Exploring Health Care Providers' Perspectives of Care Practices, Facilitators, and Barriers Experienced when Managing Childhood Obesity in Rural Northwestern Ontario Communities

A Thesis Presented to the

School of Kinesiology

Lakehead University

In Partial Fulfillment of the Requirements

for the Degree of Master of Science in Kinesiology

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2015

Acknowledgements

I would like to sincerely thank my supervisor, Dr. Erin Pearson, for guiding me in this process and always believing in me even when I did not believe in myself. I have gained so much through the past two years, academically and personally, and could not have done it without your never-ending support and guidance. Thank you for opening my eyes to the world of research and allowing me to create, conduct, and complete this research project that is so close to my heart.

A big 'thank you' to my committee members, Dr. John Gotwals and Dr. Diane Walker, for their valuable feedback and guidance in this process. John, your attention to detail, and Diane, your expertise in qualitative research and insights as a health care provider, was much needed and I am grateful for your contributions and support. Thank you also for making yourselves available whenever revisions were needed, and for helping me stick to my deadlines by providing such detailed feedback.

I would also like to thank my fellow graduate students for always having an open-ear when I needed it, as well as the many group work sessions that kept me on track. Thank you to Mike, for always believing in me and for always being literally right beside me throughout this whole program. Thank you to the health care providers that gave their time to participate in my study; this would not have been possible without you. Lastly, thank you to my parents for supporting me and providing me with the opportunities to explore anything that I desire to, as well as rooting for me throughout my six years of University.

Abstract

Previous literature has identified that rural communities have a higher obesity prevalence than their urban counterparts. In comparison to the rest of the province, childhood obesity rates are significantly higher in Northwestern Ontario (NWO), a region made up of rural, isolated communities. Obesity management interventions administered through primary care offer an excellent opportunity to address obesity-related health problems. To date, there is a paucity of research examining the perceptions of health care providers (HCPs) who work with children, youth, and families regarding facilitators and barriers to care experienced in practice, especially in rural areas. Moreover, the current standard of care for paediatric obesity management appears to be unknown. Given that childhood obesity is such a complex health issue, interdisciplinary Family Health Teams should have a positive effect on management efforts. Thus, the purpose of this qualitative study was to explore the perspectives of interdisciplinary HCPs who subscribe to the Family Health Team Model in rural NWO communities regarding the care practices, facilitators, and barriers experienced when working to manage overweight and obesity in children and youth.

Participants were recruited from five rural health centres that provide services to paediatric populations in NWO. Eleven, one-on-one semi-structured in-depth interviews were conducted and involved registered dieticians (*n*=3), family physicians (*n*=3), nurse practitioners (*n*=3), social workers (*n*=1), and registered practical nurses (*n*=1). The researcher followed a semi-structured interview guide; all sessions were digitally recorded, transcribed verbatim, and analyzed using inductive content analysis on NVivo software.

Five main themes emerged from the data, each with its own corresponding subthemes: 1) Childhood Obesity is a Significant Rural Health Issue (Increasing Prevalence; Rise in

Comorbidities; Aboriginal Specific Health Trends); 2) Current Care Practices (Family Health Team Model; Standard of Care Needed; Varied Assessment Practices; Weight to Health Shift); 3) Facilitators to Paediatric Obesity Management (HCP Resource Initiative; Community-based Programs; School Involvement); 4) Barriers to Paediatric Obesity Management (HCP Barriers; Patient Barriers; Social Barriers); and 5) Future Recommendations for Paediatric Obesity Management by HCPs (Care Practices; Rural Community Programs; Education for HCPs and Families; and Policy Changes). Overall, it appears that rural HCPs face many more barriers than facilitators to childhood obesity management. Care practices for assessing and managing obesity among those sampled varied and generally do not follow recommendations outlined by the 2006 Canadian Clinical Practice Obesity Guidelines. Future recommendations from participants for enhancing management efforts included the provision of additional education opportunities for HCPs (e.g., professional development via telephone and videoconferencing to decrease some of the barriers associated with working in rural, isolated communities); more rural community programming (e.g., free family-based cooking classes); a focus on care practice improvements (e.g., teams collaboratively creating obesity management plans); and policy changes at the government level (e.g., mandatory funding for weight management training).

Assessing the views and needs of primary care providers is a critical step in the paediatric obesity management planning process and will assist in setting priorities for future programming. Better dissemination of and education on the updated weight management guidelines, as well as enhancing the use of interdisciplinary teams for care practice improvements are recommended in this context. Future researchers should examine care practices among rural HCPs longitudinally to determine whether changes take place in relation to the implementation of the new 2015 updated guidelines.

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The prevalence of obesity, a major problem concerning excess weight, has increased significantly over the last 20 years (Lau, Douketis, Morrison, Hrmiak, & Sharma, 2007). According to the World Health Organization [WHO] (2014), "overweight and obesity are defined as abnormal or excessive fat accumulation that presents a risk to health." Children with overweight or obesity are at increased risk for a number of physical and psychosocial comorbidities, not to mention a greater likelihood of remaining overweight or obese throughout life (Hanning et al., 2007; WHO, 2014). Beyond the risk to personal health, the economic burden of obesity in society is significant (Janssen, 2013), thereby emphasizing the need for management efforts.

In Canada, children and youth see health care providers (HCPs) routinely or otherwise for a range of medical services. In conjunction with these visits, it would seem that HCPs, including but not limited to general physicians, nurse practitioners, registered dieticians, social workers, and nurses, are in a practical position to manage childhood obesity (Derksen et al., 2012; He, Piche, Clarson, Callaghan, & Harris, 2010). Findholt, Davis, and Michael (2013) recommended recently that more research should focus on rural clinicians' challenges specifically when addressing obesity in rural children. Obesity prevalence tends to be more pronounced in rural than urban areas; for example, across Canada, boys in small towns of 2,500 to 19,999 have higher obesity prevalence in comparison to boys in larger, more populated cities (Public Health Agency of Canada [PHAC], 2011). With the exception of Thunder Bay, the communities in Northwestern Ontario (NWO) are considered rural (i.e., they do not share a boundary with a

census metropolitan area and have a population less than 50,000), and geographically isolated from metropolitan centres (Bruner et al., 2008). Northwestern Ontario takes up 47% of Ontario's total landmass, but only accounts for 2% of Ontario's population, showing how small and isolated these communities actually are (North West Local Health Integration Network [LHIN], 2013). The North West LHIN (2013) reported that 61% of adults in NWO have overweight or obesity, compared to the provincial average of 52%. The overweight and obesity prevalence rates for children are not documented by the North West LHIN (2013); however, research shows that childhood obesity often leads to adult obesity, and parents with obesity are more likely to have children with the condition (Akabas, Lederman, & Moore, 2012; Turner, Shield, & Salisbury, 2009). Thus, it stands to reason that rates of childhood overweight and obesity are higher than average in the NWO region.

To date, rural HCPs' perceived facilitators (i.e., assisting management efforts), and barriers (i.e., hindering management efforts) regarding the prevention and management of obesity in children and youth have rarely been reported in Canada (He et al., 2010; Morinis et al., 2012; Story et al., 2002), and not at all in NWO. Similarly, there is a lack of research exploring standard assessment and care practices for childhood obesity prevention and management in this region: an important area to examine given the prevalence of childhood obesity and need for optimal and efficient practices. Because HCPs work closely with children, youth, and their families, and are well positioned to provide obesity prevention and management, exploring their care experiences and knowledge levels could elicit valuable insights into avenues for decreasing the burden of this disease. In addition, identifying rural HCPs barriers and facilitators to managing childhood obesity in practice could provide the foundation for developing future community- and clinic-based interventions intended to reduce obesity prevalence, thereby

impacting the health of the children and youth served in this region positively (Luttikhuis et al., 2009; Whitaker, Wright, Pepe, Siedel, & Dietz, 1997).

Background

Prevalence and Etiology of Childhood Obesity

Prevalence. In 2013, the global estimate of children under the age of five with overweight was over 42 million (WHO, 2014). Among Canadian children and youth aged 5-17, recent reports indicate that nearly one in three (31.5%) can be classified as overweight or obese (Roberts, Shields, de Groh, Aziz, & Gilbert, 2012). As stated previously, the prevalence of childhood overweight and obesity in NWO has not been documented; however, it is alarming that the prevalence of adolescent (age 12-17) overweight and obesity are more pronounced in NWO compared to the rest of the country (50.7% in the Northwest Health Unit region vs. 23.7% nationally; Cragg & Craig, 2009). Of important note is the fact that all communities in the Northwest Health Unit region (i.e., beyond the borders of Thunder Bay) are classified as rural and isolated, and have been shown to have higher rates of overweight and obesity than urban communities (Bruner et al., 2008; Ismailov & Leatherdale, 2010; Simen-Kapeu et al., 2010). In light of these trends, obtaining an understanding of the underlying causes of overweight and obesity in this rural population is necessary.

Etiology. The etiology of childhood obesity is multi-faceted; however, the condition is generally caused by an imbalance between energy consumed and expended (i.e., unhealthy dietary practices and limited physical activity; Turner et al., 2009). Additional contributing factors include the built environment (i.e., man-made or modified surroundings that influence health, such as housing, land use, transportation, and urban development; Papas et al., 2007), socioeconomic status, family cohesion, and genetics (Turner et al., 2009). For example,

adolescents who are of lower socioeconomic status are more likely to have obesity than those of higher socioeconomic status (Everson, Maty, Lynch, & Kaplan, 2002; Goodman, Slap, & Huang, 2003; Rampersaud et al., 2008; Treiber, Harshfield, Davis, Kapuku, & Moore, 1999). In addition, children who have overweight or obese parents tend to also be overweight themselves (Turner et al., 2009), thereby emphasizing the role that the family environment and heritability can play. However, research shows that genetic predisposition to becoming overweight or obese is not destiny, and can be altered significantly through focusing on modifiable behavioural variables such as diet and physical activity (Akabas et al., 2012; Lau et al., 2007).

A number of challenges to eating healthy exist in today's society. Economic status has been shown to have an effect on diet (Spruijt-Metz, 2011). A shift in availability, price, and variety of energy-dense, refined products such as fast food and sugary beverages, has encouraged a negative shift in children's eating habits (Chopra, Galbraith, & Darnton-Hill, 2002). High caloric intake, paired with poor quality nutrients, is directly affecting childhood obesity (Spruijt-Metz, 2011). The built environment can affect food choices as well (Spruijt-Metz, 2011). For example, living close to a supermarket is related to lower levels of obesity in children (Dunton, Kaplan, Wolch, Jerrett, & Reynolds, 2009). People of lower socioeconomic status are more affected by their built environment because they have less space for activity and limited transportation (Papas et al., 2007). There are also fewer shopping options, especially in rural areas, which leads to less healthy food choices (Papas et al., 2007).

The family unit can similarly influence food choices; more meals eaten together as a family, as well as the availability of healthy foods at home, are related to healthier dietary intake in youth (Story, Kaphingst, Robinson-O'Brien, & Glanz, 2008). In a recent study by Berge et al. (2014), family meals were examined in relation to childhood obesity in the USA. The

participants included 120 children and parents from low-income communities who were studied for eight days via video recordings. Family meal characteristics studied included length of the meal, types of foods served, as well as family dynamics during meal times (i.e., parent-child and child-sibling communication and parental food control). Results indicated a reduced risk of childhood overweight and obesity when there were positive family- and parent-level dynamics (Berge et al., 2014). These positive dynamics included positive discussion amongst family members of the foods consumed, at least one parent being present, eating in the kitchen, and the meal lasting for at least 18 minutes (Berge et al., 2014). Because factors such as socioeconomic status and the built environment are beyond the control of children and youth, the family unit can have a large effect on a child's food choices and eating habits (Akabas et al., 2012).

In addition to dietary consumption patterns, physical activity and sedentary behaviours of children and adolescents have also changed over the past decade, and can be affected by environmental factors such as walkability, access to recreational opportunities, or neighborhood safety (Spruijt-Metz, 2011). For example, physical activity levels are positively linked with access to recreational facilities, the presence of sidewalks, and public transportation (Spruijt-Metz, 2011). Despite the health benefits, only 5% of Canadian children and youth get the recommended amounts of physical activity daily (Active Healthy Kids Canada [AHKC], 2014). This has declined over the years, with more children partaking in sedentary behaviours such as screen time, and less in active transportation (AHKC, 2014). In Canada, only 24% of children walk or bike to school on a regular basis (AHKC, 2014). Similar to dietary practices, family members also influence physical activity rates; higher parental physical activity participation and support are related to higher levels in children and adolescents (Spruijt-Metz, 2011).

Beyond their influence on physical activity levels and eating behaviours, parental figures

also impact childhood sleep habits (Jarrin, McGrath, & Drake, 2013; Spruijt-Metz, 2011). Children who sleep less than eight hours per night are nearly three times as likely to have obesity (Sekine et al., 2002). The built environment also affects sleep, as noise pollution and electronics can negatively impact sleep quality (Spruijt-Metz, 2011). Parents can influence sleep habits positively in children and youth by policing electronics, such as televisions or computers in the bedroom, as well as monitoring bedtimes (Spruijt-Metz, 2011). Bedtimes impact weight management, as youth with late bedtimes are nearly twice as likely to have a higher BMI and nearly twice as likely to be inactive than youth who go to bed early (Jarrin et al., 2013). Youth with later bedtimes are also three times more likely to have longer screen times than youth who go to bed earlier (Jarrin et al., 2013); further, a lack of sleep has been correlated with lower physical activity levels in children and youth (Jarrin et al., 2013). Thus, it is clear that the etiology of obesity is multi-faceted, and that attention should be paid to intersecting health behaviours by HCPs seeking to manage this chronic condition. This is especially important given the significant health and economic consequences faced by children and youth with obesity, their families, communities, and the nation's health system as a whole.

Implications of Childhood Obesity

Physical health consequences. Children with overweight or obesity are at an increased risk for remaining so throughout life (Hanning et al., 2007), which can lead to poor adult health (Parsons, Power, Logan, & Summerbell, 1999; Singh, Mulder, Twisk, van Mechelen, & Chinapaw, 2008; Whitaker, Wright, Pepe, Siedel, & Dietz, 1997). Childhood overweight and obesity can have a substantial effect on physical and psychosocial health (Luttikhuis et al., 2009). Hyperlipidaemia, insulin resistance, and abnormal glucose tolerance occur with increased frequency in children and adolescents with obesity when compared to those of normal weight

(Freedman, Dietz, Srinivasan, & Berenson 1999; Reilly et al., 2003; Weiss et al., 2004), not to mention a risk for poor pulmonary function, advanced growth and early maturity, and in female adolescents, polycystic ovary disease (Dietz, 1998; Ebbeling, Leidig, Sinclair, Hangn, & Ludwig, 2002; Lobstein, Baur, & Uauy, 2004; Reilly et al., 2003). Obesity can also lead to chronic inflammation, which is linked to Type 2 diabetes and metabolic syndrome (Moore & Pi-Sunyer, 2012; Spruijt-Metz, 2011). The prevalence of Type 2 diabetes in children is steadily increasing, which is frightening because children diagnosed with Type 2 diabetes at 10 years old can lose 17-26 years of life (Moore & Pi-Sunyer, 2012).

Acanthosis nigricans, a skin condition that appears in up to 90% of youth with Type 2 diabetes, is another negative health condition associated with overweight and obesity in children (Dalton & Vargas, 2012). Sleep apnea, the abnormal collapse of the airway while sleeping, occurs four to six times more in children with obesity than children of normal weight (Moore & Pi-Sunyer, 2012). This can lead to disrupted and inconsistent sleep patterns (Moore & Pi-Sunyer, 2012), which can cause further weight gain (Spruijt-Metz, 2011). Children with overweight are also at increased risk for asthma, independent of age, sex, socioeconomic status, and exposure to tobacco smoke, when compared to children of normal weight (Moore & Pi-Sunyer, 2012). Children with overweight have higher blood pressure at a younger age than in previous decades (Moore & Pi-Sunyer, 2012). Bone deformities and other orthopaedic problems are increasingly more common in children with overweight (Moore & Pi-Sunyer, 2012). These injuries can be serious and lead to further problems, especially if excess weight causes an injury to a growth plate (Moore & Pi-Sunyer, 2012). Moreover, physical health problems related to obesity not only progress with age, but are diagnosed much earlier than in previous decades (Lau et al., 2007). A recent statistic suggests that due to the high prevalence of obesity and associated

comorbidities, the current generation of children could be the first to live less healthy and shorter lives than their parents in over a century (Olshansky et al., 2005), which shows how detrimental the obesity epidemic has become regarding child health and development.

Psychosocial health consequences. Aside from the physical health consequences, there is also a psychosocial hardship for those with obesity. Weight bias is the stigmatization of individuals due to having overweight or obesity (Latner, Puhl, & Stunkard, 2012). Research has shown that children and youth with overweight are at a greater risk of being bullied by their peers and family members than average weight adolescents (Libbey, Story, Neumark-Sztainer, & Boutelle, 2008; Puhl & Latner, 2007). Children with overweight and obesity have more difficulty making friends than children of normal weight (Strauss & Pollack, 2003). Weight stigmatization and its social, emotional, and academic consequences could have a negative effect on children with overweight and obesity, which is extremely concerning during childhood and adolescence: an important period where social relationships are formed (Puhl & Latner, 2007).

Some research has shown that children as young as three years old have learned that being overweight is negative, and associate descriptive words such as *stupid*, *ugly*, *mean*, *loud*, and *lazy* with the condition (Moore & Pi-Sunyer, 2012). These young children also choose to associate themselves with thin children rather than those with overweight (Moore & Pi-Sunyer, 2012). Weight bias is not outgrown; in middle school, children are criticized during physical activity, which leaves them with low levels of enjoyment and less time spent participating (Moore & Pi-Sunyer, 2012). Weight-based teasing is even more frequent, severe, and upsetting among overweight pre-pubescent 10-14 year old girls than any other age group (Puhl & Latner, 2007); these individuals also have an increased risk of mental health issues such as eating disorders, low self-esteem, and depression (Libbey et al., 2008). Overweight youth are more

likely to experience anxiety, depression, suicidal thoughts, body dissatisfaction, and hopelessness (Lobstein et al., 2004). Adolescents who remain obese into adulthood have been known to have lower education, income, and be less likely to get married compared to those of normal weight (Gortmaker, Must, Perrin, Sobol, & Dietz, 1993). Due to the increasing prevalence of overweight and obesity among children, along with the psychosocial consequences, this epidemic could ultimately affect the intellectual level and quality of life of future generations negatively (Puhl & Latner, 2007), thereby emphasizing the need for understanding barriers and facilitators to obesity management.

Economic consequences. From a financial perspective, it has been estimated that obesity and overweight cost the Canadian economy approximately $4.6 billion in 2008, which increased by $735 million, or about 19%, since 2000 (PHAC, 2011). This rise can be attributed to direct (e.g., hospitalizations, drug therapy, physician and emergency room visits, medications, and supplies), and indirect costs (e.g., related to short- and long-term disability; lost productivity due to illness or premature death; Janssen, 2013). In 2006, the corresponding costs for overweight were $2.1 billion directly and $1.9 billion indirectly, and for obesity were $3.9 billion directly and $3.2 billion indirectly (Janssen, 2013). Today, the total annual economic burden of overweight and obesity in Canada is estimated to be more than $11 billion (Janssen, 2013). Until prevention and management efforts are successful in reducing the prevalence of obesity in Canada, the related medical costs will remain high (Katzmarzyk, 2011). Based on the uniqueness of every patient's obesity-related etiology, obesity management often requires individualized care plans; however, integrating a standard form of childhood obesity assessment across health disciplines at the outset is important for cost-efficiency, consistency, and maintaining best practices (Spruijt-Metz, 2011).

Assessing Childhood Obesity

Assessing obesity is often done by a trained HCP in a primary care setting (Gallagher & Yim, 2012). According to Plourde (2006), a physician should incorporate gestational history, linear growth, weight, age of onset, pubertal history if applicable, and detailed histories of diet, physical activity, and psychosocial factors when assessing a child for overweight or obesity. The most common way to identify overweight and obesity is through conducting a body mass index (BMI) calculation, which is defined as a person's weight in kilograms divided by his/her height in meters squared (WHO, 2014). For adults, overweight is classified as a BMI greater than or equal to 25 kg/m^2, while obesity is classified as a BMI greater than or equal to 30 kg/m^2 (WHO, 2014). Measuring obesity in children can be more challenging than adults; children are expected to gain weight as they grow so each age needs its own BMI range that accounts for normal or average growth trajectories (Gallagher & Yim, 2012; Moore & Pi-Sunyer, 2012). The Institute of Medicine uses the BMI-for-age, or BMI-*z*, to measure obesity in this population; if the child is greater than or equal to the 95^{th} percentile for his/her age and sex, he/she is classified as obese (Gallagher & Yim, 2012; Moore & Pi-Sunyer, 2012; WHO, 2014). If the child falls between the 85^{th} and 95^{th} percentile, then he/she is classified as overweight. BMI does not identify fat percentages or where fat accumulates, which is why it is commonly used in conjunction with other measurement techniques. Abdominal obesity can be measured by waist circumference, waist to hip ratio, or sagittal abdominal diameter (Smith & Haslam, 2007). A high level of central adiposity is associated with greater risk for diabetes, cardiovascular disease, and certain cancers; therefore waist circumference can better detect this risk than BMI alone (Gallagher & Yim, 2012). Patients may feel uncomfortable when having waist circumference measured since it is a more intimate form of measurement than BMI (Piccinini-Vallis, 2011); this may be

especially true in patients with overweight or obesity (Puhl & Latner, 2007).

Health Care Providers' Use of Tools and Guidelines for Obesity Management

When assessing obesity, there is a need for the inclusion of obesity screening tools in practice as part of health surveillance in young children (Morinis et al., 2012). In addition to understanding HCPs' barriers and facilitators when addressing childhood obesity, an appreciation of how screening tools are integrated into practice as part of a standard of care could aid in the development of future intervention and education programs (Bailey et al., 2013). The Canadian Medical Association Obesity Guidelines (Lau et al., 2007), Canadian Diabetes Association (CDA) 2013 Clinical Practice Guidelines (CDA, 2013), and the Canadian Obesity Network's (CON) 5As of Obesity Management (CON, 2014a) are available to HCPs in Canada and detailed below.

Canadian Medical Association Obesity guidelines. The *2006 Canadian Clinical Practice Guidelines on the Management and Prevention of Obesity in Adults and Children* (2006 Canadian Clinical Practice Obesity Guidelines) were published by the Canadian Medical Association in 2007 (Lau et al., 2007). These guidelines were created to provide recommendations for practice concerning individual and population-based interventions (e.g., screening for obesity, obesity-related conditions, and psychosocial disorders; prevention of obesity; dietary interventions; physical exercise therapy; health care team support; Lau et al., 2007). The authors state that a wide range of health care professionals should be able to integrate the guidelines into everyday practice, and recommendations range from the need for improved observation and population-based data, to more recent research on the determinants of obesity, in addition to research on effective management strategies, policies, and interventions.

There are 26 chapters of recommendations within the guidelines that are broken down

into two sections (Lau et al., 2007). The first discusses the epidemiology of obesity, classification of overweight and obesity in adults, and the prevention, assessment, and management of overweight and obesity in adults and children. The second section focuses on research, policy, and education, and includes information on implementation. Within the document, it is stated that dissemination of the guidelines can be organized by a central organization, but should be carried out locally by individuals or local organizations (Lau et al., 2007).

Piccinini-Vallis (2011) reviewed physicians' awareness and familiarity with the 2006 Canadian Clinical Practice Obesity Guidelines. A survey was sent to a randomly selected sample of physicians in Nova Scotia (n =152) to identify familiarity with the guidelines. Only one-third of physicians were aware of the guidelines, and of those who were aware, the familiarity level was moderate. Those who had access to electronic medical records (EMRs) were more likely to be aware of the guidelines than those who did not. Physicians practicing in urban communities were significantly more familiar with the guidelines than physicians practicing in rural communities. Those who were aware of the guidelines were significantly more likely to calculate BMI for both adults and paediatric patients, than those who were unaware of the guidelines. Moreover, the higher the physicians' familiarity with the guidelines, the more likely they were to measure paediatric weight and calculate BMI (Piccinini-Vallis, 2011), thereby enhancing the likelihood of management efforts. While some research supports awareness and use of the 2006 Canadian Clinical Practice Obesity Guidelines, it appears that the document is not being integrated consistently into practice.

