

UNIVERSITY OF MINNESOTA

Medical Bulletin

OFFICIAL PUBLICATION OF THE

UNIVERSITY OF MINNESOTA HOSPITALS

THE MINNESOTA MEDICAL FOUNDATION

AND THE MINNESOTA MEDICAL ALUMNI

ASSOCIATION

IN THIS ISSUE:

Nursing

Urinary Diversion

APRIL

JUNE

VOLUME XXI

121

University of Minnesota Medical Bulletin

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OFFICIAL PUBLICATION OF THE UNIVERSITY OF MINNESOTA HOSPITALS, MINNESOTA MEDICAL FOUNDATION, AND MINNESOTA MEDICAL ALUMNI ASSOCIATION

VOLUME XXIX

April 1, 1958

NUMBER 11

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Published semi-monthly from October 15 to June 15 at Minneapolis, Minnesota

Staff Meeting Report

You and the Nurse: A Study in Role Perception*†

Marvin J. Taves, Ph.D.,‡ Eugene Haas, Ph.D.,§
Jean Anderson Pool, B.S., R.N.¶

There is a recognized shortage of adequately trained efficient nursing personnel in the United States, even though the proportion of the medical care dollar spent for hospital services has climbed from 14 cents in 1929 to 29 cents in 1956.** In contrast, the proportion of the medical care dollar being paid to physicians has declined from 1929, when it was 32.7 cents, to 27.0 cents in 1956.

The shortage in nurses may be assigned both to lack of entrants and to frequency of withdrawals. A smaller proportion of girls of nursing student age is entering nursing today than a decade ago; but even more important is withdrawal of student nurses before graduation and withdrawal, either temporary or complete, by graduate nurses from the nursing profession. Some enter homemaking, others enter vocations where their nursing training is secondary. The shortage may also be related to inefficient performance of available personnel because of an unfavorable work environment or atmosphere. The present research attacks the problems of recruiting, training, and maintaining an efficient, satisfied nursing force.

The Underlying Social Psychological Theory and Research Objectives

To illustrate the basic principle fundamental to this research, consider the prospector who finds himself lost on the burning sands of Death Valley. Suddenly his step quickens as his searching eyes perceive what seems to be the thirst-quenching water of a distant pool. The fact that this is a mirage rather than a real lake makes

* This report was given at the Staff Meeting of the University of Minnesota Hospitals on March 7, 1958. Its purpose was to introduce the audience to the study reported on rather than to detail its findings.

† This investigation is being conducted in collaboration with Professor Katharine J. Densford and Ruth Johnston of the School of Nursing, University of Minnesota and is supported by a research grant, GN-4647 from the National Institutes of Health, Public Health Service.

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***Journal of the American Medical Association* (October 5, 1957, p. 602)

no difference to the struggling figure. His reaction is to the image, not to reality.

Actually, everyone constantly reacts to the perceived, rather than the real, situation. Fortunately, in most cases the image and reality correspond sufficiently to make possible an effective adjustment. Nevertheless, appendectomy is performed in response to a *diagnosis*, not in response to reality as such, as witnessed by the unnecessary appendectomies performed because of incorrect diagnosis.

The aim of this study is to discover how varying conceptions about the role of the nurse in relation to the hospital administration, doctors, patients, and the public might influence: (1) the decisions of prospective students to enter nursing education, (2) the success and satisfaction of nursing students, and (3) the satisfaction and performance of professional nursing personnel.

The social psychological theory from which the current research was generated holds that every member of a profession or occupational organization has a conception (or mental image) of his role in the profession and within the specific organization of which he is a part. The person need not be conscious of such an image for it to influence his behavior. Furthermore, every member has conceptions of the roles of other individuals in the organization. In terms of the hospital setting this means that each nurse has a conception of the duties and privileges of her own role; at the same time she has a conception of the duties and privileges toward her, of the doctor, the supervisor, the patient, etc. Likewise, each of these people has certain expectations of the nurse. These various images may not completely coincide. The theory also holds that highly divergent role-conceptions among individuals who repeatedly interact lead to dissatisfaction, withdrawal, friction, and inefficiency. Thus, not only the specific image that an individual brings to his role, but also the lack of agreement in images between individuals, may give rise to inefficiency in the operation of the group.

Organization

The study was divided into three parts. One was an investigation of the way in which, and the degree to which, different conceptions of the nurse's role influenced students' choices of future occupation. The general questions to be answered were: "Do high school seniors who choose nursing as a vocation differ in their views of this profession from senior girls who reject it?" "Do high school senior girls whose faculty counselors, friends, parents, and siblings express more

favorable images of nursing choose it as a vocation more often than do girls with less favorably inclined associates?"

Another part emphasized the association between different role-conceptions among nursing students and their satisfaction, success, and persistence in following through on nursing training. Here the general question was: "How does variation in role-conception affect the success of the nursing education program?" Answers to this question should help minimize dropouts among nursing students and help increase the overall effectiveness of the training program.

The remaining part was designed to discover how differential conceptions of their roles contribute to or detract from success and satisfaction among professional nurses in a hospital setting. Of particular interest was an examination of the proposition that role image consensus between members of a hospital group of nurses, doctors, aides, etc., is important to a nurse's efficient performance and personal satisfaction. Knowledge of this sort could reduce turnover among nursing personnel and improve morale and general efficiency of nursing care.

Method and Instruments

The data needed to test the specific hypotheses following from these general propositions were gathered through questionnaires and interviews. All instruments except the ten questions on the Satisfaction Scale were constructed expressly for this study by the research team.*

The following instruments used in the hospital phase are similar to those used in the rest of the study. The Hospital Station Role-Conception Inventory (Fig. 1, A) included items concerning the interaction among all the categories of personnel (i. e., doctor-head nurse, general duty nurse-student nurse, aide-general duty nurse, etc.). Each item refers to interaction between people occupying any two specified reciprocal positions under indicated circumstances, the respondent being asked to check the degree of his agreement or disagreement with each statement. The Sociometric Rating Chart (Fig. 1, B) required the subject to indicate how he felt toward each member of his station — first, in relationship to work, second, in terms of associations at coffee and lunch, and finally, as a friend apart from work. The Role Performance Rating Chart (Fig. 1, C) was designed to elicit the respondent's evaluation of how well each of the other members of the station was performing his role. He was asked to give

*Copies of instruments used are available from the authors upon request.

separate ratings for each person on "correctness of procedures and techniques," "initiative," and "attitude." Degree of satisfaction with the job and with the training program was measured by the Bullock Job Satisfaction Scale (Fig. 1, D) developed at Ohio State University specifically for use with nurses.*

Fig. 1. Abbreviated examples of data-gathering instruments administered to hospital personnel.

A. WHAT DO YOU THINK? (242)*

(Role Conception Inventory)

Following is a list of statements about activities and attitudes in nursing education. You will probably agree with some of the statements and disagree with others. THERE ARE NO RIGHT OR WRONG ANSWERS. Do NOT feel obligated to answer any item in a particular way just because it may happen to be the policy at your hospital or school of nursing. Rather, YOU SHOULD INDICATE HOW YOU PERSONALLY FEEL ABOUT EACH STATEMENT. Indicate your response to each statement by circling the appropriate abbreviation.

