

Treatment of Pediatric Obesity in Rural Settings

Identifying and Overcoming Barriers to Care



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KEYWORDS

• Pediatric • Obesity • Telemedicine • Rural • Equity

KEY POINTS

- Barriers to effective obesity care for pediatric patients living in rural settings include lack of access to treatment, limited insurance coverage, limited obesity medicine providers, weight bias and stigma as well as the lack of extensive pediatric-focused clinical obesity research.
- Ways to overcome these barriers have been implemented but challenges remain.
- Telehealth-based programs can be successful in treating pediatric obesity in rural settings.
- Further research into effective treatment of pediatric obesity in rural settings is needed.

INTRODUCTION

According to the World Health Organization, over 300 million children and adolescents globally have the disease of obesity, with 14.7 million in the United States. While new and effective options have been developed as adjuncts to standard obesity treatment practices, the number of children and adolescents who suffer from obesity has not declined. Numerous factors contribute, ranging from the availability of affordable nutrient-dense foods to third-party payor reimbursement for treatment. One such factor is ineffective delivery of care to those who live in areas where the disease is highly prevalent, such as areas of lower socioeconomic status and rural settings. An understanding of these factors allows us to identify barriers and develop strategies to overcome them. In doing so, the prevalence of pediatric obesity will decrease can reduce pediatric obesity prevalence, which will hopefully lead to a reduction in adult obesity prevalence and the pediatric and adult-onset comorbidities that come with the

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disease. This document highlights the current data on implementing pediatric obesity treatment in rural settings, barriers to effective care, and potential ways to overcome them.

Data from 2011 to 2012 compared to 2017 to 2020 outline that there has been an increase in obesity for children aged 2 to 5 years and for adolescents aged 12 to 19 years.¹ The trend of higher incidence of obesity, with more severe classification of obesity at younger ages compared to 12 years ago, highlights the added negative health risk for these patients.² The prevalence of obesity, and particularly for severe obesity (class 2 and 3), is higher for those living in rural and underserved areas, lower socioeconomic settings, and those with high-risk social determinants of health screens.³ Flattum and colleagues⁴ compared family-based preventive intervention in urban versus rural settings, finding 20% to 25% higher odds of obesity for those living in a rural setting. McDaniel and colleagues⁵ reviewed current trends in the barriers of travel needed to provide care even for common pediatric medical diagnoses and found that overall, children living in rural areas traveled 4 times further for hospitalization in 2017 compared to 2002. Thirty-four million Americans live in rural communities and providing care to children living in these rural settings has unique challenges.

A full spectrum of care is required to optimally manage obesity across the lifespan. Growing research and evidence-based guidelines support that these therapies should be delivered in an empathetic and compassionate patient-centric approach. Access to care in these areas continues to be diminished and challenges for implementation and sustainability of intensive health and lifestyle behavior therapy and specialty obesity care persist.

In January of 2023, the American Academy of Pediatrics released a clinical practice guideline (CPG) for the evaluation and treatment of childhood and adolescent obesity.⁶ This guideline, a massive undertaking that started with a review of 16,000 abstracts and ultimately included almost 350 articles, was a dramatic shift in the Academy's recommendations, incorporating new, effective therapies for obesity treatment and highlighting the need to choose therapies that treat obesity and its comorbidities concurrently. The recommendations consider the multifactorial causes of obesity, including the socioeconomic and racial disparities that have contributed to disease risk. They review challenges in the communication of body mass index (BMI) status in the clinical setting, some of the limitations of use of BMI, the need for improved access to medications and surgery, and the deficit of available intensive health, behavior, and lifestyle therapy (IHBLT) programs, which are intended to be the first line of care for obesity treatment in children who are at the age of 6 years or older. Authors included recommendations on evaluation of comorbid illness that align with those from other pediatric specialty societies, with some nuanced changes to optimize care in the setting of obesity.

Implementation of new CPG has historically been found to take over a decade^{7,8} and can be complicated by multiple factors, including, but not limited to, guideline complexity, guideline dissemination, education, and training and clinical decision support systems.⁹ Optimizing implementation of the American Academy of Pediatrics CPG recommendations for obesity evaluation and treatment in a rural setting needs to utilize a multifaceted approach, keeping evidence for how to promote practice guideline adherence in mind.