Canadian Diabetes Association 2013 Clinical Practice guidelines. Although the Canadian Diabetes Association (CDA, 2013) guidelines are not specific to obesity management,

the behaviour change-related goals that HCPs working with children who have Type 2 diabetes can prescribe and those with overweight or obesity are similar. Obesity and Type 2 diabetes are very strongly linked in terms of prevalence and negative health effects (Pearson, Irwin, Morrow, Battram, & Melling, 2012; Ransom, Goldenberg, Mikalachki, Prebtani, & Punthakee, 2012) and some HCPs use these guidelines when seeking to manage obesity (Pearson, Fairservice, & Burke, 2014). The CDA publishes an updated version of comprehensive, evidence-based guidelines for HCPs every five years (Cheng et al., 2013). The content includes research on classification and diagnosis of diabetes, screening for and reducing the risk of developing diabetes, management, complications, and diabetes in special populations (Cheng et al., 2013). The guidelines are broken down into 35 separate recommendations which include (in relation to obesity): screening for Type 1 and Type 2 diabetes, reducing the risk of developing diabetes, self-management education, physical activity and diabetes, nutrition therapy, Type 2 diabetes in children and adolescents, and Type 2 diabetes in Aboriginal peoples (Cheng et al., 2013).

In relation to the paediatric population, Type 2 diabetes is more closely linked with obesity than Type 1 diabetes (Panagiotopoulos, Riddell, & Sellers, 2013). Children diagnosed with Type 2 diabetes often also have overweight or obesity, and are advised to seek management programs that introduce healthy lifestyle habits including diet and physical activity (Panagiotopoulos et al., 2013). Type 2 diabetes can be difficult to manage (in regards to medication and self-care), so patient education from HCPs is necessary (Centre for Disease Control and Prevention, 2014). Children with Type 2 diabetes should receive care from an interdisciplinary healthcare team in order to maximize management outcomes.

Canadian Obesity Network's 5As of Obesity Management. One tool that is a fairly recent addition to the options available to Canadian HCPs is the "5As of Obesity Management"

created by the Canadian Obesity Network under the direction of Dr. Arya Sharma (CON, 2014a). The 5As are "a set of practical tools to guide primary care practitioners in obesity counseling and management" (CON, 2014a). This tool was created for busy HCPs who work towards managing obesity in their patients (CON, 2014a). The core principles that guided the development of the 5As framework arose from consultations with primary care providers, obesity experts, and patients through many interviews, focus groups, and surveys (CON, 2014a). These guiding principles are as follows: obesity is a chronic and progressive condition (i.e., short-term solutions focusing on maximal weight loss are not generally successful so obesity management requires realistic care plans); obesity management should be measured by health improvements rather than numbers on a scale (i.e., success should be measured by improvements in health and well-being); causes of obesity and barriers to weight management are addressed by early intervention (i.e., requires the identification of the main cause of the patients' weight gain as well as barriers to weight management); success is individualized (i.e., success can be measured in many ways, such as improved self-esteem or higher energy, and that each patient has individual goals); and a patient should set a goal that is ideal to his/her body (i.e., realistic goals to find a patients' "best weight" should be focused on).

The 5As are intended to serve as a step-by-step process. The first step when consulting with patients is to Ask permission to speak about weight and determine how ready the patient is for change. The second step, or second "A," is to Assess health risks associated with obesity and what caused the weight gain. The third step is to Advise the patient about the risks of obesity and the benefits of management. The fourth step is to Agree on weight-loss prospects and a "SMART" goal plan. A "SMART" goal plan would be one that is Specific, Measurable, Achievable/ Agreed-upon, Realistic, and Time-Based (Day & Tosey, 2011). The fifth and final

step is to Assist in addressing any barriers the patient has, provide education and resources, refer where necessary, and schedule a follow-up (CON, 2014a). The 5As have been adapted into a tool for paediatric obesity management using a family centered approach, but still follows the same guiding principles as those for adults. To date, little research has been conducted regarding the use of the 5As in clinical practice (Campbell-Scherer et al., 2014). However, because the 5As are accessible on-line and can be ordered through the Canadian Obesity Network, they may prove useful for rural HCPs who manage paediatric patients in their practice, and may not have access to obesity-specific training due to geographical isolation.

In addition to conducting assessments, HCPs are well positioned to prevent and manage childhood obesity (He et al., 2010; Morinis et al., 2012; Spivack et al., 2010). Given the health consequences and need for intervention in NWO, gaining a greater understanding of the geographic region, and health care practices that occur in this setting as they pertain to childhood obesity assessment and management is needed.

Review of the Literature

Rural-Urban Geographical Differences in Obesity Prevalence

A variety of studies have examined geographical differences in the prevalence of obesity in children, and found that those living in rural areas are more likely to have overweight or obesity than those in urban ones (Bruner et al., 2008; Ismailov & Leatherdale, 2010; Simen-Kapeu et al., 2010). Using school-based populations, Bruner et al. (2008) compared rural and urban Canadian adolescents to determine overweight and obesity prevalence. Participants were sampled based on the rurality of their school and ranged from grades 6 to 10, with a total of 4851 students enrolling from across Canada. The participants came from a variety of community sizes, with 14.4% from large metro areas, 22.2% from medium metro areas, 24.6% from small

metro areas, 16.7% from non-metro-adjacent areas, and 22.2% from rural areas. Higher occurrences of both overweight (22%) and obesity (6%) were observed in rural as opposed to small metro (18% overweight, 5% obese), medium metro (14.5% overweight, 3.4% obese), and large metro (15.2% overweight, 3.6% obese) areas. Those living in rural areas also had unhealthier diets when compared to those in metropolitan areas, which is a factor associated with the development of obesity (Bruner et al., 2008).

Similarly, Simen-Kapeu et al. (2010) conducted a study to identify geographic differences in childhood overweight, physical activity rates, and nutrition habits in Alberta. Schools were selected based on municipality size; 148 schools participated with a total of 3,421 grade five students. The results revealed that students from rural communities were significantly more likely to be overweight and to have parents with lower education levels than students from urban areas. Students who attended school in towns and rural areas had a higher percentage of body fat than urban dwelling students, and were significantly more likely to buy high-calorie snacks at school than students from urban areas. The food environment (which includes the availability and type of foods offered) in rural schools was notably of poorer quality than in urban schools. The authors concluded that rural and isolated communities are more likely to experience eating diets high in fat and sugar and low in vegetables and fruits, thereby demonstrating that geographic childhood overweight differences between rural and urban populations do exist due, in part, to poor nutrition.

On a more local level, Ismailov and Leatherdale (2010) examined rural-urban differences in overweight and obesity among adolescents in Ontario (n = 25,416). Surveys were distributed to grades 9 to 12 students and completed in class. The label of urban, suburban, or rural was given based on the description from the school administrator of the population size in the area.

The prevalence of overweight was 14.6% in urban areas, 13.8% in suburban areas, and 15.1% in rural areas. Rates of obesity in urban, suburban, and rural areas were 6.3%, 6.0%, and 6.7% respectively. While not substantially different (less than 1%), the difference between regions was significant. Moreover, there is a tendency for individuals to under report their weight when providing self-report accounts (Janssen, 2013); thus, it is likely that these rates were actually higher than what was reported.

Based on these studies, the prevalence of overweight and obesity appears higher in rural as compared to urban and suburban areas (Bruner et al., 2008; Ismailov & Leatherdale, 2010; Simen-Kapeu et al., 2010; Spleen, Lengerich, Camacho, & Vanderpool, 2013). Rural communities are known to have less community programming (i.e., physical activity and family health programs) than larger communities (Willms, Tremblay, & Katzmarzyk, 2003), so HCPs often play a role in patient education as well as care (Pearson et al., 2014). Given their close working proximity to children and youth, studies have been conducted in an effort to identify the role HCPs can play in childhood obesity management, and uncover any barriers and facilitators they experience that could influence subsequent care practices.

Health Care Providers' Roles in Childhood Obesity Management

Most Canadian children see a primary care physician or paediatrician in a community-based primary care office (Morinis et al., 2012). In the context of obesity, a variety of HCPs can be included in management, with scopes of practice including prevention, screening, diagnosis, relapse prevention, and long-term care (Derksen et al., 2012). In Ontario over 85% of infants and toddlers see a physician for routine vaccinations (Morinis et al., 2012). This could be a prime opportunity for health professionals to begin screening for the prevention of childhood obesity (Morinis et al., 2012; Plourde, 2006; Turner et al., 2009).

Interdisciplinary healthcare in Canada. Interdisciplinary healthcare teams are an important asset to patient care in Canada (Kemp, 2007), and consist of a variety of HCPs working together to enhance patient-centered care (McCallin, 2001). Canadian healthcare teams can include a combination of family physicians, paediatricians, primary care nurses, dieticians, social workers, psychologists, pharmacists, or exercise specialists (Sayah et al., 2013). Research has shown that HCPs working together as a team have agreed that the team approach benefits patients more than working individually (Leipzig et al., 2002; Sayah et al., 2013). Interdisciplinary teams decrease patient wait times, as the collaboration allows HCPs to tend to patients with problems more specific to their discipline (Kemp, 2007). Health care providers working together also allow for a more in-depth management plan with easier access for the patient (Kemp, 2007).

In Ontario, Family Health Teams contain many of these health professionals all under one roof (Rosser, Colwill, Kasperski, & Wilson, 2011). Ontario's Family Health Team Model began in 2005, after physicians started to struggle to meet patient loads and job demands (Rosser et al., 2011). The Family Health Team Model adds interdisciplinary clinicians, such as nurses, nurse practitioners, dieticians, and social workers, to assist the family physician and widen the scope of practice of the clinic (Rosser et al., 2011). In 2011, 68% of Ontario practices were registered in a Family Health Team Model, and there were 170 Family Health Teams caring for nearly 2 million patients (Rosser et al., 2011). No Family Health Team is the same; the desired practice size is seven family physicians and interdisciplinary team members; however, rural Family Health Teams can have only one or two physicians in each community (Rosser et al., 2011). Interdisciplinary teams, such as Ontario's Family Health Teams, could work well in obesity prevention because referrals and assessments can all be conducted in the same building

(He et al. 2010). In NWO, Family Health Teams are implemented for patient care, as the rural communities do not have the same access to resources as in the city of Thunder Bay (i.e., paediatricians and other specialists). In 2012, the North West LHIN integrated a patient care network called Health Links to enhance interdisciplinary care amongst the rural communities in NWO (North West LHIN, 2014). Health Links allows for more collaboration between community Family Health Teams in NWO, which is intended to lead to more coordinated care between HCPs (North West LHIN, 2014). Given the interdisciplinary model has been shown to impact the HCP and patient experience positively, gaining a greater understanding of how it is used in rural contexts could be beneficial regarding the standard of care for and management of childhood obesity.

HCP barriers to obesity management. Identifying barriers and consistent assessment practices for childhood obesity is crucial when seeking to uncover a standard of care and promote management efforts (Redsell et al., 2011; Story et al., 2002). When addressing childhood obesity, HCPs generally need to interact with the child and his/her family unit (i.e., parents), which makes management more complex than among adults (Turner et al., 2009; Walker, Strong, Atchinson, Saunders, & Abbott, 2007). This is especially an issue since parents often do not recognize that their child has overweight or obesity (Pagnini, King, Booth, Wilkenfeld, & Booth, 2009; Turner et al., 2007). Clinicians find it easier to discuss a child's weight with patients whom they have known since birth rather than new patients (Edvardsson, Edvardsson, & Hornsten, 2009). Trust between the clinician and patient must be established in order to discuss such sensitive topics (Edvardsson et al., 2009). Given the typical Canadian patient spends only 10 minutes with a physician during a visit (Ohtaki, Ohtaki, & Fetters, 2003), the development of such rapport can become a challenge. Many clinicians believe that 10

minutes is not enough time to address overweight or obesity so it is rarely discussed with patients (Turner et al., 2009; Walker et al., 2007).

While HCPs are aware of the seriousness of childhood obesity as well as the associated health and social consequences (King et al., 2007), in a study conducted by Plourde (2006), only 50% of children with obesity were identified as such by HCPs, and the evaluation and management for the 50% of children who were diagnosed was not consistent with the recommendations for childhood obesity. There is also resistance during consultations to address obesity because weight is a sensitive topic and there is the risk of losing the patient by raising the issue (Edvardsson et al., 2009; King et al., 2007; Turner et al., 2009).

Beyond the issue of rapport, a discrepancy of roles and responsibilities and limited training when it comes to preventing and managing childhood obesity exists among HCPs (Bailey, Pemberton, & Frankfurter, 2013; Redsell et al., 2011). Some general practitioners and nurse practitioners believe their role is only to raise the issue to the parents and then manage medical problems associated with the obesity (Walker et al., 2007). Because obesity is very complex, clinicians are not always willing to take the lead in obesity prevention and management (King et al., 2007; Walker et al., 2007). In the case of paediatricians, this may be due to the limited obesity training received in residency programs (Goff, Holmboe, & Curry, 2010). Many paediatric residency program leaders have stressed a need for experts in different fields to design training for obesity prevention and management (Goff et al., 2010). Other barriers that HCPs may face are limited knowledge on the use of obesity guidelines, and low confidence levels in using these guidelines due to limited training (Redsell et al., 2011; Turner et al., 2009). A more thorough examination of these barriers in practice is detailed below.

In 2012, a study was conducted in the Netherlands, where 29 HCPs were interviewed via

focus group to determine barriers toward implementing the health care standard for managing adult obesity (Derksen et al., 2012). The participants found discussing weight-related topics with patients difficult, and many did not actually consider overweight or obesity a chronic condition. The HCPs only identified overweight and obesity as an issue when related to other comorbidities, such as diabetes. Some HCPs, such as physiotherapists, felt that discussing overweight or obesity was not a part of their role in management. Nurses and physician assistants knew that screening and prevention are important tasks for their position, but did not give a priority to it in practice. All HCPs valued a multidisciplinary approach to long-term weight management; however, this was not reflected in the actual management provided. There was a similar trend when discussing communication; all HCPs believed that communication is necessary, but they found their communication to be inadequate in practice, especially between physicians and other HCPs. Derksen et al. (2012) suggested that future research is needed to explore the barriers in health care when dealing with overweight or obesity. Although Derksen et al. (2012) provide valuable insight pertaining to adult obesity, they do not include findings specific to childhood obesity, and there may be cultural differences between Canada and the Netherlands that could affect provision of management procedures.

On a more local scale, Bailey et al. (2013) recently conducted a qualitative study in Canada exploring physicians' attitudes regarding the management of childhood obesity and many barriers were found. This was the first qualitative study in Canada to do so. Physicians from across Canada (n = 24) participated in semi-structured interviews and noted that stigma in the health care system negatively affected those with obesity more than other patients. It was concluded that physicians' attitudes should shift from blaming the patient for his/her weight issue to promoting healthy lifestyles. When dealing with paediatric obesity, physicians identified

the main causes to be societal changes, poor nutrition, low physical activity levels, and psychosocial risk factors, making it a very complex issue to manage. Physicians in all regions of the country described family engagement as the key to management results, and a need was indicated for more primary care education for physicians working to manage childhood obesity overall. For example, physicians had limited knowledge of the 2006 Canadian Clinical Practice Obesity Guidelines (Lau et al., 2007), which were developed as a tool to be integrated into practice. While this study provides insight into physicians' barriers experienced when managing childhood obesity, the information is not specific to rural populations, and does not include the perspectives of other HCPs (i.e., dieticians, nurses, social workers) who are important to consider as health care models increasingly move toward an interdisciplinary, family team approach (Kemp, 2007).

Pilot study. In light of the higher childhood obesity trends in NWO, the unique circumstances of HCPs in this region (i.e., geographically isolated, lower HCP availability), and scarcity of data examining the perspectives of HCPs regarding obesity management practices in Canada, Pearson et al. (2014) recently conducted a pilot study titled "Addressing childhood overweight and obesity in Northwestern Ontario: What is being done and where to next?" This qualitative study aimed to explore HCPs' barriers and facilitators to managing childhood obesity using semi-structured, in depth interviews in Thunder Bay, Ontario. Results will be used to inform the development of locally tailored interventions aimed at decreasing childhood obesity rates and associated health outcomes in the city. Participants included ten HCPs (three dieticians, two family physicians, one paediatrician, and four social workers) who work with children and youth in the city.

Analysis of the data is ongoing; however, preliminary results indicate that limited

resources (e.g., time, finances, education) exist for both families and HCPs when working to manage childhood obesity. Access to dieticians and social workers in particular, is minimized for those working in small clinics; a lack of interdisciplinary team access was especially emphasized by those with independent family practices. In line with the findings of Findholt et al. (2013), it was suggested by all participants that more interdisciplinary teams be made available to manage children with obesity in Thunder Bay. The participants consistently mentioned that childhood obesity would be easier to manage if the patient had an appointment with an interdisciplinary team including a variety of HCPs. This would allow the HCPs to brainstorm management approaches and work together to form a care plan for the patient. Since childhood obesity is such a complex issue to address, it was noted by participants that having input from a dietician, social worker, physician/nurse practitioner, and nurse combined would be ideal. While exploring these urban HCP perspectives regarding obesity management provides an important first step in identifying the barriers and facilitators experienced by those working with children and youth in NWO, the views of those in the rural surrounding areas have yet to be explored.

HCP barriers to obesity management in rural contexts. Due to the higher rates of childhood obesity in rural areas (Cragg & Craig, 2009) and associated health consequences (Freedman et al., 1999; Reilly et al., 2003; Weiss et al., 2004), it is essential to evaluate the level of preparedness for management and prevention among HCPs in this region, in addition to standard care practices. Rural NWO communities are noticeably isolated from the majority of the province's population, which means that HCPs may experience even more barriers to management of chronic diseases than HCPs working in urban communities (Khoong, Gibbert, Garbutt, Summer, & Brownson, 2013; Pearson et al., 2014).

Recently, Khoong et al. (2013) explored rural, suburban, and urban factors that impact physician adherence to following clinical preventive service guidelines in the USA. The guidelines were initially created by the US Preventive Service Task Force with an emphasis on chronic disease prevention in the primary care setting. Twenty-nine health care professionals participated in semi-structured interviews: 10 from rural communities, 10 from suburban communities, and nine from urban communities. It was concluded that the further away a patient is geographically from health care access, the less frequent his/her visits are, which inhibits rural physicians from following guidelines. Rural physicians faced barriers to providing preventive services to all patients, such as limited access to resources and referral services. Nearly all rural physicians stated that travel distance is a barrier for patient adherence, and patients were less likely to schedule visits and return for preventive care follow-ups.

Transportation was noted as a key issue for patient adherence by rural physicians (Khoong et al., 2013). Supporting this notion of adherence, are findings obtained by Spleen et al. (2013) who studied health care avoidance within rural populations. Amongst the American population surveyed (6,714 adults), nearly 34% responded that they avoided health care visits when there was suspicion of a health issue. Rural residents were nearly twice as likely to report avoidance in comparison to those living in a metropolitan area. According to the study authors, health care is often uncoordinated between the small primary care offices, community clinics, and small hospitals. Limited specialists in rural communities can also greatly affect the health outcomes of those battling with chronic diseases, such as obesity (Spleen et al., 2013). Beyond inhibiting the ability of physicians to provide consistent care in accordance with the guidelines, these studies bring to light the negative impact that rural-specific barriers such as access to care and limited resources can have on subsequent patient health and quality of life.

Findholt et al. (2013) explored American rural clinicians' challenges to managing childhood obesity. Thirteen rural clinicians, including four family physicians, two paediatricians, four family nurse practitioners, one pediatric nurse practitioner, and two physician assistants in family practice, were interviewed using a semi-structured interview guide. According to the findings, HCPs in rural communities have very few resources to assist with weight management for the public. In terms of practice related barriers, rural physicians experienced time constraints, lack of reimbursement for training, and limited obesity screening opportunities. They also had little to no training regarding childhood obesity; however, an interest in training was expressed. Another major barrier found was a lack of multidisciplinary care teams, and it was suggested that rural clinicians use video conferencing for education and referrals if multidisciplinary teams are not available. With limited access to specialists for referrals, a strong need for clinic- and community-based programs was identified. Findholt et al. (2013) recommended that more research focus on rural clinicians' challenges when addressing obesity, and determining whether HCPs in other rural areas have similar challenges.

Limitations of Past Research

While research has been conducted in other countries exploring rural HCP perspectives on childhood obesity management (e.g. Findholt et al. [2013] in the USA and Derksen et al. [2013] in the Netherlands), no qualitative research examining the barriers, facilitators, and care practices experienced by HCPs has taken place in Canada, especially in a rural Family Health Team setting. Given that childhood obesity is a complex health issue, management should come from an interdisciplinary team rather than physicians alone (Bailey et al., 2013; Findholt et al., 2013). Evidence has shown that interdisciplinary teams, and Family Health Teams in Ontario, have had a positive effect on managing chronic conditions (Kemp, 2007; Rosser et al., 2011).

The group dynamics of a Family Health Team also take the pressure off of each individual HCP and allows for a more complex management plan to be developed (Rosser et al., 2011). Gaining greater insight into the barriers and facilitators experienced by HCPs in rural areas could enhance research on childhood obesity practices in small communities as well as interdisciplinary management as provided through the Family Health Team model. Exploring current care practices by determining which childhood obesity management tools are available and utilized by rural HCPs could serve as a rationale for future research introducing new tools and care practices, as well as intervention programs geared towards smaller isolated communities.

Purpose

The purpose of this qualitative study was to explore the perspectives of interdisciplinary HCPs' that subscribe to the Family Health Team Model in rural NWO communities regarding the care practices, facilitators, and barriers experienced when working to manage overweight and obesity in children (ages 0-17).

Method

Design of Study

For the purpose of this study, a qualitative research design was employed to deeply explore HCPs perspectives. Health care providers such as physicians, dieticians, social workers, and nurses have different educational backgrounds and training, which makes each individual HCP's perspective unique, as well as specific to his/her particular work environment. Qualitative research was well suited to the purposes of this study because it allows the researcher to understand the daily experiences and social settings of the group of interest, as well as the participants' perspectives more thoroughly (i.e., in comparison to quantitative methods; Van Den Hoonaard, 2012).

Ontological perspective. This qualitative study drew from the paradigm of constructivism throughout the implementation and data analysis phases (Patton, 2005). Constructivism "begins with the premise that the human world is different from the natural, physical world and therefore must be studied differently" (Patton, 2005, p. 96). By following this paradigm, the researcher constructed knowledge about the participants' experience instead of trying to create an experience itself (Patton, 2005). According to Guba and Lincoln (1989), there are many assumptions of constructivism; truth must be agreed upon by highly educated constructors; an experience can only be understood within its own context; accusation is the only way that cause and effect relationships can occur; data from constructivist research is only useful to move forward for other similar research; and, facts are only meaningful when used to explain something of value to the research participant (Guba & Lincoln, 1989). For the purpose of this study, the constructivist paradigm was well suited because the views of the HCPs working in rural areas can only be understood within a rural context, and may not be comparable or transferable to those ascribed from HCPs working in urban centres. This is because the HCPs working in rural areas are a distinctive population that may experience more barriers, and therefore, different beliefs about the phenomenon (i.e., childhood obesity prevention and management), than urban HCPs (Findholt et al., 2013).

