THE VALUE OF A DIAGNOSIS

By

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I wish to dedicate this research to my husband, Fred.

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CHAPTER I

THE PROBLEM

Health service agencies have become increasingly challenged by cost accounting methods to measure the significance of the help they offer. The issues being confronted are program effectiveness, delivery of services and factors influencing the continuance of the client in treatment. Assessing continuance is an indirect or consumer approach to the evaluation of health services. It is generally accepted that the patient through broken or canceled appointments and dropouts from treatment is saying something is wrong with the service or the way in which it is delivered (Levine, 1970; Cobb, 1972). Further, the failure of patients to attend a clinic for treatment after referral is seen as an inability on the part of the clinic to meet the needs of its community (Raynes and Warren, 1971). However, there has been extensive resistance to the use of the consumer as a resource to evaluate the health service programs. This has continued even after the rapid development of outpatient services following the community mental health legislation in 1963 and the subsequent need to evaluate those programs (Cobb, 1972). The resistance is seen as threefold: (1) health service agencies traditionally claim the perogative of defining service priorities and reviewing ongoing programs (Levine, 1970; Tischler, 1971; Mora, 1972; Rappaport and O'Connor, 1972); (2) there is a question as to whether health care

recipients, especially those from the more disadvantaged groups, can effectively evaluate programs (Levine, 1970; Tischler, 1971; Cobb, 1972; Rappaport and O'Connor, 1972); and, (3) methods of consumer measurement are unrefined and have not employed the more precise statistical instruments preferred in empirical study (Ripple, 1955; Levinger, 1960; Cobb, 1972; Ewalt, Cohen and Harmatz, 1972).

In spite of this resistance to use consumer feedback an increasing interest has been shown in patient continuance. Kleinberg and O'Connor (1972, p. 545-548) in discussing the use of patient continuance to evaluate diagnostic services observe that:

> The effectiveness of any evaluation team dealing in childhood psychosocial disorders is difficult to measure. With most cases there are no absolute or unchallenged criteria for evaluating accuracy of diagnosis. Likewise, there is no uniform agreement about the comparative effectiveness of various therapy programs. Despite these difficulties, we were desirous of appraising the long-range usefulness of (the) evaluations....through a questionnaire survey. The survey compared the extent to which parents understood and followed through on the recommendations which were noted in the patients' charts and also asked the parents for comments concerning their satisfaction or dissatisfaction with the evaluation process....

Other investigators have considered the matter of patient continuance from an administrative approach as a means of providing more effective delivery of services. Ewalt, Cohen and Harmatz (1972, p. 857) observe that:

> Half of all applicants to our clinic and reportedly elsewhere, terminate their contact within four visits. The special problem that such early discontinuance presents in child guidance work is related to the common practice of devoting the first several visits to evaluation. This practice assumes that the therapeutic intervention may follow later if deemed advisable by professional persons. However, since many families decide not to continue past evaluation, whatever opportunity existed for intervention during the first few visits may have been lost. It is

> therefore important for administrators to know as quickly as possible which families will be willing to accept treatment later and which will not. Use of the first few interviews may then be planned in accordance with the period of time likely to be available for rendering help to the family.

Studies seeking to define the relevant variables in patient continuance or follow-through have been conducted from a variety of viewpoints. Most writers have limited their attention to the particular variables which concerned them in reference to data at hand, such as interviews or psychological tests. The purpose of this study is to investigate continuance as a multi-factored concept including variables related to: (1) the patient; (2) the diagnostic consultation process and its contingencies; and, (3) the availability of resources.

Review of Literature

The Patient

Ripple's studies (1955, 1956 and 1957) at the University of Chicago School of Social Service Administration exemplify an early approach to assessing the likelihood of continuance by a client. She examined continuance (past four interviews) as a function of four general variables: the client's motivation, his intellectual capacity, the opportunity afforded by his environment and the opportunity afforded by the agency. But analysis of these variables during the early interviews was time consuming and by the time likelihood of continuance was assessed the family may already have dropped out (Ewalt, Cohen and Harmatz, 1972).

Socioeconomic factors have also been investigated in relation to continuance. Cobb (1972) summarized the research literature from

1963 through 1969. He found one group of studies which indicated that low-socioeconomic status patients are more likely to drop out of treatment than patients of higher socioeconomic status. On the other hand a number of studies cited in Cobb's review reported no difference in dropout rate between patients from different socioeconomic strata. The contradictory findings suggested that socioeconomic status may be related to, but not a sufficient factor in accounting for, patient continuance.

Other investigators have attempted to use the findings of earlier studies to develop an instrument to predict patient continuance. Ewalt, Cohen and Harmatz (1972) employed information obtained as part of the initial contact of the applicant to determine which variables were positively associated with the continuance of the pediatric patient. Continuance rates were higher if (1) the child was below 12 years of age, (2) the child was reportedly not stubborn, (3) the child's mother at least finished high school, (4) the parents' concern was primarily child-oriented rather than perpetuated by avoidance of action by authorities in the community and (5) the parents expressed a desire to understand the child rather than modify the child's behavior. Variables not found to be related to continuance were social class, age of parents, beliefs about causation of the problem, somatic complaints or family size.

The Diagnostic Consultation Process

The importance of the diagnostic consultation has been stressed by many authors, among them Gessell and Amatrauda (1947), Beller (1962), and Gardner and Nisonger (1962). Goldstein and Marshall who have

investigated the diagnostic process in a series of studies since 1967 (1971, p. 5-11) observe that:

> In the diagnostic process....diagnostic statements must not only be made for the use of other professionals, but they must be imparted to other significant members of the patient's family who are not professionals. The 'giving' of this information by the diagnostician and the 'hearing' of it by the parents is perhaps the most cricial part of the diagnostic process as the understanding and acceptance of such information will directly effect plans for treatment.

There are indications that the manner in which the diagnostic information is conveyed is as important as what is told and seems to be a variable in the patient's or family's ultimate decision to follow through on recommendations. Inexperience in communication techniques may result in criticisms by the respondent that the diagnosis was "fired at us", "told in a cold-blooded way", "presented bluntly" or "not diplomatically" (Koch, Graliker, Sands and Parmelee, 1959). Further, the person who has a hesitance to give bad news, attempts to shelter or protect the family, or strives to establish a positive image of himself with the parents interferes with communication (Matheny and Vernick, 1969). In discussing effective communication of diagnostic information Matheny and Vernick (1969, p. 953-959) observe that:

> What the parents need most from diagnostic or informative counseling is specific, clearly transmitted, honest information about the child, implications for his future and knowledge of what concrete steps they can take to deal with the problems.

Other studies favor a unified approach or comprehensive diagnostic evaluation as a means of reducing noncontinuance of the patient in post-diagnostic treatment. Denhoff (1972) proposes expansion of clinical preparation of pediatricians to include an awareness of the total needs of families of which the child or patient is a part.

In contrast, the importance of having one physician assume the medical care of the child, interpret and coordinate the findings and recommendations following the diagnostic workup has been stressed (Koch, Gralicker, Sands and Parmelle, 1959). This is especially true of the child with multiple handicaps and related problems who is seen for more than one physician or agency for the same reason. Parents may receive contradictory recommendations in a series of diagnostic conferences by various professionals who have seen the child. The findings of Marshall and Goldstein (1971) support the comprehensive approach to evaluation and diagnosis. From their information processing model of an inverted U shaped function they interpret that too much, as well as too little, information or too many conferences in which the parent has received information about his child's problem may well lead to lowered acquisition rates or little increase in use of diagnostic information to better understand the problem of his child.

In addition to variables related to transmitting diagnostic information, the ability of the parent to retain information given to him in the diagnostic conference is important. Retention may be reduced either because of stresses experienced by the parents when they receive the diagnostic findings of a handicapped child (Marshall and Goldstein, 1971) or because often they do not comprehend what was said until they have experienced repeated exposures to the concepts (Denhoff, 1972). Control or evaluation of interfering stress variables experienced by the parents is seen as unrealistic by a clinic whose primary purpose is providing diagnostic services. But there has been favorable interest in attempts to improve the parents' retention of diagnostic information by providing additional exposure to it. Often this has been through

additional sessions with a clinic staff member, such as a social worker (Denhoff, 1972). Marshall and Goldstein (1971) provide evidence that mechanical replays via video- or audio-tape immediately following the original diagnostic conference facilitates acquisition of diagnostic information by the parents. However, the differences between the mechanical and more standard information presentation modalities were not maintained over a one-year period.

Availability of Resources

Another factor related to whether the client continues in treatment is the availability of resources. A general criticism is that help given often falls short of its objective--that is client use of another resource (Shyne, 1957). Often resources are not geographically available. This is a problem of the pediatric hospital which traditionally serves an extensive geographic area. Consequently, hospital personnel turn back to the community for help after diagnosis and recommendations are made to the patient. Few clinics can establish rapport with patients who they must first tell they cannot provide the treatment recommended by the center (Bullard, 1968).

