CHILDHOOD OBESITY: SCREENING AND INTERVENTIONS

by

Meghan Karen Upham

A scholarly project submitted in partial fulfillment
of the requirements for the degree

of

Doctor of Nursing Practice

in

Family and Individual Health

MONTANA STATE UNIVERSITY
Bozeman, Montana

May 2022

ACKNOWLEDGEMENTS

This project would not have been possible without the guidance and constant support of my lead faculty Dr. Tracy Hellem. Her constant revisions and meetings were greatly appreciated. Many thanks go to my other faculty members, Dr. Chris Borst and Dr. Marge Hammersla for reading, revising, and meeting to discuss ideas. Thank you to Montana State University writing center for providing peers to read and revise. Finally, thank you to my parents, boyfriend, family and close friends for your constant support and love during this journey.

TABLE OF CONTENTS

TABLE OF CONTENTS CONTINUED

LIST OF FIGURES

Figure Page

ABSTRACT

Childhood obesity has been a growing concern in the United States for the last three decades. With the COVID19 pandemic, a substantial increase in weight gain has been noted in the pediatric population, leading to a more alarming obesity trend. The American Association of Pediatrics, Centers for Disease and Control and Prevention and the World Health Organization, have established a standard of care for measuring obesity in children using BMI percentiles for age and sex specific growth charts. However, at a pediatric clinic in Northwest Montana providers were not using BMI percentiles to assess for pediatric overweight/obesity. Therefore, the aim of this project was to standardize practice that included screening for childhood obesity using age and sex specific growth charts, document BMIs in provider charting, add overweight or obese to a child's problem list and refer overweight/obese children to a behavioral therapist or nutritionist. During a six-week data collection a total of 90 well child visits were documented, 92% of the children were screened for overweight/obesity using BMI, documented in the medical record, and added to the problem lists. The referral rate to a behavioral therapist or nutritionist was 41%. The conclusion of this project showed improvement with screening using BMI and documenting in the electronic medical record. However there were limitations for referring children to a behavioral therapist or nutritionist that included, finances, time, bias, and lack of conversations.

CHILDHOOD OBESITY

Introduction

Childhood obesity is a growing problem in the United States, which can lead to serious health issues into adulthood. Currently, after two years into the COVID19 pandemic there is documented significant weight gain in the pediatric population in the United States (Woodford et al., 2021). As a result, Woodford et al. (2021) suggest that interventions be established now to combat weight gain. According to the Centers for Disease Control and Prevention (CDC, 2019), child and adolescent obesity are on the rise with more than 18.5% of 2-19-year-olds exhibiting signs of obesity pre-COVID19 pandemic. In addition, the CDC (2021) reports that among a cohort of 432,302 persons aged 2-19 years, the rate of body mass index (BMI) increases approximately doubled during the pandemic compared to pre-pandemic period. Children with pre-pandemic overweight or obesity and younger school-aged children experience the largest increases (Centers for Disease Control and Prevention [CDC], 2021).

Obesity is defined as body mass index (BMI) at or greater than the 95% percentile for sex specific BMI charts (CDC, 2019). Many interventions have been studied but if healthcare providers are not consistently screening for obesity then interventions are often not recommended. The American Psychological Association (2018) published guidelines suggesting that pediatric providers use BMI to screen for pediatric obesity. It is now as important as ever that providers consistently use BMIs to screen pediatric patients for obesity secondary to the weight gain seen during the COVID19 pandemic. According to Lin et al. (2021), when analyzing weight trends around shelter in place (SIP) orders related to the COVID 19 pandemic, a significant weight increase over the post-SIP period at a rate of roughly a pound and a half

weight gain per month has been reported. Given the growing concern of pediatric weight gain before the onset of the COVID19 pandemic, the added weight gain associated with the onset of the pandemic has led to a greater concern about pediatric obesity and the need for evidence-based interventions in the practice setting. With the growing occurrence of childhood obesity healthcare providers are seeing an increase in mental health issues as well as physical issues such as hypertension, hyperlipidemia, respiratory problems, and early diabetes.

Clinical Problem Statement

Pediatricians in Montana have seen an increase in weight gain pre COVID19 and during the SIP, but due to a variety of system failures, the information is insufficiently communicated to parents and guardians. The American Psychological Association (APA,2018) published guidelines suggesting that pediatric providers should use BMI to identify at risk, overweight and obese children. It is estimated that about 1/3 of children at a pediatric clinic in Northwest Montana saw an increase of weight by approximately 1 pound a month. There is no standard of practice at this clinic to alert providers of an increase in BMIs or when children are in the greater than 85th percentile. The seven providers at this clinic use height, weight, and BMI growth charts during yearly wellness visits, however, it is estimated that about only half the time when providers identify a BMI greater than 85% conversations are not had with parents and families. In addition, there is documentation used in the electronic medical record that alerts providers of children who are at risk or who meet obesity criteria. Providers inconsistently include increasing BMIs on problem lists, and when they do, non-standard language is used. Furthermore, providers are not able to easily look at colleagues' charts when seeing patients to identify if patients have an increase in weight or are already overweight or obese because of the lack of documentation in

the provider notes.. Finally, children with BMIs greater than the 85th percentile are not being referred to the appropriate care team members.

It was discovered through a meeting with providers that percentiles do not translate into provider charts, making it difficult to provide for referrals. Evidence demonstrates that providers need to be aware of trending BMIs by screening, understanding risk factors for obesity and providing interventions for families (World Health Organization [WHO], 2021). Clinic providers lack identifying increasing BMI's, consistency in charting and developing action plans for families. This then leads to a decrease in referrals to nutritionists, therapies, and activities.

