction of patients. In his study, patients were instructed the evening prior to surgery on how to relax and relieve pain by slow, deep breathing. They were instructed that much of the pain was due to muscle spasm and that if they could relax these muscles pain would be relieved. If they could not be reasonably comfortable, they were instructed to ask for pain medication. It was found that there were fewer requests for pain medication on all but the operative day. Encouragement was given postoperatively, once or twice daily, until narcotics were no longer needed. Comparing these patients with the control group, Egbert et al. discovered that the narcotic requirements were reduced by half. The experimental patients went home 2.7 days earlier than those in the control group (Egbert et al., 1964, p. 825).

Janis conducted a study which pointed out some of the adverse behavioral effects of patients who were given insufficient information regarding the unpleasant features of surgery. Seventy-seven male college students who had major surgery were given a questionnaire which was designed to determine the amount of preoperative information given to each surgical patient. Twenty-six of the patients said they had no advance information about the unpleasant experiences which followed
their surgery. Fifty-one patients stated that they had been informed of almost all of the unpleasant features that occurred. If the retrospective reports of surgical patients were accepted as valid evidence, it appeared that the patients who had no advance information about the unpleasant aspects of the surgery were more apt to manifest intense anger reactions on the day of surgery. They were also more prone to develop unfavorable attitudes toward the surgeon, and to experience prolonged emotional disturbances (Janis, 1958, pp. 352-358).

Lindeman and Van Aernam did an evaluation of preoperative teaching and found it lacking in many respects. Since individual nurses did the teaching, it varied from nurse to nurse and unit to unit. Following their investigation, they did a comparative study of the effect of individual versus group teaching. The study was conducted over a fifteen-week period, the population being 351 adults. Findings revealed that length of learning time was shortened and effectiveness of teaching was greater with group teaching. Effectiveness of teaching was measured by ventilatory function, length of hospital stay and number of analgesics administered (Lindeman and Van Aernam, 1971, pp. 319-332).

Mezzanotte conducted a study using group teaching with twenty-four patients, four in each group, as a means of saving time. Instruction was given in four major areas of information:

1. General instructions for surgery
2. Suggestions regarding pain control
3. Hospital policies involving surgical patients
4. Exercises to aid in recovery

Patients were encouraged to ask questions and participate in the group. The session was conducted for a thirty-minute period the evening before
surgery. Postoperative investigation revealed that patients preferred the group teaching method. They felt they gained knowledge and encouragement they would not have gained by individual instruction (Mezzanotte, 1970, pp. 89-91).

The report of Healy's research with 321 patients was significant. Patients for elective surgery were used for the experimental group. The control group consisted of emergencies and patients admitted on evenings that the nurses were too busy to teach. Teaching was done by the team leader, at a specified time, the evening before surgery. Deep breathing, body mechanics, leg exercises and what to expect were taught. During the designated four-month period, the patients in the experimental group had fewer complications and went home sooner than the patients in the control group. Healy felt that the study also proved the value of setting aside a definite time for preoperative teaching for the patient and his family (Healy, 1968, p. 62).

The foregoing studies have shown that nurses use different methods for preoperative teaching, with different content. It appeared that those patients who had preoperative teaching had an overall smoother recovery.

**STATEMENT OF THE PROBLEM**

The purpose of this study was to find out if, in one hospital, planned preoperative instruction made a difference in selected measures of patient recovery from elective intra-abdominal surgery.

In the 500-bed selected hospital in southern California no planned preoperative teaching was being done for general surgical patients.
Hypotheses

It was hypothesized that patients who received preoperative teaching would:

1. Require less pain medication (narcotics)
2. Be hospitalized a shorter length of time
3. Have fewer complications
   a. pneumonia/atelectasis
   b. ileus
   c. thrombosis/embolism
   d. other

Theoretical Framework

This study was based on the philosophy of the holistic concept of nursing: treating the whole patient, his physical, intellectual, spiritual, emotional and social needs. According to the holistic concept, a patient's fears, anxieties, misconceptions and attitudes influence his physical well-being. By providing the patient opportunity to discuss impending surgical therapy, to ask questions and to verbalize feelings, the nurse helps him to cope with the stressful experience. To return him to his optimum function in his family and community in the shortest possible time, was the nursing goal. One way of achieving this goal was by enlisting his cooperation in his own therapy, by helping him understand what would happen to him, and what he could do to help himself (Lewis, 1970, p. 9).

The nurse's knowledge and understanding of the patient and of the means of facilitating postoperative recovery and preventing complications form the foundation for effective teaching. This information
should provide her with the basis for initiating learning with the preoperative patient.

An organized plan for preoperative teaching is essential in order to prevent haphazard, fragmentary teaching, which might deprive patients of certain essential information and/or skills.

Scope and Limitations

The researcher wanted to measure the effectiveness of systematic, preoperative teaching as it related to the patient's recovery in comparison to no systematic preoperative teaching.

The experimental group used for this study included patients who were having elective, intra-abdominal surgery and who were available to come to the teaching session.

The control group was selected from medical records. This limited the criteria for evaluation of the effectiveness of the preoperative teaching to the items present in the medical records.