Other variables affecting availability of resources even when they are geographically present are lack of assumption of management of the patient and socioeconomic status. In discussing inadequate patient management, Meyer, Stafford and Jacobsen (1970) observe that too often the diagnosis is viewed as the end product of the clinical effort. Broad recommendations are made to the referring physicians or community agencies and assessments are often limited in regard to progress being made. Following the lead of Hollingshead and Redlich (1958)

socioeconomic status has been found to be related to the use of psychiatric services. In general, professional help is more easily available to middle-class than to lower class individuals and the former are more suited to it (Levinger, 1960; Hunt, 1962).

CHAPTER II

METHOD

Subjects

Survey Forms were mailed to 528 Child Study Center (CSC) patients. (See Appendix A for an extended CSC Program Description.) This was the number of new patients evaluated at CSC for a four year period from July 1, 1969, to June 30, 1973, whose files contained full application and staffing note information. A total of 233 patients returned the Survey Forms and were included in the study. Another 184 patients received the Survey Forms but did not return them. The criterion for determining that the Survey Forms were received was that they were not returned as undeliverable by the U. S. Postal Service. The remaining 111 Survey Forms were those returned by the U. S. Postal Service as undeliverable.

Procedure

Sources of Information

Three sources of information were used for the study. One was the CSC Application Form (Appendix B) which was filled out and submitted by the family prior to the patient's first appointment. The Survey Form was the second source of information that was employed (Appendix C). A third source of information was the CSC Staffing Note in the patient's

file. From these three sources of information 64 variables were generated (Appendix D).

The following information was included from the Application Form:

Fiscal year seen
City size
State
Referral source
Presenting problem
Patient's age
Number of children in the family
Number of pregnancies of mother
Number of living children
Ordinal position of patient with siblings
Sex
Race
Parent's marital status
Patient living with
Number of foster homes
Mother's education
Mother's occupation
Father's education
Father's occupation
Total family income
Problem treated previously

The Survey Form was a structured form on which the parents of the patient were requested to indicate the recommendation or recommendations they were given for their child following his evaluation at the diagnostic conference. The five recommendation categories were as follows:

1. EDUCATIONAL
   Special classroom placement, learning disabilities class, language class, class for mentally retarded, learning lab, special tutoring, speech therapy, institutionalization or special schooling away from home.

2. PSYCHOLOGICAL
   Therapy or counseling for child, counseling for parent or parents, either group of individual; family counseling.

3. MEDICAL
   Medical referral to other physicians after the diagnostic work-up for problems such as vision, heart, etc.

4. REEVALUATION
   A request that the child return usually in a year to CSC or be seen by another agency such as a local Guidance Center for a reevaluation of the current problem.

5. CONTINUE PRESENT TREATMENT
   Often a child is in a remediation program at the time of his initial diagnostic evaluation at CSC. It is possible that such a program is the treatment of choice and the recommendation is to continue that program.

In addition, the parents were asked to indicate on the Survey Form the continuance or noncontinuance of their child in post-diagnostic treatment by listing the specific resource. If no follow through was indicated it was further requested that the parents indicate whether the resource was not available or state the reason for noncontinuance.

Further, the Survey Form contained an item which asked for the parents' impression of the manner in which diagnostic information about their child was given at CSC. Four choices were available: (a) confused, (b) too blunt, (c) specific and clearly stated, or (d) too sympathetic.

The CSC Staffing Note in the patient's file contained the summary diagnosis and recommendations made during the staffing session of the patient. It was used as a reference for the diagnostic conference with the parents and communication with the referral source. In addition the Staffing Note was the criterion for assessing the "hearing" by the patient's family of the recommendations given at the diagnostic conference.

Group Classification

The criteria for inclusion in the Continuance Group was that the patient and/or patient's family (1) "hear" and follow through on all

CSC diagnostic recommendations or (2) "hear" the diagnostic recommendations and resources are not available.

Partial Continuers were those patients who (1) "hear" and follow through on at least one but not all of the recommendations or (2) if no recommendations are followed, at least one recommendation is "heard" and no resources are available.

Noncontinuers were defined as patients (1) who do not "hear" recommendations or who (2) "hear" but do not follow through.

For the purpose of classification "hearing" the recommendation was measured by the parent's ability to recall and mark the appropriate recommendation category on the Survey Form. A recommendation was considered "heard" if a recommendation category named in the CSC Staffing Note in the patient's file was appropriately marked by the patient's family on the Survey Form. A patient was considered to have followed the recommendation if he listed the resource that provided the treatment in the appropriate blank on the Survey Form.

Statistical Analyses and Hypotheses

The primary statistic employed to examine patient Continuance, Partial Continuance and Noncontinuance was a stepwise linear discriminant function analysis. (A detailed description of the discriminant function analysis is found in Appendix E.) After the initial phase of the analysis those variables which met certain specifications were included in the "best" prediction system. This was used to predict patient Continuance, Partial Continuance and Noncontinuance on two-thirds of the returned survey sample. The remaining third of the sample was used for replication of the "best" predictors system and was proportionate to the

total survey sample over each of the four fiscal years tabulated.

A secondary analysis was made using a stepwise linear discriminant function analysis to examine the differences between families who did and did not respond to the survey. A total of 417 subjects were included in this aspect of the study. These consisted of the 233 patients from the first analysis and 184 patients who received Survey Forms but did not return them. The 41 patient variables drawn from the CSC Application Form were used as predictors. (The Application Form variables are listed in Appendix D.)

The following specific hypotheses were examined in the primary study:

1. Of recommendations given to parents the one most likely <u>not</u> to be followed is psychological.
2. Patients from families of higher socioeconomic status are more likely to follow through on recommendations.
3. The higher the educational level of the mother the more likely the recommendations for the patient will be followed.
4. Parents of patients who are over 12 years of age are less likely to follow recommendations.

CHAPTER III

RESULTS

The results of this study support the hypothesis that the recommendation most likely not to be followed is psychological. The remaining three hypotheses are not supported.

The results are presented separately for the four analyses employed to examine patient Continuance, Partial Continuance and Noncontinuance. Within each analysis two approaches are taken in the examination of the data. First there is an evaluation of hypotheses through the use of the F-value at Step 0 of the discriminant function analysis, i.e., which variables significantly differentiate the groups being compared. Second, the derived discriminant function of the variables which best predict patient classification is presented. Three questions are being asked in the data presentation. How do patients in the various groups differ, can any of the differences predict group membership, and how accurate are these prediction systems?

A table of central tendency statistics and standard deviations of the 64 variables can be found in Appendix F.

A characterization of the patients and their families participating in the study is given below through the use of central tendency statistics. Appendix F should be consulted for specific statistics and standard deviations for a more comprehensive picture of the variability both across and within groups.

Continuers: Patients Who Follow Clinic Recommendations (N=123)

1. Referral - Physician (75% of cases); Guidance Center (15%); Welfare (5%). All Welfare cases are found in the Continuers group.
2. Presenting Problem - Learning difficulties (72% of cases); emotional/behavior, speech/language and seizure disorders are equally distributed (10-15% of cases).
3. State - Oklahoma (98% of cases).
4. City Size - As often as not it is larger than 75,000 population. If not, it is equally possible the patient resides in any of the four less populated city groups.
5. Sex - Male (70% of cases).
6. Age - Eight or ten years.
7. Number of Children in Family - Three.
8. Birth Order - The eldest or next to eldest.
9. Race - Caucasian (95% of cases).
10. Marital Status of "Parents" - Married (95% of cases).
11. Patient Living With - Natural parents (75% of cases). Otherwise, it is equally possible that the patient lives with adoptive parents, one parent, a parent and step-parent or foster parents. If living with foster parents the patient is likely to have been in four previous foster homes.
12. Total Family Income - Either $500 to $800 or above $1000.
13. Mother's Education - Higher education (some college or a college degree).
14. Mother's Occupation - Housewife.

15. Father's Education - Slightly more than chance level, fathers have had higher education than have not with equal possibility it consists of some college, a college degree or graduate school.
16. Father's Occupation - May or may not be given. If given it is likely of professional, managerial or technical status.
17. Presenting Problem Treated Previously - No (54% of cases).
18. Diagnosis - Learning disabilities (67% of cases). Seizure disorders or borderline intelligence (15% of cases each); mental retardation (4%) and emotional problems (2%).
19. Recommendations - Educational (90% of cases); psychological (10%).
20. Manner Recommendations Conveyed - Specific and clearly stated (87% of cases).
21. Recommendations "Heard" - Educational (90% of cases); psychological (10%).

