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Analysis of Barriers to the Successful Prevention and Management of Pediatric Obesity and their Relationship to Care at Community Health Centers

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Analysis of Barriers to the Successful Prevention and Management of Pediatric Obesity and
their Relationship to Care at Community Health Centers

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Culminating Experience

Master of Public Health

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Abstract

Despite international attention, pediatric obesity continues to burden healthcare. Much research has been done to identify barriers to the successful reduction of childhood overweight and obesity, however, a more condensed and accessible compilation of these barriers was lacking. A literature review was done to identify the barriers healthcare providers perceive to the prevention and management of pediatric obesity. It was performed in Fall of 2013 from the following databases: PubMed, PsycINFO, CINAHL, ERIC, and SocIndex. Two independent reviewers selected relevant articles, developed a coding template, and extracted themes. Barriers to the prevention and management of pediatric obesity fell into three overarching categories with 17 individual themes. The first category addressed external factors that inhibited providers from discussing the topic. The second category focused on barriers to interpersonal communication. The last category described provider perceptions of the caregiver. Healthcare providers perceive numerous barriers to the effective prevention and management of pediatric obesity. An elemental discrepancy exists in determining roles and responsibilities of providers when addressing pediatric obesity. Moving forward, a discussion amongst key stakeholders is necessary to develop synchronized perceptions, goals, and strategies. Community Health Centers (CHCs) and Federally Qualified Health Centers (FQHCs) are growing in importance and provide a new venue to tackle pediatric obesity. CHCs are unique in their structure and relationship with the federal government and thus should be examined for potential opportunities and barriers that, if targeted and addressed, could help progress the fight against pediatric overweight and obesity.

Keywords: Attitude to health, overweight children, perceptions of healthcare personnel, healthcare barriers

**Analysis of Barriers to the Successful Prevention and Management of Pediatric Obesity
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Overweight and obese children have been a priority in discussion amongst public health and healthcare professionals in recent decades. The prevalence of childhood obesity in the United States is now at 16.9% and has neither increased nor decreased since 2009-2010 (Ogden, Carroll, Kit, & Flegal, 2014). In certain subgroups, obesity has decreased. Ogden, Carroll, Kit, and Flegal (2014) found that obesity amongst 2-5 year old children decreased between 2003-2004 and 2011-2012 from 14% to 8%. However, no significant changes have been reported in obesity prevalence amongst all children since 2003-2004 (Ogden et al., 2014). A prevalence of 16.9% for childhood obesity is still too high and thus necessitates proper attention to find the appropriate solutions. While pediatric obesity prevalence may not be significantly increasing in recent years, its stagnant nature should be addressed so that the overall prevalence may begin to decline and the health of our children begin to improve.

The Surgeon General's Report from 2001 focused on the need to address obesity in the United States. It stated, "overweight children and adolescents are more likely to become overweight or obese adults; this concern is greatest among adolescents" (Office of the Surgeon General [US], Office of Disease Prevention and Health Promotion [US], Centers for Disease Control and Prevention [US], & National Institutes of Health [US], 2001, p. 8). If overweight and obesity is an issue that can be prevented if focused on in childhood, then it is of utmost importance to find a way to better prevent children from becoming overweight and obese.

The epidemic of overweight and obesity not only threatens the future health of our children but also adds economic burden to our society. Both direct and indirect healthcare costs related to obesity have been exponentially increasing. In 1995, they were estimated at \$99

billion and by 2000 had risen to \$117 billion (Office of the Surgeon General [US] et al., 2001). These high costs make obesity a top priority when addressing ways to reduce healthcare spending in the future. Obesity can no longer be looked at as a disease that will be treated but rather a disease that needs to be prevented.

With the high rates of pediatric obesity and the high costs, it is not surprising that much effort and attention has been paid towards finding ways to fight against this epidemic. Wofford (2008) conducted a systematic review of the literature concerning childhood overweight and obesity prevention strategies and found that practitioners need to “become advocates” to help bring awareness to the community and to help with policy review. The Surgeon General’s Report in 2001 also called for healthcare providers to be educated in the prevention and treatment of overweight and obesity (Office of the Surgeon General [US] et al., 2001). It was also noted that public health is necessary to play the role of awareness and education to the community (Office of the Surgeon General [US] et al., 2001).

It is clear there are many key stakeholders when it comes to this problem including children, caregivers, health care providers, lawmakers, schools, and public health personnel. The expert committee on pediatric and adolescent overweight and obesity has provided guidelines for how these key stakeholders should respond to pediatric obesity (Barlow & Expert Committee, 2007). These recommendations call for multidisciplinary intervention and advise each stakeholder to do their part in the prevention and management of pediatric obesity (Barlow & Expert Committee, 2007). Yet, pediatric obesity still prevails despite these recommendations demonstrating that this team approach, while necessary, might be more complex than originally thought. Pediatric obesity is multifaceted and will require a multifaceted solution. Thus, while

this a public health concern, it is one that cannot be solved without collaboration and coordination between stakeholders.

Countless interventions have already been tried to decrease the amount of children that are overweight and obese. Boon and Clydesdale (2005) conducted a review of interventions that have been used to treat and reduce the prevalence of childhood obesity. They found there were four main types of interventions that have been tried: school based, after school and summer camp, medical community, and single component which include focusing on just one aspect of the factors that contribute to overweight and obesity (Boon & Clydesdale, 2005). They looked at which of these interventions were most successful and found that interventions that occur in the clinical setting seem to have good success rates in helping children lose weight. Improvements were seen when healthcare providers had specific discussions with children and their parents pertaining to overweight and obesity (Boon & Clydesdale, 2005). It seems clear that healthcare providers must be at the center of pediatric obesity prevention and management in order to be most successful. Therefore, in order to best tackle this issue from a public health perspective, public health personnel and stakeholders alike must understand the barriers at the center of the issue; those barriers impacting the healthcare providers' prevention, management and treatment of childhood obesity.

If obesity is a known problem, and prevention is known to be the solution, then why are conversations still not being had with all patients regarding overweight and obesity? What is keeping healthcare providers from having these types of conversations? van Gerwen, Franc, Rosman, Le Vaillant, and Pelletier-Fleury (2009) conducted a systematic review of cross-sectional research assessing the knowledge, attitudes, beliefs, and practices of healthcare providers in regards to pediatric overweight and obesity. They found that primary care

physicians need more training on the topic of effective treatment in childhood obesity (van Gerwen, Franc, Rosman, Le Vaillant, & Pelletier-Fleury, 2009). They also found that physicians have been referring to dietitians but their amount of referrals has been the same between 1989 and 2000 (van Gerwen et al., 2009).

Although cross-sectional studies can provide a great deal of information about the topic, qualitative methods allow researchers to get a better understanding of the perspectives held by participants. In this context, the benefits of qualitative research include the ability to identify incongruities between healthcare professionals' perspectives of issues and solutions (Staniford, Breckon, Copeland, & Hutchison, 2011). Although much qualitative research has been done to assess the barriers that provider's feel inhibit their ability to prevent, manage and treat pediatric obesity, a more synthesized and usable format of these perceived barriers is lacking in the research. The literature review conducted by these authors was done in hopes of adding to the information provided by van Gerwen et al. (2009) by including the perspectives attained through qualitative research methods.

Statement of Purpose

The purpose of this project will be to evaluate the unique barriers and opportunities that Community Health Centers (CHC) face in the prevention and management of pediatric overweight and obesity. In order to best address this topic; the project will be broken into three major parts. Part one will be a literature review of the beliefs, attitudes, and barriers physicians report about pediatric overweight and obesity. The literature review will focus on qualitative research and summarize the findings of published interviews with health care professionals. Part two of the project will address the structure of CHCs and their designation as Federally Qualified Health Centers (FQHC). A SWOT analysis will be used to better understand how this structure

might create unique opportunities and barriers to the prevention and management of pediatric overweight and obesity. Finally, part three of the project will evaluate the barriers and opportunities that might exist in the CHC setting specifically.

