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ABSTRACT

First Years Together (FYT), a 3-year service and training demonstration project, provided services to 32 high risk or preterm babies and their parents in order to overcome the emotional and developmental effects of hospitalization and a worrisome start. Service was initiated shortly before each baby's discharge from the intensive care unit and continued over 18 months. Parents and a multidisciplinary professional staff worked as partners through developmental assessments and formulation of a plan for meeting each baby's needs. Emphasis was placed on educating parents about motor skills, cognitive processes, language, social development, and differences between pre-term and full-term development, in order to increase their self-confidence and reduce their dependency on professionals. This report provides a program overview, descriptions of services and participants' characteristics, a case study of one participant, and an evaluation of the effectiveness of the intervention program and its results. The FYT training program for public health nurses and other professionals, including the training materials and information products developed in conjunction with it, are also described. Appendices include examples of parent-infant individualized educational plans. (VW)

# FINAL PROJECT REPORT

for

# FIRST YEARS TOGETHER

Grant No. G008303647

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# I. PROGRAM OVERVIEW

Seven percent of babies born in the United States are sick or underweight at birth. Many of these babies require prolonged hospitalization. Those who must spend their first days and weeks in intensive care nurseries encounter a multitude of obstacles in their struggles for survival, for in addition to the biologic conditions that put them at risk for lifelong handicaps, these babies are emotionally at risk as well. The stress and unavoidable separation caused by long hospital stays interfere with the process of integration of a new baby into a family that can jeopardize the early attachments that are so crucial to healthy growth and development.

First Years Together (FYT), the program described and evaluated in this report, is a service and training demonstration project to help parents and babies overcome the emotional and developmental effects of a worrisome start. FYT services are based on a treatment approach which uses developmental follow-up assessment as an opportunity to provide education, guidance, and support to parents. It is a program which promotes parent and professional partnerships that focus on normal development as well as social-emotional vulnerabilities of preterm and high risk infants and their families. First Years Together provides services at levels of intensity which are tailored to the specific needs of the child and family. The project links medical, educational, mental health, and public health resources, providing the coordination that is needed when infants are high risk. The project is administered through Project Enlightenment, an early intervention program of the Wake County Public School System in cooperation with Wake Mental Health in Raleigh, North Carolina. Service and training

components of First Years Together are closely linked. Products of the project include the following:

A. Assessment/Intervention Service Model

The assessment/intervention process fulfills four purposes. Within a supportive framework it helps parents become attuned to developmental needs of their infants, and reinforces parental skills and strengths in meeting these needs. It monitors the development of babies in their early months when intervention is most likely to be effective, and it provides for early referral to community services whenever needed.

Services to babies and their families begin shortly before discharge from the intensive care unit and continue over an eighteen month period. Throughout nine developmental assessments, parents work as partners with multidisciplinary professional staff to understand the developmental needs of their child and to formulate a plan for meeting those needs. During assessments, parents and professionals share observations about the baby's temperament, consolability, and communication. Parents learn about motor skills, cognitive processes, language, and social development, and they learn to recognize how preterm development departs from and conforms to full-term development. Recognizing that parents are the primary force in a child's life, FYT seeks to provide support and guidance in such a way as to increase parents' confidence in themselves rather than to create dependency on professionals.

After the initial assessment, a written plan is developed and each family in the program is visited by a resource specialist. This professional discusses with parents their child's evaluation and

intervention plan, offers support, brings parenting information and learning toys, and makes referrals to community services when needed.

B. Professional Training

First Years Together was developed as a training model. Sharing information and materials with others who serve this high risk population is an important goal of the project. The training model features group didactic sessions and opportunities for trainees to be precepted by experienced professionals during First Years Together visits. Training emphasizes the importance of involving parents in infant assessment and intervention and providing support to families in the process of adjusting to the birth of a high risk infant.

Several tools are available to groups interested in replicating the project. Outlined in a curriculum guide are developmental milestones with recommendations and examples given for helping parents observe the child's skills and temperament, anticipate developments, and provide encouraging activities. Also included are notes on characteristics of premature or high risk infants and guidelines for providing parental support. A videotape emphasizes the importance of involving parents in infant assessment.

C. Resources for Parents

The Baby Corner, located within the Parent-Teacher Resource Center at Project Enlightenment, contains a lending library of articles, books, pamphlets, and audiovisual materials addressing developmental considerations of term and preterm infants. In addition, The Baby Corner is filled with a collection of toys and games specifically geared to the needs and abilities of preterm infants. Patterns and

materials are available for parents and professionals who would like to make some of the games.

Support groups have also been established to help parents seek support and solutions to their concerns from other parents who have also experienced the stress of being the parent of a high risk infant. The groups help parents to access materials and community services that will provide additional support. Materials which have been specifically designed for the First Years Together project are available to the public and include the following:

1. Newsletters. A series of nineteen newsletters is designed to be distributed to parents monthly on their child's adjusted age birthday. Each newsletter describes activities and behaviors of infants and toddlers and discusses issues of concern to their parents.

2. Posters. Four wall posters provide information and guidance on communication styles of infants. Specific topics include how infants invite parents to interact, infant personality styles, infant and adult nonverbal communication, and language development.

3. Come Play With Me: Handmade Toys for Infants. The resource book contains a number of toys and games which have been developed for parents and professionals who wish to make their own toys.

D. Program Profile

Specific features of the FYT program are presented below in outline form to provide a synopsis of program characteristics. A detailed presentation of the rationale, model and program evaluation are provided in subsequent chapters.

1. Population served: low birthweight, medically stressed infants and their families.

2. Demographic characteristics of participants:

   a. age: infants followed birth to 18 months adjusted age

   b. ethnic background: 16 Black, 16 Caucasian

   c. sex: 14 female, 18 male

   d. social class (Hollingshead rating of education and job): Class V (highest) = 1; Class IV = 11; Class III = 3; Class II = 12; Class I = 5.

   e. family setting: single parent (mother) = 13; two parent family = 19; extended family = 8 (not exclusive category)

3. Perinatal medical complication of infants:

   a. birthweight: average = 1717.44 grams

   b. gestational age: average = 32.47 weeks--preterm--term of postterm

   c. Apgar at 5 minutes: average = 7.34

   d. respiratory distress: 13 (40.6%)

   e. intracranial hemorrhage: 5 (10.5%)

   f. bronchopulmonary dysplasia: 4 (12.5%)

   g. asphyxia at birth: 15 (50.0%)

   h. neonatal seizures: 3 (9.4%)

   i. small for gestational age: 5 (10.6%)

4. Location of program: Raleigh, North Carolina

5. Administering agency: Project Enlightenment of the Wake County Public School System and Wake Area Mental Health

6. Collaborating agencies: Wake Area Health Education Center, Wake Medical Center, Wake County Public Health Program

7. Staffing pattern: Staff participating in the FYT service and model demonstration program included:

1 80% time administrator, assessor/intervener with Ph.D. in Clinical Psychology;

2 75% assessor/interveners, one with a Ph.D. in Developmental Psychology and the other with an M.A. in Child Development;

1 60% Parent Infant Resource Specialist with an M.S. in Child Development (Home Economics);

1 40% Parent Infant Resource Specialist with a B.A. in Psychology and over 10 years of experience in early intervention programs;

1 10% Physical Therapist (contracted) with B.S. in Physical Therapy and over 10 years of experience in early intervention programs;

1 Speech Clinician (contracted for 25 days per year) with an M.A. in Speech Pathology;

1 50% Parent Infant Resource Assistant who was responsible for secretarial and research assistance.

8. Types of services:
   a. Assessment/Intervention, home and center based
   b. Resourcing home visits, resource center including books, tapes, kits, toys, developmental newsletter
   c. Additional services as needed: P.T. consultation, language consultation, parent group, referrals to other agencies.
9. Distinctive features of intervention model:
   a. focuses on stimulation and affective interactions between parent and infant
   b. provides anticipatory developmental guidance to parents using an assessment as intervention model

c. facilitates parent-professional partnership

d. focuses on content and processes of child development

e. focus is on enhancement of development and allows for service witnout labeling disabilities

f. seeks the well-being of all members in the family system

g. promotes attitude change

h. provides for interagency collaboration and articulation of services

i. matches intensity of services to client need and receptivity.

10. Assessment and individualized plan:

Child's development is assessed at e month intervals using the Bayley Scales of Infant Development and Denver Developmental Screening Test. Parent-child interaction and family needs are assessed clinically at the same 3 month intervals. Parent/Infant Individualized Education Plan (PIIEP) is written by assessor and resource specialist following each assessment, focusing on child's strengths and needs and family strategies for meeting needs. Plan is presented to parents and revised according to their input at follow-up resourcing visit.

11. Curriculum: Two project-developed curricula are used:

a. Assessment as Intervention curriculum to alert parents to sequences in cognitive, language, motor, and social-emotional development and to facilitate activities.

b. Family curriculum to focus on common issues and adjustments facing parents of low birthweight infants.

12. Evaluation:

Child and parent outcomes were examined in an intervention and a comparison group. Variables examined included biomedical, developmental, and behavioral characteristics of the infant; parental sense of well-being, self-esteem and effectiveness; parental attitudes and knowledge of infant development and parent-child interaction, and quality of the home environment. Also examined were characteristics of family social supports. The evaluation elucidates the aspects of the program which parents have found most helpful.

## II. RATIONALE FOR THE FIRST YEARS TOGETHER MODEL

### A. Need for Services for Low Birthweight and Medically High Risk Infants and Their Families

The First Years Together (FYT) program is a model demonstration of services to families of high risk infants who began life in the intensive care nursery with many medical problems and uncertainties about their survival and ultimate intactness. An infant's prognosis is for normal development in a facilitative home environment with early detection and prompt remediation when developmental problems occur. However these infants are at increased risk for problems and compromises in motor and language development and for later learning disabilities and behavioral problems, especially when medical risk is compounded by environmental risk. Furthermore parent and child are at risk for attachment and interactional disturbances. Even when things go well in the early months, parents may profit from professional support and from authoritative feedback about their child's progress and development to reassure them and to interrupt unwarranted fears, negative expectations and tendencies to overprotect and treat the child as more vulnerable than he or she actually is.

The need for early intervention with medically high risk infants and with their caregivers stems from the particular developmental and interactional vulnerabilities of these infants and their families. A brief review of literature relevant to vulnerabilities of low birthweight infants, the vulnerabilities of their parents, and approaches to intervention with this population follows.

#### 1. Vulnerabilities of low birthweight infants

While the effects of low birthweight have shown consistent IQ

deficits (Weiner, 1962), there are indications that the majority of low birthweight infants do not function subnormally on developmental tests, especially when the children's chronological ages are corrected for the gestational ages at which they were born (e.g., Hunt & Rhodes, 1977). Increasingly, however, follow-up studies bring to light subtle differences in functioning of these children, even though IQ scores may be within the normal or low normal range. These deficiencies include poor motor performance (Holmes et al., 1984), signs of minimal brain damage as expressed in perceptual and visual deviation (Caputo et al., 1979), deficits in hearing and language production, and preschool behavior problems (Field et al., 1979).

There is increasing evidence to indicate that individual differences in infant characteristics affect parental responsiveness (Lewis & Goldberg, 1969). The low birthweight infant is found to be less alert and responsive when compared with a full-term infant at the newborn period matched for conceptual age (Martin, 1977). Field (1979) found low birthweight infants to be not only less alert, but also more gaze averting and irritable, less consolable, and more difficult to feed than full-term babies. Other prospective studies of the child-rearing problems associated with low birthweight have found early interaction disturbances (DiVitto & Goldberg, 1979; Field, 1977a, 1977b). There are numerous investigations of caretaker influence which have found that attentive, warm, stimulating, responsive, and nonrestrictive caregiving promotes healthy early development (e.g., Beckwith et al., 1976; Clarke-Stewart, 1973; Yarrow et al., 1975). However, because of interaction deficits it appears that low birthweight infants are less likely to elicit such responsiveness from

caretakers. Barnard, Gray and Weiner (1979) found that parents of eight-month-old low birthweight infants were less sensitive to the cues of their infant, had poor timing, and were less reinforcing to the infants than a control group. In a feeding observation at four and eight months, Speitz, Syndor, and Barnard (1980) found that the low birthweight infant and parent display less positive affect and less eye-to-eye contact with each other.

The fact that low birthweight infants do not fuel responsiveness from caretakers, increases the high risk factors for numerous handicapping conditions. There is evidence that the incidence of child abuse is inflated for children who are low birthweight (Elmer & Gregg, 1967). And on the whole, there have been consistent findings that disorders of conduct, personality, language, cognition, and physical growth occur in children with serious disturbance in early family life (Rutter, 1979). A key factor operating in determining how serious the impact of low birthweight might be is how sensitively the caretaking environment responds to these infants' needs in spite of their interactional deficits.

The concept of "goodness of fit" has been used by Thomas and Chess (1977) to explain the role of temperament in accounting for variability in developmental outcome among vulnerable children. Their basic assumption is that the adequacy of the organism's developmental outcome depends not just on the individual's characteristics, but rather on the relationship, "match" or fit between the properties of the environment and the organism's own capacities and behavioral characteristics (Chess, 1979, p. 105). Thomas and Chess find impressive support for this thesis in their follow-up of infants from birth into adulthood.

The "goodness of fit" hypothesis seems especially promising as a framework for interventions with low birthweight infants and their families. Sameroff and Chandler (1975) cite abundant evidence to show that the quality of caretaking can perpetuate or moderate earlier developmental difficulties resulting from pregnancy and birth complications. In reviewing longitudinal studies, Sameroff and Chandler (1975) clearly demonstrate that these developmental difficulties are most likely to be intensified in children from low socio-economic environments. For this reason developing interventions aimed at maximizing the responsiveness of low socioeconomic parents of low birthweight infants is crucial.

2. Vulnerabilities of parents of low birthweight infants

Interactional disturbances may also occur subsequent to the parents' experiencing of the infant's hospitalization. The significance of close contact during the first minutes and days following delivery for the development of a parent's attachment has been brought to light in the series of studies by Klaus and Kennell (1975). Mothers who are separated from their babies in the neonatal period are found to be less confident and less competent in some aspects of mothering during the subsequent months (Seashore et al., 1973). Keeping the mother and baby together soon after birth appears likely to initiate and enhance the operation of sensory, hormonal, and behavioral mechanisms that probably help lock the parent to the infant (Rutter, 1979), although opportunities for developing the special intimacy that helps infants to thrive are not limited to the time directly after birth.

It is likely that the separation experienced by parents of low birthweight infants though stressful and significant, is only one of a constellation of stresses at this time that hampers the parents' attachment and subsequent responsiveness. Other stresses include the unexpectedness of the delivery and consequent lack of preparation; coping with the failure to deliver a normal, healthy baby; the mourning of the loss of the perfect child wished for during pregnancy; and the possible perception of the child as damaged, which then sets up a self-fulfilling prophecy. These particular stresses are magnified in families of low socio-economic status who also have to cope with the increased financial and transportation problems which make it difficult for them to visit the baby. They are also magnified for single parents who may lack a cohesive support network.

B. First Years Together's Model of Services for Low Birthweight and Medically High Risk Infants and Their Families

Important characteristics and goals for interventions with families of low birthweight infants follow from the particular needs and vulnerabilities of the population as described above.

1. Enhancing stimulation and affective interaction between parent and child.

Many existing infant intervention programs have focused on specific aspects of cognitive stimulation without adequate attention to the affective quality of parent-child interactions. However, an intervention approach which focuses on improving both stimulation and affective components of the parent-child interaction seems most appropriate to families of low birthweight infants. The FYT approach focuses broadly on the quality of parent-child interaction and the

enhancement of parents' capabilities to provide an environment which facilitates development rather than narrowly teaching specific infant skills or simply teaching the parents to be better infant stimulators. This focus is based on the belief that promotion of optimal development depends on the affective quality of the parent-child relationship and on experiences of contingent stimulation within the parent-child relationship as foundations for feelings of competency and trust. The FYT model seeks to avoid common problems of programs focused just on infant skills training and stimulation, such as (a) over-emphasis on deficit skills areas with concomitant neglect of strengths, (b) over-valuing of cognitive skills while underemphasizing social-emotional development, and (c) supplanting naturally occurring parent-child interactions which enhance development such as learning through developmentally appropriate play, with structured teaching approaches which may promote the parent initiating and controlling the task rather than responding contingently to the child's behavioral cues. This is particularly important since an interactional vulnerability of both high risk and handicapped parent-child dyads is for increased parental directiveness in an attempt to counter the child's passivity and deficits in stimulus-seeking (Field, T., 1979). Parents become more active and dominant in an effort to mobilize the child but a non-productive cycle of increasing parent domination and child passivity may be set in motion. Stimulation-focused interventions may reinforce and perpetuate a pattern of excessive parent directiveness whereas programs more broadly focused on child development and the affective as well as stimulative aspects of parent-child interactions, as is the FYT program may be less likely to do so. The FYT program seeks to facilitate a

parent-infant interaction style characterized by positive emotional involvement and synchrony in parent/child behaviors; reciprocity and turn-taking with ability to allow the infant to lead as well as follow in the interactional exchanges, and avoidance of intrusive overstimulating interactive patterns; and providing caregiving and cognitive stimulation matched to the infant's developmental level.

2. Enhancing the "match" or "fit" between child and environment using an assessment intervention model of anticipatory developmental guidance.

After a 1979 study of the developmental assessment component of the Early Periodic Screening Diagnosis and Treatment (EPSDT) Program, the American Orthopsychiatric Association (AOA) expressed concern about the general emphasis placed on the cognitive domain and the relative inattention to the area of social and emotional development. According to the AOA, pilot programs should point the way toward more comprehensive and integrated service structures in which children's individual abilities and styles of coping would be determined and then actively used in intervention efforts.

The "goodness of fit" concept articulated by Thomas and Chess suggests the importance of the role of congruency between infant and environment. Within this concept the "match" between environmental variables, including caregiver characteristics and the infant's temperament and capacities, is critical to the developmental outcome of the infant.

The First Years Together Program (FYT) seeks to facilitate the organism-environment "fit" for low birthweight infants using an assessment as intervention model. Child and family functioning are

assessed at frequent, periodic intervals during the first 18 months (corrected age) of life. Assessments provide information needed in planning services for children and families. Additionally, and most importantly, assessments are conducted so as to become occasions for supportive parental guidance whereby a parent can come to better understand the child's developmental level and temperament, and discover ways to structure the environment to match the child's developmental and temperamental needs. The effectiveness of developmental guidance provided to parents in the context of infant assessment has been described by Barnard, Brazelton, and others. Brazelton (1973) has proposed that developmental assessments be used as a method for enhancing infant development by providing the parent with "anticipatory guidance." On the basis of the Brazelton Neonatal Behavioral Assessment Scales (BNBAS), others have developed "acquaintance process" in which the infant's behavior is demonstrated and described to the mother. Megenity (1976) found the use of such an acquaintance process produced positive changes in the quality of care-taking. Widnayer and Field (1981) found that teaching mothers of low birthweight infants how to administer the items on the BNBAS facilitated early interactions which, in turn, appeared to contribute to early cognitive development. Bernard and her colleagues have utilized a variety of assessment procedures in providing information and guidance to parents of infants (Bernard, 1980).

3. Parent-professional partnership during assessment/intervention.

Parent and professional form a partnership to discover the child's level and style of functioning and to find ways to best structure the environment to "match" or "fit" child needs and characteristics. Each

partner supplies important information and problem solving skills needed for this task. Neither partner can do the job as effectively alone. Parents know their child from seeing her/his responses day after day in many different situations. Their questions and their concerns constitute the most important priorities in assessment and intervention. Parents will be the primary teachers and advocates for their children throughout the years. They know best their values and priorities for their child as well as the feasibility of various strategies for meeting child needs within the constraints of their particular personal and environmental circumstances. Professionals, on the other hand, bring to the partnership expertise about evaluation and about facilitation of child development in normative and high risk situations. They can provide information, experience and objectivity to assist parents in promoting an environment which optimizes the child's physical, social, emotional, communicative, and cognitive growth. Equally important, professionals can support parents by validating the importance of their child-rearing efforts to their children's growth and well-being, and by reinforcing parenting approaches and life strategies which appear productive.

Involving parents as partners in assessment allows them to understand the nature of the assessment process and what it can and cannot provide. In addition, when parents are partners in the assessment and planning process the likelihood of their changing parenting strategies and of following up on suggested activities and referrals is increased.

4. Child development focus.

Through the Assessment/Intervention (A/I) mothers are alerted to

natural developmental progressions within their infants. They learn that development progresses sequentially within the various developmental lines and they learn their children's places within these developmental sequences through guided observation of them during the assessment. They are helped to learn the importance of matching the caregiving and stimulation they provide to the children's places within developmental sequences. Through modeling and supervised practice they increase their skills in observing and responding to their children's behavioral cues for needs and satisfaction and in accommodating to behavioral styles. They receive consultation regarding the translation of awarenesses of their children's developmental status and behavioral style into sensitive structuring of the environment to fit the children's needs. The role of small steps in development is learned as the child practices competencies through play. They are helped to anticipate soon-to-occur steps in development and to encourage developmental gains by providing toys and play experiences which challenge and expand the children's developing capabilities.

Through the A/I parents increase their understanding of the nature of the developmental process and of their role as parents in this process. The specific content of development is also taught. However, as the child matures the contents of development change although many of the essential processes remain the same. The effects of teaching parents processes and skills continue after the intervention program ends.

5. Family focus.

In a review of cross-sectional and longitudinal studies on the effectiveness of early intervention, Schaefer (1972) concluded that

those programs that concentrated on the involvement of parents were most successful in long-term effectiveness. In another review of the effectiveness of parent education, Bronfenbrenner (1975) reported that intervention is most effective when the program is home-based, begun when the child is very young, involves the parent directly in activities fostering the child's development, and encourages reciprocal interaction between the mother and child. The primary purpose of such early intervention programs is to strengthen the family and to integrate the at-risk infant into the family unit in a positive way within the context of the needs and well-being of all the family members.

The FYT model views the child within his or her family system. Supporting and improving the well-being and quality of life of parents and the family as a whole is viewed as essential to long-range child outcomes. Increasing parents' psychological comfort, self-esteem, sense of effectiveness and control in their lives and in the parenting role are all important goals of the FYT program.

In addition, the program seeks to be ecologically sensitive. To be maximally effective, what the program teaches must be compatible or fit with the family's ways of doing things so that learning can be integrated into the family's lifestyle. Also, time and energy requirements for the program must be reasonable so that compliance is not at the expense of other essential family tasks.

The FYT program seeks to help parents improve problem-solving skills by asking leading questions which focus and structure problem-solving efforts and by modeling effective problem-solving strategies. With improved problem-solving, life's demands and stresses are managed

more effectively, freeing energy for investment in positive interactions with the low birthweight infant and with other family members as well.

6. Provisions and enhancement of Social Supports.

Child, parent and family are viewed within the broader social context of which they are a part. Helping the family develop their network of social supports for rearing a nigh risk child is an aim of the FYT program. Ample evidence exists in the literature attesting to the importance of social supports in buffering the family against a wide variety of potentially destructive life crises (Caplan, 1974; Cobb, 1976). Furthermore, the adequacy of social supports is related to the quality of the home environment parents provide their children. Pascoe et al. (1981) found the greater the emotional and instrumental support available to a family, the greater the mother's avoidance of restriction and punishment, organization of the environment, provisions of appropriate play materials and provisions of opportunities for variety in daily stimulation. An example of enhancing supports within the environment utilized by the FYT program is helping members of the kinship network and alternate caregivers to better understand the needs of the low birthweight infant. Strengthening parents in their roles as advocates for their children through helping them learn to access supports and services within the professional community and organizing parent-to-parent support networks and support groups are other ways of enhancing social supports utilized by the FYT program.

7. Home visits.

Usual support systems available to new parents during the neonatal period do not appear to function very successfully with low birthweight

infants (Sammons, 1985). A supportive home visitor, knowledgeable in high risk infant development helps the family make the transition from hospital to home care for the infant.

A visitor coming into the home saves a mother from the burden and risk of taking a small baby out into the world. Home programs also provide the professional with valuable opportunities to see first-hand environmental circumstances which are relevant to intervention planning. However, special care must be taken to respect people's rights to privacy and to avoid pressuring families into accepting programs to which they may be outwardly acquiescent, but inwardly resistant.

