A. James Schwab, Jr., Michael E. Bruce, and Ruth G. McRoy

Using Computer Technology In Child Placement Decisions

Computer-based tools can be helpful to practitioners in making decisions about child placement. The system described in this article is based on statistical modeling of residential programs for children. Its use is illustrated by a hypothetical case history of a teenager.

A. James Schwab, Jr., is Assistant Professor, School of Social Work, University of Texas at Austin, Texas. Michael E. Bruce is Director, Continuum of Care Study, Texas Department of Human Services, Austin. Ruth G. McRoy is Assistant Professor, School of Social Work, University of Texas at Austin.

SELECTION OF FOSTER CARE and residential facilities for children needing care is a very serious responsibility for caseworkers.[1] The lack of clearly formulated guidelines for matching children with placements makes this task even more complicated. According to Scott Briar, the effectiveness of any substitute care program depends on the accuracy of the social worker's judgment in (1) assessing the probable duration of the placement, (2) assessing the probability of the child returning to his or her home, and (3) selecting the placement resource that is most likely to benefit the child.[2]

Based on current research, factors that are significant predictors of child placement decisions include parental preference and previous placement patterns of the workers' employing agency[3]; background factors impacting on the family and negative traits of the child[4]; age of child, negative family relationships, level of education and creativity of caseworker[5]; and availability of an opening at the time needed, relative costs, and anticipated benefits.[6] In most instances, practitioners use a combination of firsthand or vicarious experience, trial and error, consultation with colleagues, as well as research findings to form individual impressions of the types of children accepted by particular residential facilities.

Although these considerations have provided the basis for child placement decision making for decades, the process that they represent has several obvious limitations. A person working in child placement finds that it is nearly impossible to develop a comprehensive view of placement practices in all the programs licensed to provide residential care. Further, no individual practitioner can be certain that the children he or she has placed are representative of the range of children any

1. Henry S. Maas and Richard E. Engler, Jr., *Children in Need of Parents* (New York: Columbia University Press, 1959); Alfred Kadushin, "Children in Foster Families and Institutions," in *Social Science Research: Reviews of Studies,* ed. Henry S. Maas (Washington, DC: National Association of Social Workers, 1978); Eleizer D. Jaffee, "Correlates of Differential Placement Outcomes for Dependent Children in Israel," *Social Service Review* 41 (December 1967): 390–400.

2. Scott Briar, "Clinical Judgement In Foster Care Placement," *Child Welfare* 42 (April 1963): 161–69.

3. Ibid., p. 168.

4. Michael Phillips, Ann Shyne, Edmund Sherman, and Barbara Haring, *Factors Associated with Placement Decisions in Child Welfare* (New York: Child Welfare League of America, 1971).

5. Jaffee, "Correlates of Differential Placement Outcomes."

6. A. James Schwab, Michael E. Bruce, and Ruth G. McRoy, "Matching Children with Placements," *Children and Youth Services Review* 6 (Spring 1984): 125–33.

one program admits. For example, children placed by a state juvenile corrections agency may comprise only a portion of a particular program's admissions. If the placements that were arranged by child welfare agencies, public schools, and private parties are also included, the profile of the child admitted to that facility changes. Moreover, the expertise that practitioners do develop cannot easily be articulated, captured, stored, and passed on to future generations of child placement practitioners. Rather, it is often lost when an experienced caseworker retires or changes job responsibilities.

Cognizant of these issues, Eleizer D. Jaffee in 1979 suggested that child placement decision making could be incorporated into a statistical computer model.[7] He constructed a model that included 110 descriptors of each child studied, his or her family, and preplacement and postplacement histories. Data were collected seven years after the cohort studied had been discharged from a large institution in which each child had lived for at least two years. Jaffee compared the placement recommendations of a panel of experts to the computer model and found significant differences between the two. He concluded that the problem in using computers for clinical decisions lies in the degree of difficulty in identifying the values and principles underlying clinical practice. Similarly, other researchers found no consensus among social workers about which placements were best for which children.[8]

This article describes the Continuum of Care project, which successfully developed an innovative computer model for matching children and placement alternatives. This model, unlike previous approaches, is based on the judgments of admissions specialists at residential facilities who act as "gatekeepers" for their institutions. It is this group of persons, not the referring caseworkers, who actually make the decisions regarding admission to a particular facility. Thus, a computer model that is to predict the probability of a child's admission to an array of residential programs effectively must be designed to replicate the expertise of the decision makers at each institution, not the judgment of the referring caseworkers.

