Health Team Function:
Testing a Method for Improvement

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Health-care teams are functioning in the delivery of primary care. For purposes of this paper, the health-care team is composed of a primary care physician or physicians working with other health-care providers to deliver primary care. This definition represents an organizational model of health-care teams. Organizational specialists have proposed "team development" processes for improving health team function.[1-5] This paper reports the results of an initial experiment designed to analyze the results of such a process.

A modification of the "health-team development" process was used with one of three comparable teams at a family practice residency. Pre and post-team development data were taken. The team that experienced the modified team development process showed significant differences in the gain scores, compared to the "control" teams. Discussion focuses on the role of organizational technology in health-care teams and avenues of further analysis are presented. The modified format for the team development process is also reported and discussed.

Health-care teams in primary patient care have recently been recognized as an important element in the delivery of health services.[5-7] In addition to numerous publications in the past ten years, the existence of federal projects examining team care and education for team care attest to this fact. The literature reflects an early descriptive phase in the evaluation of teams. Presented in this report is a brief, general background on teams, a description of the subject teams of this report, the results of an experiment on the process of team care, and a discussion of some of the organizational issues involved in health-care teams. This work has implications for further research in the process of efficient health-care delivery by groups of practitioners.

For purposes of this paper, a health-care team is defined as a group of individuals from different health disciplines who work together to provide

Table 1. Summary of Revisions for a Compressed Program in Health Team Development