It was originally intended to conduct teaching for groups of patients, but when conditions were such that a group was not available, individual teaching was done.

There was no measurement of the emotional reactions of patients to their impending surgery. This could be a factor influencing how much patients learned from the teaching.

Scientific Rationale

Turning and bed exercises. The local increase in blood flow during muscular activity is caused by several different factors, all functioning at the same time. Blood flow in the muscles is regulated chiefly by the autoregulatory mechanism. That is, exercise causes
increased muscle metabolism, which in turn utilizes nutrients, including oxygen, more rapidly from the blood. This has a direct vasodilator effect on the blood vessels to increase rate of blood flow (Guyton, 1969, pp. 152, 153).

Another factor is carbon dioxide. The amount of carbon dioxide that the tissues produce is in direct proportion to their rate of metabolism. When the metabolism is increased, the amount of blood required by the tissues to meet the metabolic need is also increased. The elevated carbon dioxide concentration increases the arterial pressure and forces more blood through the system (Guyton, 1971, pp. 476-477, 479).

A third mechanism that dilates the vessels in the muscles during exercise is stimulation of sympathetic vasodilator nerves. The sympathetic vasodilator fibers to the skeletal muscles secrete acetylcholine. These fibers are activated by a special nerve pathway that begins in the cerebral cortex close to the motor areas that control muscular activity and pass down through the hypothalamus and brain stem into the spinal cord. When the motor cortex initiates muscle activity, it also excites the vasodilator fibers to the active muscles; and vasodilation takes place immediately. Thus the vasodilator system has the function of increasing blood flow through the muscles at the beginning of muscular activity (Guyton, 1969, p. 152).

Poor posture and/or infrequent turning in bed cause pooling of secretions in the lungs. This leads to pulmonary complications and circulatory impairment. Various other urinary, gastrointestinal, drainage and pressure area problems are caused by infrequent turning (Healy, 1968, p. 64).
Deep breathing and coughing. Muscle activity stimulates respiration by the following mechanisms: Movement of the arms and legs and other parts of the body sends sensory signals up through the spinal cord to excite the respiratory center. While the cerebral cortex transmits nerve impulses to the moving muscles, it simultaneously transmits nerve impulses to the respiratory center to increase the depth and rate of respirations. Alveolar ventilation is then increased in proportion to the amount of exercise (Guyton, 1969, p. 240).

The cough reflex is important, since it is the cough that clears the trachea and bronchi of foreign material and keeps the lungs free of foreign matter. The cough is initiated by afferent impulses which pass from the respiratory passages through the vagus nerve to the medulla. The sequence of events which cause the cough is begun by the neuronal circuits in the medulla. During the cough, the rapidly moving air usually carries with it any foreign material that is present in the bronchi or trachea (Guyton, 1971, p. 465).

On lying down, the diameter of the bronchus is reduced due to the lowering of the negative pressure within the chest cavity. Because of the narrowing of the lumen of the bronchus the layer of mucus becomes thicker. It may be very watery and copious as during general anesthesia or it may be very thick making it difficult to cough up. A patient who turns and moves frequently about in bed postoperatively changes the negative pressure of the chest cavity, which in turn changes the diameter of the lumen of the bronchi and this helps to loosen the mucus. Deep breathing also helps to dislodge the mucus. The patient will then be able to cough productively (Browse, 1965, pp. 53, 60, 171, 172).
Chapter 2

METHODOLOGY

To find out if planned patient teaching made a difference in patients' recovery from intra-abdominal surgery, an experimental group was selected. Based on certain criterion measures, the researcher compared the patients who were taught with a matched group of patients selected in a retrospective manner from medical records.

SETTING FOR THE STUDY

The data for this study were obtained from patients in a 500-bed medical center in southern California. Prior to this study there was no planned program of preoperative instruction for surgical patients.

A letter requesting permission to conduct this study was sent to the Director of Nursing Service. A printed form, including an outline of the content to be presented in the teaching sessions, was completed and presented to the Committee on Human Experimentation. Both granted permission for the researcher to proceed with the study.

Permission for the study was granted by Dr. Bruce Branson, Associate Professor of Surgery. Since gynecology patients would also be included, permission was obtained from Dr. Harold F. Ziprick, Professor and Chairman of the Department of Gynecology and Obstetrics.

SELECTION OF PATIENTS

The patients selected for this study included a convenience
sample of fifty adults, who were matched through medical records with
patients who had the same pre-selected criteria.

Experimental Group

Patients who took part in this study met the following criteria:
1. Patients admitted for elective intra-abdominal surgery,
excluding ostomies
2. Patients scheduled for a general anesthetic
3. Patients eighteen years and older
4. Patients able to attend the class
5. Patients able to understand and cooperate preoperatively
   and postoperatively

Each afternoon a surgery schedule for the following day was
procured from the operating room. This schedule served as a guide for
identifying the patients for intra-abdominal surgery. The team leader
was consulted to ascertain the patient's condition. Each patient in
the experimental group was visited prior to the evening preoperative
teaching class. The patients were told about the class and encouraged
to attend. The class was held for thirty minutes, from seven to seven-
thirty p.m., Sunday through Thursday. An outline was made and consist-
tently followed for each class (Appendix B). The patients were not told
that a study was being done, only that there was a class for patients
undergoing abdominal surgery the following day. They were told the
class would help them know what to expect both before and after their
surgery, and also how they could contribute to their own recovery.

