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RESEARCH AND EVALUATION ON HEALTH CARE TEAMS:
HOW TO SHOOT AT A MOVING TARGET

PART III

CENTRAL ISSUES
IN SUCCESSFUL TEAM RESEARCH EFFORTS

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It is difficult to organize a short presentation on issues of research on health care teams when there is a long list of problems that could be addressed. My feeling, however, is that even with the problems inherent in this type of research of "shooting at a moving target," we must move forward by confronting the problems directly. We must get on with the difficult task of research on teams or stop talking about "advantages" we cannot make tangible to those who ask us for evidences. For the puposes of this panel, I have decided to focus my presentation on issues the team research cluster at Rochester have identified and experienced as central to improving the quality of our research effort on interdisciplinary health care teams.

Definitions of Teams

The first moving target is the phenomenon we study. To paraphrase an old adage about nurses, "a team is not a team is not a team." When do we know we've found a team when we're looking for one? What is "team" care as compared to "group" care? We need to specify in concrete, measurable terms the phenomenon, or phenomena, we study. I believe we study a variety of entities, all labelled "team." Often we are not studying or talking about the same thing. We may not even be observing the same entity over time. Teams are temporary structures, lacking in formal organizational stability. If you have succeeded in identifying a "team," can you be assured you still have the same team when some part of the membership changes?

When we first started meeting as a research cluster interested in team research, we identified this problem of definitions as our first problem. We carefully reviewed the literature on groups and teams to see if we could speak about our research interest with more clarity to ourselves and others. We found ambiguity concerning the word "team," and also about the words "unidisciplinary," "multidisciplinary," and "interdisciplinary." Our reading and discussion led me to develop a simple typology illustrating the problems. This typology is depicted from the physician's perspective in Table 1 and from the nurse's perspective in Table 2.

Table 1

Group Composition

	<u>Unidiscipline</u> Single Discipline	<u>Multidiscipline</u> More Than One Discipline
Inter- changeable Function (Dominant) Goal)	Surgical procedure of such length that "substitution" of surgeons is required. #1	All the disciplines involved in a successful medical pro- cedure <u>or</u> in hospital medical rx are extensions of MD and his "functions." #2
Different Functions (Multiple, Separate Goals)	"Referral" group - MD specialists accomplish their individual goals in serial or parallel fashion. #3	"Referral" group - across disciplines accomplish their goals in serial or parallel fashion. #4
Modified Functions (Integrated Goals)	Collaborative treatment group - MD specialists "evolve" goals and inte- grated rx plan. #5	Collaborative rx and care group - across disciplines evolve goals and integrated rx and care plan. #6

Table 2

Group Composition

	<u>Unidiscipline</u> Single Discipline	<u>Multidiscipline</u> More Than One Discipline
Interchange- able Function (Dominant Goal)	Primary nursing which requires 24-hr. coverage and nurse "substitutes" for the primary nurse. #1	All the disciplines involved in a successful care plan as extension of nurse - the old nursing "team" task-oriented. #2
Different Functions (Multiple, Separate Goals)	"Referral" group or "consul- tant" model - different types of nurses accomplish their tasks in serial or parallel fashion. #3	"Referral" group - across disciplines; accomplish their goals in a serial or parallel fashion. In home care, the nurse, PT, speech therapist, aide, etc. #4
Modified Functions (Integrated Goals)	Collaborative "care" group nurse "specialists" evolve goals and integrated care plans. #5	Collaborative care and rx group across disciplines evolve goals and integrated rx and care plan. For example, an integrated management plan for nursing home patient or terminally ill home-care patient. #6

There are two basic dimensions to the typology. The first is work group membership. What is the scope of the health care professions represented? The second is work group goals. How broad is the scope of defined health care goals and how interconnected are they? Combining these two dimensions creates a third emergent dimension of processes, those by which work groups accomplish the varying goals: substitution or replacement, referral and coordination, and collaboration manifest by integrative problem-solving. These processes can occur within or between professions. All of these processes require interaction and interdependence but of qualitatively different types. In the past, "team" has been applied in the literature to every one of these six boxes. Most writers use "team" without differentiating the type of team they are referring to. There seems to be an implicit focusing on different types that vary by discipline. Many physicians use the term "multidisciplinary" or "interdisciplinary" team to mean a multidisciplinary referral or collaborative treatment group (#3 or #5 in tables). Most nurses imagine a multidisciplinary referral or collaborative treatment and care group (#4 and #6 in tables) when using the same expressions.