The Statistical Model

The initial question addressed in the research preceding development was whether there were sufficient differences among groups of children at various institutions to make it possible to create a model that replicated the known pattern of placements. Moreover, the model would have to be built on available items of information commonly found in client records.

A seven-institution pretest was conducted to answer this question; it focused on information known to institutional administrators at the time the placement was initiated. The initial modeling task was operationalized as replicating the admission decisions of institutional administrators, based on written intake information.

A review of the research on children in out-of-home placement suggested that descriptors of the child, his or her family, and precipitating factors be listed in the data collection instrument. This list was revised in accord with state licensing standards on the minimally acceptable contents of written intake studies for institutional placement.[9] The final pretest instrument consisted of 139 data items that included the following: items that demographically described the child and his or her family; family problems; the child's physical, emotional, peer, school, and legal problems; and the number and types of previous placements and other efforts to resolve the problem.

Pretest data were collected by student interns and the authors. Intake records were read for 267 children placed in seven different institutional programs—three basic child care facilities and four residential treatment centers. The programs, and consequently the subjects, were selected for inclusion in the study, based on opinions of local child placement experts and institutional providers about

7. Eleizer D. Jaffee, "Computers in Child Placement Planning," *Social Work* 24 (September 1979): 380-85.

8. Briar, "Clinical Judgment In Foster Care Placement"; Morris Fritz Mayer, Leon H. Richman, and Edwin A. Balcerzak, *Group Care of Children: Crossroads and Transitions* (New York: Child Welfare League of America, 1977); and Kadushin, "Children in Foster Families and Institutions."

9. *Proposed Minimum Standards for Institutions Providing Basic Child Care* (Austin, TX: Texas Department of Public Welfare, 1976); and *Proposed Minimum Standards for Residential Treatment Centers* (Austin, TX: Texas Department of Public Welfare, 1976).

which programs were good examples of the types of care available.

Since the dependent variable (institution in which the child was placed) was nominal scale and the independent variables (a child's characteristics, for example) were either dichotomous or interval, the statistical technique utilized was a classification model based on discriminant analysis.[10] Because the number of available variables far exceeded the number that could reasonably be included in a model, a stepwise variable selection procedure was used to select the thirty best discriminating variables. Data analysis was done with the use of the Statistical Package for the Social Sciences (SPSS), a computer software program.

The critical technique for evaluating a classification model is the number of accurate predictions, or hits, it makes. Based upon SPSS output, the accuracy rate for the model was 89 percent—that is, the predicted group membership was identical to the known group membership for 89 percent of the 267 cases. Although impressive, the accuracy rate provided by SPSS is generally regarded as overly optimistic because the classification is conducted on the same cases used to develop the discriminant functions. The recommended procedure for obtaining a more realistic accuracy measurement is a hold-out, or jackknife, technique in which the functions are developed on one portion of the sample and evaluated on the remaining cases. For situations in which the number of cases per group is small, a one-at-a-time hold-out technique has been developed. For each case in the study, a discriminant analysis is conducted with one case excluded. The excluded case is then classified on the basis of this analysis and compared with the known classification. This procedure produced an accuracy rate of 69 percent, which compared favorably with other reported studies using discriminant analysis for similar size modeling problems.

It should be noted that an evaluation of the model based on a 69 percent accuracy rate might be overly conservative, since it assumes that any mismatch between predicted and known placement is due to an inaccurate recommendation, not the result of factors not included in the study, such as a lack of bed space at a more appropriate alternative placement. Moreover, the nature of the problem for statistical modeling does not presume mutually exclusive categories for placements; there may, in fact, be multiple acceptable alternatives for some children.

