

ACTIVE CONSUMER PARTICIPATION IN THE HEALTH DELIVERY SYSTEM: AN EVALUATION OF PATIENT SATISFACTION¹

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Many people and institutions providing health care overlook opportunities to collect valuable feedback information from those served. This article describes one reasonably simple and effective way of collecting and using such information.

Introduction

A variety of past studies on health care delivery have described consumer opinions about the care received, ranges of patient attitudes, physician conduct, and other variables affecting consumer satisfaction (1-10). But such studies have generally failed to provide a way of including consumer input on a continuing basis in the appraisal of health service systems, in order to see if the systems can be improved. This is a real problem, for it is not enough to periodically ask patients what they think of the services provided. Promoting effective changes in a delivery system requires an ongoing partnership between health service consumers and providers. In other words, if the "optimum care" the consumer seeks and the provider is trying to give is to be realized, a joint effort is required.

The question thus is whether health providers can harness the virtually untapped resource found sitting in their reception areas and examination rooms. I believe that they can; and even though the development of a consumer-oriented delivery system requires some departure from traditional health care

practices, the results are well worth it—as evidenced by both patient satisfaction and increased referrals once consumer satisfaction becomes part of the service package.

Most health providers overlook the opportunity to collect this valuable information or collect it only on a periodic basis, thus limiting their ability to identify both individual patient difficulties and developing problems of a general nature. Nevertheless, the method used to gather such information is well-accepted, simple to administer, and a source of important information for managing productive changes when treated in a systematic and quantitative fashion.

To help secure ongoing consumer data, questionnaires are designed for both the patient and the referral source (in cases where patients do not refer themselves). These questionnaires generally have a fairly standard format, but their content should remain flexible enough to include questions considered vital by providers of any relevant services. Specific questions should be selected to deal with those elements of service most important to the staff, the patients, and the referral sources. Once selected, these questions should be listed on draft questionnaires that are reviewed by staff members and field-tested on patients and referral sources. Changes should then be made on the basis of the responses received from the field tests, and the revised questionnaire should be

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tested in a similar manner until an acceptable set of questions is developed.

Design Considerations

In order to illustrate this way of obtaining consumer input and evaluating consumer satisfaction, it seems appropriate to consider how such work has been accomplished with respect to a specific category of patients—handicapped children³ and teenagers 0 to 21 years of age. It should be noted, however, that the approach described is applicable to virtually any service or program where interest exists in evaluating consumer satisfaction (11,12). The model described here has proven successful at two group medical practices in the midwestern United States. Other methods for assessing consumer attitudes and opinions have been described by various authors (13-17).

In seeking information about consumer satisfaction, it seems reasonable to ask what one could expect to learn from data of this kind. To answer this question, one needs to look at the information in terms of individual cases and also in terms of results relating to groups of similar patients so as to illustrate general profiles of the overall service delivery system. As this suggests, assessment of the questionnaire information should tell (1) if the individual consumers were satisfied with service activities; (2) if there were any particular complaints; and (3) what general comments or suggestions were being made about the services. For example, if a consumer is having difficulty in getting the insurance department to process claims or in obtaining reports from

a certain doctor, the questionnaire affords an opportunity to tell about such problems, and this can pave the way for action to resolve the matter. (Answers to questions seeking more information about specific points or a detailed explanation of some problem can be placed in a "comments and suggestions" section at the end of the questionnaire.)

The Questionnaire

In general, the survey questionnaire is designed to yield information that will permit assessment of specific features of the health care process (i.e., interpretation of individual physician findings, accuracy of diagnosis, helpfulness of recommendations, scheduling of appointments, summarization of all findings, and so forth). Specific questions are developed as previously described—with initial input from staff members, consumers, and referral sources. These are then field-tested, appropriate deletions or modifications are made, and a master questionnaire is drawn up around a framework of key questions.

In developing this questionnaire, emphasis is placed on things of importance from the consumer's point of view. Findings drawn from past research (1,2,12,18) have shown that consumers tend to associate certain conditions with satisfactory care. These include (1) the opportunity to ask questions, (2) effective explanation of findings by staff members, (3) provision of all help needed to make the patient's visit pleasant and meaningful, and (4) experiences demonstrating the usefulness of the medical findings after the patient leaves the doctor's office. Accordingly, stress should be placed on questions relating to such points. A complete questionnaire, with its entries arranged in logical sequence, is shown in Annex 1.