Background and Significance

Childhood obesity has increased dramatically over the past three decades (Staniford et al.,2011). Treatment for childhood obesity is limited secondary to this disease being described as a multifaceted and there is inconclusive evidence to support an effective treatment (Staniford et al. 2011). Healthcare providers need to identify problems, such as socioeconomic status, and both mental and physical concerns that can help address childhood obesity. Further, healthcare providers should focus on developing treatment plans for both the adolescent and the family to increase success of treatment approaches. However, as an initial step, providers need to screen for childhood obesity using the recommended screening charts. According to Lange et al. (2021), obesity prevention and management starts with providers screening BMIs at wellness visits. If screening starts with evaluating BMIs, then providers can identify at risk patients early and discuss food security and social determents (Lange et al. 2021).

Moreover, treatment plans appear to be lacking a multifaceted approach. Staniford et al., (2011) suggests a multifaceted approach to childhood obesity that include heavy family

involvement. This approach should target physical activity and dietary change, as well as, adopting behavioral changes strategies including goal setting, self-monitoring, and stimulus control. The World Health Organization (WHO, 2019) recommends limiting sugar and fat intake for energy, increasing the consumption of vegetables and fruits, and engaging in regular activity such as 60 minutes a day. These recommendations were established in 2012 when World Health Assembly countries agreed to work towards reducing further increase in obesity (WHO, 2021). However, despite these recommendations the rate of childhood obesity has steadily increased, from 4 million in 1990 to 9 million in 2016. (WHO,2021).

Project Purpose Statement

Many recommendations for evidence-based interventions have been put in place for children who are obese and overweight from the CDC (2021) and the WHO (2021). However, the problem begins with lack of documentation of accurate BMIs at annual wellness exams starting at age 2 years. Many reputable sources including the WHO (2021), CDC (2021) and Krebs et al. (2007) support the need for physicians to document BMIs using age-appropriate growth charts at yearly wellness visits. Krebs et al. (2007) explains how difficult conversations can be, but evidence supports that every child >2 years old need to be screened using BMIs to identify early obesity in children. It has been found that the lack of assessments is leading to an increase in childhood obesity, not the lack of interventions (Krebs et al. 2007). The WHO (2021) and the CDC (2021) developed recommendations for providers that include changing the assessment and screening process for obesity among children. Additionally, the CDC (2021) states that to define childhood obesity, the percentile distributions related to age and sex are the preferred method.

Furthermore, pediatric providers are not consistently screening for BMIs greater than 85th percentile and identifying obese children. Prior to this project, Meditech charting system, the electronic medical record system used at the pediatrics, did not include documentation of percentiles in provider charts. Because if providers did not dictate an at-risk BMI then children were not being screened for being overweight or obese, and therefore, interventions were not recommended and referral to appropriate care for managing weight was not completed. This lack of documentation process delayed interventions or referrals for potentially up to one year in overweight or obese children, creating more weight gain and putting them at risk for life long chronic illnesses.

In addition to charting, providers inconsistently include overweight and obese children on problem lists. The problem list is used to identify all issues in a child's chart. This is a fast and easy way for providers to look at a history of a child and understand if there are significant issues. The providers consistent verbiage in a problem list to identify overweight and obese children allows for easy identification and tracking on a yearly basis. To this end, it was discovered that Meditech can include accurate problem descriptions to identify children however, the providers are not using this approach consistently. Evidence supports the need for consistent screening and documentation of BMIs, prior to starting interventions.

Finally, after the screening process was completed, providers were not referring children to care team members such as a nutritionist and behavioral therapist, based on BMI. For children with BMIs in the 85th to 95th percentile, a referral to nutritionist should be done. For children with greater than 95th percentile a referral to behavioral therapy and nutrition should be done. Furthermore, children are not consistently being followed up with respect to referrals and yearly wellness exams with pediatricians.

The goal of this quality improvement project was to promote consistent charting of BMIs at the clinic by having BMIs documented in electronic charts for all pediatric patients seen at well child visits. Moreover, for children with BMIs greater than the 85th and 95th percentiles, providers added overweight and obese, respectively, to the problem list. Providers then referred children to a nutritionist for BMI percentiles in the 85th percentile, and to a nutritionist and behavioral therapist when BMIs were greater than or equal to the 95th percentile. By using BMI growth charts, providers can see year to year values and identify early weight gain that is not consistent with normal growth problems. In turn providers can establish early interventions with families and patients when a child is at-risk for becoming overweight or meets criteria for being overweight or obese. Measuring a change in weight in pediatric patients goes beyond the scope of this project; however, evidence supports that documentation and assessment by providers leads to early interventions and overall decrease in weight in children two and older (Krebs et al, 2007).

LITERATURE REVIEW

Overview

Pediatric obesity remains an ongoing health concern affecting about 17% of United States children causing long term health concerns into adulthood (Styne et al., 2017). Research supports the utilization of interventions to reduce pediatric obesity; however, the lack of screening and documenting overweight and obesity is an ongoing problem.. The American Psychological Association (APA, 2018) found that many providers are not accurately and consistently charting BMIs. Without consistent screening in place, providers miss the opportunity to provide education and appropriate referrals to reduce pediatric obesity. Styne et al. (2017) report that screening for obesity should start as early as the first year of life, and the WHO (2020) and CDC (2018) recommend the use of BMI age-appropriate growth charts. Styne et al. (2017) found that early identification, screening, and interventions support a decrease in BMI. Early identification of childhood obesity starting as early as the first year of life is associated with a decrease in childhood obesity which decreases the risk of developing chronic diseases in adulthood. The APA (2018) recommends a multicomponent behavioral approach that first starts with healthcare providers consistently documenting BMIs, getting the family involved early, having conversations regarding health lifestyles, implementation of physical activity and education regarding healthy diets.

Review of Literature

Through a review of peer-reviewed scholarly sources, key ideas and themes were identified. These themes include, screening pediatric patients using BMIs, documenting BMIs using age-based growth charts and referring overweight and obese children to a nutritionist and

behavioral therapy. These themes have become the standard of care according to the American Academy of Pediatrics (O'Connor et al., 2017).