The goal of this research is first to inform readers how CHCs might utilize their opportunities, and respond to their barriers, to better deliver care to the pediatric overweight and obese population. The second goal of this research is to inform a future study to assess how the unique structure of FQHCs might offer opportunities and pose barriers to the prevention and treatment of pediatric overweight and obesity. The hope is that this literature synthesis will provide the groundwork for a qualitative research project examining the same topic.

Research Question #1

What barriers to healthcare providers perceive to the successful prevention and management of pediatric obesity?

Part 1: Literature Review

Methods

Searching.

A review of the literature was performed by searching articles in the following databases: PubMed, PsycINFO, CINAHL, ERIC, and SocIndex. No date range was supplied for the search. The searches performed in these databases are shown in Appendices A-C. The search strategy used terms that focused on healthcare providers' attitudes and beliefs about pediatric overweight and obesity prevention and management. Different fields of healthcare were searched as well, such as pediatrics, psychiatry, and psychology. Healthcare providers were identified as physician, nurse practitioner, physician assistants, nurses, and health personnel.

Two reviewers (R.B. and N.C.) performed separate searches from which a combined total of 920 titles were screened for relevance (Figure 1). There were 816 titles excluded by the two reviewers because they were felt to (a) deal with caregiver perceptions instead of healthcare provider perceptions, (b) describe a treatment intervention, or (c) did not specifically mention overweight or obesity in a pediatric setting. In an effort to be comprehensive an additional search was performed in PubMed to identify articles that may not have been indexed (Appendix D). From the two search methods, 109 abstracts were chosen for further review.

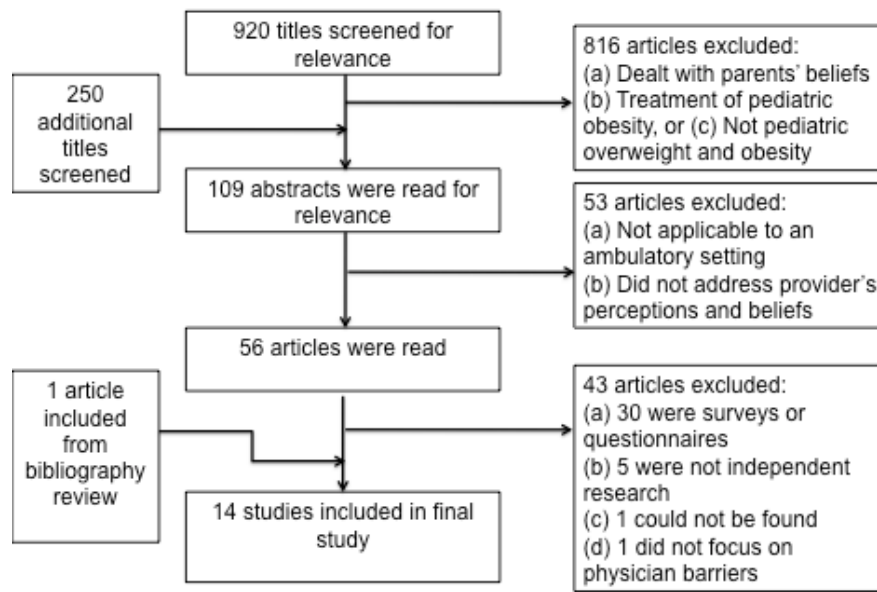


Figure 1. Article selection methodology.

The reviewers read 109 selected abstracts independently and chose whether to include abstracts for further review based on criteria agreed upon by both reviewers. Abstracts were included based on the following criteria: (1) reflect provider's own thoughts of barriers for prevention and management of pediatric obesity, (2) healthcare provider is defined as those who may work in an ambulatory care clinic (including family, pediatric, psychiatry), (3) all titles that do not have an available abstract were included.

The abstracts chosen for further review by the two reviewers independently were then combined into one list of 56 articles. The full-length articles were found and read. The bibliography of each article was also read to look for any articles that might have been missed through the database searches. One article was, independently, identified by both reviewers during this step as critical to include in this literature review. Articles were used in the final review based on the following criteria: (1) All non-interview style research will be excluded; (2) Systematic reviews excluded; (3) Must address ambulatory clinic providers ;(4) Articles written in non-English eliminated. After reading the full-length article, each reviewer independently labeled each study as included or excluded based on the above criteria. An inter-rater reliability analysis using the Kappa statistic was performed to determine consistency among raters. The Kappa statistic analysis was performed using SPSS (IBM Corp., 2012). After discussion between the two reviewers, a final inclusion list was determined

Data abstraction and validity assessment.

Each reviewer read the articles independently and identified and extracted themes that were found in each study. Both reviewers then met and discussed themes found throughout the studies and categorized these themes. A coding template was constructed and articles were reread looking for themes that fell both within and outside of the predetermined categories.

Individual studies were also assessed for validity by looking at the type of study conducted, the amount of participants interviewed, the location of the study, and IRB approval. All studies chosen were deemed valid and appropriate for use in this literature review.

Results

The inter-rater reliability for article selection was found to be $Kappa = 0.811$ ($p < 0.0001$) demonstrating almost perfect selection agreement (Landis & Koch, 1977). After discussion

between the two readers, 14 articles were chosen for inclusion in the review. From the 14 articles reviewed (Table 1), 17 individual themes were identified falling into three overarching categories as can be seen in Table 2. The three categories inhibiting the successful prevention and management of pediatric obesity included external factors, interpersonal factors, and provider perceptions of the caregiver. Each category is discussed further.

Table 1. Description of Articles Reviewed

Article	Setting	Interview type	Participants	Number of interviews	Country	Year	Ethical approval
Chamberlin, Sherman, Jain, Powers, & Whitaker, 2002	WIC Healthcare professionals	Semi-structured focus groups (1hr) and individual interviews (20-30min)	n=19 (7 clinical nutrition, 12 nurses) All female, all but one white	n= 3 focus groups; n=6 interviews	USA	2000	Yes
Edvardsson,& Hörnsten, 2009	Maternal and child health services, 0-6 yo	Semi-structured interviews (10-30min)	n=10 (10 nurses) All female	n=10 interviews	Australia	2007	Yes
Findholt, Davis, & Michael, 2013	Rural primary care practices in Oregon	Semi-structured interviews (45min)	n=13 (4 Family medicine physicians, 4 FNPs, 1 PNP, 2 PAs) 7 male, all white	n=13 interviews	USA	2008-2009	Yes
Gerards, Dagnelie, Jansen, De Vries, & Kremers, 2012	Netherlands Youth Health Care (YHC) 0-19 yo, part of a RCT for an intervention program	Semi-structured interviews (20min)-assessed barriers to referral	n=16 (2 management staff, 8 physicians, 6 nurses) All but one female	n=16 interviews	Netherlands	2010	Yes
Isma, Bramhagen, Ahlstrom, Ostman, & Dykes, 2012	Child Health Care nurses 0-6 yo	Semi-structured interviews (30-90min)	n=18 (18 nurses) All but one female	n=18 interviews	Sweden	2010	Yes
Johnson, Clark, Goree, O'Connor, & Zimmer, 2008	Healthcare providers working with Mexican American families 0-15 mon	Focus groups (90min)	n=38 (13 WIC program staff, 9 nurses, 8 Mas, 3 WIC dieticians, 3 pediatricians, 2 Pas)	n=5 focus groups	USA		Yes

Table 2. Description of Articles Reviewed (cont'd)