| Unit Number	Original Time Required	Revised Time Suggested	Role of the Coordinator	Homework Required	Changes in the Steps of Each Module
Module 1	3 hours	1 hour	Coordinator may take the lead by having the team fill out the Vital Signs Assessment as homework and read pp 47-48. The team should confirm its choice for a coordinator by the end of the first meeting.	Do Vital Signs Assessment ahead of time and read pp 47-48.	Steps 1 and 2 done ahead of time. Step 3, 20 minutes, Step 4, 10 minutes, Step 5, 20 minutes, Step 6, 10 minutes.
Module 2	3 hours	3 hours	Minimal role for coordinator during this session. Coordinator may need to take the rough product of meeting and have it typed and distributed.	None	No change in Steps.
Module 3	3 hours	1 hour	Prepare homework ahead of time for team members. Also will probably need to take rough product of the meeting, retype it, and distribute it for team members' revision and/or approval.	Read pp 87-89.	Steps 1, 3, and 5 as homework. Steps 6 and 7 omitted, Step 2 accomplished in 40 minutes, and Step 4 accomplished in 20 minutes.
Module 4	3 hours	3 hours total should be closely linked	Will need to review ahead of time the changes in the steps in order to provide overall flow for this meeting.	Do Steps 1 through 4 on p 113 before the meeting. After the meeting arrange follow-up appointment with individuals to work out role negotiation.	M-4 Steps 1 through 4, no change. Step 5, 30 minutes, Steps 6, 7, and 8, 30 minutes.
Module 5	3 hours				M-5 Step 1 as homework, Steps 2, 3, 4, and 5 are done as a group allowing essentially 1 1/2 rather than 2 1/2 hours. Steps 6 and 7 omitted.
Module 6	3 hours	1 hour	Distribute reading assignments ahead of time; select for the team one decision which needs to be made and send out that selection with the homework.	Read pp 163, 164, and 167 prior to meeting.	Steps 1, 2, and 3 are done as homework, Steps 4 and 5 are combined, total 45 minutes. Step 6 reduced to 10 minutes, Step 7 reduced to 10 minutes.
Module 7	3 hours	1 hour	Send out homework ahead of time. Be sure team allows time to critique the entire program.	Do Steps 1, 2, 3, and 6 prior to meeting.	Steps 1, 2, 3, and 6 done as homework, Step 4 allow 15 minutes, Step 5 allow 30 minutes, Steps 7 and 8 combine to 15 minutes total.
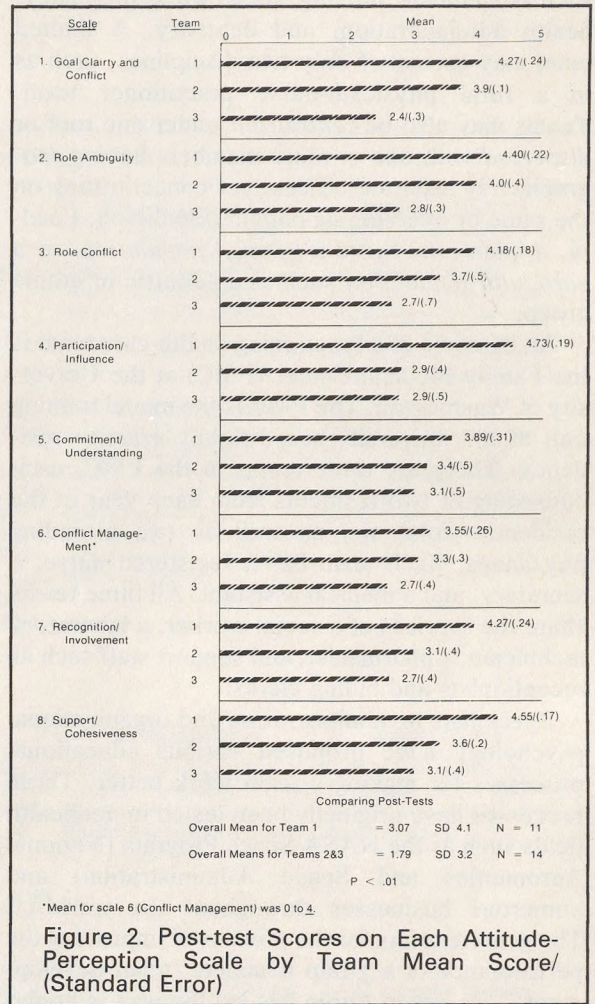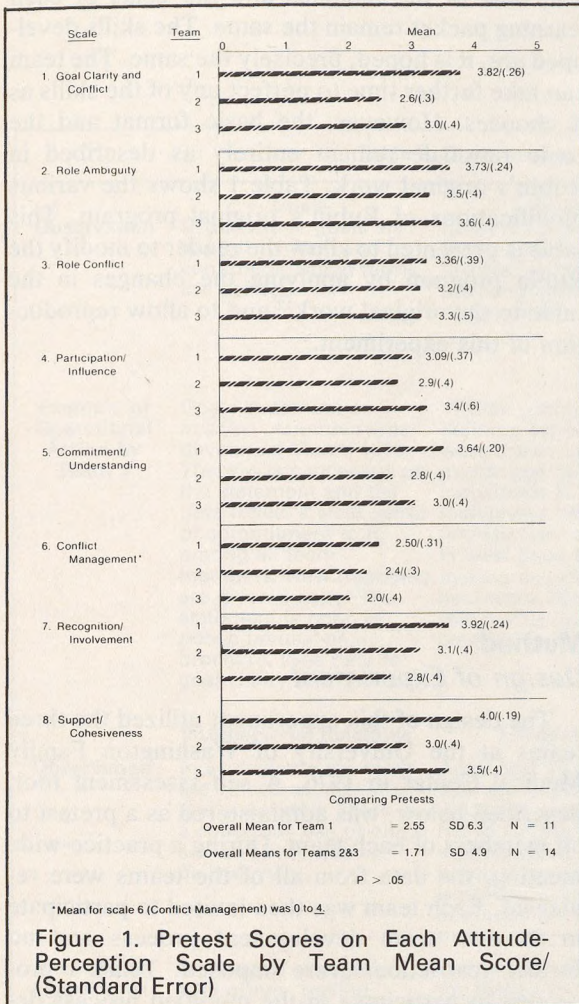
Figure 1. Pretest Scores on Each Attitude-Perception Scale by Team Mean Score/(Standard Error)

Figure 2. Post-test Scores on Each Attitude-Perception Scale by Team Mean Score/(Standard Error)

primary care services for a common patient population. This definition is broad and covers not only formal groups who define themselves as teams, but also informal groups who may not even recognize themselves as a team.[2,8] When looked at in organizational terms, a team is a human system

which has interdependence in working towards common goals as its cardinal characteristic. Because the delivery of health care in a primary care setting is increasingly an interdependent system, many primary care settings contain teams.[1,5]

Teams may be *comprehensive* or *limited*. A

comprehensive team may include many different disciplines usually associated with primary care, such as medicine, nursing, social work, pharmacy, health administration, and dentistry. A limited team may consist of only two disciplines, such as in a rural physician-nurse practitioner team. Teams may also be *centralized* under one roof or *dispersed* with one or more members having geographically separate offices, yet concentrating on the same or overlapping patient population. Finally, a team may serve a *general population,* or a *particular population* such as a geriatric or ethnic group.

