

Bridging the Gap between Family-Based Treatment and Family-Based Research in Childhood Obesity

Joseph A. Skelton, MD,^{1,2,4} Megan B. Irby, MS,^{1,2,4} and Bettina M. Beech, DrPH, MPH^{1,3,4}

The treatment of pediatric obesity has been greatly informed by research as well as by expert opinion.¹ The challenge remains to discover novel treatment approaches and translate these findings into clinical care. As with compassionate use of therapeutics in oncology, there is an urgent need to provide best-practice treatment to the millions of children presently struggling with obesity, particularly at the most advanced stages.² In 2007, Wake Forest University School of Medicine and Brenner Children's Hospital founded Brenner FIT (Families In Training), a multidisciplinary, family-based pediatric weight management program. From the outset, Brenner FIT integrated quality healthcare principles into program development activities. From this, three innovative programs have been developed. In a somewhat reverse direction of traditional translational research, these three successful clinical programs have informed a larger research initiative and have led to the establishment of a unique and promising research center.

Brenner FIT

Brenner FIT is comprised of a pediatrician, dietitian, family counselor, physical therapist, social worker, and exercise physiologist. Brenner FIT accepts children by physician referral only, between the ages of 2 and 18, who are obese (body mass index [BMI] $\geq 95^{\text{th}}$ percentile for age and gender) with one or more obesity-related comorbidities, including dyslipidemia, insulin resistance, fatty liver, orthopedic problems, sleep apnea, or hypertension. Families attend approximately 14–18 visits over a year, with optional long-term follow up determined by weight status, family needs, and medical issues. The program defines family-based treatment as: family-centered,

using Motivational Interviewing (MI) to elicit behavior change within the entire family unit, and family-focused, concentrated treatment efforts on the health habits of each family member. Descriptions of the Brenner FIT treatment approach have been published previously.^{3–5}

Although recent expert recommendations have been proposed regarding treatment of children with weight problems, there is no “gold standard” method to pediatric weight management. As a novel approach to improve the treatment of obese children, Brenner FIT launched quality improvement initiatives to enhance treatment outcomes by implementing the Institute of Medicine's Six Specific Aims for Quality Health Care (Table 1).⁶ Internal initiatives to improve the quality of care include twice-yearly staff retreats to review program outcome data, child and family satisfaction measures, focus groups with participating families, and use of quality improvement approaches such as Lean,⁷ Six Sigma, and Theory of Constraints.^{8,9} From these activities, the Brenner FIT team was able to identify areas within the treatment model that called for enhanced treatment modalities for: (1) Spanish-speaking families facing language and financial barriers, (2) rural families facing geographic and transportation barriers, and (3) the provision of hands-on education and family support. Each of these treatment concerns led to the development of an innovative solution to better meet the needs of the clinic population and the community as a whole.

An Innovation for Spanish-Speaking Families: Mejor Salud, Mejor Vida

In Brenner FIT's first year of operation, only one Spanish-speaking family enrolled in treatment. This was particularly concerning given that Hispanics represent 11%

¹Department of Pediatrics, Wake Forest University School of Medicine, Winston-Salem, NC.

²Brenner FIT (Families In Training) Program, Brenner Children's Hospital, Wake Forest Baptist Health, Winston-Salem, NC.

³Department of Social Sciences and Health Policy, Division of Public Health Sciences, Wake Forest University School of Medicine, Winston-Salem, NC.

⁴Family Obesity Research Center (FORCe), Wake Forest University School of Medicine, Winston-Salem, NC.

of the referral population,¹⁰ coupled with a high prevalence of obesity among Hispanic children.¹¹ To address this issue, a project manager experienced in working and conducting research with Hispanic families was hired to be act as a bilingual case manager (BCM) for Brenner FIT. Through training with Brenner FIT's multidisciplinary team, the BCM developed a proficiency in MI, enrolled in an undergraduate level nutrition course, and worked with Brenner FIT clinicians to develop a high-contact approach to patient recruitment and retention.¹²

Providing services as both a case manager and a patient navigator for Hispanic families, the BCM and the Brenner FIT team developed the Meior Salud, Meior Vida (Better Health, Better Life) Program. This culturally competent approach to treatment follows Brenner FIT's traditional treatment model; however, the BCM serves as the primary contact for all Spanish-speaking families and actively participates in all aspects of treatment. The BCM meets with families regularly, and, as other Brenner FIT clinicians are needed, the BCM serves as a translator. Within the first year of the Meior Salud, Meior Vida program, the number of Spanish-speaking families in treatment increased from 2% to 14%. Currently, 16% of Brenner FIT clinic patients are Spanish speaking, which is a better reflection of the community's referral population. These families have experienced significant successes in the program, of which 70% have completed the yearlong program, a percentage higher than Caucasian and African-American families (approximately 55%, data not published) with similar, if not superior, improvements in weight status. Given that rates of attrition from multidisciplinary

weight management programs are usually higher than 50%, this is a remarkable outcome.¹³

An Innovation for Rural Families: TeleFIT

Obesity occurs most frequently in rural and underserved regions of the United States.^{11,14} Compared to urban and suburban communities, rural families experience significant inequities in healthcare access, particularly in accessing specialty and subspecialty providers. The region of northwestern North Carolina has among the highest rates of poverty in the state and is characterized by poor access to quality health care and a diminished ability to travel significant distances to receive specialty care.¹⁰ Brenner Children's Hospital serves as the primary source of pediatric subspecialty care in the 19 county region of northwestern North Carolina, but the distance that must be traveled by some families (upwards of 90 miles) can be challenging, given the high number of visits over a year's time.