Article	Setting	Interview type	Participants	Number of interviews	Country	Year	Ethical approval
King et al., 2007	General practitioners	Focus groups	n=26 (26 GPs)	n=4 focus groups	Australia	2005	Yes
Ljungkrona-Falk, Brekke, & Nyholm, 2013	Child Health Care nurses, part of questionnaire formation	Focus groups (90-120 min)	n=17 (17 nurses)	n=3 focus groups	Sweden	2007	Yes
Redsell et al., 2011	Phone interviews after a survey	Semi-structured telephone interviews (<1hr)	n=18 (12 GPs, 6 nurses) 6 male GPs, all female nurses	n=18 interviews	UK	2008-2009	Yes
Regber, Marild, & Johansson Hanse, 2013	Child Health Care nurses	Semi-structured interviews (27-35min)	n=15 (15 nurses) All female	n=15 interviews	Sweden	2011-2012	Yes
Staniford, Breckon, Copeland, & Hutchison, 2011	Interviews with healthcare professionals, parents and children	Semi-structured interviews (25-35min)	n=9 (3 nutritionists, 2 health promotion experts, 1 pediatric endocrinologist, 1 pediatricians)	n=9 interviews (with healthcare professionals)	UK	2008	Yes
Turner, Shield, & Salisbury, 2009	General practices in England	Semi-structured interviews (30-90min)	n=30 (12 GPs, 10 nurses, 4 school nurses, 4 health visitors) 24 female	n=30 interviews	England	2007	Yes
Walker, Strong, Atchinson, Saunders, & Abbott, 2007	Practices in the Rotherham Primary Care Trust	Semi-structured interviews (30min)	n=18 (12 GPs, 6 nurses) All but one female	n=18 interviews	UK	2006	Yes
Yarborough, DeBar, Wu, Pearson, & Stevens, 2012	Needs assessment to develop training intervention	Semi-structured interviews (45min)	n=11 (8 pediatricians, 3 NPs)	n=11 interviews	USA		Yes

Table 2. *Extracted Themes of Articles Reviewed*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
External Factors														
Time	+	-	+	+	+	-	+	+	-	-	-	+	+	+
Reimbursement	-	-	+	-	-	-	-	-	-	-	-	+	-	-
Provider education	+	-	+	+	+	-	+	+	+	-	-	+	-	+
Community resources	-	-	+	+	-	-	+	-	-	-	+	+	-	-
Multidisciplinary care	+	-	+	-	-	-	+	-	-	-	-	+	-	-
Role discrepancies	-	+	+	-	-	+	+	+	+	-	+	+	+	-
Interpersonal Factors														
Patient-provider relationship	+	+	-	-	+	+	-	-	+	+	-	-	+	-
Sensitivity of topic	-	+	+	-	+	-	+	-	+	+	-	+	-	+
Cultural beliefs	-	+	+	+	+	+	+	-	+	+	-	+	+	-
Adverse feeding effects	-	-	+	-	-	+	-	-	-	-	-	-	+	-
Conflicting advice	+	-	-	-	-	+	-	-	+	+	-	-	-	-
Perceptions of Caregiver														
Limited resources	+	-	+	+	+	-	+	+	+	-	-	+	-	-
Use of food as a tool	+	-	-	-	+	+	+	-	+	+	-	-	-	-
Denial of the problem	+	+	-	+	+	-	+	-	-	+	-	+	+	-
Transparency	-	-	-	-	+	-	-	-	-	-	-	-	-	-
Motivation	+	-	+	+	-	-	-	-	-	-	+	-	+	+
Knowledge	+	-	-	+	+	+	+	-	+	+	-	+	+	-
Other					+		+							
Total	10	5	11	8	11	7	12	4	9	7	3	11	8	4

External factors inhibiting discussion about pediatric obesity.

The first overarching category encompasses themes that the reviewers felt impeded providers from initiating a conversation about pediatric obesity with their patients. Themes that emerged included a lack of time, reimbursement, provider education, community resources and access to multidisciplinary care. In addition to these elements providers felt they lacked, there was also a discrepancy amongst many of the providers about what their individual role was in the prevention and management of pediatric obesity.

The first element that many providers felt was lacking was sufficient time to address the issue of pediatric obesity in their office settings. Nine articles identified the issue of time as a

barrier to the successful prevention and management of childhood overweight and obesity. The feeling of overwhelming time pressure was not limited to one sector of healthcare providers but was rather felt across healthcare personnel. The following are two representative quotes, extracted from two studies that exemplify the perspectives of a general practitioner and a WIC health professional respectively.

I've got 10 minutes, or I probably haven't got 10 minutes because they have probably come with something else and we have dealt with that and there's now 2 minutes left... you are not going to actually have any lasting impact because that's 2 minutes against 10 years of life (Turner, Shield, & Salisbury, 2009, p. 860).

I feel that WIC is asked to do too many things. The more things we're asked to do the less well we're going to do counseling. And personally, I feel that my time gets taken up more by income screening, identification, residence, shot records, and blood work. That all is a major hurdle and nutrition is the least of it. If I can make it through all that stuff, maybe I have time to do nutrition counseling (Chamberlin, Sherman, Jain, Powers, & Whitaker, 2002, p. 665).

While a majority of studies found time to be a limiting barrier, only two studies identified lack of reimbursement as a contributing factor. Authors of one study noted, "lack of reimbursement was closely linked to the perceptions of inadequate time," (Findholt, Davis, & Michael, 2013, p. 20). However, the discrepancy between the numbers of studies identifying time as a barrier in comparison to the numbers identifying reimbursement does not seem to support this statement. Of note, (Findholt et al., 2013) studied the barriers to treating pediatric obesity in a rural healthcare setting and found that those employed at federally certified rural

health centers were less likely to mention reimbursement as a barrier to treatment due to higher rates of reimbursement for Medicaid patients.

Another barrier identified in a majority of studies (9/14) was a lack of provider education and competence in health and nutrition counseling practices. Again, the lack of knowledge was felt not only by one arena of the healthcare profession but rather by a variety of healthcare specialists. The following is a representative quote: “If I was more clued up on what information to give I would feel happy to do that so it would boil down to more education I think,” (Redsell et al., 2011, p. 6)

The nine studies mentioning lack of provider education as a barrier were almost identical to those studies identifying time as a barrier (with the exception of one article difference between themes). Some association may exist between the perceived lack of time and the perceived lack of knowledge in regards to the management of pediatric obesity.

Outside of the clinical factors inhibiting providers from discussing obesity with their patients, two community factors were identified as lacking for some providers. The first was a lack of community resources. Community resources were viewed as the necessary community infrastructure to support the effective prevention and management of obesity. One representative quote highlights the frustration that providers in these studies felt about their community’s lack of resources: “What infrastructure do you offer them? You send them out back into the wilderness really...We really need a lot more resources,” (King et al., 2007, p. 126). This lack of community resources was noted in 5/14 studies and was not isolated to one particular country but rather from studies representing the United States, Netherlands, Australia, United Kingdom and England (Findholt et al., 2013; Gerards, Dagnelie, Jansen, De Vries, & Kremers, 2012; King et al., 2007; Staniford et al., 2011; Turner et al., 2009). In the United States, the study mentioning a

lack of community infrastructure was that which focused on the barriers to treatment in a rural health setting (Findholt et al., 2013).

In addition to community resources, providers noted in four studies that a lack of access to multidisciplinary care impeded their ability to discuss pediatric obesity with their patients. This was especially true in the rural health setting (Findholt et al., 2013). This representative quote demonstrates one provider's perception of the necessity of multidisciplinary care:

Without the dieticians, we'd be overwhelmed, and I think it's pretty important—we can tell people what not to eat, and you need people to offer choices and offer parents, no tricks, but solutions, and a few things like that. I think it needs to be a joint process (King et al., 2007, p. 127).

Beyond the feeling that a lack of multidisciplinary care stood as a barrier, some providers further felt it outside of their role to manage pediatric obesity. In nine studies, comments by providers were made about their fit in the overall prevention and management strategies in regards to pediatric obesity. King et al. (2007) mentioned in their discussion of the provider role that even amongst participants of one study, there was disagreement,

Some GPs reported being actively involved in providing weight management advice to young people and their families and felt that this was both part of their role and was expected by the families: 'I don't refer them. I try and handle the situation. I am the family doctor. I know their family setup.' ...However, other GPs saw their role as more of a gatekeeper, and thought that this was not feasible for them to provide detailed dietary or physical activity advice for a variety of reasons, including limited consultation time, cost to families, and low expectations for patient compliance and success: 'It's difficult for GPs to charge GPs' fees and to sit down and talk about kids' diet and exercise (p. 127).

Role confusion statements were not limited only to physician providers but were also felt by nurses and supporting healthcare staff (Edvardsson, Edvardsson, & Hörnsten, 2009; Johnson, Clark, Goree, O'Connor, & Zimmer, 2008; Ljungkrona-Falk, Brekke, & Nyholm, 2013; Redsell et al., 2011).

Interpersonal factors inhibiting discussion about pediatric obesity.