Participants and Sampling Techniques

It was intended that 10-15 HCPs, out of approximately 50 HCPs (e.g., physicians, nurses, nurse practitioners, social workers, and dieticians), would be sampled from interdisciplinary Family Health Teams in the Thunder Bay District Health Unit (TBDHU) rural region (i.e., Nipigon District Family Health Team, North Shore Family Health Team in Schreiber and Terrace Bay, Greenstone Family Health Team in Geraldton, Marathon Family Health Team, and

Manitouwadge Family Health Team). These Family Health Teams were selected based on their association with the TBDHU, and their rural and isolated locations in NWO. Health care providers who indicated an interest in participating and work one-on-one with children and youth were considered eligible for this study. Family Health Teams were approached as a whole when recruiting so that perspectives of a variety of HCPs could be explored in isolation and in relation to one another (i.e., perspectives of all physicians vs. perspectives of one whole Family Health Team). Because qualitative research is focused on obtaining rich information about a specific group of participants, two sampling techniques were used (Van Den Hoonaard, 2012). In order to obtain a representative sample for the region (Trochim, 2005), these included purposive sampling, in which the participants were selected based on their knowledge of the constructs being studied, and snowball sampling, whereby the participants can indicate others who may be eligible to complete the study (Trochim, 2005).

Upon receiving ethical approval from Lakehead University's Research Ethics Board (see Appendix A), potential participants were recruited in a variety of Family Health Team clinics in the TBDHU rural region. The researcher contacted clinics by telephone and in-person when possible; an information letter about the study was also sent to clinics via e-mail and fax (see Appendix B). Interested participants were directed to contact the researcher, who provided pertinent details on the study and determined whether the individual was eligible for inclusion. The potential participants were informed that they could refer other individuals to the researcher, and were given the researcher's contact information so they could inform other potential participants to contact her if interested.

Procedures

Interviews were scheduled according to the participant's schedule and conducted over the

telephone. Prior to the interview, the HCPs filled out a demographic questionnaire (see Appendix C) in order to provide contextual information on the study participants. A semi-structured interview guide (see Appendix D) created by the researcher (A. F.) was adapted from the pilot study (Pearson et al., 2013) and created based on the results of Wiley et al. (2012) and He et al. (2010). This interview guide was used to explore insights into the facilitators and barriers experienced when managing childhood obesity, and their influence on care practices in their communities. Each interview was conducted by the graduate student, Alyssa Fairservice (A. F.), audio-recorded, and transcribed verbatim. The interviews typically lasted 45 minutes in duration.

According to Van Den Hoonaard (2012), qualitative semi-structured in-depth interviews allow for great flexibility in that the questions can be adjusted throughout the study in order to observe new emergent themes or ideas. The semi-structured format helped to ensure that no questions were forgotten while giving the participant the freedom to speak and illustrate personal experiences. The semi-structured format also enabled the interviewer to bring the discussion back to the topic if it deviated, and the participant to speak for the majority of the interview so that the researcher could engage in active listening (Van Den Hoonaard, 2012). Probes (e.g., breaking down a broad question into related individual questions) were used to draw information from the participant further, and questions were open-ended to allow for discussion. The in-depth component allowed participants to explain their experiences, attitudes, and feelings, as well as define the situation in their own words (Van Den Hoonaard, 2012).

Informed consent. Prior to the interview, participants were given an information letter about the study detailing the nature of the research project, as well as the risks, consequences, and potential benefits associated with it. The researcher explained the study verbally, answered

any questions the participant had, and then asked him/her to read the consent form in its entirety prior to signing (see Appendix E). The participant was informed that s/he has the right to withdraw from the study at any time without penalty, and could refuse to answer any of the questions posed during the interview.

Anonymity and confidentiality. All participant identities were held as anonymous throughout the research process via coding at the outset. No personal information, including the participant's name or contact information, was used in the analysis of the data.

Instrumentation

Demographic questionnaire. For consistency and to enable future comparisons, the questionnaire used to collect demographic information for each participant was derived from the NWO pilot study (Pearson et al., 2014). Items included the participant's profession, place of employment, years of experience, patient load, and obesity assessment techniques. One question asked under what circumstances HCPs would assess patients for childhood obesity, and the answer options provided were: screen all patients at each visit, referred by other health care professional, when comorbidities exist, when concern is shown by child/adolescent, per request by parent/guardian, professional judgment calls for further assessment, or other. An additional question regarding which method the HCP preferred to use when assessing childhood obesity included answer options: body weight alone, BMI, CDC BMI-for-age charts, Rourke Baby Record, appropriate weight for height charts, or professional judgment.

Interview protocol. An interview guide was adapted from the pilot study (Pearson et al., 2014) by the researcher and used to conduct the semi-structured one-on-one interviews. In an effort to answer the research question and identify care practices, facilitators, and barriers experienced by participants, the interviewer used open-ended questions to obtain thematic

information such as attitudes toward childhood obesity, the current standard of care in practice, resources available, and recommendations for a future standard of care. The interviewer followed the guide; however, she also developed new questions based on the answers provided in order to address any topics that were brought up by the participants.

Data Analysis

The data collected from the demographic questionnaire was entered into SPSS (IBM, 2014) and analyzed using descriptive statistics to determine the mean and range of each item (e.g., years of experience in practice, patient load, obesity assessment techniques). The data collected in the interviews (i.e., audio-recordings) were transcribed verbatim and analyzed using inductive content analysis (see below; Elo & Kyngas, 2008) in NVivo software for qualitative research (QSR International, 2015). Using NVivo allowed for rigorous analysis of the data through concise categorizing of themes/subthemes, and identification of how many sources and references (i.e., direct quotes from participants) contributed towards each.

Inductive content analysis. Content analysis is a research method for analyzing data with the purpose of providing new knowledge and giving a detailed representation of the phenomenon being studied (Krippendorff, 1980). The goal is to end up with a condensed description of the phenomenon based on categories derived from the data (Elo & Kyngas, 2008). According to Elo and Kyngas (2008), there are two kinds of content analysis: inductive and deductive. Inductive content analysis is used when there is minimal knowledge about the phenomenon being studied, whereas deductive content analysis is used when there is previous knowledge about the phenomenon and previous theories are being tested (Elo & Kyngas, 2008). For the purposes of this study, inductive content analysis is suitable because the population (i.e., rural interdisciplinary HCPs managing childhood obesity) has never been studied before in

Canada.

There are three phases to inductive content analysis: preparation, organizing, and reporting (Elo & Kyngas, 2008). The preparation phase involved choosing a unit of analysis, which were the interview transcripts. The organization phase began next with open coding, in which labels and headings were assigned by the primary researcher (A. F.) while reading the transcripts. After open coding was complete and the entire transcript had been read through multiple times (i.e., until the researcher could not come up with any new codes or saturation of the data was reached), categories were then created to group the codes into themes based on topics (Elo & Kyngas, 2008). Subcategories with similar topics were grouped together as categories, and categories were grouped together as main categories (Dey, 1993; Kyngas & Vanhanen, 1999; Robson, 1993). The purpose of creating these categories was to increase understanding by better describing the phenomenon being studied (Cavanagh, 1997). The final step of organization was abstraction, which involved forming a general description of the phenomenon based on the categories created (Burnard, 1996; Polit & Beck, 2004; Robson, 1993). Once abstraction was complete, which continued until no more categories could be grouped together per the discretion of the researcher, the results were collated and organized based on the findings from the categories (see below; Elo & Kyngas, 2008).

Trustworthiness and rigor. Trustworthiness is a verification strategy used in qualitative research in order to support the credibility (i.e., using proper measurement techniques and triangulation), transferability (i.e., how well the findings can be applied to other similar populations or contexts), dependability (i.e., if the study were to be repeated in a similar setting, the results would be similar), and confirmability (i.e., peer-reviewing to remove researcher bias) of the data (Morse, Barrett, Mayan, Olson, & Spiers, 2002; Shenton, 2004). Multiple strategies

were integrated throughout the data collection process to enhance trustworthiness (Lincoln & Guba, 1985). Credibility was accomplished through triangulation of data (i.e., using multiple methods of data collection; Scott & Garner, 2013), which entailed having the project supervisor (Dr. Erin Pearson) assist with data analysis (e.g., review and verify themes) and using a demographic questionnaire to enrich the interview results. An audit trail (i.e., field notes of the data collection and analysis process throughout the study) was also kept by the researcher (Van Den Hoonaard, 2012). In line with the aforementioned pilot study (Pearson et al., 2014), the researcher also used member checking (a continuous process of reflecting back the participants' words; Morse et al., 2002) throughout the interviews after the participant responded to a question or series of questions to confirm that the researcher's reconstruction of the participant's views were correct. A thick description of the data, to enable the findings to be applied elsewhere, will be used to enable transferability of the data. Dependability and confirmability were established by using an audit trail; the project supervisor also audited the findings separately.

Rigor, a form of confirmation used in qualitative research to increase the trustworthiness of the data (Morse et al., 2002), was enhanced through four verification strategies, including: (1) methodological coherence (i.e., ensuring the methods match the research question by using qualitative interviews to collect rich data); (2) selecting an appropriate sample (i.e., recruiting rural HCPs with paediatric patients who work in Family Health Teams to provide perspectives on interdisciplinary approaches to childhood obesity management); (3) collecting and analyzing data concurrently (i.e., transcribing and analyzing interviews as they occurred); and (4) thinking theoretically (i.e., confirming new ideas and looking for relationships in the data collected). Simultaneous triangulation of the interview transcripts, demographic questionnaires, field notes, as well as an audit trail that was maintained throughout the data collection process, were also

used to enhance rigor (Morse et al., 2002).

Results

Demographics

A total of 13 HCPs contacted the researcher with interest to participate in the study; however, only 11 HCPs enrolled. One HCP was deemed ineligible due to his/her limited work experience in the community and number of paediatric patients seen in practice. One HCP had scheduling conflicts and could not complete the interview. Rural regions represented in this study included Greenstone, Marathon, Manitouwadge, Nipigon, and Schreiber/Terrace Bay. The majority of participants (n = 7) were employed in one of these centres and comprised an entire Family Health Team. The remaining participants were divided (n = 1 per town). The professions represented consisted of registered dieticians (n = 3), family physicians (n = 3), nurse practitioners (n = 3), social workers (n = 1), and registered practical nurses (n = 1). The majority of participants were female (n = 10). Demographic results of HCP experience and patient load are shown in Table 1 below. Table 2 shows the circumstances and methods in which participants assess paediatric patients. Participants were instructed to circle all that apply when asked about assessment circumstances and methods, and several chose more than one option.

Table 1

Participant experience and patient load

	Mean (Standard Deviation)	Range
Years in Current Role	8.05 (±6.5)	0.75-23
Years as HCP	18.2 (±12.5)	1.5-38
Years working as HCP in NWO	15.5 (±10.3)	0.75-26
Paediatric Patient Load (per week)	4.4 (±5.3)	0-18
Infants (0-2)	2.1 (±3.4)	0-12
Preschool (2-5)	1.5 (±2.3)	0-8
Children (5-12)	0.95 (±0.8)	0-2
Adolescent (12-17)	3.05 (±4.3)	0-15

Table 2

Assessment circumstances and methods

Assessment Practices	Number of HCPs
Screen all patients at each visit	3
Referred by other HCP	8
When comorbidities exist	8
When concern is shown by child/adolescent	8
Per request by parent/guardian	10
Professional judgment calls for further assessment	6
Assessment Methods	**Number of HCPs**
Body weight alone	1
BMI	1
CDC BMI-for-age charts	5
Rourke Baby Record	2
Appropriate weight for height charts	2
Professional Judgment	2

Interview Findings

In order to explore rural HCPs' care practices, facilitators, and barriers to managing childhood obesity in NWO, in-depth, semi-structured, one-on-one interviews were conducted. Figure 1 represents the main themes and associated sub-themes that were perceived to influence care practices according the HCPs interviewed. Thematic saturation (Van Den Hoonaard, 2012) occurred at eight participants, whereby no new themes or subthemes emerged from the data. In order to enhance the trustworthiness of the data further and ensure each Family Health Team in the rural TBDHU region was represented, three more HCPs participated, for a total of 11 participants. Five main themes surfaced from the data and are described in detail below along with relevant subthemes: childhood obesity is a significant rural health issue, current care practices, facilitators to paediatric obesity care, barriers to paediatric obesity care, and future recommendations from HCPs; each theme appeared to relate to current care practices regarding paediatric obesity management, with the exception of future recommendations by HCPs.

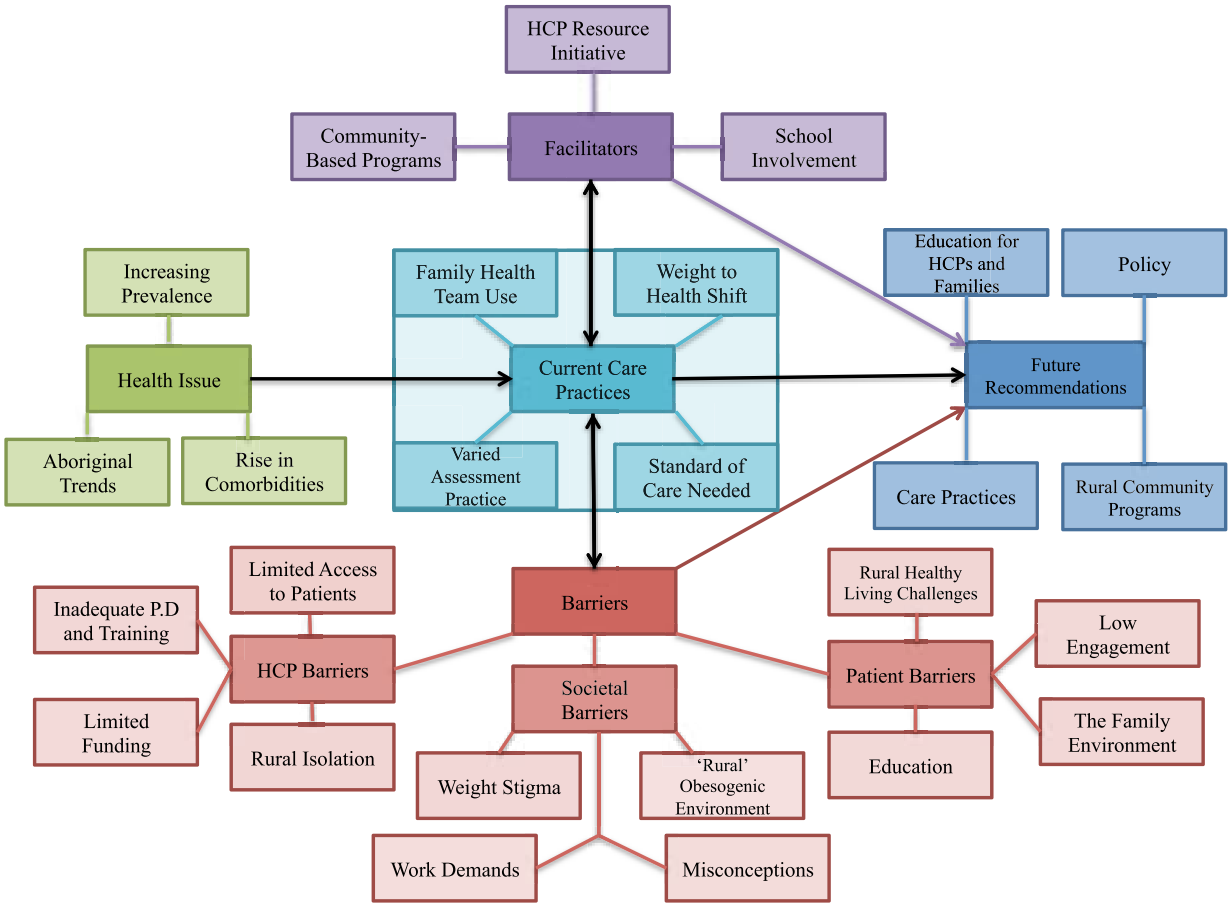

Figure 1. Thematic map

Childhood obesity is a significant rural health issue. The first question on the interview guide asked "What are your thoughts on paediatric obesity as a health issue?" Answers varied amongst participants, but revolved generally around the increasing prevalence of paediatric obesity observed in practice in addition to the rise in co-morbidities associated with the disease. A number of comments pertained specifically to health concerns in the local Aboriginal population. Descriptive comments relating to childhood obesity as a significant rural health issue and associated subthemes can be found in Table 3.

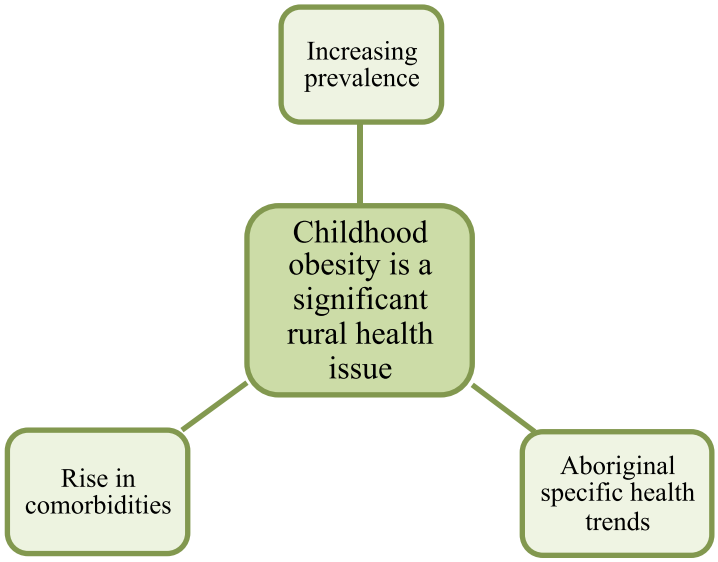

Figure 2. Childhood obesity is a significant rural health issue subthemes.

Increasing prevalence. Overall, participants indicated that they are aware of the increasing prevalence of paediatric obesity on a global scale. When asked about obesity-related trends in practice, all HCPs said that their patients of a lower socioeconomic status are more likely to have overweight or obesity compared to those of a higher socioeconomic status. When asked whether they noticed any trends specific to NWO, many felt that the prevalence of paediatric obesity is higher in this area compared to other regions of the province or country. Although no participants cited specific statistics, they based their estimates on observations incurred while travelling to other parts of the country. Participants had several ideas regarding reasons for the disproportionate and increased paediatric obesity prevalence in rural NWO, including sedentary lifestyles (e.g., limited physical activity opportunity or increased screen time) the obesogenic environment (e.g., expensive groceries), and low parental education opportunities and knowledge on weight management (e.g., no weight management programming). Climate was also described as a contributor. For example, NWO has very harsh, cold winters; this weather often leads to less physical activity being performed during these months due to the limited number of recreational facilities in rural NWO communities (i.e., no indoor pools or sports fields). One participant noted that the patients with diabetes under her care take blood sugar tests every three months, and that their values are highest in the winter. Generally, participants expressed that the increasing prevalence in paediatric obesity has led to a concurrent rise in obesity-related comorbidities. This increase had all participants very concerned with the welfare of the current generation of children, and many indicated that something needs to be done through the healthcare system as soon as possible in order to help children become and stay healthy.

Rise in comorbidities. The majority of participants indicated that paediatric patients are

presenting with several physical and psychological comorbidities related to excess weight including Type 2 diabetes, pancreatitis, hypertension, musculoskeletal problems, and depression. Participants agreed that patients rarely seek help for weight specifically, but instead look to HCPs when the comorbidities of obesity, such as diabetes or asthma, are affecting their daily lives. Further, because of the increase in obesity among children of a very young age (a trend which was almost unheard of in previous decades), diseases that were once predominantly seen in adults, such as hypertension and Type 2 diabetes, are now affecting paediatric patients more often.

One participant spoke about a 15-year-old patient with amenorrhea who is developing hirsutism, acanthosis nigricans, and polycystic ovary syndrome in large part due to her obesity. She is being medicated with Metformin. Participants indicated that these types of health conditions do not often occur in adolescent females unless obesity is present. In addition, participants noted that some comorbidities (e.g., depression and anxiety) could have cyclical effects on a patient's weight gain. For example, a patient can be diagnosed with depression due to his/her weight, and then become heavier from binge or abnormal eating due to the depression. Overall, participants noted that the increase in paediatric obesity prevalence has led to an increase in comorbidities associated with obesity, especially in populations that have a genetic predisposition to these comorbidities such as Aboriginal people.

Aboriginal specific health trends. When asked about the trends HCPs see in patients with obesity, a recurrent and common theme that emerged was the high prevalence and impact of the condition among those in the Aboriginal population. Participants noted that Aboriginal people are genetically predisposed to certain health conditions, such as Type 2 diabetes. In fact, it was stated by a number of participants that Type 2 diabetes has a higher prevalence among

their Aboriginal adolescent Family Health Team patients than their non-Aboriginal counterparts. Due to the rurality of NWO and the isolation of many Aboriginal reserves, it is difficult for these individuals to seek help from HCPs; thus, participants mentioned that many patients go without proper or adequate care. Given the increasing prevalence and subsequent rise in obesity comorbidities in Aboriginal populations as well as non-Aboriginal populations, the role of HCPs was clearly identified by participants as a key component in paediatric obesity prevention and management efforts. The care practices of rural HCPs will be expanded upon next.

Table 3

Childhood Obesity is a Significant Rural Health Issue

Subthemes	Quote
Increasing Prevalence	"[I]t was rare to see overweight children who were four, five, six years old years ago, and so the obesity appears to be coming on earlier. And of course, just the level of obesity; the children are much heavier now for sure. The other thing I see… are those medical effects from the obesity which I never saw 10, 15 years ago. I've seen a lot more of those." – Family Physician "Yes, I see a lot more obesity in your younger children I think than I did sort of 20 years ago. You seem to have more um, kids that are in, you know, kindergarten, grade 1 being quite, quite chubby." – Nurse Practitioner "Statistically the rates are getting higher because kids are not as active as they used to be..." – Nurse Practitioner "[I] definitely can tell that its, the risk [of obesity] is increased and the incidence [of obesity] is increasing, and I don't know if it's just around here [NWO] or everywhere." – Registered Practical Nurse
Rise in Comorbidities	"Well that's [obesity] a very significant issue. I see in my 25 years of practice an incredible increase in childhood obesity. And we're seeing a lot of the effects of pancreatitis, diabetes, musculoskeletal problems related to childhood obesity, and really, it's the rates of the childhood obesity that are scary. So it's a significant problem." – Family Physician "Usually they're in for something completely different. They very rarely say 'Hey my child is overweight can you help me with that?'. I think I've had that happen once ever in 15 years of practice … What usually happens is they come in for something else…their child can't walk, can't exercise, they're short of breathe, there's mental health issues 'cause they're being teased…" – Family Physician "I think that kids aren't really as active and tend to also be okay with sort of being on the heavier side. [I] think we don't appreciate that a lot of complications and medical problems arise as a result. Kids can get diabetes and high cholesterol and depression and whatever too, just as a result." – Family Physician
Aboriginal	"In the long run, it [paediatric obesity] influences the patient care

Specific Health Trends	because if these kids remain obese, then it puts them at risk for… type II diabetes. Because we're actually seeing it now in adolescents, especially in the Aboriginal population." – Nurse Practitioner "I think maybe more education on the reserves 'cause I think that's probably where the biggest problem [high obesity prevalence] lies. Yeah, that's probably the biggest issue, or the biggest, high-risk population...[A]re there people going in there or even, you know, going into the schools, or going into like, the communities and trying to teach kids about healthy eating, and healthy weight and everything?" – Family Physician

HCP care practices. Due to the health concerns surrounding paediatric obesity, participants identified themselves as a key component of obesity management. Care practices pertaining to the management of childhood obesity varied greatly amongst the HCPs interviewed. For all participants, even those from the same Family Health Team, each participant had his/her own idea of the care practices needed and/or used for managing childhood obesity. Four subthemes emerged in relation to this theme: Family Health Team model, weight to health shift, varied assessment practices, and standard of care needed. Representative quotes from participants regarding care practices for paediatric obesity management can be found in Table 4.