8. Parent attitude change.

While remaining ecologically sensitive, the FYT program seeks to shape child rearing values, attitudes and styles to become more congruent with those which have been documented in the literature as optimizing child competence. Parenting attitudes and values promoted by the FYT program include: 1) early expectancies for child learning and beliefs in efficacy of early parent stimulation of language and cognitive development (Ninio, 1979); 2) valuing of curiosity and self-direction over conformity in children (Kohn, 1977); 3) progressive beliefs and values, that is to say, beliefs and values consistent with success in modern society, about parenting, education and child behavior (Schaefer & Edgerton, 1981). In addition, the FYT program seeks to promote and enhance parents' positive attitudes toward themselves, including self-esteem and a feeling of psychological well-being, sense of effectance and control in general and specifically in parenting.

9. Efficiency of model.

In times when resources are scarce, finding cost-effective interventions for vulnerable infants and their families becomes crucial. Combining diagnostic and evaluation services with intervention as in the FYT assessment-as-intervention model is cost effective. Developmental follow-up of medically high risk infants is considered essential to early detection and remediation of potentially disabling conditions. There is widespread belief that the earlier the intervention, the greater the likelihood of success. Within North Carolina, and increasingly across the country, early periodic screening and evaluation is mandated. The assessment as intervention model expands an already occurring assessment process so that it becomes an intervention which supports and educates parents of high risk infants, and results in a better articulation of evaluation and intervention components of the service delivery system.

Existing service delivery systems should be used as much as possible, avoiding the duplication of services and the redundancy of administrative and overhead costs. Moreover, costly clinical resources should be relied on only when augmentation of the existing mainstream of services is not possible.

Intervention within an assessment setting presents a particularly powerful and efficient situation for parent education in a number of regards:

a) Timing of information presentation: With anticipatory guidance, information is presented at a time when motivation for learning and utilization of information is likely to be very high.

b) Demonstration with parents' own child: Not only are intrinsic interest, relevancy and applicability of information enhanced, but problems with adapting and generalizing are lessened when demonstrations occur with the target child. Modeling and experimentation with potentially useful child care strategies occur within the developmental assessment context.

c) Dealing with parents' concerns: Parents have opportunity to raise their questions and concerns to focus assessment and intervention efforts on issues most relevant to them.

d) Level of anxiety which facilitates learning: Learning occurs best with a level of anxiety which arouses but does not disorganize. Properly managed and focused, anxiety sharpens learning, energizes problem-solving and increases potential for changing behavior.

An efficient model of services does not over-serve but rather seeks to fit the level (frequency and intensity) of services to client needs at a particular point in time. The level of services should be such that needs are met without creating unnecessary dependency on professionals or undermining the family's initiative and sense of control and responsibility. The level of service needed should, on the average, be lower for a high risk than would be the case for an established risk population.

In order to fit the needs of the high risk infant and family, the FYT A/I model gives careful attention to timing, intensity, and flexibility of intervention. The program begins in the hospital at a time of family crisis, and assists with the transition from hospital to home care as the family adjusts to the homecoming of a vulnerable and difficult-to-care-for infant. Frequent home visits are provided during

the first three months after hospital discharge during the early adjustment process. During the early months serious medical concerns continue and rehospitalizations are common. As the crisis abates and routines for the care of the infant at home are established, the frequency of visits is decreased for most families after 3 months adjusted age. Sessions may become center as well as home based at this point, depending on the family's needs and preferences. Assessment/interventions, followed by writing of a parent infant individualized instructional plan (PIIEP) and a follow-up resource visit to go over the plan with parents and to begin its implementation (as described later) typically occur at 3 month intervals thereafter from 3 to 18 months adjusted age. Frequent assessments of the child's development, parent-child interaction and family functioning assure early detection of problems requiring interventions beyond the anticipatory developmental guidance and resourcing provided routinely. A central feature of the program is the flexibility to become more or less intense in response to family needs and receptivity to services. Therefore families receive different levels of services and a given family may receive different levels of service at different times. By increasing the frequency of services, more intense needs can often be met within the FYT program thus avoiding labeling and referral. However, when needed, referral can be accomplished expeditiously because of parents' trust and confidence in diagnostic decisions based on repeated assessments within the context of an ongoing supportive relationship.

Since parents are one of the major targets of training and change, a program such as FYT should produce a "ripple effect." Obviously, the

knowledge and skills acquired by parents, although directly related to their low birthweight infants, can be expected to benefit other children in the family as well. Moreover, the parents' role as a force in the lives of their children at other developmental stages will be enhanced.

## III. FIRST YEARS TOGETHER SERVICES

### A. Description of Services

#### 1. Assessment as Intervention.

The basis of the First Years Together model of service delivery is the belief that the assessment of high risk infants can be used as an opportunity for intervention not only with the babies themselves but also with their parents. Early intervention research has shown that meaningful parent involvement is crucial to the progress of children at risk. Intervention with high-risk babies must include their parents because the parents are primary service providers for their babies and are also the people who have the long-term responsibility of understanding and caring for those children. To fill these roles best, parents need to be knowledgeable in many areas including normal sequences of child development and effects of low birthweight on infants' capabilities as well as about their own child's strengths, weaknesses, and temperamental style. This understanding can support parents' attachment to their babies as the adults gain appreciation for their babies' capabilities and awareness of their special needs. When parents do not have this larger picture and do not understand how particular activities will contribute to the long range development of certain skills, they are typically less motivated to carry out specific remediation suggestions. Assessment sessions, in which various developmental domains are reviewed, provide situations in which this larger picture can be enhanced: the assessment can become the medium for intervention.

In the course of an assessment/intervention session, the evaluator performs the traditional service of assessing strengths and weaknesses

and identifying developmental delays, but she also provides education, anticipatory guidance, and support to parents. For example, the evaluator explains as she presents a test item what response she is looking for from the baby, the significance of that action, the skills that preceded and that will follow the one seen, the activities the parent could use to encourage that learning or to correct an inappropriate pattern. Parents are helped to understand that skills build one upon another and that rather than being a pass/fail situation, the assessment is a chance to see where on a continuum of growth their child is functioning currently. The evaluator also talks with the parent about the infant's temperament, (e.g. consolability, preferred sensory stimuli, or activity level), about emotional issues common to parents of high-risk babies and those specific to that family, and/or about the parent-infant style of interaction. Some information relayed to the parents will be relevant to all caregivers of high-risk infants and some will be geared to the idiosyncratic characteristics of that particular infant or parent-infant dyad. For example, activities recommended will utilize that particular infant's strengths to overcome her weaknesses, or may focus on helping the parent use the baby's preferred mode of stimulation to interact with the infant without overwhelming him.

The assessment/intervention session is conducted within the context of a partnership between the parent and the professional. This partnership begins on a practical level as the professional consults the parent in choosing a time for the evaluation that fits with the child's sleep/wake schedule, and on a philosophical level as the professional draws out the parents' current concerns about the child.

Testing procedures are explained including presentation of items beyond the child's abilities so as to sample the entire range of skills. The parent is urged to comfort the child as needed, to suggest ways to elicit a child's best performance, and to report if the infant has demonstrated skills at home that are similar to the ones being tested. In this way, more complete assessment information is obtained: the professionals bring normative data and experience with many children to an evaluation, and parents contribute extensive and intensive observations of their own child. The interaction between parent and professional results in a better understanding of the child, and the child within his or her own family. Parents whose observations are received with respect are more likely to believe that the evaluation represents an accurate picture of their child. This results in more thorough and more creative follow-through on recommendations. In addition, parents' concerns or anxieties frequently surface. If these worries are due to a misconception about infant behavior, they can be allayed by information about development presented in the assessment. If parental concern is an accurate indicator that a developmental lag exists, it opens the subject for frank discussion of the behavior, without the use of negative labels. In either case, parents enjoy a greater understanding of their child and an awareness that their knowledge of their child is valued. As re-evaluations occur periodically, additional concerns may surface and can be addressed and re-addressed. If further consultation is needed, the professional models the acceptability of pursuing additional resources, whether from the motor or language consultant on the First Years Together staff or from an outside source. Over time, as the parent and professional

jointly question, observe, wonder, and discover, they develop a sense of working together to "figure out" the baby. Through this process, the parent gains refined observation skills, a sense of efficacy in intervention, and a willingness to advocate for the child's future needs.

The sharing of information described above happens best within the framework of ongoing emotional support to parents. The goal of such support is to enhance parents' realization of their importance to the child and their feelings of competence as parents. This happens in a variety of ways. Parents' reactions to labor and delivery, to the neonatal intensive care unit, to the demands of a high-risk infant, and to their changes in lifestyle are listened to empathetically. The coping that they have already done is acknowledged, especially as they make the difficult transition from the protected environment of the nursery to the forced self-sufficiency of home. Parents are praised in specific terms for the good parenting skills they demonstrate. Professionals comment on parental actions and interventions tnat have fostered certain infant competencies. Similarly, positive steps in the infant's emotional and social development are reflected in a way that parents can understand their contributions to that development. Finally, parents' broader concerns, whether they be for themselves, their spouses or their children are responded to in recognition of the fact that a baby's well-being is influenced by the emotional status of the family at large.

In an additional effort to make tnis a rich and accessible experience for parents, attempts were made to choose optimal times and places for assessment-intervention sessions over our 18-month period of

service delivery to each family. Meeting families, when possible, in the intensive care nursery prior to discharge provided the chance for a beginning transfer of trust from the known network of hospital care workers to the new support relationship. This was important as many families found the transition from hospital to home very difficult and stressful. Frequent visits during the first three months gave parents some additional resources as they struggled to adapt to the needs and schedules of their new babies. These visits happened at the babies' homes for several reasons: 1) the babies often had respiratory problems, heart monitors, or susceptibility to infection that made it difficult or inadvisable for parents to venture out with their infants; 2) parents were often fatigued and not ready to bundle up the baby and her gear to drive across town for an appointment; 3) parents and the infants were more relaxed in their own homes; and 4) at-home visits allowed for more informal observations of the routine caretaking and interactional sequences. These frequent early visits increased our awareness of and sensitivity to the environmental resources and constraints of the family. They also provided the opportunity for rapport to be established between the parents and the professional that carried through the second phase of the program in which the sessions were spaced further apart. As parents settled into routines with their babies, and resumed activities in other areas of their lives, a less frequent pattern of visits suited them at this point but still allowed for continuing current information about their child's growth and development. At this point, the option of center-based visits was presented; in this way parents could see first-hand the array of resources available to them through the "Baby Corner" which is a part

of a larger Parent/Teacher Resource Center. These sessions during the six- to eighteen-month period also provided an opportunity for professionals to monitor progress and make intervention suggestions without the stigma of labeling a child as "handicapped" in order to receive services. For those families continuing to need more intensive intervention, the First Years Together program was flexible enough to either provide that directly or to work jointly with other agencies to fill those needs.

Throughout this process we recognized that all parents of children being evaluated feel some level of anxiety and we tried to be responsive to that. We realize that some anxiety serves as a motivator for parents to have a child evaluated in the first place, that it may heighten parents' receptivity to information and suggestions during assessment sessions, and that it may also prompt some subsequent parental behavioral changes that will benefit the child. However, we also know that too much anxiety can cause a person to forget information, to become overly defensive, or to deny feelings. In our approach, we tried to minimize the anxiety inherent in the assessment situation. A study conducted with parents whose children were being evaluated found that parents wanted several things from the assessment situation: 1) to be present and allowed to watch without simultaneously answering questions; 2) to receive information on the purpose of the testing, parents' roles in the assessment, their child's strengths and weaknesses, and suggestions for remediation; 3) to have their own observations of their children at home recognized and respected; and 4) to experience a good working relationship between themselves and the evaluator and between the evaluator and the child.

In addition to setting up procedures responsive to these needs we tried to anticipate some questions, recognizing that parents initially may not have the words or feel permission to ask. We also realize that parents are usually asking themselves if they are doing good enough jobs as parents, and we respond to this both with comments and praise for the parental behaviors that foster positive development and with modeling and careful suggestions of ways to improve parent-infant interaction.

2. Parent-Infant Individualized Educational Plan (PIIEP).

After the assessment a written plan, the PIIEP, is developed by the assessor/intervener and the resource specialist using information from both the assessment of the child's development and observations of parent-child interactions. The PIIEP provides written feedback to the family on child strengths and weaknesses along with specific suggestions for caregiving and developmentally appropriate activities for building skills in gross motor, fine motor, cognitive, language, and social-emotional areas. The child and interactional skills emphasized in the PIIEP are those especially in need of strengthening and those ready to emerge next in the developmental sequence. The PIIEP also describes child progress and reinforces positive parenting behaviors which have been observed. The PIIEP is written in simple prose from the viewpoint of the baby. Its focus is on increasing parents' understandings about the children and about ways to structure the environment to match developmental and temperamental needs. Examples of PIIEP for 3,6,9 and 15 month old infants appear in the appendix.

Table I

Service Delivery Timeline

| Transfer from NICU → | | Transition from Hospital to Home → | |
|---|---|---|---|
| **Service** | **Delivered by** | **Service** | **Delivered by** |
| Invitation to participate in First Years Together (FYT), parent interview and initial measures of parent characteristics | Perinatal social worker and Assessor/Intervener (A/I) | Second Assessment/ Intervention: Brazelton Acquaintance Process, homecoming issues | A/I and PHN |
| Initial Assessment/Intervention: Brazelton Acquaintance Process | A/I and Public Health Nurse (PHN) | | |

| 1 Month Adjusted Age (AA) → | | 6 Weeks Adjusted Age → | | 2 Months Adjusted Age → | |
|---|---|---|---|---|---|
| **Service** | **Delivered by** | **Service** | **Delivered by** | **Service** | **Delivered by** |
| Third assessment/ intervention: Assessment of early care issues, acquaintance process, Brazelton and Bayley Scales of Infant Development (selected items) | A/I, PHN | Initial resource home visit. Review PIIEP, early care issues | Resource Specialist (R) | Fourth assessment/intervention: Bayley | A/I, PHN |

Table I (cont.)

| 3 Months Adjusted Age → | | 6 Months Adjusted Age → | | 9 Months Adjusted Age → | |
|---|---|---|---|---|---|
| Service | Delivered by | Service | Delivered by | Service | Delivered by |
| Fifth assessment/ intervention: Bayley and Denver Developmental Screening Test (DDST) | A/I, PHN | Sixth assessment/ intervention: Bayley and DDST | A/I, PHN | Seventh Assessment/intervention: Bayley and DDST | A/I, PHN |
| PIIEP written | A/I, R | PIIEP written | A/I, R | PIIEP written | A/I, R |
| Resource visit: Baby Corner tour | R | Resource visit: Assessment and intervention plan reviewed and revised; information, materials, support and skills training as needed | R | Resource visit: Assessment and intervention plan reviewed and revised; information, materials, support and skills training as needed | R |

| 12 Months Adjusted Age → | | 15 Months Adjusted Age → | | 18 Months Adjusted Age → | |
|---|---|---|---|---|---|
| Service | Delivered by | Service | Delivered by | Service | Delivered by |
| Eighth assessment/ intervention: Bayley | A/I, PHN | Ninth assessment/ intervention: Bayley | A/I, PHN | Tenth assessment/intervention: Receptive and Expressive Emergent Language Scale (REEL) assessment of need for continuing services, review progress in program | A/I, PHN |

Table I (cont.)

| 12 Months Adjusted Age ⟶ | | 15 Months Admusted Age ⟶ | | 18 Months Adjusted Age ⟶ | |
|---|---|---|---|---|---|
| Service | Delivered by | Service | Delivered by | Service | Delivered by |
| PIIEP written | A/I, R | PIIEP written | A/I, R | Plan for Continuing Services | A/I, R |
| Resource visit: Assessment and intervention plan reviewed and revised; information, materials, support and skills training as needed | R | Resource visit: Assessment and intervention plan reviewed and revised; information, materials, support and skills training as needed | R | Closing Summary written<br><br>Resource visit: Review progress in FYT program, current status and transition to other services as needed | A/I, R |

3. Resource Sessions.

Within two weeks after each assessment/intervention, a resource specialist visited the family to discuss with them the child's evaluation and PIIEP. As the PIIEP was discussed, clarifications, elaborations, deletions, and additions were made. If materials, information, or skills training were needed by the parent to carry out activities suggested in the PIIEP, the Resource Specialist supplied these or made a plan for supplying them. When services not offered by the FYT were needed, the Resource Specialist assisted the parent in accessing these services, and remained available to the parent for support and follow-up as needed in implementing the PIIEP or as additional issues and concerns occured during the period between assessment/interventions. The resource specialist called on other staff, especially the Assessor/Intervener, to share responsibilities for support and follow-up between assesement/interventions as necessary.

The service delivery timeline presented in Table I gives a succinct and sequential representation of when and by whom the core services of FYT were provided.

In addition to the assessment/intervention and the individualized resource specialists services, FYT parents were also provided with other resources.

4. Resource Center.

A parent infant resource center, the Baby Corner, was developed and organized during the project's planning phase. The Baby Corner was integrated into Project Enlightenment's Parent Teacher Resource Center and made available to all parents and professionals in Wake County. Materials were catalogued and a special card file established for the

Baby Corner. Guidelines for using the Baby Corner were established to be consistent with the operating guidelines for the Parent Teacher Resource Center. Acquisitions for the Baby Corner continued throughout the grant period. At present approximately 90 books for professionals, 130 books for parents, 2 kits, 9 video tapes, 2 slide-tapes and numerous articles are available in the center. Acquisitions of materials will continue over the next two years through a grant to Project Enlightenment from the Junior League of Raleigh, Inc.

Patterns and instructions and sample handmade toys for infants are also available in the Baby Corner. The handmade toys were developed by the FYT materials consultant. The materials consultant researched existing games and activities and designed toys for high-risk infants and their parents which are developmentally appropriate, appealing, safe, easy to make and inexpensive. A book, Come Play with Me: Handmade Toys for Infants, is ready for distribution. The book includes patterns and instructions for making toys and specifies their uses to encourage development.

Toys were used in the First Years Together program in a variety of ways. A Toy Lending Library was developed to enrich home visits and provide families with tools to encourage certain aspects of development. Professionals selected toys that were appropriate to the child's developmental needs to loan to the family. This provided toys to families with limited incomes or gave a family an opportunity to try a toy before buying it. Parents could also self-select toys from a list of available toys. Certain toys were given as gifts for each family that participated. Toys such as small rattles, wooden blocks, bubbles, a hard cover book and a "crib-hugger" device for

displaying stimulating objects and pictures were given to each family at age-appropriate times during the program.

5. Developmental Newsletter.

Baby Talk, a series of newsletters especially for parents of high-risk infants developed by the FYT project, was mailed to parents monthly on their child's adjusted age birthdate. Each newsletter describes activities and behaviors of children at a particular age. The 19 newsletters cover birth to 18 months of age. They highlight developmental issues, adjustments to parenthood, and special concerns of parents of premature babies. Each issue also suggests age appropriate activities for infants and parents. The newsletters were developed to provide standard information to families of high-risk babies about development, safety, discipline, etc., so that home visits could be more focused on specific idiosyncratic needs of the family.

6. Support Group.

In an additional effort to aid parents, a support group for parents of high risk or premature babies was begun as part of the First Years Together Project. Initially the group met one evening a month, but at the request of the hospital perinatal social worker, the group also began to meet weekly in the morning during hospital rounds. Called "Caring Parents," the group was a place where parents could share their concerns, fears, and frustrations as well as the joys and triumphs of their baby's stay in the hospital and the period of infancy at home with other parents who understood. Meetings were informal and covered a variety of topics such as development, feeding, baby care, homecoming, adjusted age, parenting, guilt, anger, fears and successes. Led by a First Years Together staff member and hospital social worker,

the group gave parents a forum to support one another and talk with others experiencing the same situation. Veteran parents often gave new parents concrete tips on such things as dealing with visitors, relatives, nursing staff, and finances, as well as emotional support.

7. Interagency Collaboration and Referral.

The FYT program of assessment/intervention service delivery has depended on the multidisciplinary talents available through interagency collaboration. Project Enlightenment, a part of the Wake County Public School System, and Wake Area Health Education Center teamed to sponsor the initial grant. The First Years Together staff was comprised of psychologists, child development specialists, and parent educators. Initial and frequently on-going medical services to the babies as well as consultation to the First Years Together staff were provided by the Wake Medical Center's neonatologists. Evaluation and consultation time was contracted for with both a physical therapist and a speech and language therapist. While providing services to the babies and their families, the First Years Together staff also trained Public Health Department nurses in the assessment/intervention model through both didactic teaching and a perceptorship program which involved numerous joint home visits. This often became a reciprocal training relationship in which the nurses added their experience with the population of teen-age mothers, the dynamics of home visiting in general, and the range of medical and nutritional information requested by new mothers. In this way the service delivery was mutually enhanced and FYT services were coordinated with the high priority infant tracking program. Private pediatricians or local clinics following the babies were also kept aprised of the infants' developmental progress

through periodic reports and telephone contacts. Appropriate community referrals were also made throughout the course of the program as the need for more specialized or intensive services became apparent. These referral agencies and services included: Developmental Evaluation Centers, Early Childhood Intervention Programs, private physical therapists, Rehabilitation Services, hearing screening clinics, specific parent support groups, Department of Social Services, and Head Start programs. This combination of services was possible both because of the multiplicity of child- and family-focused agencies in our area and because of the willingness of agencies and individuals to reach out, negotiate differences, and trust enough to share responsibilities, problems, and expertise.

B. Characteristics of FYT Participants

Tables II and III summarize infant biological risk characteristics and family environment risk characteristics for the 32 families participating in the FYT program. Criteria for participation in the program included a stay of at least 2 weeks in the NICU and no established risk diagnosis at discharge fron NICU. Thus "healthy" preterm infants who quickly left NICU were not served by FYT, nor were infants who demonstrated clear impairments from which recovery was not anticipated. FYT infants as a group experienced a number of difficult neonatal circumstances as Table II documents and they continued to experience health problems with 42% rehospitalized at least once during the first year of life. FYT families demonstrated a full range of environmental circumstances as illustrated in Table III.

Twenty-nine of 32 participating families completed the program. The 3 mothers not completing the 18 month intervention program were

Table II

Biological Risk Characteristics of FYT Infants
Total Sample (N=32)

| | |
|---|---|
| Mean birth weight[1] | 1717.44 grams |
| Mean gestational age | 32.47 weeks |
| Mean Apgar at 5 minutes | 7.34 |
| Asphyxia | 50.00% |
| Respiratory distress | 40.6% |
| Bronchopulmonary dysplasia | 12.5% |
| Intracranial hemorrhage | 10.5% |
| Neonatal seizures | 10.5% |
| Small for gestational age | 10.6% |
| Previous miscarriage or infant death | 43.75% |
| Final newborn POPRAS[2] | 84.19 |

[1]Two FYT infants were born at full term.

[2]The Problem Oriented Perinatal Risk Assessment System (POPRAS) includes pre, intrapartum and neonatal biological risk factors.

Table III

Demographic and Environmental Characteristics of FYT Families
Total Sample (N=32)

| | |
|---|---|
| Female infant | 43.75 |
| First born | 56.25 |
| Minority | 50.00 |
| Mate in home | 59.37 |
| Sees father more than monthly | 93.75 |
| Working mother (includes job, not school) | 40.62 |
| Mean age of mother[1] | 26.06 |
| Mean age of father | 28.29 |
| Hollingshead Social Class I (low) | 5 |
| Hollingshead Social Class II | 11 |
| Hollingshead Social Class III | 3 |
| Hollingshead Social Class IV | 11 |
| Hollingshead Social Class (high) | 1 |
| Mean Global Environmental Risk[2] (Range 0-8) | 3.69 |

[1]Eleven FYT mothers were under age 21 at birth of child.

[2]Computation of the Global Environmental Risk Index is described on p. 63. High scores indicate high environmental risk.

young, black, low SES and had no spouse in the home. In addition they had infants who were initially rated low in biological risk on the Problem Oriented Perinatal Risk Assessment System (POPRAS) relative to the entire FYT group. That is, their infants' courses in the hospital were relatively benign. However, 3 other families with a similar risk pattern of high environmental risk, teenage mother, and relatively low biological risk completed the program. Age seems to have beeN related to completing since older mothers with an otherwise similar pattern of initial risk factors all completed the program.