Screening using BMIs

Leading public and preventative health agencies and organizations across the globe recommend the use of BMI to screen and diagnosis overweight and obesity in pediatric populations. Evidence shows that the CDC's recommendations for BMI percentiles for screening and diagnosing childhood obesity should be utilized in pediatric settings (Styne et al., 2017; Lange et al., 2020). The American Academy of Pediatrics suggests using yearly BMI measurements along with documentation of BMIs on growth charts for all patients 2 years and older (O'Connor., 2017). Further, Styne et al. (2017) support diagnosing pediatrics ages 2-19 years of age with BMIs that are $>85^{th}$ percentile as overweight and with BMIs $>95^{th}$ percentile as obese with respect to age and sex specific growth curves. Research also indicates that providers should screen, calculate, document, and review BMIs for children and adolescents at least annually at well child visits to identify children who are overweight or obese (Styne et al., 2017; Lange et al., 2020; O'Connor et al., 2017; Skelton, 2020). Even though public and preventative agencies, as well as clinical practice guidelines, recommend using BMI to screen for pediatric overweight and obesity starting as early as age 2 years, evidence shows that some providers are not utilizing this measure (Baughn et al., 2020; Bode et al., 2013).

While research supports the use of BMIs for screening and documentation of childhood obesity, Styne et al. (2017) and Vanderwall et al (2017) acknowledge that a limitation to using BMIs is that the use of BMI alone does not a distinguish between adipose tissue or lean muscle when classifying children as overweight or obese. Further, clinicians should use caution when comparing BMI between age groups, gender, race, and ethnicity (Styne et al., 2017; Vanderwall

et al., 2017). To address these limitations, providers should receive adequate training on what BMI is and how BMI is used to screen for overweight and obese children.

Provider Documentation of BMIs

Documentation of BMIs in provider notes is critical to the diagnosis and treatment of childhood obesity. Baughn et al. (2020), examined 175,066 pediatrician charts and found that 1.32% documented a diagnosis of obesity and 0.5% documented a diagnosis of overweight in pediatric patients 2-18 years of age. Further, the American Academy of Pediatrics states without provider documentation interventions cannot be initiated and the rates for childhood obesity will continue to rise (Baughn et al., 2020). In addition, Bode et al. (2013) report that providers are not documenting BMIs with evidence showing that only 26%-40% of medical records of children who are obese containing documented BMIs. Bode et al. (2013) and Baughn et al. (2020) both conclude that the use of EMRs to chart BMIs is associated with significant improvement in initiating interventions and is a standardized approach to document pediatric obesity. However, limitation of using BMIs relates to a lack of time by providers to address BMIs in well child visits (Baughn et al., 2020; Bode et al., 2013). Considering, providers may need to schedule another appointment to follow up on BMI concerns (Bode et al., 2013).

Referrals for Obese and Overweight Pediatrics

A multidisciplinary approach for treating childhood obesity, with a focus on behavioral and nutrition therapy, is recommended by leading organizations and well supported by the literature. The American Academy of Pediatrics (O'Connor et al., 2017), and the World Health Organization (2021) recommend the use of a behavioral therapist and nutritionist for all children who meet overweight and obesity criteria. Because children establish dietary related behavior

and food preferences early in childhood that may continue into adulthood (Kim and Lim, 2019), the use of both behavioral and nutrition interventions are critical for addressing lifestyle changes in overweight and obese children. Research evidence shows that children who engage in behavioral interventions compared to no behavioral interventions have greater reductions in weight and BMI (Al-Khundainy et al., 2017; Mead et al., 2017). Similarly, date from research studies indicated that nutrition interventions are beneficial for enhancing outcomes related to BMI in children who are overweight or obese.

However, there may be unfavorable outcomes with weight fluctuation, and unhealthy dietary behaviors during long-term follow ups with health care providers (Kim and Lim, 2019). Furthermore, Heerman et al. (2017) discuss a risk of treatment of pediatric obesity, especially in female teenagers, may lead to an increase in body image distortion, anxiety, and depression. Researchers also state that treatment of obesity may result in an increase of up to 5% of adolescents developing an eating disorder (Heerman et al., 2017; Mannan et al., 2016). Providers need to be aware of these concerns, have conversations about them with patients and families, and make sure adequate referrals are in place to help support patients.

Conclusion of Themes

The recommendations are clear that BMI should be used as an assessment measurement for monitoring pediatric overweight and obesity. However, evidence demonstrates that some providers are not using this measure, and therefore, pediatric overweight and obesity are not detected. The lack of screening may result in chronic health conditions. In addition to using BMI for screening for pediatric overweight and obesity, once a child is identified as having BMI greater than the 85th percentile, referrals to either or both a nutritionist and behavioral therapist should be implemented. Evidence shows that with the utilization of nutrition management from

nutrition experts coupled with lifestyle modifications with assistance from behavioral therapists are evidence-based practices that are beneficials to children diagnosed with being overweight or obese.

Practice Change Summary

Providers at a pediatric clinic in Northwest Montana were not consistently screening and documenting BMIs at wellness exams for children 2 years and older, and therefore children were not being referred to appropriate interventions. This Northwest Montana clinic is supported by a 577-bed health system that encompasses more than 40 provider clinics with the mission statement to advance medicine and enhance care. Further, this medical system is the regions only university level-academic center and supports evidence-based change at all levels of the organization. With the support of the health organization and the mission statement, this pediatric clinic underwent an evidenced based change to advance medicine and enhance the care of overweight and obese children.

Using guidelines from leading health and preventive agencies, this change in practice would involve the accurate screening of BMIs using the CDC recommended age and sex growth charts, consistent documentation in provider notes and problem lists of BMIs starting from age 2, and the referral to a nutritionist and behavioral therapist for BMIs greater than the 85th percentile. This change in practice was measured in a three-month time frame on all wellness child exams with a goal of screening, documenting, and referring 100% of the time. This change project promoted easy access for tracking at yearly wellness exams, early identification, and early intervention for overweight and obese children.