An example of a functioning health-care team is the Family Medical Center (FMC) at the University of Washington. The FMC is the model training unit of the university-based family practice residency. There are three teams in the FMC, each consisting of two residents from each year of the residency (total six) as well as two attending physicians. Each team has a registered nurse, a secretary, and a medical assistant. All three teams share the services of a social worker, a laboratory technician, a pharmacist, and support staff such as receptionists and billing clerks.

Specialists in administration and organizational psychology have proposed various educational processes for making a team work better. These processes have originally been tested in nonhealth fields such as the NASA Space Program (National Aeronautics and Space Administration) and numerous businesses throughout the world.[9-12] The generic terms for the process of improving the performance of a group is called "team development." Dr. Irwin Rubin has led the way in applying these techniques to health care with his book, *The Coordination of Patient Care: A Process for Health Team Development.*[12]

Rubin proposes a basic format of seven educational "modules" which are completed by the entire working team. Each module is three hours long, and a total of 21 hours is required for the basic process. There are also optional modules beyond the basic seven. The authors felt that for actively practicing health-care teams, 21 hours was an unusually large time requirement. There is some indication from further work by Rubin[4] that the obstacle of time is a major impediment to the success of the team development process. Therefore, the primary author modified the program to a total of nine to ten hours. The essence of this

modification has been to compress in time the material covered in the team development process. The flow of the modules and the goals of each learning packet remain the same. The skills developed are, it is hoped, precisely the same. The team can take further time to perfect any of the skills as it chooses. However, the basic format and the basic rationale remain entirely as described in Rubin's original work. Table 1 shows the various modifications of Rubin's original program. This table is presented to allow the reader to modify the Rubin program by applying the changes in the table to the original work[12] and to allow reproduction of this experiment.

Method
Design of Experiment

The design of this experiment utilized the three teams at the University of Washington Family Medical Center in 1976. A self-assessment tool, described below, was administered as a pretest to all members of each team. During a practice-wide meeting, the data from all of the teams were reviewed. Each team was then invited to participate in its own team development process and no further restrictions were imposed. Team 1 proceeded to participate in the modified process described in this paper. Team 2 elected to attempt to follow the Rubin manual in its original format. Team 3 preferred to "discuss" the issues and spent approximately four hours discussing them.

One month after all three teams were finished with what they regarded as their process for health team development (maximum three months), a post-test was administered in the same manner as described above. The composition of the teams did not vary during the experiment. There are different numbers of subjects for each team because the rate of return of pre and post-tests was slightly higher, though not statistically significant, for Team 1. Also, the social worker, the laboratory technician, and the pharmacist elected to participate with Team 1 in the compressed program for

	Goals	Roles	Role Negotiation	Decision Making
Table 2. Observations on the Development of Team 1				
Observation	Organization goals are explicit; written and congruent; broad terms are defined.	Roles are explicit (written and clear), yet flexible; written roles are congruent with actual roles.	Role negotiation is an ongoing and expected behavior. Decisions reached are made explicit to the team.	Decisions brought to the team are made by all members directly involved in the decision. Concensus is the usual mode of decision-making. The process is explicit and well organized.
Example of Operational Action by Team 1	Goals statement or *mission statement* was developed March 1976. There was concensus on the statement and the data reflect a clear sense of commitment to it among all team members. New members are given a copy. The statement is open to public perusal as a brochure. (See data re: goal clarity and conflict.)	Written *contracts* defining aspects of roles were drawn up and exchanged between individuals in April 1976. Individuals have reexamined their contracts at least once since then, making any clarifications necessary. (See data re: role ambiguity and role conflict.)	The team discusses changes in roles between individuals as they occur. Each six months the *team does a self-assessment* (as described in methods) to allow explicit renegotiation of roles.	The team uses a management responsibility guide[2,12] for carrying out complex decisions. The managing-coordinating role is often taken by the RN.

