An Infant and Toddler Feeding Group Program

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At Children's Medical Center of Dayton, Ohio, several children whose early oral feedings were delayed or especially difficult due to physical problems became resistant and exhibited aversive behaviors when oral feeding was introduced. A support group, which lasted for 9 months, was initiated with six of these children and their families. In the group, professionals provided the families with general information about nutrition and behavior and with individualized intervention strategies for the nutritional and behavioral management of their child's specific problems. The families contributed mutual support and problem solving strategies through the group process. Each child demonstrated progress during the 9-month period, which suggests that intervention in a support-group format can be a successful alternative to an individual inpatient program for eating disorders in some young children.

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Non-dysfunctional newborns are born with the ability to suck and swallow, and they coordinate sucking bursts with pauses to breathe. As the infants mature during the first 4 months of life, these early reflexive behaviors disappear, and eating becomes a learned behavior (Illingsworth & Lister, 1964). Feeding an infant is one of the first social contacts between parent and child. As reflexive feeding is replaced by voluntary, controlled eating, the nondysfunctional infant begins to associate eating with interactive pleasure and satiety. When the normal feeding progression of the infant is disrupted, feeding problems may occur (Illingsworth & Lister, 1964).

Some infants surviving long-term intensive care unit (NICU) experience a variety of medical complications that impair the development or interrupt the progression of their early feeding behavior. These complications often result from extreme prematurity and include frequent or long-term intubation, a prolonged nothing-by-mouth feeding status for medical reasons, and moderate to severe bronchopulmonary dysplasia. The need to identify infants who have feeding problems resulting from medical complications and to provide intervention strategies to their families increases with the growing survival rate of high-risk infants in NICUs.

Without intervention these feeding problems may lead to behavioral changes and long-term eating disorders, resulting in poor growth, the use of tube feedings, or both. Behavioral changes may include rejection of all food or of certain foods or textures, gagging and vomiting, aversive behavior with feeding, disturbed parent-infant interaction, or failure to thrive (DiScipio, Kaslon, & Ruben, 1978; Geertsma, Hyams, Pelletier, & Reiter, 1985; Sheagren, Mangurten, Brea, & Lutostanski, 1980; Vohr, Bell, & Oh, 1982).

At Children's Medical Center in Dayton, Ohio, the authors initiated an outpatient group program to provide support, education, and specific intervention strategies for families who had infants or toddlers with eating disorders resulting from neonatal medical problems. The goal of the program was to help parents normalize their child's oral nutritional intake while maintaining or improving each child's growth pattern.

Literature Review

Very few articles have been published on feeding problems related to extreme prematurity and the prolonged hospitalization of infants. A primary reason for this dearth of information is that, until 10 years ago, the survival of such infants was rare. As more of these extremely premature and chronically ill infants survive, the population of infants with feeding disorders will continue to increase.

In the literature we reviewed, we found seven articles that described six programs for care of oral-aversive infants and children—children whose medical complica-
ments had delayed early feeding. One article was found that described a group support program for families of children with chronic health problems.

DiScipio et al. (1978) described children whose early feeding behavior was disrupted by physical or medical trauma. The avoidance behaviors the children developed were termed conditioned dysphagia. Results of the behavior modification program were reported for 3 children. Treatment was carried out by a professional caregiver with 1 child and by the family with the other 2 children.

Geertsma et al. (1985) and Sheagren et al. (1980) wrote about successful feeding programs with 1 and 2 infants, respectively, for whom disrupted feeding was the result of severe necrotizing enterocolitis requiring complicated management. These infants were less than 6 months corrected age (i.e., chronological age adjusted for prematurity) and were treated for resistance to nutrition and oral feeding before their initial discharge. Treatment was carried out by nursing staff using oral motor intervention and behavioral intervention. Families were not involved in either program.

The program described by Handen, Mandell, and Russo (1986) involved 7 chronically ill children with severe congenital anomalies. These children ranged in age from 10 months to 66 months. Six were treated as inpatients for 2 to 3 months; one was treated as an outpatient. The behavioral program was carried out by a "limited number of people (including parents)" (p. 52) who were trained to conduct the program. Nutritional management consisted of several small meals per day.

Blackman and Nelson (1985b) described a program involving 10 children, newborn to 40 months of age, who were being fed through a gastrostomy tube. Four infants were treated as inpatients, with the length of treatment ranging from 2 weeks to 2 months; 5 were treated as outpatients, with the length of treatment ranging from 4 months to more than 31 months. In another article, Blackman and Nelson (1987) discussed results of their program with 7 additional children. A professional caregiver began the oral feeding and behavior management program with each child and then taught the child's mother to carry out the same intervention methods. Nutritional management of tube feedings (to normalize the schedule and prepare the child for the introduction of oral intake) was described briefly for one inpatient case. We also reviewed a videocassette by the same authors (Blackman & Nelson, 1985a) to further evaluate this program for the population of children at Children's Medical Center. The nutritional management of the tube feedings was explained in more detail in the videocassette and served as a guide for the nutritionist. To initiate the acceptance of oral feeding, the program involved some forced feedings through physical restraint of the child.