THE QUAILITY IMPROVEMENT PROJECT

Framework

The purpose of this project was to implement BMI screening at all wellness exams for children age 2 years and older, document pediatric overweight and obesity on patient problem lists in the electronic medical record and refer patients to proper care team members based on BMI percentiles. To achieve this, the replicating effective programs (REP) framework was used. REP is a well-suited framework for health care organizations. This framework specifies the need to maximize fidelity while also being flexible in different practices to maximize transferability (Kilbourne et al., 2007). REP has been at the forefront of change by developing systemic changes and effective strategies to promote change in organizations (Kilbourne et al., 2017). The need for an effective framework to help initiate, promote, and sustain change is needed across all organizations nationwide. According to Kilbourne et al. (2007) REP has been evaluated through randomized controlled trials of its effectiveness in achieving interventions and its fidelity across different organizations. REP has been used both academically and clinically to promote change in healthcare systems and has been shown to be associated with sustainable change (Kilbourne et al., 2007).

The REP framework consists of four phases:1) pre-conditions; 2) pre-implementation; 3) implementation; and 4) maintenance and evolution. Pre-conditions that were relevant to this practice change project included the lack of screening, documenting, and referring for childhood obesity. The pre-conditions lead to the pre implementation phase which consisted of working with Meditech, the electronic medical record platform used at the pediatric clinic, and the information technology (IT) team which helped implement the standardized verbiage in provider charting and ensured BMI was calculated in provider charting. Further, the pre implementation

phase involved working with a behavioral therapist and nutritionist about the referral process of overweight and obese children. The implementation phase included educating providers on how to appropriately screen using BMI for overweight and obese children, the appropriate documentation in provider notes and problem list identification, and referral process to a behavioral therapist and nutritionist. Finally, the maintenance and evolution of this project included future education to providers on how the change has affected childhood obesity with the practice of using BMIs to screen pediatric patients, documentation of overweight and obese children and the referral process to a nutritionist and behavioral therapist. Figure A provides a visualization of all four phases as they applied to BMI screening, documentation, and interventions for overweight and obese children.

Agency Description

The setting of this project took place at Pediatric Clinic in the northwest part of Montana that served ages 0-20 years. This clinic employed five pediatric physicians and two pediatric nurse practitioners. In a recent chart audit, the clinic saw about 10,000 pediatric patients during the year. This clinic population is primarily made up of Caucasian English-speaking patients. However, clinicians at the clink also see Native Americans, African Americans, Hispanics, Asians, and Russian populations. The focus of this project was pediatrics 2-19 years of age including all ethnicities, religions, and races with BMIs greater than the 85th percentile for age and sex specific growth charts. The population was recommended by leading public and preventive health agencies and organizations.

The facilitators of this project included the providers of the clinic, the stakeholder, the Meditech IT personnel, the clinic manager and me. In addition, the referral process involved a behavioral therapist and a nutritionist who had been consulted and had agreed to an increase in

patients related to obesity. One of the stake holders was an Advanced Practice Registered Nurse (APRN) with a degree in Doctor of Nursing Family Practice and she has worked at the pediatric clinic for four years. She sees patients three days a week and helped facilitate meetings, statistics, and data for this project.

To facilitate this change, I was a strong, confident, and clear leader. According to Moran et al. (2020), a good leader can draw in a skill set and use the appropriate skills at the appropriate time and keep the project balanced. Prabhakar (2008) stated "One of the biggest ways to motivate people and to convince them of the potential for successful outcomes is to communicate effectively." (p.6). Therefore, it was vital that I had direct clear communication when discussing the plan with my stakeholder. The APRN was key for my project to gain momentum when introducing it to the rest of the team. Moran et al. (2020) clearly stated that the stakeholder support is critical throughout the project. With the support of the stakeholder, buy in from the rest of the team allowed for openness for change and sustainability of the project.

Project Design

The design of this project was based on the SMART goal template. A visualization can be seen in appendix B. To measure success of this project, provider charts were analyzed weekly, pulling all wellness child visits, and determining if BMIs were documented and placed on problem lists, and appropriate referrals were placed. This was achieved by utilizing Meditech personnel to help pull BMI information for all well child visits and referral information from provider charts on a weekly basis.

The cost of this project was very minimal, as the project entailed using the medical record that is already in place by the organization and implemented a change in documentation and

referral process. Working with Meditech personal, a standardized charting was put in place for provider documentation. This included BMI age and sex specific growth charts that translated into provider charting, this let providers know if BMIs were greater than the 85th percentile, then prompted providers to refer to behavioral therapy or a nutritionist.

Project Methods

Throughout this project, data were extracted weekly and entered in an excel spreadsheet on all wellness exams in a six-week period. Using descriptive statistics, data were analyzed to see if BMIs were being charted on all exams. Further, for BMIs that were greater than the 85th percentile it was determined if provider charting in the problem list included a diagnosis of overweight or obese. Finally, data were analyzed for referral placement to a nutritionist and behavioral therapist. Percentages were calculated on the frequency of providers charting BMIs, adding to problem lists and referring to specialties. During this 3-month implementation, the goal was to have 100% BMI screening and charting with 75% referral to outside resources by 6 weeks. At the end of 3 months the goal was to have 100% BMI screening and charting with 100% referrals to outside resources.

With the implementation of this project, human subject protection was important. Human subjects were protected by having a qualified person pull data from charts. No patient identifiers were used in the information for this project. To obtain this, Meditech personnel pulled this information on a weekly basis, and then submitted it to me using an excel spreadsheet. The data that were collected will not be kept longer than June 2022. At the end of this project, this information will be shredded at a secured hospital site and deleted from the computer. This information will not be seen by any other person except myself and Meditech personal. Because the Meditech personnel was working for the hospital organization, no disclosure or protection

paperwork was needed as HIPAA paperwork had already been done for the organization. Potential risk for this patient population was extremely minimal with the use of password protect and secure hospital email systems.