Based on the results of this pretest, the Continuum of Care Study was funded as a pilot project.[11] The data collection instrument was expanded to include 246 items, especially those items dealing with family conflict and violence. Some of the original items were dropped because the data were not as readily available as had been anticipated.

In the four subsequent years, several project activities occurred simultaneously. Three case readers have completed questionnaires and entered data into the computer on 2,799 cases included in the current fifty-nine group version of the model, including programs providing foster care, group home care, basic child care, residential treatment, inpatient psychiatric care, and correctional care. Far more cases have actually been read, however, since replacement of the samples representing some institutions that had changed their programs and the type of child served over the years was necessary. The net result of this effort is a very large, rich database on which to expand the modeling effort and to examine related questions about children's services where little data have been previously available.

As might be anticipated, when more alternatives are included in the model, the accuracy rate declines for exact matches between known placement and the top-ranked recommendation. The fifty-nine group model has an accuracy rate of about 40 percent when evaluated by the most conservative procedures. Since no models of this size could be found in the research literature, it is not known how this figure compares with the results of other studies. Moreover, if we expand the definition of an accurate match to include more than the first-ranked alternative—that is, the known placement was among the first two recom-

10. Robert A. Eisenbeis, "Pitfalls in the Application of Discriminant Analysis in Business, Finance and Economics," *Journal of Finance* 32 (June 1977): 875–900; Robert A. Eisenbeis and Robert B. Avery, *Discriminant Analysis and Classification Procedures* (Lexington, MA: D.C. Heath, 1972); Donald G. Morrison, "On the Interpretation of Discriminant Analysis," *Journal of Marketing Research* 6 (May 1969): 156–63; and Peter A. Lachenbruch, *Discriminant Analysis* (New York: Hafner Press, 1975).

11. P.L. 93-247 National Center for Child Abuse and Neglect state grant funds made this study possible.

mended—the accuracy rate rises dramatically. If we were to count any of the top six recommendations made for a child as a match to the known placement, the accuracy rate returns to the level cited for the pretest study.

Research to Practical Application

The research phase of the study demonstrated that admission practices at residential programs followed identifiable patterns and that the patterns varied sufficiently from program to program to be distinguishable. In practice, this meant that children with certain combinations of characteristics were more likely to be admitted to some programs than to others. This finding itself was not surprising; it verified what child placement caseworkers and supervisors learn from experience.

Wishing to apply the research findings, child welfare and juvenile corrections services administrators supported the development of software that would interactively connect caseworkers in those agencies with the computer models and the database. Approximately fifty caseworkers in seven sites were selected to help develop and test the system. Initial interviews with their supervisors defined the following parameters that guided the design of the system: The system had to be easy to learn, easy to use, and supportive of child placement decision making; and it also had to be readily available, faster to use than the established procedures for identifying viable options for a child and revealing of insights to help leverage those options.

The software developed to meet these criteria is called MATCH because it matches children with placement resources. The process involves two distinct stages. First, a caseworker describes a particular child needing placement by entering information from the terminal keyboard into the computer. That information is then analyzed by four different computer models that calculate and print out recommended placements for that child.

Case Example

To illustrate the use of MATCH, a brief hypothetical case history is presented below. This case material is the source of information that is entered into the MATCH software for analysis and subsequent selection of placement recommendations.

Joanne M, a fourteen-year-old Anglo girl, was born on March 12, 1969. She was brought to the attention of Child Welfare by her adoptive mother. Mrs. M explained that she and her husband had adopted Joanne at age three days through a private adoption agency in another state. Mr. M had died three years ago after an extended illness. Mrs. M said that she could no longer control Joanne's behavior and felt that the girl needed to be institutionalized. On April 15, 1982, Mrs. M voluntarily relinquished parental rights and subsequently all parental rights have been terminated. Joanne continues in the permanent managing conservatorship of Child Welfare.

Developmental milestones. Joanne was a full-term baby born to a sixteen-year-old mother. Her early growth and development were within normal limits. Joanne suffers from petit mal seizures, which are controlled with Dilantin.