Partial Continuers: Patients Who Follow Through
On Some but not all Recommendations (N=21)

1. Referral - Physician (67% of cases); Guidance Center (30%).
2. Presenting Problem - Learning difficulties (85% of cases); emotional/behavior problems (33%); speech/language (15%).
3. State - Oklahoma (100%).
4. City Size - Larger than 75,000 population.
5. Sex - Male (57% of cases).
6. Age - Seven or ten.
7. Number of Children in Family - Two.
8. Birth Order - Second child.
9. Race - Caucasian (100% of cases).

10. Marital Status of "Parents" - Married (95% of cases).
11. Patient Living With - Natural parents (67% of cases); adoptive parents (24%); grandparents or a parent and stepparent (each 5% of cases).
12. Total Family Income - $300 to $800.
13. Mother's Education - High school graduate.
14. Mother's Occupation - It is unlikely she is employed, but if so, her work is clerical.
15. Father's Education - High school graduate.
16. Father's Occupation - Not given.
17. Presenting Problem Treated Previously - No (62% of cases).
18. Diagnosis - Learning disabilities (71% of cases); emotional problems (19%); language difficulties or borderline intelligence (each 14%); mental retardation (10%) and seizure disorders (5%).
19. Recommendations - Educational (100% of cases); psychological (81%); reevaluation (15%) and medical (5%).
20. Manner Recommendations Conveyed - Specific and clearly stated (81% of cases); confused (19%).
21. Recommendations "Heard" - Educational (100% of cases); psychological (5%); reevaluation (none) and medical (5%).

Noncontinuers: Patients Who Follow Through
On No Recommendations (N=12)

1. Referral - Physician (75% of cases); Guidance Center (25%).
2. Presenting Problem - Emotional/behavior (42% of cases); learning difficulties (33%); seizure disorders, speech/language or developmental delays (each 17% of cases).

3. State - Oklahoma (100% of cases).
4. City Size - As likely to be above 75,000, or between 15,500 to 35,000, as below 4,000.
5. Sex - Male (75% of cases).
6. Age - Eleven years.
7. Number of Children in Family - Three.
8. Birth Order - Eldest or third child.
9. Race - Caucasian (92% of cases); Negro (8%).
10. Marital Status of "Parents" - Married (100% of cases).
11. Patient Living With - Natural parents (92% of cases); adoptive (8%).
12. Total Family Income - $300 to $800.
13. Mother's Education - High school degree.
14. Mother's Occupation - Housewife.
15. Father's Education - At chance level he terminated education with a high school degree. If not, it is equally possible he earned an M.D. or Ph. D. or did not graduate from high school.
16. Father's Occupation - Equally possible that it is professional or manual labor.
17. Presenting Problem Treated Previously - Yes (58% of cases).
18. Diagnosis - Learning disabilities (42% of cases); seizure disorders or borderline intelligence (each 25% of cases); emotional problems or mental retardation (each 17% of cases).
19. Recommendations - Educational (67% of cases); psychological or reevaluation (each 33% of cases); medical (17%).
20. Manner Recommendations Conveyed - Specific and clearly stated (50% of cases); confused (42%); too blunt (8%).

21. Recommendations "Heard" - Educational (8% of cases); psychological (17%); reevaluation (none); medical (8%).

Analysis I. Continuers, Partial Continuers, Noncontinuers

A multiple discriminant function analysis was employed to compare all subjects in all groups. Of the original 64 variables, 11 significantly differentiated the groups and are shown in Table I under Family, Clinic and Communication headings to give some idea of the patterning of differences. Continuers, Partial Continuers and Noncontinuers do differ from each other in several areas of functioning. They differ in their presenting problems, in who they are living with and in the diagnoses and recommendations they receive from CSC. Further, they differ in whether they "hear" recommendations and in their impression of the manner in which clinic information is given.

TABLE I

VARIABLES SIGNIFICANTLY DIFFERENTIATING CONTINUERS, PARTIAL CONTINUERS AND NONCONTINUERS

Variable	F Value at Step 0 df 2, 153
Family	
Presenting Problem - Emot./Behavior	3.85*
- Learning	5.59**
- Dev. Delay	4.10*
Patient Living With - Grandparents	3.31*
Clinic	
Diagnosis - Emotional/Behav. Problems	7.99***

TABLE I (Continued)

Variable	F Value at Step 0 df 2, 153
Clinic	
Recommendations - Educational	4.58*
- Psychological	39.53***
Communication	
Recommendation "Heard" - Educational	67.57***
- Reevaluation	5.45**
Manner Conveyed - Confused	4.80**
- Specific and Clear	5.73**

*p < .05, df 2, 120; F=3.07
**p < .01, df 2, 120; F=4.79
***p < .001, df 2, 120; F=7.32

Three variables made up the final prediction system used in the classification of subjects into the group which they most resembled. Knowing the clinic recommendation is psychological and that the recommendation not "heard" is educational and/or psychological does accurately predict the subject's group membership. Table II shows the F values of the three predictors at Step 0, at the time the predictor entered the system, and at Step 3. Table III contains the F matrix for the Continuers, Partial Continuers and Noncontinuers discriminant function. The classification of subjects into groups is shown in Table IV. In combination, these three variables correctly classified 90% of the sample or 141 of 156 subjects.

A cross validation of this discriminant function was computed on an additional 77 subjects withheld from the initial analysis to test if these same variables would predict group classification for an

independent sample. Table V shows a frequency distribution of the probabilities of classification of the initial sample and the cross validation sample. Using the three predictors 65 of 77 cross validation subjects or 83% were accurately classified.

TABLE II

PREDICTOR VARIABLES FOR CONTINUERS, PARTIAL CONTINUERS AND NONCONTINUERS DISCRIMINANT FUNCTION

Variable	F Value Step 0	F Value Entered	F Value Step 3
Recommendation - Psychological	39.53	40.70	71.68
Recommendation "Heard" - Educational	67.57	67.57	68.40
Recommendation "Heard" - Psychological	1.14	22.47	22.47

df 2, 149
$p < .001$, df 2, 120; F=7.32

TABLE III

F MATRIX FOR CONTINUERS, PARTIAL CONTINUERS NONCONTINUERS DISCRIMINANT FUNCTION

Group	Continuers	Partial Continuers
Partial Continuers	48.09	
Noncontinuers	47.35	43.19

df 2, 149
$p < .001$, df 2, 120; F=7.32

TABLE IV

NUMBER OF SUBJECTS CONTINUERS, PARTIAL CONTINUERS NONCONTINUERS CLASSIFIED INTO GROUPS

Group	Continuers	Partial Continuers	Noncontinuers
Continuers	114	0	9
Partial Continuers	5	16	0
Noncontinuers	0	1	11

TABLE V

FREQUENCY DISTRIBUTION OF PROBABILITY OF CLASSIFICATION
OF CONTINUERS, PARTIAL CONTINUERS AND NONCONTINUERS

PROB:	ORIGINAL SAMPLE									CROSS VALIDATION								
	C/C	C/PC	C/CN	PC/C	PC/PC	PC/NC	NC/C	NC/PC	NC/NC	C/C	C/PC	C/NC	PC/C	PC/PC	PC/NC	NC/C	NC/PC	NC/NC
1.00	9								1	5		2						
.99-.95	92		9	4	16			1	10	45	1	5	2	7				2
.94-.90																		
.89-.85															1			
.84-.80																		
.79-.75																		
.74-.70																		
.69-.65																		
.64-.60																		
.59-.55	13												1					
.54-.50				1						6								
TOTAL	114	0	9	5	16	0	0	1	11	56	1	7	3	7	1	0	0	2

Analysis II. Continuers vs Partial Continuers

Of the original 64 variables the six significantly differentiating the Continuers and Partial Continuers are presented in Table VI. In the area of family information the Partial Continuer had more presenting problems of an emotional/behavioral nature and more often lived with adoptive parents or grandparents.

TABLE VI

VARIABLES SIGNIFICANTLY DIFFERENTIATING
CONTINUERS AND PARTIAL CONTINUERS

Variable	F Value at Step 0 df 1, 142
Family	
Presenting Problem - Emotional/Behavior	3.93*
Patient Living With - Adoptive Parents	4.81*
- Grandparents	6.06*
Clinic	
Diagnosis - Emotional/Behavior Prob.	14.85***
Recommendation - Psychological	84.89***
Communication	
Recommendation "Heard" - Reevaluation	6.98**

*p < .05, df 1, 120; F=3.92
**p < .01, df 1, 120; F=6.85
***p < .001, df 1, 120; F=11.40

In the area of clinic information the Partial Continuer was more frequently diagnosed as having emotional/behavioral problems than the

Continuer. A subsequent psychological recommendation from CSC constitutes a very singular characteristic of differentiation between the two patient groups. The Partial Continuer receives a psychological recommendation whereas the Continuer does not.

