The Establishment of a Pilot Paediatric Obesity Clinic at the University Hospital, Limerick

Abstract:
The study describes the establishment of a pilot Paediatric Obesity Clinic (POC) in the University Hospital Limerick (UHL). Referrals were received from consultant paediatricians in the catchment areas of UHL for paediatric patients with high levels of excess adiposity. Fifteen patients and their families were invited to the POC in 2012. An initial medical assessment was conducted by two consultant paediatricians. Patients were also reviewed by a dietitian, a physiotherapist and physical activity experts from local Sports Partnerships. Twelve children and their families attended the POC (mean age=8.08 years; Range=3.6-13.6): 11/12 were overweight and 9/12 were obese. Abnormalities in blood work were detected as follows: 1/7 had elevated LDL-cholesterol; 2/8 had elevated triglyceride levels; 4/8 had elevated fasting insulin; 2/8 had elevated fasting glucose. With the current prevalence of obesity in paediatric populations, initiatives such as UHL POC need to be established, funded and supported, to try to meet complex, multidisciplinary patient needs and to prevent future complex and expensive health complications.

Methods:
Referrals for paediatric patients with high levels of excess adiposity to the POC were accepted from consultant paediatricians in UHLs catchment area. The POC comprised a full day clinic visit (of which 2 were scheduled) and a follow-up full day clinic (of which 1 was scheduled for all patients to attend). Invitations to the POC were sent to the parents/guardians of referred paediatric patients (n=15). On arrival for the first day of clinic, attendees and their parents completed the Obesity Clinic Assessment Questionnaire, which was an adaptation of assessment methodologies from the American Academy of Paediatrics. Attendees and their parents were provided individual consultations with a dietitian and with 2 consultant paediatricians: 1 with a special interest in diabetes and endocrinology and 1 with a special interest in metabolic medicine and rare diseases. During consultations, measures of height, weight were obtained for calculating body mass index (BMI) and both waist and hip circumference were obtained to calculate waist-to-hip ratio and waist-to-height ratio. BMI was calculated as (weight in kg/(height in m)) and converted to percentiles based on the Centers for Disease Control and Prevention (CDC) reference data .

Participants' waist circumference, measured as the shortest circumference between the lowest border of the rib cage and the iliac crest, was measured to the nearest centimetre while they were standing and after gently exhaling . The waist-to-height ratio (Waist (cm)/Height (cm)) was calculated, and a cutoff of 0.5 was used to identify participants with low and high waist-to-height ratios . Blood pressure was measured manually using a mercury sphygmomanometer and an appropriately sized cuff. A sample of blood for examination of biomarkers (e.g. lipid profiles; thyroid function tests; renal, liver and bone profiles) was also obtained from each attendee. Individual consultations were followed by 30 minute group workshops with healthcare professionals on physiotherapy for exercise, nutrition for health and physical activity for health. A questions and answers and a discussion period was provided at the end of each session to allow parents and attendees to discuss individualised advice on specific problems or issues they encounter. The end of the clinic day, parents and patients were asked to provide feedback on their experiences of the clinic day.

After each full day clinic, each patient was scheduled for the follow-up clinic, at which they were again seen individually by the dietitian and 2 consultant paediatricians, provided repeat measures of anthropometrics and blood work and provided feedback on progress made since the initial POC.

Results:
Of the initial 15 referrals to the pilot POC, 12 paediatric patients (mean age=8.1) Range=3.6-13.6 yrs) and their parents attended the POC. All attendees were accompanied by their mother, with only 1 attendee accompanied by both their mother and their father. A flow chart of the referrals, attendance at POC days and attendance at follow-up clinic is provided in Figure 1.
Descriptive Information

Descriptive characteristics of attendees for age, body composition measures and selected cardiometabolic risk factors are provided in Table 1. At the time of measurement, three attendees had 3 cardiometabolic risk factors at levels exceeding the expected values. All attendees at the POC had a waist-to-height ratio of greater than 0.5. Of the 12 attendees that were invited to return to the follow-up clinic day, only 1 patient returned.

Parent/Guardian reported information

The Obesity Clinic Assessment Questionnaire assessed parent/guardian-reported health behaviours for the attendees of the POC. A range of poor dietary behaviours were observed in the majority of attendees, including high levels of sugary drinks consumed daily, a lack of structured meals in the home, low levels of vegetable intake and high levels of snacking (see Table 2). Furthermore, only 2 attendees consumed vegetables regularly, with remaining attendees consuming little or no vegetables daily. Although 66% of patients participated in school-based physical education, 58% exceeded the daily recommended amount of TV viewing (>2 hours/day), while 83% did not participate in any form of organized physical activity. Descriptive information for dietary and physical activity behaviours are presented in Table 2.
Parental Feedback

At the end of the POC days, parents and patients were asked to provide feedback to the multidisciplinary team. Many positives were identified, including: the broad range of accessible healthcare providers throughout the clinic; the individual consultations with healthcare providers (e.g. paediatricians and dietitians); the opportunity to meet and discuss issues with parents in similar situations; and the quantity and quality of information provided to help modify dietary and physical activity behaviours. Negative issues identified included: the lack of prior information provided in relation to clinic structure; the lack of available food and water for attendees; the absence of a point of contact within the clinic for queries; and the amount of available space for attendees and their families.