School information. Joanne is currently attending the eighth grade and attends resource classes twice a day. School reports indicate that Joanne is extremely hostile toward school personnel and frequently uses abusive language. Her teachers describe her as being unmotivated to learn and state that her performance is well below her intellectual capacity. She has been suspended three times for talking back to teachers.

Behavioral information. Joanne has a Full Scale IQ of 99, a Verbal IQ of 90, and a Performance IQ of 109. Her present personality assessment depicts an immature teenager who has very poor self-esteem and a low tolerance for frustration. Joanne, a rather anxious, threat-sensitive girl, blames others for her problems. She is apt to throw temper tantrums when she does not get her way. Her behavior tends to cycle between being argumentative and demanding of attention at one moment to being withdrawn and sullen the next. The psychological diagnosis was adjustment reaction of adolescence, undersocialized, nonaggressive.

Previous helping efforts. In April 1982, Joanne was placed in a foster home. Because of her acting-out behavior, she was seen by a social worker at an outpatient mental health

clinic. The foster home placement continued to deteriorate, and Joanne was placed in a basic child care institution. While there, she displayed some psychotic behavior and was admitted to the children's psychiatric unit at the state hospital. While in the unit, she did not display psychotic behavior and was discharged to an emergency shelter with the recommendation that she be placed in a residential treatment center. After one night at the shelter, Joanne ran away. She was apprehended the same day, taken to the local detention facility, and later returned to the emergency shelter, where she is awaiting placement.

Using MATCH

Figures 1 and 2 show the four screens of the data entry process, presented exactly as they would appear on a computer terminal in applying the MATCH process to Joanne's case. Items 1 thorugh 32 collect demographic information and descriptors of the child's family. Note that an "X" has been entered beside items that apply to Joanne and that the date of her birth and of first out-of-home placement have been entered. The bottom half of Figure 1 and the top half of Figure 2 mark with "X's" all items descriptive of her personal history and behaviors and conclude with school-related information. Item 95 calls for a number—the highest school grade the child attended.

The bottom half of Figure 2 is the last screen of data entered to describe Joanne. These items focus on previous efforts by professionals to help the teenager. The fourth screen concludes by collecting two numbers for reference purposes: an identification number assigned to Joanne and the caseworker's Social Security number. When all the data have been entered on the screens, the computer begins calculating its recommendations.

Figures 3 and 4 present the four sets of recommendations for Joanne. Each screen lists ten programs, rank-ordered, beginning with the program recommended most highly. The statistic entered under "Forced Ranking Among All Groups" is used to determine the rankings based on a child's resemblance to all the groups of children studied when all are considered simultaneously; it represents the probability that the child could be a member of each program in the list. Another way of approaching the question of which program to recommend for a child is to consider each program separately and to contrast the profile of a sample of children previously admitted to that program with the characteristics of the particular child needing placement. This perspective is reported in the column "Similarity to this Group Only." A direct correspondence between the statistic used to rank order all the programs and the statistic reporting the similarity to each program is generally not found. This occurs because the populations of different programs overlap somewhat (that is, subgroups of different populations may share common characteristics) and because some institutions or programs take rather diverse groups of children into their programs, whereas other programs are much more homogeneous. Both statistics are helpful, though, in selecting programs for a child, and neither approach is so demonstrably superior to preclude the other.

Note also that a descriptor of the variables and cases used to build each model follows the model number. For example, Model 1 is constructed from all the data collected and from all the case records studied. Models 1 and 3 are both initial screening models based on all the children's records studied. But although Model 1 is based on all the data collected from those records, Model 3 eliminates such variables as a child's legal status, legal conservator, and family characteristics and focuses exclusively on the child's behaviors and emotional state. Legal statuses and conservatorship powerfully influence admissions patterns; eliminating these variables and thus their influence from Model 3 (and also from Model 4) yields a new perspective on the placement options actually appropriate for a child. For example, these models may reveal that some programs that have never admitted an adjudicated delinquent often admit and do well with nonadjudicated children who exhibit the same sorts of behaviors.