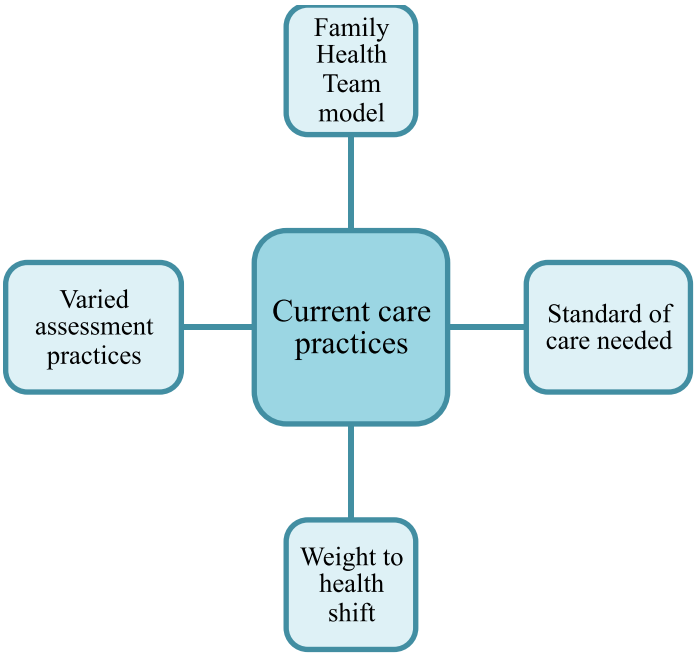

Figure 3. HCP care practices subthemes.

Family Health Team model. Interdisciplinary health care, entailing a variety of HCPs working collaboratively to provide care, was viewed by many as a necessary component for successful paediatric obesity management due to the complexity of the disease. Participants explained that Family Health Teams encompass a wide variety of HCPs, providing a magnitude of care under one roof. Participants felt the interdisciplinary team aided in management efforts because of the collaboration amongst team members, ease of communication when located within the same clinic, and having another HCP available to consult with when advice is needed.

Participants indicated that the Family Health Team model promotes communication amongst team members, which advances patient care. The members of the one Family Health Team that participated mentioned that they meet every second week to discuss their patients. Participants identified that Family Health Team members work together to come up with community programs, such as education-based initiatives for diabetes and chronic disease management that target specific patients. Due to the complexity of obesity, physicians, nurses, and nurse practitioners mentioned that they often refer patients who have overweight or obesity to the Family Health Team dietician for nutrition counseling. The dietician was mentioned often as a valuable key member of an obesity management team from the perspectives of other HCPs, due to the dietetic nature of weight management. The social worker was also referred to occasionally; HCPs mentioned that they refer to the social worker when mental comorbidities of obesity such as depression are present, or an eating disorder (e.g., binge eating) is suspected. Based on the views expressed, the referral process appears to be very informal and inconsistent across HCPs with each trying to gauge each patient individually in order to determine a plan of action. Sometimes this involves the participation of all Family Health Team members, but other times not all members are engaged in the management plan. According to the participants,

involvement levels are often at the discretion of the primary healthcare provider, such as the physician, nurse practitioner, or nurse, who decides whether the patient needs additional services from the interdisciplinary team.

One benefit of the Family Health Team model that was mentioned often pertained to having other specialists available to communicate with and seek help from. It was stated by some HCPs that the social worker only sees adolescents, and children younger than 13 are referred to a separate counselor outside of the clinic. According to the HCPs, these age limitations hinder the interdisciplinary model promoted by Family Health Teams due to the decreased opportunities for collaboration. Though participants agreed that communication among HCPs appears to improve by having access to different health professionals, there seems to be a divide once the patient has been referred with regards to who is responsible for subsequent care. Some HCPs mentioned that the patient follow-up is the responsibility of the HCP whom the patient was referred to; thus, the patient no longer meets with the initial HCP. Although there is no formula for the interdisciplinary team to ascribe to when addressing paediatric patients with obesity, all participants indicated that their efforts should focus on obesity prevention and overall health versus weight.

Weight to health shift. Many HCPs of varied professions mentioned that the focus of paediatric obesity management should be on overall health rather than weight loss. Participants felt that when the patient has a positive outlook on health, he/she has more sustainable outcomes of childhood obesity management plans (e.g., better quality of life). One HCP discussed a cycle he/she instills in his/her patients by promoting the benefits of health. This cycle focuses on sleep, diet, and exercise, which were all mentioned independently as factors important for weight management by the other participants.

This focus on overall health is related to another care practice that was mentioned often across participants: a focus on obesity prevention. All participants mentioned prevention as a goal necessary for improving the battle against childhood obesity, and noted their professional positions as important for this process through screening and educating patients. It was often reported that preventing the condition would be much more beneficial than managing it, as paediatric obesity is a complex health issue and can continue into adulthood and have a negative effect on future health. Prevention efforts mentioned included a focus on increasing physical activity, educating patients and families about maintaining a healthy, active lifestyle, and increasing screening efforts by HCPs.

Since there are no obesity prevention or management programs available in the rural communities sampled, some patients do not get referred to particular Family Health Team members, such as the dietician or social worker, until a comorbidity of obesity is present. Participants mentioned that paediatric patients often go undiagnosed because there is no protocol enforced to motivate families to visit HCPs for well-child appointments after vaccinations are complete. Several participant comments pointed towards a need for improvement across providers with respect to implementing a consistent standard of care.

Standard of care needed. Of the 11 participants who were interviewed, three were aware of the 2006 Canadian Clinical Practice Obesity Guidelines (Lau et al., 2007). The participants who were unaware of the guidelines mentioned that such a tool would be a very valuable resource to use in practice. When asked about whether they believed the current care practices are sufficient to prevent and manage childhood obesity, all HCPs responded ‘no,’ and that improvements need to be made. Participants mentioned that they do not use guidelines for obesity like they do for other diseases, such as diabetes, and some were surprised to find out that

paediatric obesity guidelines are available.

Participants stated that they create an individualized patient plan from screening to management for each patient. According to the HCPs, the interdisciplinary team approach is utilized at the discretion of the primary care provider, as there is no standardized referral process within the Family Health Teams. One set of guidelines that was mentioned multiple times was the CDA Clinical Practice Guidelines (Cheng et al., 2013); however, it was noted by one participant that these guidelines are geared towards an adult population closer to 30-40 years old. The other participants stated that these are used when the paediatric patient already has diabetes, which isn't as helpful when seeking to prevent obesity and related comorbidities. Therefore, based on these participants, it appears that HCPs in the rural Family Health Team setting do not follow a standard set of guidelines for obesity prevention or management until a comorbidity is present, and at that point, the focus of management shifts towards the comorbidity rather than the obesity itself. Participants mentioned that if there was a standardized care plan for paediatric patients with obesity, prevention and management efforts would likely be more successful due to the consistency of care, and there would be more regular support from fellow HCPs.

Varied assessment practices. Participants mentioned that screening (i.e., identifying obesity via measurement and assessment techniques) allows for early recognition, which can benefit a patient greatly by initiating a management plan as soon as possible. According to participants, there are currently no screening protocols in place in the Family Health Teams, and if any screening occurs, it is often done at the discretion of the HCP. Assessment tools for paediatric patients varied between using weight, BMI-*z*, weight and height charts, Rourke Baby Records, CDC charts, and personal judgment. Screening took place either when referred by another HCP, the patient was concerned, the parent was concerned, comorbidities of obesity

were present, or by using personal judgment. Due to the rise in obesity-related comorbidities occurring at earlier ages than previous decades, one participant recommended that screening and assessment guidelines (e.g., for diabetes and hypertension) be modified to reflect the earlier onset. One Family Health Team decided to screen all patients for high cholesterol who appear to be overweight no matter what the age after a paediatric patient was diagnosed with pancreatitis.

It was not uncommon for participants to mention adolescent patients presenting with comorbidities that used to only be seen in adults. According to one HCP, the screening guidelines for hypertension recommend beginning at 50 years old; this same HCP has a 26-year-old patient with obesity who is both hypertensive and diabetic. This patient could have spent the next 24 years as hypertensive without knowing, had the HCP not used his/her personal judgment to screen for the condition earlier than recommended. Although this is not a paediatric example, the situation demonstrates an issue regarding the absence of screening protocols for chronic diseases.

According to participants, HCPs are not given the opportunity to screen and assess children for obesity unless the patient seeks help. Aside from visiting a HCP when sick, the only time paediatric patients seek help regarding obesity indirectly is when comorbidities are present and the parent is concerned. During this time, the HCP may or may not bring up the patient's weight. Participants reported that they feel uncomfortable at times mentioning weight with their patients because it is such a sensitive topic to discuss with children.

Having a specific reason to check-in with a HCP, such as vaccinations, was found to be one of the only times HCPs could take the opportunity to screen. A comfortable office environment was mentioned as a necessity for management so that patients feel comfortable enough to come back for follow-up and adhere to management plans.

Table 4

HCP Care Practices

Subthemes	Quote
Family Health Team Use	"I'm thinking of a teenage patient I have who is quite significantly obese right now. [She] could see the nutritionist, or the dietician; she could see the RN for, you know, trying to avoid diabetes, um social worker for the comorbidities. I consult with physicians if I feel I need some more consulted support." – Nurse Practitioner "I think the Family Health Team is the way it needs to happen. I think it's the best access because you have the medical aspect of it, we already have the dietician we would need a Kinesiologist…to add the exercise aspect of it." – Family Physician "T]here is a formal referral but we don't always use it. We tend to do it within the EMR [electronic medical records] system. We can do it as a task where we can send a report to one of the other healthcare providers or it's just pop into the office and tell them that you are referring this patient to them." – Nurse Practitioner "[O]nce I send it up into the sort of the multidisciplinary [team], I don't know what happens as much. I don't really follow that part of it, so I can't really speak to that." – Family Physician
Weight to Health Shift	"The adolescents: a few will come in weight based. I also do a clinic at the high school. So as an example, last week there's a group of girls that would like to come in and start getting healthy. So they want to start an exercise program, a diet program, weight loss; they didn't specifically mention it, but they want to feel better and look better." – Nurse Practitioner "If you're sleeping well, you have more energy so you're going to exercise more. You're going to exercise more; you're going to feel positive so you're going to eat better. You're going to eat better so you have more energy, so you're going to exercise more and you're going to exercise more and sleep better and it's just a really good cycle to be in." – Nurse Practitioner "…[I]t's prevention when you look at what is their activity level and what is their diet like, and then that's when the dietician gets involved…Then there's also once they do have diabetes, then we follow those guidelines." – Nurse Practitioner

	"If we could educate kids more about like prevention, prevention, prevention, then maybe when they're adults even younger adults, then they'll be like '[H]ey! I should go in and have my cholesterol and blood pressure checked just in case.' Because if we are truly going to be seeing this as an epidemic because of the obesity, we're going to have to start screening 20 year olds." – Family Physician
Varied Assessment Practices	"I just I use the CDC growth charts and what I was taught to do was look at the growth trends. Not really if that child at that particular time is at a higher weight or at a lower weight than…the certain percentile against the normal growth curve. Just cause if I see that they are normally growing or if there is a sudden drop or increase in weight, it's more of a concern rather than where they are on the growth chart." – Registered Dietician "Our screening guidelines are going to have to change, seriously change, for all of these diseases which we said are adult diseases which are now showing up in kids like diabetes, hypertension, you know, dyslipidemia." – Family Physician "I usually…screen them, and it's not a part of a formal screening process, but if there's clearly showing signs of being overweight, I usually try my best to weigh in and do the BMI and have a preliminary discussion with either the patient or the parent depending on the age." – Family Physician "I don't see that many children volunteering coming to the doctor to discuss their weight issues. [I]t seems to me that even the parents are somewhat reluctant to discuss the issue openly and I don't know why that is. Is it whether they don't see it as a problem or whether there's a level of embarrassment…they don't want to offend their child. So it's difficult when they don't come in primarily just for that problem." – Family Physician
Standard of Care Needed	"To be completely honest, I wouldn't be able to tell you a whole lot about childhood obesity…the standards of care, or if there is any practice guidelines. I'm more familiar with the adult one. I tend to use some of it with the kids if I do have them, but I do know that it's not about restricting. I just kind of know the basics I guess." – Registered Dietician "The only thing I would say is going through the obesity guidelines in my training for family medicine. That's probably the only thing I have. We review most of the guidelines in a regular way throughout your Family Medicine specialist training and there are guidelines on obesity. [I] know that they've changed recently." – Family Physician

> "I see it so infrequently, sort of do a case by case thing. And like I said, usually you don't see these kids unless they're sick. And other than my extreme case of the recurrent pancreatitis girl, we just don't see these kids. [U]nfortunately, the health effect of being obese as a child, your heart is still healthy, everything is still hunky dory you're not regularly screening kids for diabetes or blood pressure quite yet. Sadly it may come to that, so there's no sort of source of intervention." – Family Physician

> "I think maybe if we can, if we had a standardized format for number one screening all children, the other thing would be to maybe do a better job at disseminating information out into the community about this problem. And opening our doors to families who feel that they may have the problem or they want to discuss it but don't know how to go about it in the first place." – Family Physician

Facilitators. For the purposes of this study, a facilitator is defined as something that aids the HCP in managing paediatric obesity. Participants noted three main facilitators: HCPs resource initiative, community-based programs, and school involvement. Representative quotes for facilitators to paediatric obesity management can be found in Table 5.

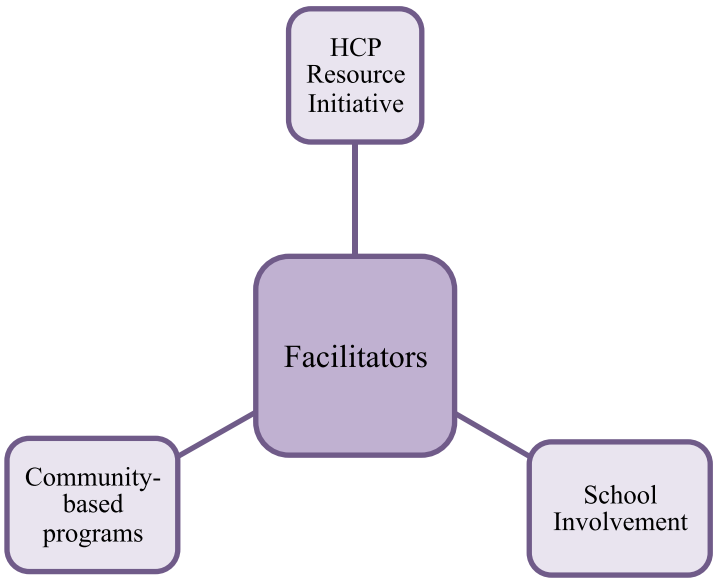

Figure 4. Facilitators subthemes.

HCP resource initiative. Because obesity-specific resources are not provided by the Family Health Teams, all participants have to take initiative and do their own research to obtain paediatric specific information. Although many participants indicated that there are limited local resources for paediatric obesity management in practice, many external resources for HCPs were identified. "Resource initiative" refers to the HCPs resourcefulness of finding and using available resources on paediatric weight management. Out of all HCPs interviewed, the dieticians listed the most resources available to them, some of which included the CDA Guidelines, Dieticians of Canada, Eat Right Ontario, the Ellyn Satter Institute, Practice-Based Evidence in Nutrition (PEN), and the Canadian Obesity Network. Other HCPs mentioned that if a patient is in need of resources for obesity they will often send him/her to see the dietician.

Other resources mentioned by participants for screening and assessing obesity included the CDC growth charts for children two and older, WHO growth standards for infants and children to two years of age, and Rourke Baby Record. Resources noted regarding eating behaviours included Canada's Food Guide, Up to Date, Nutriscreen, and the Craving Change program. Participants also mentioned obtaining literature online through the Canadian Paediatric Society.

Participants stated that they often ask HCPs from other Family Health Teams in rural NWO for resources and have a Facebook page that they can share information on. Many noted that they seek their own educational resources through reading journals online and corresponding with HCPs in neighboring communities. The Thunder Bay Bariatric Program and Thunder Bay Regional Eating Disorder Clinic were also mentioned by participants as centres that have resources available for HCPs. The only resources mentioned as take-home materials for patients were the Canada's Food Guide and information through Up to Date, an online American

resource centre. Aside from the resources available for HCPs to manage paediatric obesity, participants also mentioned a number of community-based programs available to patients.

Community-based programs. Although scarce, participants did mention some local resources for patients seeking to become healthier in rural NWO. Recreational programs such as soccer, hockey, figure skating, and dance are offered seasonally in the communities sampled. These programs come at a cost; one community has been granted the use of a school gym free of charge and is offering free dodge ball for all ages, which has had great success thus far with several families attending each week. Participants highly stressed the importance of family-based programs that engage the whole family in physical activity, so this free dodge ball was identified as a great start. The Best Start Hub, a group for new parents and babies to spend time with other parents and access health services such as a dietician, is also available for parents and babies. According to participants, this Hub could serve as a good way for dieticians and fellow HCPs to disseminate educational materials on paediatric obesity.

One community had a baby food making class for new parents, and the participant indicated it cost relatively the same to make homemade, healthy baby food as buying the jarred versions at the grocery store; parents who participated thought the homemade food was more appealing than the jarred. The TBDHU offered Adventures in Cooking, a program for children and adolescents, in one rural community but the participant was unaware of the turnout to this program. Participants also mentioned the Healthy Food Box, a free program that offers a box of healthy foods, such as fruits and vegetables, to low-income families once every month. This did not occur in all communities, but the towns that did not have it heard of the success in other communities and were looking into providing a similar program in their own towns. The HCPs especially liked this idea due to the limited nutrition provided in the foods donated to local food

banks. Participants often mentioned that the majority of the programs offered through the Family Health Team (e.g., chronic pain management, Healthy Feet and You, senior's wellness, and chair-based exercise classes) are generally targeted at the older adult population. Participants indicated that it would be beneficial to the community to have programs targeting families and children. One avenue that the majority of participants mentioned often was through the schools with a particular focus on health education.

School involvement. The school system was deemed a valuable resource for paediatric obesity management due to the vast amount of time children spend there. Some HCPs interviewed stated that they screen eating habits in the Junior Kindergarten class to ensure the children are receiving adequate nutrition at home. Some high schools have a nurse practitioner available every two weeks for students to book appointments with if requested.

Table 5

Facilitators

Subthemes	Quotes
HCP Resource Initiative	"There's articles from the Canadian Paediatric Society; they usually put out some good articles. [O]ther than that, it's going to be the resources of the dietician and wherever they get their resources from. …I look at my textbooks and I look at what I have for resources, and there certainly is not a lot there." – Family Physician "Yeah so we actually have um a Family Health Team Facebook group. Basically what it is, you join the group and you can ask questions and other [HCPs] will look through it and help…we're constantly getting information and help through that." – Registered Dietician "I actually find the regional outreach eating disorder program a really good resource."– Social Worker
Community-based Programs	"They set up indoor dodge ball so last night we went to [neighboring community] after supper, and it was just a free for all and they played dodge ball in the gym. Entire cost of that was the expense of the dodge ball. It was free; it was a free drop-in. It was kids, adults, everybody, and everybody ran around for an hour and a half. For some of those kids it was the most exercise they've ever got in their life!" – Family Physician "The other thing that I've heard is I've had a couple parents say they used to go to the food bank and they just don't anymore because the food is so unhealthy. And that's really disappointing; hearing that I'm like oh s***, because if they don't have that, I don't know what they have." – Family Physician "I think we have the time and the right resources in place. We just have the disconnect between what we can offer and, you know, what parents are thinking in terms of how active or proactive they have to be. But if we laid it out a program for them, I think it [parents] would be much more likely to take up the offer." – Family Physician "The Family Health Team doesn't do anything that is directed towards children that I know of. Well it has, but right now we don't. [I]t would be nice to have a little, if there was interest, to have probably more promotion towards healthy eating in that age group." – Registered Dietician

	"Yeah and I've done workshops in the community on it [the Craving Change Program]. It just gets people to stop and think about why they're eating when they're eating, so it looks at emotional eating, it looks at meaning attached to eating, different aspects of those things." – Social Worker
School Involvement	"So I've kind of taken on that role to go more into the schools and go more into like, the baby beginnings and those kinds of things… [E]ven if having that education and having that accessibility to me for um, at the best start, they just they know that I'm there. So they know I'm available. [S]o even if it wasn't directly through like nutrition counseling, I'm still there to answer those questions in a non … educational structured type situation." – Registered Dietician "The school has snowshoes. They have skis…they have [the] opportunity to get people active, and some of the teachers do and some of the teachers don't. And I think that's the difficult part." – Social Worker "Yeah other types of education: like all our physical health and mental health education within the school system. [It] would be so wonderful and it's so needed." – Social Worker "I know there are some programs in the schools that help promote like healthy eating and cooking and that kind of thing, and that's great." – Registered Dietician "I know in the elementary schools there's a bit more control and they're trying to encourage parents to send healthier lunches and sending information home to parents and things like that. It's just, parents aren't on board." – Family Physician

Participants mentioned HCP resource initiative, family-based programs, and school involvement as facilitators for paediatric obesity management; however, there were limitations noted alongside each facilitator. For example, participants indicated resources they are aware of, but still believe they need more available to them in order to be successful in management. Similarly, using the school system was discussed as an opportunity to educate children and youth about health and weight management, but suggestions for improving school health education were also identified. Beyond these limitations, several challenges and issues were also discussed in relation to HCPs, patients, and their families with respect to paediatric obesity management in rural NWO.

Barriers. The most prominent theme emerging from the dataset was barriers to the management of paediatric obesity. A barrier includes anything participants identified as a challenge to addressing paediatric obesity in one or more of these contexts. Main barriers pertained to those experienced by the HCPs themselves, as well as those the HCPs perceived patients and families to experience. An additional main barrier noted often by many participants was societal changes that influence both HCPs and patients, such as the obesogenic environment, which produce ignorance towards the health effects of obesity. Several subthemes emerged under each of these categories and are discussed below.

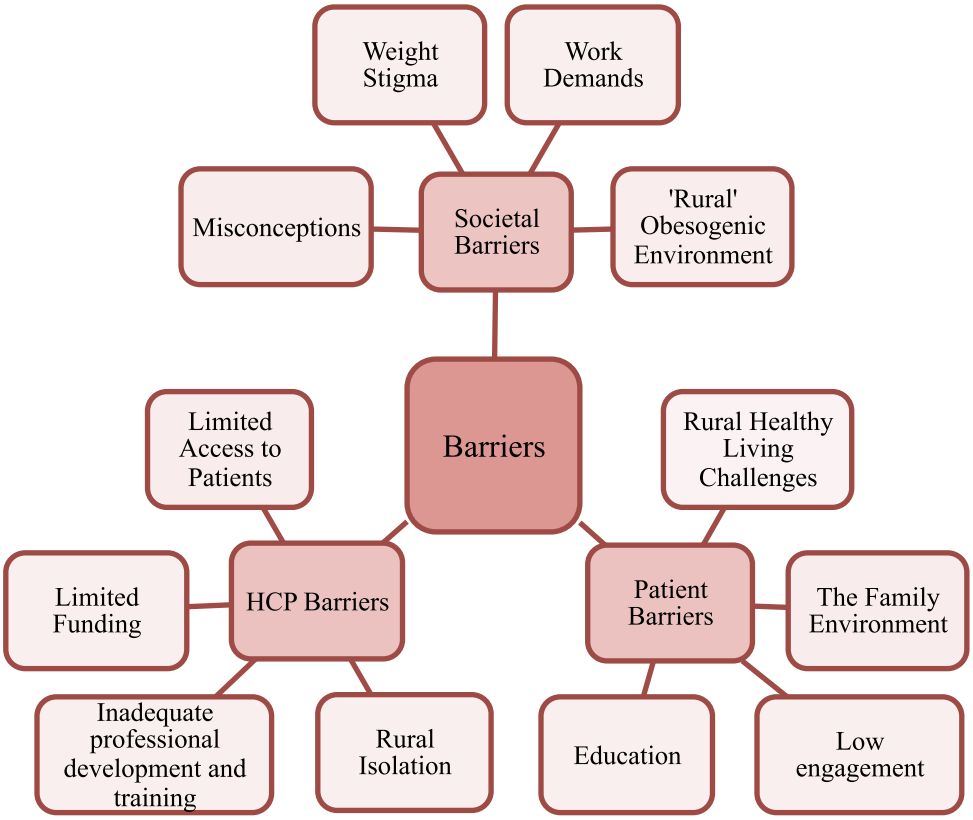

Figure 5. Barriers subthemes.