	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
1. The head nurse should protect her nursing personnel from unfair demands made on their time by doctors	SA	A	U	D	SD
2. The clinical instructor should not criticize the student's work in the presence of others; it should only be done in privacy of an individual conference. . . .	SA	A	U	D	SD
3. A student nurse who makes an error in medications should be disciplined regardless of the cause of error	SA	A	U	D	SD
4. If a general duty nurse observes a student nurse who has worked at the hospital for months violating a hospital rule or policy, she should not feel obligated to mention it to the head nurse or clinical instructor	SA	A	U	D	SD
5. Aides ought to be permitted to administer aspirin to patients when there is no reason for it to be withheld	SA	A	U	D	SD
6. When a doctor breaks the smoking regulations (e. g., smoking on the station) he should be told of his infraction	SA	A	U	D	SD

B. HOSPITAL SOCIOMETRIC QUESTIONNAIRE (3)*

Listed are the names of the persons who have been working the same station with you. Above the names are three questions, each with a number of alternative answers. For each question please indicate how you feel about each person listed by placing an "X" in the appropriate square. You

*Bullock, Robert P., *Social Factors Related to Job Satisfaction* (Columbus, Ohio: Bureau of Business Research, Ohio State University, 1952).

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Fig. 1.—(continued)

should thus have three "X's" after each name on the sheet when you have finished the questionnaire.

How do you feel about working with this person? (If you have never worked with this person, how do you think you would feel working with her or him?)

- Like very much
- Like much
- Am indifferent
- Dislike
- Dislike very much
- Really don't know this person

How do you feel about associating with this person outside of work and having her or him as a friend? (If you have never had any contact with this person outside of work, how would you like to do so?)

- Like very much
- Like much
- Am indifferent
- Dislike
- Dislike very much
- Really don't know this person

How do you feel about chatting and eating with this person? (If you have never associated with this person at coffee or at lunch, how do you think you would feel about doing so?)

- Like very much
- Like much
- Am indifferent
- Dislike
- Dislike very much
- Really don't know this person

C. HOW WELL DO THEY PERFORM? (3) *

Listed below are the names of the persons who have been working on the same station with you. Please indicate how well you think each of them performs on the job. For each person place an "X" in the squares indicating the quality of his or her performance with respect to each of the three areas listed below.

ATTITUDE	INITIATIVE	CORRECTNESS OF PROCEDURES AND TECHNIQUES
<input type="checkbox"/> Excellent	<input type="checkbox"/> Excellent	<input type="checkbox"/> Excellent
<input type="checkbox"/> Good	<input type="checkbox"/> Good	<input type="checkbox"/> Good
<input type="checkbox"/> Fair	<input type="checkbox"/> Fair	<input type="checkbox"/> Fair
<input type="checkbox"/> Poor	<input type="checkbox"/> Poor	<input type="checkbox"/> Poor
<input type="checkbox"/> No opportunity to observe	<input type="checkbox"/> No opportunity to observe	<input type="checkbox"/> No opportunity to observe

Fig. 1.—(continued)

D. IS IT A GOOD JOB† (10)*

The following statements show some of the ways people feel about the work they do. In each item, please put a check mark in front of the statement which most accurately and honestly tells how you feel about your job.

1. Place a check mark in front of the statement which best describes your feelings about your job.

___A. I am very happy and satisfied on this job.

___B. I am fairly well satisfied on this job.

___C. I am neither satisfied nor dissatisfied,—it is just an average job.

___D. I am a little dissatisfied on this job.

___E. I am very dissatisfied and unhappy on this job.

2. Place a check mark in front of the statement which best tells how your feelings compare with those of other people you know.

___A. I dislike my job *much more* than most people dislike theirs.

___B. I dislike my job *more* than most people dislike theirs.

___C. I like my job about as well as most people like theirs.

___D. I like my job *better* than most people like theirs.

___E. I like my job *much better* than most people like theirs.

*Numbers in parentheses following title indicate number of items in the scale.

†Note to nursing students: The term "job" as used here refers to your clinical and classroom experiences here at the hospital.

Examples of Findings

One proposition to be investigated was that disparity in role-images held by members of a group is associated with dissatisfaction, withdrawal from the group, friction, and inefficiency in job performance, or stated positively, that role-image consensus makes for a more satisfied, efficient, and cohesive nursing staff.

Admittedly, consensus seems more essential on some roles, (e.g., allocation of responsibilities in a surgical procedure) than on others (e. g., Who shall bring the patient his flowers?). For the purposes

of this study the possible significance of these differences was sacrificed to simplicity of research design; all potential differences in role-definition that appeared of consequence have been treated as equally important.

Throughout the discussion "high consensus" or "consensus" alone identifies situations in which the images of a role reported by two or more individuals are in substantial agreement, while "low consensus" refers to minimal commonality in the reported role-images.*

Actually role-consensus may be considerably more important than would appear on the surface. Everyone tends to internalize behavioral norms, that is, to make them so much a part of his own attitudes and expectations that they result in a degree of compulsiveness. Then when others in a group repeatedly make it difficult, if not impossible, for an individual to see his role-conceptions carried out, he generally becomes irritated. To the extent that the individual identifies the source of his frustration, it may be expected that he will feel irritated, not only by the situation, but also by whoever violates, or makes it necessary for him to violate, his role-expectations.

Aspects of the above proposition were tested by determining association between consensus in role-conception and (a) sociometric choice, (b) role-performance rating, (c) satisfaction with the group, and (d) friction, among 267 doctors and nurses in 14 stations of three Minneapolis hospitals. One of these hospitals was used for pretest purposes, and some procedures were modified somewhat in the study of the other two hospitals. Therefore, only the data on the latter are presented here.

Analysis of the data shows role-consensus among nurses within a station is associated with sociometric choice, role performance, satisfaction, and friction (Table 1-3). The hospital station role-conception inventory was used to determine the role-conceptions of hospital personnel. The extent of agreement or disagreement on each item was then computed for each dyad (i.e., pair of interacting persons). The arithmetic mean of such scores for all dyads in a group is the group's role-consensus score.

*The proposition that disparity in role-conceptions tends to elicit feelings of dissatisfaction, annoyance, or frustration from the participants is concurred in by such authors as Blau, Peter M., *Bureaucracy in Modern Society*, (New York: Random House, 1956), p. 55; Riley, Matilda, et al., "Interpersonal Orientation in Small Groups: A Consideration of the Questionnaire Approach," *American Sociological Review*, 19:6, p. 716; Lundberg, George, et al., *Sociology*, (New York: Harper and Brothers, 1954), p. 246; Parsons, Talcott, "Motivation of Economic Activities," in Dubin, Robert, *Human Relations in Administration*, (New York: Prentice-Hall, Inc. 1951), pp. 29-31. Gross, Neal, et al., *Explorations in Role Analysis Studies of the School Superintendency Role*, (New York: John Wiley & Sons, Inc. 1958.)