Models 2 and 4 refine these initial impressions by reporting the programs recommended for a child when the models exclude the cases of children previously placed who received little or no benefit from the placement. This information was available, since, at each facility

Figure 1

```
SEX:              | ETHNICITY:              | DATE OF:
  (1) --MALE      | (3) --MINORITY          | (5) BIRTH:  12 MAR 69
  (2) X-FEMALE    | (4) X-NON-MINORITY      | (6) FIRST PLACEMENT:  15 MAR 69
-------------------------------------------------------------------------------
CONSERVATOR:              | LEGAL STATUS:                  | PARENTS MARITAL STATUS:
  (7) --FAMILY MEMBER     | (11) --DEPENDENT/NEGLECTED     |  (15) --NEVER MARRIED
  (8) X-CHILD WELFARE     | (12) --CHINS                   |  (16) --INTACT MARRIAGE
  (9) --TYC               | (13) --DELINQUENT              |  (17) X-MARITAL BRKDOWN
 (10) --JUVENILE DEPT     | (14) --COMMITTED (NON-TYC)     |
-------------------------------------------------------------------------------
FAMILY DESCRIPTORS:                       (25) --FAMILY IS POOR
 (18) X-PARENTAL RIGHTS TERMINATED        (26) --PARENTAL CRIMINAL ACTIVITY
 (19) --UNSTABLE RELATIONSHIPS            (27) --PARENT ON PAROLE/IN PRISON
 (20) --FATHER MENTALLY ILL OR MR         (28) --FAMILY CONFLICT/VIOLENCE/SEX ABUSE
 (21) --MOTHER MENTALLY ILL OR MR         (29) ---NUMBER OF OLDER SIBLINGS
 (22) X-FATHER PHYSICALLY ILL             (30) ---NUMBER OF YOUNGER SIBLINGS
 (23) --MOTHER PHYSICALLY ILL             (31) ---NUMBER OF SIBS PLACED OUT OF HOME
 (24) --PARENT SUBSTANCE ABUSER           (32) ---NBR SIBS TO PLACE WITH THIS CHILD
===============================================================================
DIRECTIONS:  THIS SCREEN IN NOW COMPLETE.  IF YOU WISH TO MAKE ANY CHANGES,
=========    ENTER C AND RETURN.  IF THE SCREEN IS CORRECT, HIT RETURN.
===============================================================================
CODES: C=CHANGE ITEM   N=NEXT SCREEN   P=PRIOR SCREEN   Q=QUIT   R=REDO LINES
```

```
CHILD DESCRIPTORS (SCREEN 1):             (50) X-CHILD HAS MEDICAL PROBLEMS
 (33) X-NEGLECTED                         (51) --PASSIVE-AGGRESSIVE
 (34) --EMOTIONALLY ABUSED                (52) --AGGRESSIVE OR VIOLENT
 (35) --PHYSICALLY ABUSED                 (53) --AGGRESSIVE WITH PARENTS
 (36) --SEXUALLY ABUSED                   (54) --AGGRESSIVE WITH SIBLINGS
 (37) --SEVERELY ABUSED OR NEGLECTED      (55) --AGGRESSIVE WITH PEERS
 (38) --DIAGNOSED AS PSYCHOTIC            (56) --AGGRESSIVE WITH OTHERS
 (39) X-DISTURBED/NON-PSYCHOTIC           (57) --CONFLICT WITH SIBLINGS
 (40) --IQ BELOW 70                       (58) --ENURETIC
 (41) --EASILY INFLUENCED/LED             (59) --ENCOPRETIC
 (42) --LEADER/INFLUENCES OTHERS          (60) --INAPPROP TOILET HABITS
 (43) --MANIPULATIVE,CONS OTHERS          (61) X-ANXIOUS
 (44) --PASSIVE                           (62) --DEPRESSED
 (45) --HYPERACTIVE                       (63) X-POOR SELF-ESTEEM
 (46) X-ISOLATED, WITHDRAWN               (64) --SUICIDE THREATS
 (47) --SEEKS YOUNGER FRIENDS             (65) --SUICIDE ATTEMPTS
 (48) --SEEKS OLDER FRIENDS               (66) --SELF-INFLICTED ABUSE
 (49) --NEGATIVE PEER PRESSURE            (67) X-RUNAWAY
===============================================================================
DIRECTIONS:  THIS SCREEN IN NOW COMPLETE.  IF YOU WISH TO MAKE ANY CHANGES,
=========    ENTER C AND RETURN.  IF THE SCREEN IS CORRECT, HIT RETURN.
===============================================================================
CODES: C=CHANGE ITEM   N=NEXT SCREEN   P=PRIOR SCREEN   Q=QUIT   R=REDO LINES
```