Briggs et al. (1987) reported on a children's program followed by nurses in home health care. A multidisciplinary assessment and treatment model was described through a case study of a 40-month-old child on all-oral feedings who was not growing optimally. The child's diet consisted of mild foods and a few pureed foods. The child was treated in the home by the nurse or the mother using a care plan outlined by the team. Additional professional caregivers were consulted for specific problems, and changes in the care plan were made accordingly.

Baley, Hancharik, and Rivers (1988) described a support-group program for families of children with severe bronchopulmonary dysplasia. They observed that the families seemed to benefit from meeting with each other and with the staff involved in the care of their children.

The Program

Rationale

The rationale for beginning an outpatient, parent-child group program involved three considerations. The first of these was financial. Inpatient treatment or outpatient individual treatment can be costly. Most of the families concerned had financial constraints as a result of their child's expensive early medical problems. The second consideration was the parents themselves. Several of them were acquainted with each other through their children's initial hospitalizations or their visits to the NICU follow-up clinics. They were asking what other parents were doing about these eating problems. They were also unwilling to relinquish to professionals their role as the primary feeder and caregiver. Third, we hoped to improve the efficiency of our follow-up with these children. Our approach to the problems in follow-up had been disorganized; we saw the children individually in the NICU follow-up clinics or in individual consultations, and each professional made intervention suggestions based on her own area of expertise. The suggestions from different clinicians were sometimes conflicting, and there was often considerable overlap. Two of the professional team members had previous experience with group interaction and group support for mutual problems and experiences. By seeing the children and their families in a support-group format, the professionals could organize the approach to each child's problem and draw on the patients' suggestions as well.

Participants

A group of 20 children and their families were identified as possible candidates for the group program. All of the children had been followed regularly by either the Developmental Assessment program or the Bronchopulmonary Dysplasia Clinic program at our center, as well as by their private physicians. These families were sent questionnaires to explore their interest in a group program; 14 questionnaires were returned. A team of professionals
ders due to disruption of normal feeding in infancy). Eleven children were deemed appropriate for the program. Approval for their participation in the group was secured from the clinic physicians as well as from the children’s private physicians.

The 11 families were then invited to an organizational meeting to discuss mutual concerns and needs. Four families came to the first meeting, 1 family joined the group in the second month, and another family joined the group 5 months later. The families decided to meet in the evening once a month for 9 months. Meeting in the evening was important so that working parents, especially fathers, could be included.

Table 1 describes pertinent characteristics of the 6 children in this program. It is noteworthy that Patients 1, 2, 4, and 5 had developed bronchopulmonary dysplasia in the newborn period. Patients 3 and 6 had significant congenital anomalies. All of the children had physical problems that interfered with their early reflexive feeding behaviors.

At the beginning of the program, the parents completed a questionnaire (to describe the child’s typical feeding behavior) and a 3-day feeding record. Information from the questionnaire included the family’s description of the child’s eating problem, a description of the usual environment in which the child was fed (i.e., the room used, the chair used, with the family or alone, at routine times or on demand), and a description of the usual emotional climate at feeding times (e.g., stressful, quiet, hectic, tense). Information from the feeding record included the same information about room, chair, and atmosphere plus a description of the food offered, the amount of food actually eaten, who fed the child, and the method of feeding (e.g., gastrostomy, spoon, fingers).

This information was reviewed by the professional team to identify problems and to develop individual problem lists for each child. Examples of the problems included inadequate intake by mouth, refusal of textured foods, and an inconsistent or disruptive environment for feeding. Based on the individual problem list, intervention strategies were developed for each child and reviewed with the parents. Individualized intervention strategies included suggestions for both nutritional and behavioral management. Some specific examples of nutritional management included

1. Normalization of tube-feeding schedules to approximate a normal daily meal schedule.
2. Manipulation of the concentration and volume of formula as eating by mouth improved.
3. Gradual addition of texture to strained food to improve the child’s tolerance and acceptance of textured foods.
4. Increasing calories in the foods currently being accepted by the child.

Some examples of behavioral management included

1. Food by mouth offered in a consistent environment (i.e., in the high chair in the kitchen) before tube feedings.
2. Tube feedings given in a neutral, nonsocial environment.
3. Persistence in the feeding situation (not giving up when the child becomes resistant).
4. Development of appropriate rewards for the child’s compliance with eating.
5. Development of appropriate and reasonable consequences when the child fails to comply with eating.