TABLE 1
CHI-SQUARE (X^2) AND PHI-SQUARE (Φ^2) VALUES FOR A SAMPLE OF
MINNEAPOLIS NURSES ON ROLE-CONSENSUS AND
MEASURES OF WORK GROUP DISHARMONY

Role Consensus and:	Number	X^2	Φ^2
Friendship	828	8.9	.29
Coffee and Lunch	895	13.6	.23
Work	926	9.3	.13

For an example of the analysis note the hypothesis: Low consensus in role-conception is directly associated with low "sociometric choice," a term that refers to willingness of a person to associate with a specified other person. Data on friendship choice, coffee and lunch partnership choices, and work partnership choice were obtained. The data for the first consist of responses to the question, "How do you feel about associating with (so-and-so) outside of work and having him or her as a friend?" The respondent indicated his feelings by checking "Like very much," "Like," "Am indifferent to," "Dislike," or "Dislike very much." For every dyad there were therefore two responses, namely, A's report of feeling toward B and B's report of feeling toward A. The average (arithmetic mean) of these two scores was used as the indicator of the mutual feelings existing between A and B. In analyzing the data the dyads were classed as either high or low on role consensus, and then each of these was further classified into a dichotomy on the other variables (as in Fig. 1).

The hypothesis would tend to be confirmed if in Fig. 2 the category, Low Role Consensus-High Friendship, i.e., Cell "a" has fewer dyads than the other categories.* Note that the hypothesis calls for association between *low consensus* and low sociometric choice ratings. No reference is made to work groups whose dyads report high role

	HI	Φ	
Friendship Score		a	b
		c	d
	LO	+	
		Role-Consensus	

Fig. 2. Theoretically Expected Distribution of Dyadic Friendship Role-Consensus Scores.

*The degree to which a hypothesis is confirmed may be computed as a Phi square coefficient (Φ^2). A Φ^2 of zero would call for rejection and a Φ^2 of 1.00 would indicate complete support of the proposed association.

consensus, except that *by inference* their sociometric choices will indicate closer friendships than those reported by the low sociometric rating group.

The Chi-square technic was utilized to determine whether the data represent other than chance variation, and Phi-square was used to determine the extent to which the low role-consensus-high friendship category approached zero. In the case of our data, a Chi-square of 4.6 indicates significance at the 10 per cent level; 6.0, at the 5 per cent level; and 9.2, at the 1 per cent level. A statistically significant Chi-square value indicates that the data represent a reliably greater than chance relation.

In terms of the data (Table 1) the Chi-square value of 8.9 indicates that the association between role-consensus and friendship is sufficient so that one would be in error less than 5 per cent of the time in claiming such a relationship for the population sampled. The Phi-square value of .29 indicates that this association is close but far from complete.

Treating the other data on consensus and work group disharmony similarly, a direct association between degree of agreement on a nurse's responsibilities, duties, and privileges and mutual attraction between coffee and lunch or work associates was also observed. We therefore tend to accept the hypothesis that low consensus is associated with low desire for the other's company at work and after work. Effective coordinated efforts toward efficient operation of the nursing unit and reduction of turnover are hampered by low consensus on duties and privileges of work group members.

Using the same type of analysis, low role-consensus is also found to have a statistically significant association with rated job performance among the nurses studied (Table 2). The job performance ratings consist of evaluation by supervisory staffs of each nurse's performance in terms of attitude, initiative, and work procedures or technics. Low ratings on each of these are measurably associated with low role-consensus. As it appears logically less likely that correct professional attitude, initiative, and procedure would make for role-consensus, it may be tentatively concluded that the association represents the other causal relationship — that role-consensus tends to produce more highly approved attitudes, a desirable display of initiative, and the use of approved procedures and technics.*

*The validity of supervisors' ratings of graduate nurses under their direction relative to attitude, initiative, procedures, and technics is here assumed in lieu of a more acceptable measure of these qualities.

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TABLE 2

CHI-SQUARE (X^2) AND PHI-SQUARE (ϕ^2) VALUES FOR A SAMPLE OF MINNEAPOLIS NURSES ON ROLE-CONSENSUS AND RATED JOB PERFORMANCE

Role Consensus and:	Number	X^2	ϕ^2
Attitude	842	4.6	.06
Initiative	803	4.9	.07
Procedures and Technics	657	4.7	.06

Assuming then that a) lack of consensus on nursing roles hinders b) development of friendships both at work and away from it, and that it makes for less adequate job performance, it is legitimate to ask whether the association between a and b is direct or indirect. Available theory would suggest that it is indirect, that is, that one or more intervening variables form the links of influence between low role-consensus and the other variables. This intervening variable may be identified as friction or conflict. This interpretation is supported by the data, which show consistently high correlations between low role-consensus and number of friction-producing incidents (Table 3). In each hospital there was no more than one deviation in each rank order on friction from the hypothesized relationship.

TABLE 3

RANK ORDER CORRELATIONS OF TOTAL STATION CONSENSUS AND INDICES OF AMOUNT OF FRICTION OCCURRING ON STATION DURING WEEK OF STUDY

Station Number	Role Consensus Score*	Number of Friction Incidents	Number of Friction Incidents per Person on Station	Number of Friction Incidents per Dyad on Station
HOSPITAL "A"				
I	.95	15***	1.25***	.294
II	.92	28	1.27	.162
III	.88	11	.73	.118
IV	.84	8	.67	.190***
V	.74	1	.09	.026
Rank order correlation** with rank on consensus		.90	.90	.90
HOSPITAL "B"				
VI	1.04	37	1.61	.189
VII	.93	33	1.27	.133
VIII	.88	17	.71	.080***
IX	.84	7	.47	.095
Rank order correlation** with rank on consensus		1.00	1.00	.80

* 0.00 = High consensus or complete agreement in role images
 ** Spearman's rho used to compute rank order correlation
 *** Deviation from expected order of magnitude

The proposition that role-consensus has important consequences for the friendship patterns and efficient performance of the staff stands confirmed. Other data showed that up to 50 per cent of satisfaction with the work group among nurses at a hospital may be explained in terms of role-consensus.*

Another phase of the study yielded data on role-conceptions reported by high school senior girls hoping to enter nursing schools and by other girls. One objective in studying high school students was to determine what image of nursing distinguishes those who choose nursing as a vocation from those who reject it. Another was to trace the development of the role-conceptions, using a cross-sectional design in order to avoid the time requirements of a longitudinal study.

The arithmetic average scores (\bar{X}) for various groups on attitudes toward nursing are presented in Table 4. Statement one is, "The subjects a nurse is required to study are fairly easy." Might it not seem logical that this statement would be agreed to more often by those who chose to go into nursing than by those who rejected it? Similarly, would not the belief that nursing education is difficult discourage high school seniors from choosing nursing? But this is not the case. The high school girls who least favored nursing scored 2.0; they "agreed that the courses are easy." Those who reacted favorably toward nursing but did not choose it as a vocation scored somewhere between "agree" and "undecided." On the other hand, high school girls who chose to go into nursing (the "prospectives") scored 4.2—they definitely disagreed that the courses are easy. Graduate nurses and supervisors also disagreed, scoring 4 and 3.9 respectively; while student nurses ($\bar{X} = 4.5$), disagreed the most emphatically, scoring higher disagreement on this item than on any other of the 36 in the series. In short, girls anticipating nurses training think the courses much tougher than do girls choosing a profession other than nursing.