In our research group we discovered we were all interested in multidisciplinary collaborative groups (#6) and targeted the concept of "collaboration" for closer study. In my research I'm most interested in measuring interaction variables associated with collaborative (collegial) behavior in multidisciplined teams who meet face to face and whose goals are comprehensive and transcend an individual professional's expertise. Two colleagues, Gerry Lamb, RN, MS, and Rudolph Napodano, MD, are developing a methodology for collaborative acts between nurse-physician joint primary care providers. When one seeks out specific types of work groups for study, the reality of all those teams we imagine existing out there becomes an illusion--the target disappears. Our attempt to find collaborative teams has been very disappointing. We believe collaboration has to at least provide opportunities for the multiple disciplines involved to meet face to face. Most real-life multidisciplined teams do not meet this minimum requirement. Field experiments, such I have been able to conduct, are one answer to this problem of meeting face to face as a minimum team structure.

Design and Measurement of Team Processes

Measurement of health teams' activity is a problem of "shooting at a moving target." We are studying properties of a system in motion, in which there are an infinite number of variables of potential importance to measure. This leads to tremendous variation of team descriptions in the literature. To get beyond descriptions of single teams into research comparing teams with each other, good design is essential. The creation of teams for comparative research purposes in real-life settings requires a great deal of participation. In order to study effects of teams that vary on a certain dimension on outcomes, e.g., collegiality, all teams compared should be as similar as possible on variables not being studied which might affect that dimension, e.g., size, frequency of meeting, membership.

There are two ways to achieve this control. Teams can be constructed specifically construct teams for research purposes which do not vary on key structural properties. This is what we did in our first team study. All teams were similarly composed of a physician, two nurses, and a dietician, and all met with the same frequency. A second approach is to be on the lookout for real-life situations that can meet such minimum criteria. My present study uses the second approach. Weekly multidisciplinary team meetings held on medical units in the University hospital include residents on rotation through the units. Using a two-way analysis of variance of design, we can use this situation to study the effects of different physicians and nursing units on the collegiality of team interaction and these effects on patient care outcome. The systematic rotation of residents through these units for educational purposes is conducive to designing such a field quasi-experimental study.

In isolating what to measure, available theory from basic sciences becomes extremely important. What do we think we know about processes such as coordination or collaboration? While there is a wealth of literature available on such processes, many of the studies are experimental laboratory efforts where subjects are students and the processes are, at best, fleetingly apparent in the findings. The rigor in the methodology of the experiment is of utmost importance, though even quasi-experiments in field situations are extremely difficult to conduct. The operationalization of key variables and their impact in laboratory experiments, however, are often far removed from real-life circumstances.

For example, I am interested in the measurement of status characteristics as a limiting condition for collaborative work. I am also interested in what reduces the negative effects of status characteristics. At this year's American Sociological Association meetings, I heard a research report in the small groups section on a laboratory experimental attempt to reduce status effects on decision-making by manipulating information about the expertise of the lower-status person and then transferring the effects to a second decision task. The transfer was successful, but the status characteristics manipulated were arbitrary, the task was meaningless, and the transfer from one decision task to the next was a minimal transaction. How can we utilize such work in our research?

One of the benefits of my dual preparation as a nurse and a sociologist is in recognizing the potential of what is narrowly perceived as applied research becoming more basic by linking our theories and research designs to those developed in the basic research literature and testing /extending these ideas by our field experiments. In our first study we unintentionally manipulated the perceptions of expertise among group members by changing the interaction structure of early meetings toward equal participation. The move toward equal participation increased the opportunity for expertise of all members to be expressed. This is the means by which the effects of status characteristics are theoretically altered. We have data on the effects of this manipulation over a 6-month period that is more convincing than the laboratory study.

For me, attempting to operationalize the concept of collegiality (or collaboration) has opened up another Pandora's box: How does one

measure team processes? While interaction measures are the most direct and least distorted by respondents' perceptions, they are hard to get in real-life settings for several reasons:

(1) Recording interaction is a problem. In our first research study, we had relatively small teams who could be videotaped in an appropriate room with a mobile camera unit. In my current research, relatively large teams meet in a small room on the hospital unit. We cannot videotape, and the large group makes reliable who-to-whom interaction scoring a serious problem.

(2) Finding interacting teams is a problem. Much team interaction is informal. Measurement of this informal interaction is extremely difficult. We did not have such a problem in our first study, as most of the contact between members was in the meeting. Informal interaction is a problem in the present study because the medical units' team meetings are a small proportion of their total, mostly informal, interactions. The relationship between formal and informal interaction becomes a methodological problem of importance in such instances.

To summarize from these few specific points and examples, transferring measurement of concepts and methodologies between settings and studies is a real problem. When people ask what the implications of a research study are, there are real limits to what we can say until we do more research.

Outcomes

A final difficult issue which has been the focus of our attention in the research cluster is that of measuring outcomes of team care. First, we must use measures of outcome that theoretically relate to team processes studied; they must also be measures which are clinically meaningful. Here theory is important in the specification outcome variables. Many outcomes are the result of variables other than, or in addition to, the team's interaction. Changing my team research from the long-term to acute care setting has required me to design a new set of outcome variables, where the focus will be on team discharge planning for three different groups of patients. The outcomes will vary not only from our first study but will vary by group as well. Thus in outcomes, too, studying teams is studying a "moving target."