Discussion

This report describes our experiences with a pilot multidisciplinary family-based POC, which was conducted without allocation of resources. We describe a large proportion of patients with obesity and additional cardiometabolic risk factors, including elevated blood pressure, triglycerides, insulin and glucose levels. Poor dietary and physical activity behaviours were evident among patients. Several benefits of the clinic were identified by parents, but equally constructive feedback was provided. Many of the negative points identified could be addressed with sufficient allocation of resources. In Ireland, 25% of Irish youths are overweight or obese, and are at significantly increased risk of overweight or obesity in adulthood and of having obesity-related health consequences throughout their adult lives.

This report has identified the prevalence of multiple cardiometabolic risk factors co-existing in a cohort of overweight and obese children aged 3 to 13 years. Although cardiovascular disease is predominantly observed in adulthood, its occurrence is attributable to the manifestation of cardiometabolic risk factors over time, often since childhood/adolescence. With increasing numbers and duration of cardiometabolic risk factors in youth, asymptomatic coronary and aortic atherosclerosis also increase. There is an important medical and public health need to address paediatric obesity, both in hospitals and in the community. POCs have the potential to be an effective and efficient resource to facilitate and achieve weight reduction in overweight/obese individuals. The provision of clinic days, similar to those described here, presents a potential template for the efficient and effective delivery of professional healthcare support and assistance to overweight/obese paediatric patients and their families. Similar clinics, or interim clinics, in primary care would greatly complement the POC model described in this report. Alternatively, interim nurse-led hospital-based clinics to provide ongoing support to weight loss would complement this model.

Due to time and financial constraints during the establishment of this POC, two initial POC days were provided, while a follow-up day was scheduled. Significant issues were identified by the parents and patients. Families were encouraged to attend the clinic to promote a family-based approach to altering health behaviours. Unfortunately, the limited available space for provision of such clinics meant families were confined to small areas throughout the day. Parents also cited the length of the POC as a deterrent to attend future clinics, and this was compounded by the lack of provision of snacks, tea/coffee or water for patients and families. Unfortunately, financial constraints within the clinic limited the provision of such resources to parents/guardians of attendees. Although attendance rates at the initial POC days were high, the attendances at POC follow-up days were disappointingly low. The absence of on-going funding for administration, dietician and physiotherapy support throughout the year resulted in the delay of provision of a follow-up clinic, resulting in a prolonged period (approximately 6 months) between the initial POC and follow-up. Furthermore, due to the lack of administration support, only limited notification for parents/guardians of POC attendees was possible. Disappointingly, only 1 patient returned for follow up. Existing research suggests that parents of obese children require regular contact (weekly/monthly) with services for support and motivation, particularly when encountering difficulties in implementing interventions to modify dietary behaviour. The provision of funding to support administrative, dietician, medical, nursing and physiotherapy services to future POC services would provide increased communication and support to parents/guardians of attendees and their families, increased opportunities for consultations with attendees, increased capacity for the POC and opportunity to follow up, the outcomes of the initial clinic days.
providing the opportunity to evaluate the effectiveness of the POC. All of these patients were previously seen in other paediatric clinics, and were referred back to these clinics again.

Some issues were identified by healthcare providers delivering the service. The broad age range of attendees made delivery of workshops and relevant information difficult. The streamlining of age cohorts for future clinics should be considered, enabling the more efficient delivery of key information to specific age groups. Further defined criteria for eligibility is required for attendees, including where attendees are referred from (i.e. consultants only) or GPs and consultants), where attendees are referred to post-clinic (back to consultants/GPs), the ages of attendees (i.e. potentially limiting children between the ages of 5 - 15), the BMI centile of attendees (i.e. only children > 95 percentile), the requirement of provision of blood samples (some parents reluctant to give consent for further phlebotomy) and the requirement for attendance at multiple clinics (i.e. initial POC day, potential for second POC day and final follow-up/evaluation POC day). The pilot POC at University Hospital Limerick has identified the need for clinics that aim to modify the health behaviours of patients with paediatric obesity. For such clinics to be successful, additional administrative and financial support is required to ensure the buy-in from attendees and their families, to ensure the continued attendance at future clinic dates and to ensure the provision of an efficient and effective service.

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Acknowledgements
The children and their families for participating in this study. The hospital staff for their help and assistance throughout the clinics.

References