The prospective nursing students differ markedly from their high school colleagues on many items; for example (No. 18), the non-prospects on the average disagree fairly strongly ($\bar{X} = 4.5$) while prospects quite consistently agree ($\bar{X} = 1.3$) that "Nursing provides an excellent preparation for marriage and family life." This marked difference suggests that those who do not consider nursing a good preparation for marriage and family living generally do not choose it for a vocation, whereas those who do enter the profession regard

*Correlations of consensus and satisfaction with the group range from $R = .13$ to $R = .69$ with N 's of 16 and 30, respectively. The latter is significant at the 95 per cent level of confidence. (Haas, *op. cit.*, p. 87.)

it as enhancing marriage and family living. The fact that student nurses, as well as graduates and their supervisors, take a somewhat less favorable position than prospectives suggests some disillusionment early in the nursing career. These two examples show that the attitude toward nursing items yielded data of potential value in planning programs to recruit and train nursing students.

What is the *doctor's* image of the role of nurses? Note that among the 33 items to which they responded the doctors generally agreed that "in the event one of the doctors on his rounds unwittingly loses one of the pieces of the equipment of a station, the ward charge should report this to the station supervisor" ($\bar{X} = 1.9$). On the other hand, the 34 doctors who responded were largely undecided about whether or not a nurse should attempt to improve the situation if she observes that a doctor has been too blunt in telling the patient about his illness ($\bar{X} = 3.2$). They tended to disagree with the proposition that "when a doctor is dissatisfied with any aspect of patient care, he should contact the supervisor rather than the person . . . [the nurse]" ($\bar{X} = 3.6$).

To the proposition that the supervisor call the resident physician when the condition of a critically ill patient is deteriorating under the care of an intern the doctors' responses fell between "undecided" and "disagree." Only a slight majority favored leaving the decision to call the resident physician wholly up to the intern.

Doctors and nurses generally agreed on their respective duties and privileges, with nurses tending to assume slightly *less* responsibility than the doctors assigned them. Thus, doctors agreed more consistently than nurses and supervisors (Table 5, item 1) that abusive language among doctors is strictly out of order and that nurses have a right to resent it ($\bar{X} = 1.46$ & 1.87). Similarly, the doctors vacillated between "agree" and "undecided" on the statement (item 2), "If a doctor tells shady or "off-color" jokes . . . it is the station supervisor's responsibility to ask him to refrain" ($\bar{X} = 2.49$); while nurses and supervisors somewhat less often assigned the supervisor this prerogative ($\bar{X} = 2.8$). The fourth item also supports this interpretation. A slight reversal of position is reflected on the fifth example.

Relative to the sixth item (right of doctor to require unique treatment of his patients), the complete lack of agreement among both doctors and nurses is more significant than the doctors' vs. nurses' difference. Of the 33 doctors, 12 disagreed (two of them "strongly"), 13 agreed (two of these "strongly"), and the other eight reported indecision. The nurses showed only slightly greater agreement. Simi-

TABLE 4
AVERAGE SCORES ON ATTITUDE TOWARD NURSING ITEMS OF THE GENERAL NURSING ROLE-CONCEPTION INVENTORY
 \bar{X} of 1.5 represents an average position halfway between "agree" and "strongly agree."

	Less Favorable ^o	Favorable [†]	Nursing Prospectives [‡]	SN [§]	GDN [¶]	Sup. V ^{**}
1. The subjects a nurse is required to study are fairly easy	2.0	2.6	4.2	4.5	3.9	4.0
2. The social standing of nurses is no higher than office girls	2.6	3.3	3.8	3.7	3.4	3.3
3. Nursing gives one a chance to take an ideal amount of responsibility.	3.5	4.2	1.8	2.0	2.2	2.1
4. In general, nurses are required to do many unpleasant tasks	2.0	3.0	2.7	3.0	2.6	2.9
5. Because of the unusual working hours and other restrictions, nurses have relatively few chances to meet new and interesting people	3.5	4.4	4.6	3.9	3.9	2.8
6. Nurses, on the average, are more intelligent than women in most other professions	2.3	2.9	3.5	3.4	3.8	3.5
7. Many nurses tend to be more concerned with getting paid than with the care of their patients	4.0	4.0	4.1	3.7	3.8	3.7
8. There are many other occupations for women which provide greater financial independence than nursing	1.6	2.7	2.7	2.0	2.2	2.7
9. The nursing profession is respected more than most other professions open for women	2.8	4.0	2.2	2.3	2.7	2.7
10. The total cost to the student for nurse's training is quite high	2.4	3.6	3.5	3.3	3.0	3.3
11. More than any other occupation for women, nursing provides opportunities for worthwhile service to humanity	3.7	4.4	1.4	2.0	2.1	1.7
12. Nurses are more highly educated than women in other professions	4.4	4.9	3.3	3.6	3.7	3.7
13. A girl who goes into nursing has a good opportunity to find a highly desirable husband	2.4	3.4	2.8	2.8	3.2	3.0
14. Generally speaking, nursing is an occupation chosen mostly by girls who wouldn't be able to make satisfactory grades in college	3.0	4.3	4.7	4.5	4.4	4.6
15. Income received by nurses is above the average for employed women	2.3	3.3	2.9	3.6	3.2	3.1
16. Nursing provides an excellent opportunity to put one's religious beliefs into practice	3.3	3.9	2.3	2.3	2.4	2.0
17. The period of time required for graduation from a school of nursing is quite reasonable	3.6	4.0	1.9	2.0	2.1	2.0

18. Nursing provides an excellent preparation for marriage and family life	4.5	4.5	1.3	1.5	1.6	1.6
19. The work ordinarily required of a nurse is no more exhausting than that in most other occupations for women	2.8	3.4	3.0	3.4	3.3	3.2
20. Most nurses can have financial independence because there are always opportunities for either full or part-time employment	3.2	4.3	1.7	2.0	1.9	1.7
21. Most of the tasks which a nurse performs are pleasant and interesting.	2.5	3.7	2.2	1.9	2.4	1.8
22. Most of the knowledge and skills which a nurse has are so technical that it is of little use to her in her home	4.1	4.5	4.6	4.2	4.1	4.2
23. The work in nursing is often physically exhausting	2.5	3.1	2.6	1.9	2.1	2.1
24. In their work, nurses are more independent and self-directing than women in most other occupations	2.6	3.6	2.8	2.6	2.8	2.6
25. Nurses aren't really so very important in relieving suffering and helping the sick to regain health	4.0	4.8	4.7	4.3	4.5	4.5
26. Many schools of nursing supervise and restrict the social life of their girls too much	3.2	3.6	3.7	2.7	2.4	3.2
27. Many nurses are required to take too much responsibility on the job	3.3	3.5	3.7	3.7	3.3	3.4
28. The pay received by most nurses is reasonable and satisfactory			2.2	3.2	3.4	2.7
29. Nursing gives one a chance to meet and associate with many interesting persons	3.9	4.3	1.5	1.8	2.0	2.3
30. Actually, many of the tasks which a nurse does could be done by someone else with much less education and skill	3.2	3.4	4.0	2.9	2.5	2.7
31. The education required to become a nurse costs less than that for most other women's occupations	2.6	3.4	2.9	2.9	2.7	3.0
32. Nurses must take and follow orders more than other employed women.	2.6	3.1	2.4	3.0	2.5	2.8
33. Nursing is a real challenge because of the great amount of skill required	3.3	3.5	2.0	2.2	2.3	2.0
34. Nursing offers few opportunities to take responsibility	3.6	4.5	4.4	4.1	4.3	4.0
35. The time spent in receiving an education for nursing is longer than it would need to be	3.4	4.1	4.1	3.9	4.0	4.0
36. The subject matter nurses are required to learn is more difficult than it would need to be for the work they do	3.4	3.9	3.9	3.8	3.9	4.1

Weights: Strongly agree (SA) = 1; agree (A) = 2; undecided (U) = 3; disagree (D) = 4; strongly disagree (SD) = 5.