Studies have been conducted on strategies to implement obesity care to children and adolescents who live in rural settings, with many focusing on the use of telehealth following the coronavirus disease of 2019 (COVID-19) pandemic. Janicke and colleagues randomized children with obesity who reside in a rural setting to one of 3

interventions: lifestyle and behavior modification for the family; lifestyle and behavior modification for the parents only; and lifestyle modification alone for the family. The attendance during the treatment sessions peaked at 69%, while attendance during the maintenance sessions decreased to 42%. The main barrier noted for all 3 groups regarding attendance was scheduling conflicts. There was no significant improvement in weight or BMI z-score in any of the groups.¹⁰ Hosseini and Yilmaz¹¹ conducted a feasibility study examining a telehealth intervention for families in rural Pennsylvania. They found that there was a mix between families who prefer in-person visits and those who prefer telehealth visits, but no differences in BMI change were noted between groups. A study using a program called IAmHealthy found family satisfaction with the telehealth aspect of this 6 month intensive behavioral obesity intervention. The program is composed of 15 hours of didactic family group sessions and 11 hours of health coaching for the family.¹² There had been a high dropout rate and follow-up interviews suggested that logistical/scheduling issues played a large part in dropout rates, as did concern about the stigma of being part of an obesity treatment program.¹³ A feasibility trial including an intervention group using a mobile health support system as an addition to standard care and a control group receiving standard care alone found that overall satisfaction, compliance, and dropout rate as well as BMI reductions were better in the intervention group.¹⁴ Enhanced PREVENT is a study that tested 3 family-based telehealth interventions that were developed with input from a patient advisory council and pediatricians to target family concerns and encourage healthy lifestyle behavior. Three arms were created based on the feedback they received: healthy eating, physical activity, and a hybrid dyad. The hybrid dyad had the best compliance, but all telehealth interventions were well received with positive BMI outcomes.¹⁵

Overall, telehealth-based programs can be successful in treating pediatric obesity in rural settings. Dropout rates and compliance, however, continue to be barriers to effective treatment, which is the case in most pediatric obesity treatment centers, irrespective of whether the visits are in person or via telehealth. Little to no data exist to guide providers on which of the many programs available would be most efficacious for a particular environment. This decision needs to be made by the treating provider, considering the patient population, its needs, and area-specific treatment barriers, until more research is conducted and published.

Despite the expansion of more effective therapeutic options to treat obesity in children over the last 5 years, and positive outcomes for adolescent metabolic and bariatric surgery (MBS) as well as anti-obesity medications (AOM), there remain many barriers for patients and health care providers in being able to deliver these treatments equitably. The barriers can be considered across multiple sectors, from health care policy, attitudes, and bias to pediatric inclusion in research trials to best inform care (**Table 1**). Key barriers include access to treatment centers for those living in rural areas due to a lack of pediatric obesity medicine providers within reasonable driving distance from the patient's residence or due to a lack of transportation to get to the provider's office. Telehealth visits with pediatric obesity medicine specialists are an effective way to overcome this barrier, but challenges still exist, including a lack of access to adequate broadband to be able to successfully have a telehealth visit, as well as lack of insurance reimbursement for telehealth visits. The Federal Communications Commission 2018 outlines that more than 35% of US rural households were without broadband, and roughly 30 million had limited access. Other potential solutions involve using community properties, such as the town school or community hall, to conduct both in-person and telehealth visits.^{16–18}

Table 1 Barriers to implementing care for pediatric patients with obesity in rural settings		
Key Barriers	Concerns and Gaps	Opportunities
Access	Limited interdisciplinary obesity medicine centers in rural settings	Providing services via multiple modalities: telemedicine, satellite clinics, e-consults Support of policy to maintain and expand telehealth, reimbursement parity, support of health care systems to consider value-based care strategies to provide care to children living with obesity in rural areas
Insurance Coverage	Limited coverage for anti-obesity medications With advances in available effective treatments (behavioral, pharmacotherapy, surgery), there remains lack of coverage with <1% of patients with severe childhood obesity obtaining these therapies Current payment model impacts sustainability for both in-person and telemedicine care	Continued advocacy for State Medicaid coverage for anti-obesity medications Support of clinical team to assist with prior authorizations and appeal processes given current exclusion of these therapies Leveraging value-based care to support all patients and providers in the delivery of pediatric rural obesity care
Obesity Medical Education	Limited curriculum across interdisciplinary medical providers	Providing ECHO learning opportunities, building obesity medicine into formal curriculum for medical students, nursing, OT, PT, PhD, SW, physical education The growth of pediatric obesity medicine fellowships
Advocacy to Address Bias and Stigma	Data outline ongoing bias and stigma Greatly impacted by lack of understanding of the biologic basis for the pathophysiology of obesity Data highlighting persistence in negative stereotypes and stigmatization of patients with obesity by health care systems/providers	Support of patients and initiative to reduce obesity bias and stigma in the health care setting Support for existing efforts to educate policymakers and the public
Need for More Large-scale Pediatric Research and Clinical Trials	Required to better inform medical care as well as positively impact insurance coverage as often related to FDA approval, yet often with many years delay	Requires funding support to launch pediatric trials, creation of an obesity pediatric task force advocating for this research