Figure 2

```
CHILD DESCRIPTORS (SCREEN 2):                (79) --STEALS PROPERTY
 (68) X-ARGUES/IS UNCOOPERATIVE              (80) --BURGLARY
 (69) X-LOSES TEMPER EASILY                  (81) --ROBBED PERSONS
 (70) X-USES ABUSIVE LANGUAGE                (82) --ALCOHOL USE
 (71) X-BLAMES OTHRS FOR PRBLMS              (83) --MARIJUANA USE
 (72) X-DEMANDS ATTNTN/SELFISH               (84) --INHALENT USE
 (73) --LIES                                 (85) --OTHER DRUG USE
 (74) --INCORRIGIBLE/UNMANAGBLE              (86) --BED-WETTING
 (75) --THREATENED PERSONS                   (87) --SLEEP DISORDERS
 (76) --ATTACKED PERSONS                     (88) --INAPPROP SEX BEHAVIOR
 (77) --VANDALIZED/DESTROYED PROPERTY        (89) X-EASILY FRUSTRATED
 (78) --SET FIRES                            (90) X-OTHER BEHAVIOR PROBLEMS
-------------------------------------------------------------------------
SCHOOL INFORMATION:                          (95) 8--HIGHEST SCHOOL GRADE
 (91) X-SPECIAL EDUCATION CLASSES            (96) X-DISRUPTIVE IN CLASS
 (92) --WORKS BELOW GRADE LEVEL              (97) X-SCHOOL ATTENDANCE PROBLEMS
 (93) X-WORKS BELOW CAPACITY                 (98) --LEARNING DISABLED
 (94) X-EASILY DISTRACTED/UNMOTIVATED        (99) --SPEECH/LANGUAGE HANDICAP
=========================================================================
DIRECTIONS:  THIS SCREEN IN NOW COMPLETE.  IF YOU WISH TO MAKE ANY CHANGES,
=========    ENTER C AND RETURN.  IF THE SCREEN IS CORRECT, HIT RETURN.
=========================================================================
CODES: C=CHANGE ITEM   N=NEXT SCREEN   P=PRIOR SCREEN   Q=QUIT   R=REDO LINES
```

```
NUMBER OF PLACEMENTS WITH OR IN:
(100) 1--ADOPTIVE FAMILY                    (107) --CORRECTIONAL FACILITY
(101) --RELATIVE FAMILY                     (108) --PSYCHIATRIC HOSPITAL
(102) --GUARDIAN OR FAMILY FRIEND           (109) --INSTITUTION FOR DEAF,BLIND,MR
(103) 1--FOSTER FAMILY                      (110) --WILDERNESS/THERAPEUTIC CAMP
(104) --GROUP HOME                          (111) --OTHER/UNSPECIFIED PLACEMENT
(105) 1--BASIC CARE INSTITUTION             (112) 2--EMERGENCY SHELTER OR FACILITY
(106) --RESIDENTIAL TREATMENT CENTER        (113) 1--JUVENILE DETENTION FACILITY
-------------------------------------------------------------------------
PRIOR PROFESSIONAL INTERVENTIONS:
(114) --THERAPY WITH PSYCHIATRIST           (118) X-PSYCHOLOGICL/PSYCHIATRIC TESTS
(115) --THERAPY WITH PSYCHOLOGIST           (119) X-INDIVIDUAL,GROUP,FAM COUNSELNG
(116) X-THERAPY WITH SOCIAL WORKER          (120) X-MEDICATION PROGRAM OR REGIMEN
(117) --THERAPY WITH OTHER
-------------------------------------------------------------------------
(121) CHILD ID CODE 123456789
-------------------------------------------------------------------------
(122) YOUR SOCIAL SECURITY NUMBER 999999999
=========================================================================
 DIRECTIONS:  THIS SCREEN IN NOW COMPLETE.  IF YOU WISH TO MAKE ANY CHANGES,
==========    ENTER C AND RETURN.  IF THE SCREEN IS CORRECT, HIT RETURN.
=========================================================================
CODES: C=CHANGE ITEM   N=NEXT SCREEN   P=PRIOR SCREEN   Q=QUIT   R=REDO LINES
```