C. Patterns of Service Utilization

In an effort to examine how successful we were in implementing our service delivery model we kept data on family utilization of services. A record of services for each family at monthly intervals was entered into the computer.

Table IV summarizes average frequencies by service categories or by number of families receiving the service when this is more meaningful information. The following statements regarding service utilizatio.. are based on examination of individual records as well as summary data.

1. Transition from Hospital to Home.

The model calls for services to begin in the hospital so that the trust felt by families in hospital personnel can be "transferred" to the staff who will be responsible for follow-up in the community. This is considered crucial so that parents do not feel a loss of professional support as they make the transition from hospital to home.

Service utilization data indicated that approximately half of the families began intervention in the hospital. Most of the remaining

families were recruited in the hospital but received their initial intervention at homecoming. However, 2 families were not visited by FYT within the first month of transition from hospital to home care.

2. Frequent Intervention Sessions in Early Months Becoming Less Frequent After 3 Months Adjusted Age.

Getting the family off to a good start with the high risk infant is of major importance in our model. Early care issues are especially difficult with high risk infants and supports usually available to families of new babies function less well when the infant is high risk. Thus there is great need for professional support during the early months. However, as the infant gets older parents may need less professional support, and undue dependency on professionals should not be encouraged.

Service utilization data averaged across families indicate that FYT intervention sessions were approximately three times as frequent prior to 3 months AA as during any later 3 month interval. FYT sessions were slightly more frequent in the 3-6 month AA interval and the 9-12 month AA interval, than in the 6-9, 12-15, and 15-18 AA intervals. For most families a period of fairly frequent visits was followed by the standard A/I-R sequence at 3 month intervals.

3. Anticipatory Developmental Guidance.

Anticipatory developmental guidance was provided at 3 month intervals through the A/I-R sequence. A PIIEP was written each 3 months anticipating developmental tasks for the 3 subsequent months. In addition a developmental newsletter for the infants' adjusted age was mailed monthly to help parents anticipate and manage developmenta

occurrences. These developmental newsletters were a way of spanning the time gap between the A/I-R sequence.

Because the newsletters were prepared during the course of the FYT project, they were not always available in time. For this reason, no family received a newsletter before 4 months AA and families beginning the program in the early months received fewer developmental newsletters than did those who came through the program sequence later. The average number of newsletters received per family was 9.4 and the maximum number received was 15.

4. Intensity and Flexibility of the Services.

The relative infrequence of interventions planned in the basic A/I-R sequence is in keeping with the needs of a high risk rather than an established risk population. Furthermore, in the model parents are viewed as the primary teachers, advocates and case managers for their children. The professional staff forms a partnership with parents to assist parents in performing these roles by providing information skills and supports as needed.

The program provided for frequent monitoring of children's development, parent-child interactions and needs within the family. Built into the service delivery model were mechanisms for increasing and decreasing the intensity of services according to needs. Extra A/I, R, and PHN visits were made as necessary. Additional services available as needed included telephone interventions, evaluations and consultations by FYT physical therapy and language consultants, parent support group, counseling, and referral for services outside of FYT.

Service utilization data reveal that the mean number of A/I sessions per family was 11.0 with a range of from 6 to 20. A/I and R

sessions averaged 1-1/2 to 2 hours in length. Approximately 4/5 of the families received at least the intended number of A/I sessions (n=9 or 10 depending on whether intervention began in hospital or at homecoming).

Six families received fewer than the intended number of A/I's. Reasons for receiving fewer than the intended number of A/I's were diverse. For two families services were disrupted for a period but later resumed. In one instance disruption was caused by a move. In the other case the family dropped out temporarily because of time pressures and failing to see a need for the services. Missed appointments and scheduling difficulties related to mother's work, child illness, or other environmental pressures resulted in marginal compliance with the program for 4 other families.

The mean number of R sessions per family was 6.9 with a range from 2 to 12. In the original plan, visits to the Resource Center were to begin when the infant was 3 months AA and a total of 7 trips to the Resource Center were intended. However, based on experience early in the project a change was made in service delivery so that some families also received up to 2 resource home visits in addition to later resourcing sessions. Twenty families received at least one early home visit from the resource specialist. Approximately 4/5 of the families received at least the seven R sessions specified in the original plan. Five of the six families receiving fewer than seven R sessions also received fewer than intended A/I sessions. The total number of A/I and R visits combined averaged 17.9 and ranged from 9 to 27 per family.

Interagency collaboration was a major goal of the FYT model. Coordinating FYT visits with PHN high priority infant tracking visits

served this goal and project training and dissemination goals as well. Joint visits were sometimes difficult, and at times impossible, to schedule; however, joint visits were made with 25 families and the average number of joint FYT-PHN visits per family was 4.0, with a range from 0 to 9. Of the families receiving no joint visits, three were not assigned a PHN and four received services of a PHN home visitor but logistics prevented scheduling of joint FYT-PHN visits.

PHNs visits not made jointly with FYT staff averaged 5.5 per family, with a range from 0 to 24 visits.[1] We do not have information regarding the specific content of these visits. We know that content varied and we are aware that the focus of visits was in some cases on family members other than the high risk infant, for example on problems of older siblings, or mothers' chronic health problems unrelated to the high risk birth. We also know that PHN visits varied in length. Many of these visits were relatively brief. Some were only drop-ins to convey information to clients without telephones. However, it is likely that even the most brief visits provided support to mothers. Thus PHN non-joint visits were not as uniform in content and length as were the FYT visits and this must be kept in mind when considering the following data.

Summing A/I, R, and PHN non-joint visits, the mean number of visits was 23.4 with a range from 9 to 51 contacts per family with approximately 2/3 of the families receiving between 15 and 30 visits. One sixth had more than 30 visits and 1/6 had less than 15 visits.

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1. The number of PHN visits was increased somewhat by participation in the FYT program. Ten of 20 families in the comparison group received an average of 3.5 PHN home visits for the High Priority Infant Tracking Program.

Thus considerable variability was observed in number of visits. The variability in services observed fits with the flexibility of the FYT model which seeks to match level of services with client needs. The 5 families receiving the most visits (top 1/6) combined high environmental with high biological risk. The 5 families receiving fewest visits included both those whose infants were at lower risk and those families for whom there were problems in delivering the services for reasons described above.

5. Remedial Interventions.

Programming flexibility was also accomplished through referrals for remedial interventions. The model calls for frequent assessments of child and family needs allowing early referral for remedial intervention. Remedial interventions were provided both within FYT and through referral to other agencies (see Table IV).

Service utilization data indicate that motor development received special remedial programming more frequently than other developmental areas. Our plan was that all infants would receive a motor evaluation by FYT motor consultants prior to 9 mo. AA, preferably between 4 and 7 months AA. Service utilization data indicate that all but 3 infants received a motor evaluation prior to 9 mo. AA. The FYT motor consultants trained parents in positioning and exercises for infants exhibiting minor motor dysfunctions associated with prematurity. Minor dysfunctions often appeared to resolve in this way. Twelve families received training from FYT physical therapists. Parent training by the FYT physical therapists most often occurred prior to 9 months AA. Five infants were referred for physical therapy outside FYT; all were referred between 9 and 15 months AA. The need for physical therapy

Table IV

Service Utilization Data for 29 Families
Completing Intervention

Basic Program Services

| Service | Average per Family |
|---|---|
| Assessment/Intervention, home | 8.5 |
| Assessment/Intervention, center | 2.5 |
| Resource, home | 4.9 |
| Resource, center | 2.0 |
| Joint FYT-PHN visit | 4.0 |
| PHN non-joint visit | 5.5 |
| Telephone interventions | 4.4 |
| Alternate Caregiver Interventions | 3.8 |
| Cancellations | 1.2 |
| No Shows | 1.0 |
| Developmental Newsletters | 9.4 |

Special Remedial Services

| Service | Number of Families Receiving Service |
|---|---|
| Motor, FYT | 12 |
| Language, FYT | 4 |
| Support Group, FYT | 5 |
| Motor, referral out | 5 |
| Language, referral out | 3 |
| Counseling, referral out | 3 |

services was greater than we had expected, convincing us that in working with this population of high risk infants, a physical therapist needs to be available for evaluation, treatment, and consultation with staff members.

Twelve to 15 months was the primary time for language consultations and interventions within the FYT program and for referrals for language therapy outside of FYT. Although the FYT language consultant did not routinely evaluate all children, four families received language evaluations and/or interventions from him. Three infants were referred for language therapy outside of FYT. Because of a personal tragedy near the end of the FYT program the speech and language consultant was unavailable for a period of time when our infants were at the age language problems begin to surface. Thus our utilization data present the frequency of special language interventions within our project but probably under-represent the need for speech and language interventions with medically high risk infants.

Other referrals for services outside FYT which occurred with some frequency included evaluation of hearing or vision and parent family counseling. Three referrals were made for couples' counseling. Five FYT families attended the FYT parents' support group conducted at the hospital. Attendance was highest during early months, a pattern reflecting both greater need for support from others having experienced the traumatic birth of a high risk infant during early months and the content focus of the particular hospital based support group.

6. Location of Services.

Provision of home and center-based services with setting determined by family preference was intended. We anticipated that

after hospital discharge services would be provided primarily in the home until the infant reached 3 mo. AA at which time services would shift to center-based, especially for the resourcing component allowing easy access to materials in the Resource Center.

Service utilization data indicate that home programming predominated throughout the 18 months of intervention at a ratio of approximately 3 home-based sessions to 1 center-based session for both A/I and R. R sessions were slightly more likely to be center-based than were A/I but the difference was small. One of the reasons that programming remained heavily home-based was our failure to find a workable system for reimbursing families for transportation. In addition families appeared to more often prefer home-based services to center-based services even as their infants got older.

7. Cancellations and No-shows.

Cancellations and no-shows were most common among adolescent mothers. We often needed to reschedule appointments because of infant illness or staff illness. Parents were very concerned about exposure to infection and we were diligent about not visiting during even minor illnesses.

8. Service Utilization: Departures from the Intended.

In general services were delivered as intended according to the model. Departures from the model are considered for the most part relatively minor. Minor departures from the intended model sometimes occurred because of problems within the project, not inherent in the model. Certainly implementation became smoother and the quality of the program increased over time as the staff's skills grew. Also the model evolved during the course of the project as some new elements

consistent with the philosophy of the model were introduced into services, for example, the addition of early home visits by the resource specialist and the developmental newsletter. Departures may suggest implementation "pitfalls" to be avoided or ways the model can be modified in the future. Departures included:

a) Only half of families received their first FYT intervention in the hospital. This resulted from a combination of factors including staff disorganization as new procedures were implemented and the unpredictability in timing of ICN discharges.

b) Location of services did not shift from home to center-based. This was partially due to difficulties working out logistics of reimbursements for transportation to center-based interventions but also because families continued to elect home visits.

c) Counseling provided within FYT as a separate service was not utilized. Counseling activities became instead a part of the role of the A/I and R specialists. The extent of counseling varied for different families but was a part of the intervention with all our families.

d) The need for special language interventions for this high risk infant population may have been obscured by unavoidable problems of project staff, as discussed above. Language remediation was probably an area in which the model was incompletely implemented.

e) The average number of interventions to alternate caregivers was 3.8 per family. Most of those included in the category were adult family members who participated in A/I, R, or support group. Occasionally close friends and child care personnel participated in A/I or R sessions. We had anticipated more systematic efforts to serve

alternate caregivers. Staff time was a major limiting factor in the development of consultation services to alternate caregivers in child care settings.

f) We encountered the usual difficulties in service delivery to teenage mothers. A great deal of staff energy and dedication was required to engage them in the intervention as the many cancelled and no-show appointments with this group attests, and the three who dropped out of the program were teenage mothers. However, we felt encouraged by our ability to provide meaningful services to most adolescent mothers within our service delivery model.

g) A project problem possibly limiting the effectiveness of the intervention was staff turnover early in the project which necessitated a change in either A/I or R for the majority of families. However when transition of staff was necessary one member of the team was kept consistent for most of the families. In transitions extra visits were usually needed for staff to establish rapport and develop understanding of the infant and family.

D. Andrea: A First Years Together Case Study

When Andrea was referred to the First Years Together (FYT) program, she was judged to be at continued risk medically, but even more so because of her environmental situation.

Her physical status allowed her to be admitted to the FYT program. She had been born one-and-a-half months early weighing only 2 pounds, 10 ounces. This weight is less than the usual for babies born at that point in a pregnancy and suggests other possible difficulties. Andrea suffered some respiratory problems after birth and required the help of

a mechanical respirator and extra oxygen to breathe for several days. She spent two weeks in the Neonatal Intensive Care Unit, another two and a half weeks in the Intermediate Care Nursery, and then was discharged to her mother at home. She was simultaneously referred to the First Years Together program.

At the time of Andrea's birth, her mother was a 17-year-old high school senior. She is single and black. Her own parents are divorced. She was temporarily living with her father and stepmother during her pregnancy and though she described them as supportive, it seemed that she did not reach out to the adults around her for assistance. For example, although Andrea's mother expressed a desire to her FYT assessor/intervener to have her stepmother there for support when she brought Andrea home from the hospital, she did not tell her stepmother of this wish.

Andrea's father was 18 years old when she was born. He was an employed high school graduate. He visited the hospital nursery with Andrea's mother on occasion. He participated briefly in several FYT intervention sessions early in the program. He has had continuing involvement with Andrea though this is on a more limited basis since he and Andrea's mother ended their relationship when Andrea was just over a year old.

Andrea's mother is a quiet teenager and her agreement to participate in the First Years Together program was matter-of-fact, without any particular enthusiasm evident. She did agree to a regular schedule of visits and kept these appointments with some reschedulings and one brief lapse; she also filled out the numerous research forms necessitated by our study.

The First Years Together model of service delivery seemed to fit well with Andrea and her mother's needs. This involved two alternating types of home visits: 1) assessment/intervention sessions in which the Brazelton Neonatal Behavior Assessment Scale or the Bayley Scales of Infant Development was used as an avenue for developmental teaching, anticipatory guidance, and support to parents as well as for evaluation of the baby's developmental strengths and weaknesses, and 2) parent/infant resource sessions in which further suggestions for skill development or remediation were demonstrated, the interaction between the parent and the infant was explored and facilitated, and the parent's concerns about other family issues were addressed. Sessions were scheduled weekly for the first month after the baby was discharged from the hospital and then spaced more widely as parents became increasingly able to handle their babies' needs with less intensive services.

As Andrea consistently did well on developmental evaluations, the focus of the interventions were on supporting Andrea's mother through the initial difficult adjustments to taking responsibility for a tiny baby who had experienced a very worrisome start, to suggest ways to encourage continued development, to help Andrea's mother read her baby's cues and then respond appropriately, to prepare Andrea's mother for developmental steps just ahead, to reinforce good parenting practices on the part of Andrea's mother, and to offer support about life decisions beyond parenthood.

Although Andrea's mother was initially very reserved and showed minimal emotional response to the FYT staff, she accepted and often immediately used the advice given. Incorporation of other suggestions

could also be seen on subsequent visits. For example, during one early session, April was gagging on her milk and her mother reported that this had been happening for several days. The assessor/intervener showed Andrea's mom how to check the flow rate out of the nipple. When it was clear that the nipple's hole was too large, Andrea's mother dashed to her room to get a new nipple. Also, Andrea's mother was holding her at arm's distance to feed her and a more supportive position for Andrea was demonstrated. Although Andrea's mother did not hold her that way immediately, she did feed her comfortably in that recommended position during later sessions. On another visit, Andrea's mother reported that the baby had a temperature, had been vomiting for two days, and was refusing to drink. At the assessor/intervener's urging, she immediately arranged to take the baby to her pediatrician.

Throughout Andrea's infancy, her mother's living situation has been somewhat unstable. She has moved three times since Andrea was born, all out of the county where services originated--first back to her mother's apartment, then with her boyfriend and his parents, and finally to an apartment to live by themselves. Andrea's mother has worked sporadically at a daycare center and a fast food restaurant. Andrea has been cared for by extended family and a friend of Andrea's mother in addition to Andrea's mother herself. Now that Andrea's mother is living on her own, she is looking for full-time work for herself and daycare for Andrea. Despite these changes and stresses in her life, including the ending of her relationship with Andrea's father, Andrea's mother has been a devoted, caring parent.

When the family's move out of the county was approaching, Andrea's mother requested help in finding services similar to FYT's in that

county. Since none existed that would incorporate developmental teaching along with frequent reassessments and because FYT was a research project, services were continued to Andrea and her mother despite the fact that they lived in another county.

Andrea is now eighteen months old. She has had no further health problems since hospital discharge and her development has proceeded normally. It often takes several years for premature babies to "catch up" to the skill level of children who are the same age but who were born at full-term. Andrea has already caught up in all areas of her development. Although we cannot know for certain since some learning problems asscciated with prematurity are not apparent until school age, there are no early indications of future problems for Andrea. She could now be considered to have a low risk for developmental problems associated with prematurity.

One of the most salient characteristics about Andrea at this point is her general air of competence and positive self-esteem. Andrea's mother is noticeably proud of Andrea. She is attentive and responsive to her daughter's cues. She clearly enjoys Andrea and cheers her on in her explorations, while still setting reasonable limits. The warm attachment between them is especially gratifying to the FYT staff who worked with the family because of the initial lack of knowledge on Andrea's mother's part about some of her daughter's needs.

## IV. EVALUATION OF THE FIRST YEARS TOGETHER INTERVENTION

Previous work with high risk infants indicates that the infants' developmental outcome is related to (1) the medical and behavioral status of the child; (2) caregivers' feelings, attitudes, and behaviors; and (3) characteristics of the family environment. The purpose of FYT is to develop a model of services to provide education and support to families of low birthweight and medically stressed infants in order to maximize the child's developmental outcomes as well as to increase the comfort and well-being of the family as a whole.

The goodness of fit conceptualization of development suggests the need for carefully defining the organism's capacities and limitations, describing relevant characteristics of the environment, and studying the changing dynamics of the organism-environment interaction. The major goals of early intervention in the context of the goodness of fit hypothesis involve efforts to optimize the fit between the child's characteristics and needs, and the supports and demands of the caregiving environment. It assumes a dynamic interaction between organism and environment directed toward achieving a match. Consequent to this conceptualization is consideration of child, parent, and family environment in setting intervention goals and in evaluating intervention effects. Relevant child, family, and environment variables must be identified, their interrelations explored and their importance validated. Results will guide us in designing better interventions.

### A. Evaluation Overview

Selected child, parent and family context variables were assessed for initial status at hospital discharge, at 12 months adjusted age and

again at 18 months adjusted age. The variables assessed demonstrate the effectiveness of the FYT intervention contrasted to a comparison group receiving standard follow-up in the state's high priority infant tracking program after discharge from the neonatal intensive care. Random assignment to intervention and comparison groups was not utilized. Instead, a "first wave" comparison group was recruited from infants in the intensive care unit prior to beginning of recruitment of volunteers for the FYT program. The comparison group volunteered for a study of adjustments of families of low birthweight infants. Relevant variables were assessed from the following data sources: (1) hospital charts; (2) demographic information; (3) assessments of infant abilities and behavioral style characteristics; (4) parent self-reports of attitudes, feelings, and developmental knowledge; and (5) direct observation of parent-child relations and quality of the caregiving environment as rated by an experienced clinician blind with respect to intervention versus comparison group membership.

The evaluation was also designed to provide information about service utilization and about family and professional participants' views of the intervention process.

8. Major Evaluation Objectives

Two overall objectives form the core of the First Years Together program. They are the development of a model of assessment as intervention, involving parents and families, as a major intervention, and the development of services which will support parents of high-risk infants. These broad program objectives are elaborated into nine specific evaluation objectives:

1) To improve the child's developmental status.

2) To increse the congruence of parents' attitudes, values and beliefs about child-rearing to those which have been linked to positive child development.

3) To increase parents' developmental information and knowledge.

4) To increase parents' awareness of their child's developmental level and behavioral style.

5) To increase parents' feelings of personal and parental efficacy.

6) To increase parents' sense of personal well-being.

7) To improve the affective and stimulation climate of the home.

8) To improve the affective and stimulation exchanges between mothers and infants.

9) To strengthen social supports available to families for rearing their high risk infants.

Another aspect of the evaluation was an analysis of the relationship of initial status variables, indicative of severity of biological insult and of environmental risk status, to treatment outcomes and to patterns of service utilization. This component of the evaluation will provide information about which infants and families profit from the program.

Thus, in addition to the outcome related objectives previously enumerated, five efficiency of intervention objectives were evaluated. These objectives attend to the relation of initial status variables to treatment utilization patterns and treatment outcomes. The efficiency objectives are:

1) To determine the relationship of initial child status to treatment utilization.

2) To determine the relationship of initial status of the caregiving environment to treatment utilization.

3) To determine the relationship of initial child status to treatment outcome.

4) To determine the relationship of initial status of the caregiving environment to treatment outcome.

The final and major evaluation objective is as follows:

5) To determine the relationship of intervention vs. comparison group membership to outcome.

C. Methods to Assess Major Evaluation Objectives

Table V provides a listing of the specific child, parent and environmental variables, the assessment methods for measuring each variable, assessment instrument used, and ages at which measurements were made. More complete descriptions of instruments follow the table.

1. Child characteristics

a. Initial biomedical status was assessed using the Problem-Oriented Perinatal Risk Assessment System (POPR ) (Hobel et al., 1973). The POPRAS is a checklist with weighted scores for prenatal, intrapartum, and postnatal conditions known to be associated with developmental risk. The information was derived from the infant's medical record. The POPRAS was chosen on the basis of a feasibility study (Campbell & Wilheim, 1976) in which three high-risk grading systems were evaluated and rated on completeness of information obtained from the review of medical charts, the time requirements, the clarity of item definition and scoring, and interrater reliability. In addition to its superior overall rating, the POPRAS was the only scale allowing cumulative assessment of risk items from early pregnancy

Table V

Measures of Child, Parent and Family Environment Variables

| Variable | Data Source | Assessment Instrument | Time of Assessment |
|---|---|---|---|
| Child Characteristics | | | |
| Initial biomedical status | hospital records | Problem Oriented Risk Assessment System (POPRAS) | hospital discharge |
| Developmental status | developmental test | Bayley Scales of Infant Development, Mental and Motor Scales | 18 months adjusted age (AA) |
| Child's behavioral style characteristics, professional view | observational rating | Examiner's View of Behavior | 12 and 18 mo. AA |
| Child's behavioral style characteristics, mother's view | self-report questionnaire | Bates Infant Characteristics | 12 and 18 mo. AA |
| Sex of child | demographic | Demographic Questionnaire | 12 mo. AA |
| Ordinal position of child | demographic | Demographic Questionnaire | 12 mo. AA |
| Parent Characteristics | | | |
| Psychological comfort/discomfort | self-report questionnaire | State-Trait Anxiety Inventory | 12 and 18 mo. AA |
| Self-esteem | self-report questionnaire | New York State Self-Esteem Scale | 12 and 18 mo. AA |
| Locus of control | self-report questionnaire | Locus of Control Scale | 12 and 18 mo. AA |
| Locus of control in parenting | self-report questionnaire | Locus of Control in Parenting Scale | 12 and 18 mo. AA |

Table V (cont.)

| Variable | Data Source | Assessment Instrument | Time of Assessment |
|---|---|---|---|
| Global quality of caregiving environment | global index of environmental risk factors associated with mental and emotional development including SES, age of mother, marital status, father involvement and maternal employment | Risk in the Caregiving Environment | 12 mo. AA |
| Intervention Process | | | |
| Record of service utilization | client records | Services tracking chart | continual updating |
| Client's goals in intervention | Q sort of intervention goals | Importance Ranking Client Form | 6 wks., 3 mo., 6 mo., 12 mo. |
| Professional's goals in intervention | Q sort of intervention goals | Importance Ranking Professional Form | 6 wks., 3 mo., 6 mo., 12 mo. |
| Client's description of goals met in session | session description questionnaire | Session Outcomes Client Form | end of session |
| Professional's description of goals met in session | session description questionnaire | Session Outcomes Professional Form | end of session |

Table V (cont.)

| Variable | Data Source | Assessment Instrument | Time of Assessment |
|---|---|---|---|
| Valuing of self-directing vs. conforming child behaviors | self-report questionnaire | Self Directing vs. Conforming Values | 12 and 18 mo. AA |
| Progressive vs. traditional child rearing values | self-report questionnaire | Parental Modernity of Childrearing and Educational Beliefs Scale | 12 and 18 mo. AA |
| Beliefs about learning and stimulation in infancy | self-report questionnaire | Expectations for Early Teaching and Learning | 12 and 18 mo. AA |
| Information about development milestones | self-report questionnaire | Knowledge of Infant Developmental Milestones | 12 and 18 mo. AA |
| Interactive behaviors with infant | observational rating | Parent/Caregiver Involvement Scale | 12 and 18 mo. AA |
| Quality of home environment | observational rating | Home Observation for Measurement of the Environment (HOME) | 12 and 18 mo. AA |
| Family Environment Characteristics | | | |
| Daily stresses | self-report questionnaire | Hassles | 12 and 18 mo. AA |
| Social supports | self-report questionnaire | Maternal Perception of Social Supports | 12 and 18 mo. AA |
| Social class | rating of parents' educational and occupational status | Hollingshead Rating of Social Class | 12 mo. AA |

through the neonatal period for which there is evidence of predictive validity for identification of infants showing later developmental and neuromuscular deficits (Hobel et al., 1973). Item definition and criteria for scoring were revised for this study following the medical practices of the special care facility at Wake Medical Center.