Survey Procedures

Consumer responses are obtained at scheduled intervals. Each questionnaire should in-

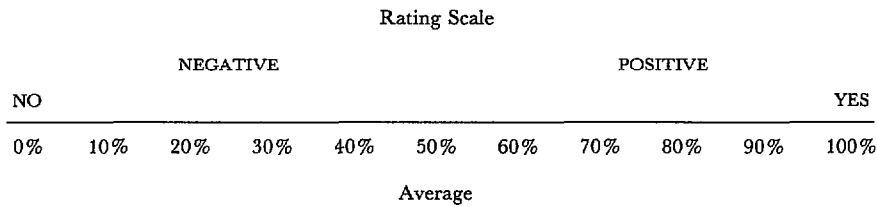
³Pursuant to U.S. Public Law 94-142 (The Handicapped Children Act of 1975), handicapped children have the following conditions: physical, crippling, or orthopedic disability; developmental disability or mental retardation; emotional disturbance; hearing disability; visual disability; learning disability; speech or language disability; or other health impairments detrimental to educational progress (which means limited strength, vitality, or alertness that may be due to a heart condition, tuberculosis, rheumatic fever, nephritis, asthma, sickle cell anemia, hemophilia, epilepsy, lead poisoning, leukemia, or diabetes).

clude an introductory letter (see Annex), and each should be mailed out with a stamped, self-addressed return envelope. A second questionnaire should be sent, followed by a telephone call, if the first questionnaire is not returned.

Patients or their parents and referral sources should be asked to rate their answers on a “positive or negative” continuum in terms of their own levels of satisfaction. For that pur-

pose, the format for recording the answers to most questions should include a scale running from no (0 per cent) satisfaction to 100 per cent satisfaction, with a rating of 50 per cent being intermediate. An example of this format is as follows:

Sample Question: “Were you given opportunities to ask questions?”



This rating scale format provides respondents with an opportunity to show not just whether a particular situation was acceptable but how satisfactory it was. For instance, in the sample cited suppose the respondent felt there was an opportunity to ask questions but the opportunity was poor. Perhaps the respondent was rushed, was not listened to, or was diverted before the answer could be fully comprehended. To be honest, the respondent would have to answer the question “yes,” but could circle a low rating scale response (below 50 per cent if need be).

Results

A brief review of the returned questionnaires will serve to identify responses indicating less than satisfactory service. In the case of unusually unfavorable ratings or negative comments, it may be necessary to telephone the consumer in order to get to the bottom of the problem. In any case, prompt processing

is needed, it being important to resolve service delivery issues as they are identified, so as to prevent an initially minor problem from developing into a major or chronic concern that may come to affect many patients. Therefore, individual questionnaires should be reviewed as they are received in the mail, and any problems cited should be dealt with promptly.

Over time, the accumulation of information from individual questionnaires provides a basis for general examination of the health service delivery system. That is, the compilation, quantification, grouping, analysis, and interpretation of these data at systematic intervals provides a way of locating system deficiencies. Improvements seeking to lessen the extent and degree of unfavorable ratings and comments can then be made.

For such analysis, it is necessary to convert critical comments and other remarks into quantifiable form. This can be accomplished by classifying the remarks as being either positive or negative, and then assigning the posi-

tive remarks a score of 1 and the negative remarks a score of 0, or vice versa. Also, responses to "yes-no" questions (e.g., to questions 14 through 17 in the Annex questionnaire) can be scored in a similar manner. "Check answer" responses can be quantified according to numbers listed beside the answer (e.g., 1, 2, 3, 4, or 5 in the case of Annex question 18). And answers to "rating scale" questions, which are essentially prequantified, can be expressed numerically in terms of the respondent's chosen 0 to 100 per cent rating.

Consumer satisfaction with a particular service can then be monitored and projected. It is also possible to assess the levels of satisfaction expressed by different groups.

Visual display of such information can provide an instant overview of the general situation. If an unsatisfactory rating appears or an unsatisfactory trend commences, it is then necessary to examine the activities involved to determine the reason or reasons for dissatisfaction.

For example, one question from the "case coordinator" portion of a questionnaire assessing multispecialty pediatric services for exceptional children read as follows: "Were suggestions, made by staff concerning the child's educational activities, appropriate to local program activities and community resources?" Average satisfaction ratings of 60, 66, 63, 70, 75, 78, and 70 per cent were obtained sequentially over time (1,12). Figure 1 provides a visual projection of these data.

Besides being used in mail surveys, this general approach can be employed in other ways. Among other things, it has been possible to apply the procedure to a consultation program providing telephone callers with tapes about childhood and adolescent problems upon request (19). For this purpose a special set of questions was developed in postcard format. The resulting prepaid self-addressed postcards were then inserted into brochures describing the available consulting tapes, and callers requesting tapes were asked to fill out the postcard questionnaire and re-

turn it. Since the callers' names were not requested or given, the procedure remained confidential. However, each caller's age and sex, as well as the time the call was made, was requested. Using the same rating procedure just described, a measure of consumer satisfaction with various program features was obtained. The average responses to a question about ease of understanding in June-August 1978 and March-December 1979 are shown in Figure 2.

The procedure can also be applied to group counseling sessions, as it was to group counseling provided for adolescents with a neuro-

Figure 1. The average satisfaction ratings given from 1975 to 1979 in response to the following question: "Were suggestions, made by the staff concerning the child's educational activities, appropriate to your program activities and community resources?"