While there has been an increase in providers obtaining board certification in obesity medicine, there continues to be a need for those in rural areas to obtain this specialty certification and to comfortably implement the recommended treatments. This includes having the resources needed to provide appropriate lifestyle modification guidance, prescribe pharmacotherapy, and when needed, refer to MBS. Providers need to be educated on the presence and content of the pediatric obesity guideline and to develop confidence in having conversations with patients about obesity treatment in ways that promote patient trust. Providers outside populated areas are less likely to have access to IHLBT or to be close to a center with specialty obesity care to provide MBS to adolescent patients. For these reasons, health systems need to embrace the provision of remote learning opportunities, such as Project Extension for Community Healthcare Outcomes (ECHO), E-consultations, and electronic health record support tools for providers. Providers and health systems need to advocate for better coverage for effective IHLBT programs, AOM, and MBS. Obesity treatment also can be hindered by the absence of needed ancillary providers in the treatment team, including dietitians, physical activity specialists, and behavioral health clinicians.

Issues with insurance coverage for aspects of pediatric obesity care are not confined to telehealth; several insurances, both public and private, do not provide reimbursement for dietitian visits, AOM, or MBS. Continuing advocacy for the appropriate reimbursement for the treatment of obesity is critical. This can be done at the insurance, local, state, and national level. Advocacy also involves the support of clinical research on pediatric obesity treatment options, for new modalities to be developed, studied, and for best practices to be updated.

Pre-pandemic, telemedicine to provide interdisciplinary pediatric obesity care was provided in a rural setting, which allowed collaboration with local primary care teams and increased access for patients. The experience provided a full spectrum of care with medical, dietary, behavioral health, and the use of AOM in a hybrid model.¹⁹ The growth and expansion of telehealth since the COVID-19 pandemic have provided a valuable tool to providing obesity care. Leveraged lessons learned from telemedicine provide a vital path to bringing the best evidenced-based obesity specialty care to patients living in underserved, rural settings. Data support that most patients and providers have adopted the use of telemedicine as a standard of care modality. Additional benefits of telemedicine include improved insights into the patient's home environment, the ability to include more caregivers involved in the patient's care (grandparents, case workers, behavioral health provider), use of remote patient monitoring to obtain important anthropometric data, as well as less anxiety during visits for some patients with special health care needs, particularly those with anxiety, autism, and who have experienced obesity bias in prior health care settings. As we consider the impact and utility of telemedicine for providing best care for patients living in rural settings, applying the Reach, Effectiveness, Adoption, Implementation, Maintenance framework provides a structure for evaluating health interventions. Reviewing current challenges and opportunities for addressing pediatric obesity through this lens can create paths forward to improving care for children with obesity.

To ensure ongoing access via telemedicine, implementation strategies should be continually evaluated to consider settings, patient demographics, and geographic needs, along with revenue models to best meet these needs. Flattum and colleagues⁴ outlined that a program design that may work in an urban setting may not translate directly to rural communities. Bailey and colleagues²⁰ highlight multiple strategies to consider when creating implementation and maintenance strategies. Both emphasized the importance of community partnerships and direct feedback from local health care providers and systems, and the importance of patients in the planning and

implementation phases. Crawford and colleagues outlined a guide, the Digital Health Equity Framework, to assist in providing services, considering the risk of worsening existing disparities when using telehealth. These strategies can help inform policy and funding to support a multipronged approach to help address the challenges that are unique to providing care to pediatric patients with obesity, regardless of where they live.

For those patients living in rural settings, as has been our experience in Maine, the need to more creatively utilize all available modalities to ensure equitable access to care is vital. Our strategy, in Maine, has utilized the recommended multimodal approach. We have increased our obesity treatment specialty pediatric program size to eliminate our patient waiting list, created an e-consultation program for providers in the largest health system, expanded a telehealth obesity treatment program, and are working toward more robust satellite clinic options (Figs. 1 and 2). Funding for obesity treatment in our health system is buffered by a shared medical and surgical,