POPRAS data were collected from the child's medical records by two individuals, a special educator and a physical therapist. Both are active in clinical work and research in the NICU at Wake Medical Center and are well-trained in the biomedical issues relevant to prematurity and to scoring the POPRAS. They were trained to 90% reliability, initially, by a psychologist experienced in using the POPRAS for research. During the FYT data collection, a small subsample of 20 child medical records and completed POPRAS forms also were scored by the psychologist, and any disagreements were resolved.

POPRAS data entered in the analysis included the final newborn score and selected variables as follows: birthweight, gestational age, Apgar at 5 minutes, respiratory distress syndrome (RDS), bronchopulmonary dysplasis (BPD), intracranial hemorrhage, asphyxia, seizures, and small for gestational age (SGA).

b. Developmental status of the child was assessed using the Revised Bayley Scales of Infant Development (Bayley, 1969). This is a well-known standardized test of development which is appropriate during the first two and one half years of life. Standard scores for the Mental and Motor Scales were computed for chronological and adjusted ages. The Mental Scale is designed to assess sensory-perceptual abilities: the early acquisition of memory, learning, problem-solving, and generalization; and the initiation of vocalization and verbal

communication. The motor scale assesses accomplishment of gross and fine motor milestones, but not quality of movement.

c. The child's behavioral style characteristics, professional's view, were measured by The Examiner's View of Infant Behavior (O'Donnell, K., 1984) which provides a rating of several behavior style characteristics by a professional during psychological or physical examination. Characteristics rated include engagement with people and things, activity-inactivity, predominant mood, lability of mood, irritability and consolability. A global judgment of overall ease or difficulty the child would present to a parent is also made. In addition to consideration of individual ratings, items are summed to yield a total non-optimal score.

d. The child's behavioral style characteristics, parents' view, were measured using the Bates Infant Characteristics Questionnaire form for 13 month old infants (Bates, J., 1983). Items assess the parents' perceptions of the extent to which they believed their child to be a "difficult" child. Scores were derived by adding ratings for items found by Bates (1974) to discriminate major factors of "fussy/difficult" and "unadaptable" in 6, 12 and 24 month old infants. Items discriminating the factor "persistent" found at 12 and 24 months were also analyzed. Judgment of overall ease or difficulty experienced in caring for the child was examined. A sum of optimal-non-optimal ratings was computed.

2. Parent Characteristics

a. Parents' psychological comfort/discomfort is assessed using the State-Trait Anxiety Scale (Speilberger, 1970), a two-part questionnaire on which respondents endorse statements descriptive of

their current and typical levels of anxiety and psychological discomfort. The State scale measures temporary situational fluctuations in anxiety level while the Trait scale is designed to measure anxiety proneness as a long-term personality tendency or trait. Responses to items were made using a 4 point likert scale of "almost never", "sometimes", "often", and "almost always".

b. Parents' self-esteem is assessed using the New York State Self-Esteem Scale (Rosenberg, 1979). Respondents are asked to strongly agree, agree, disagree or strongly disagree with 5 items reflecting positive self-evaluation and 5 items indicating negative self-evaluation. Construct validity of the scale is indicated by empirical demonstrations of relationships with depressive affect, psychophysiological symptoms of anxiety, peer acceptance and social integration. Convergent validity with other measures of self-esteem is moderately high.

c. Locus of control was assessed using an eight-item scale developed by Schopler, Langmeyer, Stokols and Reisman (1983). The scale measures a person's tendency to make external versus internal causal attributions about behavioral outcomes. A person's perceived control over what happens to him or her is a measure of personal sense of efficacy and has been found predictive of a person's competency and mastery orientation. Research has demonstrated the relationship of locus of control orientation to a surprising number of behaviors. A parent's locus of control orientation has been found to influence a child's cognitive and personality development (Ollendick, 1979; Barbing, 1982). Further locus of control is related to parent-child interactions (Chandler et al., 1980; Kleemeier, 1976, 1977) and

communication patterns between child and adult (Bugental et al., 1980). Locus of control has been associated with incidence of child abuse (Ellis & Milner, 1981) and with parents' perceptions of handicapped children (Fellis, 1976, 1977).

d. Locus of control and feelings of efficacy in parenting was measured using a 5-item questionnaire Locus of Control in Parenting developed by Russell (1980). The scale assesses locus of control in the specific situation of parenting.

e. Parents' valuing of self-direction versus conforming child behaviors was measured using Schaefer and Edgerton's (1985) revision of a scale developed by Kohn (1977). Parents rank order three lists of child behaviors to indicate their valuing of these domains in their children. Each of the three lists contains two conforming values, two self-directing values and one social value. The measure results in a bipolar dimension of self-direction versus conformity.

Self-directing values reflect approval of curiosity about why and how things happen and of independence in thought and behavior. Conforming values reflect approval of social conformity including obedience, politeness, manners and neatness.

Parent's conforming values have shown high negative correlation with mental test scores and with teacher ratings of curiosity and creativity, while self-directing values are positively related to both (Shaefer and Edgerton, 1985). Test re-test internal consistency reliabilities for the scale are moderate.

f. Progressive versus traditional values in child rearing was assessed using the Parental Modernity for Childrearing and Educational Beliefs Scale (Schaefer & Edgerton, 1981). The thirty-item

questionnaire measures the extent to which parents endorse various beliefs about parental authority, the nature of children and how they should be educated and disciplined. Modern, as opposed to traditional authoritarian, parenting values have been found related to a child's developmental competence at school entry (Schaefer and Edgerton, 1985).

Traditional authoritarian beliefs correlate negatively with mental test scores and teacher ratings of curiosity and creativity in kindergarten, and with mother's educational level and family income as well (Shaefer and Edgerton, 1985). A review of relevant literature led Schaefer and Edgerton to conclude that parental modernity in child-rearing and education is probably highly related to the parent's general psychological modernity, including parents' verbal intelligence, locus of control and orientation toward change, competence and achievement. Thus, parent's change toward more modern child-rearing and educational attitudes must be viewed in the context of general psychological modernity.

g. Parents' beliefs and expectancies about learning and stimulation during infancy were assessed by having parents estimate the age at which a caregiver should begin to teach or stimulate the development of a given skill. The five item scale is based on work by Ninio (1979), who provides evidence for the influences of parents' beliefs about the cognitive capacities of infants on parent-child interaction patterns. Ninio suggests that parents' tendency to see their infants as more or less precocious influences their beliefs about the time to begin various caregiving activities such as talking to the baby. Parents who attribute greater interactive and cognitive competencies have earlier expectancies for infant learning which lead

them to interact with the infants in ways which promote development (Ninio, 1979).

h. Parents' knowledge about normative age of accomplishment of mental and motor milestones during infancy is assessed using the Knowledge of Infant Developmental Milestones (O'Donnell, 1984). The questionnaire asks parents when the typical infant performs seventeen developmental tasks of infancy such as "smiles at adults" or "grasps a rattle". Norms from the Denver Developmental Screening Test (Frankenberg, 1967) are used in scoring for accuracy. The scale was developed within the project, and its reliability and validity are unknown. However other investigators have used a similar approach successfully to ascertain parents' knowledge of appropriate developmental expectations.

i. The parents' interactive behaviors with their infant were assessed using the Parent/Caregiver Involvement Scale (Farron, Karasi, & Joy, 1983). After a 15 to 20 minute observation of mother/infant interactions during unstructured play at home, parent behaviors in the affective and stimulation domains were rated for amount, quality, and developmental appropriateness in eleven categories. Behaviors rated include physical involvement, verbal involvement, responsiveness, play interaction, teaching, structuring child's activities, structuring of specific behaviors, sequencing of activities, positive and negative emotions and goal setting. Global impressions of availability, acceptance, atmosphere, enjoyment and learning environment were also rated based on an hour to an hour and a half home visit which included an interview about a typical parent-child day and a developmental assessment in addition to the play observation. Results of intraclass

correlational analyses yielded interrater generalizability coefficients for the 4 subscales (Amount, Quality, Appropriateness and Impression) ranging from .77 to .87 and intrarater coefficients from .91 to .95 over a one-month interval (Mitchell, 1979). Experiences with the scale have led some investigators to question the meaning of the quantity rating when interpreted straightforwardly as "more is better." However ratings of quality, appropriateness and global impression ratings seem meaningful and useful for the most part (Bailey, 1986).

j. The quality of the home environment was assessed using Home Observations for Measurement of the Environment (HOME) (Caldwell, Heider, & Kaplan, 1966). The scale is designed to be used in the home for rating the quality of the caregiving environment including emotional and verbal responsivity of mother, avoidance of restriction and punishment, organization of the environment, provision of appropriate play materials, maternal involvement with the child and opportunities for variety in daily stimulation. Ratings are based on observations and interviews of the caregiver. The HOME is a reliable and valid instrument which has been widely used.

3. Family Environment Characteristics

a. Daily stresses were measured using Hassles (Hall, 1983), a 22-item self-report questionnaire on the day-to-day concerns and problems in living which confront mothers, especially low income and single mothers. Themes include financial concerns, role overload, parent worries, problems with employment and problems with relationships.

b. Social support was measured using Maternal Perceptions of Social Supports (Pascoe, Loda, Jeffries, & Earp, 1980). This questionnaire measures emotional and instrumental supports available to

the mother including intrafamily assistance with tasks of daily living, number of people who can be called on for instrumental assistance in time of need, availability of emotional support, amount of positive contact with relatives and organizational memberships.

c. Social class was rated using the Hollingshead Rating of Social Class, a frequently used measure of social class based on education and occupational status. The Four Factor method of scoring which averages job status of working parents was used.

d. Risk in the caregiving environment was assessed using a global index of risk for mental and social emotional development composed of weighted sums of risk factors as follows:

| | High | Low |
|---|---|---|
| Mother's age risk | 20 or less = 1 | 21 or over = 0 |
| Spouse risk | No mate in home = 1 | Mate in home = 0 |
| Father involvement risk | Sees father once a month or less = 1 | Sees father more than once a month = 0 |
| Child care risk | Working mother = 1 | Mother at home = 0 |
| Social class risk | Hollingshead classes: class 5 = 0, class 4 = 1, class 3 = 2, class 2 = 3, class 1 = 4. | |

D. Methods for Describing Intervention Process: Intervention Goals and Perception of Services

The preceding measures focus on evaluation of outcomes, rather than on documenting the processes involved in producing the outcomes. Many programs do not fully specify the nature of their treatment and those that do rarely document participant's perceptions of the intervention process. We attempted to document the families' and professionals' goals and perceptions of services. Two instruments

(see Appendix B), each with client and professional forms, were developed by the project staff.

1. Importance Rankings for Intervention Goals.

This instrument provides evidence about: a) what families want most from the services offered and b) what professionals think the families need most from the services. This information is considered important because families who are offered the best of services will be disappointed if they feel those services do not meet their needs. Furthermore, professionals' planning and delivery of services is influenced by what they perceive as the families' needs without necessarily directly consulting the family as to the accuracy of those perceptions. In addition, the focus of FYT as a service through 18 months for each family entails the recognition that goals and needs of parents change as the infant grows and develops.

The instrument consists of statements describing 12 possible outcomes which can occur as a result of family sessions. Two versions were developed, one for client use and one for professional use. The two forms vary only in the wording necessary to make the item appropriate to the data source. For example, family form: "I want to know better my child's personality and style;" professional form: "The client needs to know better the child's personality and style." Particular attention was given to assure that items would be easy to read. Items are administered using a Q sort procedure. Each of the 12 items typed on a card, is presented with instructions to sort the cards into two equal piles labeled, "More Important" and "Less Important" and then to further sort each pile, with an end result of three items in each of four categories, labeled most, more, less and least important.

Using the Importance Ranking of Intervention Goals, parents' and professionals' treatment goals can be compared at various points during intervention.

2. Participant Views of Session Outcomes

This checklist consists of the 12 items contained in the Importance Rankings rewritten as descriptions of outcomes. Again, two versions were developed, one for client use and one for professional use, varying only in wording appropriate to the data source. For example, client form "I know better my child's personality and style;" professional form: "The client knows better the child's personality and style." For each item, family and professional participants indicate the outcome with a check under "Did not happen." "Happened some," "Happened a lot." They may also check a fourth column "Wish more of this happened."

This checklist provides information about what participants felt the sessions accomplished and what aspects of the sessions were salient, which intervention objectives are met by various services, and where discrepancies exist between family and professional views of sessions. Importance Rankings can be compared with Session Outcomes endorsements as measures of participant satisfaction with intervention sessions.

E. Participants

1. Recruitment of Intervention Group

High risk infants and their families were recruited as intervention participants when the infants were determined to be in stable condition by the attending neonatologist at Wake Medical Center. For this reason, recruitment usually began with the child's transition

from the intensive care unit to the intermediate care unit. Parents and infants were eligible if the infant was treated in the Neonatal Intensive Unit (NICU) facility 2 or more weeks, and exhibited no chromosomal abnormality or serious pathology as determined by the neonatal team's decision to refer the child to the Wake County Early Childhood Intervention Program (ECIP) upon discharge from intensive care. Infants who remained in the special care setting for longer than one month after 40 weeks conceptional age were excluded as well.

Thirty-two infants and parents from Wake County were recruited over an 8-month period sequentially as they became eligible to participate in the intervention group. The program was described and parents were asked to volunteer for participation. Data was collected on non-participants who were admitted to the NICU during the entire recruitment period for this study. Those infants who were not eligible for any reason were listed in the Recruitment Log; data regarding birthweight, gestational age at birth, presenting problems, and reasons for not being recruited or for refusal of the FYT program were collected. The log indicates the similarity of the intervention group to all patients admitted during that time.

2. Recruitment of Comparison Group

Twenty infants and parents were recruited as comparison participants using the same criteria as for the FYT sample. Comparison subjects were recruited from families whose infants had been in Wake County Hospital's NICU the year prior to the beginning of recruitment for the FYT program. During this time, 324 infants were considered. 277 of these were ineligible for various reasons. Reasons for lack of eligibility included 60 infants who died prior to 18 months adjusted

age, 128 who stayed in NICU less than 2 weeks, 48 who had moved from Wake County subsequent to hospital discharge, 5 who were adopted or in foster care, 13 twins, and 8 ineligible because of medical conditions excluded from FYT sample such as Down Syndrome, Spina Bifida, Cranial anomaly, major heart problem or colostomy and 15 because of referral to the state's early childhood intervention program (ECIP) prior to 18 months adjusted age. Exclusion from the comparison group due to referral to ECIP prior to 18 months was the one difference from the FYT intervention group. This difference will be discussed later.

Of those eligible, 31 were located and invited through letters and phone calls to participate in a study of adjustments of families of low birthweight infants. The final comparison group included 20 families, 19 of whom were available at the 18 month assessment. Eight of the 20 families were also assessed when their infant was 12 months AA.

3. First Wave Comparison Group

As described above, I and C groups were recruited at different times. Intervention families (I) were recruited prior to hospital discharge while comparison families (C) were contacted 12 to 18 months after hospital discharge. Families from socially disorganized environments may be underrepresented in samples recruited after hospital discharge because they are more difficult to locate due to mobility and lack of telephones. They may also be less inclined to volunteer for programs aimed at producing information rather than providing services.

First wave comparison groups are being used more frequently in evaluating intervention programs despite their limitations because of ethical reservations about offering a program randomly to every other

family. while recruiting intervention and comparison groups at different times is less than ideal, information gained through using a quasi-experimental design such as the first wave comparison group is valuable and important. Furthermore, the use of a first wave comparison design is judged appropriate given the ethical constraints and the "state of the art" in evaluation of early interventions.

Lack of I-C group comparability in initial biological risk status may also be introduced by differences in timing of recruitment. One source of difference could be rapidly changing mortality rates in the low birthweight population. As neonatal care becomes more and more sophisticated, more seriously ill infants survive.

4. FYT Non-Completers of 18 Month AA Outcome Assessment

Of thirty-two families participating in FYT, 29 completed the intervention program. Three families terminated prior to completion of the program.

In addition 5 other families completed the intervention program but were unavailable at the final outcome evaluation. One of the 5 had moved and another family was not scheduled through an oversight. With the 3 remaining families attempts to obtain outcome data were abandoned after 3 unsuccessful schedulings each, due to child illness in one case, unexplained missed appointments in the other and refusal to schedule because of time pressures in the third. Additional schedulings of outcome evaluations were not feasible because the infants were beyond the age range specified for outcome assessments, and because data collection had to be terminated with the ending of the grant period. The FYT intervention group mothers not completing outcome assessment were young, black, low SES and had no spouse in the

home. The one exception to this pattern was the one non-completer who was not recruited for outcome assessment through oversight.[1]

5. Initial Environmental and Biological Risk for I and C Groups

Table VII and VIII presents initial environmental and biological risk characteristics for FYT and C groups completing the 18 months outcome assessments. While means for demographic variables such as parental age and Hollingshead SES and the Global Environmental Risk index all suggest greater environmental risk for the 24 I families completing outcome evaluations than for the C group, test of significance of differences in group means for SES and Global Environmental Risk do not reach significance at the .05 level (see Table VIII) and therefore, the two groups are considered generally comparable in environmental risk.

Statistical analyses for significance of differences between treatment group means for POPRAS final newborn score (Table VIII) indicated that the I and C groups differed in initial global biological risk, with the FYT group being at greater initial biological risk.

A major source of incomparability of initial risk status for FYT intervention and comparison samples may have been the exclusion from the comparison group of all infants referred during the first 18 months of life to the Early Childhood Intervention Program (ECIP), an intensive home program for high and established risk children birth to 3 years of age.

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1. Examination of service utilization data reveals that services received by completers and non-completers were fairly similar. However, the 3 non-completing families averaged .5 less A/I sessions, 3.5 fewer Resource sessions and one more PHN non-joint visit for a total of 3 less visits than completers. Non-completers had on the average twice as many cancellations and no shows as completers.

Table VI

Initial Biological Risk Characteristics
Intervention and Comparison Infants
Completing 18 Month Outcome Assessments

| | Intervention N=24 | Comparison N=19 |
|---|---|---|
| Mean Birth Weight[1] | 1773.25 grams | 1588.75 grams |
| Mean Gestational Age | 31.25 weeks | 32.6 weeks |
| Mean Apgar at 5 minutes | 7.5 | 7.9 |
| Asphyxia | 50.0% | 15.0% |
| Respiratory distress | 37.5% | 30.0% |
| Bronchopulmonary dysplasia | 12.5% | 5.0% |
| Intracranial hemorrhage | 16.6% | 5.0% |
| Neonatal seizures | 12.5% | 5.0% |
| Small for gestational age | 20.8% | 5.0% |
| Previous miscarriage or infant death | 45.8% | 30.0% |
| Final newborn POPRAS[2] | 88.8% | 61.45% |

[1]2 FYT infants born at full term, 1 comparison infant born at full term/ 45.8% FYT infants less than 1500 grams, 45.0% comparison infants less than 500 grams.

[2]The Problem Oriented Perinatal Risk Assessment System (POPRAS) includes pre, intrapartum and neonatal biological risk factors.

Table VII

Demographic and Environmental Characteristics
Intervention and Comparison Families
Completing 18 Month Outcome Assessments

| | Intervention N=24 | Comparison N=19 |
|---|---|---|
| Female infant | 45.8% | 50.0% |
| First born | 54/2% | 55.0% |
| Minority | 33.3% | 45.0% |
| Mate in home | 70.8% | 75.0% |
| Sees father more than monthly | 91.6% | 90.0% |
| Working mother (includes job, not school) | 45.8% | 60.0% |
| Mean age of mother | 28.1 years | 29.9 years |
| Mean age of father | 29.5 years | 32.0 years |
| Hollingshead Social Class I (Low) | 3 | 4 |
| Hollingshead Social Class II | 12 | 1 |
| Hollingshead Social Class III | 3 | 4 |
| Hollingshead Social Class IV | 11 | 6 |
| Hollingshead Social Class V (High) | 1 | 5 |
| Mean Hollingshead Social Class[1] | 3.00 | 3.35 |
| Mean Global Environmental Risk[2] | 3.08 | 2.45 |

[1] Low scores indicate low SES

[2] Computation of the Global Environmental Risk Index is described on p. 63. Scores range from 0 to 8 with higher numbers indicating higher environmental risk.

Table VIII

Comparability of Initial Risk Factors
Intervention and Comparison Groups
Completing Eighteen Month Outcome Assessment

| | Intervention | | Comparison | | t |
|---|---|---|---|---|---|
| | Mean | SD | Mean | SD | Value |
| Socioeconomic Status | 36.41 | 11.70 | 40.40 | 17.84 | -0.89 ns |
| Global Environmental Risk | 3.08 | 2.19 | 2.45 | 2.32 | 0.93 ns |
| Age of Mother | 28.08 | 5.89 | 29.85 | 5.26 | -1.04 ns |
| Global Biological Risk (POPRAS) | 88.83 | 42.51 | 61.45 | 28.22 | 2.46* |

Student's t tests of mean differences

*Significant $p < .05$

During the 18 months of the FYT program, five intervention group children were identified as needing referrals to ECIP. For these children, the need for continuing intervention was evident by at least 15 months adjusted age and they were placed on the waiting list for ECIP. However, the five families continued with the FYT program until they were transitioned from the FYT program into ECIP as the FYT program ended at 18 months adjusted age. During transition, visits were sometimes made jointly by members of the 2 staffs, in one case a family received PT services through ECIP while in the FYT program.

One approach to achieve greater comparability of initial risk status for I and C groups is to exclude ECIP referred children from the intervention groups in the analyses of child outcomes, since all children referred to ECIP before 18 months AA were excluded from the comparison group. Another approach is to include all children co-varying initial risk.

# V. EFFECTIVENESS OF THE INTERVENTION MODEL: EVALUATION RESULTS AND DISCUSSION

In an attempt to understand the impact of the FYT model of intervention, FYT infants and families were studied when infants were 18 months AA and compared to a group of infants and families not receiving the intervention program. Data sources included questionnaire and observational measures of child, parent and parent-child interaction and family environment characteristics as described in Table V. Along with the presentation and discussion of results which follows, relevant studies and theoretical discussions are in some cases recalled and related to our findings.

The decision was made to describe data at the 18 month AA outcome assessment in this report rather than describing both 12 month and 18 month data since the comparison group we were able to obtain at 12 months AA was neither adequate in size nor representative enough for performing reliable statistical analyses. We were able to use 12 month data to some extent in confirming relationships observed in 18 month data, however.

## A. Relationship of Treatment Outcomes to Initial Biological and Environmental Risk Status

Correlational analyses revealed that a number of outcome variables were related to socio-economic status (SES) and to the global environmental risk index. In most instances covariance procedures were used in analyses of treatment effects when outcomes were significantly correlated with SES.

Outcome measures were unrelated in correlational analyses to our measure of global biological risk, the Problem Oriented Perinatal Risk

Assessment System POPRAS which includes pre, intrapartum and neonatal risk factors.