Figure 3

CONTINUUM OF CARE PLACEMENT MATCHING REPORT: 18 MAR 84

MODEL 1: ALL VARIABLES FROM ADMISSION RECORDS/ALL CASES IN ALL BENEFIT GROUPS

INSTITUTION OR PROGRAM RECOMMENDED FOR THIS CHILD	SIMILARITY TO THIS GROUP ONLY	FORCED RANKING AMONG ALL GROUPS
SOUTHWEST CHILDRENS HOME	.2211	.4921
CENTER FOR GIRLS	.9482	.1833
SOUTHWEST GROUP HOME	.5037	.1584
TEEN TREATMENT CENTER	.9372	.0878
CENTRAL STATE TREATMENT CENTER	.8960	.0306
NORTHWEST CHILDRENS HOME	.5474	.0160
CHURCH CHILDRENS HOME	.2105	.0153
CHURCH CHILDRENS CENTER	.5465	.0106
COUNTY COMMUNITY CENTER	.2150	.0020
EASTERN CHILDRENS HOME	.6354	.0020

CODES: C=CHANGE ITEM N=NEXT SCREEN P=PRIOR SCREEN Q=QUIT R=REDO LINES

CONTINUUM OF CARE PLACEMENT MATCHING REPORT: 18 MAR 84

MODEL 2: ALL VARIABLES FROM ADMISSION RECORD/ALL CASES EXCEPT LOW BENEFIT GROUP

INSTITUTION OR PROGRAM RECOMMENDED FOR THIS CHILD	SIMILARITY TO THIS GROUP ONLY	FORCED RANKING AMONG ALL GROUPS
CENTRAL STATE TREATMENT CENTER	.9995	.4060
CENTER FOR GIRLS	.9835	.3312
CHURCH CHILDRENS CENTER	.8418	.1178
TEEN TREATMENT CENTER	.8086	.0606
SOUTHWEST CHILDRENS HOME	.1204	.0250
EASTERN CHILDRENS HOME	.5910	.0140
NORTHWEST CHILDRENS HOME	.3696	.0138
CITY CHILDRENS HOME	.7724	.0118
CHURCH CHILDRENS HOME	.1497	.0050
FOUNDATION TREATMENT CENTER	.0933	.0038

CODES: C=CHANGE ITEM N=NEXT SCREEN P=PRIOR SCREEN Q=QUIT R=REDO LINES

Figure 4

CONTINUUM OF CARE PLACEMENT MATCHING REPORT: 18 MAR 84

MODEL 3: SELECTED VARIABLES DESCRIBING CHILD/ALL CASES IN ALL BENEFIT GROUPS

INSTITUTION OR PROGRAM RECOMMENDED FOR THIS CHILD	SIMILARITY TO THIS GROUP ONLY	FORCED RANKING AMONG ALL GROUPS
CENTRAL YOUTH CENTER	.8783	.3577
HOME FOR GIRLS	.4595	.2061
WILDERNESS CAMPING PROGRAM	.5997	.1966
CITY CHILDRENS HOME	.7960	.1004
CENTER FOR GIRLS	.3809	.0539
OUTLANDS TREATMENT CENTER	.6269	.0433
SOUTHWEST GROUP HOME	.0561	.0232
SOUTHWEST TREATMENT CENTER	.0801	.0052
CENTRAL STATE TREATMENT CENTER	.1704	.0046
CHURCH CHILDRENS CENTER	.3291	.0040