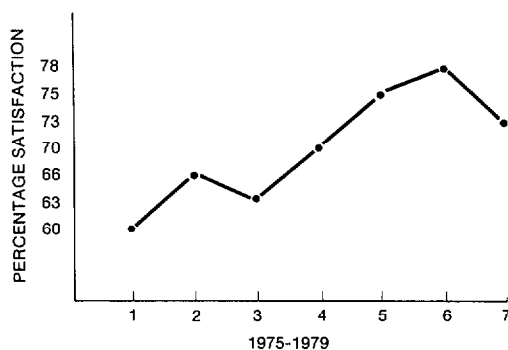
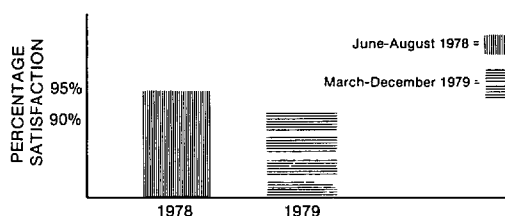


Figure 2. Average levels of consumer satisfaction expressed in response to the taped consultation program question "Was the message easy to understand?"



logically based movement disorder known as Gilles de la Tourette's disease (20). The participating adolescents included both boys and girls. The questions shown in Table 1 were addressed to each of them following an initial counseling session in order to gauge the extent

of their satisfaction with the counseling and to identify matters that should be dealt with in future sessions. The questions asked, the average responses to the first five questions, and the various answers given to the last question were as shown in Table 1.

Table 1. Excerpts from a survey of subjects receiving group counseling for Gilles de la Tourette's disease showing initial instructions, the questions asked, and the results based on answers to questions 1-5.

RATE EACH QUESTION AS IT CORRESPONDS TO YOUR LEVEL OF SATISFACTION. CIRCLE THE PER CENT (%) THAT YOU BELIEVE TO BE MOST APPROPRIATE. A RATING OF 50% IS CONSIDERED AVERAGE. A RATING ABOVE 50% INDICATES A FAVORABLE (POSITIVE) RESPONSE AND A RATING BELOW 50% INDICATES A NEGATIVE (LESS THAN FAVORABLE) RESPONSE.

Example:											
NEGATIVE						POSITIVE					
NO											YES
0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	

Average

Questions (number responding = 22):	<i>Average satisfaction rating</i>
1) Did you enjoy talking about Tourette with others?	88%
2) Were all questions you had about Tourette answered?	55%
3) Were you given opportunities to ask questions?	82%
4) Do you feel better about yourself after having participated in the discussion?	92%
5) Would you like to have another meeting with the same group?	100%

Comment/suggestion section:

- 6) If another meeting is planned, what would you like to do?
 - a) Find out what causes Tourette.
 - b) Discuss ways of handling inappropriate behavior and ways to stop or handle teasing.
 - c) Be informed of ways to help teachers and students to understand Tourette.
 - d) Find out how other people cope with it.

Inferential Analysis

Over time, as questionnaires are sent to new groups of consumers at scheduled intervals, new ratings are compared to past ratings to find the direction and magnitude of changes in those ratings. Statistical methods can then

be applied to the results in an effort to more precisely identify activities associated with unfavorable ratings and comments as well as activities that merit increased emphasis (18, 21-23). This procedure is known as inferential analysis.

To cite a case in point, this procedure was

applied to consumer satisfaction data about medical services provided to handicapped children from 1 July 1975 to 31 July 1978 (N = 402), as reported in 1979 (1,2,11,12), and to other groups of handicapped children from 1 August 1978 to 31 July 1979 (N = 152) (18). The aim was to examine findings from parents and "case coordinators"⁴ involved with children receiving the same services. Similarities and differences in their responses were then compared in an attempt to determine predictable patterns and relationships. Both parents and case coordinators completed a two-part questionnaire, Part A containing satisfaction rating questions (on a 0 to 100 scale) and Part B containing "yes-no," "check answer," and "free response" questions. The questions asked and the average Part A satisfaction ratings obtained are shown in Tables 2 and 3. An analysis of variance was performed on the Part A data recorded at different times to determine whether the indicated changes were statistically significant ($P < 0.05$).

Parents

By and large, the parental satisfaction ratings obtained in response to the Part A questions showed quite high levels of satisfaction from the time the survey began in July 1975 through July 1979. Since the 1979 responses to a majority of the questions (1, 2, 3, 4, and 7) showed 80 per cent satisfaction or over, the potential for demonstrating further statistically significant gains was relatively slight.

However, the results of a similar survey conducted in 1978 (2) had indicated that average parental satisfaction with overall medical

services was significantly higher than average case coordinator satisfaction with those services ($P < 0.05$). This statistical difference was attributed largely to the personal contact afforded parents while at the doctor's office, a contact that allowed the parents to become personally acquainted with the doctor and staff, and which facilitated clarification and resolution of any questions.