B. Parents' Well-Being

An important goal of the FYT intervention was to increase the psychological comfort, self-esteem, power and effectiveness parents feel, not only because these parent variables are associated with the optimal development of children, but because the quality of life of parents is of major importance in its own right. Parents' anxiety levels, self-esteem, locus of control and locus of control in parenting were measured (see pp. 57-59).

Parents who participated in the FYT intervention reported experiencing significantly less trait anxiety, higher self-esteem and greater sense of personal control in their lives and in their roles as parents when compared to parents in the C group (Table IX). Thus parents' psychological comfort and their feelings of self-esteem and effectiveness were enhanced by participation in the intervention. Feeling more positively about themselves in general and as parents in particular, we can expect they will approach their tasks as parents with more confidence and energy.

C. Parents' Attitudes, Values and Beliefs About Child Rearing

Self-report measures of parents' attitudes, values and beliefs about child rearing were examined. "An attitude is a relatively enduring organization of beliefs around an object or situation predisposing one to respond in some preferencial manner" (Rokeach, 1986, p. 12). A value is "a type of belief centrally located within one's belief system about how one ought or ought not to behave or about some end state of existence worth or not worth attaining" (Rokeach,

Table IX

Parents' Well-Being
Eighteen Month Outcome Assessment

| | Intervention Mean | SD | Comparison Mean | SD | F Value |
|---|---|---|---|---|---|
| State Anxiety | 34.43 | 8.23 | 35.94 | 9.68 | 0.95 ns |
| Trait Anxiety | 37.00 | 9.05 | 42.71 | 11.96 | 6.82** |
| Self Esteem | 18.16 | 7.22 | 23.19 | 7.95 | 7.12** |
| Locus of Control | 15.25 | 6.45 | 18.69 | 9.03 | 6.55** |
| Locus of Control in Parenting | 9.62 | 4.01 | 11.29 | 4.63 | 4.74* |

ANOCOVA analysis of covariance covarying SES
* significant $p < .05$, directional prediction
**significant $p < .01$, directional prediction

Table X

Attitudes, Values and Beliefs About Parenting
Eighteen Month Outcome Assessment

| | Intervention Mean | SD | Comparison Mean | SD | F Value |
|---|---|---|---|---|---|
| Value Conformity | 22.53 | 4.61 | 19.40 | 4.62 | 6.30** |
| Value Self Direction | 14.41 | 4.96 | 17.20 | 4.66 | 3.65* |
| Modernity | 39.67 | 17.21 | 32.94 | 16.62 | 6.09** |
| Expectation Early Learning | 26.43 | 15.23 | 33.63 | 16.80 | 4.62* |

ANOCOVA analysis of covariance covarying SES
* significant $p < .05$, directional prediction
**significant $p < .01$, directional prediction

1968, p. 124). Self reports of attitudes, values and beliefs correlate with independent observation of behavior. It is thought that psycnological pressures motivate us to behave in a manner consistent with our attitudes, values, and beliefs.

Through intervention we hoped parents' attitudes, values, and beliefs would become more similar to those shown in the literature to be associated with children's social-emotional and cognitive competence, as discussed previously in section IV, pp. 59-61. We predicted that parents receiving the intervention would value self-direction in their children and would endorse progressive child rearing attitudes and believe in the importance of infant stimulation more than would those parents who did not receive the intervention. Along with attitude changes, changes in parental behavior were anticipated since studies have demonstrated the relation of attitudes, values, and beliefs to behavior and have shown that changes in attitudes and changes in behavior are related (Kreitter & Kreitter, 1976; Rokeach, 1980).

As shown in Table X, as expected, parents participating in FYT intervention endorsed attitudes, values and beliefs associated in the literature with child competence significantly more than did parents in the comparison group at the 18 month outcome assessment. Specifically, parents participating in the intervention valued self-direction over conformity in their children as indicated on the Self Directing vs. Conforming Values Scale, expressed more progressive child rearing attitudes on the Parental Modernity for Childrearing and Educational Beliefs Scale, and indicated stronger beliefs in the value of infant stimulation on the Expectations for Early Teaching and Learning Scale.

A methodological note is in order here. Since we have attitude data prior to beginning intervention for the I group only we must infer attitude change from differences in I-C group means at the 18 month outcome assessment. If we had pre-treatment data on both groups we would compare pre to post test change within individuals in the two groups using analysis of covariance. We will explore individual patterns of attitude changes for I group parents in a later paper, even though effects of attitude change related to age of the infant will be difficult to sort out without comparison group data.

How can we know if the attitude changes we have observed will be related to behavior changes, and how are we to understand the attitude change - behavior change relationship? We generally assume that in order to get people to change their behavior it is necessary to change their attitudes, and that when attitudes change, behavior will change as well. This relationship might be represented:

Attitude change ----------> Behavior change

There is evidence that presentation of information relevant to attainment of a desired goal can lead to attitude change followed by behavior change (Rokeach, 1980). However, many factors determine behavior, and the correspondence between attitude and behavior is far from perfect. Social psychologists engaged in research on attitude change (Fishbein & Ajzen, 1975) suggest that the relationship is, in fact, much less direct and might be better represented:

Attitude + Normative Expectations ---------> Behavioral Intention

In other words, our attitudes combined with the influences of the situational context predict our intention to behave in a certain way.

Changing attitudes is an important component of behavior change but it is not always synonymous with behavior change.

Some psychologists think attitudes and behavior are linked but that the usual sequence may be from behavior change to attitude change rather than the other way around. Self Perception Theory (Bem, 1965, 1967) states that we infer our attitudes from our behaviors. The theory proposes that since we are usually largely unaware of our attitudes, when someone asks us our attitudes we observe our behavior, make corrections for the effects of situational pressures on our behavior, and infer what our attitudes must be to have caused us to act in such a way. According to this theory attitude change might be especially likely to occur in novel situations when: 1) an individual's attitudes have not been clearly and consistently articulated; and 2) the individual is engaging in new behavior.

Our intervention certainly met these criteria. Parents, many of whom were first time parents, interacted with a new baby in new ways suggested by a child development specialist. According to Self Perception Theory, engaging in new behaviors under these circumstances modified attitudes.

Also attitude change would be greatest when a person experiences selection of new behaviors as a free choice rather than a requirement (Linder, Cooper & Jones, 1967). This criteria was also met by the FYT intervention which presented information, parenting options, and feedback on child, parent and interactive behaviors, but did not require or monitor behavioral change. A parent might think: "I must be doing this because I believe in it since no one is making me do it." Once established, the attitude, value, or belief continues to

predispose the parent to behave in ways consistent with belief.

Another explanation of attitude change is provided by Dissonance Theory (Festinger, 1954). According to this theory, when our behaviors and attitudes are inconsistent we are motivated by discomfort to change either attitudes or behaviors. Thus if we are induced to engage in new behaviors which are inconsistent with old attitudes, most likely we will change our attitudes to make them consistent with our behaviors.

Perhaps all these mechanisms of attitude change were operative in producing the parent attitude differences we observed in our data. Parents tried new behaviors with their infants which had been demonstrated to them during intervention and then subsequently adjusted their attitudes to fit behaviors. Parents also altered behaviors as a function of attitudes changed through the presentation of information during the intervention or through a process of identification with the intervener and the values he or she espoused. Thus attitudes changed behavior and behaviors changed attitudes.

D. Parents' Knowledge of Age-Appropriate Developmental Expectations

The importance of the developmental appropriateness of a parent's expectations for a child's behavior is widely recognized in the literature. A major goal of the FYT intervention was increasing parents' knowledge of appropriate expectation according to their children's developmental levels.

Plans to develop a questionnaire measure of parents' accuracy about their own childrens' developmental levels did not materialize. We did, however, measure parents' knowledge about the normative age at which mental and motor milestones are accomplished during infancy using the Knowledge of Infant Developmental Milestones Scale. No treatment

group differences were observed with this measure when infants were 18 months AA.

Failure to obtain treatment group differences in knowledge of developmental milestones was somewhat surprising given the focus on developmental expectancies during assessment/intervention. Further analyses of these data at a later time might be enlightening. There may have been problems with the measuring technique employed. The instrument used was developed within the project and is of undetermined validity. A similar approach has been used successfully by other investigators to measure developmental expectancies but our method of administering the scale allowed parents the opportunity to look up items in child care books despite being instructed to the contrary. This may have distorted scores in undetermined ways and obscured treatment effects. For example, FYT intervention parents may have been more committed to following our instruction not to look up answers than parents in the comparison group. Or conceivably, higher SES parents might have been more likely to have child care books listing developmental milestones available for consultation. Initial levels of knowledge of infant development milestones may not have been comparable for the two groups.

Perhaps we should have scored responses in a different way. Parents were asked to estimate the age at which the "average" or typical infant accomplishes milestones of infancy. Norms from the Denver Developmental Screening Test were used in scoring for accuracy. Parents received 2 accuracy points for each estimate within the narrow band of typical development and 1 point for estimates within the broad band of typical development. Scores were summed to provide a global

accuracy score. Scores did not reflect the size of errors of estimates outside the band and thus this information was not included in the global accuracy score. Including size of error data might have produced different results.

We have not yet analyzed the data in a way which would allow us to detect systematic direction of errors within the treatment groups. For instance, those receiving intervention may have made mistakes underestimating the age at which milestones are accomplished. This endorsement pattern would be consistent with the general expectations for earlier learning and teaching in the intervention group found on the Expectations for Early Teaching and Learning Scale as discussed in the previous section. Findings of Ninio (1979) and others suggest that parents who attribute greater competencies to their infants may stimulate them to greater cognitive gains. Positive expectancies for learning rather than accuracy about development levels may be the crucial dimension related to developmental advance. Also, as pointed out already, the measure was of developmental expectations for the average child, not for the parents' own child. Finally, we cannot know if intervention affected developmental information other than knowledge of normative expectations, since we did not measure other kinds of developmental information.

Possible reasons why we did not get the effect we predicted are many. In hindsight we needed better and more comprehensive measures of knowledge of development. Nonetheless, the FYT intervention's potential for increasing parents' awareness of developmentally appropriate expectations for their infants was not demonstrated by the questionnaire measure we used. As will be discussed later, a direct

observation measure employed in the evaluation, the PCIS, did suggest effectiveness of the intervention in increasing the developmental appropriateness, or match, of parents' interactive behaviors toward their infants.

E. Quality of the Home Environment

The Home Observation for Measurement of the Environment (HOME) has been validated repeatedly as a measure of the quality of the home environment for stimulating early child development and is used frequently in assessing outcome of early intervention programs. Thus it provides a marker variable with which many professionals in the field are familiar and allows comparison of results across programs.

Ratings for the HOME, completed when the infants were 18 months AA were based on observation of parents and infants together at home and on a semistructured parent interview about the child's typical day. All ratings were made by an experienced clinician, a child psychologist, who was blind for I-C group membership. The rater was trained in the use of the HOME until interrater reliabilities with another psychologist experienced in use of the HOME reached the high 90's. Ratings were summed to provide 6 subscale scores and a total score. The six subscales are Emotional and Verbal Responsivity of Mother, Avoidance of Restriction and Punishment, Organization of the Environment, Provision of Appropriate Play Materials, Maternal Involvement with the Child, and Opportunities for Variety in Daily Stimulations. We predicted that I mothers would rate higher on HOME Subscales and Total Scores.

Tests for significance of differences between E and C group means for the 6 subscales and total score indicated that families receiving

the intervention were providing a more stimulating environment to their infants than were families who had not received the intervention. Differences between group means were significant for the total HOME score and for 3 of 6 subscales of the HOME with a trend towards significance on a 4th subscale as shown in Table XI. The contents of HOME items for scales showing I-C group differences suggests that mothers participating in the FYT program were more likely to provide their infants with a variety of stimulating situations and activities, both within and outside the home, embedded in a well-organized home setting and lifestyle. Developmentally appropriate toys and child care equipment were more often available and mothers more likely to behave in ways which encouraged developmental advance. The subscale Avoidance of Restriction and Punishment which rates a mother's use of restriction, physical punishment and strong negative affect, i.e. shouting, expressions of overt annoyances and hostility, did not discriminate between the I and C groups, nor did the subscale Emotional and Verbal Responsivity of Mother. This subscale has a number of items which appear to be strongly influenced by verbal expressivity and fluency and thus ratings on it would be related to both SES and stable traits of Introversion-Extroversion within the mother. These stable influences might overshadow changes due to intervention.

F. Parent Infant Involvement

Parents' interaction behaviors with their 18 month old infants were rated using the Parent-Child Involvement Scale (PCIS) for amount, quality and developmental appropriateness on each of eleven behavioral dimensions following a 10-15 minute observation of free play in the home. Dimensions rated were: physical involvement, verbal

Table XI

Home Observation for Measurement of the Environment
Eighteen Month Outcome Assessment

| | Intervention Mean | SD | Comparison Mean | SD | t Value |
|---|---|---|---|---|---|
| Emotional and Verbal Responsivity | 9.71 | 1.32 | 9.47 | 1.39 | 0.77 ns |
| Avoidance of Restriction and Punishment | 5.96 | 1.81 | 5.58 | 1.68 | 0.71 ns |
| Organization of Environment | 5.58 | .58 | 5.00 | 1.11 | 2.08* |
| Appropriate Play Materials | 8.75 | .53 | 7.74 | 1.97 | 2.18* |
| Maternal Involvement | 4.67 | 1.40 | 4.05 | 1.75 | 1.28$^{t}$ |
| Opportunities Variety Daily Stimulation | 4.00 | 1.06 | 3.00 | 1.63 | 2.42** |
| TOTAL SCALE | 39.00 | 4.52 | 34.89 | 7.87 | 2.02* |

Student's t tests of mean differences

* significant $p < .05$, directional prediction
**significant $p < .01$, directional prediction
$^{t}$trend $p < .10$, directional prediction

involvement, responsiveness of caregiver, play, teaching, structuring child's activities, structuring child's specific behaviors, sequencing activities, positive emotions, negative emotions and goal setting. Ratings were made immediately following the free play episode by an experienced clinician, a child psychologist, who was blind for I-C group membership. The rater was trained to a high level of inter-rater reliability on the PCIS by a clinician who was involved in the development of the scale.

Ratings of amount of parent-child involvement without regard to quality and developmental appropriateness did not discriminate I from C parents. Results from previous studies have called into question the meaning of amount ratings of the PCIS, both with regard to the points on the Scales constituting optimal ratings for the various dimensions, and the meaning of summing amounts of involvement across diverse parent behaviors.

In contrast to ratings of amount, ratings of quality and developmental appropriateness did, however, discriminate I from C parents in the present study on a number of PCIS dimensions. I parents scored more positively on 10 out of 22 quality and appropriateness ratings. Two of these ten differences were significant at or beyond the .05 level and 8 of the differences represented trends toward significance (Table VII). Examination of the pattern of differences between I and C parents, including trends, increases our understanding of how the particular intervention influenced parents' interaction behaviors with their infants. Table XIII includes behavioral descriptors for dimensions which differed for I and C parents. Behaviors are categorized as having to do with: 1) developmental match

Table XII

Parents' Involvement with Infant During Free Play
Eighteen Month Outcome Assessment

| | Intervention | | Comparison | | | |
|---|---|---|---|---|---|---|
| | Mean | SD | Mean | SD | t value | f value |
| PCSI Rating | | | | | | |
| Physical Involvement | | | | | | |
| Quality | 4.88 | .45 | 4.63 | .50 | 1.69* | |
| Appropriateness | 4.79 | .51 | 4.53 | .84 | 1.21t | |
| Verbal Involvement | | | | | | |
| Quality | 4.33 | .70 | 4.11 | .66 | 1.09t | 2.48t |
| Appropriateness | 4.42 | .88 | 4.10 | .88 | 1.15t | |
| Responsiveness | | | | | | |
| Quality | 4.35 | .76 | 4.16 | .76 | .76ns | 1.17t |
| Appropriateness | 4.39 | 1.03 | 4.05 | .85 | 1.14t | |
| Play | | | | | | |
| Quality | 4.04 | 1.04 | 3.68 | .95 | 1.16t | |
| Appropriateness | 4.00 | .88 | 3.58 | 1.22 | 1.31t | 4.04t |
| Teaching | | | | | | |
| Quality | 3.52 | 1.03 | 3.65 | .86 | -.39ns | .01ns |
| Appropriateness | 3.86 | .91 | 4.18 | .73 | -1.17 | .90ns |
| Structuring Activities | | | | | | |
| Quality | 3.96 | 1.08 | 3.63 | 1.30 | .90ns | |
| Appropriateness | 3.96 | 1.08 | 3.74 | .99 | .69ns | |

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Table XII (cont.)

| | Intervention | | Comparison | | | |
|---|---|---|---|---|---|---|
| | Mean | SD | Mean | SD | t value | f value |
| Structuring Specific Behaviors | | | | | | |
| Quality | 4.30 | .98 | 4.19 | .75 | .38ns | |
| Appropriateness | 4.35 | .94 | 4.06 | .93 | .92ns | 2.56t |
| Sequencing Activities | | | | | | |
| Quality | 3.30 | 1.13 | 3.37 | 1.21 | -.18ns | |
| Appropriateness | 3.05 | 1.12 | 3.21 | 1.13 | -.46ns | |
| Positive Emotion | | | | | | |
| Quality | 4.52 | .90 | 4.44 | .81 | .30ns | |
| Appropriateness | 4.74 | .45 | 4.69 | .48 | .37ns | |
| Negative Emotion | | | | | | |
| Quality | 4.22 | .73 | 3.87 | .83 | 1.30t | |
| Appropriateness | 4.39 | .92 | 4.33 | 1.11 | .31ns | |
| Goal Setting | | | | | | |
| Quality | 3.82 | 1.05 | 3.63 | 1.01 | .58ns | .67ns |
| Appropriateness | 3.86 | .99 | 4.00 | .82 | -.48ns | .11ns |
| GLOBAL RATINGS | | | | | | |
| Availability | 4.25 | .99 | 3.89 | .80 | 1.30t | |
| Acceptance | 4.42 | .65 | 4.05 | .97 | 1.47t | 4.47* |
| Harmony | 4.33 | .86 | 4.00 | .88 | 1.24t | 3.46* |
| Enjoyment | 4.00 | .78 | 3.79 | .79 | .88ns | 1.94t |
| Learning Environment | 3.62 | .97 | 3.42 | 1.58 | .50ns | 1.51t |

T values Students T test of mean differences.
F values ANOCOVA analysis of variance covarying SES for those variables significantly correlated with SES
*significant $p < .05$, directional prediction
t trend toward significance

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Table XIII

Parent-Infant Involvement
Behavioral Descriptors for Categories Showing Intervention Comparison Differences

| PCI's Rating Category | Descriptor |
|---|---|
| **Developmental Match** | |
| Play, Appropriateness | P adapts toys and activities to C's level |
| Verbal Involvement, Quality | P's verbalizations are at C's level |
| Goal Setting, Appropriateness | P's demands are reasonable and sensitive to C's abilities |
| Responsiveness of Caregiver, Appropriateness | Timing of P's responses to C's needs is contingent and appropriate to C's developmental level |
| **Contingent Responsiveness and P/C Synchrony** | |
| Verbal Involvement, Appropriateness | P's verbalizations are related to C's activities |
| Responsiveness of Caregiver, Appropriateness | Timing of P's responses to C's needs is contingent and appropriate to C's developmental level |
| Play, Quality | P follows C's cues for interest and disinterest in judging when to move on to another play activity |
| **Gentle, Calm Handling of Child** | |
| Physical Involvement, Quality | P handles C gently and sensitively, is not rough or abrupt |
| Negative Emotion, Quality | P disciplines calmly when warranted through redirection and reasoning |
| Physical Involvement, Appropriateness | P positions C to give access to people and activities |
| Responsiveness of Caregiver, Quality | P responds to C gently with enthusiasm but is not |

Table XIII (cont.)

| PCI's Rating Category | Descriptor |
|---|---|
| **Global Ratings of Parent-Child Involvement** | |
| Availability | C has access to P's attention |
| Acceptance | P expresses acceptance and approval of child |
| Atmosphere | Harmony prevails over discord in P/C relations |
| Enjoyment | P finds happiness in being with child |
| Learning Environment | P organizes time, space and materials to support learning |

indicating how the parent fits her behavior to the child's developmental level and needs; 2) contingent responsiveness and synchrony of P and C behaviors; 3) calm and gentle, as contrasted to abrupt and overstimulating, handling of the child.

Our understanding of the impact of the intervention is also increased by looking at ways in which I and C parents did not differ on PCIS ratings. The two groups did not differ significantly in structured teaching exchanges as reflected by rating of the categories Teaching, Structuring Child's Activities, Structuring Child's Specific Behaviors and Sequencing of Activities (Table VII). The absence of I-C group differences in structured teaching is consistent with the FYT intervention's focus on child development and parent-child interactions rather than on structured teaching skills.

In addition to ratings for the 11 behavioral categories, the PCIS includes global ratings of parent involvement for Availability (degree to which child has access to parent's attention and involvement); Acceptance (extent to which parent expresses acceptance and approval of child vs. rejection and disapproval); Atmosphere (general tone of harmony vs. discord in parent-child interactions); Enjoyment (extent to which parent seems to find happiness in being with child); and Learning Environment (organization of time, space, and materials to support learning a task). In addition to the free play episode, global ratings were also based on observation during administration of the HOME and the Bayley developmental assessment. I parents were rated more positively for all 5 global categories with I-C group differences significant beyond the .05 level for Acceptance and Atmosphere. Trends

toward significance were observed for Availability, Enjoyment, and Learning Environment (Table XII).

G. Availability of Social Supports

The important buffering effect of social supports in times of stress and crisis has received increasing attention in the early intervention literature recently (Dunst, 1986). We explored the availability of social supports to I and C group families when their infants were 18 months AA using the Maternal Social Supports Index (MSSI). The index provides a global measure of instrumental and emotional supports in and outside the family. Individual items can be examined for a more specific picture of available social supports.

Our purposes in measuring the social supports available to families were twofold: 1) to explore the possible impact of the intervention on social supports, that is to say, as an outcome measure and 2) to provide us with a more complete understanding of the multiple influences on the total pattern of intervention outcomes we observed.

1. Social Supports as Treatment Outcome

Preliminary analyses using t tests of I-C group differences in social supports when the infant was 18 months AA did not reveal significant treatment related differences in available social supports. The one exception was a trend (.12) toward more frequent and more satisfying contact with extended family members for those mothers in the FYT program.

The importance of social supports to the functioning and well being of parent and family was a part of the FYT philosophy and a general goal for the intervention was to aid families in strengthening their support networks, especially when social supports seemed

inadequate. Our clinical impressions were that this did occur with specific families even though it did not show up in analysis of group differences.

A specific strategy of the FYT program for strengthening the support network for helping with the high risk infant was inclusion of alternate caregivers (relatives, friends, child care providers) in the A/I and R sessions whenever possible so that alternate caregivers might feel more comfortable, confident, and competent in their interactions with the high risk infant. Over the 18 months of the FYT intervention alternate caregivers participated in 3.8 intervention sessions per family on the average. The trend toward more supportive contact with extended family within the I group could possibly demonstrate an influence of these sessions with alternate caregivers.

2. Relationships Among Social Supports and Other Treatment Outcomes

a. Social Supports and Parent-Child Relations and Home Environment

Correlational analysis of selected measures when infants were 18 months adjusted age within the total group (I and C combined) suggests relationships between social supports (MSSI, Total Score) and patterns of parent-child involvement (PCIS) and quality of the home environment for stimulating early child development (HOME).

Social Supports correlated positively and significantly with the HOME Total Scale Score and with 4 of 6 individual scales, specifically Emotional and Verbal Responsivity of Mother, Organization of Environment, Provision of Appropriate Play Materials and Opportunity for Variety in Daily Stimulation (Table XV).