*High school seniors less favorable to nursing

†High school seniors favorable to nursing

‡Prospective nursing students

§Student Nurses

¶General Duty Nurses

**Supervisors or Head Nurses

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TABLE 5
AVERAGE SCORES FOR GENERAL DUTY NURSES OR HEAD NURSES AND FOR
DOCTORS ON SELECTED ROLE-CONCEPTION ITEMS

	GDN HN \bar{x}	Dr. \bar{x}
1. Occasionally doctors use abusive language in talking to nurses. All such behavior is strictly out of order and nurses have a right to resent it	1.87	1.46
2. If a doctor frequently tells shady or "off color" jokes around the nurses and aides, it is the head nurse's responsibility to tactfully ask him to refrain from such behavior	2.80	2.49
3. Occasionally when a doctor is with a patient and no nurses or aides are present, the patient may request an emesis basin. In such a case, the doctor should simply take care of the situation himself without calling a nurse or an aide	2.37	2.77
4. With respect to discharging patients, the head nurse should feel free to tell the doctor when she feels a patient is ready to be discharged and to suggest the reverse when she feels a patient is not ready to leave	3.67	3.17
5. When a doctor breaks the smoking regulations (e. g., smoking on the station) the head nurse should tell him of his infraction	2.37	2.52
6. Every resident physician has a right to require that his patients be cared for in the unique way he prefers regardless of how it differs from what is required by other residents	3.04	3.00
7. When a nurse is dissatisfied with a doctor's behavior on the station she has as much right to criticize him as he does to criticize her when he thinks she is in error	3.00	2.94

larly, on item seven some respondents were strongly persuaded that the nurse has as much right to criticize the behavior of a doctor as he has to criticize hers, while others were just as sure that such is not her privilege (among doctors: S.A. = 1, A = 16, U = 4, D = 10, S.D. = 3).

There is generally somewhat less consensus on the duties and privileges of the doctor than on those of the nurse; there is also less consensus among doctors than among nurses on just what the respective roles of either are. The apparent absence of any accepted standard in these areas provides a potential source of friction.

Summary

Analyses of the data suggest the following:

1. The image a girl has of nursing influences her decision about entering nursing training.

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2. Role-consensus in work groups is associated with satisfaction and performance in nursing.
3. Although doctors and nurses disagree on some aspects of their respective roles, the disagreement often is far greater within either group than between them, particularly as regards the role of the doctor.

More detailed reports of findings are being prepared for future publication.



Staff Meeting Report

Complications Following Urinary Diversion Through a Segment of Ileum*

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Donald D. Bravick, M.D.‡

The use of isolated segments of ileum has proved valuable in replacing or repairing parts of the collecting or storage systems of the urinary tract, except for the renal pelvis, when simpler or safer methods have been unsuccessful or inapplicable. *Possible* conditions in which these procedures are indicated are as follows:

- I. The bladder has to be removed.
Primary and secondary neoplasms.
- II. The bladder cannot be made to function adequately.
 - A. Neurogenic vesical dysfunction (congenital or acquired).
 1. Atonic bladder with large residual urine.
 2. Incompetent sphincters.
 - B. Irremediable urethral stricture.
 - C. Irreparable vesical fistula.
 - D. Serious congenital anomalies.
 1. Exstrophy of the bladder.
 2. Epispadias not amenable to correction.
 3. Atonic bladder with congenital ureterectasis.
 4. Obstruction at the vesical neck with severe renal damage.
 - E. Inoperable vesical neoplasm (for palliation).
- III. Renal damage from unsatisfactory ureterosigmoidostomy must be arrested.
- IV. The bladder is severely contracted.
 - A. Tuberculosis.
 - B. Interstitial cystitis (Hunner ulcer, submucous fibrosis).
 - C. Postinflammatory fibrosis (non-specific infections).
- V. Part or all of the ureter requires replacement.

*This report was given at the Staff Meeting of the University of Minnesota Hospitals on March 14, 1958.

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- A. Trauma from operation or irradiation with obliteration of long segment.
- B. Primary or secondary neoplasm of ureter.
- C. Congenital ureterectasis with functioning bladder.
- D. Irremediable reflux.

To summarize, the ileum may be used to divert the urine temporarily or permanently; to enlarge or replace part or all of the bladder; or to substitute for part or all of the ureter.

Pyrah and Raper¹ have evaluated those characteristics of the ileum which permit its use in the urinary tract. Chief advantages are its potentially long pedicle, and the persistence of peristalsis after isolation. The muscular activity of the ileum differs from that of the ureter. The latter simply propels the urine, while the former drives its contents onward for a short distance, then churns it up as part of the digestive process; whether or not this is a disadvantage in transporting urine is uncertain. Secretion of mucus by the ileum is a disadvantage, usually minor. Also disadvantageous is its ability to absorb electrolytes, but this seems more important experimentally than clinically, since segments as long as 45 cm. have been used to replace the human bladder or ureter. Both Couvelaire² and Pyrah³ have substituted ileum for the whole bladder; Pyrah's patient had no electrolyte imbalance after six months, a fact that he and Raper¹ attribute to a balance between secretion and absorption by the ileac mucosa. There is no doubt, however, that hyperchloremic acidosis may follow ileac diversion of the urine in the presence of severe and permanent renal damage.

It is not definitely known who first attached a segment of ileum to the human urinary tract. It is said that Mikulicz first used it to enlarge the bladder in 1898, but the original report is not now available. According to Moore and his associates,⁴ Shoemaker wrote to Melnikoff in 1909 describing a patient with a single kidney and intractable cystitis, whose urine he diverted through an isolated segment of ileum for 18 months, while the bladder healed. Shoemaker then joined the ileac segment to the bladder; he stated that the patient was well 18 months later. Certainly Scheele⁵ in 1922 was the first to report real clinical experience in enlarging the bladder by attaching a loop of ileum; in 1940 Nissen⁶ described replacement of the lower segment of a damaged ureter; in 1948 Longuet⁷ used a U-shaped loop as a substitute for both pelvic ureters; and in 1954 Rack and Simeone⁸ and Baum⁹ reported replacing whole ureters with ileum. Recently Kimura and his associates¹⁰ improvised a male urethra from a segment of

ileum with indifferent results from the standpoint of urinary continence.

There is also considerable experimental literature concerning these subjects, but space does not permit their review.