Case Coordinators

Case coordinator responses to most questions demonstrated a significant increase in satisfaction over time. This improvement was documented by statistically significant gains ($P < 0.05$) vis-a-vis the average responses to questions 1, 2, 3, 5, 6, 8, 9,⁵ and 10. To promote these changes, major emphasis was placed on the following activities: (1) transmitting medical information to case coordinators in language appropriate for determining what the handicapped child's specific educational activities should be; (2) clearly answering all questions about the child's visit to the doctor; (3) explaining the child's medical and nonmedical needs; (4) providing oral and written reports about the plan of evaluation and treatment that could easily be integrated into the child's learning program; and (5) encouraging doctors and staff members to provide all necessary assistance to the child and family throughout the evaluation and follow-up process.

⁴U.S. Public Law 94-142 assigns educational and learning-related responsibilities for a handicapped child to the school district where the child resides. Within this context, staff members from public health, social service, and other agencies have frequent cause to refer such a child to medical facilities for evaluation and treatment, and then to serve as "case coordinators" for the child at the local level.

⁵As Table 3 shows, there was a decline in the average percentage rating in response to question 9 over time, meaning there was less interest in having someone from the comprehensive child care clinic visit the child at the program center within the child's home community. By comparing the ratings with the comments provided by the respondents at the end of the questionnaire, it was determined that the lower ratings arose because an appropriate communication of medical findings and recommendations was being made, thus eliminating the need for the visit.

Table 2. Parent responses to a questionnaire requesting information about services for handicapped children provided from 1 July 1975 to 31 July 1978 and from 1 August 1978 to 31 July 1979.

PART A: QUESTIONS ANSWERED ON A RATING SCALE OF 0-100 PER CENT	Average percentage ratings obtained from parent questionnaires submitted in the indicated period, showing the number of re- sponses received in parentheses							Analysis of variance ^a				
	7/1/75 to 6/30/76	7/1/76 to 1/31/77	2/1/77 to 7/31/77	8/1/77 to 1/31/78	2/1/78 to 7/31/78	8/1/78 to 1/31/79	2/1/79 to 7/31/79	\bar{X}	S.E.M.	N	F ratio	P value
1) Were you given opportunities to ask questions?	84.20 (90)	87.70 (53)	88.10 (41)	88.70 (38)	88.80 (51)	88.90 (47)	89.10 (40)	87.50	.97	360	.66	.68
2) Was there an explanation of the medical findings as they related to the education of your child?	75.50 (89)	83.70 (52)	79.00 (41)	80.30 (38)	80.80 (51)	79.20 (47)	86.10 (38)	80.00	1.28	356	1.14	.34
3) Did you receive a clearly developed explanation of all findings after your clinic visit?	70.50 (89)	74.90 (53)	76.80 (41)	76.10 (38)	82.90 (52)	80.00 (47)	85.30 (40)	77.10	1.48	360	1.95	.07
4) Were your appointments scheduled properly?	89.30 (90)	80.40 (52)	82.40 (41)	82.60 (38)	87.50 (51)	87.40 (46)	88.30 (40)	85.90	1.18	358	1.33	.24
5) Has progress been made since your child was seen by the comprehensive child care center?	68.70 (87)	64.40 (50)	67.00 (39)	71.80 (38)	66.20 (50)	69.60 (46)	68.10 (36)	67.90	1.56	346	.31	.93
6) Would a personal visit to your community by a member of the comprehensive child care center to follow up on progress made by your child since the clinic visit be important to you?	57.30 (81)	56.00 (47)	55.00 (40)	57.50 (36)	57.50 (50)	50.50 (43)	58.70 (37)	56.20	2.10	334	.22	.97
7) Were you pleased with the overall service provided by the comprehensive child care center?	82.10 (87)	84.00 (51)	82.00 (41)	86.40 (36)	85.80 (52)	83.60 (47)	84.80 (40)	83.80	1.19	354	.30	.94
PART B: OTHER QUESTIONS												
8) Group membership (defined by the time interval the child was first seen for his exceptional needs).												
9) Is it your first visit to the center?												
10) Did you receive an appointment to return?												
11) Do you have any suggestions or general comments about the service and care you received?												

^a \bar{X} = average, S.E.M. = standard error of the mean, N = number of respondents, F ratio = significance of correlation, and P value = probability of event occurring by chance level.

Table 3. Case coordinator responses to a questionnaire requesting information about services for handicapped children provided from 1 July 1975 to 31 July 1978 and from 1 August 1978 to 31 July 1979.