Table XIV

Significant[1] Correlations of Selected Outcome Variables with Mothers' Perceptions of Social Supports, Total Score

Total Sample Eighteen Month Outcome Assessment

| Variable | Correlation | |
|---|---|---|
| HOME | | |
| Emotional and Verbal Responsivity | .43 | |
| Organization of Environment | .42 | I |
| Appropriate Play Materials | .34 | I |
| Opportunities Variety Daily Stimulation | .49 | I |
| Total Score | .46 | I |
| PCIS, Quality and Developmental Appropriateness | | |
| Physical Involvement, Quality | .35 | I |
| Verbal Involvement, Quality | .48 | I |
| Responsiveness of Caregiver, Quality | .41 | I |
| Responsiveness of Caregiver, Appropriateness | .34 | I |
| Play, Appropriateness | .41 | I |
| Teaching, Appropriateness | .47 | |
| Structuring Child's Specific Behaviors, Appropriateness | .53 | I |
| Negative Emotions, Quality | .39 | I |
| Goal Setting, Quality | .43 | |
| Global Ratings of Parent/Child Involvement | | |
| Acceptance | .44 | I |
| Atmosphere | .49 | I |
| Enjoyment | .41 | I |
| Learning Environment | .47 | I |
| Parents' Feelings of Well-Being, Efficacy and Self-Esteem | | |
| Trait Anxiety | -.36 | I |
| Locus of Control | -.45 | I |
| Locus of Control in Parenting | -.38 | I |
| Self-Esteem | | I |
| Parenting Attitudes, Values, and Beliefs | | |
| Value Sociability | -.51 | |
| Parents' Perception of Child Difficultness | | |
| Bates Factor Difficult Child | -.36 | |
| Professional Perception of Child Ease-Difficultness | | |
| Examiner's View of Behavior, Easy to Care For | .41 | I |
| Environmental Risk | | |
| Environmental Risk Index | -.54 | |
| Socio-economic Status | .48 | |
| Mother's Education | .37 | |
| Daily Hassles | -.43 | |

[1]Correlations listed are significant at $p < .05$

I indicates those variables found related to intervention as well as social supports

Fourteen (out of a possible 22) quality and developmental appropriateness ratings from the PCIS were selected for the correlational analysis based on their "promise" in terms of conceptual relatedness to the intervention and degree of confidence expressed by the rater in assessments of the various categories. Social supports correlated positively and significantly with 9 of 14 quality and appropriateness ratings examined as shown in Table XIV. Seven of the 9 quality and developmental appropriateness ratings showing significant positive correlations with social supports showed treatment effects in analyses of group differences (see Table XII).

Social Supports correlated positively and significantly with 4 of 5 global ratings of parent-child involvement. Global dimensions related to social supports were Acceptance, Atmosphere, Enjoyment and Learning Environment. Measures showing treatment effects in previous analyses are indicated by an asterisk in Table XIV.

b. Social Supports and Parents' Anxiety, Sense of Efficacy, and Self Esteem

Availability of social supports also correlated significantly with parent questionnaire measures of anxiety, sense of efficacy (locus of control) and self-esteem. These variables also differed significantly in analyses by treatment groups (see Table IX). Table XIV indicates the correlations between social supports and trait anxiety, locus of control, locus of control in parenting and self-esteem.

c. Social Supports and Parenting Attitudes and Values

In correlational analyses social supports appeared unrelated to questionnaire measures of parenting attitudes and values such as progressive beliefs about education and child rearing, valuing of self-

direction over conformity in children, and expectancies for early teaching and learning (as indicated by questionnaire measures). By contrast, these attitudes and values were related to treatment group when the child was 18 months AA.

The only parent value which did relate to social supports was the valuing of sociability in children suggesting that those mothers with good social supports valued human relatedness for their children (see Table XIV).

d. Social Supports and Parent and Professional Perceptions of Child's Difficulties

Correlational analyses suggest a relationship between social supports and both a parent's perception of her child's difficulties as measured by the Bates Temperament Cluster "Difficult" and a professional examiner's rating of how easy or difficult a child would be to care for from the Examiner's View of Behavior rating scale. Both parents and professionals rated infants as less difficult when social supports were high (see Table XIV).

e. Social Supports and Child's Developmental Status

Developmental status, measured by the Bayley Mental and Motor Scales administered at 18 months AA was unrelated to social supports.

f. Social Supports and Relationship of Social Supports to Initial Risk Status

Social supports were significantly correlated (Table XIV) with our global index of environmental risk, with socio-economic status and mother's education. Additionally mothers with less social support reported more daily stress and hassles. Social supports were unrelated to initial biological risk status of the infant.

H. Effects on Family Outcome Measures

Results presented so far suggest that initial environmental risk factors, participation in the FYT program and the buffering effects of social supports all made significant contributions to variance among family outcome measures.

Results from anlyses done to date suggest the need for subsequent analyses of all 18 month outcome data using regression techniques with SES or Global Environmental Risk entered first in the equation followed by Social Supports and then Treatment Group. Analyses have not established initial biological risk measured by the POPRAS as a variable of predictive significance and thus it should be entered last into the regression equation. Birth order and sex of child might also be entered in the regression analysis.

In examining the patterns of outcome in analyses done to date we observe that the patterns of relationships with social supports available in the "natural" environment is in many respects similar to that for participation in the FYT intervention program, particularly with regard to influences on P/C involvement, quality of the home environment for stimulating early child development and on parental well-being and sense of efficacy and self-esteem. Thus we find a basis to conjecture that provision of social support is one of the effective agents in the FYT intervention.

However, effects specific to participation in the intervention and unrelated to social support were observed in parental attitudes and values. Also, aspects of parent-child relations including availability of parent to child, match of parents' verbalizations to child levels of comprehension, synchrony in termination of play and parents'

encouragement of developmental advancement showed treatment effects but unrelated to social supports. These differences may reflect specific effects of the FYT intervention over and above its provision of support to parents.

I. Infant Developmental Status

Developmental status was measured at 18 months AA using the Bayley Scales of Infant Development. Developmental standard scores were computed for mental and motor scales using both adjusted and chronological ages. Tests revealed no significant differences between treatment group means for mental or motor development.

As described previously in section IV, E, the manner in which the comparison group was recruited may have resulted in initial incomparability for the two groups as a result of the decision to exclude from consideration for the comparison group all infants referred to early intervention programs prior to 18 months AA. The exclusion was necessary since the comparison we sought was between infants and families receiving the FYT program and those receiving standard developmental follow-up through our state's High Priority Infant Tracking program. However, infants excluded from the comparison group in this way were likely to be those at highest risk for developmental delays.

In an attempt to increase group comparability we therefore did a second analysis excluding 4 infants in the FYT program who were identified in need of referral to an intensive early intervention program prior to 18 months AA. Outcome data was not available on the fifth FYT family in need of referral to early intervention since this family was non-compliant at final outcome assessments. As can be seen

in Table XV, statistical tests indicated no significant differences between I and C group means in mental development when referred infants were excluded from the analysis. However, infants in the Intervention-Referred group exhibited more developmentally advanced motor behavior for adjusted age.

In exploring our data through correlational analyses we were surprised by the absence of significant correlations between mental development at 18 months AA with global measures of initial biological and environmental risk; neither the Problem Oriented Perinatal Risk Assessment Score (POPRAS), Index of Global Quality of Caregiving Environment, or SES correlated with Bayley Mental Scale Score in the combined I-C sample. Nonetheless because initial risk characteristics differed in favor of the comparison group as described in Tables VI, VII and VIII, we also analyzed Bayley Scores covarying initial risk variables POPRAS and, in a separate analysis, SES. Results were similar to those obtained for t tests. That is, a significant treatment effect was obtained only for motor development when infants referred to early intervention were excluded from the analysis. In the analysis of covariance initial global biological risk was again found unrelated to mental or motor development at 18 months, but SES was significantly related to mental development.

In interpreting our failure to find I-C group differences in mental development as measured by the Bayley at 18 months AA, the long-range predictive validity of the Bayley must be considered. Ramey and Campbell reported Bayley Scores at 18 months to be fair predictors of IQ scores at 4 years in the Abecedarian Project data (1973). However, the long range predictive validity of the Bayley, when administered

Table XV

Infant's Developmental Status
Eighteen Months Adjusted Age Bayley Scores

| | Comparison | | Intervention | | | Intervention-referred | | |
|---|---|---|---|---|---|---|---|---|
| | Mean | SD | Mean | SD | t value | Mean | SD | t value |
| Mental, adjusted | 101.7 | 19.0 | 97.6 | 10.3 | -0.89 | 98.5 | 8.1 | -0.61 |
| Mental, chronological | 87.9 | 20.3 | 83.8 | 12.7 | -0.75 | 85.3 | 11.1 | -0.48 |
| Motor, adjusted | 97.8 | 13.2 | 100.7 | 12.6 | 0.62 | 103.8 | 8.0 | 1.68* |
| Motor, chronological | 88.6 | 14.4 | 90.7 | 13.1 | 0.50 | 93.8 | 10.4 | 1.29t |

Student's t tests of mean differences
*significant $p < .05$
t significant $p < .10$

prior to 24 months of age is poor. The Bayley is not successful in predicting an individual's scores on later tests of academic ability. It is successful, however, in discriminating individuals with serious persistent developmental delays prior to 24 months of age. The Bayley's usefulness prior to 24 months of age appears to be, therefore, in providing information about current developmental status and in identifying infants in need of remedial programs, rather than in making long-range predictions of academic ability across a range of scores.

Furthermore, because of the nature of the FYT intervention, we expected effects to be most readily observable in parent and parent-child interaction measures. Reports from parent-focused early intervention programs suggest that parent changes often precede child changes by a year or so.

Thus we were not surprised by our failure to measure I-C group differences in mental development at 18 months AA. We hope to conduct follow-up assessments with the families during the preschool period to look for maintenance of parental effects and to ascertain the relationship of changes in parental behavior to child behavior over time.

J. Infant Temperament or Behavioral Style

Temperament is the stylistic component of behavior, that is, how an individual does whatever he or she does. Thomas and Chess suggest that children's individual differences in temperament have their effect on development by evoking different reactions in socializing others; reactions which feed back to children to affect their future development. The impact of temperament on development is determined by the "goodness of fit" between the child's temperament

attributes and the demands of the environment within which the child lives and develops (Thomas & Chess, 1977).

The degree to which basic temperament is modified over time through interactions with the environment is debated, but a belief in the critical importance to developmental outcomes of the match between the individual's behavior style and environmental demands is widely accepted, and interventions have begun to be directed toward improving this match.

In the FYT program, during developmental assessments, parents were assisted in observing aspects of their infants' behavioral styles and in problem solving implications of behavicral styles for caregiving and child management. Parents were also helped to "reframe" their conceptualizations of their children's behavioral styles in positive ways to focus on possible advantages of troublesome behavioral characteristics. For example, while a child's perseveration in pursuing a course of action in defiance of parental attempts to divert attention may be troublesome to parents, it could be reinterpreted in terms of admirable and functional traits like determination, independence and persistence.

We believed that as a result of intervention parents would have better understandings of their children's behavioral styles and of caregiving strategies appropriate to behavioral styles. We predicted that parents' sense of efficacy and control in parenting would increase and parent-child relations would improve as a result. We also hoped that parents might become more accepting of their childrens' behavioral styles and come to view them more positively. Perhaps even the behavioral styles themselves might become more positive through

intervention.

As described previously on page 72, questionnaire measures of parents' feelings of efficacy and control (locus of control), both generally and specifically in their roles as parents, were examined and found to be more positive in intervention than in comparison group parents. Likewise measures of parent-child involvement suggest that the FYT intervention increased the harmoniousness of parent-child relations and otherwise improved the quality of parent-child interactions. We have no direct way of determining which aspects of the FYT intervention contribute to the various results we observe. However, a case can be made through logic that a parent's understanding of behavioral style might be an important contributor to more harmonious P/C relations and increase parents' feelings of effectiveness as parents.

Controversy continues within the child development literature as to the changeability of temperament through interactions with the environment. Whether temperament should be considered as an outcome variable in evaluations of interventions is thus open to question. Nonetheless we chose to explore perceptions of behavioral style by both parents and professionals as outcome variables. We were interested in 1) whether parents receiving the intervention would describe their infants' temperament or behavioral styles in ways which are different from those not receiving the intervention and 2) if a professional would describe the behavioral style of infants in the I group more favorably than behavioral styles of infants in the C group.

Mothers' perceptions of their infants' behavioral styles at 18 months AA were measured using item clusters from the Infant

Characteristics Questionnaire which were found by Bates to discriminate factors of "fussy/difficult," "unadaptable," and "persistent/non-compliant" in 12 and 24 month old infants.

A professional who was blind for I-C group membership, rated infants' behavioral styles at 18 months AA on the Examiner's View of Behavior (Appendix D) after observing children in free play at home with their mothers and during administration of the Bayley Scales of Infant Development. Behavioral style dimensions rated included engagement with new people, interest in toys and objects, over-activity, inactivity, erdurance and task focus during developmental assessment, hedonic tone of predominant mood, lability of mood, intensity of negative reactions and consolability. A judgment of overall ease or difficulty a parent would have in caring for the infant was also made.

1. Agreement between Parents' and Professionals' Perception of Child Temperament

Agreement between parents' and professionals' descriptions of infant behavioral style was examined at 18 months AA in I and C groups combined. Parents' ratings for "fussy/difficult," "unadaptable," and "persistent/non-compliant" on the Infants Characteristics Questionnaire were correlated with the professionals' judgment of overall ease or difficulty a parent would have in caring for the infant. Parents' perceptions of children as "fussy/difficult" and "persistent/non-compliant" correlated significantly ($r = .34$ and $r = .43$, $p < .05$) with the professionals' global rating of ease of care.

2. Professionals' Perceptions of Infant Temperament

Professional ratings of behavioral style were examined through

tests of significance of difference between I and C group means for the twelve items of the Examiners View of Behavior. Trends toward significant differences indicative of more optimal ratings for I group infants were observed for 6 of 12 ratings. Infants in the intervention group were described as: 1) less often inactive and passive ($p = .08$); 2) less likely to exhibit poor endurance and loss of task focus during developmental assessment ($p = .08$); 3) more likely to engage positively with the examiner, for example, smile, and approach with curiosity-interest ($p = .11$); and less likely to exhibit negative reactions to the examiner ($p = .17$); 4) easier to console when upset ($p = .06$); and 5) easier to care for overall ($p = .10$).

No differences between ratings for infants in the two groups were observed for hedonic tone of predominant mood, lability of mood, intensity of negative reactions, or excessive activity. Nor did ratings of degree of interest in toys and objects differ for the treatment groups.

These trends toward differences between treatment groups in behavioral style might be attributed to familiarity. The outcome assessment situation for I group infants was certainly more familiar being similar in some respects to what they had encountered during home visits during intervention. Infants receiving intervention were perhaps, because of familiarity, more ready to engage positively with a visitor and more able to maintain focused attention during developmenal testing. Whether all of the observed trends toward differences between the treatment groups are explainable in terms of familiarity and positive expectations is open to question. One might argue at the very

least the benefits to an infant of comfort and positive expectations for interactions with friendly adult strangers.

Behavioral style characteristics for which treatment group differences were observed on the Examiner's View of Behavior relate to the infants' tendencies tc approach and engage when confronted with novel situations and people, to maintain engagement and to quickly reestablish equilibrium after an upset. These behavioral tendencies appear conceptually similar to Bates' factor "adaptable-unadaptable" and to the behavioral style "slow to warm up" described by Thomas and Chess (1977). An alternative tc explaining group differences as resulting from similarity of the intervention to the outcome evaluation procedure, is that the intervention did in fact effect the behavioral style dimension "adaptable-unadaptable." Bailey and Simeonsson (1986) in the FAMILIES project found childrens' "slow to warm up" temperament style was even more troublesome in parent-child relations than the temperament style of the "difficult" child. Thus modifying this aspect of a child's behavioral style might affect parent-child relations positively.

3. Mothers Perceptions of Infant Temperament

Correlations of mothers' perceptions of their infants' temperaments at 18 months AA with measures of maternal anxiety, self-esteem, locus of control, and locus of control in parenting (Table XVI) suggest that mothers who describe their children as unadaptable or slow to warm up feel less personal control in their roles as parents and experience greater situational anxiety.

On the other hand correlations suggest that mothers who describe their children as "fussy/difficult" and "persistent/non-compliant" are

Table XVI

Significant[1] Correlations of Selected Outcome Variables With Mothers' Perceptions of Infant Behavioral Styles, Bates Factors, Eighteen Month Outcome Assessment

| | Difficult | Unadaptable | Persistent |
|---|---|---|---|
| State Anxiety | NS | .36 | NS |
| Trait Anxiety | NS | NS | .34 |
| Locus of Control | .42 | NS | .48 |
| Locus of Control in Parenting | NS | .40 | NS |
| SES | .37 | NS | NS |
| Environmental Risk | .48 | NS | .41 |
| Daily Hassles | NS | NS | .41 |
| Social Supports | -.36 | NS | NS |

[1]Correlations listed are significant at $p < .05$

more likely to live in conditions characterized by limited economic and social resources (low SES, high environmental risk index, many daily hassles and low social supports), to experience more chronic anxiety and to feel less self-esteem and personal control in their lives. This pattern of correlations suggests that mothers' descriptions of their children as difficult and non-compliant at 18 months are related to social circumstances, that is inadequate economic and social resources and environmental disorganization, as well as child characteristics.

Tests for significant differences between I and C group means on the Infants Characteristics Questionnaire cluster scores reveal that parents participating in the FYT intervention did not describe their infants as more or less difficult, unadaptable, or persistent/non-compliant than did parents not receiving intervention (Table XVII).

On the single item "Rate the overall ease or difficulty your baby would present for the average mother," I group mothers described their infants as being more difficult to care for than did C group mothers. This unexpected difference was not significant but there was a weak trend towaard significance (p .22). Since I group infants experienced significantly more perinatal stress as measured by the POPRAS (see Table VIII) these sicker infants may have, in fact, been harder to care for. However, this interpretation is not supported by the absence of significant correlations between the POPRAS and mother's perceptions of behavioral style.

Alternately we might account for the difference in endorsement on the ease of care item in terms of treatment effects. Perhaps information received during intervention increased mothers' perceptions

Table XVII

Mothers' Perceptions of Infant Behavioral Styles
Eighteen Month Outcome Assessment

| | Intervention Mean | SD | Comparison Mean | SD | t Value |
|---|---|---|---|---|---|
| Ease of Care | 3.33 | 1.43 | 2.78 | 1.35 | 1.24t |
| Difficult | 30.52 | 6.51 | 30.56 | 6.90 | -0.02 |
| Unadaptable | 23.81 | 6.06 | 22.11 | 6.52 | 0.84 |
| Persistent | 13.76 | 4.16 | 14.06 | 4.02 | -0.22 |
| TOTAL | 107.32 | 19.83 | 103.87 | 19.35 | 0.52 |

Students' t tests of mean differences
* significant $p < .05$
**significant $p < .01$
t trend toward significance $p < .22$

of their infants as difficult or perhaps I mothers became less denying of difficulties. Perhaps they felt they were no longer "average parents" after receiving intervention, but rather skilled parents coping successfully with a difficult infant. We can only speculate.

Recall that mothers receiving intervention described themselves as experiencing less psychological distress (anxiety), higher self-esteem and greater sense of efficacy and personal control in their lives and their roles as parents than did parents not receiving intervention. During intervention when mothers encountered difficulties in the care of their infants they often received reassurances about the care they were providing and were encouraged to attribute difficulties in infant care to temporary aspects of the situation rather than to their own inadequacies or to permanent problems of the child. Thus, intervention focused on helping find ways to deal with specific child care difficulties and also on helping parents make "external," "unstable" attributions about the causes of their difficulties. In this way parents' feelings of personal well-being, self-esteem and efficacy, were preserved and, feeling more positively about themselves in general and as parents in particular, we expect they will approach their tasks as parents with more confidence and energy.

K. Intervention Process: Monitoring Intervention Priorities

As described in Section IV pp. 63-65, parents' and professionals' goals and perceptions of services were documented using two instruments developed within the project, Importance Ranking of Intervention Goals and Session Outcomes (Appendix B). In an attempt to better understand participants' views of the intervention, patterns of endorsement have been explored with the following questions in mind:

What did parents say they wanted from intervention?

What did professionals say parents needed?

How similar were parent and professionals' views of parents' needs?

How do parents and professionals describe what happens in Assessment/Intervention and Resource sessions?

How do the sessions change over time?

Are parents' most important needs met by the sessions?

Importance Rankings and Sessions Outcomes can be used on an individual case by case basis to highlight major goals of intervention, identify discrepancies in parent and professional goals and measure the degree to which parent and professional participants view sessions s meeting parents' needs.

The following statements are not based, however, on case by case data, but rather on examination of group means and percents. Group data is presented in this way to increase our general understanding of the FYT intervention process.

Examination of mean Importance Rankings for the 12 items (Table XVIII) suggest considerable agreement between parents and professionals in intervention goals viewed as most important. For both parents and professionals the most important goals are learning what to expect next (Item #5), what the child can do (Item #3), ways to teach and play (#6), and how the parent is important to the child (#11).

Discrepancies occurred in parent and professional rankings of three goals. Professionals ranked issues related to caretaking (#7) and finding services (#8) lower in importance than did parents.

Table XVIII

IMPORTANCE RANKINGS AND SESSIONS OUTCOMES - PARENTS' AND PROFESSIONALS' VIEWS

| ITEMS | IMPORTANCE RANKINGS[1] | | | | SESSIONS OUTCOMES[2] | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Professional | | Parent | | Parent | | | Professional | | |
| | Mean | S. D. | Mean | S. D. | Mean | S. D. | % Sessions Goal Not Met | Mean | S. D. | % Sessions Goal Not Met |
| 1. I want to talk about my feelings | 2.80 | 0.93 | 1.93 | 0.98 | 2.35 | 0.62 | 7.7 | 2.21 | 0.65 | 12.8 |
| 2. I want professional to listen to me | 2.55 | 0.97 | 2.23 | 1.10 | 2.59 | 0.57 | 3.8 | 2.40 | 0.62 | 7.0 |
| 3. I want to know what child can do | 2.94 | 0.92 | 2.97 | 1.01 | 2.67 | 0.51 | 1.9 | 2.52 | 0.55 | 2.7 |
| 4. I want to know child's personality | 2.38 | 0.99 | 2.53 | 0.97 | 2.40 | 0.69 | 11.7 | 2.18 | 0.69 | 16.7 |
| 5. I want to know what to expect next | 3.34 | 0.91 | 3.15 | 1.00 | 2.57 | 0.58 | 4.5 | 2.52 | 0.57 | 3.8 |
| 6. I want to learn ways to teach & play | 3.13 | 0.94 | 2.90 | 1.13 | 2.71 | 0.53 | 3.8 | 2.38 | 0.58 | 4.8 |
| 7. I want to be able to care for child | 1.61 | 0.94 | 2.54 | 1.11 | 2.28 | 0.80 | 21.7 | 1.64 | 0.65 | 44.8 |
| 8. I want to know who can help me | 1.52 | 0.80 | 2.23 | 1.02 | 2.28 | 0.74 | 17.3 | 1.69 | 0.72 | 46.5 |
| 9. I want to be less worried | 2.21 | 1.27 | 2.46 | 1.22 | 2.16 | 0.73 | 19.5 | 1.83 | 0.67 | 32.4 |
| 10. I want to see how parenting is fun | 2.25 | 1.06 | 2.09 | 1.10 | 2.50 | 0.70 | 11.6 | 2.10 | 0.67 | 17.8 |
| 11. I want to see how I am important to child | 2.84 | 1.04 | 2.70 | 1.05 | 2.72 | 0.50 | 2.5 | 2.35 | 0.58 | |
| 12. I want to be more self confident | 2.41 | 1.01 | 2.27 | 1.06 | 2.49 | 0.65 | 8.4 | 2.14 | 0.66 | 16.0 |

[1]For Importants Rankings items are Q-sorted into "most," "more," "less," and "least" categories and assigned valued from 4 to 1.

[2]For Sessions Outcomes session participants indicate for each item "Did not happen" for a score of 1, "Happened some" for a score of 2, and "Happened a lot" for a score of 3.

[3]Items are presented as they appear on the Parent Importance Ranking.

Parents' lowest ranking was talking about feelings (#1) whereas professionals ranked it fifth of the 12 goals in importance.

Mean Session Outcomes for the 12 items (Table XVIII) suggests that all 12 goals were met by sessions with fairly high frequency. Parents reported frequencies somewhat higher than professionals across all items, but the relative ratings for parents and professionals were similar with the same items ranked in the top 5 in frequency in occurrence (#2, 3, 5, 6, and 11) and ranked lowest in frequency in occurrence (#7, 8, 9) by both parents and professionals.