Communication factors further differentiate the two groups. A recommendation for reevaluation is less frequently heard by the Partial Continuer than the Continuer.

Two variables made up the final prediction system used in the classification of subjects into the group which they most resembled in their pattern of scores. Table VII presents these variables and the F-value when entered into the prediction system. Knowing only that the patient is given a psychological recommendation and that the psychological recommendation is not "heard" by the patient's parents does lead to accurate prediction of group membership. A higher proportion of Continuers "heard" psychological recommendations compared to Partial Continuers. As can be seen in Table VIII these two variables correctly classified 97% or 139 of 144 subjects.

TABLE VII

FINAL PREDICTORS IN DISCRIMINANT FUNCTION
OF CONTINUERS AND PARTIAL CONTINUERS

Variable	F Value Step 0	F Value Step 2
Recommendation - Psychological	84.89	174.89
Recommendation "Heard" - Psychological	2.31	59.59

df 1, 142
$p < .001$ df 1, 120; F=11.40

TABLE VIII

NUMBER OF CONTINUERS AND PARTIAL CONTINUERS
CLASSIFIED INTO GROUPS AT STEP 2

Group	Continuer	Partial Continuer
Continuer	123	0
Partial Continuer	5	16

A cross validation of this discriminant function was computed on an additional 75 subjects withheld from the initial analysis to test if these same variables would predict group classification for an independent sample. Table IX shows a frequency distribution of the probabilities of classification of the initial Continuers/Partial Continuers sample and the cross validation sample. Using the two predictors 71 of 75 or 95% of the subjects were accurately classified.

TABLE IX

FREQUENCY DISTRIBUTION OF PROBABILITY OF CLASSIFICATION
OF CONTINUERS, PARTIAL CONTINUERS

PROB:	ORIGINAL SAMPLE				CROSS VALIDATION			
	C/C	C/PC	PC/PC	PC/C	C/C	C/PC	PC/PC	PC/C
1.00	9		16		6	1	8	
.99-.95	101			4	48			2
.94-.90								
.89-.85								

TABLE IX (CONTINUED)

PROB:	ORIGINAL SAMPLE				CROSS VALIDATION			
	C/C	C/PC	PC/PC	PC/C	C/C	C/PC	PC/PC	PC/C
.84-.80								
.79-.75								
.74-.70								
.69-.65								
.64-.60	13			1	9			1
.59-.55								
.54-.50								
TOTAL	123	0	16	5	63	1	8	3

Analysis III. Continuers vs Noncontinuers

Of the original 64 variables nine variables significantly differentiated Continuers from Noncontinuers. These are presented in Table X. In the family information area the presenting problem of the Noncontinuer is more diverse than the of the Continuer. The Noncontinuer has fewer learning problems, more emotional/behavior difficulties and developmental delays.

In considering clinic variables, it was found that the Noncontinuer was more often diagnosed as having emotional/behavior problems than the Continuer. Further, Noncontinuers were given fewer educational recommendations and more psychological recommendations than the Continuers.

TABLE X

VARIABLES SIGNIFICANTLY DIFFERENTIATING CONTINUERS AND NONCONTINUERS

Variable	F Value at Step 0 df 1, 133
Family	
Presenting Problem - Emotional/Behavior	5.27*
- Learning	8.12**
- Developmental Delay	6.41*
Clinic	
Diagnosis - Emotional/Behavior Problems	9.05**
Recommendations - Educational	5.27*
- Psychological	5.27*
Communication	
Recommendations "heard" - Educational	111.75***
- Reevaluation	3.98*
Manner Conveyed - Specific and Clear	11.76***

*$p < .05$, df 1, 120; F=3.92
**$p < .01$, df 1, 120; F=6.85
***$p < .001$, df 1, 120; F=11.40

Communication variables differentiated the two groups. The families of the Noncontinuers were significantly more confused by the clinic's interpretation of findings than Continuers. Continuers reported that clinic information was conveyed in a "specific and clearly stated" manner. Communication problems are further evident in the "hearing" of recommendations. Not "hearing" educational recommendations or those for reevaluation appears to be a selective communication problem of the Noncontinuer, as other clinic recommendations such as psychological and medical are received or "heard" by the two groups at a

consistent level.

Only one variable was needed to classify the Continuers and Noncontinuers. That variable and the F value when the predictor was entered into the system is shown in Table XI. Knowing that the educational recommendation is "heard" by the parents of the patient is an accurate predictor of group membership in 125 of 135 cases or 93% of the sample as seen in Table XII.

TABLE XI

FINAL PREDICTOR IN DISCRIMINANT FUNCTION OF CONTINUERS AND NONCONTINUERS

Variable	F Value	F at Step 1
Recommendation "Heard" - Educational	111.75	111.75

df 1, 133
$p < .001$, df 1, 120; F=11.40

TABLE XII

NUMBER OF CONTINUERS AND NONCONTINUERS CLASSIFIED INTO GROUPS

Group	Continuer	Noncontinuer
Continuer	114	9
Noncontinuer	1	11

A cross validation of this predictor variable was computed on an additional 66 subjects. In Table XIII is found a frequency distribution of the probabilities of classification of the initial Continuers/Noncontinuers and cross validation samples. The cross validation classification was accurate in 58 of 66 or 88% of the subjects.

TABLE XIII

FREQUENCY DISTRIBUTION OF PROBABILITY OF CLASSIFICATION OF CONTINUERS, NONCONTINUERS

PROB:	ORIGINAL SAMPLE				CROSS VALIDATION			
	C/C	C/NC	NC/NC	NC/C	C/C	C/NC	NC/NC	NC/C
1.00	103		7		49	1	2	
.99-.95	11		1	1	7	3		
.94-.90								
.89-.85								
.84-.80		9	3			4		
.79-.75								
.74-.70								
.69-.65								
.64-.60								
.59-.55								
.54-.50								
TOTAL	114	9	11	1	56	8	2	0

Analysis IV. Partial Continuers vs Noncontinuers

Of the original 64 variables four significantly differentiated the Partial Continuers and Noncontinuers. These differences are presented in Table XIV. In the family area the presenting problems of the two groups significantly vary. The Partial Continuer was more often referred for learning problems whereas the Noncontinuer's problems were more diverse.

TABLE XIV

VARIABLES SIGNIFICANTLY DIFFERENTIATING
PARTIAL CONTINUERS AND NONCONTINUERS

Variable	F Value at Step 0 df 1, 31
Family	
Presenting Problem - Learning	12.40**
Clinic	
Recommendation - Educational	9.86**
- Psychological	9.09**
Communication	
Recommendations "Heard" - Educational	217.00***

*p < .05, df 1, 31; F=4.17
**p < .01, df 1, 31; F=7.56
***p < .001, df 1, 31; F=13.30

In the area of clinic variables Partial Continuers were given significantly more educational and psychological recommendations than the Noncontinuer.

The communication factor of "hearing" or not "hearing" educational recommendations appears as the singularly differentiating characteristic

of the two groups. The Partial Continuer "hears" the educational recommendation, and though there are significantly fewer educational recommendations made to the Noncontinuer, he does not "hear" them. This is not in keeping with his ability to "hear" other clinic recommendations at a level consistent with that of the Partial Continuer.

Tables XV and XVI show the predictor discriminating Partial Continuers and Noncontinuers and the classification resulting from knowledge of whether the educational recommendation is "heard" by the parents of the patient. This variable accurately classified 97% or 32 of 33 subjects.

TABLE XV

FINAL PREDICTOR IN DISCRIMINANT FUNCTION OF PARTIAL CONTINUERS AND NONCONTINUERS

Variable	F Value	F at Step 1
Recommendation "Heard" - Educational	217.00	217.00

df 1, 31
$p < .001$, df 1, 31; F=13.30

TABLE XVI

NUMBER OF PARTIAL CONTINUERS AND NONCONTINUERS CLASSIFIED INTO GROUPS

Group	Partial Continuer	Noncontinuer
Partial Continuer	21	0
Noncontinuer	1	11

A cross validation of this predictor variable was computed on an additional 13 subjects withheld from the initial analysis to test if this same variable would predict group classification for an independent sample. There was accurate cross validation classification of 92% or 12 of 13 subjects. In Table XVII is found a frequency distribution of the probabilities of classification of the Initial Partial Continuers/ Noncontinuers sample and the cross validation sample.