PART A: QUESTIONS ANSWERED ON A RATING SCALE OF 0-100 PER CENT	Average percentage ratings obtained from case coordinator questionnaires submitted in the indicated period, showing the number of responses received in parentheses							Analysis of variance ^a				
	7/1/75 to 6/30/76	7/1/76 to 1/31/77	2/1/77 to 7/31/77	8/1/77 to 1/31/78	2/1/78 to 7/31/78	8/1/78 to 1/31/79	2/1/79 to 7/31/79	\bar{X}	S.E.M.	N	F ratio	P value
1) Were the questions you had regarding the medical evaluation of this child answered by the comprehensive child care staff?	74.20 (90)	74.00 (55)	78.80 (41)	81.90 (36)	81.00 (41)	82.60 (46)	84.00 (45)	78.60	1.11	354	2.11	.05
2) Was a distinction made between the medical and non-medical needs of the child?	72.80 (89)	72.70 (55)	77.60 (41)	69.50 (37)	78.20 (39)	82.50 (44)	83.80 (45)	76.20	1.14	350	2.98	.00
3) Were the medical findings helpful in determining specific educational programming activities for the child?	66.90 (88)	62.00 (55)	68.70 (38)	71.10 (38)	72.30 (39)	78.20 (44)	76.50 (43)	70.00	1.36	345	2.53	.02
4) Did the medical findings clarify your understanding of the child's exceptional educational needs?	67.60 (88)	67.20 (54)	70.50 (38)	73.50 (37)	74.10 (39)	78.00 (44)	72.70 (44)	71.20	1.37	344	1.21	.30
5) Were suggestions made by the comprehensive child care center staff concerning the child's educational activities appropriate to your program activities and community resources?	61.10 (86)	65.90 (54)	63.90 (41)	69.70 (37)	75.80 (38)	78.00 (45)	73.30 (43)	68.50	1.40	344	3.35	.00
6) Did you assist the clinic staff in the development of a plan to be used when the child returned home from the clinic visit?	35.40 (83)	45.00 (52)	32.40 (38)	39.00 (38)	54.40 (34)	54.70 (45)	42.00 (46)	42.30	1.97	336	2.68	.01
7) Has progress been made since the child was seen by the comprehensive child care center?	63.20 (87)	67.70 (53)	62.30 (39)	71.80 (39)	67.60 (33)	73.30 (45)	66.70 (42)	67.00	1.38	338	1.27	.27
8) Did you receive all necessary assistance from the comprehensive child care center staff to deal with the child's exceptional educational needs?	62.50 (85)	65.90 (53)	66.50 (40)	69.00 (38)	70.80 (33)	76.70 (44)	78.00 (45)	69.00	1.40	343	2.70	.01
9) Would a personal visit to your program center by a member of the comprehensive child care center to follow up on progress made by the child since the clinic visit be important to you?	53.20 (78)	40.20 (48)	52.40 (34)	40.80 (38)	52.40 (33)	42.00 (44)	33.00 (45)	45.30	2.03	320	2.22	.04
10) Were you pleased with the overall service provided by the comprehensive child care center?	74.10 (83)	71.20 (52)	74.90 (41)	78.50 (39)	82.10 (39)	86.30 (46)	89.20 (47)	79.00	1.13	347	5.53	.00
PART B: OTHER QUESTIONS												
11) Group membership (see Table 2).												
12) Is this the first child you've referred to the center?												
13) Did you receive a medical report within 10 days following the child's visit?												
14) Did you have any difficulty scheduling appointments?												
15) How far do you live from the center (in miles)?												
16) The title of case coordinator (physician, public school staff member, health nurse, developmental disability staff member, social worker).												
17) Do you have any suggestions or general comments about the service and care you received?												

^a \bar{X} = average, S.E.M. = standard error of the mean, N = number of respondents, F ratio = significance of correlation, P value = probability of event occurring by chance level.

Comparison of Parent and Coordinator Responses

To see whether there were statistically significant differences between parental and case coordinator satisfaction ratings, a matched pair analysis was made of the July 1975-June 1976 responses to three questions found on both the parent and case coordinator questionnaires (2). The results, shown in the left-hand columns of Table 4, indicated a significant difference in the responses to only one question, that being "Were you pleased with the overall service provided by the Comprehensive Child Care Center?" This suggested that careful attention should be given to the values of both groups, for parents and case coordinators could have different expectations of the services provided for the child during and following medical intervention. It could also mean that health service providers should identify the different needs of parents and case coordinators and ensure provision of services meeting both sets of needs.

Statistically significant differences can

change from one period of evaluation to the next. However, when the same comparison between parental and case coordinator responses was made with the following year's data (that of July 1976-June 1977), including new groups of parents and case coordinators, a similar result occurred. That is, as Table 4 shows, a statistically significant difference ($P < 0.05$) was found to exist between parental and case coordinator levels of overall satisfaction with the provided services (28). This finding of a statistically significant difference extending over two separate evaluation periods underlined the importance of addressing and fulfilling the expectations of both groups.

Advanced Inferential Analysis: Predicting Consumer Satisfaction

A specific medical service, such as a pediatric neurologic assessment to rule out or confirm a condition like epilepsy, requires a coordinated series of physician, staff, and laboratory activities (see Table 5). Each of these

Table 4. Analysis of differences in the responses of parents and case coordinators to three survey questions (see Tables 2 and 3).

Questions (see Tables 2 and 3)	1 July 1975 - 30 June 1976		1 July 1976 - 30 June 1977	
	No. of matching pairs responding	T-value	No. of matching pairs responding	T-value
Has progress been made since your child was seen by the comprehensive child care center? (Question 5 of Table 2 for parents, Question 7 of Table 3 for case coordinators.)	66	1.03 ^a	56	-.99 ^a
Would a personal visit to your community by a member of the comprehensive child care center to follow up on progress made by your child since seeing the doctor be important to you? (Question 6 of Table 2 for parents, Question 9 of Table 3 for case coordinators.)	59	-0.09 ^a	52	1.68 ^a
Were you pleased with the overall services provided by the comprehensive child care center? (Question 7 of Table 2 for parents, Question 10 of Table 3 for case coordinators.)	64	2.95 ^b	58	2.09 ^b

^a = not significant at 0.05.