Bricker¹¹ was responsible for arousing interest in this procedure in the United States. Thus far, this type of urinary diversion seems superior to ureterosigmoidostomy for the following reasons: the only resistance to the passage of urine to the outside after a properly made uretero-ileac anastomosis is that which may be inherent in an abnormal ureter itself; there is no pressure to force the urine back up to the kidneys; admixture of urine and feces cannot occur; and hyperchloremic acidosis, so often troublesome after ureterosigmoidostomy, is not ordinarily a serious problem, presumably because the ileum serves as a conduit rather than as a reservoir. Moreover, the operation is practicable in the presence of widely dilated ureters and relaxed anal sphincters, conditions which contraindicate ureterosigmoidostomy; and renal function present at the time of operation is likely to persist or even improve. It is vastly superior to methods requiring use of an inlying catheter (neophrostomy, etc.) because of the thoroughly documented dangers arising from a foreign body in the urinary tract (infection, stones, plugging of catheters).

This method has, however, two disadvantages over other procedures: the need for the patient to wear an apparatus to collect the urine, fitting of which may at times be difficult, and relatively high incidence of early postoperative complications. This latter danger stems from the fact that there are four suture lines that can leak as compared with two in ureterosigmoidostomy and from the greater predisposition to intestinal obstruction due to: diaphragm formation at the ileoileostomy, the formation of openings in and beneath the mesentery through which bowel may slip, or, particularly after cystectomy or exenteration, the formation of adhesions. Care and experience can diminish but not eliminate these disadvantages. When only ileac diversion of the urine offers comfort or prolongation of life, its advantages outweigh its disadvantages.

Technic of Operation

The operation is tedious rather than difficult; attention to small details is rewarding. The bowel is prepared with Sulfathalidine® and Neomycin® (Poth¹²). Nasal suction is begun before and continued during the operation, lest the anesthetist inadvertently inflate the bowel, particularly in infants, thus creating needless technical difficul-

ties. The necessarily long incision is to the left of the midline to leave room on the right for the collecting apparatus; immediately after the abdominal exploration is made, the nasal tube is guided manually into the duodenum or upper jejunum. The surgeon then makes a hole, with a circumference equal to that of the ileum, half-way between the right anterior superior spine and the umbilicus by excising the whole thickness of the abdominal wall. A loop of terminal ileum is next selected so that it will lie without tension on its mesentery upon the *outer surface* of the hole. It is divided at this point between Dennis clamps. The oral end of the divided ileum is drawn through the hole until it protrudes about one and one-half inches in the adult, and this is sutured to peritoneum, fascia, and skin. The ileum is made to protrude to permit use of the Perry bag, which requires no cement but will not work with a flush external stoma. Our experience so far suggests that the protruding ileum must be covered by mucosa if stricture at the level of the skin and fascia is to be avoided.

The ureters are next divided deep in the pelvis and allowed to drain; any resulting reduction in lengthening or dilatation will facilitate accurate placement of the anastomoses. The ileum is now divided just to the left of the left ureter; this aids in making a loop of the right length. Its open end is closed with care; terminolateral anastomoses are made between the spatulated ends of the ureters, and openings of appropriate size are made with blunt scissors in the posterior surface of the isolated segment. The full thickness of ureter is joined to the full thickness of ileum with interrupted fine catgut in a single accurately placed layer. The surgeon sutures the right edge of the segment's mesentery to the parietal peritoneum lateral to and beneath the cecum, removing the appendix if it is in the way. The left edge of the same mesentery is sutured to the posterior parietal peritoneum or to the sigmoid colon, depending upon whether the left ureter has been brought up beneath or above the latter structure. Both in trimming the ureters to the right length before anastomosis and in tacking down the mesentery afterward, care must be taken that there is no tension whatever between ureters and ileum. All sutures in the urinary conduit are fine chromic catgut (0000 or 00000); nonabsorbable material may work into its lumen and cause the formation of stones.

To restore intestinal continuity an ileoileostomy is made, commonly using a single row of silk in the manner of Wangenstein,¹³ after which the cut edges of the mesentery are carefully united. The

abdominal wall is closed in layers with silk in good risk patients, or with through and through stainless steel supplemented by retention sutures in patients in less favorable general condition.

A Perry or Rutzen bag is applied, the former being preferred because it requires no cement and permits dilation of the stoma without disarranging the apparatus. A catheter is avoided when possible because mucus so often plugs it, leading to back-pressure and leakage; and because of the possibility of uncontrollable hemorrhage from ileac mucosa with a catheter in place as reported by Rack and Simeone.⁸

Good postoperative care is imperative. The nasal suction is watched closely, the patient is weighed daily, and electrolyte balance is maintained. If cramps or distension occur despite apparently satisfactory suction, an additional tube is inserted to keep the stomach empty, a function sometimes not performed by a tube in the duodenum or jejunum. When normal peristalsis is audible and the patient is passing gas, the tube is clamped for eight hours and then withdrawn if everything goes smoothly. The patient or his parents are taught to care for the apparatus as soon as possible, with emphasis on keeping the stoma dilated. If suction has to be used for longer than normal, magnesium is added to the fluids.

Results

Table 1 is a summary of complications in 406 cases collected from the literature (Wells,¹⁴ 212; Bricker and associates,¹¹ 106; Cordonnier,¹⁵ 41; Nash¹⁶ and Rickham,¹⁷ 25; and Wawro,¹⁸ 22 cases. There were 77 deaths, or 19 per cent):

TABLE 1

Urinary infection	48	Pulmonary embolism	7
Ileus	43	Thrombophlebitis	6
Intestinal obstruction	31	Convulsions	5
Urinary fistula	24	Surgical shock	5
Progressive hydronephrosis	20	Uremia	5
Dehiscence wound	17	Infarction isolated loop	5
Fecal fistula	12	Oliguria, anuria	4
Stenosis external stoma	11	Nephrolithiasis	3
Peritonitis	10	Ileovaginal fistula	1
Sensitivity to cement	8		
			265

Table 2 summarizes the complications that occurred in 68 cases of urinary diversion by this method performed at University of Minne-

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sota Hospitals. These results are difficult to assess both because our first operation dates back only three and one-half years and because 50 per cent of our patients had advanced malignant disease.

TABLE 2

Hyperchloremic acidosis	12	Leakage of loop	3
Preoperative	6	Fistulae	2
Postoperative	6	Ileourethral	1
Intestinal obstruction	10	Ileovaginal	1
Early	5	Peritonitis	2
Late	5	Persistent ileus	2
Stenosis of stoma	9	Uremia	2
Infection of wound	7	Ureteral stricture	2
Minor	5	Disruption of ureteral	
Severe	1	anastomosis	1
Evisceration	1	Hematemesis	1
Pyelonephritis	6	Magnesium deficiency	1
Nephrostomy for	2	Necrosis pancreas	1
Unable to keep dry	5	Osteitis pubis	1
Hydronephrosis	4	Pelvic abscess	1
Stone	4	Obstruction of ureter by	
Loop	2	mesentery of sigmoid	1
Kidney	2		

Postoperative intestinal obstruction required operation in ten instances. In five of these patients it occurred months after urinary diversion and resulted from spreading cancer. Of the five obstructions that interrupted convalescence, two were due to the presence of diaphragms at the ileostomy, and two more resulted when a loop of small bowel slipped beneath the mesentery of the isolated segment; all four of these probably reflect inexperience on the part of the surgeon. The fifth obstruction resulted from ileo-ileac intussusception well above the anastomosis, and could not be explained.