It was decided to use a visual aid to demonstrate turning and
leg and foot exercises. Since slides seemed to be the most suitable for
the class, nine 35 mm slides were developed using a student as a model. These were projected on a screen to enable the patients to visualize the exercises as they were discussed.

Although some of the staff knew a study was being conducted, no effort was made to inform the nursing personnel or the surgeons of the study, or of which patients were involved. It was felt that special attention to these patients by hospital personnel would bias the study.

Control Group

The control group was selected from recent medical records to match as closely as possible the experimental group, as to age, sex, operation and surgeon. These patients had routine care as given by the staff. During that time there was no planned, organized teaching program by nursing. Age was matched to within a ten-year period. All records were within a five-year period beginning in 1968.

DEFINITION OF TERMS

Length of stay. Day of surgery was counted as the first day of hospitalization. Day of discharge was not counted as a day.

Amount of pain medication. The number of parenteral and oral narcotics administered the day of surgery and during the first five postoperative days. Dosage of medication was not considered.

DATA COLLECTION AND ANALYSIS

The data sheet in Appendix B was developed for use in this study. As patients were entered in the experimental group, information was recorded regarding their age, sex, operation and surgeon. Later the
medical records were reviewed for length of stay, number of pain medications, and presence of postoperative complications.

After the fifty patients in the experimental group were obtained, a similar matched group of patients was obtained from the department of medical records. From these records data similar to that recorded for the experimental groups were procured for a control group.

The data from the two groups were compared and analyzed for statistical and clinical significance.
Chapter 3

FINDINGS AND ANALYSIS

On March 1, 1972, the first group teaching class was held. For two weeks a class was conducted each evening Sunday through Thursday. There was then a sixteen-week interruption for uncontrollable reasons. The classes were resumed in July and continued for a four-week period.

DESCRIPTION OF CLASS SESSIONS

For convenience, the class was held in a small conference room in the hospital building. Patients had no difficulty in reaching the area. Those patients who were receiving intravenous infusions or blood transfusions came in wheelchairs.

The group was usually small, consisting of from two to five patients. When a group was not available, individual teaching was done, following the same pattern as with the group. Each patient was encouraged to bring his spouse or other family members who were visiting him at class time. Individual teaching was provided for six patients, all others met in groups.

The researcher began the class with introductions of patients and of their families if any were present. This seemed to create the intended effect, an informal atmosphere. What to expect the evening prior to surgery was then presented, followed by the preparation the day of surgery. From this point, the period after surgery was presented. The importance of deep breathing, coughing, turning and exercising was
explained in detail and emphasized. The researcher demonstrated deep breathing and coughing and each patient demonstrated in return. If the patient did not produce a deep cough, he practiced until he did. (No patient took longer than three times to learn.) Care was taken to not embarrass a patient or make him feel sensitive in front of others if he did not cough deep enough on the first attempt. Following the practice session, nine slides were used, which showed turning, getting out of bed and three leg and foot exercises. Narration was given as each slide was projected. To reinforce the teaching, a handout sheet (Appendix B) was given to each patient, describing the deep breathing and coughing he had practiced and the turning and bed exercises he had seen. He was urged to practice these new skills that evening, so that after surgery he would be able to accomplish them more easily.

If the researcher was quite certain that a patient would return from surgery with a Foley catheter, he was told that he would have one, that accurate intake and output was necessary for a period of time post-operatively, and that this was the reason for the catheter. He was also told that the catheter was kept from slipping out of the bladder by a small balloon, which was inflated after the catheter was placed. If he felt as if he had to void, most likely it was the balloon that made him have this feeling.

If it was probable that the patient would have a naso-gastric tube, he was told that he might have one and that it would keep his stomach empty and prevent vomiting. It was briefly described.

The patients were all told they would have an intravenous solution running. It was explained that since they would be on nothing by mouth, the various intravenous fluids assisted the body in maintaining
its nourishment and chemical balance. They were informed also that blood might be given. They were not to be alarmed if, when they awakened from anesthesia, they saw they were receiving a transfusion. Blood was very frequently given to patients having major surgery. Instruction was given about replacing blood in the Blood Bank.

Patients were told about recovery room, that they would be there until they were awake enough to have control of their reflexes, such as swallowing. They would also be able to answer questions, such as where they were, before being sent back to the unit. They might remember being in recovery room, but often this part of the experience was rather hazy. At this time they were informed about Intensive Care, that if they found themselves there postoperatively, not to become frightened. Intensive Care was used constantly for surgical patients. If their surgeon felt they needed this type of care for a few days, that is where they would be.

Instruction regarding visiting privileges was included. What time the relatives would be permitted to see the patient before surgery, where to wait during surgery and visiting hours, postoperatively, as posted on each unit.