^b = significant at 0.05.

Table 5. An illustrative example of specific steps involved in providing a particular medical service.

<i>Step 1</i> Appointment(s) made	<i>Step 2</i> Records and other registration information collected	<i>Step 3</i> Check-in at doctor's office and procurement of additional information	<i>Step 4</i> Performance of laboratory and X-ray studies
<i>Step 5</i> Administration of EEG and/or ECG tests	<i>Step 6</i> General physical examination conducted by nurse—including measurement of height, weight, blood pressure, temperature, etc.	<i>Step 7</i> Doctor's physical examination conducted	<i>Step 8</i> Discussion of all results with physician
<i>Step 9</i> Discussion of treatment plan with physician	<i>Step 10</i> Return of patient to home, commencement of plan, and follow-up contact with physician if needed		

activities is identifiable and can be defined. It is important, however, that the relationship between each step be carefully examined, since it is the combined effect of separate activities that determines how well the complete service is provided and how it is perceived by the patient.

Dissatisfaction with the way one or more steps are performed may leave the consumer dissatisfied with the overall visit; or, alternatively, some consumers may excuse poor service at certain steps if the final results meet the needs that caused them to seek care. However, it is possible to determine how great a part each service element is contributing to the consumers' overall opinions by asking them to rate their satisfaction with both general and specific aspects of the service.

In general, consumer satisfaction with medical services will change in relation to the emphasis placed upon delivery of those services by physicians and staff members. If the overall service improves, consumer ratings of the same service will tend to improve. Likewise, if a specific activity improves, we can predict that patient satisfaction with that activity should improve. Nevertheless, at some point the law of diminishing returns will be reached and the ratings will stabilize, hopefully at a level acceptable to the practitioner and one in-

dicative of maximum benefit for the patient.

The job of predicting the effect of positive changes in the service delivery system can be facilitated by application of advanced inferential analysis. For example, such analysis (involving stepwise multiple linear regression analysis—1, 2, 24) was applied to data from the foregoing handicapped child survey. The aim was to predict which medical activities would be most likely to have a major impact on (1) consumer satisfaction with overall medical services; (2) parental and case coordinator perceptions about progress made by the child following medical intervention; and (3) comments made about the services provided.

The associations found between various questionnaire responses and these three sets of views and comments are shown in Table 6 (for parents) and Table 7 (for case coordinators). Though the activities are listed in order of their observed degree of association with each target variable, all those listed showed a noteworthy degree of association ($R^2 \geq 0.05$). These tables indicate that in regard to overall satisfaction with services, some activities found to be important in 1975-1978 continued to be important in 1978-1979, while other activities initially found to be of less importance became more important as time passed and the services were extended to new patients.

Table 6. Consumer variables associated with prediction of parents' overall satisfaction concerning the services provided, of their satisfaction regarding progress made by their children following medical intervention, and of the satisfaction they expressed in other comments (see Table 2). Each variable is listed by order of its degree of correlation; only variables having a "P" value for entry into the stepwise regression equation of over 0.05 have been listed.

Target variable (see Table 2)	Consumer variables correlated with prediction of target variables (see Table 2)	
	Data for children seen between 1 July 1975 and 31 July 1978 (N = 402 children)	Data for children seen from 1 July 1975 to 31 July 1978 and from 1 August 1978 to 31 July 1979 (N = 554 children)
Overall satisfaction with services (Question 7)	Question 1—rating of opportunity to ask questions	Question 2—rating of explanation of medical findings related to education of child
	Question 3—rating of how clearly the clinic findings were explained to parents	Question 1—rating of opportunity to ask questions
	Question 5—rating of progress made by child following medical intervention	Question 4—rating of how well appointments were scheduled
	Question 4—rating of how well appointments were scheduled	Question 3—rating of how clearly the clinic findings were explained to parents
	Overall $R^2 = 76\%$	Question 5—rating of progress by child since medical intervention
Progress made by child following medical interven- tion (Question 5)		Question 6—rating of need for staff to visit child in home community
	Question 7—rating of overall satisfaction with services	Overall $R^2 = 46\%$
	Question 8—length of group membership (time interval over which child was seen)	Question 7—rating of overall satisfaction with services
	Overall $R^2 = 24\%$	Overall $R^2 = 9\%$
"Free response" comments made about services (Question 11)	Question 7—rating of overall satisfaction with services	Question 7—rating of overall satisfaction with services
	Overall $R^2 = 69\%$	Question 3—rating of how clearly the clinic findings were explained to parents
		Overall $R^2 = 71\%$

The increase in the number of "predictor" variables found to have a noteworthy association with overall case coordinator satisfaction can be accounted for by a significant improvement in case coordinator ratings over time (see Table 3). Of course, this larger number of variables implies that plans for sustaining and improving case coordinator satisfaction will require devoting special attention to a relatively large number of activities, rather than concentrating special attention on a few.