The second overarching category that arose was barriers to interpersonal communication between the provider and patient in regards to pediatric obesity. Themes in this category included fear of losing the provider-patient relationship, sensitivity of the topic, addressing cultural beliefs, adverse feeding impacts, and overcoming conflicting advise.

In 7/14 studies, fear of jeopardizing the provider-patient relationship was established as a barrier to initiating a conversation about pediatric obesity. Healthcare professionals worried that talking to their patients about weight and nutrition might be off-putting and cause the patient to turn to a new provider. A representative quote establishes this concern:

One mother stated very clearly that “I find it so hard to come to you because you always bring this up.” She got up and left; the father remained. I sat silent for a while, then I said” “I feel really sad that this has become like this, because my mission here is to help the children.” And now it turned out that she registered at another CHC and hopefully they got another CHC nurse who could get into a good relationship with the mother (Regber, Marild, & Johansson Hanse, 2013, p. 6).

Many providers who highlighted the fear of losing the connection they have with their patients mentioned that in order to eliminate this fear, they often generalized advise about weight and nutrition. Instead of directly conversing with parents about their child’s weight, they instead talked about healthy weight for children in general.

Similar to the fear of losing the provider-patient relationship, many healthcare professionals worried about bringing up obesity in this population simply because of the sensitivity of the topic. Even if a fear of losing the patients was not noted, many providers felt that, overall, pediatric obesity is an uncomfortable subject to discuss with patients and caregivers. In 8/14 studies, the sensitivity of the topic was mentioned as a barrier to initiation of the conversation. One of the most commonly cited reasons for the uncomfortable nature of the topic was that caregivers were, themselves, overweight or obese and providers worried that the discussion would offend the caregiver.

Another barrier to the conversation about pediatric obesity felt by providers was the need to overcome and address cultural differences. This theme emerged as two pronged—the first was providers that commented on cultures they felt supported the notion of an overweight baby being a healthier baby. In the study by Johnson, Clark, Goree, O'Connor, & Zimmer (2008), providers working with Mexican American families were interviewed and it was found that cultural beliefs were one of the major barriers to attaining a healthy weight in young children. A representative quote from one healthcare professional participating in this study is provided: “I think it is seen as opposite of frail and thin and vulnerable, like heart, chunky is better... And I think it’s also seen as well taken care of,” (Johnson et al., 2008. p. 184).

The second aspect of this theme were those providers who mentioned that an overall cultural shift—more lenient and accepting of overweight children—makes it difficult not only to initiate a conversation about pediatric obesity but to identify it in the first place. A provider interviewed in the study by Regber, Marild, and Johansson Hanse (2013) noted, “It is normal to be slightly overweight, really. We have changed our values somewhat. One doesn’t react quite as quickly as before when children are chubby” (p. 4). This perception of a changing cultural

standard was not limited to providers in the United States but rather identified by a mix of various countries and cultures (Findholt et al., 2013; Isma, Bramhagen, Ahlstrom, Ostman, & Dykes, 2012; Turner et al., 2009; Walker, Strong, Atchinson, Saunders, & Abbott, 2007).

Finally, in regards to cultural beliefs, many providers in the reviewed studies felt that looking for overweight and obesity in very young children was not part of the medical culture. Isma, Bramhagen, Ahlstrom, Ostman, and Dykes (2012) noted in their study that, “very few CHC-nurses considered it meaningful to raise the issue with the parents, if the child was 2.5 years or younger” (p. 5). This may be connected to the next identified theme—fear of negatively impacting feeding practices.

Three of the studies reviewed made mention of the fear that providers have of adversely impacting future feeding practices by discussing pediatric obesity with their patients and caregivers. Johnson et al. (2008) highlighted this fear and its relationship to infant nutrition,

I think we see that child on such a limited basis, I would be reluctant to discourage the parent from feeding a baby under 12 months, or to cut back on feeding, because I’m not going to have any follow-up with that child. And, so I would worry that whatever I say might adversely affect the feeding (p. 184).

This fear was not solely limited to negatively impacting infant feeding but also to negatively impacting an adolescent’s self-esteem resulting in the precipitation of an eating disorder as identified by one study. A representative quote from that study is presented below:

You don’t want to make someone so hyper-concerned about their weight that it pushes them into other types of unhealthy eating habits and... self-destructive kinds of things... It’s a lot touchier than saying, “Stop smoking” because it’s their body you are talking about (Findholt et al., 2013, p. 20-21).

The final theme falling under barriers to interpersonal communication was the perception of providers that they were often facing conflicting advice both from family and friends as well as other healthcare providers. Four studies identified conflicting advice as a perceived barrier. One representative quote follows: “Were telling them one thing, the family doctor may tell them something, and then what they read on that baby food jar or at the store is different. So they’re getting conflicting information,” (Chamberlin et al., 2002, p. 664).

Provider perceptions of caregiver in relation to pediatric obesity.

The final overarching category that emerged were those perceptions that providers held about the caregiver that impeded their desire or interest in counseling caregivers about pediatric obesity. Themes included in this category were the belief of providers that caregivers had limited resources, used food as a tool, were in denial of the problem, were not being transparent with the provider, had a lack of motivation and had a lack of necessary knowledge about the topic.

In 8/14 studies, providers identified limited resources of the caregiver as a major barrier to their successful prevention and management of pediatric obesity. Providers felt that they were not able to bring up the topic in conversation if they had no way in which to help the caregiver meet the necessary goals to alleviate the issue. While some studies did identify caregiver access to care as one of the limited resources that impeded their ability to discuss pediatric obesity, as a broader category, struggling with available resources was a barrier that crossed various healthcare models. Healthcare providers interviewed in many of the studies felt that if the family was dealing with larger issues, health and nutrition and any conversation about those topics took a backseat to those more pressing issues. This theme is represented in the following quote: “If [mothers are concerned about] where they’re going to stay the night or where they’re going to

get their next gallon of gas, they're not going to worry about the Food Guide Pyramid or anything related to nutrition,"(Chamberlin et al., 2002, p. 664).

Another barrier identified was the use of food as a tool by the caregiver. Providers interviewed in 6/14 studies felt that they were unable to impact pediatric obesity because caregivers used food as a way to appease their children. A participant in one study mentioned, "...some of the parents give them [their children] food as soon as they are screaming. It's a way to calm them down," (Isma et al., 2012, p. 7). In addition to using food as a way to calm children, food was viewed by some providers as a caregiver's way of showing love and affection. A representative quote follows: "It is very hard to tell a mother to stop feeding their child so much... it's a deeply psychological thing... Yes, it's sort of 'love and food'," (King et al., 2007, p. 126).

Many providers also felt that caregivers were in denial that their child was at risk or suffering from pediatric overweight and obesity. In 8/14 studies, it was mentioned that dealing with caregivers that were thought to be in denial of the problem made it difficult to discuss the topic. This sample quote demonstrates how caregiver denial impacts the provider's willingness to discuss pediatric obesity: "If they have got their barriers up or, you know, their ears are closed, and you are bashing your head against a brick wall quite often, just—you know they don't want to hear it. They don't want to know about it," (Edvardsson et al., 2009, p. 2546). In addition to denial, one study found that providers mentioned a lack of honesty and transparency on behalf of the caregiver with the provider. Providers in this study felt that there are times when caregivers "embellish reality," (Isma et al., 2012). This may have connection to caregiver denial.

Furthermore, some studies identified that even if the provider felt the caregiver to understand and accept the problem, they often felt that the caregiver did not have the motivation

or commitment to make positive changes. Six studies highlighted this lack of caregiver motivation as a barrier to the prevention and treatment of pediatric obesity. A representative quote by a provider from one study highlights the frustration providers can feel when they believe that their efforts will not influence change: “Do they listen to you? No. I am very pessimistic about getting people to eat less,” (Walker et al., 2007, p. 4). One study noted the importance of this barrier, “Family lifestyle and lack of parent motivation to change lifestyle habits were identified by every clinician in this study as major obstacles to addressing obesity in children,” (Findholt et al., 2013, p. 20).