The reasons for coughing, deep breathing and turning were described in the following manner:

1. When under anesthesia and lying flat, as in surgery, the mucus has a tendency to pool in the lungs. After surgery it is necessary to get rid of the mucus so air can again fill these spaces. Retention of this mucus can cause a collapsed lung (atelectasis) or pneumonia. The researcher stressed the logic behind coughing and deep breathing so the patients would be more willing to cooperate after surgery, even
though coughing would not be comfortable to do.

2. The circulation of blood is improved by moving and turning. This, in turn, helps to prevent the formation of blood clots. Also, healing occurs more rapidly when the circulation is good. The reason (oxygen exchange) was explained in a sentence or two. The researcher then told the class of a remark recently made by a surgeon on the staff. "If only patients realized, they heal much faster if they move around."

During this part of the class, the slides were being shown. The significance of the position of the model in each slide was pointed out—position of the hand, the leg and body, as well as the position of the bed. The method of turning and getting out of bed which was demonstrated placed the strain on the arms and shoulders, hips and legs, and not on the abdominal muscles where the incision was located.

3. Leg and foot exercises not only prevent disuse of muscles, but assist return of venous blood to the heart and prevent the pooling of blood in leg veins. It was suggested that patients begin with these exercises as soon as they were awake from anesthesia, even in recovery room, as these would stimulate the circulation, and not be painful to do. Slides were shown and the exercises were demonstrated by the researcher.

The problem of pain was discussed. Since most postoperative pain was caused by the abdominal muscles going into spasm, the patients were instructed how they could relieve this pain themselves by relaxation. This could be accomplished by breathing slowly and deeply for a few minutes, with the mouth open. This was demonstrated by the researcher. If they could not attain reasonable comfort by this method, they were advised to ask for pain medication.
"Gas pains" could be relieved somewhat by the same breathing procedure, but moving about would no doubt be the most effective, for the relief of this problem.

The class was purposely conducted on an informal basis so the patients would feel free to ask questions during the session. Some of the questions asked were:

1. How long will I be in recovery room?
2. Will I be asleep before I am taken into the operating room?
3. How long will I be in surgery?
4. Can my husband see me while I'm in recovery room?
5. How do they put you to sleep? (Anesthesia)
6. How long will I be in the hospital?

Insofar as possible, the questions were answered realistically.

Just previous to dismissal, the researcher told the patients that she would see them daily following surgery for a few days. This carry-over to the postoperative period seemed to please them.

Postoperative Follow-up

Rounds were made on these patients beginning with the day of surgery, if they were back before eight p.m., and continued through the fifth postoperative day. The purpose of the postoperative visits was to reinforce the preoperative teaching, to observe for its effectiveness and to observe the patient's general condition. Questions were asked in a conversational manner. Usually the patients seemed willing to respond.
FINDINGS

One hundred patients were included in this study, fifty in each group. The experimental and control groups each had forty-two females and eight males. Ages in the experimental group ranged from 23 to 78, with a mean age of 52.4 years. In the control group, the range was from 26 to 77, with a mean age of 50.3 years. The surgical procedures performed, as well as the age/sex distribution of the two groups, are shown in Table 1.

The data were analyzed by computer, using the f test based on a general linear model.

Analgesics

It was hypothesized that the patients who received planned pre-operative teaching would require less pain medication (narcotics). Within the designated five-day period, forty-nine of the fifty patients in the experimental group required parenteral narcotics for pain. Sixteen patients progressed to oral medication within the five-day period.

The experimental group required a mean of 2.28 less parenteral medications but a mean of 1.38 more oral medication, than did the control group. The difference in amount of oral medication used by the two groups was statistically significant (p<.05).

The mean for combined oral and injectable medication for the experimental group was 15.68, for the control 16.58. These figures reveal that the experimental group had .90 less total medication than the control group.
<table>
<thead>
<tr>
<th>Type of Surgery</th>
<th>Sex</th>
<th>Control</th>
<th>Experimental</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Age Range</td>
<td>Age Range</td>
</tr>
<tr>
<td>Adrenalectomy</td>
<td>1</td>
<td>73</td>
<td>66</td>
</tr>
<tr>
<td>Adrenal Cystectomy</td>
<td>1</td>
<td>52</td>
<td>42</td>
</tr>
<tr>
<td>Aortic Resection</td>
<td>3</td>
<td>52-77</td>
<td>46-77</td>
</tr>
<tr>
<td>Cholecystectomy</td>
<td>6</td>
<td>31-70</td>
<td>37-69</td>
</tr>
<tr>
<td>Exploratory Laparotomy</td>
<td>1</td>
<td>47</td>
<td>49</td>
</tr>
<tr>
<td>Exploratory Laparotomy with Tuboplasty</td>
<td>1</td>
<td>30</td>
<td>35</td>
</tr>
<tr>
<td>Gastric Resection</td>
<td>3</td>
<td>46-72</td>
<td>44-78</td>
</tr>
<tr>
<td>Hiatal Herniorrhaphy</td>
<td>1</td>
<td>31-67</td>
<td>37-67</td>
</tr>
<tr>
<td>Hysterectomy</td>
<td>7</td>
<td>33-69</td>
<td>28-69</td>
</tr>
<tr>
<td>Hysterectomy with Bilateral Salpingo-oophorectomy</td>
<td>7</td>
<td>27-67</td>
<td>24-73</td>
</tr>
<tr>
<td>Small to Small Bowel Resection</td>
<td>2</td>
<td>32-62</td>
<td>32-52</td>
</tr>
<tr>
<td>Small to Large Bowel Resection</td>
<td>1</td>
<td>50-61</td>
<td>54-59</td>
</tr>
<tr>
<td>Splenectomy</td>
<td>1</td>
<td>27,44</td>
<td>23,38</td>
</tr>
<tr>
<td>Total Hysterectomy with Anterior and Posterior Repair</td>
<td>5</td>
<td>31-65</td>
<td>35-66</td>
</tr>
<tr>
<td>Uterine Suspension</td>
<td>1</td>
<td>26</td>
<td>28</td>
</tr>
</tbody>
</table>
Length of Hospital Stay