Regarding the parental data, the analysis showed that nearly all the variables having a noteworthy association in 1975-1978 also had a noteworthy association in 1978-1979. In ad-

dition, the matters cited in questions 2 and 6 had come to have a noteworthy association with overall satisfaction, and that cited in question 3 had come to have a noteworthy association with parental comments. Like the case coordinator responses, the parental responses showed a steady improvement in satisfaction over time.

Interestingly, few of the parent variables analyzed appeared to have a marked association with parents' average satisfaction concerning the progress of their children following medical intervention. Indeed, the 1978-1979 data indicate that the only noteworthy variable associated with satisfaction about

Table 7. Consumer variables associated with prediction of case coordinators' overall satisfaction concerning the services provided, of their satisfaction regarding progress made by children following medical intervention, and of the satisfaction they expressed in other comments (see Table 3). Each variable is listed by order of its degree of correlation; only variables having a "P" value for entry into the stepwise regression equation of over 0.05 have been listed.

Target variable (see Table 3)	Consumer variables correlated with prediction of target variables (see Table 3)	
	Data for children seen between 1 July 1975 and 31 July 1978 (N = 402 children)	Data for children seen from 1 July 1975 to 31 July 1978 and from 1 August 1978 to 31 July 1979 (N = 554 children)
Overall satisfaction with services (Question 10)	Question 3—rating of helpfulness medical findings af- forded in determining specific educational activities for child	Question 1—rating of how well staff members answered questions based upon child's clinic visit
	Question 1—rating of how well staff members answered questions based upon child's clinic visit	Question 3—rating of helpfulness medical find- ings afforded in determining spe- cific educational activities for child
	Overall $R^2 = 70\%$	Question 8—rating of whether staff members provided all necessary assistance
		Question 11—length of group membership (time interval over which child was seen)
Progress made by child following medical interven- tion (Question 7)	Question 3—rating of helpfulness medical findings af- forded in determining specific educational activities for child	Question 5—rating of appropriateness of staff member suggestions to local pro- grams and resources
	Question 2—rating of distinction made between medical and nonmedical needs of child	Question 2—rating of distinction made between medical and nonmedical needs of child
	Question 5—rating of appropriate- ness of staff member suggestions to local programs and re- sources	Question 13—whether medical report was re- ceived within 10 days of clinic visit
	Question 12—first child referred to center	Overall $R^2 = 71\%$
	Overall $R^2 = 62\%$	Question 8—rating of whether staff members provided all necessary assistance
	Question 10—rating of overall satis- faction with services	Question 15—distance coordinator lives from center (in miles)
"Free response" comments made about services (Question 17)	Question 7—rating of progress made by child following medical intervention	Question 5—rating of appropriateness of staff member suggestions to local pro- grams and resources
	Question 15—distance coordinator lives from center (in miles)	Question 12—first child referred to center
	Question 8—rating of whether staff members provided all necessary assistance	Question 11—length of group membership (time interval over which child was seen)
	Overall $R^2 = 78\%$	Question 6—rating of how much assistance case coordinator provided clinic staff in development of followup plan
		Overall $R^2 = 31\%$
		Question 10—rating of overall satisfaction with services
		Question 7—rating of progress made by child following medical intervention
		Question 14—difficulty of scheduling appoint- ments
		Overall $R^2 = 76\%$

progress was the parents' overall satisfaction with the services—and even this had a relatively slight association ($R^2 = 0.09$). One possible explanation could be that parents' perceptions of their child's "progress" were not greatly influenced by the other variables, these variables being more closely associated with "quality of service." If so, this supports the theory that parents, being principally interested in their child's health, are apt to be especially concerned about health status changes (or lack of them) that may relate to the child's handicapped condition. This in turn suggests that if medical intervention cannot overcome or reduce the handicap, parental satisfaction will probably remain moderate (in

the 50-70 per cent range) instead of rising to higher levels. Moreover, since such preoccupation with the outcome might well be less pronounced among case coordinators, the coordinators' perceptions of progress could well be more closely associated with various "quality of service" variables, as the data in Table 7 indicate.

In this manner, besides providing a basis for predicting which variables can influence future consumer responses, this sort of analysis can provide insight into relationships between different variables and possible reasons for disparities in the attitudes of different consumer groups.

SUMMARY

Most health providers overlook the opportunity to collect consumer input or collect it only on a periodic basis, thus limiting their ability to detect individual patients' difficulties and to nip developing problems of a more general nature in the bud. One simple and effective way of collecting such information on a continuing basis is to develop a questionnaire that will provide an accurate index of consumer satisfaction with the key services involved.