TABLE XVII

FREQUENCY DISTRIBUTION OF PROBABILITY OF CLASSIFICATION OF PARTIAL CONTINUERS, NONCONTINUERS

PROB:	ORIGINAL SAMPLE				CROSS VALIDATION			
	PC/PC	PC/NC	NC/NC	NC/PC	PC/PC	PC/NC	NC/NC	NC/PC
1.00	21		11	1	10	1	2	
.99-.95								
.94-.90								
.89-.85								
.84-.80								
.79-.75								
.74-.70								
.69-.65								
.64-.60								
.59-.55								
.54-.50								
TOTAL	21	0	11	1	10	1	2	0

TABLE XVIII

FINAL PREDICTORS IN CONTINUERS, PARTIAL CONTINUERS AND NONCONTINUERS ANALYSES

All Three	Continuers/ Partial Continuers	Continuers/ Noncontinuers	Partial Continuers/ Noncontinuers
Recommendation - Psychological	Recommendation - Psychological		
Recommendation "Heard" - Educational		Recommendation "Heard" - Educational	Recommendation "Heard" - Educational
Recommendation "Heard" - Psychological	Recommendation "Heard" - Psychological		

TABLE XIX

CORRECT GROUP CLASSIFICATION OF SUBJECTS IN CONTINUERS, PARTIAL CONTINUERS AND NONCONTINUERS ANALYSES

SAMPLE	All Three	Continuers/ Partial Continuers	Continuers/ Noncontinuers	Partial Continuers/ Noncontinuers
Initial	90%	97%	93%	97%
Cross Validation	83%	95%	88%	92%

The three final predictors are presented in Table XVIII as they appear in the All-Three analysis and the three paired group analyses to differentiate Continuers, Partial Continuers and Noncontinuers. Table XIX contains the proportion of accuracy with which subjects are correctly classified into group membership in the four initial analyses and the four cross validation analyses. All three predictors pertain to clinic recommendations for treatment. One involves content (psychological). The other two predictors pertain to communication aspects of educational and/or psychological recommendations. The data in these tables support the importance of combining these three variables in accurately differentiating subjects along continuance, partial continuance and noncontinuance dimensions. Further, a particular patterning is revealed as these predictors emerge within the paired group analyses to classify subjects with even increased accuracy.

Analysis V. Responders vs Nonresponders

Of the 44 variables under consideration, nine significantly differentiated the Responders and Nonresponders and are shown in Table XX. The families of patients who return survey forms and those who do not differed in their referral sources and their presenting problems. Responders were more frequently referred by physicians, while Nonresponders less often used a major referral source such as a physician, Guidance Center or Welfare. The Nonresponder's presenting problems were less diverse, more often involved learning difficulties. Further, the person or persons with whom the patient lived and the number of foster homes were significant variables between the groups. Fewer Nonresponders lived in foster homes and more often lived with grandparents than

Responders. Additionally, the groups differed on the amount of education of the parents and the total family income. The education of the parents and the total family income in the Responders group was significantly higher than that of the Nonresponders.

TABLE XX

VARIABLES SIGNIFICANTLY DIFFERENTIATING RESPONDERS AND NONRESPONDERS

Variable	F Value at Step 0 df 1, 415
Family	
Referral Source - Physicians	4.80*
- Other	5.20*
Presenting Problem - Learning	4.13*
Patient Living With - Grandparents	5.58*
- Foster Parents	8.44**
Number of Foster Homes	24.89***
Mother's Education	30.60***
Father's Education	29.38***
Total Family Income	3.98*

*p < .05 df 1, 200; F=3.89
**p < .01 df 1, 200; F=6.76
***p < .001 df 1, 415; F=11.00

Two variables made up the final prediction system. Knowing the number of foster home placements of a patient and the education of the mother is shown in Tables XXI and XXII to have some qualification on group membership. Using these two predictors 266 of 417 or 64% of the

sample was accurately classified, indicating limited improvement over chance placement. It is noted in Table XXII that the two variables more accurately classify Nonresponders into group membership than Responders.

TABLE XXI

FINAL PREDICTORS IN DISCRIMINANT FUNCTION OF RESPONDERS AND NONRESPONDERS

Variable	F Value	F at Step 2 df 1, 413
Mother's Education	30.60	25.98
Number of Foster Homes	24.89	30.34

$p < .001$ df 1, 415; F=11.00

TABLE XXII

NUMBER OF RESPONDERS AND NONRESPONDERS CLASSIFIED INTO GROUPS

Group	Responder	Nonresponder
Responder	130	103
Nonresponder	48	136

CHAPTER IV

DISCUSSION

Through the use of cost accounting methods the value of spending 20 hours of professional time per child in diagnostic evaluation can be questioned if the parents of the patient do not follow through on the recommendations for treatment that result from the diagnosis. One of the most important contributions of this study is to shift the focus of investigation of continuance factors from the demographic characteristics of the patient to the communication processing of clinic recommendations. This redirects attention from patient attributes, which have previously held the interest of many investigators of continuance factors, to variables that pertain to the communication process between professional and parents.

This study isolated specific variables significantly related to patient follow through. These have to do with (1) the content of the particular recommendation made for treatment and (2) the effectiveness of the communication process within the diagnostic conference. These two variables appear to be interdependent. According to content a specific clinic recommendation may or may not be "heard". Within a single diagnostic conference some recommendations are "heard and followed", some are "heard and not followed", while others are "not heard" and subsequently "not followed". This points to either the selectivity of the patient's parents for receiving and following certain recommendations

or to the manner in which specific recommendations are conveyed by staff members.

The results of this study supported the importance that Marshall and Goldstein (1971) have placed on communication processing between professional and parents within the diagnostic conference as a factor affecting continuance. Additionally, this study showed that communication within a given diagnostic conference may be selective according to the specific content of a recommendation.

Discussion of this communication process is addressed to the particular patterning of the three significant clinic variables that emerged in this study to classify the Continuers, Partial Continuers, and Noncontinuers into groups. Additionally, the particular characteristics of these groups in respect to the three clinic variables that differentiated group membership are considered. The variables which differentiated among the three continuance groups were (1) Clinic Recommendation-Psychological, (2) Recommendation "Heard"-Psychological and (3) Recommendation "Heard"-Educational.

Members in the Continuers group "hear" and follow recommendations at a level consistent with those given by the clinic. These recommendations are primarily educational. There appears to be an overriding consistency in the Continuers group as to the problem most frequently presented, diagnosed and type of clinic recommendation given. The child is referred for learning problems, diagnosed as having a learning disability and the clinic recommendation is educational. Continuers view the information given about their child as specific and clearly stated. When less frequent clinic recommendations are given, such as medical, psychological or for reevaluation, they are followed. The

Continuers group comprizes 79% of the total subject sample.

The recommendations of the Partial Continuers are usually two-fold, educational and psychological. They are given educational recommendations at a level consistent with those given Continuers. However, they receive significantly more psychological recommendations than either the Continuer or Noncontinuer, but do not "hear" them. The Partial Continuer is primarily referred for learning problems, but frequently there are other problems as well. The Partial Continuer has significantly more presenting problems of an emotional/behavioral disposition in respect to presenting problem, diagnosis and clinic recommendation for psychological treatment. This may be because the Partial Continuer seems to have a history of a somewhat less intact family or home than the Continuer or Noncontinuer. Learning problems of the Partial Continuer are more diversely diagnosed than those in the Continuers group and include Borderline I.Q. and mental retardation along with learning disabilities. Speech/language problems are a possibility as well as seizure disorders. While four of five families report the clinic information about their child was conveyed in a clear and specifically stated manner, educational and medical recommendations are "heard" and followed while psychological and reevaluation recommendations are not. The Partial Continuers group constitutes 13% of the total subject sample.

Parents of Partial Continuers appear to have difficulty processing a multi-treatment recommendation. Perhaps the family focuses on the educational or medical recommendation because it is offered first. Quite remarkably, even parents who list concern for their child's emotional/behavioral difficulties in the referrel, do not hear the recommendation for psychological treatment. Possibly the attitude of the

professional may differ in respect to giving a psychological vs. an educational recommendation. In any case, the difficulty of the families of the Partial Continuers to process the information offered in the diagnostic conference suggests a need by the clinic professionals to focus more attention on communication processing as the number of recommendations increase and as the economic, educational and stability level of the family goes down.

The Noncontinuer, while he is given fewer educational recommendations than the Continuer and Partial Continuer, does not "hear" them. Further, the Noncontinuer, like the Continuer, is given fewer psychological recommendations than the Partial Continuer. Unlike the Continuer who "hears" the psychological recommendation and follows in psychological treatment, or the Partial Continuer who does not "hear" the psychological recommendation, the Noncontinuer may or may not "hear" the psychological recommendation. In either case, the Noncontinuer does not follow through in psychological treatment.