Yearly outcomes evaluation identified the vast majority of families in the program come from counties immediately surrounding the hospital, whose prevalence of obesity (16%) is slightly lower than the state as a whole (18%).¹⁵ Through partnerships with rural pediatric offices and the Northwest Area Health Education Center, and via endowment grant funding, TeleFIT was developed to place telemonitors in rural pediatric offices within an hour's drive from Brenner Children's Hospital. The two sites, one in a satellite clinic of the hospital and the other

Table 1. Institute of Medicine's Six Specific Aims for Quality Health Care⁶ and Pediatric Obesity Treatment*

Aim	Description	Brenner FIT's quality improvement
Safe	Avoid injury to patients from care that is intended to help them.	Engage local programs, including camps, community-based obesity programs, and schools to encourage these local programs to shift their focus from weight loss and restrictive diets to behavior change.
Effective	Provide services based on scientific knowledge to all who could benefit and refrain from providing services to those unlikely to benefit.	Maintain clinical database with twice-yearly review of clinic population and outcomes.
Patient centered	Provide care that is respectful of and responsive to individual patient preferences, needs, and values. Ensure patient values guide all clinical decisions.	Utilize Motivational Interviewing in all treatment processes, and provide family-based programming through community center.
Timely	Reduce wait time and sometimes harmful delays for both those who receive and those who give care.	A family support specialist with a background in social work engages families on referral, assist in overcoming delays and barriers to treatment, and prepare families for clinic.
Efficient	Avoid waste, including waste of ideas and energy.	Allow families to stop treatment if necessary, analyze missed and cancelled appointments to identify patterns and obstacles to treatment, develop telemedicine program to assist families living far from clinic, schedule majority of visits before and after school, and have parent-only appointments to minimize missed school.
Equitable	Provide care that does not vary in quality because of personal characteristics, such as gender, ethnicity, geographic location, and sociodemographic status.	Twice-yearly review of outcomes to identify patterns of failure or dropout, development of culturally competent Spanish-language program.

*Adapted from the Institute of Medicine Committee on Quality of Health Care in America.⁶

in a primary care pediatrician's office not affiliated with the hospital, serve a five-county region in the foothills of the Appalachian Mountains. The prevalence of obesity in this area is estimated to be nearly 27%.¹⁵ In the first year of TeleFIT, there was a three-fold increase in families engaging in treatment and substantially decreased attrition from treatment to a rate equal to the general population of Brenner FIT.

An Innovation for Hands-On Education and Family Support: Kohl's® Family Collaborative

Through satisfaction surveys, focus groups with participating families, and research focused on the causes of attrition from treatment, families reported a lack of opportunities for hands-on learning experiences and interaction with other families combating similar problems with weight. Through generous support and partnership with the Kohl's Cares® program, the Kohl's Family Collaborative was established in partnership with the YWCA of Winston-Salem. Originally begun as a collaborative effort focused on research in children, the Kohl's Family Collaborative was restructured to focus on experiential aspects of obesity treatment and prevention. This program, located centrally in the community, features a teaching kitchen and group meeting space, lending itself to hands-on instruction in cooking, meal planning, and nutrition education, as well as family-focused physical activity. A new partnership with Food Lion, Inc. supports grocery store tours and cooking classes, and provides grocery items for food-insecure families that are sufficient to prepare an entire balanced meal for their family. Parenting classes, "exer-gaming" instruction, and social events for families have been added in the past year. Satisfaction and acceptability in these programs is extremely high, and numerous programs for families using diverse partnerships with other community-based organizations are under development.

A Complement to Family-Based Obesity Treatment: Family-Based Research

Through the activities and programs of Brenner FIT, we have been able to identify many new and exciting opportunities for improving the delivery of pediatric obesity treatment. Most notably, we have begun investigating the novel approaches for the delivery of family-based interventions delivered in a variety of settings. Prior literature has indicated the need for more inclusive modalities to engage families in obesity treatment.¹⁶ Therefore, as an outgrowth of our clinical initiatives, the Family Obesity Research Center (FORCe) was established to develop innovative methods and approaches for incorporating

obesity treatment into family systems. With 16 core faculty, a program manager, and several pilot projects, FORCe has launched a unique, innovative, and multidisciplinary approach to understanding and addressing the epidemic of pediatric obesity. FORCe is developing in a deliberate fashion to engage experienced faculty to serve as research mentors to junior faculty. This also features didactic and interactive educational activities, such as journal clubs, manuscript writing groups, a team development retreat, and orientation to existing databases and research instruments as a means to foster collaboration and new research initiatives.

FORCe and Brenner FIT

Unique to the experience of Wake Forest University School of Medicine, pediatric obesity is approached in the context of the family. This has led to the development of exciting research projects with diverse researchers and community partners. Clinicians experienced in the family-based treatment of pediatric obesity have contributed to the development of research initiatives, and subsequent grant applications. Researchers experienced in both child and adult behavior change and weight management have greatly informed the clinical activities of Brenner FIT. The symbiotic relationship of a family-centered and family-focused treatment program and a research center studying family obesity has been the most successful and promising initiative in Northwest North Carolina in the last 3 years.

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Address correspondence to:

Joseph A. Skelton, MD

Assistant Professor of Pediatrics

Wake Forest University School of Medicine

Director, Brenner FIT (Families In Training) Program

Brenner Children's Hospital

Medical Center Boulevard

Winston-Salem, NC 27157

E-mail: jskelton@wfubmc.edu

Website: www.brennerchildrens.org/brennerfit