Finally, the most pervasive barrier that was identified by providers in relation to the caregiver was the caregiver’s lack of knowledge about the topic of pediatric obesity. Providers mentioned that caregivers do not understand diet and nutrition well enough to make good decisions for their child’s health. A representative quote follows: “The diet is difficult and there is often deep seated ignorance... about what are good foods and what are bad foods,” (Walker et al., 2007, p. 4).

Other extracted themes.

Two additional themes were extracted from two different studies that the reviewers did not feel fit well into the established categories and are thus mentioned here. The first additional theme was identified in the study by Isma et al. (2012); the negative perceptions providers can have for caregivers and families based on their child’s weight status. A provider in this study mentioned, “I feel sorry for the children. It is unnecessary and then I’ll think about what kind of rules exist in the family. One actually gets some negative thoughts about the whole family,” (Isma et al., 2012, p. 6).

The final theme extracted was the barrier that came from working with the family unit as opposed to only the patient. While many studies mentioned the difficulties of working with the caregiver, this theme was extracted as separate for the direct nature in which it implicated the family unit as a barrier but without supporting statements that allowed the reviewers to classify it in the coding scheme.

Discussion

Attempts to understand and mitigate the barriers to the prevention and management of pediatric obesity have been numerous. This review of the qualitative research addressing the topic provides a collated account of these barriers from the perspective of the healthcare workforce. It is clear from the studies included in this review, that barriers to the successful prevention and management of pediatric obesity are felt across different regions and cultures and across the various fields of the healthcare workforce. It is also clear that the barriers are numerous. The three categories of barriers identified in this review suggest that healthcare providers face difficulties in discussing pediatric obesity at different points in their interaction with their patient—before, during and even after having the discussion.

The results of this review suggest that the provider's time and knowledge base are limited leading providers to stray from initiating a discussion about pediatric obesity. This lack of time and knowledge is compounded by the fear that providers felt, during the discussion, that pediatric obesity is a sensitive and difficult issue that may result in the loss of their provider-patient relationship. In addition, those providers who wanted to counsel patients about pediatric obesity often felt inhibited by the family's lack of resources, lack of knowledge about pediatric obesity and denial of the problem. Finally, a majority of studies highlighted an underlying issue of role confusion amongst healthcare professionals.

As we look for ways to successfully reduce pediatric obesity in our communities, it is imperative that key stakeholders have a clear understanding of the issue at hand and the barriers to its successful resolution. Previous research has identified that despite the multidisciplinary nature of the issue of pediatric obesity, successful reduction of the problem is typically focused on clinical interventions (Boon & Clydesdale, 2005). Thus, understanding key barriers in this realm is important to finding focused and effective solutions.

Some of the identified barriers may be more simply overcome than others. Across the fields of healthcare, providers feel that there is a lack of education about diet and nutrition counseling. It is plausible that this lack of education might leave providers feeling ill-equipped to counsel their patients, leading to heightened anxiety about the uncomfortable nature of the discussion, the fear of losing their provider-patient relationship and the worry about overcoming caregiver denial. It is possible that addressing this core issue of educational deficit may give healthcare providers more self-efficacy in approaching the topic of pediatric obesity. Allowing providers to feel more comfortable when discussing pediatric obesity might in turn reduce the lack of caregiver knowledge.

Overcoming the lack of caregiver resources will continue to be a far more difficult barrier in moving forward. Public health will play a key role in collaborating with the healthcare workforce to identify resources that providers can direct caregivers towards. This collaborative spirit may also aid in the provider's feelings of prohibitive time constraints that will likely similarly continue as a less surmountable barrier.

Finally, this research highlights the potential importance that role confusion may play in the prevention and management of pediatric obesity. Healthcare providers play a key role in tackling the issue of pediatric obesity and as such must work together to identify and establish

key roles that each realm will fulfill to ensure that childhood overweight and obesity is effectively addressed and prevented when possible.

Our conclusions support those of van Gerwen et al. (2009) to call for more education of primary care physicians and more coordination of prevention across key stakeholders including medicine, schools, communities and politics. In addition, our findings suggest that educational interventions could be helpful across a variety of healthcare disciplines including physicians, nurses, and allied health professionals. Similarly, while our findings support the need for more collaboration amongst key stakeholders, this research also suggests that there is also a need for discussion and collaboration between healthcare professionals in order to synchronize goals, perceptions, and possible solutions to barriers.

An alternative point of discussion lies in the potential for an elemental discrepancy between the desire for primary healthcare providers to learn more and be able to effectively counsel their patients about diet and nutrition and their limiting time constraints and desire to refer patients to other disciplines for care. A discussion must be had about prevention and treatment guidelines, elucidating when and how primary healthcare providers and specialists in the fields of diet, nutrition and endocrinology might be involved in the prevention and treatment plans.

Moving forward, the results of this study hold relevance both clinically and in the field of public health. In the clinical setting, this study suggests that healthcare providers lack a necessary amount of collaboration and education in order to be most effective in combating pediatric obesity. Public health officials, charged with educating communities about matters of health, also may find relevance in the category of barriers focusing on the lack of resources and education of the caregiver.

Limitations

The main limitation of this study lies in the research methodology. There is some uncertainty about the validity of reviewing qualitative research studies. Although one study has shown the benefit of reviewing qualitative research, the relatively few studies using this methodology may result in unrealized errors or issues (Mills, Jadad, Ross, & Wilson, 2005). Limitations may also arise from these reviewers' methodology. Although attempts to reduce selection bias were made by utilizing two independent yet consistent reviewers throughout the study, this study design may have benefited from the use of an additional reader.

Further, the comprehensive nature of this review may also provide limitations in its applicability. Interviews from providers were considered regardless of country of origin or regards to the political climate of healthcare in that nation. It might be that unique barriers to each country were overlooked or misinterpreted due to a lack of evaluation of the potential confounding factors within each culture. In addition, although attempts were made to include a multitude of healthcare professional perspectives, the majority of providers interviewed were either primary care physicians or nurses. This review may, therefore, lack enough insight from other healthcare professionals including pediatricians, physician assistants, nurse practitioners and dietitians who may play a key role in the ambulatory prevention and management of pediatric obesity.

Further Research

The results of this study suggest that further research might help better elaborate the current barriers to the prevention of management of pediatric obesity and aid in alleviating those barriers. More research should focus on the impact that provider education may play on the self-efficacy of providers from different healthcare disciplines and how that self-efficacy might

impact the barriers perceived by healthcare personnel. Additionally, more research should be done on the perceptions that healthcare professionals have in regards to their role and the roles of others in combating pediatric obesity. This research might highlight how healthcare professionals from different fields could best work together in developing a solution to the issue of pediatric overweight and obesity.

Part 2: The Role of the Community Health Center

In their examination of pediatric obesity management in rural clinics, Findholt et al. (2013) identified unique barriers that may present themselves based on practice setting. Their findings highlight the need to assess potential barriers to the prevention and management of pediatric obesity based on the delivery system in which care is provided. While it is informative to understand barriers that are universal across delivery systems, as we look to find new approaches to reduce the burden of pediatric obesity in the United States, an analysis of opportunities and barriers implicit to our delivery model might be helpful in the creation of more tailored action plans.

One such area of our healthcare delivery system that deserves further research in regards to its potential impact on childhood overweight and obesity is the Community Health Center (CHC). Health centers, supported by the Health Resources and Service Administration (HRSA), provide the largest safety net system of primary and preventive care services in the country—serving approximately 21 million people in 2012, 32% of which were children (U.S Department of Health and Human Services, 2014a). Therefore, examining how the CHCs might best address prevention and management of pediatric obesity has the potential to positively impact a large percentage of our pediatric population.