There is a distribution of presenting problems in the Noncontinuers group ranging from emotional/behavioral and learning to seizure disorders, speech/language problems or developmental delays. Referrals of developmental delays are significantly higher in the Noncontinuers group than the Continuers and Partial Continuers groups. Learning problems of the Noncontinuer as with the Partial Continuer are diversely diagnosed and include learning disabilities, borderline intelligence and mental retardation. The Noncontinuer, like the Partial Continuer, has significantly more diagnoses of emotional problems than the Continuer. Although learning problems are not the primary referral concern of the Noncontinuer as with the Continuer and Partial Continuer,

two-thirds of the Noncontinuers receive educational recommendations. Another one-third of the Noncontinuers receive recommendations for re-evaluation and neither the educational or reevaluation recommendation is "heard". Further, one-third of the Noncontinuers group are given recommendations for medical treatment. These may or may not be "heard" by the parents but, in any case, are not followed. The Noncontinuers group constitutes 8% of the total subject sample.

The family of the Noncontinuer suggests that the reason for their not following recommendations is they are confused by the clinic information. That is, as the problem becomes multifaceted (two or more recommendations) continuance is unlikely to occur. Families of Noncontinuers who are not confused may be unwilling, since their child has usually been seen before, to accept confirmation of a previous diagnosis. A possibility for the professional parent not following through is that there may be a reluctance to being classified as a family requiring intervention and treatment.

In summary, the inclusion in this study of variables that pertain to the patient, clinic and diagnostic consultation process has provided an opportunity to examine a broad range of continuance factors. Through such an approach the "weak link" in the delivery of health services in terms of patient follow through becomes more clearly defined. It is disclosed that whether patients follow treatment recommendations is directly affected by (1) the effectiveness of communication between professional and parent within the diagnostic conference and (2) the particular content of the treatment recommendation. Knowing this, what are the implications for the clinic?

Certain recommendations are high risk for effective communication

processing between professional and parent, directly affect patient follow through, and deserve more consideration by the professional. Awareness of the particular type of communication difficulty experienced by the Partial Continuer or Noncontinuer within the diagnostic conference makes it possible for professionals to be sensitive to and increase their skill in making educational and psychological recommendations.

The findings of this investigation have resulted in the CSC implementing specific procedures to improve the communication between professional and patient. For example, a copy of the CSC staff note, which includes a summary of the diagnostic findings and recommendations for the patient is now given to the family at the interpretation conference. It contains a statement by each staff member who has had contact with the patient and is worded in layman's terms. This requires that each staff member develop a concise, clear communicative style. It further provides an opportunity, though in written form, for closure of the individual staff member's contact with the family.

The staffing note provides a reference both for the clinic and family, in the event of subsequent clinic contact by the patient. The family may be asked to return in a month, with the staffing note and questions which may have arisen. Thus, the staff note becomes the basis for further discussion of the results of their child's evaluation and the recommendations. All families are asked to contact the clinic when treatment arrangements have been completed, so the information can be entered in their child's clinic record.

In addition, the diagnostic conference is now more goal oriented--toward effective communication--than concerned with maintaining established clinic routine. A more flexible approach is employed in

determining which professional or professionals are best qualified to interpret the diagnostic findings to a particular patient. A medical doctor must interpret medical findings, but should these be unremarkable, the physician need not be present. Often the psychologist, who usually has spent the most time with the child, is in the best position to help the family develop an accurate appraisal of their child through the interpretation of test results. When it is anticipated that a family may have difficulty processing clinic findings, the staff member most tuned to the family, usually the social worker who has taken the family history, is selected to participate in the interpretation conference. In addition, when an advocate of the patient, such as a welfare case worker or school counselor, has been instrumental in seeking the evaluation for the child, that person is invited to attend the diagnostic conference along with the family. In this way the clinic attempts to maximally insure the communication of diagnostic findings to the family and non-clinic professionals who may become critical to whether treatment recommendations are implemented.

It is also felt at CSC that the child shares equally with the parents in the right to be given an interpretation of the results of his clinic evaluation. When not included in the parent interpretation conference, an additional conference is scheduled for the patient, usually with the psychologist with whom he has had most contact.

Evidence of the interest in the CSC staff to improve interpersonal communication is demonstrated by the first annual two-day in-staff workshop having as its theme "effective communication". Such training offers not only an opportunity to become more effective in communication at an individual level, but also more selective about professional styles of

transmitting information. For example, the focus of the psychologist in the diagnostic conference is as much on the affect of the family members receiving the information as on its content.

The emphasis on developing improved communication processing within CSC between professional and patient has generated an openness and inquisitiveness to new ideas in this area. The benefit of having parents of patients attend the staffing of their child and participate, not only first hand in the contribution of information gathering, but also in helping to draw conclusions and select from treatment alternatives is presently being considered.

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APPENDIX A

CHILD STUDY CENTER PROGRAM DESCRIPTION

Approximately 200 new patients a year are seen at Child Study Center, an outpatient clinic of Children's Hospital, University of Oklahoma Health Sciences Center. Each visit for diagnostic-evaluation purposes averages 1½ hours of direct patient contact by a professional. An average of 4 visits are required for completion of evaluation and then interpretation of results to the families. In addition to the direct professional-patient contact, 8-10 professional people are in attendance at an hour-long staffing session regarding a single patient. Non-patient contact follow-up activity by professionals such as preparing reports, phone calls to referral sources and locating available resources requires a minimum of 3 to 4 hours per patient. Summarizing professional time, on the 80% of approximately 200 new patients each year who require a diagnostic evaluation at Child Study Center, there are from 17-20 professional hours spent per patient on direct contact and non-direct but patient-related activity. The remaining 20% of new patients represent young children with mainly developmental delay and/or seizure problems and do not require total staff participation.

The Child Study Center serves an extensive area which in general corresponds to the geographic boundaries of the state, though some few out of state residents constitute the patient load. At the present time Child Study Center is not located within the physical confines of

Children's Hospital proper but the clinic does continue the traditional hospital commitment to teaching and research. Further, patients to the clinic often look to it as a place of last resort, where the ultimate diagnosis of the obscure disorder is made, an attitude typical of the patient referred to any urban pediatric hospital. Referrals come from Children's Hospital, private physicians, the State Guidance Centers, the State Welfare Department and the courts. Presenting problems in general include developmental delays, learning, language, emotional or behavior difficulties, mental retardation and seizure disorders. All of these have been tentatively diagnosed by the referral source. There is an average 5 month waiting period for the patient.

At the time of the study Child Study Center staff included professionals serving the diagnostic evaluation facility and those involved with the preschool developmental nursery program. The staff members in direct and non-direct contact with the patient seen for diagnostic-evaluation purposes included a pediatric neurologist who also served as director; a pediatrician; a consulting psychiatrist; 3 psychologists, one of whom served in a doctoral internship capacity with the medical center; a social worker; a speech pathologist; 2 prescriptive tutors; and various medical residents and 3rd year medical students from the OU Health Sciences Center who served on rotation at the clinic. The prescriptive tutors design individual remedial programs for the learning disabled child, work closely with the public schools and provide a practicum experience to university students in the area specializing in a learning disabilities teacher certification.

An attempt was made in this investigation to hold many of the diagnostic consultation process variables constant. The present

director served in this capacity throughout the time period covered by the study. Though the program has shown expansion over the four years there has been a consistent use of the multidisciplinary or comprehensive approach to the diagnostic evaluation process. Behavior checklists or a report from a child's teacher, EEG's and skull films when ordered and previous findings from other agencies were obtained prior to the staffing of a patient. The interpretation of the diagnostic findings throughout this period was primarily given by the director. Her manner is straightforward and concise. Prime consideration is given to planning for the child in terms of concrete steps that can be taken to deal with the diagnosed problem. Both parents are strongly encouraged to attend the single diagnostic consultation conference at Child Study Center. However, the family has an opportunity through the referral source for additional exposure to the diagnostic findings and recommendations. These are reported to the referral source by letter and often prior to this by phone. It is the orientation of Child Study Center to assume management of the patient to the extent of exhausting all possible efforts to find help for the child with a diagnosed problem. Within the urban area this is done by direct contact of available resources. For the child in the remote area the help of the referring source is enlisted.