A time for parents to discuss problems and successes with the other parents was an important part of each meeting. As each child’s eating improved or changed, parents submitted additional feeding records to track the changes and to provide information for the professional team. Additional nutritional and behavioral management strategies were given as needed.

Short informational sessions were provided by the professionals on topics chosen by the families. Some of these sessions covered problems that may lead to eating

<table>
<thead>
<tr>
<th>Subject</th>
<th>Sex</th>
<th>Age (Months)</th>
<th>Gestation (Weeks)</th>
<th>Medical History</th>
<th>Method of Feeding</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Male</td>
<td>24</td>
<td>40</td>
<td>Respiratory distress syndrome, bronchopulmonary dysplasia</td>
<td>Gastrostomy tube</td>
</tr>
<tr>
<td>2</td>
<td>Male</td>
<td>18</td>
<td>32</td>
<td>Respiratory distress syndrome, bronchopulmonary dysplasia, small for gestational age</td>
<td>Nasogastric tube, oral</td>
</tr>
<tr>
<td>3</td>
<td>Female</td>
<td>13</td>
<td>40</td>
<td>Cleft palate, micrognathia, orthopedic anomalies</td>
<td>Nasogastric tube, oral</td>
</tr>
<tr>
<td>4</td>
<td>Male</td>
<td>27</td>
<td>30</td>
<td>Respiratory distress syndrome, bronchopulmonary dysplasia, small for gestational age</td>
<td>Nasogastric tube, gastrostomy tube</td>
</tr>
<tr>
<td>5</td>
<td>Male</td>
<td>24</td>
<td>40</td>
<td>Diaphragmatic hernia, bronchopulmonary dysplasia</td>
<td>Gastrostomy tube</td>
</tr>
<tr>
<td>6</td>
<td>Female</td>
<td>12</td>
<td>35</td>
<td>Respiratory distress syndrome, neuromuscular disorder</td>
<td>Oral</td>
</tr>
</tbody>
</table>
disorders in infants, such as poor early feeding interaction and inadequate oral motor development. Other sessions addressed the general theory of behavior modification and management, nutrition in young children, and suggestions for recipes that may appeal to problem eaters. The informational sessions were useful as a tool to generate discussion.

A snack time was included in each meeting to provide opportunities for the professionals to observe each child’s eating behavior and oral motor function. Parents brought the snack for their child, which included food and drink typically accepted by the child. Although the professionals expected the children to demonstrate oral motor dysfunction during this snack period, all of the children were judged to have adequate oral motor function with the foods they normally accepted; their range of accepted textures, however, was extremely limited. One problem encountered with snack time was that the group atmosphere was distracting, and few of the children ate well or ate in the usual manner reported by their families. Consequently, we proposed that any necessary individual assessment of oral motor function be done outside of the group.

Throughout the program, the families were asked to write about their child’s eating problems. Family members included a variety of their own current and past feelings in their accounts, and sharing these feelings generated lively discussions during the group sessions. Several of the feelings shared by the families are summarized in the following statements:

1. In view of the crises they had been through, parents perceived an eating problem as relatively unimportant. Four of the six families had been told on at least one occasion during their child’s initial hospitalization that their infant would probably die.

2. In the beginning, the parents did not understand what their child’s eating problem was or why it was considered important.

3. Family and friends were usually supportive but often unhelpful in dealing with the eating problem. They had even less understanding of the problem than the parents did. One mother wrote, “Of course everyone tried to get him to eat. It seemed as though we were trying to get the princess to laugh; one trying to out-do the other! I began to hate the word FOOD.”

4. Dealing with an eating problem is difficult. Having a baby is supposed to be fun. Another parent wrote, “This child is WORK!”

The following points are important in summarizing the group method used in this program: An outpatient, individualized approach was used; parents were the only food providers and feeders; the professional team members provided informational presentations, intervention strategies for nutritional and behavioral management, and supportive suggestions; and the parents were provided with a forum for mutual support and problem solving.

Results

The feeding records were analyzed at the start and end of the group’s meetings. Each child’s intake was calculated based on the parents’ estimate of the amount of food eaten. Total intake was converted to kilocalories per kilogram and broken down to percentage fed by tube and by mouth for each child. Weight velocities (average rate of gain in grams per day) were calculated for each child for the time the child attended the group and for an equal length of time before the child entered the group. These results are summarized in Table 2.