RESULTS

Results

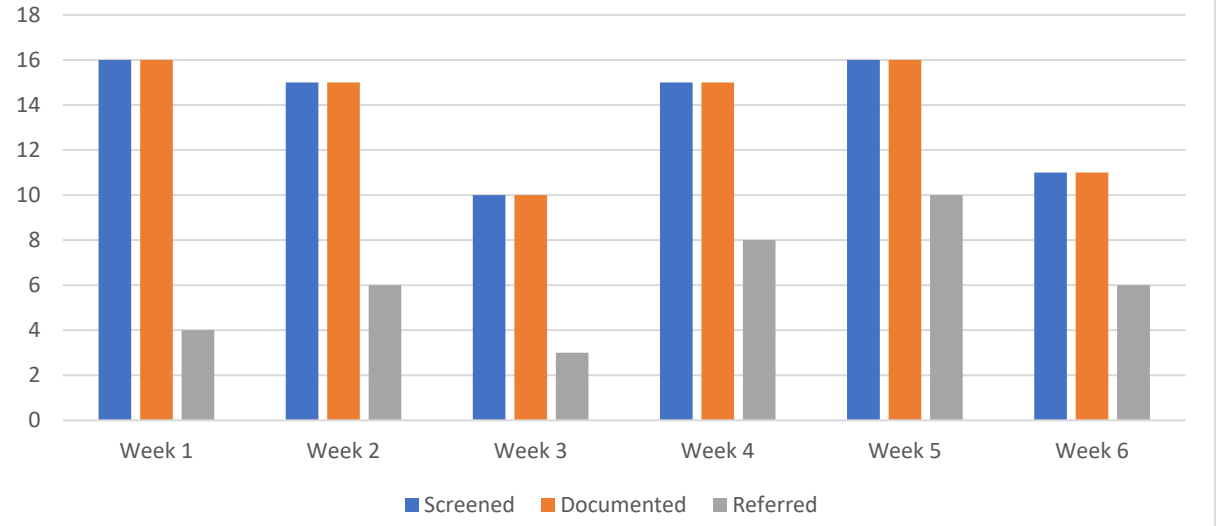
This project entailed providers screening for childhood obesity using age and sex specific BMIs, charting in provider notes and problem lists, and referring to a behavioral therapist and or a nutritionist during well child visits. The data were collected over a six-week period from seven providers on all well child exams. During data collection, results were analyzed on a weekly basis, using an excel spreadsheet. During the six-week implementation providers saw 90 well child visits. These well child visits consisted of children 2-18 years of age. To maintain anonymity of pediatric patients, no data related to identifiers (e.g., age, sex, race, or ethnicity) were extracted. There were seven providers who participated in this quality improvement project, four male pediatricians, one female pediatrician and two female family nurse practitioners.

During the first week, 20 well child visits were completed by seven providers. Of those 20 well child visits, 80% of children were screened for overweight/obesity using BMI and for positive cases, providers documented in charts and problems lists. However, there was only a 20% referral rate to a nutritionist and or behavioral therapist. During the second week, there were 18 well child visits analyzed. Of those visits, 83% of the children were screened and documented and 33% were referred to a nutritionist and behavioral therapist. The third week, 10 well child visits were conducted with 100% of the children screened and documentation provided in provider charting. Thirty percent of them were referred to a nutritionist or behavioral therapist. During the fourth week, 15 well child visits were completed with a 100% screening and documentation rate, and 53% of positive cases were referred to behavioral therapist and or a nutritionist. The fifth week consisted of 16 well child visits with a 100% screening and documentation rate and a 62.5% referral rate for overweight or obese children to a

behavioral therapist and or a nutritionist. In the final week, 11 well child visits were conducted with a 100% screening and provider documentation, and a 54% referral rate to a behavioral therapist and or a nutritionist.

In summary during a six-week data collection with seven providers seeing a total of 90 well child visits, 92% of the children who attended well child visits were screened for overweight/obesity using BMI, documented in the medical record, and added to the problem lists. However, 41% of the children who met BMI criteria for overweight/obese were referred to a behavioral therapist and or a nutritionist. Of those 41%, sixty-seven percent were referred to a nutritionist, 19.5% were referred to a behavioral therapist and 13.5% were referred to both a behavioral therapist and a nutritionist (see Figure A). It is also important to conclude that prior to

Figure A
Screening, Documentation and Referral for Overweight and Obese Children



this quality improvement project, the clinic did not a referral process for overweight or obese children. With that being said, the referral rate went from zero precent pre implementation to 42% post implementation.

Discussion of Results

Prior to the start of this implementation, providers were educated about this quality improvement project. Evidence based literature was used to explain the importance of screening, documenting, and referring for childhood obesity. All seven providers were educated on the change related to screening for overweight/obesity, with the implementation of the CDC recommending age and sex specific BMI chart, that is used alongside the height and weight charts. Further, the providers were educated on the new documentation process that was transferred provider charting and onto problem lists. Finally, providers were educated on the importance of referral and follow up for children who met overweight and obese criteria to a nutritionist and or a behavioral therapist. Throughout this process, I was able to attend a provider meeting and discussion of complications and successes was conversed. During this meeting, providers discussed that during the first week of implementation, they forgot to use BMI as a screening tool, leading to 20% of the well child visits not being screened for overweight/obesity. However, providers adjusted to the new process, they reported the screening tool was easy to use and the new documentation was effective in diagnosing a child as overweight or obese. The results of this 6-week implementation using BMI to screen for childhood obesity, and providers documenting in well child visits included a 92% success rate. The SMART goals used for this project included a 100% success rate of BMIs screened and documented by 3 weeks and a 100% BMIs screened and documented by 6 weeks. Although this project did not meet the SMART

goals, providers showed improvement by the end of the 6 weeks with a 100% of children being screened for overweight/obesity and documentation for positive cases.