Community Health Center Designation

The designation of CHC is reserved for those organizations that provide comprehensive primary care services to underserved populations while also meeting certain guidelines. These guidelines include: (1) must be located in or serve a Medically Underserved Area (MUA), (2) be governed by a community board made up of at least 51% of individuals who represent the population served, (3) provide comprehensive primary health care and support services, (4) provide service to all regardless of ability to pay, and (5) meet certain performance requirements (U.S Department of Health and Human Services, 2014c). For those organizations meeting the CHC requirements, there are three additional designations—grant-supported federally qualified health centers, non-grant supported health centers, and outpatient health programs operated by tribal organizations

Those centers that have received the designation of grant-supported federally qualified health center (FQHC) receive grant funding under the Section 330 of the Public Health Service Act (U.S Department of Health and Human Services, 2014c). Centers with FQHC designation benefit both from funding to offset the costs of uncompensated care and from additional benefits including: malpractice coverage, discount drug pricing, funding for capital improvements, Prospective Payment System reimbursement for services to Medicaid patients and Cost-based reimbursement for services to Medicare patients, access to National Health Service Corps (NHSC) providers, access to Vaccines for Children Program, and on-site workers to provide Medicaid and Child Health Insurance Program (CHIP) enrollment (U.S Department of Health and Human Services, 2014c).

Uniformed Data System (UDS)

As part of their designation and grant funding, CHCs must meet certain program requirements. One requirement targets the quality improvement focus of the program and requires that all CHCs report data annually to track progress in areas of quality improvement. This data makes up the Uniformed Data System (UDS) which tracks information about patient demographics, staffing and clinical indicators, utilization measures, costs and revenues (U.S Department of Health and Human Services, 2014b).

One clinical indicator reported annually to the UDS by all CHCs nationally is the percentage of adolescent patients that were provided weight screening and follow-up about weight. Between 2011 and 2012 the percentage of adolescent receiving this screening increased from 39.2% to 46.7% (U.S Department of Health and Human Services, 2014b). Yet, despite increases in this measure, one study examining how CHCs and private ambulatory care centers compared on quality measures, researchers found that CHCs out-performed private practices on six measures, performed similarly on 11 measures and performed worse only on diet counseling in at risk adolescents (Goldman, Chu, Tran, Romano, & Stafford, 2012). Although Goldman, Chu, Tran, Romano, and Stafford (2012) associate the poorer performance in adolescent weight monitoring with the more challenging patient demographic served by CHCs, this does highlight both the potential for CHCs to have a great impact on pediatric obesity as they have with other clinical measures and the need to focus on pediatric obesity in this setting.

Role of CHC and the Affordable Care Act (ACA)

The role of the CHC in the prevention and management of pediatric obesity will continue to increase as aspects of the Affordable Care Act (ACA) become implemented. The ACA includes the establishment of a Community Health Center Fund that allocated \$11 billion dollars

over 5 years to the expansion of the CHC safety net (U.S Department of Health and Human Services, 2014a). In addition to the expansion of the CHC program, the ACA will also shift funding away from disproportionate share hospitals (DSH), which should theoretically see less uninsured patients. This decrease in DSH funding will further increase the need for CHCs for uninsured individuals. It is estimated that by the end of 2014, an additional 32 million people will seek care at CHCs as a result of the ACA (Amico, Chilingirian, & van Hasselt, 2013).

SWOT Analysis

As CHCs increase in prevalence and relevance to our healthcare delivery system, it is important to evaluate how these programs will be targeted and utilized in the efforts to reduce pediatric obesity in the United States. The CHC model and the patient population served by these centers offer both opportunities and threats to the successful prevention and management of pediatric obesity. A SWOT analysis (Table 3) highlighting the strengths, weaknesses, opportunities, and threats best demonstrates those areas in which CHCs might focus their efforts in regards to pediatric obesity.

Table 3. SWOT Analysis of CHC/FQHCs

	Helpful	Harmful
	STRENGTHS	WEAKNESSES
INTERNAL	<ol style="list-style-type: none"> 1. Provide care regardless of patients' ability to pay (Amico, Chilingirian, & van Hasselt, 2013) 2. Offer a sliding fee scale for the poor and uninsured (Amico et al., 2013) 3. Prospective payment system (PPS) reimbursement for FQHCs (Koppen, 2001) 4. Must provide pediatric services (U.S Department of Health and Human Services, 2014c) 5. Must provide preventive services (U.S Department of Health and Human Services, 2014c) 6. Must provide comprehensive care (U.S Department of Health and Human Services, 2014c) 7. UDS tracking of quality improvement measures (U.S Department of Health and Human Services, 2014b). 	<ol style="list-style-type: none"> 1. Relying on grant revenues leads to decreased technical efficiency (Amico et al., 2013) 2. Larger health center negatively increase probability of being fully efficient (Amico et al., 2013) 3. Scarce resources → extend staff too much (Allen et al., 2013) 4. Descriptive representation does not always happen in FQHCs (Wright, 2013)
	OPPORTUNITIES	THREATS
EXTERNAL	<ol style="list-style-type: none"> 1. FQHC consumers sit on board – hear from them and about what services they desire (Allen et al., 2013; D. B. Wright, 2012) 2. Quality assurance plans to ensure serving the population appropriately (U.S Department of Health and Human Services, 2014c) 	<ol style="list-style-type: none"> 1. Pressures to transform to PCMH (Allen et al., 2013; Clarke, Tseng, Brook, & Brown, 2012) 2. Requirements to implement EHR (Allen et al., 2013) 3. Lack of staff (Allen et al., 2013)

Strengths

Strengths are those attributes that are internal to an organization and are helpful to the organization in meeting its goals. A FQHC has many strengths due to the uniqueness of its structure and ties with the federal government. FQHCs are required to provide care to all patients regardless of their ability to pay and also offer a sliding fee scale for the poor and uninsured (Amico et al., 2013). This gives FQHCs the opportunity to specifically focus on the underserved community and cater to their specific needs without feeling the constraints of dealing with insurance companies and what they will decide to cover. FQHCs are increasing in demand and significance with Medicaid expansion (Amico et al., 2013). With this expansion

they begin to be the leaders in what primary care should look like and what services need to be provided. Some of these services should include those of preventive medicine and focus on preventing diseases that occur in adulthood—one of which being prevention of pediatric obesity.

Furthermore, the passage of the 2000 Benefits Improvement and Protection Act (BIPA) established a Prospective Payment System (PPS) for those centers with FQHC designation. The PPS provides federal protection for FQHCs by mandating a minimum rate at which Medicaid services must be reimbursed for that is unique to each FQHC's baseline cost per visit rate. Passage of BIPA was in response to the potentially detrimental impacts that the phase-out of reasonable cost reimbursements to FQHCs determined by the Balanced Budget Act (BBA), which could have left FQHCs without millions of dollars of Medicaid revenues to cover the costs of treating their uninsured population (Koppen, 2001). BIPA is a strength for FQHCs because establishes a minimum Medicaid per visit rate so that these centers may continue to care for our most vulnerable populations without heightened concern about decreasing Medicaid revenue. This PPS model is further strengthened by the 2009 passage of Children's Health Insurance Program Reauthorization Act (CHIRPA) which authorizes PPS rate for reimbursement to FQHCs providing services to children enrolled in coverage under Children's Health Insurance Program (CHIP) (Mann, 2014).

The Health Resources and Services Administration (2014) outlines in their program requirements that FQHCs and CHCs must provide pediatric services in order to be designated a FQHC. Since FQHCs are required to provide pediatric services this puts them in the perfect position to discuss with all children healthy lifestyle choices in order to prevent pediatric obesity and overweight. The Health Resources and Services Administration (2014) also requires provision of preventive services to its community. Obesity prevention starts in the childhood

years. By conducting educational sessions with children about obesity prevention FQHCs have a unique strength because they are required to provide this preventive service to their population.

Additionally, CHCs and FQHCs possess strength in their focus on comprehensive care. The structure of CHCs demands that all necessary care to effectively reduce emergency room visits be provided (U.S Department of Health and Human Services, 2014c). As such, CHCs are uniquely poised to tackle pediatric obesity via a comprehensive and multidisciplinary care model. As noted in the preceding literature review, clinicians desire multidisciplinary support for pediatric obesity management. CHCs might possess the best model to study how that interdisciplinary collaboration could be most effectively utilized.

Finally, the CHC model's established UDS provides strength towards the centers' ability to manage pediatric obesity by monitoring their yearly outcomes. CHCs are already required to report information about adolescent weight tracking and follow-up, providing baseline data that would be helpful when developing SMART goals to improve outcomes at these centers. Additionally, the UDS model itself provides a strength and future opportunity to track additional pediatric obesity outcomes in the future.