HCP Barriers. Participants identified many barriers experienced when working to manage paediatric obesity. The most prevalent of these barriers was rural isolation and the challenges this poses to HCPs. Related, in part, to this rural isolation was limited professional development opportunities and inadequate training. Participants also identified limited funding as a barrier to receiving more training. The last barrier identified commonly by HCPs was limited patient access, which entailed few patients seeking help for weight management, as well as limited opportunities for assessment.

Rural isolation. The communities in rural NWO are isolated from a large city centre; thus, there are a limited number of medical professionals in each town. This was identified as a barrier for participants because they often felt overworked. Because HCPs working in rural NWO are very isolated from the province's major cities, they face the financial and elongated time costs of travelling significant distances to further their education and attend conferences, with some costs equating to more than the Family Health Team's educational budget and the rest coming out of the HCP's pocket. According to participants, this financial burden steers many HCPs away from travelling to Thunder Bay, the closest city, or Southern Ontario for training opportunities.

Inadequate professional development (P.D.) and training. According to participants, HCPs have limited opportunities for professional development and to provide education-based programs and initiatives regarding weight management for patients in rural NWO communities. When participants were asked about their training on obesity management, most said they have had no training but believed they would greatly benefit from it if provided. Participants diverged significantly in their educational backgrounds (e.g., dietetics, medicine, social work), but not one participant received instruction or education specific to paediatric obesity management in his/her

professional training. One participant who completed his/her education through the Armed Forces received training on weight management and assessing body composition, but nothing specific to paediatric patients. Another participant stated he/she went over the 2006 CMA obesity guidelines during school but has not had any education on them since, or reviewed the updated 2015 paediatric guidelines.

Some HCPs reported trying to find their own educational opportunities regarding paediatric obesity through online resources and workshops. Two participants attended the 5A's of Obesity Management workshop hosted by Dr. Arya Sharma of the Canadian Obesity Network in Thunder Bay, Ontario in 2014. These participants mentioned that the information was beneficial, but they do not use it often in practice. Dieticians mentioned their educational background focused on healthy eating, which is a component of obesity management but did not have any specific training on how to manage obesity in paediatric patients. Another HCP mentioned indirect education pertaining to obesity management through diabetes education and motivational interviewing workshops. Related in part to inadequate training, participants also mentioned a lack of confidence in managing paediatric patients with obesity. One HCP stated that even with education on obesity management, the skills would not be beneficial unless he/she was confident in using them on a regular basis.

Limited weight management funding. One concern brought up by participants when discussing barriers to obesity management was funding. Family Health Teams have a budget to adhere to and, based on the accounts of these participants, it appears there is no money set aside for programs specific to weight management in rural NWO. Participants had several ideas for future improvements to care practices, community programming, education, and resources (discussed below); however, the funds were not available to them for implementation.

Participants were often frustrated with the limited capabilities they have to manage paediatric obesity.

One participant mentioned that due to recent government changes, Family Health Teams in Ontario are limited to the physicians they have currently employed and no new staff can be hired. Participants identified the lack of an exercise specialist as a very large gap in obesity management in rural NWO; some participants mentioned attempting to educate patients on physical activity, but the education provided was based on personal experience rather than proper training. Beyond the limited funding for weight management related programming, participants also indicated that their education budget is limited.

Limited access to patients. One of the most prevalent barriers identified by HCPs was that they do not see enough paediatric patients with overweight or obesity in practice. Health care provider's can only offer care to patients who seek help from them. According to participants, a very limited number of patients in rural NWO actually seek professional help when overweight or obese. Participants mentioned that this could be due to a shift in societal beliefs whereby having overweight or obesity is now considered the norm and does not need to be addressed. Moreover, if parents themselves are overweight or obese, they may see it as normal that their child is also overweight or obese. Participants found that having few patients who seek obesity-related help is a large struggle because that is the only opportunity they have to screen patients. This lost opportunity was attributed often to parents for not bringing the child in for annual well-child appointments. There was also an observed trend of parents not realizing the health consequences of their child having obesity. Participants mentioned that patients' families seek help more often for their child being underweight rather than overweight, or when the patient has comorbidities of obesity such as diabetes, depression, or asthma.

Table 6

HCP Barriers

Subthemes	Quotes
Rural Isolation	"Because the problem we run into is we only have limited providers…we have one dietician, one nurse practitioner, one social worker, one nurse, and the other nurse is only ¾ time I think so…her time is divided between other programs…[M]aybe to put funding towards hiring another provider so that they could dedicate their time." – Nurse Practitioner "I mean, we don't get a whole lot for education. But the fact that we're so far away you have to travel, like you have to drive 5 hours to go to Thunder Bay to catch an airplane to go to Toronto, and then you're staying at a hotel that is like $200 a night." – Registered Dietician "We don't have any exercise specialists at all. We do have a dietician but she serves Diabetes Northwest, she serves the Hospital, and she serves like our entire area so a lot of that nutrition teaching falls on our shoulders as well." – Nurse Practitioner
Inadequate Professional Development and Training	"No, we haven't really been trained for childhood obesity, so a lot of the things that we do we focus more on like the chronic conditions that adults have." – Registered Dietician "Well I think it [obesity education] would be nice to have. Certainly it would be nice to have more education." – Nurse Practitioner "I think education is good too…I could go read the childhood obesity guidelines, but if I don't deal with it on a daily basis I probably wouldn't know what to do if it came up right?" – Registered Practical Nurse "Yeah and you can print out all the handouts and recommendations and hand them out to them all you want. But if you're not confident in it then it probably won't do anything." – Registered Practical Nurse

Limited Weight Management Funding	"I think funding is an issue for them [schools] though. [T]hey are not able to do it [food education] this year because of the lack of funding, um but it's something that they're trying to do in the schools." – Registered Dietician "Everybody [should say to] the ministry of health…'[M]aybe we need a little bit more money here!'..Because [o]ur numbers of hypertension is going up. We've seen more hypertension in kids. It's crazy!" – Nurse Practitioner "I think we kind of nailed it with like, the lack of free, but not even free, any kind of activity option. Not everybody wants to play hockey, so there's not a lot of options. There's not a lot of group sports, team sports available." – Family Physician
Limited Patient Access	"And I don't know if other than encouraging families to make regular visits and, you know, screening for it, and encouraging people to come. [I] think the one area where we could work on it would be educating our parents to bring their kids in even for annual or every two year check ups as opposed to not seeing them between [the] ages of 2 and 10, or 2 and 14, or something like that, you know? We're only seeing them when they're sick; I think it would be really helpful to do that but that's about it." – Family Physician "Unless there is an issue with the young person, they're not going to come in to the office. So somebody might be 13 or 14, might have had childhood obesity for quite a few years but until something brings them in, that's never going to be addressed or noticed." – Social Worker

Patient barriers. Aside from barriers experienced by HCPs, participants also identified barriers they believe patients face living in rural NWO. Participants indicated that it is very challenging to live healthfully in rural NWO communities, due to the isolation, expensive and unavailable healthy food, and limited physical activity programming. Participants mentioned that these barriers are even greater for people of a lower socioeconomic status. Due to the nature of paediatric obesity, participants identified the family environment as a barrier to prevention and management if the family members do not buy-in to the plan provided or model a healthy lifestyle for the children. Many participants were sympathetic when speaking about the family role, and identified a lack of education and engagement to work towards health and weight management as contributing toward paediatric obesity in rural NWO.

Rural healthy living challenges. Participants identified several challenges experienced by patients and families with respect to healthy living in a rural community. Many HCPs identified food insecurity as a possible cause of the higher prevalence of paediatric obesity in rural communities. According to participants, groceries are often more expensive and less available in rural NWO. There are healthy groceries available, like fresh fruits and vegetables; however, these produce are often of poor quality and go bad extremely fast, especially in the winter months. Many citizens stock up on groceries when they go to the nearest city, Thunder Bay, and indicate the produce from Thunder Bay lasts longer than that in the rural communities. Participants mentioned they themselves leave the grocery store angry due to the limited availability and expensive cost of healthy foods, and realize that not all families in the community can afford to purchase healthy groceries.

Aside from the increased price and limited availability of healthy food, there are also limited physical activity programs available for children in rural NWO. The few options that are

provided include hockey, soccer, dance, and figure skating; however, it was indicated by participants that these programs are often more focused on competition than recreation, which steers some children and families away from participating. This also leads to additional costs for several out-of-town tournaments, which makes it difficult for people with limited funds to participate. A need for free extracurricular activities was identified; however, some HCPs indicated that community recreation departments are hesitant to run free programs and are not always willing to give up gym space for free despite the fact that school gyms go unused after hours. Northwestern Ontario has very harsh and long winters, which participants indicated as a barrier to living healthy, active lives in these communities; children do not want to play outside in extremely cold weather. The cold weather results in outdoor recess cancellations, so there are some days when children do not play outside at all during this season.

All participants indicated low socioeconomic status as a factor related to obesity. Communities in rural NWO have very low cost of housing, which attracts families from other parts of the country that are on government assistance or have low income. Some participants mentioned there are several families that move to the communities for the low cost of housing, but do not realize the increased cost of food. These families often end up relying heavily on the food bank. The food banks often only contain nonperishable food items that are not of the greatest nutritional value. One participant has patients that need the food bank but do not use it because they are aware the food provided is not of high quality.

The Aboriginal population living on reserves in rural NWO was mentioned by HCPs as having more challenges to living an active, healthy lifestyle than the remainder of rural NWO's population. Some participants mentioned that Aboriginal people struggle to obtain healthy foods while living on reserves because there are limited grocery stores, and families often have to

travel long distances to the nearest community to shop. Reserves also have limited physical activity programming, so children living on reserve have to travel to participate in organized sport, which often leads to less participation from the Aboriginal population in rural NWO. This distance barrier for groceries and activity also applies to receiving healthcare, as the reserves seen by the Family Health Teams interviewed only have a HCP visit them once per month (usually a nurse practitioner as opposed to the whole interdisciplinary team). The Family Health Teams in rural NWO often serve more than one community, which participants indicated as a barrier to patient adherence due to the large geographic span of communities served. For example, Greenstone Family Health Team serves five communities, and some are more than an hour away from the clinic. This commute can be a burden on patients, as participants noted that travelling for health care can be a challenge for patients of low socioeconomic status. One participant mentioned the effect of the residential schools on the Aboriginal population, and how children were never taught valuable life skills (e.g., to cook or eat properly) because they were no longer exposed to a family environment.

The family environment. All participants reported that parents play the biggest role in paediatric obesity management. Parents are not only the providers in a family, but also act as role models for their children as well as gatekeepers to food accessibility. Those who engage in active, healthy lifestyles are passing the message that health is important onto their children. Participants indicated that obesity is not often experienced by the child alone; usually the whole family struggles with overweight or obesity. However, this isn't always the case, as some participants indicated patients with overweight or obesity sometimes have healthy weight parents with unhealthy lifestyle habits.

Participants stressed parental role modeling as a key indicator in paediatric weight management. According to participants, paediatric patients not only eat what their parents provide for them, but also learn how to eat by watching their parents. This was true with exercise as well, as HCPs noted that children who are active and healthy, have parents who are also active and healthy and engage the child in family physical activity such as walking or going for a bike ride. Participants expressed that one struggle when managing childhood obesity is getting the whole family involved in the management plan, because if the parents do not change their lifestyle habits, the children will not either.

According to several participants, children are essentially helpless if their parents are unable to adopt a healthy lifestyle. Parents have to buy-in to the prevention or management efforts in order for the child to be successful. According to the HCPs interviewed, sometimes when parents with obesity are on medications such as Lipitor (for cholesterol) and Metformin (for Type 2 diabetes) to help manage their conditions, they often do not make the lifestyle changes necessary to keep themselves healthy because they have medication to control the effects of their weight. Some participants mentioned it is not uncommon for parents to drop their children off to appointments and not sit in with them. According to participants, their absence hinders management as parents play such a large role in helping children to adopt a healthy lifestyle, and HCPs often educate parents during these appointments. Participants mentioned that it is especially difficult to aid patients with obesity when parents do not, or cannot, buy-in to the management plan.

Participants expressed that interventions aimed at the entire family are a more effective option for childhood obesity management compared to individual interventions targeted at the child; however, this option has not been provided in rural NWO communities. The HCPs

expressed an understanding that healthy lifestyle changes are not easy, but if the parent cannot lead by example, then the child is set up for failure. Participants felt that there is only so much that they can do and the rest is up to the parent. It was indicated that children learn what to eat, how much to eat, when to eat, and how to prepare food from their parents. Participants described personal experiences regarding cooking with their own parents, and how they have similar dietary and exercise habits as their parents. Participants, especially dieticians, stressed the importance of parents teaching children about food and then letting the child make his/her own decisions in order to create a healthy relationship with food. An example provided by a participant was to allow the child to choose his/her own snack, but limit the choices to healthy options such as an apple or an orange versus an apple or ice cream. Allowing the child to make decisions regarding his/her own food and physical activity was deemed beneficial to the child's ability to grow into a healthy adult, promoting autonomy by empowering children to make choices.

Low engagement. As previously mentioned, the whole family has to be engaged in the weight management plan. Low patient motivation to change was noted as a very large barrier by several HCPs working to manage paediatric obesity. Participants mentioned that weight management programs are barely offered, but when they are available they are not well attended. Participants often linked the drive to be healthy to education level, mentioning that those who are more educated seem to be the ones who are more inclined to engage in an active, healthy lifestyle and attend community programs. Participants expressed worry that the perceived lack of motivation in parents to engage in active, healthy lifestyles will be passed down to their children and the generation following. Participants mentioned parents of a higher education level tend to be more engaged in living an active, healthy lifestyle, and are more willing to seek

help from HCPs. However, it was also stated that in rural NWO, unlike most of the province, having a high socioeconomic status does not always mean the person is highly educated, as the majority of citizens work in industry jobs (i.e., pulp and paper mill, mining, or railroad) which don't often require extensive education.

Some HCPs felt that a patient's enthusiasm to change can affect a HCP's own motivation to educate and provide care; if the patient is working hard to follow the prescribed plan, the HCP is more driven to educate and spend more time with the patient. This was not observed in all participants though, as some were so frustrated with the perceived lack of patient interest to change; these individuals felt that there was nothing they could do as a HCP to help the patient. Some participants' thought that educating patients on weight management is not always worth the time because only a small percentage of patients will actually follow the plan.

Patient education. Participants did not all agree regarding patient education on obesity management; some thought that HCPs do enough to educate patients on obesity while others thought that HCPs need to do more. Participants mentioned that the majority of Canadians have access to the Internet, which has both good and bad resources for weight management, and that patients with higher education levels are more motivated to try to learn about health and live active, healthy lifestyles by seeking information and resources online. Some HCPs stated that because of the accessibility to educational information, it is assumed the general population has the knowledge to distinguish between what is healthy and what is not. However, the downfall of the instant accessibility to information online is that people do not always know how to distinguish between what information regarding health is true and what is false. One participant noted a large problem is food marketing, in which companies put words such as "low fat" or "diet" on food items and people believe these foods are more healthy. Participants indicated that

HCPs such as dieticians are a valuable resource to the general population, but unfortunately, due to the ease and accessibility of online information a lot of people do not believe they need to seek professional help. Amongst all participants, it was found generally that HCPs have an opportunity to educate patients when they screen them but, as noted previously, this does not happen as often as necessary for ample management.

Table 7

Patient Barriers

Subthemes	Quotes
Rural Healthy Living Challenges	"I find that especially in the Northern communities, one of the biggest problems is you need a lot of money to have a healthy diet … In Northern communities it's so expensive to get access to fruits and vegetables on a regular basis, especially in the winter." – Family Physician "It tends to be the combination of economics, so the ones that are on lower income tend to be more prevalent in obesity. And as the kids get older, we tend to start seeing more issues with obesity." – Nurse Practitioner "So honestly it is cheaper here to get a 2L bottle of pop at 99 cents or a dollar or whatever it is, versus getting [a] 3L bag of milk for eight bucks." – Registered Dietician "I mean we're not a fly in reserve. We have fruit and vegetables but the reality is, they are not the greatest quality. Buy things in Thunder Bay; I bought a box of strawberry's in Thunder Bay that's still fine like a week ago, and I bought one here [rurally] three days ago that's already bad." – Family Physician "So it makes it hard here…We do have a gym but there's a cost to it. You know the schools try to put some physical education in there, but you know if you've got a class of 30 kids, what are they actually doing for 20 minutes a day? Especially when it's -40 out and they haven't been outside [for] recess." – Family Physician
The Family Environment	"I think they [the parents] have a major role…the family environment, that support. [C]ause I know obesity happens for a reason sometimes, maybe it's not just the obesity environment outside the house. It could be something that is inside that is emotionally based…talking to parents about eating supper together as a family to make meal times more enjoyable, and, you know, not a pressuring thing. Something to begin to help develop that healthy relationship with food [is needed]." – Registered Dietician "I think that healthy lifestyle changes are extremely difficult for anybody, and unfortunately, if the adult don't lead by example, it's sort of going to be a losing battle with the children." – Family Physician

	"Yeah, habits. Even I eat the same stuff that my mom made or whatever that I've always made, right? Yeah it's really hard to, unless you learn other things, it's hard to get out of it." – Family Physician "The other issue is often parents that have weight issues, so it's part of a lifestyle, not just of the child's choosing. [It's] often of the parents choosing. So you're tackling kind of a dual problem here when you're dealing with the childhood obesity and you know lifestyle choices, dietary choices. It's difficult to get buy-in from the parents point of view. So I'd say that is the biggest hurdle." – Family Physician
Low Engagement	"People who are educated, motivated, and to be clear that doesn't mean like sort of classically educated with a PhD. I mean people who, you can find whatever you want on Google right? Like you can do your own research. But people who are motivated to research things about their health, and research, you know, healthy lifestyle changes. [T]hose people tend to do so much better." – Family Physician "[O]n the other hand, do we need to hold people's hands and take them out for a walk or take them out for a bike ride? I don't know. Shut the hydro off in homes." – Nurse Practitioner "And less motivation, less organization…that they would need to cook. It's not fair, and that could cause them to want to eat more convenience foods and the skills are essentially lost. Because when they have children, they don't have those skills they learned to pass on." – Registered Dietician "I know there's like, intermural things outside of school like soccer's offered. It's just whether people can either A) afford to put their children in these programs, or B) interest the children enough to get away from the video games, which is probably another big factor in childhood obesity because that's a lot of sitting!" – Registered Practical Nurse "It's hard to get them out. Like, they do offer these services; it's just a matter of getting people out to them." – Registered Dietician
Education	"I just feel like we have to re-educate people, and they have to buy-in to it! And I don't know that they do. And at this point from a [HCP] perspective, I could tell you like one in every 100, 200 people will actually make the lifestyle changes they need to make, if that." – Family Physician

"So I think people who are more highly educated tend to seek more professional attention. [I] think doctors have gotten sort of a bad rep, and it partially is our own fault in the sense that we don't do a lot of education. It is extremely time consuming, and from our perspective, that one out of fifty people that is actually going to make those lifestyle changes; it's just not worth it." – Family Physician
"It [obesity] kind of sneaks up on people…definitely more education. I mean, that's certainly something we can do that won't cost a whole lot of money. And awareness, raising awareness." – Nurse Practitioner
"Unfortunately in our town, that [lower education level] doesn't necessarily mean they're in a lower tax bracket. Lower education I find, there tends to be more obesity-related illnesses." – Family Physician

Societal barriers. Participants often mentioned a belief that the obesity epidemic is due to more than poor diet and limited physical activity, and that it is much bigger than these two variables at a societal level. Some HCPs spoke of the lifestyle changes that have taken place among children and youth compared to the previous generation, with a high reliance on technology and obtaining things instantaneously being mentioned often.

The 'rural' obesogenic environment. Participants indicated the societal changes promote an obesogenic environment, even in rural NWO. The obesogenic environment has been defined by Swinburn, Egger, and Raza (1999) as "the sum of influences that the surroundings, opportunities, or conditions of life have on promoting obesity in individuals or populations" (p. 564). Essentially, it is the influence of the environment on one's ability to make healthy behaviour choices and thereby maintain a healthy weight. Participants mentioned that convenience foods are more prominent than in previous generations in rural NWO, and exercise is not emphasized as much as it was previously. Participants indicated that although there are few fast food chains in the rural NWO communities, there are still unhealthy convenience options available in rural communities, such as frozen dinners and junk food. Participants also mentioned that the current generation lives a very fast-paced lifestyle, and is used to things that are convenient and save time such as dishwashers, microwaves, and smartphones. According to the HCPs, it is very difficult to get patients to go back to cooking whole meals as a family and limit convenient, unhealthy food. They are seeing less interest in cooking, which causes children and adolescents to consume more convenience foods. Health care providers also mentioned food products available today that were not created a couple of decades ago, such as energy drinks, are often targeted at the teenage population through extreme sports. The influence of the media and its negative effects on children's health behaviours was also discussed, and HCPs mentioned

that even those of lower socioeconomic status have access to screens whether it be a television, computer, or tablet; the problem of food marketing is not generalized to one demographic.

Among the societal changes that influence the obesogenic environment, according to participants many children today live a very sedentary lifestyle. Participants indicated that children have access to screens for the majority of the day, even at school. There was general consensus among all participants that screen time is a very large factor influencing paediatric weight management efforts. For example, participants noted that accessibility to electronic devices that are handheld, televisions, and computers has increased dramatically over the last few years, with children as young as one using iPods or tablets. The increase of screen time leads to an increase in sedentary behaviours, which is evident in rural NWO. Participants noted that it has become the norm to see a group of children or adolescents sitting together playing games on their iPods independently rather than engaging in physical activity, such as biking or running around outside.

Misconceptions. Due to the increasing average weight, participants believed that the general population has a skewed image of what is healthy, and having overweight or obesity is becoming the norm. The HCPs stated that they receive a lot of denial from patients when excess weight is mentioned. Participants also perceived that patients and their parents do not realize the health effects of remaining overweight or obese into adulthood and thus do not seek management until comorbidities exist. One common theme reported by HCPs related to parents believing their child will outgrow obesity. Participants also noted that it appears patients are not aware of services available to them (i.e., dietician, social worker, educational programs).

Participants reported that parents with newborns and infants are more cognizant of their child's weight because the baby has routine check-ups. Once the child has received all

vaccinations, some HCPs will not see a paediatric patient again until he/she is 10 years old, or even older, unless the child has had other health issues arise since infancy. The HCPs mentioned that parents often are more apt to accept that their child has a medical issue, such as asthma that has medication to fix the problem, rather than realize their child is overweight.

Participants often referred to this generation as being reactive rather than preventive, meaning, we often do not work to prevent a problem from happening; we wait until the problem is large enough that it needs to be fixed. Participants mentioned that children in particular are often not worried about their weight until someone else points it out as a negative thing, or it starts to have negative effects on their health through comorbidities.

Weight stigma. The negative nature of weight stigma (placing blame on an individual for having overweight or obesity; Puhl & Heuer, 2010), and its ability to steer patients and parents away from seeking help from a HCP for obesity-related issues was also mentioned often. Participants indicated that paediatric patients with obesity are more often bullied by their peers than those of healthy weight. One HCP spoke of a patient who no longer wanted to participate in soccer because the child was being made fun of for running slow and being out of breath. The notion that children with obesity are less likely to participate in organized sports due to their competitive nature and the bullying that occurs was expressed commonly among participants.