Throughout the implementation of this project, 41% of children were being referred to a behavioral therapist and or a nutritionist. During the 3-week mark of this project, providers expressed concern about referrals not being effective for families. During a provider meeting, providers reported that families often refused being referred to a behavioral therapist or a nutritionist. The refusals were specific to finances, lack of health insurance, time and parents wanting to try approaches for weight loss at home first before being referred. Finally, there was one provider at the clinic who did not refer any children to behavioral therapy or a nutritionist. When this was discussed, it was reported he did not believe this was an effective treatment and did not want to put the stress on families to go see another care team member. It was also disclosed that he did not refer overweight/obese children to a behavioral therapist or a nutritionist. Other providers also admitted that at times they did not bring up the topic of a child being overweight or obese nor did they suggest referrals to specialists. With these limitations, 37 out of the 90 well child visits that had children who met criteria for overweight/obese were referred to a behavioral therapist or a nutritionist. Regarding the SMART goals, 75% of overweight or obese children would be referred to a behavioral therapist or a nutritionist by the 3-week goal and 100% of children would be referred by the end of the 6-week implementation. However, providers demonstrated concern and lack of understanding of the evidence supporting the use of referrals therefor not referring overweight or obese children 100% of the time.

Limitations

During this quality improvement project, time was an expected limitation. Providers are allotted 20-30 minutes for well child appointments. During this time, providers must complete a

full assessment, answer questions of parents and patients and discuss concerns. The time limitations do not consistently allow for providers to discuss BMIs. Providers reported, during provider meetings, that during the implementation of this project, time constraints put a hinderance on the discussion of BMI screening results, particularly for children who had BMIs that meet criteria for overweight/obese. Considering, it was recommended to parents to make another appointment to come back and discuss BMI concerns; however providers stated this was not followed through consistently.

Another limitation seen during this project was the financial aspect of consulting with a behavioral therapist or nutritionist. Montana is one of two states that insurance does not cover a nutritionist referral. Research supports multiple visits with a behavioral therapist or nutritionist to help with a treatment plan to decrease BMIs; however, these services are an out-of-pocket expense for most of the families, which may be a barrier to seeking services for many families.

Finally, COVID 19 put a burden on implementing change. For the past two years, healthcare workers have lived in a constant environment of change making it difficult to implement. This limitation was addressed through discussion of the importance of learning to live with COVID19 and the concern that other diseases are still active and affecting patients was supported on multiple occasions.

Lessons Learned

During this quality improvement project, I learned that provider and clinic buy-in can be difficult. When introducing a change and then implementing a change, push back is expected. However, it was difficult to understand the hesitancy to change when current literature supports the need for the practice change. It was clear in the results that providers are supportive of

screening for obesity using BMI charts, as well as documenting BMIs in notes and problem lists. However the findings demonstrated a lack of referrals to behavioral therapy or a nutritionist. Providers were not always comfortable with discussing the diagnosis of obese or overweight with patients and families. When meeting with providers, it was discussed that these conversations can be difficult to have with families and the patients. Provider observation included that most patient guardians were overweight or obese therefor making the topic about the child being overweight or obese difficult. In addition, providers had concerns about the risks of a child developing an eating disorder, such as anorexia or bulimia, if the topic of weight was discussed, especially in female populations. Further, providers had biases about using the BMI as an accurate way to diagnosis obesity in children.

Throughout this project, it was learned that education, support, and clear communication were vital to helping this project succeed. It was found that even though evidence supported this change, providers still had hesitancy to change practice. Working together, hearing provider concerns, and adapting to feedback, helped support the success in this project.

Recommendations for Future Practice

Recommendations for future practice include more time to develop a quality improvement project and implement the change. Not only did the providers not have enough time to discuss the screening results, but six-week data collection period was too short. Additionally, it was impossible to assess if this change in practice helped decrease the rates of childhood obesity. To assess this, data for BMIs at yearly wellness exams and the implementation of a treatment plan, such as a behavioral therapist or a nutritionist would need to be evaluated. Data would be looked at to see if a decrease in BMIs was supported by the implementation of a behavioral therapist or nutritionist at a yearly basis.

Moreover, frequent meetings with providers and team members to collect data on how the implementation is going and how to help improve is necessary. Providers can gauge how families will handle this news and then develop better approaches to help support families and patients in their communities. Providing education to providers on how to have appropriate conversations regarding weight gain in children would be beneficial in the progress of this change.

Finally, helping families with financial support would be key in helping with the referral processes. Applying for grants or developing programs that would allow for families to have better access and support to resources in the community. Further, getting involved with insurance companies and working out plans that cover the involvement of a nutritionist or behavioral therapist for children who meet overweight or obese criteria.

THE ESSENTIALS

Essentials of Doctoral Education for Advanced Nursing Practice

The Essentials of Doctoral education for Advanced Nursing were developed for education in two principles: Doctor of Philosophy Degree (PhD) and the Doctor of Nursing Science Degree (DNS, DSN, or DNSc) (The Essentials of Doctoral Education for Advanced Nursing Practice, 2006). The two types of principles differ in goals and competencies; however both require a research project and defense or dissertation. Specifically, for the Doctor of Nursing Science Degree, the course study has evolved immensely leading to the highest level of educational preparation in nursing (The Essentials of Doctoral Education for Advanced Nursing Practice, 2006). For educational institutes to prepare students for the Doctor of Nursing Science degree, The Essentials of Doctoral Education for Advance Nursing were developed. These Essentials articulate the competencies for all nurses practicing at this level, regardless of the education institution. Further throughout my coursework, clinical and thesis, Montana State University prepared me to use the Essentials of Doctoral Education for Advanced Nursing Practice.

Essential I: Scientific Underpinnings of Practice

Throughout my educational process, starting in undergraduate and continuing to doctoral education, my knowledge in scientific foundation has grown immensely. Coursework in Evidenced Based Practice, Health Care Informatics and Design of Healthcare Delivery Systems, prepared me to integrate nursing science at the highest level of nursing practice, use science-based theories to determine the significance of health, health care delivery, and develop and evaluate new practice approaches based on nursing theories (The Essentials of Doctoral

Education for Advanced Nursing Practice, 2006). Because of my coursework, clinical experiences and carrying out my DNP scholarly project, I can identify a problem in a healthcare system, develop a plan, and translate my scientific knowledge quickly and effectively.