	Interpersonal Relations	Leadership	Communication	Group Norms
Observation	Individuals on the team are valued as individuals and supported. There is a conscious use of one's self as a resource in daily activity.	Accountability in tasks is defined. Leadership in a discipline area is entirely left to the members of that discipline, ie, is based upon one's expertise in a given area and upon the task to be performed.	There is an organized, readily accessible format for communication. Feedback is encouraged and expected.	Group norms are explicit. The team has a defined awareness of itself and its processes.
Example of Operational Action by Team 1	Individuals engage in supportive "pulling together" when there is a task to be done. During team meetings there are open expressions of support and helpfulness. (See data re: participation/influence, and support/cohesiveness.)	For general decisions, the management responsibility guide is used.[10,12] In medical decisions, the physicians have the leadership function; depending upon the task, they often consult with the other team members. In an area that is a nursing decision, the NP or RN assume leadership, etc. (See data re: participation/influence, and recognition/involvement.)	There exists a weekly, one-hour team meeting. All disciplines are expected to put notes into progress notes and add problems to problem list. The charts use a problem-oriented approach. Feedback is common between most members. (See self-assessment data re: conflict management.)	The team did an audit of its process of team care in November 1976. Changes in group norms are discussed at team meetings. Group norms were listed and discussed in May 1976.

health team development, which artificially enlarged the number of subjects on that team during the study.

Measurement Tools

The measurement tool used in this study was described by Rubin.[12] The tool is a self-assessment questionnaire in which an individual member's impression of team effectiveness is assessed along eight scales. The subject matter of these scales is identified in Figure 1. It is noted that the scale represents perceptions or attitudes of members toward team function.

Results

Results are summarized in Figures 1 and 2. Figure 1 shows a difference in the pretest between Team 1 and Teams 2 and 3 which was not statistically significant (P>.05). The overall means are calculated from the mean score for all the scales and are as noted on the figures. However, to eliminate the possible pretest differences from biasing the final results, a gain score was held to be the most appropriate way to statistically evaluate any differences between Team 1 and Teams 2 and 3 in the post-test.

It should be noted that Team 2 did not complete the process of team development as outlined in the Rubin manual. That is, after completing the first two modules, they did not pursue the other modules in the Rubin manual. No clear decision was made at this point; the group merely failed to progress. Therefore, for purposes of comparison, Teams 2 and 3 were combined in the post-data to compare with Team 1, which completed the compressed program for team development. There is no difference in the trend of the data whether Teams 2 and 3 are separated or combined.

The post-test or posteducational intervention data in Figure 2 shows a statistically significant difference in the gain scores between Team 1 and Teams 2 and 3. Again, overall means are noted in Figure 2. The gain score for Team 1 was .52 and for Teams 2 and 3 was .08. In other words, it is suggested that the team development process in which Team 1 engaged made a difference in the self-analysis of team function. Subjectively, Team 1 members confirmed numerous differences in their own functioning as a group. Furthermore, the other two methods of team development (attempting the Rubin modules and "discussing" the issues) demonstrated minimal changes in team function.

Discussion

The results leave room for some debate in part because of the methods used. That is, although there were significant differences in the gain scores between Team 1, which experienced the team development process, and the other teams, there were also some other differences in the teams themselves. That is, Teams 2 and 3 were not truly controls. For instance, during the process of team development, Team 1 was joined by three other members for the purposes of this learning process. In addition, Teams 2 and 3 did not spend the same amount of total time on team development even though it is unclear how much time they did spend "discussing" these issues. In other words, there was a difference not only in the temporary composition of the teams but also in the amount of time devoted to this process. However, the amount of time *available* for all three teams for the purposes of team development was the same. It cannot be determined from these data precisely which factors were responsible for the differences in the post-test. Further experiments would be necessary to prove the exact difference that a program in team development might make. Perhaps certain team development processes between strictly controlled teams would help define the significant factors.