Table 2
Changes in Feeding Behavior Among Children in the Feeding Group

<table>
<thead>
<tr>
<th>Subject</th>
<th>Average kcal/kg Per Day</th>
<th>Method</th>
<th>Type</th>
<th>Weight Velocity (g/day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>118</td>
<td>80% gastrostomy tube</td>
<td>28 cal/oz formula feeding</td>
<td>7.1</td>
</tr>
<tr>
<td>2</td>
<td>170</td>
<td>100% by mouth</td>
<td>20% table food</td>
<td>3.3</td>
</tr>
<tr>
<td>3</td>
<td>138</td>
<td>100% gastrostomy tube</td>
<td>Blenderized tube feeding</td>
<td>3.6</td>
</tr>
<tr>
<td>4</td>
<td>na</td>
<td>Nasogastric tube/ by mouth</td>
<td>na</td>
<td>3.8</td>
</tr>
<tr>
<td>5</td>
<td>93</td>
<td>85% gastrostomy tube</td>
<td>24 cal/oz formula table food</td>
<td>3.3</td>
</tr>
<tr>
<td>6</td>
<td>121</td>
<td>100% by mouth</td>
<td>15% table food</td>
<td>8.6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Subject</th>
<th>Average kcal/kg Per Day</th>
<th>Method</th>
<th>Type</th>
<th>Weight Velocity (g/day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>126</td>
<td>0% gastrostomy tube</td>
<td>100% table food</td>
<td>1.5</td>
</tr>
<tr>
<td>2</td>
<td>170</td>
<td>100% by mouth</td>
<td>100% table food</td>
<td>4.9</td>
</tr>
<tr>
<td>3</td>
<td>128</td>
<td>92% gastrostomy tube</td>
<td>Blenderized tube feeding</td>
<td>5.8</td>
</tr>
<tr>
<td>4</td>
<td>na</td>
<td>Nasogastric tube/ by mouth</td>
<td>na</td>
<td>5.2</td>
</tr>
<tr>
<td>5</td>
<td>104</td>
<td>100% by mouth</td>
<td>100% table food</td>
<td>-0.7</td>
</tr>
<tr>
<td>6</td>
<td>120</td>
<td>100% by mouth</td>
<td>100% table food</td>
<td>9.7</td>
</tr>
</tbody>
</table>

Note. na = not available.
Patients 1, 3, and 5 were primarily fed by gastrostomy tube when the group began. Patients 1 and 5 were taking all table foods by mouth and liquids by cup. Both patients had increased caloric intake; however, both patients' weight velocities decreased. By the end of the group, Patient 3 had begun taking some table foods by mouth and accepting fluids by cup. Her weight velocity increased while her average caloric intake decreased. Patient 2 had excellent caloric intake by mouth at the start of the group, though his nasogastric tube had been discontinued 1 week before the group began. He tolerated only a few soft table foods and gagged on textured foods. By the end of the group, he was eating all normal table foods. Patient 4 was eating food and liquid by mouth and by nasogastric tube; however, amounts could not be quantified because no feeding records were submitted by his parents. Although positive changes in his eating behavior could not be identified, his weight velocity did increase during the time he and his family participated in the group. Patient 6 maintained her caloric intake throughout the program and improved in the textures she would accept from only strained food to all normal table foods. By the end of the group, her weight velocity had also improved.

**Discussion**

The information presented in this report is based on a small group of infants and their families. Early feeding success or failure is based on many variables, some of which are known and many of which are unknown. The decision to provide intervention in a support-group format was made on the basis of the expressed needs of the children's families. The children were judged to be developmentally and medically ready to progress in oral feedings but had not done so. The families wanted to provide the intervention and were highly motivated, as demonstrated by their joining the group and attending group meetings.

All of the children in our program were 12 months of age or older and had been home, with their families providing their feedings. Their behavioral resistance to oral feedings was much more involved than that of the infants described by Geertsma et al. (1985) and Sheagren et al. (1980). In contrast to participants in five of the six programs for oral-aversive children that we reviewed (Blackman & Nelson, 1985a; DiScipio et al., 1978; Geertsma et al., 1985; Handen et al., 1986; Sheagren et al., 1980), none of the children in our program were treated for their feeding problems as inpatients. The families stated that they wanted to keep their children at home and help each other. Baley et al. (1988) observed that families benefited from meeting with each other.

As with the six programs reviewed, a comparison group was not employed. Attempts were made to obtain records and measurements for the children whose families had chosen not to participate, but the few records and measurements submitted were incomplete and could not be matched to the children in the support group program. It was also difficult to assess what effect the passage of time had on the children in the group, apart from group intervention.

**Summary**

Our group program was an outpatient individualized program with the parents as caregivers. Guidance for nutritional and behavioral management was provided by the professional team. The parents provided mutual support and problem solving for each other. This program is an alternative approach for this difficult and unique population. The results of the initial feeding group at Children's Medical Center suggest that the interaction of parents and professionals in a support-group format can be a successful approach to early eating problems in children.

**Acknowledgments**

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**References**