The origin of the two cases of persistent ileus is not clear. A consequence in one was an instance of magnesium deficiency because the patient had subsisted for a long period on magnesium-free parenteral fluids. The situation was recognized at once by the medical consultant, Dr. E. B. Flink. More baffling was a furious gastric hemorrhage in a former paraplegic patient of 30; subtotal gastrectomy was followed by immediate cessation of bleeding, but no lesion was found in the removed portion of the stomach, and the patient later recovered.

Leakage of the loop probably resulted from perforation of its opposite wall by the knife used to make the openings for ureteral anastomosis. Separation of the ureters from the ileum apparently was due to too much tension, both from improper placement and from intestinal distension secondary to obstruction. The osteitis pubis was mild and followed cystectomy. Late stenosis of the stoma severe enough to demand relief occurred in nine patients; in two the protruding end of the ileum had been everted upon itself—a technic that has been abandoned in favor of slitting the muscularis of the portion to be everted. The others, occurring in the skin and fascia, involved simple end openings with the protruding serosa left bare; several required plastic repair.

“Unable to keep dry” refers in particular to an elderly obese female upon whom a ureterosigmoidostomy had been performed elsewhere many years earlier. This had been followed by a nephrectomy for pyonephrosis, and then by a nephrostomy. The patient sought relief for right renal pain with chills and fever, which recurred despite a well functioning nephrostomy. In an effort to make the end of the ileum protrude above the skin, the surgeon excised some of her excess subcutaneous fat; this resulted in a depression around the stoma on which the bag could not be fitted properly. Although relieved of her original complaints, the patient refused to come back for refitting; this appears to be a psychiatric problem. The other patients in this category have suffered minor intermittent leakage, chiefly from improper care of the bag.

Among the other complications, the fistulae followed cystectomy, and they closed and opened intermittently. Since one of the two patients with fistulae later died, apparently of carcinomatosis, there may have been neoplasm in the area at the time of appearance of the fistula. The obstruction of the ureter where it passed through the mesentery of the sigmoid colon and acute necrosis of the pancreas occurred in the same fatal case (see below). The pelvic abscess and severe wound infection occurred in the same patient and followed concomitant cystectomy.

Mortality

In view of the frequency of complications after ileac diversion of the urine, it is surprising that only four surgical deaths have followed our 68 operations, especially in view of the types of lesions for which the operations were performed, and the number and variety of surgical procedures preceding diversion. Table 3 lists our indications.

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TABLE 3
Benign Disorder

<i>Congenital Anomalies</i>		<i>Acquired Benign Disorder</i>	
Obstruction of vesical neck	3	Ureterosigmoidostomy	2
Exstrophy	5	Posttuberculous reflux	2
Ureterectasis	10	Postparaplegic	2
Neurogenic vesical dysfunction	5	Rectovesicovaginal fistula	1
Urethral stricture with reflux	1	Irreparable urethral stricture	1
Absence of abdominal muscles	1	Contracted bladder	1
	25		9

Total Benign lesions 34 (50 per cent)

Malignant Disease

Bladder	27
Bladder and prostate	1
Cervix	3
Sigmoid	1
Female urethra	1
Ganglioneuroma	1

Total Malignant diseases 34 (50 per cent)

In three of our 68 patients urinary diversion was needed because of complications of a preceding operation (hysterectomy, 1; uretero-sigmoidostomy, 2). In addition, 29 operations had already been performed for the underlying disorder or its complications:

Plastic vesical neck	7	Reimplantation ureter	1
Nephrostomy	5	Colostomy	1
Unilateral	2	Closure exstrophy	1
Bilateral	3	Construction loop only	1
Permanent cystostomy	4	Shortening ureters	1
Nephrectomy	4	Urethrotomy (stricture)	1
Partial cystectomy	2	Fascial loop (incontinence)	1
		29	

Cystoscopic biopsies, electrocoagulations, and transurethral resections for neoplasms of the bladder or contracted vesical neck are omitted from the compilation.

Necropsy was performed on all four patients who died during the postoperative period. The first, a male age 64, died eight days after cystectomy for advanced vesical cancer, with septicemia (Paracolon

bacillus) and multiple septic intestinal infarcts. The second, a four and one-half month old male infant, had advanced hydronephroses from obstruction at the vesical neck, unaffected by a plastic operation and cystostomy; four days after ileac diversion of the urine the patient died as a result of pyelonephritis, uremia, and peritonitis. The third, a male age four months, had congenital absence of the abdominal muscles with chronic urinary retention and hydronephroses, and a megalourethra. A plastic operation on the vesical neck and cystostomy at the age of one month having failed, the urine was diverted. Exploration on the eleventh postoperative day to explain the persistent abdominal distension revealed that an obstructed loop of bowel had perforated and that the ureteral anastomoses had separated. The bowel was resected and cutaneous ureterostomies were performed, but the patient died after 12 days. The fourth, a male age 55, had advanced cancer of the bladder; shortly after the operation oliguria developed along with tenderness in the left kidney, for which nephrostomy was performed. The patient died on the ninth postoperative day with signs of peritonitis without free fluid, and necropsy disclosed compression of the left ureter as well as acute necrosis of the pancreas.

It is always tempting and often profitable to speculate on how a postoperative death could have been avoided. The first fatality occurred in a patient who represented a good surgical risk; the operation proceeded uneventfully, and the patient received adequate antibiotic therapy, yet he succumbed to septicemia. It seems that death could have been prevented only by abstaining from operation. The next two patients were desperately poor risks, and it could be argued that they should have been allowed to die undisturbed; these were examples of "nothing ventured, nothing gained." Quicker recognition of the postoperative complications might have yielded a different result in the third case. The fourth and last death was due to technical errors: suturing the anastomotic sites to the posterior parietal peritoneum, which is both unnecessary and undesirable, and leaving too small an opening in the mesosigmoid for the left ureter.

The seven known late deaths all followed operation on patients with extensive malignant disease, in only one of whom there was any hope of cure. It was sought in these instances to ascertain whether palliation could be achieved by ileac diversion of the urine, thus avoiding the risks to the kidneys inherent in ureterosigmoidostomy. There have been several unexpectedly gratifying results. This procedure, supplemented by cystoscopic electrocoagulation and by use

of the cobalt beam, is still on trial as a means of palliation in inoperable vesical cancer.

Effects upon the Upper Urinary Tract

It is too early to draw accurate conclusions about the late effects of ileac diversion of the urine upon the upper urinary tract. To do so will require long follow-up control studies in patients without malignant disease. One may say that, in the absence of strictures at the ureteral anastomoses, the kidneys and ureters are likely to remain in statu quo, or to improve if mechanical obstruction preceded operation. One large hydronephrotic, solitary kidney with a posttuberculous stricture in the intramural ureter grew worse after ureteral reimplantation, but has returned to normal during the three years that have elapsed since urinary diversion; a similar one had improved remarkably after nine months. The previously normal kidneys of four patients have become hydronephrotic since operation, whether from strictured anastomoses or from recurrent cancer it remains to be determined. Previously hyperchloremic patients have remained hyperchloremic; the condition has developed for the first time postoperatively in six others, all with neoplasms. Three patients with previously hydronephrotic kidneys have required temporary nephrostomy for persisting pain, chills, and fever. Two have remained well after removal of their tubes; the third still has his tube.