It was hypothesized that patients who received planned preoperative teaching would be hospitalized a shorter length of time.

The experimental group had a total of 487 hospital days, with a mean of 9.74 days. The control group had a total of 626 hospital days, with a mean of 12.52 days. The patients in the experimental group were discharged 2.78 days sooner than those in the control group. This was not statistically significant (p > .05).

Complications

It was hypothesized that patients who received planned preoperative teaching would have fewer complications. There were a total of 14 types of complications in the two groups.

Patients in the experimental group had a total of 13.5 complications, with a mean of .27 per person. The control group had a total of 27.0 complications, with a mean of .54.

There were seven types of postoperative complications in the experimental group. They were atelectasis, pneumonia, ileus, superficial wound infection, pleural effusion, partial wound separation and cerebral vascular accident. Table 2 shows the distribution of these complications.

In the control group there were thirteen types of complications. These consisted of: atelectasis, pneumonia, ileus, superficial wound infection, bowel obstruction, partial wound separation, pleural effusion, embolism, hemorrhage, peritonitis, abscess, stress ulcer and foot drop. The distribution of complications among the control group is shown in Table 2.
Table 2

Distribution and Number of Complications in the Control and Experimental Groups

<table>
<thead>
<tr>
<th>Complications</th>
<th>Control</th>
<th>Experimental</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pneumonia</td>
<td>6.5</td>
<td>5.5</td>
</tr>
<tr>
<td>Atelectasis</td>
<td>2.5</td>
<td>2.5</td>
</tr>
<tr>
<td>Ileus</td>
<td>5.0</td>
<td>.5</td>
</tr>
<tr>
<td>Thrombus/Embolism</td>
<td>1.0</td>
<td>-</td>
</tr>
<tr>
<td>Abscess</td>
<td>2.0</td>
<td>-</td>
</tr>
<tr>
<td>Stress Ulcer</td>
<td>1.0</td>
<td>-</td>
</tr>
<tr>
<td>Bowel Obstruction</td>
<td>1.5</td>
<td>-</td>
</tr>
<tr>
<td>Peritonitis</td>
<td>1.0</td>
<td>-</td>
</tr>
<tr>
<td>Hemorrhage</td>
<td>1.0</td>
<td>-</td>
</tr>
<tr>
<td>Partial Wound Separation</td>
<td>1.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Superficial Wound Infection</td>
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<td>2.0</td>
</tr>
<tr>
<td>Pleural Effusion</td>
<td>1.5</td>
<td>1.0</td>
</tr>
<tr>
<td>Foot Drop</td>
<td>1.0</td>
<td>-</td>
</tr>
<tr>
<td>Cerebral Vascular Accident</td>
<td>-</td>
<td>1.0</td>
</tr>
<tr>
<td>Total</td>
<td>27.0</td>
<td>13.5</td>
</tr>
</tbody>
</table>

*Complications that were noted as probable on the patient's chart rated .5. Definitely diagnosed complications counted as 1.0 for each complication.*
There was no statistically significant difference \((p > .05)\) between the mean number of complications of the two groups of surgical patients. However, the clinical significance of twice as many complications in the control group as the experimental group was important.

**DISCUSSION**

**Analgesics**

During the class sessions with the experimental group, the patients were instructed that they would have some degree of postoperative pain, some of which could be relieved by slow, deep mouth breathing to relax the abdominal muscles.

There were sixteen patients in the experimental group and nine in the control group who progressed to oral medication within the five-day period. The distribution of these medications in the two groups of patients is shown in Table 3. In the experimental group three injectable medications were used: Demerol, Dilaudid and Morphine. Oral medications were Aspirin with Codeine and Emperin with Codeine.

There were four injectable medications used with the control group: Demerol, Dilaudid, Dolophine and Talwin. The oral medications were Aspirin with Codeine, Dilaudid, Percodan and Phenaphen with Codeine.

It was expected that the experimental group would require less pain medication than the control group. They did numerically, but there was no statistical significance between the amount of injectable, and total medication in the two groups. There was statistical significance however, in the amount of oral medication taken \((p < .05)\) indicating that the experimental group progressed more rapidly to oral medication. This could indicate that their condition had improved so that they were able
Table 3
Distribution of Patients Who Progressed to Oral Medication Within the 5-Day Postoperative Period

<table>
<thead>
<tr>
<th>Postoperative Days</th>
<th>Control Patients</th>
<th>Experimental Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>First</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Second</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Third</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Fourth</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Fifth</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>9</td>
<td>16</td>
</tr>
</tbody>
</table>
to tolerate oral medication and fluids sooner, and that their pain was of a nature which could be relieved by oral analgesics.