The questionnaire format discussed here, which is only one of various available, has proven successful at two group medical practices in the midwestern United States. It is geared to a series of questions directed at things consumers tend to consider important, these questions (suggested by staff members, referral sources, and consumers) having been previously included in draft questionnaires and tested in the field. Previous research has shown that consumers tend to associate certain conditions with satisfactory care—these conditions including an opportunity to ask questions, effective explanation of findings by staff members, provision of all help needed to make the patient's visit pleasant and

meaningful, integration and summarization of all results in "jargon-free" reports, and experiences demonstrating the usefulness of the visit after the patient leaves the doctor's office. Accordingly, stress should be placed on questions relating to these matters.

Questionnaires used by the author for this purpose have typically included queries about the respondent's satisfaction with a number of circumstances and activities. Most of these queries ask the respondent to rate his or her level of satisfaction on a scale ranging from 0 to 100 per cent. The questionnaires are then submitted periodically to all appropriate consumers, the responses are scanned upon receipt to see if prompt action is needed, and the data obtained are subjected to statistical analysis at regular intervals. Overall, this general approach has provided an effective way of monitoring consumer satisfaction with key aspects of a service, pinpointing specific problems, and determining the steps needed to see that appropriate levels of consumer satisfaction are achieved and maintained.

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ANNEX 1. EXAMPLE OF A MASTER QUESTIONNAIRE

 Patient Number

 Clinic ()

 Today's Date:

 Dear

:

We are interested in knowing how you feel about the treatment you (and the patient you accompanied to the Clinic if you are not the patient) received when last seen at

 Clinic for special services. Listed on the following pages are questions relating to various parts of your experiences here.

Please rate each of the questions corresponding to your level of satisfaction particularly as it relates to the most recent visit. A rating of 50% is average. A rating above 50% indicates a positive (satisfied) response and a rating below 50% indicates a negative (unsatisfactory) response. Circle the percent (%) of satisfaction you have for each question.

Example Question: "Was the amount of time Clinic staff spent with you satisfactory?"

NEGATIVE (Not satisfied)										POSITIVE (Satisfied)	
NO										YES	
0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	

Complete and return questionnaire in the enclosed, stamped envelope within the next five days. For those questionnaires not returned, Clinic staff will follow-up on and assist with the completion.

Thank you for taking the time to respond to this questionnaire. Your response will help improve our service to you.

Sincerely,

Patient Services Coordinator
 Telephone (715) 387-

 (For non-local calls dial 1-800-000-0000)

Please circle the % (50% being average) that corresponds to your level of satisfaction with each of the following questions (If you would like to explain your answer, please use space following question):

	NEGATIVE	POSITIVE
1. Were you satisfied with the date and time of your appointment? If no, what could have been done to improve it? _____	NO 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%	YES
2. Were you given opportunities to ask questions? _____	NO 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%	YES
3. _____	NO 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%	YES
4. _____	NO 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%	YES
5. Did you receive a clearly developed explanation of all _____ Clinic findings?	NO 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%	YES
6. _____	NO 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%	YES
7. _____	NO 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%	YES
8. Has progress been made since last being seen at this special clinic service? If no, what could be done to increase progress? _____	NO 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%	YES
9. _____	NO 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%	YES
10. Did you receive all necessary assistance from staff?	NO 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%	YES
11. Was the cost reasonable for services provided?	NO 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%	YES
12. _____	NO 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%	YES
13. Were you pleased with the overall service provided at the _____ Clinic?	NO 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%	YES
CIRCLE YOUR ANSWER		
14. Was this your first visit to _____ for medical care?	NO	YES
15. Was this your first visit to _____ special service clinic?	NO	YES
16. Did you receive an appointment to return? If yes, what date(s)? _____ What department(s)? _____	NO	YES
17. Did you have any difficulty scheduling appointments? If yes, describe problem(s) _____	NO	YES

	CHECK YOUR ANSWER
18. How long did you wait to be seen for your appointment?	1. <input type="checkbox"/> 0-5 minutes 4. <input type="checkbox"/> 30-60 minutes 2. <input type="checkbox"/> 5-15 minutes 5. <input type="checkbox"/> Over one hour 3. <input type="checkbox"/> 15-30 minutes
19. Who referred you to the _____ special clinic service?	1. <input type="checkbox"/> Your family doctor 4. <input type="checkbox"/> Self 2. <input type="checkbox"/> Medical center doctor 5. <input type="checkbox"/> Other (specify) _____ 3. <input type="checkbox"/> Nurse
20. How many miles do you live from the doctor's office?	1. <input type="checkbox"/> Within 20 miles 2. <input type="checkbox"/> 20-100 miles 3. <input type="checkbox"/> Over 100 miles

21. Were there things about your health that you thought were important but not brought up during the Clinic visit?

22. List the department or departments in which you were seen other than _____ special clinic services

Departments:

Date(s) seen:

<hr/>	<hr/>
<hr/>	<hr/>
<hr/>	<hr/>

23.

24. Do you have any suggestions or general comments about the service and care you received?

THANK YOU FOR COMPLETING THE QUESTIONNAIRE.
PLEASE FOLD, PLACE INTO ENCLOSED, PRE-STAMPED, ADDRESSED ENVELOPE AND MAIL.