Since the stoma opens to the outside, the urinary tract cannot be protected from contamination; the development of the two renal stones doubtless followed infection with urea-splitting organisms. However, the two stones in the ileum followed use of nonabsorbable sutures—a relationship that is surprisingly difficult for some surgeons to apprehend.

It has been disappointing thus far to observe little or no regression in hydronephroses from congenital ureterectasis. However, only one of ten has grown worse, and this was attributable to stenosis of the external stoma, now corrected. It may be better in these circumstances to replace the ureters with narrowed segments of ileum as suggested by Swenson,¹⁹ although this procedure is not applicable if the bladder does not function normally.

One may safely conclude that diversion of the urine through an isolated segment of ileum offers less threat to the integrity of the kidneys than any other method thus far devised; that it permits relief, hitherto unattainable, of congenital urinary incontinence; and that it allows diversion of the urine in patients with ureters so dilated, with

kidneys so damaged, and with anal sphincters so weak as to preclude ureterosigmoidostomy. It will be interesting to observe the ultimate effects upon the kidneys. Thus far, the patients who have gained greatest relief have been those with irreparable urinary incontinence, and those with permanent cystostomies.

Summary and Conclusions

1. The urine has been diverted through an isolated segment of ileum with an external abdominal stoma, as advocated by Bricker,¹¹ in 68 patients.

2. Thirty-four of the patients had extensive malignant disease of the lower urinary tract. All but two of the procedures in these patients were intended to be palliative.

3. Thirty-four had a variety of nonmalignant disorders not amenable to less drastic procedures.

4. There were four surgical deaths, a mortality rate of 5.8 per cent.

5. All of the seven known late deaths were apparently due to cancer rather than to the urinary diversion.

6. Complications are more common in the immediate postoperative period with this operation than with ureterosigmoidostomy, but there are far fewer adverse late effects upon the kidneys.

7. Ileac diversion of the urine offers considerable promise in treating hitherto irremediable disorders of the urinary tract.

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Editorial

Medical Education Week

April 20 to 26 will be Medical Education Week across the nation. Instituted in 1956 at the suggestion of the National Fund for Medical Education and the American Medical Education Foundation, Medical Education Week is the period during which an intensive effort is made to bring to the attention of the public the contributions that the nation's eighty-two medical schools make to life in America, as well as the needs of the medical schools for public support.

Medical Education today is costly indeed. Legislative appropriations, support from endowments, and tuition fees do not provide all of the funds needed for the education of our doctors. It is estimated that an additional ten million dollars annually is needed by medical schools to permit them adequately to discharge their teaching responsibilities. For the past several years a portion of this deficit has been provided by physicians in practice, contributing through the American Education Foundation, and by industrial corporations, contributing through the National Fund for Medical Education.

At the University of Minnesota Medical School, funds from these sources have served as a much needed and much appreciated supplement to our basic support fund. Raised specifically for the support of medical education, their use has conscientiously been limited to this purpose.

An important use of such funds has been the purchase of teaching materials and equipment, including: teaching materials in histology; a special projector for use in one of the teaching amphitheaters; microscopic projectors for use in teaching pathology and radiology; a motion picture projector with sound attachments for the showing of medical motion pictures; a roentgenkymogram for teaching in radiology; electrical recording equipment for teaching in pharmacology; and certain services and supplies used in connection with the provision of cadavers for teaching in anatomy.

The funds have also been used to provide temporary instructorships in various departments such as physiological chemistry, physiology, neurology, medicine, and pediatrics, where acute instructional needs have arisen. From time to time they have been used to bring distinguished physicians and medical scientists to the campus to speak to our medical students. It has been our policy to avoid the use of

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these funds for increasing faculty salaries or for the regular support of positions. In other words, permanent commitment of these funds on a recurring basis has been avoided. Rather, they have been used principally to meet specific, nonrecurring acute needs.

Finally, these funds have been used to support certain functions intimately related to teaching and other student activities. Examples of this use include provision of partial support of one of the secretarial positions in the Dean's office and of supplementary personnel in the biological-medical library, in medical illustration, and in some of the teaching laboratories, particularly those in which animals are used.

Funds from the American Medical Education Foundation and the National Fund for Medical Education have permitted us to do many things that have spelled the difference between a merely adequate teaching program and a good teaching program. We are grateful to those hard-working people who have been responsible for the success of these two organizations. It is our hope, naturally, that every physician will not only give his own personal support to medical education but will avail himself of the opportunity of Medical Education Week to enlist the support of his patients and of his community for this worthy cause.

R. B. H.

Coming Events

- April 7 SPECIAL LECTURE: *Photoperiodism; Implications to Medicine*; DR. R. B. WITHROW, Division of Radiation and Organisms, Smithsonian Institution, Washington, D.C.; 100 Mayo Memorial; 12:30 noon.
- April 7-9 Continuation Course in Radiology for General Physicians
- April 10-12 Continuation Course in Arthritis and Physical Medicine for General Physicians
- April 12 Continuation Course in Trauma for General Physicians
- April 14-16 Continuation Course in Gastroenterology for General Physicians
- May 5-9 Continuation Course in Electrocardiography for General Physicians and Specialists
- May 8 AOA LECTURE: *Retrospective Gastroscopic Glimpses*; Speaker: O. H. WANGENSTEEN, Chairman and Professor, Department of Surgery, University of Minnesota Medical School; Mayo Memorial Auditorium; 8:00 P.M.
- May 12-16 Continuation Course in Proctology for General Physicians

WEEKLY CONFERENCES OF GENERAL INTEREST

Physicians Welcome

- Monday, 9:00 to 10:50 A.M. OBSTETRICS AND GYNECOLOGY
Old Nursery, Station 57
University Hospitals
- 12:30 to 1:30 P.M. PHYSIOLOGY-
PHYSIOLOGICAL CHEMISTRY
214 Millard Hall
- 4:00 to 6:00 P.M. ANESTHESIOLOGY
Classroom 100
Mayo Memorial
- Tuesday, 12:30 to 1:20 P.M. PATHOLOGY
104 Jackson Hall
- Thursday, 11:30 A.M. to 12:30 P.M. TUMOR
Todd Amphitheater
University Hospitals
- Friday, 7:45 to 9:00 A.M. PEDIATRICS
McQuarrie Pediatric Library,
1450 Mayo Memorial
- 8:00 to 10:00 A.M. NEUROLOGY
Station 50, University Hospitals
- 9:00 to 10:00 A.M. MEDICINE
Todd Amphitheater,
University Hospitals
- 1:30 to 2:30 P.M. DERMATOLOGY
Eustis Amphitheater
University Hospitals
- Saturday, 7:45 to 9:00 A.M. ORTHOPEDICS
Powell Hall Amphitheater
- 9:15 to 11:30 A.M. SURGERY
Todd Amphitheater,
University Hospitals

For detailed information concerning all conferences, seminars, and ward rounds at University Hospitals, Ancker Hospital, Minneapolis General Hospitals, and the Minneapolis Veterans Administration Hospital, write to the Editor of the BULLETIN, 1342 Mayo Memorial, University of Minnesota, Minneapolis 14, Minnesota.