Weaknesses.

A weakness in an organization is one that is internal to the structure and harmful to achieving the organization's goals. FQHCs strengths stem from the funding and support they receive from the federal government. However, these ties also cause some weaknesses in a FQHC organization. Amico, Chilingirian, and van Hasselt (2013) found that a reliance on grant revenues lead to decreased technical efficiency in a health center that is not fully efficient. The reliance on grants causes health centers to focus on better ways to continue grant funding rather than a more efficient business model (Amico et al., 2013). If FQHCs are focused on grant

funding, rather than the efficiency of their organization, they are unable to prioritize the needs of their patients and what services their patients need. A population could have high prevalence of pediatric obesity but if the FQHC administration is focused on meeting grant requirements rather than the providing obesity management and prevention then the needs of their community will not be met. When a nonprofit organization depends on grant funding they lack the awareness of market pressure and typically do not increase their outputs because of this (Amico et al., 2013). With half of FQHC revenues come from grants, the sustainability of that model is questionable (Amico et al., 2013).

It was also found that a larger health center with more staff was inversely proportional to the probability of being fully efficient (Amico et al., 2013). While these health centers are larger, they still lack in staff due to the amount of patients that are being seen. If there is not enough staff to see all the patients then preventive healthcare will not be a priority and time will not be spent educating children about obesity.

Most FQHCs are equipped with scarce resources. This leads to overextension of staff and limited time for preventive care (Allen et al., 2013). Staff and providers from FQHCs feel that taking on new tasks feel impossible at times because they already feel stretched (Allen et al., 2013). Since staff and providers at FQHCs are already feeling overextended in their tasks, asking them to take extra time and resources with a patient to discuss obesity prevention seems unrealistic.

Another weakness is that while descriptive representation is required on the board of an FQHC this does not always actually happen (Wright, 2013). So while descriptive representation would help FQHCs actually provide the communities they are serving with what they need

because they're able to hear from those they serve, this does not always happen and thus they will not meet the needs of their community.

Opportunities.

Opportunities are external to the organization but are helpful in meeting the goals of the organization. An opportunity that FQHCs have is the chance to hear what the community they are located in has to say. Their executive boards are required to have the consumers they serve sitting on their board (Allen et al., 2013; Wright, 2012). This allows them to hear from their consumers about what services they need to be providing. If a consumer feels pediatric obesity and overweight is an issue that needs to be focused on in their community then this would give them a voice to communicate this to the executives of the FQHC. This would ensure implementation of these types of programs.

When a FQHC is granted its status it comes along with quality assurance plans that are in place to ensure the community the FQHC resides in is serving the population appropriately (Health Resources and Services Administration, 2014). These quality assurance plans are conducted periodically to assess the utilization of services provided to the communities. This provides FQHCs with the opportunity to constantly and consistently assess if they are serving their communities appropriately. This would help identify a community that needs pediatric obesity prevention and management. It would also help identify whether the FQHC is adequately meeting the needs to prevent and manage pediatric obesity and management.

Threats.

Threats are external to an organization and work in opposition to the goals the organization has set forth for itself. Pressures that are put on FQHCs to qualify as Patient Centered Medical Homes (PCMH) is a threat that is posing huge harm to FQHCs ability to serve

their communities appropriately (Allen et al., 2013; Clarke, Tseng, Brook, & Brown, 2012). HRSA allocated funds to encourage FQHCs to be recognized at PCMHs (Clarke et al., 2012). Resources that could be used to provide preventive services to patients and focus on pediatric obesity prevention and management are being used to transform into a PCMH. FQHCs are also being required to implement Electronic Health Records (EHRs) (Allen et al., 2013). While EHRs provide many opportunities to provide better healthcare they also pose a threat to FQHCs because of the time needed to properly implement an EHR. Staff, money, and time is used to adequately train staff on how to appropriately use EHR.

FQHCs are running on low staff and minimal resources most of the time (Allen et al., 2013). They are doing well to provide minimal care to the communities they serve. Adding on additional services that are necessary for long term health but not urgent simply adds more stress to an already resource constrained environment.

CHCs and FQHCs are undeniably rising in popularity and therefore provide a unique opportunity to change the approach to pediatric overweight and obesity. The SWOT analysis above shows multiple opportunities and strengths that a FQHC might offer to help prevent and manage pediatric obesity. However, the weaknesses and threats of a FQHC must also be taken into account in order to appropriately and effectively conquer any barrier that this type of organization might present. Further research should be done to look at specific barriers to prevention and management of pediatric overweight and obesity that providers at FQHCs might experience. Once these barriers are identified FQHCs have the possibility of making great strides in the prevention and management of pediatric overweight and obesity.

Part 3: Proposal for Future Research

Although literature exists examining the potential strengths, weakness, opportunities and threats of the CHC model, research in this area is limited and, based on our search, can only be extrapolated to identify barriers to pediatric obesity prevention and management, as no such specific research exists. We propose that future research could be conducted assessing the specific barriers and opportunities inherent in the CHC model to the prevention and management of pediatric obesity. With the increasing relevance of the CHC and the continuing burden of pediatric obesity, this research could add valuable information about how best to utilize the CHC model in reducing pediatric obesity.

Research Objectives

We proposed to perform qualitative research to better understand the following:

1. Elucidate how the structure of a CHC may impact the prevention and management of pediatric obesity and whether there are any universal themes across various CHCs;
2. Understand how barriers and opportunities are perceived by various stakeholders in the CHC organization;
3. Identify if differences in barriers and opportunities exists between urban and rural CHCs.

Rationale

We felt that examining the outlined objectives would not only add to the current research base identifying the barriers to the successful management of pediatric obesity but would also add to the research of the CHC model.

Objective 1.

Understanding whether or not the CHC model implicitly impacts the prevention and management of pediatric obesity could impact pediatric obesity care in one of two ways: (1)

identify unique barriers and opportunities that can be targeted to improve management of childhood overweight and obesity in the CHC setting or (2) increase the generalizability of previous study results by showing no difference amongst barriers already identified in private ambulatory practices. Research related to this objective could also help to understand barriers and opportunities that while impacting pediatric obesity healthcare are more broadly related to all forms of healthcare. Possible identification of unique barriers and opportunities offered by the CHC model could improve care for other conditions.

Objective 2.

Previous research has identified that key stakeholders in pediatric obesity management may perceive their role, and the roles of others in the management of this disorder, differently (King et al., 2007). Qualitative research examining the perceptions of barriers and opportunities amongst key stakeholders at CHCs will add to information regarding role perceptions.

Additionally, identifying key stakeholders in pediatric obesity specific to CHCs might help better understand how collaboration could be used at these centers to best treat pediatric obesity.

Objective 3.

In a previous study examining cancer prevention at FQHCs, researchers found that participants from urban and rural FQHCs held different perceptions of issues related to their research (Allen et al., 2013). Thus, we believe that examination of perceptions related to pediatric obesity in both urban and rural FQHCs may shed additional light on the different challenges faced by FQHCs in different practice settings.

Methods and Design

This study will seek to interview participants from a maximum of 10 CHCs in Ohio. CHC participant sites will be selected based on their urban or rural designation, geographic

diversity within Ohio and community rates of pediatric obesity. Once key CHCs have been identified, CHC executives or board members will be contacted to ask for their center's participation. If available, incentives will be offered to key centers in attempt to increase CHC commitment to the research study.

After CHCs have signed on for the project, key stakeholders relevant to the management of pediatric obesity will be identified for each center. Key stakeholders might include: general practitioners, pediatricians, physician assistants, nurse practitioners, nurses, nursing assistants, and healthcare executives. Effort will then be made to engage key stakeholders while trying to sample a variety of specialties, genders and ages.

Engaged stakeholders will then be asked to participate in focus group interviews based on their role in the prevention and management of pediatric obesity. Focus groups might include those with providers, support staff, and healthcare executives. Development and use of a qualitative interview guide will be used and all interviews will be conducted by one of two researchers. Interviews will be audio recorded and transcripts will be uploaded using a qualitative coding program. Two researchers that conducted interviews will code all transcripts. An independent third researcher will then confirm this coding. Based on the results of transcript coding, themes will be extracted and interpreted to identify results and draw conclusions.