APPENDIX B

CHILD STUDY CENTER APPLICATION FORM

CHILD STUDY CENTER
DEPARTMENT OF PEDIATRICS
CHILDREN'S MEMORIAL HOSPITAL
and
UNIVERSITY OF OKLAHOMA MEDICAL CENTER

601 N.E. 18th - Oklahoma City
JA4-4449

Name of Child:_____ Sex:____ Birthdate:_____

Address:_____ City:_____

County:_____ State:_____ Zip Code:_____

Phone No:_____ Birthplace:_____ Religion:_____

Race: White___ Negro___ Oriental___ Am. Indian___ Other_____

Who referred you to this clinic?_____

Name of Person completing this form:_____

Relationship to patient:_____

PARENTS:

Child is living with: Natural Parents ____ One parent alone____
Adoptive Parents ____ Other_____
Parent & Step-parent____

Status of Parents: Married___ Separated___ Divorced__ Widowed__ Unmarried__

Total Family Income per month (Check one) Less than $300__ $800 - $1000
$300 - $500 __
$500 - $800 __ Over $1000__

FATHER

Name:_____ Birthplace:_____

Highest grade completed in school: _____

Occupation and place of employment: _____

Birthdate: _____

MOTHER

Name: _____ Birthplace: _____
(Maiden)

Highest grade completed in school: _____

Occupation and place of employment: _____

Birthdate: _____

If living with Step-parent fill out the following:

Name of Step-parent: _____

Occupation and place of employment: _____

SCHOOL HISTORY:

Name of Present School _____ Grade _____ Principal _____

Address _____ City _____ State _____

PAST PHYSICIANS (List from child's present physician backward)

Name	Office Address	General or special problem care

Hospitalizations (List all hospitals and clinics where the patient has been seen. Start with hospital where the patient was born.)

Name	Address	Date	Problem leading to admission

Other Professionals who have seen the patient

Name	Address	Nature of problem

1. What do you think is your child's main problem? (Use reverse side for extra space.)

2. Pregnancy History:

   A. Your total number of pregnancies.

   B. How many living children?

   C. What number pregnancy was this child?

   D. How much weight did you gain with this pregnancy?

   E. With this pregnancy did you (please check yes or no)

	YES	NO
Swell	___	___
Have blood pressure problems	___	___
Have any kidney problems	___	___
Have any infection	___	___
Have any exposure to infectious diseases, especially rashes	___	___
Have bleeding, spotting or cramping	___	___
Have any injuries	___	___

   F. What medicines were you on during this pregnancy (list).

   G. Was the pregnancy full term?

3. Labor and Delivery:

   A. How long was total labor?

   B. Did you receive "shots" or "hypos" during labor? If so, do you know what?

   C. What sort of anesthesia did you have?

   D. Was the baby head first?

   E. Were forceps used?

   F. Did the baby start breathing on its own, or did it have to be started?

   G. What was the birth weight?

4. Newborn Period (Nursery and first month of life).

   A. Did the baby have to have oxygen?

   B. Did the baby get yellow?

   C. Were there any feeding or sleeping problems?

   D. Colic?

   E. Was the baby cuddly or was it hard to hold?

5. Development:

   A. Did the baby suck its thumb? If yes, which one?

   B. Age walked?

   C. Age talked?

   D. Any difficulty riding trike or bike?

   E. Any difficulty catching or throwing a ball?

   F. Has this child ever been considered clumsy?

   G. Age dressed self?

   H. Age tied shoes?

   I. How does child get along with children his own age?

   J. Is attention span good?

6. Illnesses:

Has child had:	YES	NO
7-day measles	___	___
3-day measles	___	___
Mumps	___	___
Chicken pox	___	___
Whooping cough	___	___
Any allergies	___	___
Ever in hospital (if yes, for what?)	___	___
Serious injuries	___	___
Hard blows about head	___	___
Surgery (if yes, what?)	___	___
Convulsions	___	___

7. Immunizations:

Has child had following immunizations?

DPT	___	___
Polio	___	___
Measles	___	___
Smallpox	___	___
German measles	___	___
Mumps	___	___
Others	___	___

Was there any serious reaction from any of these, especially high fever or convulsions?

8. Family history:

On either side of natural father or natural mother's side of family, or immediate family, is there:

	YES	NO
A. Similar problem	___	___
B. Mental retardation	___	___
C. Cerebral palsy	___	___
D. Muscle problems such as dystrophy	___	___
E. Eye problems that run in family	___	___
F. Birth defects	___	___
G. Epilepsy	___	___
H. Are father and mother of child related by blood	___	___

APPENDIX C

SURVEY LETTER AND FORM

The University of Oklahoma Health Sciences Center
Department of Pediatrics - Children's Memorial Hospital
Post Office Box 26901 Oklahoma City, Oklahoma 73190

January 3, 1974

Dear Parent:

The staff at Child Study Center is interested in continually improving our services to children and their families. We are dependent upon former patients for assistance in this by giving us information as to the degree of benefit received from contact with the Study Center. As the family of a child seen here, your cooperation in completing the brief questionnaire enclosed in this letter will be helpful in our evaluation of our services. While many of you have had multiple or continual contact with us, the questions involved in this evaluation concern only what you were told following the initial evaluation of your child at Child Study Center. As you will note, there is opportunity given on the evaluation form for any comments, positive or negative, which you feel our staff should be aware of to improve services.

I will appreciate your cooperation in completing the evaluation form. If you should have questions concerning this correspondence, please call either Freda Jones or Dr. Carol Letchworth at (405) 524-4449.

Sincerely,

Ellidee D. Thomas, M.D.
Pediatric Neurologist
Director, Child Study Center

EDT/cs

Enclosure

CHILD STUDY CENTER QUESTIONNAIRE

Date_____

Name of Former Patient_____Birthdate_____

Name of person answering this questionnaire_____

The first time my child was seen at Child Study Center for evaluation, recommendations were for (check all categories that apply):

___1. EDUCATIONAL
(This recommendation includes special classroom placement, learning disabilities class, language class, class for mentally retarded, learning lab, special tutoring, speech therapy, institutionalization or special schooling away from home.)

If you check EDUCATIONAL, answer the following:

___Recommendation followed.

___Recommendation not followed. (If you check this, answer one below.)

___Resources not available
___Other reasons (specify):
_____
_____
_____

___2. PSYCHOLOGICAL
(This recommendation includes therapy of counseling for you child, counseling for one or both parents, either group or individual or family counseling.)

If you check PSYCHOLOGICAL, answer the following:

___Recommendation followed.

_____
(Agency)

___Recommendation not followed. (If you check this, answer one below)

___Resources not available.
___Other reasons (specify):
_____
_____
_____

___3. MEDICAL
(This recommendation includes medical referrals to other physicians following the Child Study Center evaluation for problems such as vision, heart problems, etc.)

___Recommendation followed.

_____
(Physician)

___Recommendation not followed. (If you check this, answer one below)

___Physician not available.
___Other reasons (specify):

___ 4. REEVALUATION
(This recommendation pertains to a request that your child return, usually in a year, to Child Study Center or be seen by another agency such as a local Guidance Center for a reevaluation of the current problem).

___Recommendation followed. ___Recommendation not followed.
(If you check this, answer one below)

_____
(Agency)

___Resources not available.
___Other reasons (specify):
_____
_____
_____

___5. CONTINUE PRESENT TREATMENT
(Often a child is in a remediation program at the time of his first diagnostic evaluation at Child Study Center. It is possible that such a program is the treatment of choice and the recommendation is to continue that program).

___Treatment continued. ___Treatment not continued.
(Specify reason):

_____
(Agency)

_____
_____
_____

The manner in which the diagnostic information about my child was given to me was (check one of the following):

___Confused ___Specific and clearly stated.

___Too blunt. ___Too sympathetic.

Comments about your satisfaction or dissatisfaction with the evaluation process at Child Study Center are appreciated.

_____

_____

_____

_____

_____

_____

_____

_____

APPENDIX D

VARIABLES IN CONTINUERS, PARTIAL CONTINUERS AND NONCONTINUERS ANALYSES

Application Form

1. City size
2. State
3. Physician
4. Guidance Center
5. Department of Institutions, Social and Rehabilitative Services
6. Other
7. Emotional/Behavior
8. Seizure
9. Speech/Language
10. Learning
11. Developmental Delay
12. Other
13. Age
14. Number of Children in Family
15. Number Pregnancies
16. Number Living Children in Family
17. Ordinal Position
18. Sex
19. Caucasian
20. Negro
21. Other
22. Married
23. Separated
24. Divorced
25. Widowed
26. Unknown
27. Natural Parents
28. Adoptive Parents
29. Parent & Step parent
30. One Parent
31. Foster Parents
32. Grandparents
33. Number Foster Homes
34. Mother's Education
35. Mother's Occupation
36. Father's Education
37. Father's Occupation
38. Total Income
39. No
40. Yes
41. Unknown

CSC Staffing Note

42. Learning Disability
43. Mental Retardation
44. Seizure Problem
45. Borderline IQ
46. Emotional/Behavior
47. Language Problem
48. Developmental Delay
49. Within Normal Limits
50. Other
51. Educational
52. Psychological
53. Medical
54. Reevaluation
55. Continue Present Treatment

Survey Form

56. Educational
57. Psychological
58. Medical
59. Reevaluation
60. Continue Present Treatment
61. Confused
62. Blunt
63. Specific and Clearly Stated
64. Too Sympathetic

APPENDIX E

STATISTICAL ANALYSES

The statistical analyses employed (Weiner and Weiner, 1974) in the primary investigation of this study provided a discriminant function for each group (Continuers, Partial Continuers and Noncontinuers) based on a weighting system of the 64 patient variables which maximized the variance between groups while minimizing the variance within groups. A discriminant function is similar to a regression equation; just as the regression equation predicts a point along some continuum of criterion measurement, the discriminant function also predicts some point. However, the analysis provides a critical value along this continuum which determines the group into which an individual is assigned.