CODES: C=CHANGE ITEM N=NEXT SCREEN P=PRIOR SCREEN Q=QUIT R=REDO LINES

CONTINUUM OF CARE PLACEMENT MATCHING REPORT: 18 MAR 84

MODEL 4: SELECTED VARIABLES DESCRIBING CHILD/ALL CASES EXCEPT LOW BENEFIT GROUP

INSTITUTION OR PROGRAM RECOMMENDED FOR THIS CHILD	SIMILARITY TO THIS GROUP ONLY	FORCED RANKING AMONG ALL GROUPS
CENTRAL YOUTH CENTER	.5315	.3684
WILDERNESS CAMPING PROGRAM	.3192	.1976
CITY CHILDRENS HOME	.3548	.1295
CENTRAL STATE TREATMENT CENTER	.1512	.0746
OUTLANDS TREATMENT CENTER	.1391	.0065
HOME FOR GIRLS	.0249	.0057
CENTER FOR GIRLS	.0493	.0052
NORTHERN TREATMENT CENTER	.1541	.0040
WEST SCHOOL TREATMENT CENTER	.1572	.0027
CHURCH CHILDRENS CENTER	.0521	.0022

CODES: C=CHANGE ITEM N=NEXT SCREEN P=PRIOR SCREEN Q=QUIT R=REDO LINES

included in the models, administrators or their designees were asked to rate the degree of benefit each child in their sample had derived from placement in that facility as high, moderate, or low. Note, therefore, that in the illustrative case, Model 1 recommends the Church Children's Center program for Joanne as its eighth choice, whereas Model 2 ranks it as the third choice. This suggests that although Joanne is less likely to be admitted to Church Children's Center than to seven other programs ranked higher (Model 1), she more closely resembles the children who benefit from that program than from five of the others ranked higher in Model 1.

Study Results Favorable

The results of this study demonstrate the utility of a computer-based model as a resource for caseworkers and other professionals who are responsible for placing children. As a decision support system, the model can provide the worker with information on what child-care facilities or programs are most likely to admit a particular child.

Overall feedback from five pilot sites has been generally favorable. Preliminary reports from an independent evaluation of the computer-based system found that over 90 percent of the staff in the pilot sites want continued access to the system; over 70 percent report that using it makes them more efficient in their efforts to place children in appropriate programs; over 60 percent judged the recommendations produced by the system to be easy to interpret and to teach others to use.

Acquiring confidence and facility in using these computer recommendations takes effort and practice. Staff members most adept in using the information seem to gain leverage in the placement process. For example, many caseworkers who are responsible for making placement recommendations to judges, child welfare boards, and similar authorities find they have much more credibility when they are able to use the computer to demonstrate the consequences for the child of one placement alternative over another. In addition, some case supervisors have used the models for training new staff by illustrating how placement recommendations may change, based on the presence or absence of such characteristics as psychosis and mental retardation.

Further, the comparative data on institutional programs acquired through this model have been used to assist administrators and policy makers in examining the child care system in a particular locale. It is now possible to determine what might happen to a group of children if a particular program is no longer available. Ultimately it may be possible, through similar computer modeling techniques, to study the behavior of the service delivery system under a variety of constraints or with a diversity of objectives.

The child-placement model developed in the Continuum of Care project is applicable only to one state and its set of institutions. However there are no obvious reasons to presume that the modeling methodology would not be useful in another state or geographic region if comparable data on children in institutions were available. This assertion has not been evaluated.

In its current state of development, the placement model is capable only of matching children with initial placements. The long-term effects of placement facilitated in this manner are unknown because of a lack of funding for longitudinal outcome studies. It is hoped that the efforts of the Continuum of Care project will encourage funding for such studies.

Correction: The third paragraph in the second column of page 146 of the article "Stress in Social Workers: The Impact of Setting and Role" by William C. Sze and Barry Ivker in the March 1986 *Social Casework* should have read: "In our data from 410 stress-afflicted respondents, 40 indicated that they were under stress, but free of symptoms; 145 had one to *four* symptoms. . . ." The editors regret the error.