During my doctoral program I identified a problem in a pediatric clinic and developed a quality improvement project using my scientific knowledge. I was able to identify that providers were not screening for childhood obesity, not documenting overweight/obesity diagnoses in electronic medical records, as well as not referring overweight and obese children to specialists. Therefore, I developed a quality improvement project using BMI screening to diagnosis overweight/obese children, document overweight/obesity diagnoses in the electronic medical record and refer appropriate patients to a behavioral therapist and or a nutritionist. I used a strong scientific foundation to integrate nursing science by using science-based theories and developed and evaluated the outcomes of this project. By using nursing science at a doctoral level, I promoted positive changes in health status and recognized the wholeness of health and human beings (Donaldson & Crowley, 1978; Fawcett, 2005; Gortner, 1980).

Essential II: Organizational and Systems Leadership for Quality Improvement Project and Systems Thinking

During my coursework I was prepared to meet essential II in multiple ways. This was done through multiple lectures, research, and clinical experiences during my DNP program. Through this DNP program, coursework, Health Care Informatics, and Translational Research, along with clinicals in Primary Care of the Midlife Families, prepared me to employ finance and health policy development and demonstrate sensitivity to a population with diverse culture including parents, patients, and providers (The Essentials of Doctoral Education for Advanced

Nursing Practice, 2006). It also prepared me to lead a quality improvement project that focused on a panel of patients to develop and evaluate a plan that improved patient outcomes and meet current and future needs of this patient population.

During this quality improvement project a specific population, pediatrics ages 2-19 years, whose BMIs were greater than the 85th percentile classifying them as overweight/obese were identified. A plan was developed to help combat the growing rates of childhood obesity locally and more specifically in a clinic in Northwest Montana. I led a specific quality improvement project implemented a health care plan that improved current and future health of this pediatric population. Throughout this process, seven providers, male and female, and 90 pediatric patients ages 2-19 years of all races, genders and ethnicities were evaluated to help improve this organization practice of screening for overweight/obese children using BMIs, provider documentation and referral process. By using a specific population, the plan was developed and evaluated on effective strategies for managing this pediatric population, healthcare organization and research.

Essential III: Clinical Scholarships and Analytical Methods for Evidence-Based Practice

The forefront of the Advanced Practice Registered Nurse is providing leadership by integrating knowledge from diverse sources for an evidence-based practice change leading to new discoveries for complex practice situations (The Essentials of Doctoral Education for Advanced Nursing Practice, 2006). Essential III was met with coursework preparing me to translate research into practice and integrate knowledge. Specifically, Translational Research, Evidence-Based Practice I and II, and Scholarly Writing prepared me with competency in

knowledge to translate research in practice, improve reliability of the health care practice and outcomes, and participate in collaborative research (Depalma & McGuire, 2005). Further, it prepared me to lead an evidence-based practice and engage in advanced nursing practice.

This quality improvement project allowed me to hone my leadership skills. Providing clear and direct communication, presenting evidence-based literature, and developing a plan to combat the growing problem of childhood obesity at a local pediatric clinic in Northwest Montana, is how essential III was met. A literature review was done, implementing studies that have been done within the past five years for the best practice to decrease the rates of childhood obesity in clinics around the world. I used sources and guidelines from leading health and preventive agencies to help develop this plan and implement into practice. I then was able to analyze data to develop relevant practice guidelines and improve practice.

Essential VI: Interprofessional Collaboration for Improving Patient and Population Health Outcomes

The doctoral education prepared me with a high set of skills and knowledge to be the forefront of a complex multitiered health care system. Coursework such as the design of healthcare delivery systems and health care informatics prepared me to facilitate collaborative team functioning and overcome impediments to interprofessional practice leading me to meet essential VI. (The Essentials of Doctoral Education for Advanced Nursing Practice, 2006). Coursework in Program Planning and Evaluation, Outcomes, and Quality Improvement prepared me with advanced preparation to play a central role for these interprofessional teams, collaborate in the discussions, and assume leadership if needed (The Essentials of Doctoral Education for Advanced Nursing Practice, 2006).

To accomplish the goals of this project, interprofessional collaboration was essential. Meeting with a nutritionist and behavioral therapist to coordinate the increase in referrals for overweight and obese children were done prior to the implementation of this project. Without their consent, this project would not have been successful in giving treatment options for children how were overweight/obese. It was also key to meet with IT personnel to implement a new charting template into provider charting that allowed for BMIs to be in the electronic medical record. Finally, assuming the leadership role and meeting with the seven providers who were going to be implementing this change into practice and providing them with clear and concise education and presenting evidence-based research for the practice change. I met this essential by leading the interprofessional teams, working within teams and assuming leadership of the team when appropriate (The Essentials of Doctoral Education for Advanced Nursing Practice, 2006).

Essential VII: Clinical Prevention and Population Health for Improving the Nation's Health

Essential VII was met with coursework in Evidence Based practice I and II and clinical work specific to primary care. The doctoral education prepared me to implement a clinical prevention and improve population health activities specifically with coursework in Primary Care for Midlife Families and Advanced Health Assessment. The doctoral education provided me with the research and tools to improve population health by creating preventive interventions in the healthcare setting. This education allowed me to engage in leadership to integrate evidenced based clinical prevention and population health services for individuals and families (The Essentials of Doctoral Education for Advanced Nursing Practice, 2006).

Childhood obesity is growing at an alarming rate nationwide and the COVID19 shelter in place orders in 2020 amplified this rate. As a future DNP it is my job to promote health and reduce risk/illness of individuals and families. In the United States, there is a documented chronic disease such as hypertension, hyperlipidemia, heart disease, stroke, depression, and anxiety into adulthood, with direct correlation to childhood obesity. Further, health care providers are prescribing heart medications, cholesterol medications and seeing an increase in mental health needs in the pediatric population secondary to obesity. I met this essential by implementing a plan that directly relates to the longstanding focus on health promotion and disease prevention (The Essentials of Doctoral Education for Advanced Nursing Practice, 2006). The goal of this quality improvement project was to promote healthy lifestyles and increase preventive interventions for children who meet overweight/obese criteria.