Healy's study revealed findings similar to these in that patients who had preoperative instruction progressed to oral medication more quickly than those who did not have teaching. Of the 181 experimental patients in her study, 160 began oral medications on the fourth postoperative day and were off all medications by the sixth day. Of the 140 control patients, oral narcotics were not begun in 127 patients until the sixth or seventh postoperative day (Healy, 1968, p. 67).

Neither this study nor Healy's study showed as marked reduction in narcotic requirement as Egbert did. Egbert's patients who were instructed preoperatively required half as many narcotics as his control group (Egbert et al., 1964, p. 827).

**Length of Hospital Stay**

The preoperative teaching was designed so that the patient could progress toward independence and require a shorter length of hospitalization. The fact that the patients in the experimental group had fewer complications could have reduced the length of hospital stay. It appeared that the teaching reduced the patients' anxiety and fear of the unknown, although this variable was not measured in the study. In the experimental group of patients a frequent postoperative remark from them was that since the teaching session, they were not particularly concerned about the postoperative procedures and activities because they knew what to expect and what was expected of them. Most of them seemed interested in assuming responsibility for their own care as soon as possible. A factor to be taken into consideration is that the control
group was chosen retrospectively over a five-year period during which time changes in policies and practice could have made a difference in length of stay.

The length of stay of the patients in the experimental group was similar to that in Healy's and Egbert's studies. Healy's instructed group went home three days sooner than her uninstructed group, Egbert's 2.7 days earlier (Healy, 1968, p. 66; Egbert, 1964, p. 825). Figures 1 and 2 illustrate the length of patients' stay. The fact that a few patients had a prolonged stay could have significant effect on the statistical means.

Complications

As indicated in the scientific rationale for this study (p. 6), one important purpose of preoperative teaching is the prevention of postoperative complications. Patients in the experimental group had half as many complications as those patients in the control group. These findings were not statistically significant but are clinically significant. Complications are still an important factor in influencing length of hospital stay.

From Table 2 it can be noted that there was little difference between the two groups in pulmonary complications. It was expected that the deep breathing-turning regime would result in fewer pulmonary complications in the experimental group. Why this did not occur was not known. A larger sample may have been needed to show such a difference. There was a noticeable difference in the occurrence of ileus in the two groups. The exercise program and earlier ambulation could be a reason for the lower incidence of ileus in the experimental group. The reason
Figure 1. Control Group. Length of hospital stay beginning with day of surgery.
Figure 2. Experimental Group. Length of hospital stay beginning with day of surgery.
for a lower evidence of ileus and no difference in incidence of pulmonary complications was not evident.

Zollinger stated that every patient having a surgical procedure performed should have preoperative instruction, especially in methods of turning and getting out of bed. He emphasized that morbidity and mortality could be lowered by the principle of preoperative teaching (Zollinger, 1966, p. 717).

Clinical and experimental evidence have shown that abdominal wounds heal more rapidly with exercises and early ambulation (Healy, 1968, p. 66).

Table 4 lists the mean values and standard deviations between the two groups.

**Patient Reaction to Preoperative Teaching**

A daily diary was kept of patient’s comments. In general their reactions to the teaching sessions were favorable.

Mrs. Y was a 67-year-old nurse, scheduled for a hiatal herniorrhaphy the following day. When told about the class, she stated that she was a nurse and so probably didn’t need to come. The researcher felt that since Mrs. Y was a nurse she would be especially interested in the class content, and told her this. That evening she attended the class. Following surgery, Mrs. Y told the researcher that even though she was a nurse she learned from the class. She said, "My back hurts me so bad sometimes but then I do the turning and the exercises and it really makes me feel better."

Two female patients, one a 56-year-old school teacher who had a cholecystectomy, and the other a 44-year-old housewife who had a
Table 4

Mean Values and Standard Deviations for the Variables of the Control and Experimental Groups

<table>
<thead>
<tr>
<th></th>
<th>Control</th>
<th></th>
<th>Experimental</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Standard Deviation</td>
<td>Mean</td>
<td>Standard Deviation</td>
</tr>
<tr>
<td>Injections</td>
<td>15.84</td>
<td>8.99</td>
<td>13.56</td>
<td>9.33</td>
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<tr>
<td>Oral Medication</td>
<td>.74</td>
<td>2.60</td>
<td>2.12</td>
<td>4.16</td>
</tr>
<tr>
<td>Total Medication</td>
<td>16.58</td>
<td>8.96</td>
<td>15.68</td>
<td>9.20</td>
</tr>
<tr>
<td>Length of Stay</td>
<td>12.52</td>
<td>10.51</td>
<td>9.74</td>
<td>7.27</td>
</tr>
<tr>
<td>Complications</td>
<td>.54</td>
<td>1.02</td>
<td>.27</td>
<td>.66</td>
</tr>
</tbody>
</table>
hysterectomy, both were relieved to know that they would not "pull the stitches loose" by moving around. One stated that the class was "invaluable" to her because now she knew what to expect and what she could do to hasten her recovery.