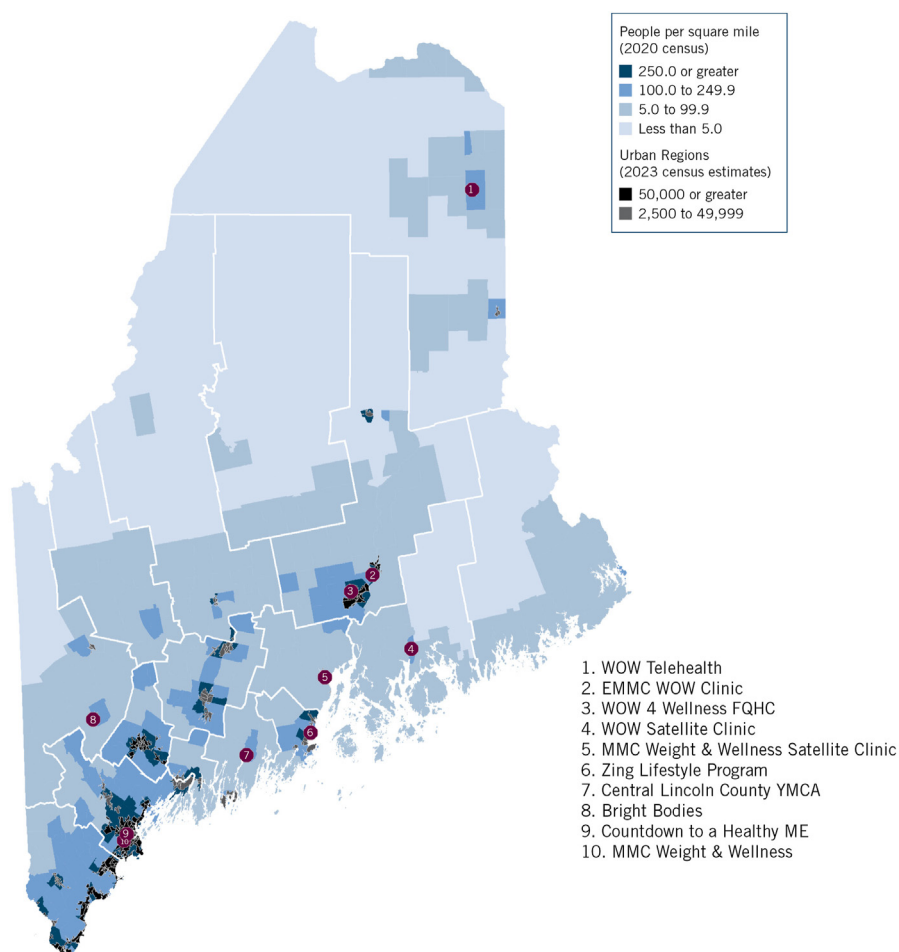


Fig. 1. Map of the state of Maine with location of pediatric weight management programs. Shaded areas indicate population density of various regions. (Courtesy Kate Allerding.)

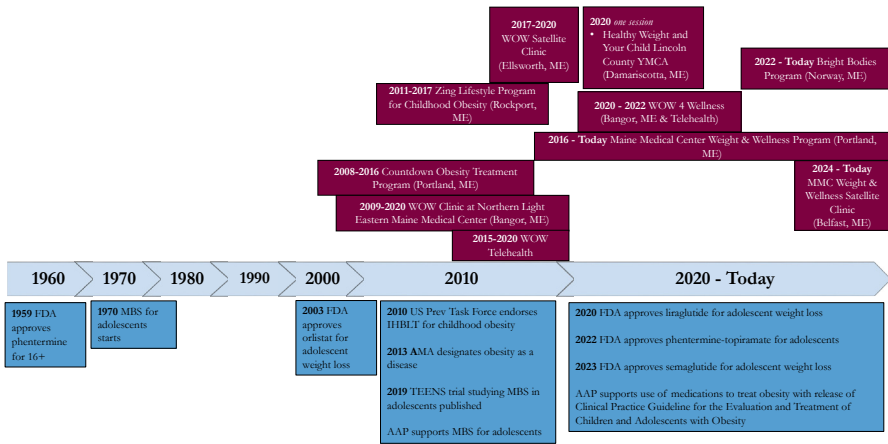


Fig. 2. Timeline of national pediatric obesity treatment milestones (dark blue) and pediatric weight management programs in the state of Maine (maroon). (Courtesy Meg Nadeau.)

adult and pediatric care model. We have delivered education on the CPG and effectiveness of MBS around the state at hospital and society-sponsored conferences and will soon be offering our second Project ECHO education on treatment of obesity. We have created a build in our electronic health record to guide obesity treatment decision-making and are working to implement IHBLT program options for patients. Despite the multipronged approach, we have been hindered by limited coverage of medications that are the Food and Drug Administration approved to treat children who have obesity, adding not only to the barriers of specialty care, but also to implementation of the CPG recommendations in primary care settings.

SUMMARY

The need for effective treatment of pediatric obesity is critical, as the disease's prevalence grows. Evaluation and treatment modalities are challenged by many factors, with rural and underserved populations most affected. The updated guidelines on pediatric obesity support the consideration of more aggressive forms of treatment to reduce the prevalence of the disease and its associated comorbidities. The implementation of these treatments in rural settings has improved with telehealth, but challenges still exist. Further research into techniques to expand and enhance pediatric obesity care in rural settings is needed; support of such research, as well as support of treatment options for patients by health care systems and third-party payors, is critical to achieving a reduction in the prevalence of pediatric obesity and its comorbidities.

DISCLOSURE

R. Conroy: none; C. Gordon: none; V. O'Hara: Speaker for Novo Nordisk.

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