Budget

The budget for future research was calculated based on having focus groups at 10 CHCs in Ohio and having 10 participants at each of those CHCs. This would be a total of 100 participants. A total budget of \$3500.00 is expected. Each CHC would be compensated \$250.00 for allowing focus group interviews at their organization. For each focus group food would be

provided to encourage participants to attend; \$100 would be allocated for each CHC for food expenses. An itemized budget has been included as Appendix E.

Conclusion

No significant decrease in overweight and obese children has occurred despite multiple efforts to combat the issue. Providers feel there is an extensive list of barriers that keep them from having the conversation with patients and their parents as well as barriers to treatment even once the discussion has occurred. It is necessary that solutions be found to defeat these barriers. CHCs and FQHCs provide a unique approach to challenging pediatric overweight and obesity. These types of organizations are becoming increasingly more popular and should be looked into further to see what they can offer to begin to decrease this ever prevalent disease.

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Appendix A
PubMed Search Strategy

PubMed

Search no.	Search Term	Result
1	Physician	431523
2	Nurse Practitioner	21066
3	Physician Assistants	5052
4	Health Personnel	445089
5	General Practitioners	32041
6	Pediatrics	278766
7	Psychiatry	395418
8	Psychology	973955
9	#1 OR #2 OR #3 OR #4 OR #5	779272
10	#6 OR #7 OR #8	1498210
11	#9 OR #10	2104815
12	Attitude	270399
13	Attitude of Health Personnel	118664
14	Attitude to Health	364877
15	Perceptions	414593
16	Opinion	56410
17	Expectations	37571
18	#12 OR #13 OR #14 OR #15 OR #16 OR #17	874853
19	Obesity	187172
20	Overweight	145585
21	#19 OR #20	198408
22	Childhood	174818
23	#11 AND #18	410170
24	#21 AND #23	5770
25	#22 AND #24	494

Appendix B
PsycINFO Search Strategy

PsycINFO

Search no.	Search Term	Result
1	Physician OR Nurse Practitioners OR Physician Assistant OR Health Personnel OR General Practitioner	128,616
2	Physician OR Nurse Practitioners OR Physician Assistant OR Health Personnel OR General Practitioner OR Psychiatrist OR Psychologist OR Therapists	290,557
3	Psychiatry OR Psychology OR Pediatrics	1,648,954
4	Attitude OR Attitude of Health Personnel OR Attitude to Health OR Perception OR Opinion OR Expectation	735,509
5	Obesity OR Overweight	25,093
6	Childhood	145,177
7	#2 OR #3	1,786,854
8	#4 AND #7	378,904
9	#5 AND #8	2,097
10	#6 AND #9	206

Appendix C
CINHAL, ERIC, SocINDEX Search Strategy

CINHAL, ERIC, SocINDEX

Search no.	Search Term	Result
1	Physician OR Nurse Practitioner OR Physician Assistant OR Health Personnel OR General Practitioner OR Psychiatrist OR Psychologist OR Therapist Pediatrics OR Psychiatry OR	231,560
2	Psychology Attitude OR Attitude of Health Personnel OR Attitude to Health OR Perceptions OR Opinions OR	471,667
3	Expectations	644,065
4	Obesity OR Overweight	65,542
5	Childhood	244,784
6	#1 OR #2	662,929
7	#3 AND #6	144,457
8	#4 AND #7	887
9	#5 AND #8	120

Appendix D
Additional PubMed search for non-indexed references

PubMed

Search no.	Search Term	Result
1	"Barriers AND childhood obesity"	186
2	"Barriers AND pediatric obesity"	64

Appendix E
Future Research Itemized Budget

Incentives to CHCs to participate: $\$250/\text{CHC} \times 10 = \2500.00

Food provided to focus group participants: $\$10/\text{person} \times 100 \text{ participants} = \1000.00

TOTAL COST OF FUTURE RESEARCH: \$3500.00

Appendix F List of Competencies Met in CE

Tier 1 Core Public Health Competencies

Domain #1: Analytic/Assessment
Identify the health status of populations and their related determinants of health and illness (e.g., factors contributing to health promotion and disease prevention, the quality, availability and use of health services)
Use variables that measure public health conditions
Use methods and instruments for collecting valid and reliable quantitative and qualitative data
Identify sources of public health data and information
Recognize the integrity and comparability of data
Adhere to ethical principles in the collection, maintenance, use, and dissemination of data and information
Describe the public health applications of quantitative and qualitative data
Use information technology to collect, store, and retrieve data
Describe how data are used to address scientific, political, ethical, and social public health issues
Domain #2: Policy Development and Program Planning
Gather information relevant to specific public health policy issues
Describe how policy options can influence public health programs
Explain the expected outcomes of policy options (e.g., health, fiscal, administrative, legal, ethical, social, political)
Gather information that will inform policy decisions (e.g., health, fiscal, administrative, legal, ethical, social, political)
Describe the public health laws and regulations governing public health programs
Identify mechanisms to monitor and evaluate programs for their effectiveness and quality
Demonstrate the use of public health informatics practices and procedures (e.g., use of information systems infrastructure to improve health outcomes)
Domain #3: Communication
Communicate in writing and orally, in person, and through electronic means, with linguistic and cultural proficiency
Participate in the development of demographic, statistical, programmatic and scientific presentations
Apply communication and group dynamic strategies (e.g., principled negotiation, conflict resolution, active listening, risk communication) in interactions with individuals and groups
Domain #4: Cultural Competency
Recognize the role of cultural, social, and behavioral factors in the accessibility, availability, acceptability and delivery of public health services
Respond to diverse needs that are the result of cultural differences
Domain #5: Community Dimensions of Practice
Recognize community linkages and relationships among multiple factors (or determinants) affecting health (e.g., The Socio-Ecological Model)
Identify stakeholders
Collaborate with community partners to promote the health of the population
Maintain partnerships with key stakeholders

Domain #5: Community Dimensions of Practice (Cont'd)
Describe the role of governmental and non-governmental organizations in the delivery of community health services
Identify community assets and resources
Inform the public about policies, programs, and resources
Domain #6: Public Health Sciences
Describe the scientific evidence related to a public health issue, concern, or, intervention
Retrieve scientific evidence from a variety of text and electronic sources
Discuss the limitations of research findings (e.g., limitations of data sources, importance of observations and interrelationships)
Domain #7: Financial Planning and Management
Describe the local, state, and federal public health and health care systems
Describe the organizational structures, functions, and authorities of local, state, and federal public health agencies
Adhere to the organization's policies and procedures
Apply basic human relations skills to internal collaborations, motivation of colleagues, and resolution of conflicts
Demonstrate public health informatics skills to improve program and business operations (e.g., performance management and improvement)
Domain #8: Leadership and Systems Thinking
Incorporate ethical standards of practice as the basis of all interactions with organizations, communities, and individuals
Describe how public health operates within a larger system
Participate with stakeholders in identifying key public health values and a shared public health vision as guiding principles for community action
Identify internal and external problems that may affect the delivery of Essential Public Health Services
Use individual, team and organizational learning opportunities for personal and professional development
Participate in mentoring and peer review or coaching opportunities
Participate in the measuring, reporting and continuous improvement of organizational performance
Describe the impact of changes in the public health system, and larger social, political, economic environment on organizational practices

Public Health Management Concentration Competencies
Have a knowledge of strategy and management principles related to public health and health care settings
Be capable of applying communication and group dynamic strategies to individual and group interaction
Know effective communication strategies used by health service organizations
Have a knowledge of successful program implementation principles
Have a knowledge of strategies used for monitoring, evaluating, and continuously improving program performance
Be capable of applying decision-making processes
Have an awareness of strategies for working with stakeholders to determine common and key values to achieve organizational and community goals
Know strategies for promoting teamwork for enhanced efficiency
Have an understanding of effective mentoring methods

Public Health Management Concentration Competencies (Cont'd)
Be able to use negotiation techniques
Be able to determine how public health challenges can be addressed by applying strategic principles and management-based solutions
A knowledge of ethical principles relative to data collection, usage, and reporting results