A comparison of Importance Rankings by parents and professionals with Session Outcomes (Table XVIII) reveals the correspondence between what was desired and what occurred during intervention. Those goals ranked most important by parents and professionals were reported as having occurred most frequently in sessions. The most important goals had to do with getting to know the child's capabilities, anticipating next steps in development, learning ways to teach and play and supporting parents' awareness of their importance to their child's development, and these same activities were reported to be salient in sessions.

Also highly endorsed by both parents and professionals in descriptions of sessions was parents' sharing their viewpoints about their child and his or her needs (#2), evidencing the effectiveness of the parent-professional partnership which developed through FYT.

Examination of relationships among Importance Rankings and Sessions Outcomes using only parents' data demonstrates the same correspondence of goals and occurrence observed when parent and professional data were combined. That is to say, the most important

goals were focused on in intervention sessions in the view of parents. However, need for help with caretaking tasks such as comforting, feeding, etc. (#7), which was ranked as fifth in importance by parents was only 11th in frequency of occurrence on parents' Sessions Outcomes. The item endorsed as occurring least frequently of all was being less worried about the child as a result of the session (#9).

In addition to comparing parents' mean endorsements on Importance Rankings with their endorsements on Sessions Outcomes, we examined percentage of parents' endorsing the "did not occur" category for each of the 12 items on Sessions Outcomes and these percents are also listed in the Table. The same items showing the lowest mean endorsement by parents also received the highest percentages of "not occurring" endorsements in sessions. Comparisons of goals with session descriptions suggest the need for greater emphasis in intervention on helping parents with caretaking issues. Also suggested by comparisons of the endorsement patterns is the need to give careful attention to ways of making the intervention effective in allaying unwarranted fears. In addition the importance of providing emotional support and a concrete plan for remediation when developmental problems are discovered is underscored.

We compared Sessions Outcomes of parents and professionals combined for Assessment/Interventions with those for Resource sessions and determined that there was both overlap and specificity in goals met by these two basic FYT services (Table XIX). Both settings emphasized those goals ranked highest by parents and professionals (#3, 5, 6, and 11) with perhaps a little more learning about what a child can do (#3) and about behavioral styles (#4) in Assessment/Intervention and a

| ITEM | RESOURCE (Parent and Professional) | | ASSESSMENT/INTERVENTION (Parent and Professional) | | |
|---|---|---|---|---|---|
| | Mean | S. D. | Mean | Diff. | S. D. |
| 1. Talk about feelings | 2.35 | 0.60 | 2.17 | 18 | 0.66 |
| 2. Listen to me | 2.47 | 0.62 | 2.42 | 5 | 0.62 |
| 3. Child can do | 2.46 | 0.52 | 2.63 | 17 | 0.54 |
| 4. Behavioral style/ personality | 2.14 | 0.73 | 2.33 | 19 | 0.70 |
| 5. Expect next | 2.49 | 0.56 | 2.52 | 3 | 0.60 |
| 6. Teach and play | 2.58 | 0.53 | 2.43 | 15 | 0.62 |
| 7. Caretaking | 2.09 | 0.72 | 1.76 | 33 | 0.83 |
| 8. Who can help | 2.11 | 0.74 | 1.79 | 32 | 0.82 |
| 9. Less worried | 2.01 | 0.70 | 1.92 | 9 | 0.73 |
| 10. Parenting is fun | 2.32 | 0.67 | 2.16 | 16 | 0.75 |
| 11. I'm important | 2.58 | 0.57 | 2.43 | 15 | 0.58 |
| 12. Self confidence as parent | 2.37 | 0.63 | 2.17 | 20 | 0.71 |

little more about ways to teach and play (#6) in Resource. Enjoyment (#10), self-confidence (#12), and importance of parents (#11) were enhanced more in Resource sessions. Parents and professionals were more likely to report help with caretaking issues and finding services in Resource sessions. Also slightly more talking about feelings occurred in Resource sessions than in A/I sessions. We cannot, however, estimate the reliability of the differences we observed since we did not do formal analyses of statistical significance.

Parents and professionals described parents sharing their viewpoints about their child as salient aspects of both A/I and R sessions.

In order to describe changes in sessions over time, Sessions Outcomes for birth to 6 months, were compared to those for 7-12 months, and 13 or more months separately for parents and for professionals (Table XX). From this analysis we discovered that caretaking issues such as feeding, consoling, etc. and expression of emotions were greater in the first six months according to parents and that over time parents were somewhat more open in disclosing emotional concerns and increased their awareness of ways to enjoy their child according to professionals. With these exceptions, intervention sessions changed only slightly over time.

L. Summary of Results

The First Years Together Intervention was evaluated by examining a variety of family and child outcomes when infants were 18 months adjusted age in an intervention group and a first wave comparison group. Analyses suggested that initial environmental risk factors, participation in the FYT program and the buffering effects of social

Table XX
Sessions Outcomes by Time Intervals

| ITEM | 0 - 6 MONTHS | | | | 7 - 12 MONTHS | | | | 13+ MONTHS | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Professional (A/I + R) | | Parent (A/I + R) | | Professional (A/I + R) | | Parent (A/I + R) | | Professional (A/I + R) | | Parent (A/I + R) | |
| | Mean | S. D. | Mean | S. D. | Mean | S. D. | Mean | S. D. | Mean | S. D. | Mean | S. D. |
| 1. Talk about feelings | 2.10 | 0.57 | 2.44 | 0.54 | 2.13 | 0.70 | 2.21 | 0.73 | 2.46 | 0.58 | 2.40 | 0.54 |
| 2. Listen to me | 2.46 | 0.61 | 2.55 | 0.60 | 2.34 | 0.61 | 2.54 | 0.60 | 2.44 | 0.64 | 2.67 | 0.48 |
| 3. Child can do | 2.53 | 0.54 | 2.77 | 0.43 | 2.57 | 0.54 | 2.59 | 0.59 | 2.42 | 0.57 | 2.64 | 0.48 |
| 4. Behavioral style/ personality | 2.08 | 0.63 | 2.35 | 0.68 | 2.19 | 0.73 | 2.34 | 0.69 | 2.26 | 0.69 | 2.50 | 0.71 |
| 5. Expect next | 2.60 | 0.53 | 2.58 | 0.53 | 2.55 | 0.57 | 2.59 | 0.62 | 2.40 | 0.61 | 2.54 | 0.60 |
| 6. Teach and play | 2.31 | 0.55 | 2.79 | 0.46 | 2.44 | 0.57 | 2.74 | 0.52 | 2.34 | 0.63 | 2.55 | 0.63 |
| 7. Caretaking | 1.61 | 0.64 | 2.45 | 0.73 | 1.63 | 0.64 | 2.19 | 0.85 | 1.70 | 0.68 | 2.17 | 0.79 |
| 8. Who can help | 1.64 | 0.72 | 2.30 | 0.74 | 1.67 | 0.70 | 2.28 | 0.72 | 1.76 | 0.77 | 2.21 | 0.78 |
| 9. Less worried | 1.80 | 0.70 | 2.21 | 0.74 | 1.86 | 0.66 | 2.21 | 0.73 | 1.82 | 0.69 | 2.00 | 0.70 |
| 10. Parenting is fun | 1.86 | 0.73 | 2.54 | 0.64 | 2.18 | 0.62 | 2.44 | 0.75 | 2.22 | 0.65 | 2.50 | 0.71 |
| 11. I'm important | 2.33 | 0.58 | 2.77 | 0.43 | 2.36 | 0.59 | 2.66 | 0.58 | 2.36 | 0.56 | 2.71 | 0.51 |
| 12. Self confidence as parent | 2.06 | 0.73 | 2.49 | 0.67 | 2.16 | 0.65 | 2.43 | 0.68 | 2.18 | 0.63 | 2.55 | 0.59 |

support all made significant contributions to the outcomes we observed.

Family effects were studied by self-report questionnaires as well as by direct observations of parent-infant interactions. Our confidence in the conclusions we reached is strengthened by the convergence in results from data sources of different types.

Parents' self-reports about their own well-being and sense of efficacy in parenting and in life in general, as well as their attitudes, values and beliefs about child rearing were affected by the intervention. Mothers receiving intervention described themselves as experiencing less psychological distress, higher self-esteem and greater sense of efficacy and personal control in their lives (internal locus of control) and in their roles as parents. In addition, intervention group mothers endorsed attitudes, values and beliefs about child-rearing consistent with those shown in the literature to be connected with child competence. Parental belief systems and expectations are known to serve as powerful cognitive mediators of parent-child interactions (Hess, 1981).

Results from observations of P/C interactions suggest the FYT intervention encouraged patterns of mother/infant interaction which have been found to facilitate cognitive and emotional development, for example, a teaching style which 1) relies on incidental teaching, 2) provides ample verbal stimulation and materials for stimulation, 3) consciously encourages cognitive advance, 4) is loving, accepting and harmonious, and 5) communicates positive expectancies for children's achievements matched to child's capabilities.

No treatment effects were observed for infants' mental development at 18 months adjusted age. Motor development was superior for the

treatment group when referred infants were removed from the analyses in an attempt to make I and C groups comparable (since referred infants were excluded during recruitment of the comparison group).

Perhaps assessments of mental abilities at a later time will show a "sleeper effect" of intervention, since measures of mental development prior to 2 years of age have poor long-term predictive power within the normal range of development and since parent effects often precede child effects in parent centered programs.

Findings regarding infants' behavioral style were intriguing but inconclusive. Intervention infants were rated by a professional as more adaptable and easier to care for than comparison infants. These treatment group differences approached but did not reach significance at the .05 level. Group differences could be effects of familiarity rather than treatment.

Parents' and professionals' intervention goals and perceptions of services were documented and compared. Although some discrepancies in goals occurred considerable agreement was expressed regarding the most important goals of intervention. Both parents and professionals described the intervention sessions in similar ways. A comparison of goals with session descriptions demonstrated a high degree of correspondence between what was desired and what occurred during intervention.

Methodological limitations of the evaluation include (1) use of a first wave comparison rather than random assignment to treatment groups; (2) failure to establish initial comparability of I and C groups on measures employed; (3) inability to conclusively relate aspects of treatment to the various effects observed; and (4) lack of

comparability of I and C groups in initial biological risk. Desite the quasi-experimental nature of the evaluation design a number of intervention effects were demonstrated and our understanding of the intervention model was greatly increased.

We hope to conduct follow-up studies of infants and families during the preschool period to examine persistence of effects and possible "sleeper" effects of intervention. In addition we also want to assess the treatment effects in the five families who completed the intervention but did not complete the outcome assessments.

## VI. TRAINING AND DISSEMINATION

### A. Training of Public Health Nurses

#### 1. Goals and Rationale

In Wake County, high risk infants are identified in the High Priority Infant Tracking Program (HPITP). The primary focus of HPITP is to ensure that high risk infants remain under medical care for the first year of life. Infants are referred to the Wake County Public Health Department, where nurses make home visits with a frequency based on their perception of need. While public health nurses include emotional care of infants and support of parents as goals, the primary focus of their home visits has been the physical care and health needs of the infants and screening for developmental problems. The Denver Developmental Screening Test (DDST) is administered at 3, 6 and 9 months AA to evaluate the child's developmental progress. Prior to FYT, parents were given information about the developmental levels obtained by the infants. However, there was no systematic way for utilizing the data to help parents encourage development.

Since Public Health Nurses were already visiting families of high risk infants and conducting assessments, their visits could be seen as an opportunity to incorporate the First Years Together (FYT) model. This method of service delivery takes advantage of an existing and ongoing program, making it cost effective, widely available, and flexible enough to meet individual needs of families.

One goal of the training component was to offer to all Wake County Public Health Nurses a knowledge of basic principles of infant development, special characteristics of high risk infants, an awareness of the needs of families of high risk infants, and familiarity with the

FYT model of intervention. A second goal was to provide a small group of nurses with intensive training in the techniques used by the FYT follow-up program for high risk infants, and to enlist the aid of this group to refine training procedures and the application of the model in the public health setting.

2. Initial Training for All Wake County Public Health Nurses

Eight 1 and 1/2 hour didactic sessions were held for 90 nurses as a means of presenting fundamental concepts of development and relevant information on the needs of families with high risk infants. Sequence of topics is listed below.

a) The FYT program and overview of the needs of high risk preterm infants and families.

b) Transactional model for viewing high risk development.

c) Characteristics of environments which facilitate infant development.

d) Parents' perspectives: working with families of high risk infants.

e) Cognitive and social-emotional development: a comparison of high risk and full-term infants.

f) Motor development of high risk preterm infants.

g) Language development in infancy: development, assessment and stimulation.

h) Crisis intervention.

3. Intensive Training for Small Group

a) Selection and description of small group

Nurses were informed of the opportunity to obtain intensive training in the FYT program and were asked to volunteer for the

project. The existing structure of the Wake County Health Department divides the nurses into teams according to the geographical location of the county which they serve, and volunteers were solicited for all teams. The intention was that the participating nurses would be able to share their in-depth knowledge and experience with their team.

The original proposal called for intensively training 20 nurses, with each nurse following two FYT families, preferably families living in the area to which their team was assigned. Due to a variety of factors, the number of nurses in the small group was reduced. Reasons included: reorganization of the health department resulting in several nurses being assigned to duties no longer involving maternal-child care; maternity leave; and moving from the area or resigning from the position. A further complication occurred due to an unequal distribution of client families across geographical locations. Consequently, some nurses had no families living in their service area, and some families had no available nurses in the training program to follow their cases. Some nurses joined the training program as it was ongoing. As a result, 18 nurses participated to some degree, and 10 met all the requirements of the intensive training and were presented with certificates at the completion of the program.

b. Intensive Training Program

The small group of nurses was offered a variety of experiences, including lectures, discussions, joint visits, individual consultation with FYT staff members, and analysis of infant assessment videotapes of self and others. The training phase culminated with nurses performing return demonstrations using the FYT model of follow-up services for high risk infants. Detailed descriptions of program components are

given below. Several components relied on the model as specified in a cnecklist (see Appendix C).

1. Baseline videotaping of nurses.

A small group of 23 nurses were individually videotaped during a session where they administered the Denver Developmental Screening Test to a child younger than three years of age. The Denver is the instrument currently used in nurse screening clinics and is required by the High Priority Infant Tracking Program. These sessions did not involve families enrolled in the FYT program. Nurses individually analyzed their videotapes after further training (see below).

2. Specialized training sessions.

Throughout the period of the grant, 10 sessions were offered to the small group using lecture, discussion, and workshop formats to explore specific topics in detail. Sessions varied from 1-1/2 to 3 hours in length, occurred over a year and a half and totaled 22 hours of training. Topics are listed below:

a) Orientation to FYT project including history and origin, program philosophy and characteristics, collaborative model development task. Team building activities included entire FYT staff with PHNs in intensive training group.

b) Training in the use of the Brazelton Neonatal Behavioral Assessment Scale, scoring procedures, and use as an acquaintance technique between parent and child. Practice sessions were scheduled individually as a follow-up with each nurse receiving 3-5 hours of observation and practice in administering the Brazelton.

c) Introduction to the administration of the Bayley Scales of Infant Development, scoring, typical child behaviors.

d) Modifications of the Brazelton Neonatal Behavioral Assessment Scale for use with preterm or sick infants. Differences in behavioral organization of preterm and full-term infants.

e) Involving parents in infant assessme.t including topics such as scheduling of sessions at times preferred by the parent and child; assessors' sensitivity to the child's interest, physical and emotional needs; sensitivity to parents' feelings and concerns during assessment; explaining to parents their role during assessment; soliciting parents' comments about the child's performance on similar tasks at home; explaining "ceiling" effects, the meaning of test items; etc. Also, a tour of Project Enlightenment facilities and explanation of service was given.

f) Philosophical principles of First Years Together including an overview of the program and its history; a question and answer session; solicitation of nurses' feedback on joint visits between nurses and FYT staff members; problems; etc.

g) Orientation to FYT Baby Corner Reosurce Center including materials available and procedures for utilization.

h) Building the parent-professional partnership and establishing rapport with families including: discussion of ongoing experiences with client families, and a review of a videotaped assessment session identifying components of assessment as intervention.

i) Providing intervention, including: parental support regarding emotionally stressful issues for parents of high risk infants; giving anticipatory guidance for developmental milestones;

suggested activities to facilitate development; review of a videotaped resource session identifying these features.

j) Improving assessment skills, including: critiquing the pre-training videotapes of performance using the Denver Developmental Screening Test; identifying common strengths and weaknesses; identifying strategies to improve performance on return demonstrations during visits.

3. Joint visits of assessor-intervener and public health nurse.

An integral feature of the intensive training was the individual instruction obtained through joint visits of a FYT assessor-intervener and Public Health Nurse. A minimum of six joint visits was required for completion of training. Nurses were asked to identify significant features of the visits by referring to the FYT Model Checklist (Appendix C). Discussions included procedural details, evaluation of the child's status, concerns about parental anxiety or stimulation, need for further services by child or parents, etc. A total of 128 joint visits were made to FYT families.

It was anticipated that initially the FYT A/Is would take the lead in modeling the A/I intervention process and procedures but that the lead would shift over time until the PHNs assumed the lead with FYT staff as consultants to the PHN. This occurred. However the PHN and FYT A/I were very much partners in conducting sessions from the beginning with each professional taking the lead in her own areas of expertise. For the return-demonstration phase of training (described later), PHNs conducted the sessions with FYT staff as participant-observers and consultants.

In some cases, nurses also participated in visits with resource specialists, physical therapists, or speech therapists. In addition to the actual visit, assessors and nurses were encouraged to consult before the visit and to process the visit and share their records afterwards. When necessary, professionals also consulted by telephone or in person to review cases and recommendations between regularly scheduled visits.

Where difficulties arose in following a particular client for the 6 visits, nurses were given the option to complete their visits with families who might have children of similar ages.

4. Review of baseline videotapes.

As a training technique, nurses were asked to review the videotape of their own pre-training performance in administering the Denver Developmental Screening Test. They were encouraged, but not required, to view the tape with a FYT assessor-intervener. Using the framework outlined by the FYT Model Checklist, nurses were able to identify strengths and weaknesses in their pre-existing style of assessment and intervention. Common strengths observed were: explanation of ceiling effects and scoring procedures, giving general praise to the caregiver, and providing information on safety. Areas most often omitted were giving reinforcement to caregivers for specific behaviors (linking caregiver behavior with child behavior), providing information on the child's temperament, and discussing common fears and concerns of parents with high risk infants. Strategies were discussed for improving performance as needed.

5. Return demonstrations.

After the completion of training, nurses were asked to perform

three return demonstrations on joint visits with assessors. Ideally, one would be performed at the 18-month adjusted age visit with a FYT client family. The other two were to be selected from the nurse's current caseload to include one infant aged birth to three months, and one infant aged three to twelve months. The FYT Model Checklist was used as a basis for providing feedback and analyzing performance. A total of 26 return demonstrations were performed.

4. Final Training for Wake County Public Health Nurses

As a result of feedback and discussion from the small group of intensively trained nurses, the following components were identified as most important to emphasize for the large group of nurses. Three one-and-one-half didactic sessions were conducted and are described below. In addition, a FYT curriculum manual was developed for further reference and additional training.

a. Didactic Sessions.

1) History and overview of First Years Together and collaboration with other agencies; need for services; videotape "Involving Parents in Infant Assessments," and FYT Model Checklist.

2) Emotional needs of parents of high risk infants; emotional reaction to birth of a high risk infant, concerns about health and development, feelings of competence, marriage issues, sibling issues.

3) Performing a modified Brazelton used as an acquaintance process with parent and child; special characteristics and concerns of premature infants; using the Denver Developmental Screening Test as a teaching tool and intervention technique.

b. First Years Together Curriculum Manual.

Content of Development.

Self study modules were developed to review the contents of development in an easy to read chart. The modules are organized according to chronological development of the child: development of the preterm infant following birth and hospitalization; 0-3 months, 3-6 months, 6-9 months, and 9-15 months. Chapters are divided into three parts: Infant development, Emotional development, and Family concerns. This manual is a major product of the FYT program. Its contents are described in further detail in the dissemination section (p. 115) and a copy is submitted with this report.

B. Training of Other Professionals

Pediatric medical students and house staff at Wake Medical Center received training from FYT staff on the use of the Bayley Scales with parents, how professionals can support the attachment process in preterm parents, attachment in infancy, assessment as intervention, the facilitative environment, use of the Brazelton Neonatal Assessment Scale with parents, and crisis intervention with parents of sick infants. Since the First Years Together videotape "Involving Parents in Infant Assessment" was completed in May, 1986, it has been shown to medical students and interns who rotate through the Neonatal Intensive Care Unit, a total of 13 per month.

Twelve graduate students in social work, guidance and counseling, school psychology and clinical psychology from The University of North Carolina at Chapel Hill and N. C. State University who had their placements at Project Enlightenment were exposed to the First Years Together program and four students who did parts of their placements with FYT, received training in infant assessment or intervention with families. In addition two students from a master's program in Special

Education and Public Health also received training through their placement in the SICC.

Twenty hospital nurses in NICU and newborn nursery and on the pediatric service received orientation to the FYT program plus 7 hours of training in normal and high risk infant development from the FYT staff.

C. Product Development

Five products of the FYT program have been developed for dissemination. Copies of the products are submitted along with this report. The products are described briefly below, and an accounting of their dissemination to date is included in the product dissemination section which follows. The five products are:

1. Baby Talk, a series of newsletters especially for parents of high risk infants was developed by the FYT project, designed to be given to parents monthly on their child's adjusted age birthdate. Each newsletter describes activities and behaviors of children at a particular age. The 19 newsletters cover homecoming to 18 months of age. They highlight development issues, adjustments to parenthood, and special concerns of parents of premature babies. Each issue also suggests age appropriate activities for infants and parents. The newsletters were developed to provide standard information to families of high risk babies about development, safety, discipline, etc., so that home visits could be focused on specific needs of the family.

2. A book, Come Play With Me: Handmade Toys for Infants, is ready for distribution. The book includes patterns and instructions for making toys and specifies their use to encourage development. The toys in the book were selected from a large number of toys developed by the

FYT materials consultant for use with FYT families. The toys were selected to be developmentally appropriate for infants of certain ages and are appealing, safe, easy to make, and inexpensive.

3. Three 11" by 17" color wall posters for parents on infant development provide information and guidance on communication styles of infants. The first, "Come Play With Me," is a baby's invitation for play. The second, "Lucky To Be Me," is a conversation between three babies in which each discusses his/her personality. The third, "I Love You More Than Words Can Say," is a baby's description of how actions speak louder than words. A fourth poster on language development is presently being produced.

4. "First Years Together: Involving Parents in Infant Assessment" is a nineteen-minute videotape demonstrating the importance of having parents actively involved in the process of assessing their infant's abilities. The videotape was designed with a professional audience in mind but the tape might also be useful for parents in orienting them to their role in the assessment and possibilities for taking an active part in the assessment of their child. Our feeling was that while most professionals understand the importance of conveying assessment findings to parents, sharing with parents the process of coming to those conclusions has not always received adequate consideration. Certain statements by parents on the tape poignantly address this need. The intent of the tape was to encourage professionals and students to think again or more critically about why and how parents can be meaningfully involved in assessing and understanding their children.

5. A curriculum has been developed by FYT to train professionals in the use of the First Years Together model. In the curriculum the

concepts of assessment/intervention, anticipatory guidance and parent professional partnership are explained and illustrated. The curriculum describes development of the pre-term infant from 35 weeks gestation through 15 months of age organized by developmental period and area, including gross and fine motor, cognitive, language and social development. For each developmental period and area behavior sequences are identified, assessment items from the Bayley Scales of Infant Development and the Denver Developmental Screening Test are described and the relationship to parenting practices outlined. Examples are included of ways professionals may relate parent actions to the child's development, and activities are suggested for parents' use in encouraging development. Special notes for preterms infants are included.

Organized by developmental periods, are sections which focus on families' concerns and feelings including adjustments to high risk parenting, parent-child interactions, couples' concerns and sibling issues.