There is also a stigma towards managing overweight and obesity among both HCPs and patients; some HCPs were aware of this and mentioned it could have a negative effect on the amount of families that seek help from a HCP. Participants mentioned that HCPs should work on addressing weight (i.e., screening, assessments, and follow-ups) in their patients because it is such a sensitive topic. One HCP mentioned a patient who started to cry when asked by the HCP to step on the scale to be weighed. The HCP said he/she did not realize until the patient began to

cry that being weighed could be a difficult task for paediatric patients with obesity. Similarly, participants expressed that trying to keep a positive rapport with the patient is difficult when addressing sensitive topics like weight because they do not want to hurt the patient's feelings. One HCP spoke about making the office a comfortable place to talk about weight (e.g., addressing weight management as a positive experience) because if the patient feels uncomfortable, he/she will not want to come back for a follow-up appointment. It was indicated on occasion that parents are ashamed and feel as if their child's weight is something they should not be seeking help for. Participants occasionally mentioned their own busy schedules, which make it difficult to build rapport with patients and make the patient feel comfortable enough to discuss weight management.

Changes in work demands. Participants reflected on the shift that has taken place regarding work demands over time for themselves in addition to parents. For example, working at a desk all day, eating what is available, and then having to put effort in to become physically active in the evening was identified as a challenge, as opposed to their parent's generation that worked intensive labor jobs and ate the majority of meals at home. Aside from HCPs work demands, participants mentioned that patients' parents often work shift work and have unpredictable work schedules, which stand in the way of living a healthy lifestyle. According to participants, jobs that were once labor intensive, such as construction, have now become very sedentary due to advancements in technology and machinery. Participants indicated that most families now have both parents working, or children are raised in a single-parent home. These work demands challenge parents to find time to cook healthy meals and spend time being active with their children. Participants noted that family programs are often difficult to schedule, as most of the rural NWO population works shift work and struggle to adhere to a consistent

weekly schedule.

Table 8

Societal Barriers

Subthemes	Quotes
'Rural' Obesogenic Environment	"Just how we live in this more obesogenic environment where fast food is more prominent, exercise is not really emphasized as much as it used to be … It's becoming a bigger issue, and again an issue for our general population with the future since it's starting in childhood." – Registered Dietician "And [what's] not just due to the physical body weight, but the fact that you might be a bit out of shape, and as strange as it sounds to say that to children… they are. They're more and more sedentary so they are actually almost deconditioning themselves right by sitting in front of the TV and watching video games, instead of running around." – Family Physician "There's so much, like the energy drinks, like those things that were never around years ago so that really affects [children's health]. And I would also say kids have a lot of um, especially in some of the communities where the parents have a fair bit of disposable income, kids have disposable income to just spend on junk." – Social Worker "Yeah, and back to my first comment I think it's a whole societal thing, and inactivity and screens, that's a huge thing! You know if we could take some of the screen time, reduce that in homes." – Nurse Practitioner
Misconceptions	"I definitely feel like I have to go out of my way to address it [obesity] with parents and kids. And I also think that there's sort of general complacency with parents that it's [obesity] kind of seen as normal now. You know, most parents are overweight; I mean in a very general stereotype." – Family Physician "They [children] don't see it as a problem because they don't perceive that it [obesity] can lead to diabetes, and heart disease, and all those other issues that we know obesity leads to. … [W]e know at that age of growth and development, especially the teenagers, they're in that, it's not denial, but it's more 'it won't happen to me' type of thing at that age." – Nurse Practitioner "So I think it goes back to educating the parents and explaining that this is going to kill your child. Like the same way you would never smoke or give your child a cigarette; like in 20 years we're going to say 'Oh my God you gave your two year old a bag of chips? Like

	you are a neglectful parent.' But now these days it's not, that's not kosher." – Family Physician
Changes in Work Demands	"My mom's going 'well in my day we didn't do all that stuff, you know. We didn't go to the squash courts and wreck your knees; we did stuff just to survive.' And yeah, they did chores on a farm; they did, you know, all sorts of physical work because they had to. They didn't have the recreational activities…but you have to make a point of doing those too." – Nurse Practitioner "Even building roads…being in construction used to mean physical labour. Have you seen some of the construction workers these days? Like, they're not healthy people and I don't mean the cigarette in their mouth. I mean, they don't have to do the heavy lifting; there's machines for that. They don't have to do the heavy digging; there's machines for that. So the physical activity part of their job is really, really diminished as well." – Registered Dietician
Weight Stigma	"Unfortunately it's like obesity has become the norm, and because it's the norm, even addressing it is almost like 'Oh well, you're taboo, or you're just being judgmental, or I'm not overweight.'" – Family Physician "And then there's too the thought that, you know, you have an obese child and they don't feel that they can participate so they don't because they're going to be the slowest. They're not going to get picked for a team, you know? …[T]hey're not going to feel good running on the soccer field." – Nurse Practitioner "I feel like with kids, they're in a very sensitive phase of life and a very difficult time. [I] feel like even, you know, sometimes even weighing people I don't even realize; but like I had to weigh somebody recently and then she started crying after I weighed her. And it was like that sensitive of an issue by just asking to weigh someone." – Family Physician "But bringing it [obesity] up to get away [from] the shame and the embarrassment, and the guilt feelings that these parents might have. [And] to make them, you know, realize it's not their fault, and that it's something that they can get help for and not be ashamed." – Registered Practical Nurse

Participants identified several barriers to paediatric obesity management, such as rural isolation, professional development and inadequate training, limited funding, and limited patient access. Aside from these barriers experienced by HCPs, the participants identified barriers they perceived patients to experience included rural healthy living challenges, the family environment, low engagement, and education. Barriers that effect both patients and HCPs were identified as societal influences, such as the 'rural' obesogenic environment, misconceptions, weight stigma, and work demands. Participants often identified an idea to try to break through each barrier identified, which will be described next in future recommendations.

Future recommendations from HCPs. At the end of the interview, participants were asked for suggestions to improve the barriers to obesity prevention and management they had listed. Participants often seemed hopeful that with the proper resources, education, and policy changes, paediatric obesity can be more easily managed in the future. Specifically they spoke to care practices, rural community programming, education, and policy changes.

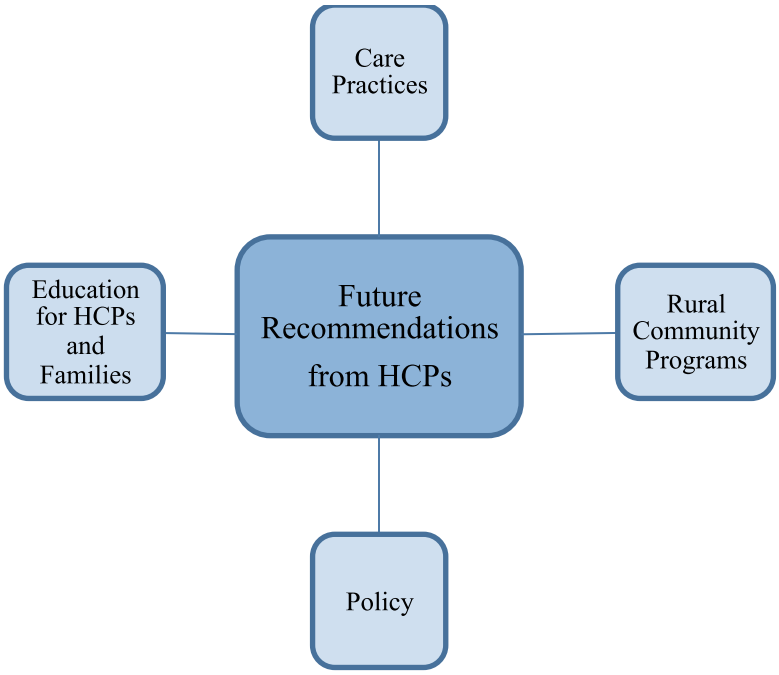

Figure 6. Future recommendations from HCPs subthemes.

Care practices. One of the most mentioned areas for improvement was related to paediatric obesity provision of care within the Family Health Teams. Participants expressed that they do not believe the current care practices (e.g., assessing and referring patients) for preventing and managing paediatric obesity are sufficient, and were often frustrated with the limited care they are providing in their communities. As supported by the demographic results, participants stated that current paediatric obesity care practices are not consistent amongst HCPs within the Family Health Team. Participants often suggested that early identification of obesity and educating parents in the office about paediatric obesity should occur more often, and that parents should not feel embarrassed or guilty for their child's weight. One improvement that HCPs recommended involved more of an interdisciplinary team approach to paediatric obesity management. Participants mentioned having the team in the same building is helpful because the HCPs have access to each other if needed. However, according to participants, the team does not ever come together to create a comprehensive management plan for patients. It was suggested by participants that having a meeting all together after consulting with the patient would make it easier to create an all-encompassing management plan that is achievable and attractive for paediatric patients and their families to follow. Participants also thought that in future practice, it would be beneficial to meet together with the patient as a team to educate and answer questions the patient may have from a variety of disciplines.

Another area that all participants deemed to be missing from the rural Family Health Team was an exercise specialist, with some mentioning a Kinesiologist. According to participants, due to the nature of paediatric obesity, an exercise specialist could serve as an important resource for HCPs and patients. Some HCPs mentioned trying to educate their patients on exercise, but they did not have the educational background or resources to come up

with an exercise plan. In addition to the recommendation for an exercise specialist, participants also indicated a need for a member of the team to step forward, or that another professional be hired to dedicate his/her time to running a weight management program for children and family health. The HCPs also mentioned a disconnect, whereby resources are not being disseminated to parents, so this professional could fill this gap by working as a weight-management educator as well.

Rural community programming. Participants indicated that more family-based weight-management programs are needed in rural NWO communities. The Family Health Teams have a good knowledge base to create the programs, but a lack of space and equipment can diminish the variety of activities available. Participants noted that the community recreation department must be willing to provide gym space and equipment at little to no cost due to limited funding for such programs; however, not all physical activity requires activity or gym space, which is why some Family Health Teams are launching walking or hiking programs in their communities.

Another opportunity that was presented by one participant pertained to healthy school breakfast clubs. This participant mentioned his/her children having a breakfast club at school, albeit the foods provided are not always healthy. He/She mentioned that tweaking the breakfast program to include more fruits and whole foods, rather than granola bars and sugar-packed cereals, would be beneficial as some children from low-income families depend on the breakfast program. There are currently cooking classes run by the Family Health Team dietician in one community, but these are for adults and it was noted that including the entire family in the kitchen would be beneficial. Participants highly stressed the importance of educating the patient and family in order to be successful with weight management.

Education for HCPs and Families. The current educational opportunities for families

and HCPs alike regarding weight management are limited in rural NWO. As HCPs mentioned, the Family Health Teams are noticeably isolated from a large city so it is often a struggle for these HCPs to attend education sessions or conferences. Participants noted that hiring a professional who could work as a weight-management educator could also help the HCPs by researching current weight-management educational opportunities, and ensuring all HCPs are aware of and adhering to current guidelines. Aside from not being aware of obesity management guidelines, participants indicated that their having low confidence when managing paediatric obesity was a barrier; thus, improving HCPs self-efficacy for education and communication through training workshops would be beneficial.

Participants spoke of the importance of educating patients as early as possible on the importance of paediatric obesity management as a way to increase awareness, which could lead to increased management efforts. Education efforts should be targeted at both the parent and the child, and should begin as early as possible so that the child can grow up making healthy choices independently when age appropriate. Participants suggested that HCPs educate by promoting well-child visits, putting on public outreach events, and educating through the school system.

Policy changes. Participants suggested obesity cannot be solved by HCPs; a top-down approach from the government and policy makers is necessary in order to see improvement. Participants indicated the current physical activity curriculum in schools should be changed. Some participants mentioned they believe there has been a decrease in physical education time in schools over the past decade and they would like to see more time spent in gym class as well as more extracurricular physical activity, such as cross country skiing and snowshoeing in the winter. All participants implied changes are necessary at the municipal, provincial, and federal level in order to see improvements in paediatric obesity rates.

Participants would like to see opportunities related to becoming healthier be made more accessible, and opportunities to be unhealthy less accessible. For example, participants suggested putting a tax on foods that have low nutritional value, and decreasing the prices of healthy food. This would be especially beneficial in rural NWO due to the high cost fresh whole foods and groceries. Some participants also recommended banning certain foods, such as energy drinks and pop, to children under 18. Health care providers mentioned that there is no nutritional value in these high-sugar beverages that are now the norm for children to consume. One suggestion to help those of lower socioeconomic status was to provide food stamps that are limited to healthy foods instead of providing a welfare cheque.

Overall, participants indicated that policy changes are necessary for improvements at all levels, from the school involvement, to HCP professional development and education and funding. Limiting the production and consumption of certain foods was suggested as a method to improve eating habits in children. Lastly, providing more community programs (e.g., family cooking classes) and opportunities for families to engage in an active, healthy lifestyle was also suggested to improve patient well-being in rural NWO.

Table 9

Future Recommendations from HCPs

Subthemes	Quotes
Care Practices	"Well after our conversation here I'm thinking 'Jeeze! I should have more take home things (resources). I should work more closely with social work, mhm and the dietician.'" – Nurse Practitioner "I think we have the time and the right resources in place. We just have the disconnect between what we can offer and, you know, what parents are thinking in terms of how active or proactive they have to be. But if we laid it out in a program for them, I think [the families] would be much more likely to take up the offer." – Family Physician "If we had a Kinesiologist and…nutritionist, we could be running, you know, medical-based programs for kids, for families…Telling people how to incorporate more activity into their day, how to offer snacks that are healthy and aren't going to, you know, put pounds on kind of thing." – Nurse Practitioner
Rural Community Programs	"I think if we can get more of these free things and get people out and show kids that it's fun to be active and that you feel better when you make healthier choices with respect to food, um then we can do that." – Family Physician "I think it would be really good if we could get like the schools and the township involved, even with the help of the family health team to organize family-based evening activities, like physical activities, like let's do family dodge ball. Let's do you know, a family hike. Let's do like something that's going to motivate people to get up." – Family Physician
Education	"Hm … I think encouraging well child visits, outreach, and public promotion, education, things like that." – Registered Practical Nurse "It's just getting parents to make proper food choices, and exposing children to healthy snacks other than those sugared drinks and sugared snacks. And regular exercise as a family. You know, if you do that early on it pays off all through adolescence and probably will carry through adulthood. And of course, that makes sense; better food choices and regular activity will go a long way in preventing childhood obesity." – Family Physician "I'm hoping they do some sort of [health education]…as part of physical education, the health program in schools. I hope they're

	dealing with it [weight management], but I don't know that for sure. I think they touch on it but I can't say for sure, but nothing else that I know of." – Family Physician "Yeah I would like to get more familiar with the childhood obesity guidelines. And I think it would be nice if we could do a little bit more…finding out what the public health nurse's already do. Like what the Thunder Bay District Health Unit, what they already do. Or if [t]here's room for some sort of school aged children teaching education programs or resources or something, that would be good. But certainly having those guidelines available is really great. And I do want to read them; I haven't read the whole thing yet, but I do know that they're really fairly new I think." – Registered Practical Nurse
Policy Changes	"I don't think that necessarily it's something that can only be solved from a Family Health Team level. [H]onestly, I think if it's something that, you know, cause I know the World Health Organization has also outlined this as being like not just a Canadian or North American problem, but like a world wide crisis. And their mandate is to try to like obliterate it, so I think a top-down approach would be much more useful." – Family Physician "Yeah like the bans on energy drinks, and I know in certain places they're trying to get a lot more like bike paths and different things like that right? All of those things are going to play a bit of a role, and through the education system I think that's another place where there needs to be some education happening." – Social Worker "Yeah it should be almost at the provincial level, the government level, they really need to reinstate that regular activity. And exposing kids to different activities, you know? Whether it be swimming in the summer or curling or skiing. They really need to reinvest in a good, well rounded physical education program all through the elementary school years." – Family Physician

There was some consensus that paediatric obesity is a significant health issue; however, participants also provided information and ideas on how to improve care from both HCP and rural community citizen perspectives. Many ideas were shared and provided participants with an opportunity to reflect on what they are currently doing and what they would like to be doing. The most subthemes emerged under barriers to care, as HCPs have indicated there are many barriers that both HCPs and patients/families face when working and living in rural NWO. Participants seem to be aware of the health concerns surrounding paediatric obesity, and would like to improve their care practices in order to help patients and families. There were some facilitators mentioned that aid HCPs in practice; however, participants concurrently made recommendations to improve each facilitator they listed. According to participants, future improvements should take a top-down approach from the government to improve care practices, rural community programming, and education for HCPs and patients.

Discussion

The purpose of this qualitative study was to explore the perspectives of interdisciplinary HCPs who subscribe to the Family Health Team Model in rural NWO communities regarding the care practices, facilitators, and barriers experienced when managing paediatric overweight and obesity. To date, there is a lack of research reporting these views in Canada (He et al., 2010; Morinis et al., 2012; Story et al., 2002), and none at all in northern Ontario. Given the prevalence of childhood obesity and need for optimal and efficient treatment, this study represents a unique contribution to the literature, whereby it is the first to provide accounts of barriers and facilitators experienced in practice from a variety of HCPs working on Family Health Teams in a rural context. Moreover, there are limited studies exploring standard assessment and care practices for childhood obesity management in Canada from an

interdisciplinary perspective; most have focused on a single profession (e.g., physicians; Bailey et al., 2013; Piccinini-Vallis, 2011) and none have examined the use of explicit guidelines (e.g., the 2006 Canadian Clinical Practice Obesity Guidelines) among a variety of HCPs. To our knowledge, this is the first study to explore care practices in this regard. Given the demonstrated effectiveness of interdisciplinary collaborations in health care (e.g., Ontario's Family Health Teams; Rosser et al., 2011), these HCP experiences are especially valuable.

In line with the study purpose, it was positive that participants represented a range of HCPs including registered practical nurses, nurse practitioners, physicians, dieticians, and social workers, from a variety of rural communities in NWO. A brief demographic questionnaire was used to identify patient load and assessment practices. The participants' patient load varied greatly with a range of 0-18 paediatric patient visits per week. According to the HCPs sampled, adolescent patients are seen most frequently (13-18 years old; $M = 3.05$/week), followed by infants (newborn-2 years old $M = 2.09$/week), preschoolers (3-5 years old; $M = 1.5$/week), and children (6-12 years old; $M = 0.95$/week). In the interviews, several participants identified infancy as the best opportunity to assess obesity due, in part, to their subsequent ability to then track related variables (e.g., BMI percentile) over time (Morinis et al., 2012; Plourde, 2006; Turner et al., 2009). While these demographic results show that rural HCPs in NWO see adolescents most frequently (possibly due to the opportunities provided via nurse practitioners in some of the sampled rural high schools), it is promising that infants are also being seen often in practice.

Despite the fact that HCPs are well-positioned to aid in paediatric obesity management (Derksen et al., 2012; He et al., 2010), general findings from this study revealed that they experience many more barriers to weight management than facilitators, as well as inconsistencies

in assessment and care practices. This appears to be largely due to the rural isolation of the communities, which creates challenges for patients and their families, as well as HCPs. The most salient themes and subthemes emerging from the interviews are discussed in detail below.

Childhood Obesity is a Significant Rural Health Issue

Childhood obesity is a significant rural health issue was one of the main themes identified, which is congruent with the known prevalence (WHO, 2014) and health consequences of paediatric obesity identified in other rural regions (e.g., Findholt et al., 2013). The main causes of childhood obesity appear to be societal changes, poor nutrition, low physical activity levels, and psychosocial risk factors, making it a very complex issue to manage (Bailey et al., 2013). Overall, the 11 HCPs from Family Health Teams in the TBDHU rural region were greatly concerned with the paediatric population's health in relation to overweight and obesity as evidenced by their frustrations with the lack of resources available for care in the communities, as well as the 'rural' obesogenic environment.

Increasing prevalence and comorbidities. Many participants identified the paediatric population as being heavier in rural NWO compared to other areas of the country they have travelled to. This finding supports current research (Bruner et al., 2008; Ismailov & Leatherdale, 2010; Simen-Kapeu et al., 2010) whereby rural communities have a higher prevalence of paediatric obesity and associated comorbidities than urban ones due, in large part, to the extraneous barriers to living healthfully that rural populations face (e.g., limited physical activity programs and increased cost of healthy groceries). The increasing prevalence of paediatric obesity has been linked to a rise in comorbidities such as Type 2 diabetes, pancreatitis, asthma, and sleep apnea (Moore & Pi-Sunyer, 2012; Spruijt-Metz, 2011). Most participants mentioned seeing these conditions in patients often, and some spoke of specific individuals who suffer from

a combination of comorbidities associated with obesity. For example, the Aboriginal population was identified to experience Type 2 diabetes more often than other cultures in NWO, and almost all Family Health Teams sampled stated that they serve a reserve community. The fact that paediatric obesity can lead to such health complications that will persist later in life, not to mention a decreased quality of life overall, emphasizes the importance of early intervention and management (Lau et al., 2007), which participants of this study identified as an area that has been overlooked according to their own experiences in practice.

Based on these study findings, the high prevalence of paediatric obesity and associated comorbidities in rural NWO are significant from a health perspective; these trends, should they continue, could be detrimental to the future population (Hanning et al., 2007). Based on their educational training, HCPs are ideally placed to address paediatric weight management. However, Canadian interdisciplinary health care practices regarding paediatric obesity management have not been documented in any previous literature; thus, the inclusion of this component in the present study is timely and warranted.

Current Care Practices

Following analysis of the data, it was revealed that the main themes of the study surrounded current care practices for paediatric obesity management experienced among interdisciplinary Family Health Team HCPs. This theme encompassed all other themes, whereby it influenced or was influenced by each of the other main themes (i.e., Health Issue; Barriers; Facilitators; Future Recommendations from HCPs).

Varied assessment practices. It appears that due to the variety of HCPs who work in Family Health Teams, care practices were not congruent amongst participants. The HCPs also did not consistently adhere to the assessment protocols outlined by the CMA 2006 Canadian

Clinical Practice Obesity Guidelines (Lau et al., 2007), the most current document available at the time of data collection. The demographic questionnaire results supported this notion whereby HCPs stated that they do not all assess paediatric obesity consistently or for the same reasons. For example, when asked in the demographic questionnaire to indicate the circumstances under which paediatric obesity is assessed by circling all that apply, 91% of participants selected "per request by parent/guardian," and 73% selected "referred by other HCP," "when comorbidities exist," and/or "when concern is shown by child/adolescent." Only 55% of participants identified "professional judgment calls for further assessment," and a mere 27% of participants chose "screen all patients at each visit." This latter finding is surprising because, according to the 2006 Canadian Clinical Practice Obesity Guidelines, HCPs are expected to monitor the growth of all paediatric patients at each visit. Although many HCPs stated in the interviews that they screen for paediatric obesity by visually looking at the child to identify his/her weight status, research has shown that this method is only effective for those above the 95th percentile (i.e., with obesity), and 74% of those between the 85th to 95th percentile (i.e., overweight) are overlooked (Barlow, Bobra, Elliot, Brownson, & Haire-Joshu, 2007). In order to provide sufficient care for all paediatric patients, it appears that HCPs require greater awareness of and/or adherence to the current guidelines on weight management in order to ensure that all patients with and at risk for overweight or obesity are identified properly and receive the appropriate treatment.

When asked on the questionnaire about types of assessment methods used in practice to measure paediatric obesity, the most common form identified by 45% of HCPs was the "CDC BMI-for-age Charts." The "Rourke Baby Record," "appropriate weight-for-height charts," and "professional judgment" were all used by 18% of participants, while "BMI" and "body weight

alone" were used by 9%. According to the 2006 Canadian Clinical Practice Obesity Guidelines, HCPs should measure BMI in all children and adolescents two years of age or older at every visit (Lau et al., 2007). The guidelines also recommend using CDC growth charts for children and adolescents at each appointment, as well as screening children aged 10 years and older for fasting plasma glucose levels and lipid profiles to determine risk for comorbidities (Lau et al., 2007). The results of the current study indicate that these guidelines are not being followed, as only 9% of participants use BMI, and 27% screen at each visit using the assessment technique of their choice; no participant mentioned screening for fasting plasma glucose levels or lipid profiles.