Upon her return from recovery room, Mrs. M insisted that she could turn unassisted, which she did. She was quite proud of the fact that she had never allowed the nurses to help her turn or get out of bed.

Relatives were encouraged to attend the class when possible. The researcher first met Mr. G in the hall. He was invited to the class but seemed uninterested. At 7 p.m. Mr. G appeared in a wheelchair accompanied by five relatives. During the session he still manifested very little interest. Postoperatively the visits were brief. He answered questions but gave no voluntary information. After the designated five-day period, the visits were terminated. A couple of days later the writer was on that same unit to see other patients. Mr. G was sitting up in bed and saw her as she passed his room, so she stopped to see him. His wife and daughter were visiting. He appeared very friendly and said, "I was hoping you'd come in. We've talked about that (the teaching sessions), and it was really helpful to me, that moving around and knowing what to expect. I'm going home tomorrow."

The wife of Mr. R, a patient who had a sub-total gastrectomy, said, "I think those classes are excellent. I've told my friends about them. Some of them have had surgery and never had anything like that before their operation. It's good for the family to know what to expect as well as the patient."
Chapter 4

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

SUMMARY

The purpose of this study was to determine whether a systematic, preoperative teaching program would make a difference in patient recovery from intra-abdominal surgery. Prior to this study, there was no organized preoperative teaching plan for general surgical patients in the selected hospital.

A review of literature served as a guide in defining the needs of patients and in developing class content. An outline planned for the class included: what to expect, deep breathing, coughing, turning and bed exercises. Nine slides were used to illustrate the activities. To reinforce the teaching, a handout was given to each patient at the end of the session.

It was hypothesized that the experimental group of patients would require less pain medication, develop fewer complications and have a shorter length of hospital stay.

Data for this study were obtained from patients in a 500-bed medical center in southern California. A total of one hundred patients who had intra-abdominal surgery were included in the study, fifty in the experimental and fifty in the control group. The experimental group consisted of adult patients who were undergoing surgery the following day, who were able to attend the teaching sessions, and who could
understand English. Postoperatively the patients were visited for a five-day period to reinforce the teaching and to observe for its effectiveness. The control group were selected in a retrospective manner from medical records within the past five years and were matched with the experimental group according to age, sex, operation and surgeon.

Findings indicated that there was no statistically significant difference between the experimental and the control groups concerning the preoperative teaching, although the trend was in favor of the experimental group.

CONCLUSIONS

Due to the nature of the variables, a larger number of observations would be required to show a statistically significant difference between the experimental and the control groups.

The hypotheses were not supported by statistically significant differences. However, the difference between the amount of oral medication taken by the two groups was statistically significant. Clinically it was important that the experimental group required less total narcotics, were hospitalized a shorter length of time and had fewer complications.

RECOMMENDATIONS

As a result of this study it was recommended that a program similar to this one be instituted as a part of the regular teaching program of the hospital for all preoperative patients. Because of the numerous preoperative activities of patients, a special time should be set aside for this teaching when no other activities were scheduled so
that all patients could attend. Otherwise it would be necessary to have more than one session per day.

It was also recommended that families of preoperative patients be encouraged to attend the class sessions so that they could understand the patient's regime and support him in his activities.

**Teaching**

It was recommended that:

1. A filmstrip or other audiovisual aid be used for the general content of the class as a time-saving measure. This could be followed by a nurse leading out in discussion, answering questions and serving as a group leader.

2. Patients practice the exercises and demonstrate to a nurse their ability to do them postoperatively.

**Methodology**

It was recommended that:

1. Two groups, experimental and control, be studied simultaneously so that more criterion measures could be used to determine the effectiveness of the teaching. The control group could consist of patients who were admitted for emergency surgery or were otherwise unable to attend the teaching sessions.

2. Some objective means of determining whether patients actually do the exercises as instructed be developed and used to evaluate a preoperative teaching program.

3. The effectiveness of group versus individual preoperative instruction be evaluated by a greater variety of criterion measures than
Lindeman used.

4. The effect of preoperative instruction on the anxiety of patients and their families be studied in a systematic way.


Capps, Frances M. "One Approach to Preoperative Visits." Point of View 9:4:16-17, Somerville, New Jersey, Ethicon Inc.


Miss Gertrude Haussler  
Associate Dean  
Director Nursing Service  
Loma Linda University Hospital  
Loma Linda, California 92354

Dear Miss Haussler:

In the majority of hospitals, it seems that preoperative teaching for the general surgical patient is somehow left undone. I am interested in investigating preoperative teaching and its relationship to recovery in the general surgical patient. This study is to meet part of the requirements for a master's degree in nursing at Loma Linda University.

With your permission, selected patients will be given preoperative teaching the evening before surgery. These patients will also be followed postoperatively. I do not believe that this will create any extra activity for the nurses on the units, as I will be measuring the effectiveness of the study by observations from the charts.

I will be working closely with my committee: Miss Lucile Lewis, Dr. Bruce Branson and Miss Jan Earnhardt.