D. Dissemination of Program Information and Products

1. Brochures and Articles

FYT developed two brochure one describing the FYT project and one describing the resource center for parents. These brochures have been distributed through mailings to area prenatal classes, nursing mothers' groups, obstetrical wards at area hospitals, area pediatricians, nursing staffs (newborn, pediatrics and NICU) at area hospitals, clinics at Wake Medical Center (pediatric and special infant), Lamaze classes, staff at Area Health Education Center, Public

Health Nurses, area daycare centers, area obstetricians and gynecologists, family practitioners, FYT Advisory Council and their various departments, WRAL television, TADS, N.C. Association for Infants and Families, Family Violence Prevention Center, additional area health professionals (doctors and nurses), Wake County Public School System offices and Wake County Board of Education, Wake Area Mental Health, NCEEP, Frank Porter Granam Child Development Center, Division of Disorders of Development and Learning in Chapel Hill, Early Childhood Intervention Program, Rehabilitation Services for Wake County, National Center for Clinical Infant Programs, Duke University Medical Center, University of North Carolina Medical School, Developmental Evaluation Clinics throughout the state and at all conferences, as described below, where the FYT program was presented.

Articles about the FYT project appeared in the Raleigh News and Observer, the Project Enlightenment Press, the Newsletter of the North Carolina Association for Infants and Families and the national publication of the American Medical Auxilliary, Facets.

2. Presentations

In addition to over 20 presentations to local programs and groups serving Wake County or the Research Triangle area, 15 presentations of the FYT program and/or the assessment as intervention model were made at statewide and national conferences or meetings. Groups addressed have included: N.C. Association for Infants and Families; N.C. Council for Exceptional Children; N.C. Association for Mental Deficiency; Maternal and Child Section of the N.C. Division of Health Services; N.C. Division of Health Affairs; N.C. State Department of Public Instruction; Developmental Disabilities Section of the N.C. Department

of Health Services, N.C. Mental Health, Mental Retardation and Substance Abuse Services Office of Prevention, N.C. Zero to Three Task Force; Parents of Premature and High Risk Infants International; Southeastern Eco-Community Psychology; U.S. Office of Special Education and Rehabilitative Services; National Center for Clinical Infant Programs and a National Zero to Three Task Force group.

3. Dissemination Products

The series of Baby Talk newsletters was originally developed for families in the FYT program and was distributed to them in a less complete form than the final product. These newsletters began receiving attention across the state and were distributed to every mental health center in the state through the Office of Prevention.

In addition to their use with our FYT families the handmade toys developed by the FYT materials consultant have been available to all Wake County parents through the Baby Corner of the Resource Center. Patterns and materials for toy construction were provided there. The toys have also been used with "Teens and Tots," a local program for adolescent mothers, and with our area Developmental Evaluation Clinic's home base intervention program. They have received statewide dissemination through North Carolina Department of Public Instruction sponsored workshops at their annual conference on Exceptional Children and at a special summer institute "Developing Competencies for Teaching Young Handicapped Children."

Posters have been distributed to FYT families, and through the Wake County Public Health Department's child health care clinics and home visiting programs over a two year period. In addition posters have been exhibited and distributed at FYT presentations.

The videotape, "First Years Together: Involving Parents in Infant Assessment," demonstrates the project's philosophy and techniques for providing anticipatory developmental guidance through infant assessment. It was sent to the National Zero to Three Task Force and an article about it appeared in their newsletter. In addition, the tape is available thorugh the N.C. Health Affairs Library and TAP-IN, the technical assistance resource for developmental disabilities programs across the state. Requests for the purchase of the tape are beginning to come to Project Enlightenment from across the country.

A mailing list of over 700 people and programs across the country has been developed and a description of the program and its products has been sent to the entire mailing list.

## VII. MAJOR PROJECT OBJECTIVES AS STATED IN ORIGINAL AND CONTINUATION PROPOSALS

Some major project objectives were stated in the original proposal (p. 38-39) and revised in the continuation proposal of December, 1984 (p. 33-36). These objectives pertained to services to be delivered to families and other caregivers of high risk infants and to training provided to PHN in high risk infant development and in the FYT model of service delivery to families of high risk infants. (Evaluation Objectives can be found in the Evaluation Section.)

Our service delivery model has been described in detail and service utilization and outcome data presented in previous sections of this report. Public Health nurse training also has been described in detail. While somewhat redundant, a brief accounting in terms of original and revised stated project objectives follows:

Project Objective #1: Assessment/Intervention

Intended: Thirty families will each receive 9 A/I's.

Observed: Twenty-nine families received an average of 11 A/I's.

Project Objective #2: Resource Visits

Intended: Thirty families will each receive 9 R sessions.

Observed: Twenty-nine families received an average of 6.9 R sessions.

Reason for Discrepancy: The original proposal called for 7 resource center visits to begin when the infant was 3 mo. AA. Revision of Objective #2 in the continuation proposal added 2 early home visits by the resource specialist. The change was made after some families were already too far along in the program to receive the early visits.

Project Objective #3: Parent Support Group

Intended: A monthly support/information group will be available for FYT families and other interested families of preterm and hi risk infants.

Observed: A monthly evening parent support/information group began Feb. 1985 and continues at present. In addition a daytime group meets weekly.

Project Objective #4: Individual Counseling

Intended: Individual counseling will be provided for families on request.

Observed: Counseling as a separate service within the project was not often utilized. However, a supportive counseling function was performed within A/I and R sessions. In addition, three families were referred for couples counseling outside the project.

Comment on Discrepancy: While this aspect of the program was not implemented in the way we had originally anticipated, we felt the needs of our families were well-served by the y the program evolved.

Project #5: Consultation to Alternate Caregivers in Childcare Settings

Intended: Consultation for purposes of translating PIEEP into alternate care settings will be provided to alternate caregivers as appropriate.

Observed: This aspect of the program was not developed in a formal way. Alternate caregivers in daycare settings seldom participated in A/I or R sessions. However, parents often chose to use the FYT staff as consultants in their decisions regarding selection of alternate care arrangements and ways to help alternate caregivers understand and care for their infants.

Comments: While limits of staff time and energy were partially responsible for less focus on this part of the program than originally intended, daycare was not a common alternate care choice for our group of very young infants. When alternate caregivers were family members or friends, they were more likely to be included in FYT A/I and R sessions.

Project Objective #6: Public Health Nurse Training, Didactic

Intended: A minimum of 40 PHN will be involved in a minimum of 20 hours of didactic training around issues of relevance to high risk infants and their families.

Observed: More than 90 PHNs have received didactic training from the FYT staff through their ongoing inservice training series. Sixteen and one-half hours of training has been provided to this group.

Project Objective #7: Public Health Nurse Training, Intensive

Intended: 15 PHNs will each receive 6 A/I observations, 6 hours of supervision and consultation, and a minimum of 3 hours of supervision and training in selection and utilization of appropriate resource materials.

Observed: 18 PHNs participated in the intensive training program and 10 completed the full program of intensive training. A total of 118 joint FYT-PHN training visits were made to FYT families. In addition, 17 joint FYT-PHN visits for training purposes were made to non-FYT families. Joint visits were preceded and followed by collaborative case consultation and training in the FYT A/I model of services to high risk infants. In addition records were shared and case consultations occurred between joint visits as necessary for collaborative service delivery.

In addition 20-25 hours of additional training in the FYT model of A/I were offered to the group of intensively trained nurses using lecture, discussion and workshop formats.

Comment: Several nurses had to withdraw from intensive training when changes in organization within the PH Department resulted in their no longer having maternal and child-health duties.

## VIII. CONTINUATION OF SERVICES, IMPACT ON EXISTING PROJECT ENLIGHTENMENT SERVICES, AND PLANS FOR FUTURE PROGRAM DEVELOPMENT

The First Years Together program has not only been successful at the level of service delivery, model development and product development, it has also been an important factor in helping Project Enlightenment gear its services toward younger children for years to come. Listed below are specific accomplishments which can be seen to be a direct result of HCEEP funding and which will ensure continued services to a high risk infant population.

A. Continuation and improvement of services to high risk infants and their families

1. Through a three-year grant received by Project Enlightenment from the Children's Trust Fund, N.C. Department of Public Instruction, aspects of the First Years Together Program will be continued for the next three years. This grant will allow continued affiliation between Project Enlightenment and the Wake Area Health Education Center to serve families of premature infants who are at risk for child abuse and neglect. Families will be identified through the Neonatal Intensive Care Unit and the Special Infant Care Clinic. Services available to them will include home and center based resource/counseling sessions, infant assessment, and a parent support group. While recruitment and basic services remain much the same as with the HCEEP FYT model demonstration, the assessment component will be accomplished in a special infant care clinic rather than a home based assessment provided by Project Enlightenment staff assessors/intervenors. The resourcing/counseling component will be Project Enlightenment based. The hospital based parent support group begun by FYT will be

continuing. A minimum of $49,949 will be available for these services during each of the next three years. The program will be provided by hospital and Project Enlightenment based staff.

2. The Special Infant Care Clinic at Wake Medical Center is being reorganized and there are plans to open a satellite clinic to make services more accessible to parents of high risk infants. A Ph.D. level clinical psychologist has been added to the hospital staff in pediatrics. She is working primarily in NICU and the Special Infant Care Clinic.

3. Public Health Nurses trained in the First Years Together model will continue to use skills and knowledge attained to more effectively serve families in their High Priority Infant Tracking case load. FYT staff remains available in the community to provide additional inservice training to the Public Health Department and other community agencies.

4. Benefits from closer collaborative relationships among all agencies within our community involved in the High Priority Infant Tracking Program will continue.

B. Impact on Project Enlightenment Services

1. The Baby Corner remains a part of the Project Parent Teacher Resource Center (PTRC). The books, kits, tapes, slides and films and instructional units for homemade toys in the Baby Corner remain available to parents, teachers, PE staff and other community professionals involved with serving infants.

1. Three staff members who were part of the First Years Together program and developed a high level of expertise in serving infants, their families, and child caregivers remain on the staff of

PE in various capacities. Other staff remain in the community and are available as consultants. In addition, PE staff who were not part of the FYT program per se, learned a great deal about serving infants and families through the FYT's program's existence and the resources acquired. As a result, the expertise developed remains available to PE. More parents and infants are being referred to PE as interventions at an earlier point in time become available. In addition more preventative activities in the form of parent and teacher workshops and courses are available. During the 1986-87 year, the following new courses and workshops are being offered as part of PE's ongoing training efforts:

a) "The First Wondrous Year of Life", b) "Living with a Toddler", c) "Creating a Learning Environment for Infants and Toddlers", d) "Program Development for One and Two Year Olds", e) "Fun and Games with Your Baby - Three to Nine Months."

3. Through a two-year grant received in September 1986 from the Junior League of Raleigh for $47,000 the PE's PTRC will be expanded and developed into a model program for the state and region. This grant will allow for computerization of the Center and for expansion of existing resources to better serve handicapped preschoolers. In addition, several parent education publications and a manual for development of a resource center will be prepared and widely disseminated. Resources for infants and their families from the FYT Baby Corner, as well as products developed under the FYT HCEEP grant, will be an important part of dissemination under the Junior League grant.

C. Future Program Development

Plans are in place to attempt to secure additional funding.

1. The data collected from the FYT program will serve as a data base for future research. Plans are underway to help secure funding to (a) further analyze the data already available; and (b) follow-up on infants served through school entrance to evaluate the long-term impact of the early intervention.

2. The curriculum and other products developed can serve as the basis for widespread training efforts. Plans are already underway in conjunction with the N.C. Department of Human Resources to write a proposal to implement a statewide training model program for multidisciplinary early intervention service providers. The FYT products will serve as an integral part of this training program.

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# APPENDICES

# APPENDIX A

## Parent-Infant Individualized Educational Plans

First Years Together
Developmental Plan
For: DB 9 months Adjusted Age

My strengths are:

I've gotten to be quite sociable! I've always liked a lot of holding and cuddling and I've always turned to look at you, Mom, when I heard your voice. Now I show you - by the way I smile and laugh and reach out - that I've expanded my list of favorite people. I just love watching my brother! And I'm good at getting him to keep playing with me by smiling back at him. I'm also showing you more that I'm interested in the world and how to make things happen. I like to look at pictures and I like to make sounds. I shook the bell again and again to make it ring. It's fun to make things happen! I'm also trying hard to stand up - I'll need your help there.

Thank you for:

Thank you for talking to me - that keeps me listening and interested and learning about the people and things in my world. Thanks for playing with me and smiling at me. I've learned to trust you and enjoy people because of your smiles and love. Thank you for teaching Duke how to play with me and entertain me - it's more fun this way than when he used to try to hit me (I think he's not so jealous now). Thanks for watching me carefully as I grow. It shows how much you care for me when you worry about things like my painting my toes and getting stiff when I try to stand. Thanks for being my mom!

How you help me:

By doing my exercises the physical therapist gave me. These are so important to encourage the "right" kind of movement. Encourage me to reach by offering me toys. If you help my shoulder, this makes reaching easier. When I am by myself make sure there are toys in my reach that I can work to get and then play with by myself. You help me learn to talk by reading to me. I will watch your mouth and see how you form words. I love to listen to you talk to me. Repeat the sounds I make and show me how much you love to hear them by clapping and talking back to me. Use my name when you play with me so I will begin t recognize it and look up when you call it.

Soon I will be:

-Holding something in each hand for a short while, and bang them together. I may also try to reach for a third block.

-Understanding the meaning of words, "Where is the ball?" "Let's eat," etc. It is helpful if you repeat the same words over and over. I like the repetition.

-Soon I will use the same word over and over. I like the sound and will be so glad when you clap and respond to my word that I will repeat it again and again!

-My memory will be longer. I will remember to uncover a toy and then play wit the toy.

First Years Together
Developmental Plan
For: 3 months Adjusted Age WD

MY STRENGTHS ARE: I love people, especially my mom! I like to watch faces and listen to voices and I usually respond with smiles and talk of my own. I'm also very watchful of certain toys and objects in the house - the fan really "turns me on!" And I like to talk about what's going on, too! I can make a lot of sounds and sometimes I have long conversations with my dad. I know how to take turns in a conversation: I say something, then the other person, then me again. I've even started to laugh! I've also developed a good routine. I sleep through the night. I'm a pretty easy-going guy. And don't forget that I tolerate these exercises pretty well. I even think I like them.

THESE THINGS STRESS ME: Like I said, I'm pretty easy-going so I'm not stressed by many things. Like all babies, I get irritable when I'm tired or sleepy; sticking to my regular schedule helps out there. It's still hard for me to support my head when I'm being pulled up to sitting but we're working on it. It's also an effort to relax my hands and arms enough so that I can grab things, but we're working on that, too.

HOW YOU HELP ME: You help me relax by stroking my hands. This encourages them to be more open and then I will be able to reach and hold onto toys.

When I am laying on my tummy, encourage me to raise on my arms, but my chin needs to be tucked under (demonstrate). Placing toy or mirror under me may encourage this.

My mobile should be placed above my tummy so I will not have to crane my neck to see it.

You are doing such a great job of meeting my physical and emotional needs. You love me and talk to me and give me wonderful encouragement. Keep it up!

SOON I WILL BE:

My hands will open more and I will try to grasp objects. I will spend long periods of time looking at toys I am holding in my hands. I will soon learn that my hand is a part of me!

Reaching for my toes especially in side-lying position, you can help by curling me up and helping me find them.

I am learning about the world and look at things I am interested in in the mirror and my own reflection too. Soon I will be fascinated by small objects.

I will be making efforts to hold my body in a sitting position.

I will become more aware of strangers and strange places; this means I know who my family is and that other people are different. I may need comfort and support when I get anxious.

First Years Together
Developmental Plan
For: 6 Months Adjusted Age BM

MY STRENGTHS ARE: I'm interested in what makes things happen, like looking for the noise-maker inside the bell. I explore so I can find out how I can make more things happen.

I listen when you talk. I'm ready to start linking names and objects, like knowing Ma-Ma is your name, and ball is that round thing that rolls. Label and call things by name; this will help me.

I pay attention when you play and talk with me for a long time and I don't get upset when you change activities.

THESE THINGS STRESS ME:

I am beginning to understand that if a toy falls, it is still there, but I am not sure what to do about it. You help me learn this by playing games: peek-a-boo, hide-an-object, under a blanket, etc.

Even though I like my walker, it stresses and encourages me to use the wrong muscles. Preemies need encouragement to curl and bend. I may not be as happy but it is better for my development if I lay and play on a pallet on the floor.

HOW YOU HELP ME: You provide interesting things for me to play with. My favorite is you. I like to watch you. When you hold me and talk to me, it makes me so happy.

I am interested in what makes things happen. If I touch something (like a rolypoly), what happens? Did I do that!

Keep talking to me. Imitate what I do or say and soon I will begin imitating you.

I like to play games over and over (peek-a-boo). This is how I learn. Keep playing with me.

SOON I WILL BE:

Soon I will be sitting up without support. This will give me more chances to use my hands.

I may become fearful of strangers and strange places. I recognize you are my mommy and find it scary when you leave me.

I am interested in feeding myself. Give me a spoon of my own when you feed me. I will play with it and hopefully will let you use yours to get food to my mouth.

I need to practice using my fingers. Give me peas, cheerios, etc., one at a time on my feeding tray. This will make me happy. Check my house for safety. Electrical outlets should be covered, wires and cords out of my reach. As I figure out how to pull up, make sure my house does not have furniture I can pull over. I do not know that I can get hurt, so you have to help protect me.

First Years Together
Developmental Plan
For: 15-1/2 Months AA RH

MY STRENGTHS ARE: I demonstrate superior planning and speed for my age when doing visual-spatial activities such as puzzles, pegboard, cubes interp. Maybe visual-spatial talents run in our family! I approach new activities and toys with an attentive curiosity and eager enjoyment that make me a good learner. I am beginning to combine words into phrases and sentences such as "What's that?" and "Who's that?" These first sentences illustrate my eagerness to find out about my world. If I keep this curiosity alive I will always be a good learner.

THANK YOU FOR: Playing with me and talking to me to help me learn about the world. My parents are my first and most important teachers.

Thank you for fixing a safe and interesting play area for me where I can enjoy my freedom to explore and move! Room to move is really important for us toddlers. Thanks for chosing sturdy, appropriate toys for me and for having a special place for them so that I can get to them easily and also begin to learn the discipline of putting them away after I play.

Thank you for taking me out into the world to see new things and places. You've worked hard getting a driver's license, and to get the car ready so we can go more places.

HOW YOU HELP ME: You help me when you play the "What's that, who's that?" games with me. This is how I learn names of people, places and things in my world. This is a time of magical curiosity for learning names of things and how they work. It is this same curiosity that will help me be a good student when I am in school. You encourage this hunger to learn by playing my games - naming off the things I see. If you become excited about what I say and do, then I will try harder. I really like to hear you talk to me, or clap if I do something well. This is a prime learning time for language, and you can help me by playing word games with me. When we ride in the car describe wnat you see, "Look, Rob, there is a truck!"

SOON I WILL BE: Naming my favorite objects. I'll be saying words like ball, cup, and trying to say my brother's name. Repeat these words to me using the same name over and over. I may like to try to make animal sounds.

-Following directions you give me, such as "Hand me the cup," "Show me your shoes," "Give me your shirt."

-Using words to make my wants known. This is so helpful. We will be better able to understand each other's wants and needs.

-Naming pictures out of the books you read to me. You can make a book of my own pictures of my favorite things. I will love having a book of my own - just for me.

APPENDIX B

Importance Ranking of Intervention Goals (Family)

What do you hope happens for you in our visits? Chose 3 as most important for you, 3 as next most important and so on.

| | Most Imp. | More Imp. | Less Imp. | Least Imp. |
|---|---|---|---|---|
| 1. I want to talk about my feelings. | | | | |
| 2. I want professionals to listen to what I know about my child and what I want for my child. | | | | |
| 3. I want to know better what my child can do. | | | | |
| 4. I want to know better my child's personality and style. | | | | |
| 5. I want to know more of what to expect next from my child. | | | | |
| 6. I want to learn ways to teach and play with my child. | | | | |
| 7. I want to be better able to take care of my child (comforting, feeding, etc.) | | | | |
| 8. I want to know who can help my child or me. | | | | |
| 9. I want to be less worried about my child. | | | | |
| 10. I want to see how being a parent can be fun. | | | | |
| 11. I want to see how I am important to my child's development. | | | | |
| 12. I want to be more self-confident as a parent. | | | | |

## APPENDIX B

### Session Outcomes (Family)

What happened for you today?

| | Did Not Happen | Happened Some | Happened A Lot | Wish More of this Happened |
|---|---|---|---|---|
| 1. I talked aobut my feelings | | | | |
| 2. I talked about what I know my child needs and what I want for my child. | | | | |
| 3. I know better what my child can do. | | | | |
| 4. I know better my child's personality and style. | | | | |
| 5. I know more of what to expect next from my child. | | | | |
| 6. I learned things to do with my child. | | | | |
| 7. I'm better able to take care of my child. | | | | |
| 8. I know who can help my child or me. | | | | |
| 9. I'm less worried about my child. | | | | |
| 10. I saw how being a parent can be fun. | | | | |
| 11. I saw how I am important to my child's development. | | | | |
| 12. I'm more self-confident as a parent. | | | | |

# APPENDIX C

## FYT Model Checklist

As you observe the First Years Together intervention session, place a checkmark when you observe any of the following components occur. Try to give an example observed for at least two items in each category.

I. Parent-Professional Partnership

-----Professional asks parent/listens to parent share observations about the child.
Example:

-----Professional asks parent/listens to parent tell what they want for their child.
Example:

-----Professional asks parent/listens to parent tell what they want for the family (spouse, sibling).
Example:

-----Professional asks parent/listens to parent tell what they want for themselves.
Example:

II. Assessment as Intervention

-----Professional explains/comments about the testing procedure: parents' role, ceiling items, adjusted age.
Example:

-----Professional explains the meaning of the test items.
Example:

-----Professional explains the sequence of development for test items, emphasizing what the childhas already accomplished.
Example:

-----Professional points out a strength of the child.
Example:

-----Professional relates a "passed" test item to the parents's behavior or caregiving.
Example:

III. Anticipatory Guidance

-----Professional gives the sequence of development for a test item, emphasizing what behavior will follow.
Example:

-----Professional explains how a parent may facilitate an upcoming development.
Example:

-----Professional discusses how an upcoming development may affect parent-child relationship.
Example:

-----Professional suggests games, frolic play, or toys the child may enjoy in the next few months.
Example:

-----Professional relates upcoming development to safety needs.
Example:

-----Professional models caregiving or problem solving for parent.
Example:

IV. Parent Support

-----Professional alerts parents to common emotional issues in parenting a high risk infant and gives an opportunity for discussion.
Example:

-----Professional relates developmental gains to the parent's behavior and caregiving.
Example:

-----Professional praises parent for caregiving, general.
Example:

-----Professional praises parent for specific behavior observed during the visit.
Example:

-----Professional comments on how the temperament of the child affects the parent.
Example:

APPENDIX D: Examiner's View of Behavior

| | Circle one: | | | | |
|---|---|---|---|---|---|
| 1. This child actively engaged with me during the exam/observation. | 1 Agree | 2 | 3 | 4 Disagree | |
| 2. Child appears to become upset easily. | 1 Agree | 2 | 3 | 4 Disagree | |
| 3. Child had many mood changes during exam/ observation. | 1 Agree | 2 | 3 | 4 Disagree | |
| 4. This is a very inactive child, little movement seen during exam/observation. | 1 Agree | 2 | 3 | 4 Disagree | |
| 5. Child appears interested in toys, objects. | 1 Agree | 2 | 3 | 4 Disagree | |
| 6. This child showed little endurance during the exam/observation. | 1 Agree | 2 | 3 | 4 Disagree | N/A |
| 7. The child was generally happy, in a good mood. | 1 Agree | 2 | 3 | 4 Disagree | |
| 8. This is a very active child, hard to still to examine/observe. | 1 Agree | 2 | 3 | 4 Disagree | |
| 9. Child's response to examiner/observer generally negative. | 1 Agree | 2 | 3 | 4 Disagree | N/A |
| 10. If upset during exam/observation, this child could be consoled easily. | 1 Agree | 2 | 3 | 4 Disagree | N/A |
| 11. The child was unhappy/irritated with the exam/ observation. | 1 Agree | 2 | 3 | 4 Disagree | N/A |
| I think this child would be easy to care for. | 1 | 2 | 3 | 4 | |