The advantages of such an alaysis were that it could consider all 64 variables together and take into account the correlation among the variables. In this analysis, membership in one of the three groups was assigned from the 64 patient variables. Each S was statistically classified into the group to which he was most similar. In addition, the probabilities that he was in that group and in the other two groups were also given, with the sum of these probabilities equal to 1.00. Therefore, one not only knew the predicted group for each patient but also the probability he would be in each of the three groups.

The discriminant function analysis was computed for all three groups together and for the three possible pairs of groups. The data

consisted of a set of observations for each S in the three groups (Ss were classified as Continuers, Partial Continuers or Noncontinuers). For each S the data were the 64 patient variables comprized of actual scores. A total of 41 items were drawn from the Child Study Center Application Form, 14 were from the Survey Form, and 9 were from the Staffing Note.

The results of this analysis were used to assess (1) differences among the mean vectors for the three groups, (2) the order of importance of the variables in classifying subjects, and (3) the proportion of Ss who were statistically classified into the same group as their classification by survey measurement.

Additionally, a discriminant function analysis was computed for the Responders and Nonresponders groups. In this analysis, membership in one of the two groups was assigned from the 41 variables on the Application Form. Each S was statistically classified into the group to which he was most similar. In addition, the probabilities that he was in that group or the other group were also given, with the sum of these probabilities equal to 1.00. The results of this analysis were used to assess the differences between families who did and did not respond to the survey method of measurement.

APPENDIX F

MEANS AND STANDARD DEVIATIONS FOR CONTINUERS, PARTIAL CONTINUERS AND NONCONTINUERS

Variable	Continuer		Partial Continuer		Noncontinuer	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
1. City Size	*5		*5		*1, 3, 5	
2. State	0.98	0.13	1.00	0.0	1.0	0.0
3. Physician	0.76	0.43	0.67	0.48	0.75	0.45
4. Guidance Ctr.	0.15	0.36	0.29	0.46	0.25	0.45
5. Dept. of Insti., Soc. & Rehab. Ser.	0.04	0.20	0.0	0.0	0.0	0.0
6. Other	0.04	0.20	0.05	0.22	0.0	0.0
7. Emotion./Lang.	0.15	0.36	0.33	0.48	0.42	0.51
8. Seizure	0.11	0.32	0.0	0.0	0.17	0.39
9. Speech/Lang.	0.11	0.31	0.14	0.36	0.17	0.39
10. Learning	0.72	0.45	0.86	0.36	0.33	0.49
11. Dev. Delay	0.02	0.15	0.0	0.0	0.17	0.39
12. Other	0.07	0.26	0.10	0.30	0.08	0.29
13. Age	*8, 10		*10, 7		*11	
14. No. Chil. Fam.	*3		*2		*3	
15. No. Preg.	3.06	1.83	2.62	2.09	2.67	0.98
16. No. Liv. Chil.	2.80	1.67	2.29	1.68	2.50	0.80
17. Ordinal Pos.	*1, 2		*2		*1, 3	
18. Sex	0.71	0.46	0.57	0.51	0.75	0.45
19. Caucasian	0.93	0.25	1.00	0.0	0.92	0.29
20. Negro	0.06	0.23	0.0	0.0	0.08	0.29
21. Other	0.01	0.09	0.0	0.0	0.0	0.0
22. Married	0.92	0.27	0.95	0.22	1.00	0.0
23. Separated	0.01	0.09	0.0	0.0	0.0	0.0
24. Divorced	0.06	0.23	0.5	0.22	0.0	0.0
25. Widowed	0.01	0.09	0.0	0.0	0.0	0.0
26. Unknown	0.01	0.09	0.0	0.0	0.0	0.0
27. Natural Par.	0.74	0.44	0.67	0.48	0.92	0.29
28. Adopt. Par.	0.08	0.27	0.24	0.44	0.08	0.29
29. Par. & Step.par.	0.06	0.23	0.05	0.22	0.0	0.0
30. One Par.	0.05	0.22	0.0	0.0	0.0	0.0
31. Foster Par.	0.07	0.26	0.0	0.0	0.0	0.0

APPENDIX F (Continued)

Variable	Continuer Mean	Continuer Standard Deviation	Partial Continuer Mean	Partial Continuer Standard Deviation	Noncontinuer Mean	Noncontinuer Standard Deviation
32. Grandparents	0.0	0.0	0.05	0.22	0.0	0.0
33. No. Foster Homes	*4		*0		*0	
34. Mother's Ed.	*2, 4, 5		*2.		*2	
35. Mother's Occupa.	*7		*7		*7	
36. Father's Ed.	*2, 6		*2, 5		*1, 2, 6	
37. Father's Occupa.	*1		*0		*1, 6	
38. Total Income	*3		*2, 3		*2, 3	
39. No	0.54	0.50	0.62	0.50	0.42	0.51
40. Yes	0.41	0.49	0.38	0.50	0.58	0.51
41. Unknown	0.05	0.22	0.0	0.0	0.0	0.0
42. Learn. Disab.	0.67	0.47	0.71	0.46	0.42	0.51
43. Ment. Retard.	0.04	0.20	0.10	0.30	0.17	0.39
44. Seizure Prob.	0.15	0.36	0.05	0.22	0.25	0.45
45. Borderline IQ	0.17	0.38	0.14	0.36	0.25	0.45
46. Emotion./Behav.	0.02	0.13	0.19	0.40	0.17	0.39
47. Lang. Problems	0.04	0.20	0.14	0.36	0.0	0.0
48. Dev. Delay	0.01	0.09	0.0	0.0	0.0	0.0
49. Within Norm. Lim.	0.02	0.15	0.0	0.0	0.0	0.0
50. Other	0.02	0.13	0.0	0.0	0.0	0.0
51. Educational	0.89	0.31	1.00	0.0	0.67	0.49
52. Psychological	0.11	0.31	0.81	0.40	0.33	0.49
53. Medical	0.08	0.27	0.05	0.22	0.17	0.39
54. Reeval.	0.19	0.39	0.14	0.36	0.33	0.49
55. Cont. Pres. Treat.	0.03	0.18	0.0	0.0	0.0	0.0
56. Educational	0.93	0.26	1.00	0.0	0.08	0.29
57. Psychological	0.18	0.38	0.05	0.22	0.17	0.39
58. Medical	0.21	0.72	0.05	0.22	0.08	0.29
59. Reeval.	0.25	0.44	0.0	0.0	0.0	0.0
60. Cont. Pres. Treat.	0.04	0.20	0.0	0.0	0.0	0.0
61. Confused	0.11	0.31	0.19	0.40	0.42	0.51
62. Blunt	0.02	0.13	0.0	0.0	0.08	0.29
63. Specific and Clear. Stated	0.87	0.34	0.81	0.40	0.50	0.52
64. Too Sympathetic	0.01	0.09	0.0	0.0	0.0	0.0

* Reported in the mode

VITA

Freda Aurell Jones

Candidate for the Degree of

Master of Science

Thesis: THE VALUE OF A DIAGNOSIS

Major Field: Psychology

Biographical:

Personal Data: Born in McPherson, Kansas, November 13, 1925, the daughter of Mrs. Mildred Westbrook Gamble and Mr. Harold F. Aurell. Married to Fred Jones October 8, 1945. Mother of two daughters, Pamela Dickson and Judith Davenport, and one son, Bradley Jones. One granddaughter, Evy Aurell Dickson.

Education: Graduated from McPherson High School, McPherson, Kansas, in May, 1943; attended McPherson College 1943 to 1945; received the Bachelor of Science degree in Psychology from Oklahoma State University in 1968; attended Oklahoma State University as a special graduate student in 1971 and 1972; completed requirements for the Master of Science degree at Oklahoma State University in May, 1975. Member of the Southwest Psychological Association.

Professional Experience: Child Development Worker, Payne County Guidance Center, 1968-69; Child Development Worker, Garfield County Guidance Center, 1969-70; Staff Psychologist, University of Oklahoma Health Sciences Center, Children's Memorial Hospital and Child Study Center, 1970 to present.