REFERENCES CITED:

American Psychological Association. (2018). Clinical practice guideline for multicomponent behavioral treatment of obesity and overweight in children and adolescents: Current state of the evidence ad research needs. https://www.apa.org/obesity-guideline/clinical-practice-guideline.pdf

Baughn, G. L., Thomas, K., & Urrego, F. (2020, July 1). *The documentation dilemma of pediatric obesity*. American Academy of Pediatrics. Retrieved October 20, 2021, from https://pediatrics.aappublications.org/content/146/1_MeetingAbstract/85.

Bode, D. V., Roberts, T. A., & Johnson, C. (2013, January 1). *Increased adolescent overweight and obesity documentation through a simple electronic medical record intervention*. OUP Academic. Retrieved October 20, 2021, from https://academic.oup.com/milmed/article/178/1/115/4210907.

CDC (2019, June 24). *Childhood Obesity Facts* Retrieved June 11, 2020, from https://www.cdc.gov/obesity/data/childhood.html

Heerman, W. J., et al., (2017, November 15). *The dose of behavioral interventions to prevent and treat childhood obesity: A systematic review and meta-regression*. International Journal of Behavioral Nutrition and Physical Activity. Retrieved October 20, 2021, from https://link.springer.com/article/10.1186/s12966-017-0615-7.

Kang, N. R., & Kwack, Y. S. (2020, January 8). *An update on mental health problems and cognitive behavioral therapy in pediatric obesity*. Pediatric Gastroenterology, Hepatology & Nutrition. Retrieved October 20, 2021, from https://synapse.koreamed.org/articles/1140800.

Kilbourne, A.M., Neumann, M.S., Pincus, H.A. *et al.* (2007). Implementing evidence-based interventions in health care: application of the replicating effective programs framework. Retrieved from https://doi.org/10.1186/1748-5908-2-42

Kim, J., & Lim, H. (2019). Nutritional Management in Childhood Obesity. *Journal of obesity & metabolic syndrome*. https://doi.org/10.7570/jomes.2019.28.4.225

Krebs, N. S., Himes, J. H., Jacobson, D., Nicklas, T., Guilday, P., & Styne, D. (2007). *Assessment of Child and Adolescent Overweight and Obesity*. Pediatrics. Retrieved September 30, 2021, from https://pediatrics.aappublications.org/content/pediatrics/120/Supplement_4/S193.full.pdf.

Lange SJ, Kompaniyets L, Freedmand DS, et al. (2021). Longitudinal Trends in Body Mass Index Before and During the COVID-19 Pandemic Among Persons Aged 2-19 years. DOI: http://dx.doi.org/10.15585/mmwr.mm7037a3

Lin AL, Vittinghoff E, Olgin JE, Pletcher MJ, Marcus GM. Body weight changes during pandemic-related shelter-in-place in a longitudinal cohort study. *JAMA Netw Open*. doi:10.1001/jamanetworkopen.2021.2536

Mannan, M., Mamun, A., Doi, S., & Clavarino, A. (2016). *Prospective associations between depression and obesity for adolescent males and females- a systematic review and meta-analysis of longitudinal studies*. PLOS ONE. Retrieved October 20, 2021, from https://journals.plos.org/plosone/article?id=10.1371%2Fjournal.pone.0157240.

Moran, K., Burson, R., & Conrad, D. (2020.) *The Doctor of Nursing practice project: A framework for success* (3rd ed.). Burlington, MA: Jones and Bartlett Learning.

O'CONNOR, E.A., EVANS, C.V., BURDA, B.U., WALSH, E.S., EDER, M., & LOZANO, P. (2017). Screening for obesity and intervention for weight management in children and adolescents. Evidence report and systematic review for the US Preventative Services Task Force. *JAMA, 317*(23), 2427-2444.

Skelton, J., Klish, & William. (2020). Clinical evaluation of the child or adolescent with obesity. Retrieved from https://www-uptodate-com.proxybz.lib.montana.edu/contents/clinical-evaluation-of-the-child-or-adolescent-with-obesity?search=childhood+obesity+screening&source=search_result&selectedTitle=1~27&usage_type=default&display_rank=1#H381598153.

Staniford, L. J., Breckon, J. D., & Copeland, R. J. (2012). Treatment of childhood obesity: A systematic review. *Journal of Child and Family Studies.* doi:http://dx.doi.org.proxybz.lib.montana.edu/10.1007/s10826-011-9507-7\

Styne, D. M., Arslanian, S. S., Connor, E. L., Farooqi, I. S., Murad, H., Silverstein, J., & Yanovdki, J. (2017). *Pediatric obesity-assessment, treatment, and prevention: An endocrine society clinical practice guideline*. The Journal of clinical endocrinology and metabolism. from https://pubmed.ncbi.nlm.nih.gov/28359099/.

The Essentials of Doctoral Education for Advanced Nursing Practice. (2006). *American Association of Colleges of Nursing* . Retrieved from https://www.aacnnursing.org/Portals/42/Publications/DNPEssentials.pdf

Vanderwall, C., Randall Clark, R., Eickhoff, J., & Carrel, A. L. (2017, June 2). *BMI is a poor predictor of adiposity in young overweight and obese children*. BMC Pediatrics. from https://link.springer.com/article/10.1186/s12887-017-0891-z.

World Health Organization. (2021, June 9). *Obesity and Overweight*. https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight

Woolford SJ, Sidell M, Li X, et al.(2021) Changes in Body Mass Index Among Children and adolescents During the COVID-19 Pandemic. *JAMA.* doi:10.1001/jama.2021.15