May I have permission to conduct this study? I will be glad to share the results of the study with you.

A stamped card is enclosed for your convenience.

I look forward to hearing from you soon.

Yours sincerely,

Eleanor Wiese, R.N.  
Graduate Student
OUTLINE OF PREOPERATIVE INSTRUCTION TO PATIENTS

1.0. Evening preoperative preparation
   1.1. Laboratory tests
       1.11. Complete blood count
       1.12. Urinalysis
       1.13. Other
   1.2. X-ray of chest
   1.3. Preparation of operative site
   1.4. Visit by doctors
   1.5. Nothing by mouth
   1.6. Medication for sleep

2.0. Morning preoperative preparation
   2.1. Preoperative injection
   2.2. Time of going to surgery
   2.3. Transportation to surgery

3.0. Chaplain services

4.0. Instructions for relatives
   4.1. Preoperatively
   4.2. During surgery
   4.3. Postoperatively
   4.4. Visiting hours

5.0. Postoperatively
   5.1. Recovery room until awake
5.2. Return to one of three areas from recovery room
   5.21. Same room as preoperatively
   5.22. A room on another surgical area
   5.23. Intensive care
5.3. Intravenous infusions
   5.31. Specific solutions
   5.32. Blood transfusions
5.4. Intake and output
5.5. Nothing by mouth postoperatively
5.6. Readiness for oral feedings
5.7. Tubes/drains
   5.71. Retention catheter
   5.72. Naso-gastric tube
5.8. Pain
   5.81. Causes
   5.82. Measures for relaxation
   5.83. Medications
5.9. Deep breathing and coughing
5.10. Visual portrayal (slides)
   5.101. Turning in bed
   5.102. Leg and foot exercises
   5.103. Getting out of bed
Repeat the following exercises every 1-2 hours until you are up and around. Nurses will assist you if you have any difficulty or any questions.

**KEEP LUNGS FUNCTIONING PROPERLY!!!!**

**DEEP**
1. Inhale as deeply as you can, with your mouth open.
2. Hold for 3 seconds.
3. Exhale completely.

**BREATHE**
4. Repeat 2 times.... Then:
5. Inhale deeply

**AND**
6. Produce a deep abdominal cough (not a shallow throat cough) by short expiration. (Incision may be splinted with hands or a pillow. Bending knees relieves strain on abdominal muscles.)

**COUGH!!!**

**MAINTAIN GOOD CIRCULATION!!!!**

Lie on each side as well as on your back.
To turn easily:

**CHANGE**
1. Bend one knee, planting foot firmly on bed.
2. Lift opposite arm overhead (in direction of turn).
3. Roll onto side, pushing with bent leg (bedrails can be used to aid in turning).
4. If you need assistance, call for a nurse.

To turn back again:

1. Bend knee of upper leg.
2. Place palm of top arm solidly on the side of bed.
3. Push yourself over onto your back.

**PROMOTE GOOD CIRCULATION IN YOUR LEGS!!!!**

Perform the following exercises fairly slowly, but with strong muscle contraction.

*Adapted from Mezzanotte, 1970, p. 90.*
EXERCISE FEET AND LEGS!!!

1. Push the toes of both feet toward the foot of the bed. Relax both feet. Pull toes toward the chin. Relax both feet.

2. Circle both ankles, first to the right; then to the left. Repeat three times. Relax.

3. Bend each knee alternately, sliding foot up along the bed. Relax.
<table>
<thead>
<tr>
<th>DAYS</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Injections</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Oral</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Pain Medication</td>
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<td></td>
<td></td>
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</tr>
</tbody>
</table>

Length of Stay

Complications:

Other:
LOMA LINDA UNIVERSITY

Graduate School

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PREOPERATIVE TEACHING AND ITS RELATIONSHIP TO POSTOPERATIVE RECOVERY

by

Eleanor Wiese

An Abstract of a Thesis in Partial Fulfillment of the Requirements for the Degree Master of Science in the Field of Nursing

September 1972
ABSTRACT

The purpose of the study was to find out whether an organized, preoperative teaching program would make a difference in patient recovery from intra-abdominal surgery.

A review of literature served as a guide in defining the needs of patients and in developing class content. An outline, which included deep breathing, coughing, turning, bed exercises and what to expect, was made for the class. Nine slides were developed specifically for the teaching sessions. To reinforce the teaching, a handout was given to each patient.

It was hypothesized that the experimental group of patients would require less pain medication, develop fewer complications and have a shorter length of hospital stay.

A total of one hundred patients who had intra-abdominal surgery were included in the study, fifty in each group. The experimental group consisted of adult patients who were undergoing surgery the following day, who were able to understand English, and who were able to attend the teaching sessions. Postoperatively the patients were visited for a five-day period to reinforce the teaching and to observe for its effectiveness. The control group was selected in a retrospective manner from medical records within a five-year period, beginning with 1968. They were matched with the experimental group according to age, sex, operation and surgeon.

Findings indicated no statistically significant difference
between the two groups except in amount of oral medication. The trend was, however, that the experimental group required less pain medication, developed fewer complications and stayed less time in the hospital.