These findings are similar to those of Barlow et al. (2007), where it was found that only 27% of children with a BMI in the overweight category were identified as such by the paediatrician. However, Barlow et al. (2007) also found that when paediatricians identified overweight or obesity, it nearly always sparked conversation with the patient/family regarding weight management techniques. The findings of the present study showed that not all HCPs feel comfortable discussing weight with their paediatric patients and families, an experience that is not uncommon given the sensitive nature of the topic (Puhl & Latner, 2007). The 2006 Canadian Clinical Practice Obesity Guidelines (Lau et al., 2007) recommend that HCPs assess the patient's readiness to change and identify any barriers that could hinder a healthy lifestyle plan for weight management. It appears that more training is needed for HCPs in order for them to feel comfortable and efficacious enough to address weight with the patient's parents in the first place. Specific suggestions for addressing this issue are discussed in the future recommendations section.

Standard of care needed. Based on the data derived from the present study, there

appears to be no uniform standard of care being used to assess or manage paediatric obesity amongst HCPs in rural NWO. In fact, very few participants identified any specific care practices that are used consistently within their Family Health Teams. When asked specifically whether he/she was aware of a standard of care for paediatric obesity management, each participant answered "no." The researcher then asked if he/she was aware of any obesity management guidelines. While 3 of 11 (27%) stated "yes," these participants could not cite any specific recommendations. This lack of congruency is concerning, not only because guidelines are not being adhered to by HCPs, but the patients may not be receiving the care that they need. The 2006 Canadian Clinical Practice Obesity Guidelines were created with the intention of setting a standard of care for weight management and prevention; the present findings show that not all HCPs are aware the guidelines even exist.

This notion of limited guideline awareness and adherence is supported by other research (e.g., Piccinini-Vallis, 2011; Rhodes et al., 2007). Rhodes et al. (2007) surveyed 2727 American paediatric clinicians regarding their knowledge of Expert Committee Recommendations on obesity management and found that only 25.1% were aware of published recommendations for the management of paediatric overweight. Similarly, when Piccinini-Vallis (2011) reviewed Nova Scotian physicians' awareness and familiarity with the 2006 Canadian Clinical Practice Obesity Guidelines, only one third of were aware the guidelines existed, and these 33% were only moderately familiar with the document. Piccinini-Vallis (2011) also found that rural physicians were significantly less familiar with the guidelines than physicians practicing in urban communities. Due to the rurality of the communities sampled in the present study, it is not surprising that the HCPs were not always aware of or familiar with the guidelines. This unfamiliarity could be what is leading only 9% of participants to measure BMI in their paediatric

patients. Research has shown that the more familiar a HCP is with obesity guidelines, the more likely he/she will be to measure paediatric weight and calculate BMI (Piccinini-Vallis, 2011). Dissemination of guidelines on a regular basis from governing bodies and Family Health Team administrators may be one avenue to keep HCPs up-to-date on and familiar with current recommendations and practices.

Inconsistent Family Health Team use. Despite this lack of formal knowledge and need for a standard of care in this context, it is promising that a number of participants appear to follow some of the guideline recommendations, such as focusing on community-centered interventions (discussed below) and involving an interdisciplinary team in weight management efforts (Lau et al., 2007). Interdisciplinary care has been shown to decrease patient wait times, and the team approach benefits patients more than individual appointments by decreasing the amount of referrals and providing the patient with a full-encompassing care plan (Kemp, 2007; Sayah et al., 2013). A Family Health Team is one positive example of such an approach that can be used in this context.

While it was suggested by participants that the Family Health Team model can be beneficial, it was also noted that there is potential for enhanced interdisciplinary teamwork for paediatric obesity treatment in the rural Family Health Team environment; overall, HCPs indicated they do not often work together to create care plans. Previous literature has shown a discrepancy of roles and responsibilities in paediatric obesity management amongst HCPs (Bailey et al., 2013; Redsell et al., 2011), and when not all clinicians are willing to take the lead in obesity management (King et al., 2007; Walker et al., 2007), paediatric patients could have inconsistent care plans when seeing a variety of HCPs. It may be the case that this underutilized opportunity for teamwork stems from the lack of knowledge surrounding the guidelines, as well

as their apparently low dissemination into clinical practice. It is suggested in the 2006 Canadian Clinical Practice Obesity Guidelines to use family-oriented behaviour therapy, ongoing follow-up with HCPs, dietary and physical activity interventions, and pharmacotherapy when necessary to manage paediatric obesity. These recommendations encompass every Family Health Team member's scope of practice to varying degrees; therefore, it appears that more collaboration and communication is needed and would be beneficial when addressing weight management in patients and families. Rosser et al. (2011) explored the progress of Ontario's Family Health Team model since its formation in 2005, and found that coordinated and integrated care is necessary for the team to be successful, and can be established through the use of EMRs and team meetings. Further, Piccinini-Vallis (2011) suggested the regular use of EMRs by HCPs as a means to enhance the frequency of assessment practices because EMRs calculate and track patient BMI when weight and height are entered at each visit; this then allows every team member within the Family Health Team to have access to a full record of the patient's history. Some participants of the present study mentioned the benefit of the EMR system, and it appears to be a tool that is consistently used by HCPs in all Family Health Teams sampled. However, team meetings do not appear to happen regularly in these Family Health Teams; most participants realized this is an area where improvement is necessary and mentioned integrating them in the future with more frequency.

Weight to health shift. Most participants stressed the importance of focusing on the prevention of weight gain via improving overall health and quality of life rather than weight loss amongst their patients. This notion is recommended in the 2006 Canadian Clinical Practice Obesity Guidelines, and research in the realm of childhood obesity has stated the importance of not emphasizing weight in children due to its detriment to psychological health (e.g., depression,

decreased self-esteem and self-worth; Puhl & Latner, 2007). This focus on prevention and overall health is also one of the key components of the recently updated Canadian Task Force on Preventive Health Care (2015) Recommendations for Growth Monitoring, and Prevention and Management of Overweight and Obesity in Children and Youth in Primary Care. Mirroring the findings of the present study, a number of researchers have suggested that prevention is one of the main roles of HCPs working in obesity care (Gallagher & Yim, 2012; He et al., 2010; Morinis et al., 2012; Spivack et al., 2010). Mazur et al. (2013) showed that paediatric obesity care varies from country to country; however, their findings suggest that HCPs in other countries are also concerned that the prevention of obesity is an important construct to focus on and more training is needed in order for HCPs to be successful. It appears that a focus on prevention and health promotion, rather than management or treatment of a condition, is valued by HCPs and could alleviate time and resources that would be spent on treatment once the condition progresses. Although rural HCP care practices for paediatric obesity management appear to be inconsistent based on the findings of this and the Findholt et al. (2013) study, participants did identify a few facilitators that aid in care that warrant discussion.

Facilitators

The relationship between facilitators and current care practices appears to be bi-directional. Thus, participants noted that facilitators can be resources that enhance HCP care practices regarding paediatric obesity management. In addition, current care practices can sometimes serve to influence or act as facilitators in that they can provide support and resources for HCPs as well as patients and families. Participants identified a number of facilitators for paediatric obesity management (i.e., HCP resource initiative, community-based programs, and school involvement); however, a suggestion for improvement, or a contrasting negative comment

frequently accompanied each, suggesting that the facilitators mentioned are not sufficient for paediatric obesity management in these rural communities.

Community-based programs. Some study participants mentioned the availability of recreational opportunities such as hockey and dance classes in the community as a facilitator, but then went on to say that these are often competitive and many kids do not participate due to the high standards expected. One participant mentioned that most rural communities typically have only one age category for each sport, which allows children of all skill levels to participate; however, this appears to also have a negative effect, as children of lower skill in the sport may not feel confident enough to play with those of higher skill. Due to the low numbers of children available to participate, some rural communities merge sports teams just to have enough players to build a team. According to participants, it appears that it would not be feasible in these small communities to split the teams based on skill level as urban communities do, and recommend that the coaches and parents should work to support children of lower skill level to ensure they do not feel discouraged. Although participants reported that children with overweight or obesity were less likely to participate in organized sport, Vella, Cliff, Okely, Scully, and Morley (2013) found no differences in sport participation amongst adolescents of healthy, overweight, or obese weight status. Vella et al. (2013) also identified those living in rural areas to be more likely to participate in sport, and suggested this could be due to the safe environment these small communities provide, or longer period of play because there are fewer children available. Therefore, it might actually be the case that physical activity community-based programs can afford benefits to children and adolescents who struggle with their weight in rural communities because of these isolating factors.

HCP resource initiative. Based on the accounts provided, the three dieticians who

participated appear to have the most resources available to them and spoke more often about their willingness to search for resources on weight management compared to other HCPs interviewees. Some HCPs indicated that they refer to the dieticians as a resource in and of itself. This finding is congruent with a study conducted by Bleich, Bandara, Bennett, Cooper, and Gudzune (2015), who found that nutrition professionals were significantly more likely than non-physician HCPs (i.e., pharmacists, nurses, exercise specialists) to report high-quality weight management training during their education, and take additional professional development opportunities in obesity care (e.g., continuing education such as motivational interviewing and obesity stigma training).

It appears that the few community-based health programs that are available in rural NWO communities are often led by the dietician (e.g., Best Start Hub for parents and newborns). Thus, due to the perceived high regard held by HCPs for dietitians/nutrition specialists (Bleich et al., 2015; Pearson et al., 2014), the abundance of educational and medical resources available for dieticians, and opportunities available to educate the public on healthy eating per their scope of practice (Bleich et al., 2015), dieticians appear to be the most knowledgeable and prepared HCPs in Family Health Teams with regards to managing paediatric obesity. To date, few studies examining HCP perspectives on paediatric weight management have included dieticians (Bailey et al., 2013; Findholt et al., 2012). The present study offers valuable insights that have not been identified previously, such as the importance of providing nutritional counseling in an interdisciplinary team setting to facilitate paediatric weight management efforts, or working collaboratively with other sectors in an effort to educate children on the importance of health. Having a dietician available in the Family Health Team was often identified by other HCPs as a resource in itself. Other HCPs also mentioned asking the dietician for help when seeking

resources on obesity management, highlighting the importance of a dietician in an obesity management team.

School involvement. In addition to the important role that dietitians play in the Family Health Team environment, school involvement was mentioned often as a facilitator to paediatric weight management wherein HCPs (e.g., dietitians, social workers, kinesiologists) can educate children on healthy lifestyle behaviours. Children spend the majority of their day at school, and HCPs identified this location as a good place to connect with and educate children specifically on healthy eating and physical activity. Although school involvement was identified as a facilitator, it was also identified as an area that needs attention. Participants stated that that the current curriculum does not support physical activity promotion and nutrition education as much as they believe it should. According to the 2015 ParticipACTION report card, Canadian children scored a "D-" for sedentary behaviours, as well as a "D-" for overall physical activity levels suggesting significant room for improvement. Additional research has shown that only 53% of parents report that their children participate in physical activity programs at school and childcare settings, and only 55% of schools in Canada have implemented a policy for daily physical education for all students (Canadian Fitness and Lifestyle Research Institute, 2012). Many participants suggested that adding more physical activity and introducing a dietician to classrooms would be beneficial for students to increase the student's knowledge and awareness of health.

Overall, the findings of this study did not show an abundance of facilitators to paediatric weight management; in fact despite efforts made to inquire about both positive and negative experiences, the majority of the interviews were spent discussing the barriers to paediatric weight management.

Barriers

Similar to the facilitators main theme, the relationship between current care practices and barriers to paediatric obesity management also seems to be bi-directional. Limited adherence to the 2006 Canadian Clinical Practice Obesity Guidelines and uncertainty regarding a standard of care have created several challenges for care delivery. Concomitantly, the barriers appear to have a negative influence on HCP care practices, as they hinder both HCPs from providing and patients from receiving adequate care. Overall, barriers to paediatric obesity management emerged as the most dense and salient theme in this study, and were broken down into three areas (HCP barriers, patient barriers, and societal influences), each with its own subthemes.

HCP Barriers. Four subthemes were identified under barriers experienced by HCPs: rural isolation, limited weight management funding, inadequate professional development and training, and limited access to patients (i.e., having patients who seek help for obesity/weight management). Rhodes et al. (2007) found similar barriers in their study examining the perspectives of paediatric clinicians regarding the management of childhood obesity including limited patient motivation and/or adherence to weight management plans, lack of effective overweight management plans and different perceptions of overweight health risks, lack of reimbursement for non-primary care staff (i.e., dieticians, social workers), lack of time available for counseling, and cultural barriers. He et al. (2010) also identified several barriers perceived by physicians to managing paediatric obesity in Canada. These included limited dieticians available for referral, time constraints which hinder patient rapport, limited professional training, and low team support when creating family-based programs (He et al., 2010). The findings of the current study align with the literature (e.g., He et al., 2010; Rhodes et al., 2007), albeit the barriers described in previous studies are not specific to interdisciplinary HCPs working in rural

areas.

Rural isolation. The subtheme of rural isolation emerged often as a barrier to paediatric obesity management in the present study and was related directly and frequently to the other subthemes. For example, it appears that rural isolation is associated with limited professional development opportunities and inadequate training due to the geographical distance between the communities these HCPs live in and an urban centre where training is often held. Findholt et al. (2013) agreed and noted that HCPs in rural communities face barriers that those working in urban communities may not, such as distance to specialists and inadequate resources. Limited weight management funding can also lead to decreased professional development and training because, as some participants mentioned, they are unable to attend some seminars due to the high cost and geographical distance (or rural isolation) of conferences and travel accommodations.

Inadequate professional development and training opportunities. Even when professional development opportunities present themselves, such as the Canadian Obesity Network 5A's of Obesity Management workshop, which was offered in Thunder Bay in 2014 (CON, 2014b), not all HCPs in the surrounding region attended. Despite this workshop being one of the very few opportunities available for weight management education, only two out of the 11 HCPs interviewed stated that they participated and that they do not often use the information gained in practice. This could be due to a lack of self-efficacy for addressing weight management. As noted previously, study participants stated they are not fully comfortable addressing paediatric obesity with patients and families which may be due, in part, to the limited professional development opportunities they have experienced, and few patients they actually see regarding paediatric obesity. Mazur et al. (2013) found similar results, with less than 32% of primary care physicians regarding themselves as competent in effectively managing paediatric

obesity. The findings of He et al. (2010) also mirror those of the present study, in that physicians believed they had very limited training on paediatric weight management and identified that more education for HCPs is needed.

Research has shown that HCPs are more apt to engage in conversations pertaining to health behaviour change when they feel more capable and confident in doing so (Wiley, Morrow, & Irwin, 2011). Given the lack of confidence for providing paediatric obesity management advice expressed by some participants in the present study, participation in communication and skill-based programs could be an avenue for improvement. For example, in their study investigating the utility of a one-day training workshop in Motivational Interviewing applied via Co-Active life Coaching skills on HCPs perceived competence, autonomy, and attitudes regarding the facilitation of health behaviour change, Wiley and colleagues (2011) found significant increases in practitioner efficacy for behavioural counseling up to four weeks post training. Thus, it is likely the case that HCPs need hands-on training in communication techniques and skills in addition to education and professional development information in order to adequately address sensitive topics with patients such as weight management.

Overall, the findings of this study identify a need for more training and professional development opportunities provided directly at the Family Health Team site or online to limit rural-specific barriers, such as travel distance and associated costs. Participants commonly identified a limited amount of patients seeking help to address paediatric obesity, suggesting that even if HCPs did not face barriers to paediatric obesity care, other extraneous and patient-specific barriers exist.

Patient Barriers. Patient barriers were gleaned through HCP perceptions of the child and family experience of health care provision in rural NWO.

Rural healthy living challenges. Similar to the barriers experienced by HCPs, rural isolation was discussed often and identified as a common thread between the subthemes that emerged. For example, participants noted that the geographical distance between some communities and the Family Health Team office often serves as a barrier for patient adherence to care plans. Khoong et al. (2013) also noted travel distance as a barrier to patient adherence by rural physicians. In fact, rurality has been shown to limit patient access, as people living in more remote communities are less likely to seek help from HCPs when a health condition is present and imminent, and return for preventive care appointments, than those living in urban centres (Khoong et al., 2013; Spleen et al., 2013). Thus, it appears that patients in rural communities are less likely to adhere to care plans than patients in urban communities, which poses another barrier to obesity management, as consistency and adherence were identified in the present study as key components of success. The rural communities in NWO also have harsh winters, limited physical activity programming (often related to the long and very cold winter season), and expensive poor quality healthy foods. Although these circumstances appear to be unique to NWO as opposed to more southern parts of the province, Findholt et al. (2013) found some similar barriers to living in a rural community in the USA, and noted that clinicians would like to see more community-based programs implemented to help families make healthy behaviour changes (to be discussed in future recommendations).

Low family engagement. The family environment was often noted as valuable by participants of this study due to the large role that parents can play in paediatric weight management (Findholt et al., 2013; Lau et al., 2007). Similar to the findings of the present study (e.g., low family engagement in weight management plans), He et al. (2010) found that some of the greatest barriers to paediatric obesity management pertain to family involvement, including

poor role modeling, low compliance to management plans, and disinterest from parents regarding behaviour change. Parents are the sole providers for their children; if they cannot afford to purchase, or have low awareness about healthy foods, participants identified that less nutritious and more affordable alternatives will likely be bought to feed their family. Participants in the present study identified that socioeconomic challenges can prevent parents from role modeling healthy behaviours and buying-in to management efforts. For example, the two biggest barriers that prevent children and adolescents from participating in organized sports are cost of enrollment fees (61%) and cost of equipment (52%; CIBC KidSport Report, 2014). Moreover, only 37% of parents report playing active games with their children often or very often (Canadian Fitness and Lifestyle Research Institute, 2013), and only 19% of 18-39 year olds and 13% of 40-59 year olds meet the Canadian Physical Activity Guidelines for Adults (i.e., 150 minutes of moderate-vigorous physical activity weekly; Statistics Canada, 2013). While some study participants were slightly negative when speaking about parental buy-in to a weight management plan, others seemed more sensitive to the barriers that parents face when striving to keep their children healthy in a rural obesogenic environment. Generally, it appears that many of these HCPs believe that obesity stems from a problem with parents, and management efforts should be the parent's responsibility; this is supported by similar research, which states that a HCP's role is raising awareness to parents that there is a problem, but actually managing paediatric obesity is the parent's role (Mazur et al., 2013; Walker, Strong, Atchinson, Saunders, & Abbott, 2007). It appears that HCPs can, at times, show weight bias towards parents of patients with obesity (i.e., the negative stigmatization of a person due to having overweight or obesity; Puhl & Latner, 2007). These behaviours, whether intended or not, can have a negative effect on care provision, patient adherence, and health outcomes (Puhl & Heuer, 2010), thereby

emphasizing the importance of educating HCPs and families alike on the causes of excess weight and management options available.

The role of education and income. Based on these data, there also appears to be a link between patient and family health education, socioeconomic status, and rural healthy living challenges experienced by people residing in rural NWO, as participants often mentioned that patients of lower socioeconomic status often come from families of lower education, and experience more barriers to living healthy in rural communities. Trivedi et al. (2012) identified rural residents as more likely to have lower household incomes, as well as less education than urban residents. However, the relationship between education and socioeconomic status was not always consistent amongst patients in the present study, as participants mentioned that many citizens work industry-based jobs that pay well but have low educational requirements, such as the railroad, pulp and paper mills, and mines that are scattered across NWO. While income has been dubbed as possibly one of the most important social determinants of health as it influences a person's overall living conditions and health-related behaviours (Mikkonen & Raphael, 2010), according to study participants, rural patients who come from families with lower education levels and comfortable means are still more likely to experience challenges to living healthy. This paradox emphasizes the importance of health-related education and the important role that HCPs can play regarding information dissemination in a paediatric obesity management context.

Societal Barriers. The findings of this study indicate that paediatric obesity management cannot be addressed solely by HCPs; the societal changes that have taken place over the past few decades (e.g., more sedentary behaviour, changes to the built environment) have led to an obesity epidemic (Gortmaker et al., 2011), suggesting that society as a whole should also shift its focus back toward health.

The 'rural' obesogenic environment. One prevalent subtheme that emerged from the data to describe this phenomenon of societal influences was the 'rural' obesogenic environment. This is often portrayed in urban communities by the built environment, including proximity to fast food restaurants and walkability, features that doesn't often exist in rural areas. A number of additional characteristics make rural communities different from urban ones. For example, participants in the present study noted that rural communities have few grocery stores (i.e., food deserts), and the healthy food sold in these stores is often overpriced and of poor quality. They also mentioned there are limited physical activity opportunities for children due, in part, to the short summers in NWO and limited indoor facilities for sport (i.e., no indoor soccer fields or pools), which make sport seasons (e.g., swimming, soccer, and baseball) very brief. Participants mentioned the travel distance between communities also make winter sports expensive and time consuming (e.g., hockey tournaments and figure skating competitions). He et al. (2010) found that more than 70% of Canadian physicians identified the obesogenic environment and societal changes as a main challenge to paediatric obesity management. Although the majority of the physicians sampled were from urban communities (He et al., 2010), it is evident that consideration should be given to discussing the obesogenic environment with patients and families in both urban and rural settings by HCPs regarding health behaviour change (e.g., diet, physical activity) in an effort to set goals and identify healthy alternatives.

Health can also be influenced by sedentary behaviours (Swinburn et al., 1999), which are supported by the obesogenic environment; high screen time for example is common amongst children and adolescents in both rural and urban communities (Dietz et al., 2015). The current study findings revealed that children have access to screens and are sitting for the majority of their day rather than playing outside like previous generations, which HCPs identified as a risk to

their health. The current Canadian Sedentary Behaviour Guidelines state that 3-4 year olds should have less than one hour of screen time per day, and 5-17 year olds, no more than two (Canadian Society of Exercise Physiology, 2014). Currently, only 15% of 3-4 year olds and 24% of 5-17 year olds meet these guidelines (ParticipACTION, 2015). Given the known link between sedentary behaviours and obesity in children and youth (Saunders, Chaput, & Tremblay, 2014), ParticipACTION's (2015) recent report card recommended limiting screen time to reduce sedentariness and providing parents with the Canadian Sedentary Behaviour Guidelines as early as possible. Discussing and assessing sedentary behaviour in addition to physical activity and dietary habits should also be considered by HCPs when interacting with children and families.

Misconceptions. One subtheme that was evident in the data pertained to misconceptions amongst families of what a healthy weight is for children and adolescents. Several HCPs interviewed stated that they observe denial from parents upon informing them that their child has overweight or obesity. Findings by Eckstein et al. (2006) are congruent with this notion and the authors stressed that recognition of the condition by parents needs to be addressed in order to facilitate weight management efforts. A more recent article used the term "oblivobesity" to define the absence of parental recognition of obesity in their children (Katz, 2015). According to Katz (2015), society in its current state does not always fix what it is aware of as being broken, and never fixes what it does not realize is broken. The latter part of this sentiment appears to be true regarding paediatric obesity, as the participants in the present study often mentioned that parents are not always aware that their child's weight poses a risk to their health; thus no lifestyle changes are made to manage the problem. Further, participants mentioned that children themselves are often unaware they have overweight or obesity until someone else points it out, thereby emphasizing the role that HCPs can play in a health promotion capacity.

Weight stigma. Children as young as three years old have expressed negativity towards those who have overweight or obesity (Moore & Pi-Sunyer, 2012), due to the stigma associated with the conditions. Although HCPs mentioned weight stigma as a common issue experienced amongst patients, their own weight biases pertaining to patients, whether known or unknown, were apparent throughout the interview process. For example, some participants reported that time spent counseling on weight management is often wasted due to the low percentage of patients who adhere to the advice. This view was echoed by a study conducted by Hebl and colleagues (2003), who reported that HCPs treating patients with obesity found the interactions to be annoying and a greater waste of time than treating healthy weight patients. Puhl and Heuer (2010) discussed the effects of weight bias, including the stigma patients with obesity experience from HCPs, which can result in their feeling disrespected, blamed for their weight, and not taken seriously by HCPs (Puhl & Heuer, 2010). This HCP weight bias can lead to avoidance of healthcare among individuals with obesity (Dietz et al., 2015). Alegria and Louis (2003) examined the association between BMI and healthcare avoidance among women. They found that as body weight increased, health care avoidance also increased. People with obesity are also less likely to go to preventive screenings when age-appropriate, likely in response to experiencing weight stigma (Puhl & Heuer, 2010). Dietz et al. (2015) suggest that educational approaches focusing on the complex etiology of obesity can help reduce weight stigma among medical students, and future medical professionals, an approach that could hold similar merit in the rural NWO region.

Future Recommendations from HCPs

At the end of each interview, participants were asked to identify future recommendations for paediatric obesity management in their community. These recommendations were collapsed

into a main theme, which housed four interrelated subthemes: care practices, education for HCPs and families, rural community programming, and policy changes.

Care practices and education. Participants all mentioned that the current care practices are not optimal for paediatric obesity management, and improvements are necessary. Early identification of obesity, along with providing more parent education on weight management techniques were noted by participants as tangible steps that HCPs can realistically take. Participants also identified using the resources available to educate families, such as the combined-knowledge and skillset of the interdisciplinary team, as a small change that can elicit a positive outcome. Participants in the current study expressed that interpersonal communication amongst team members is especially important for weight management efforts by the interdisciplinary team. According to several of the HCPs, a common missing link within Family Health Teams is an exercise specialist, such as a Kinesiologist. Weight management is often associated with physical activity, a health behaviour that a Kinesiologist specializes in prescribing (Ontario Kinesiology Association [OKA], 2015). Kinesiologists have the knowledge base to create individualized care plans for target populations, like those with health concerns such as obesity. Given the growing field of Kinesiology in Ontario (i.e., its recent heightened status as a regulated health profession in 2013; OKA, 2014), and the close proximity of Lakehead University in Thunder Bay which houses an Honours Bachelor of Kinesiology undergraduate program, a prime opportunity for the employment of kinesiology graduates or students in these rural areas exists. Regulated Kinesiologists and Kinesiologists-in-training can provide valuable contributions to the Family Health Team model, as participants of this study indicated that exercise prescription provision is minimal and often based on the HCP's personal knowledge as opposed to the expertise of a trained professional. Integration of a kinesiologist

would allow the interdisciplinary team to fill this gap, as well as allow HCPs to create more individualized care plans for paediatric patients with obesity. Focusing on health behaviours such as physical activity in addition to concepts such as health were identified as important by study participants.

In line with the education-based recommendations of the current study, Mazur et al. (2013) found that advanced training consisting of dietary counseling, psychological care, and/or interpersonal communication with regards to paediatric weight management is necessary for HCPs, and many participants of the present study reported the need for more training on weight management in general. Bleich et al. (2015) found an association between self-efficacy and training, in which having high-quality professional development opportunities relating to paediatric weight management increased self-efficacy for providing obesity-related care. Motivational interviewing (a process that helps people resolve uncertainty and move towards healthy behaviour change; Miller & Rollnick, 2001) was mentioned in the interviews as a training option, and research has shown that this communication technique improves knowledge, skills, and confidence among HCPs working in the areas of eating and exercise behaviour change (Edwards, Stapleton, Williams, & Ball, 2015; Pearson, Burke, & Irwin, 2012; Wiley, Irwin, & Morrow, 2012). For example, Wiley et al. (2012) investigated HCPs perceptions of a one-day motivational interviewing workshop aimed at enhancing HCPs confidence and competence when seeking to elicit health behaviour change among patients. Specifically, it was found that motivational interviewing was an effective technique to elicit behaviour change in patients struggling with weight management (Wiley et al., 2012). As a result of the one day workshop, HCPs experienced more motivation to facilitate behaviour change, more partnering with patients, less stress when working to elicit behaviour change, feeling more competent and confident, and

perceived a positive impact on their patients (Wiley et al., 2012). It appears that HCPs in NWO could benefit from Motivational Interviewing training, which could be conducted via telephone to educate HCPs and enhance their skill sets.

Rural community programs. A trend describing the importance and benefits of rural community-based interventions involving the whole family was very prominent in the interview findings. Due to the small size of many rural communities, this may be a difficult task due to limited municipal funding, as well as a small population of participants. Polacsek et al. (2009) recommended that HCPs partner with community centres to provide behavioural interventions on weight management when care extends outside the scope of the primary-care setting. Due to the small size of the communities sampled in the present study, there is limited access to physical activity programs; however, many participants suggested activities that are free and require very little equipment. The rural communities were identified as very safe, and the small population often allows for vast amounts of play space that can be promoted for family use. For example, rural NWO has hiking trails and beaches scattered across the vicinity, and in the winter months several communities have access to an outdoor rink for skating. One community has already had their dietician offer cooking classes for adults; thus the opportunity to include children in future classes could be a viable option.

One example of a family-based program that was offered by researchers at Western University in London, Ontario was the Children's Health and Activity Modification Program (C.H.A.M.P): A 4-week lifestyle program in the form of a day-camp for children with obesity that included four half-day education sessions for the parents to attend during the intervention period (Martin et al., 2009; Pearson et al., 2012). Overall, this program elicited increased physical activity levels, greater self-esteem, and weight loss in its participants, and was well

received by the families that participated (Pearson et al., 2012). A program such as this would be optimal in any size community (i.e., rural or urban) as it included education for the children and their parents, as well as a non-judgmental environment in which the children felt supported in their behaviour modification efforts. Pearson et al. (2012) emphasized the importance of working with parents one-on-one to focus on facilitators and barriers unique to each family, so that more personalized solutions could be developed. The findings of the present study indicated that parents play one of the main roles in paediatric obesity management; thus working to support the family as a whole should be a Family Health Team-based goal for rural communities.

Policy. As study findings indicated, paediatric obesity is an issue that HCPs cannot solve on their own (Walker et al., 2007), and a top-down approach whereby government initiatives to change the perceptions of obesity as a health issue are necessary in order for management efforts to be sustainable. Policy changes to school curriculums (i.e., more physical activity and food education), funding for more professionals in Family Health Teams (i.e., Kinesiologists), food taxing, and banning certain foods that contain no nutritional value were all suggested by participants. Gortmaker et al. (2011) stated that governments have the most important role in reversing the obesity epidemic, because their main responsibility is to protect and promote public health. Dietz et al. (2015) noted that "people cannot make healthy choices unless there are healthy choices to make" (p. 4) and environmental changes that increase healthy choices and reinforce clinical efforts are crucial to sustain a healthy weight. This outlook was mirrored in the findings of this study, as HCPs expressed that changes need to happen higher up in the government, and at the municipal, provincial, and federal levels combined. Due to the rurality of the communities sampled, participants identified several barriers for both HCPs and patients due to limited resources in rural, northern communities. Government initiatives to increase access to

healthy, fresh food in rural, northern communities can be suggested to help these families live healthfully with the resources necessary to do so.

Strengths and Limitations

This study has several strengths; such as the qualitative design that allowed for rich data collection of HCP perspectives on paediatric obesity management care practices, facilitators, and barriers, and in-depth analysis of the interview data and emergent themes. The views of a variety of interdisciplinary HCPs were explored (i.e., several professions), and each Family Health Team within the TBDHU rural region was represented by at least one participant, which allowed for a deeper understanding of care practices when viewed from several perspectives. This was the first qualitative study to identify rural interdisciplinary HCPs care practices, facilitators, and barriers, as opposed to rural physician-only perspectives which have been documented in the past (Findholt et al., 2013). As the first NWO-based study in this context, the findings and recommendations identified will be beneficial for local care providers, patients, and the development of subsequent interventions. This study also adds to the current literature regarding the dissemination and awareness of the 2006 Canadian Clinical Practice Obesity Guidelines, as it is the first to explore the perspectives of social workers, dieticians, nurse practitioners, and nurses with regards to their awareness of the guidelines; previous studies sampled physicians and paediatricians only, and identified the need for more research on the degree of guideline use in clinical practice (Bailey et al., 2013; Kirk et al., 2012; Piccinini-Vallis, 2011). The perspectives of these interdisciplinary team members are invaluable in weight management efforts (Lau et al., 2007). Overall, the findings of the present study identified that better dissemination and familiarity with the guidelines is necessary to enhance future care practices.

While the study did have a number of strengths, there are also limitations worth noting. Due to limited resources, a note taker was not available during interviews. This would have helped to build an audit trail and served as an additional form of triangulation to enhance the data trustworthiness. Although a note taker was not available, the interviews were audio recorded and transcripts were analyzed by two researchers (A.F. and E.P.) separately, and member checking was used throughout the interviews to confirm that the researcher's interpretations were true to those of the participants. The majority of participants (seven of 11 total) are currently employed at one Family Health Team; this could suggest that the data is biased toward one community rather than representing all five Family Health Teams sampled, thereby limiting transferability of the findings to other rural Family Health Teams. Although this could be viewed as a limitation, the themes did not substantially differ amongst participants from different Family Health Teams. In fact, upon reviewing the transcripts, some themes were more similar between participants from different Family Health Teams than participants from within the same Family Health Team. Future researchers should aim to sample more participants from each Family Health Team to enhance the representativeness of the sampled population. It is also important to disclose that the researcher (A.F.) is from one of the participating communities, and has a personal relationship with one of the participants; thus, the researcher has some previous knowledge regarding the participants' experiences living in the rural communities. This potential researcher bias was handled by having the supervisor review the transcripts and coding to determine whether any personal biases from the researcher (A.F.) were present. Lastly, exploring only the HCPs perspectives, as opposed to the perspectives of families and HCPs, could be another limitation. Patient barriers was a theme that emerged in the data. However, this theme was built upon information provided from the HCPs perspectives as opposed to patient and family perspectives

of dealing with childhood obesity in a rural community: a factor to keep in mind when considering future directions.

Future Directions and Research

Due to the inconsistencies noted amongst study interviewees regarding HCP care practices and the recommendations made in the 2006 Canadian Clinical Practice Obesity Guidelines, a more comprehensive dissemination plan should be in place for the 2015 updated guidelines by the Canadian Task Force of Preventive Health. This could allow for greater awareness and familiarity with the guidelines, which could in turn enhance the care provided to paediatric patients and families. The facilitators identified in the present study (i.e., HCP resource initiative, community-based programs, and school involvement) are all options that HCPs can continue to use to enhance paediatric obesity management efforts in rural communities, and community Family Health Teams should look to integrate these resources for assistance in patient care and education. For example, a partnership between Family Health Teams and schools could be an avenue to implement more health education by HCPs in schools. The addition of a Kinesiologist to Family Health Teams could possibly alleviate some of the weight management duties from current HCPs, as well as bring new expertise in the area of lifestyle management and health behaviour change to patients. As participants of this study identified that funding within the Family Health Teams is limited, it may be of benefit to consider sharing a Kinesiologist amongst several rural Family Health Teams, or have one available for telemedicine purposes. Although several barriers were noted by participants (i.e., HCP barriers, patient barriers, and societal influences), the identification of these barriers can now help HCPs and families come to terms with the problem at hand and create care plans accordingly. Similarly, due to the mention of weight bias by participants, it could also be

beneficial for HCPs to take an educational course on how to address weight bias in practice, such as that offered by Dr. Sara Kirk in the spring of 2015 (Kirk, 2015), which was free and available online.

In terms of future research, the implementation and evaluation of a training program (e.g., a motivational interviewing workshop) for HCPs in rural communities aimed at enhancing self-efficacy and competence in weight management efforts could be valuable as this is a population that appears to have limited educational and professional development opportunities. In an effort to develop and foster a standard of care, future researchers should examine rural HCPs longitudinally over time to determine whether changes in care practices take place in relation to the implementation of the new 2015 updated guidelines (Canadian Task Force on Preventive Health Care, 2015). Using a focus group method to interview the Family Health Team members as a group could also be an avenue for further development of this study as both the interactions amongst team members as well as their insights on weight management can be explored simultaneously. Additionally, in order to gain insights into future directions for families, communities, and government initiatives on addressing the barriers to living healthy in rural communities, interviewing patients and families who live in these areas could enhance the current literature regarding childhood obesity management.

Conclusion

Paediatric obesity is a worldwide epidemic (WHO, 2014), which according to participants, is noticeably affecting rural communities across NWO. Health care providers are believed to be well-positioned to help aid in paediatric obesity management; however, findings of this study have shown that they face many more barriers than facilitators to weight management care. The main theme, care practices, appeared to influence, and be influenced by

the facilitators and barriers to paediatric obesity management, and was also directly linked to future recommendations. The care practices of HCPs in rural NWO were not consistent amongst participants, and adherence to the 2006 Canadian Clinical Practice Obesity Guidelines (Lau et al., 2007) was low amongst the population sampled, suggesting that HCPs may not be offering the full range of services to patients in need. The current standard of care for paediatric obesity management appears to be outlined by the current 2015 Canadian Clinical Obesity Guidelines (CMAJ, 2015); however, the participants in this study were interviewed prior to the releasing of this document. It appears that better dissemination of and educating HCPs on the guidelines would be beneficial to HCPs and patients. The rural isolation of the communities sampled creates significant barriers for those living in and practicing in these regions. Societal changes have created an obesogenic environment that makes it difficult for anyone to live an active, healthy lifestyle. These challenges combined make paediatric obesity an issue much greater than the care HCPs can address, thus a multi-sectoral approach is needed. The future recommendations provided by HCPs were focused on care practices, rural community programming, education for HCPs and families, and policy changes. Care practice improvements included enhancing the use of the interdisciplinary team (i.e., more communication and teamwork). Providing educational opportunities through telephone and videoconferencing might also be viable options to enhance HCPs knowledge while addressing some of the barriers associated with working in a rural, isolated community. Rural communities have limited community-based programs; however, the safety of the communities and small population often allow for vast amounts of play space that can be promoted for family use. Although some changes cannot be made by HCPs alone and require governing bodies for implementation (e.g., policy changes), integrating small changes such as those identified above,

may be one step that HCPs can take in an effort to enhance the provision of care to paediatric patients and their families in a weight management context.

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Appendix A

Ethical Approval

Lakehead UNIVERSITY

Research Ethics Board
t: (807) 343-8283
research@lakeheadu.ca

January 23, 2015

Principal Investigator: Dr. Erin Pearson
Student Investigator: Ms. Alyssa Fairservice
Kinesiology
Lakehead University
955 Oliver Road
Thunder Bay, ON P7B 5E1

Dear Dr. Erin Pearson:

Re: REB Project #: 108 14-15 / Romeo File No: 1464311
Granting Agency: N/A
Granting Agency Project #:N/A

On behalf of the Research Ethics Board, I am pleased to grant ethical approval to your research project titled, "Exploring Health Care Providers' Barriers and Facilitators to Treating Childhood Obesity and Their Influence on Care Practices in Rural Northwestern Ontario Communities".

Ethics approval is valid until January 23, 2016. Please submit a Request for Renewal form to the Office of Research Services by December 23, 2015 if your research involving human subjects will continue for longer than one year. A Final Report must be submitted promptly upon completion of the project. Research Ethics Board forms are available through the Romeo Research Portal at:

http://romeo.lakeheadu.ca/Romeo.Researcher/login.aspx

During the course of the study, any modifications to the protocol or forms must not be initiated without prior written approval from the REB. You must promptly notify the REB of any adverse events that may occur.

Best wishes for a successful research project.

Sincerely,

Dr. Lori Chambers
Chair, Research Ethics Board

/rks

Appendix B

Exploring Health Care Providers' Barriers and Facilitators to Treating Childhood Obesity and Their Influence on Care Practices in Rural Northwestern Ontario Communities

Letter of Invitation

Dear Potential Participant,

You are invited to participate in a study being conducted by Alyssa Fairservice, Master's Candidate working under the supervision of Dr. Erin Pearson, Assistant Professor, both of the School of Kinesiology at Lakehead University. The primary purpose of this qualitative study is to explore rural health care team members' perceived facilitators, and barriers to treating childhood obesity and their influences on care practices in rural Northwestern Ontario communities. In order to accomplish this, we will be holding one-on-one interviews with rural health care providers who are interested in sharing their experiences.

Procedures
You are being asked to participate based on your status as a health care provider who works one-on-one with children and youth in the Thunder Bay District Health Unit region, and your ability to speak English fluently. As a participant, you will be invited to: a) complete a brief demographic questionnaire asking about your occupational background; and b) attend an interview held at an agreed upon location depending on your availability. The interview will be used to explore your own professional care practices (e.g., resources, challenges) experienced with regards to the prevention and management of childhood obesity. We are also interested in hearing about your experiences as an interdisciplinary health care team member. Each session will be approximately one hour in length, led by the student researcher affiliated with the study, and audio-recorded with your consent for research purposes. In total, the study will require 60-90 minutes of your time.

Voluntary Participation
Your participation in the study is completely voluntary. As such, you may refuse to participate, refuse to answer any questions, or withdraw at any time with no penalty.

Confidentiality and Storage of the Data
Your participation in this study is completely confidential. As a participant, you will be required to sign an informed consent indicating your understanding of the study requirements.

The information from the questionnaires and interview will only be for the use of the researchers listed. The completed questionnaires will be stored in a locked cabinet, inside a locked office. After 5 years, all of the questionnaires will be shredded. A master list will be maintained linking your name as a participant to an identifying number. Upon completion of the study, this list will be destroyed. By participating in this research, you agree that your results may be used for scientific purposes, including publication in scientific and health specific journals. The results of the study will be reported without identifying you personally, thus maintaining your confidentiality.

Potential Risks and Harms
There are no foreseeable risks or harms to you as a participant. However, it is possible that you may experience feelings of discomfort as a result of some questions being asked about your personal behaviours and views. Questions have been designed to help eliminate an atmosphere of judgment or assumption and to foster the inclusion of all opinions and ideas. This study has been designed to have no right or wrong answers and its purpose is to hear from you directly and about what you think is important. As a participant, you do not have to answer any questions you do not want to, and can withdraw at any point in time.

Potential Benefits
This study may offer a unique opportunity for you to voice your experiences on the prevention, management, and treatment of obesity among children and youth in the Thunder Bay District Health Unit region.

Feedback from the Study
You may request the general findings of this research after the study is complete. If you have any concerns, please feel free to contact the researchers below. This letter is for you to keep.

Rights of Subjects
This project has been approved by the Lakehead University Research Ethics Board. If you have any questions related to the ethics of the research and would like to speak to someone outside of the research team, please contact Sue Wright at the Research Ethics Board at 807-343-8283 or research@lakeheadu.ca.

Sincerely,

Alyssa Fairservice, HBK
MSc Candidate
School of Kinesiology
afairser@lakeheadu.ca

Erin Pearson, PhD
Assistant Professor
School of Kinesiology
erin.pearson@lakeheadu.ca
807-343-8481

Appendix C

Demographic Questionnaire

Health Care Provider Information

1. Sex: Male _____ Female _____ ID: _____
2. What is your education background and current job title?
   _____
3. Where do you practice (i.e., your place of employment)?
   _____
4. How long have you worked in your current role? _____
5. How long have you practiced as a health care provider? _____
6. How long have you worked in Northwestern Ontario? _____
7. Where have you worked previously (e.g., roles, duration)? _____
8. What is your paediatric patient load per week? _____
9. Please provide an estimate of how many paediatric patients you see for each age range during your average work week (_____ hours)?
   a. Infants (newborn-2 years) _____
   b. Preschoolers (2-5 years) _____
   c. Children (6-12 years) _____
   d. Adolescents (13-18 years) _____

Patient Information

1. What are some circumstances for which you would assess patients for childhood obesity (circle all that apply)?
   a. Screen all patients at each visit
   b. Referred by other health care professional
   c. When comorbidities exist
   d. When concern is shown by child/adolescent
   e. Per request by parent/guardian
   f. Professional judgment calls for further assessment
   g. Other _____
2. What method do you prefer to use when assessing childhood obesity?
   a. Body weight alone
   b. BMI

c. CDC BMI-for-age Charts
d. Rourke Baby Record
e. Appropriate weight for height charts
f. Professional judgment

Appendix D

Interview Guide

Part 1: Views on and general experience with childhood obesity

1. What are your thoughts on paediatric obesity as a health issue?
   Probe: In Canada? Ontario? NWO?
2. What types of obesity-related trends do you see in your practice (e.g., by age [infant, toddler, adolescent], sociodemographic factors, etc.)?
   Probe: How might these trends influence patient care (if at all)?
3. Please can you describe any specific training you have had on obesity prevention or management?

Part 2: Current Standard of Care and Clinical Practices

1. How is childhood obesity typically managed in your place of employment?
   Probe: Are you aware of any "standard of care" for childhood obesity treatment in your place of employment? If so, could you please describe?
2. Are there any tools or guidelines you integrate into practice when treating childhood obesity?
   Probe: Canadian Diabetes Guidelines; 5As; CMA Guidelines; Other
3. What can you tell me about interdisciplinary care in your place of employment?
   Probe: How are efforts to address childhood obesity managed from an interdisciplinary care perspective in your place of employment (if at all)?
   Probe: How might the Family Health Team model promote or inhibit childhood obesity treatment in your place of employment?
4. Do you think that the current care practices in your place of employment are sufficient to manage and prevent childhood obesity? Why or why not?
5. What challenges do you experience in practice when working to prevent/treat the condition?
   Probe: What do you feel is the biggest challenge to the sustainability of any treatment recommended?
6. Alternatively, what sorts of things help you in practice when working to prevent/treat the condition?

Part 3: Resources Available

1. To your knowledge, what types of resources are available for (*insert profession*: dietitians, physicians, NPs, etc.) to address the issue of childhood obesity in practice?
2. What types of resources are available *in your town* to address the issue of childhood overweight and obesity?
   Probe: Public education? Recreational opportunities? Health promotion initiatives?
3. What tools do you have in your own office to aid in childhood obesity treatment and prevention?
   Probe: Who has access to these tools? How are these tools used and by whom? What resources are available as "take homes" for parents/guardians?
4. What role do you think parents/family members play regarding the prevention and treatment of childhood obesity?
   Probe: What could help families with the prevention and treatment of childhood obesity? What might inhibit this?

Part 4: Future Standard of Care

1. In what ways do you feel childhood obesity treatment could be improved in your place of employment? In Northwestern Ontario?
   Probe: What needs to happen next? Where do you think improvements to the standard of care could be made?
2. What supports do you need to address these conditions among your patients?
3. What type of initiatives would you like to see offered in your community for patients and families who struggle with obesity?
   Probe: What would the paediatric portion consist of? Would there be a family-based portion? If so, what would this look like? How would you recommend patients and families be recruited for these types of initiatives?
4. Is there anything else that you would like to share with me that has not been addressed today?

Appendix E

Consent Form

I, _____ have read the Cover Letter of Information, have had the nature of the study explained to me and I agree to participate.

In doing so, I understand:

- the procedures involved and what will be required of me
- the potential risks and benefits associated with the study
- that my involvement is voluntary
- that I can refuse to answer any questions or withdraw at anytime without penalty
- that the data will be stored securely at Lakehead University for a minimum of five years
- that the research findings will be available to me (via the researchers) upon request following completion of the study
- that I will remain anonymous in any publication/presentation of the research findings
- that the content of the interview will be held as confidential

All questions have been answered to my satisfaction.

Print name: _____ Date: _____

Signature: _____

Name of Researcher: _____ Date: _____

Signature: _____

Appendix F

List of Acronyms

AHKC – Active Healthy Kids Canada

BMI – Body Mass Index

CDA – Canadian Diabetes Association

CDC – Centre of Disease Control

CMA – Canadian Medical Association

CON – Canadian Obesity Network

EMR – Electronic Medical Records

HCP – Health Care Provider

LHIN – Local Health Integration Network

NWO – Northwestern Ontario

PHAC – Public Health Agency of Canada

TBDHU – Thunder Bay District Health Unit

WHO – World Health Organization