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Adaptation of clinical guidelines : strategic effort for improving childhood obesity screening in a pediatric clinic

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Adaptation of Clinical Guidelines: Strategic Effort for Improving Childhood Obesity Screening in a Pediatric Clinic

CASEY NORRIS

by

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A DNP PROJECT

Submitted in partial fulfillment of the requirements for the
The degree of Doctor of Nursing Practice
to
The School of Graduate Studies
of
The University of Alabama in Huntsville

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DNP PROJECT APPROVAL FORM

Submitted by __Ivy Fenin_____ in partial fulfillment of the requirements for the degree of Doctor of Nursing Practice and accepted on behalf of the Faculty of the School of Graduate Studies by the DNP project committee.

We, the undersigned members of the Graduate Faculty of The University of Alabama in Huntsville, certify that we have advised and/or supervised the candidate on the work described in this DNP project. We further certify that we have reviewed the DNP project manuscript and approve it in partial fulfillment of the requirements for the degree of Doctor of Nursing Practice.

10/21/19 _____ Committee Chair
(Date)

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ABSTRACT

The School of Graduate Studies
The University of Alabama in Huntsville

Degree: Doctor of Nursing Practice College: Nursing

Name of Candidate: Ivy Fenin

Title **Adaptation of Clinical Guidelines: Strategic Effort for Improving Childhood Obesity Screening in a Pediatric Clinic**

Childhood obesity is a global health problem and is especially prevalent in the United States (US). The condition is associated with a number of chronic disorders; thus, childhood obesity is a deadly non-communicable disorder negatively impacting the health of youth. Approximately 12.7 million US children (16%) are obese. Childhood obesity rates among US youth ages 2 – 19 years have reached 18.9% (13.7 million) with the estimated cost of associated medical complications at $14 billion and rising. The etiology is both behavioral and genetic. This quality improvement project was designed to align a pediatric primary care clinic's screening process with nationally recommended clinical childhood obesity prevention guidelines, increase screening rates, and maximize the detection of overweight/obese children to ensure proper follow-up. A random retrospective chart review was conducted on a targeted sample size of 60 patients who fall within the age ranges of 6 – 16 years in a pediatric primary care clinic located a suburban area of Atlanta, Georgia from 12/2018 – 01/2019. Education on national standards and chart review results was provided to staff, and a follow-up chart review from 04/2019 – 05/2019 was conducted. The pre-intervention rate of screening was 22/60 (36.7%). The post-intervention rate was 55/60 (91.7%). There was a statistically significant increase in the rate of screening from pre-intervention to post-intervention, $\chi^2(1) = 39.47$, $p < 0.0001$, OR = 19.0, 95% CI 6.61 – 54.59. Conclusion: Education of staff on national standards improved screening and follow-up by clinicians in a pediatric care setting to prevent childhood obesity.

Keywords: childhood obesity and chronic disease, obesity screening in children, BMI screening to prevent childhood obesity, practice guidelines for childhood obesity, prevention of obesity in children.

Identification of the problem

Childhood obesity is a non-communicable disorder negatively impacting the health of youth in our communities (Weiss, Yepiz, Mouttapa, McMahan, and Gedissman, 2015). Childhood obesity leads to chronic conditions such as type 2 diabetes, fatty liver disease, hypertension, hyperlipidemia, stroke, metabolic syndrome, sleep disorders, chronic respiratory disorders, musculoskeletal disorders, vascular issues, integumentary issues, gastrointestinal disorders and mental health issues (Mayo Clinic, 2018). Sadly, these life altering clinical conditions were previously only seen in adults.

Childhood obesity is a substantial global health burden, especially in the United States (US). This condition is viewed as a public health concern. Overweight and obesity status in children is determined by body mass index (BMI= kg/m^2 (kilograms/height in meters squared)), which is sex-and age-specific (BM-for-age). The Centers for Disease Control and Prevention (CDC) utilizes age and sex-specific percentiles for BMI to decide a child's weight status (CDC, 2018). In children, a BMI equal to or above the 85^{th} percentile but below the 95^{th} is considered overweight, while a BMI equal to or above the 95th percentile is considered obese (CDC, 2018). Approximately 16% (12.7 million) of children and adolescents aged 2 to 19 in the US had a BMI at or greater than the 95^{th} percentile in 2012 (CDC, 2014). Numerous studies have found the etiology for childhood obesity to be both behavioral and genetics (Mayo Clinic, 2018). Being overweight or obese places burdens on the health of individuals, a burgeoning issue that requires interventions and measures to help reduce the prevalence of the condition within both current and future generations. Effectively identifying and implementing interventions to manage at a pediatric clinic or referring obese children to an interdisciplinary team can help prevent

childhood obesity and its associated complications affecting US youth (Van Kruk, Kortekaas, Lucas, and Jager-wittnaar, 2013).

Clinicians working in pediatric care settings can play an essential role in screening, monitoring, managing, and prevention of childhood obesity. Pediatric clinicians are frontline healthcare personnel who can effectively identify children who are already overweight or obese or who are at risk of becoming overweight or obese, then guide the whole family to make choices that will lead to long-term improvements in their overall health outcomes. Financial burden is also one of the consequences of childhood obesity. Therefore, interventions which can achieve reductions in the rate of obesity are also likely to reduce its financial burden. The pediatric level is therefore the most effective place to offer this type of health intervention. Parents might 'buy-in' if they were fully aware of the cost-effectiveness of preventive measures (Vine, Hargreaves, Briefel, & Orfeld, 2013).

The Institute of Medicine (IOM) has recommended healthcare providers to maximize their role in measuring (screening) and utilizing BMI-specific-for-age as a screening test to detect the weight status of pediatric patients, while also collaborating with interdisciplinary teams to provide appropriate care for better health outcomes (Daniels & Hassink, 2015). Maximizing the use of screening for childhood obesity, healthy lifestyle education, referral and follow-ups, and family lifestyle modification are the recommended approaches to reduce childhood obesity and promote an overall healthy lifestyle. However, many clinicians are not following the recommended clinical guidelines to screen for childhood obesity. In spite of the severity of the childhood obesity prevalence in US, a recent study revealed that only 38.5% of family physicians and 68% of US pediatricians routinely assessed weight status utilizing BMI percentile in their pediatric population, despite the majority measuring the height and weight of

their patients (Huang, Borowski, Liu, Galuska, Ballard-Barbarsh, Yanovski, Olster, Atienza, and Smith, 2011). Furthermore, a majority of the clinicians reported not referring patients to an interdisciplinary team for further evaluation and management or follow-up with the patients' lifestyle modification status. These results suggest that clinicians and other healthcare professionals have considerable room for improvement in screening for weight status in a pediatric clinical setting (Huang, et al., 2011).

Increasing rates of routine screening and relaying of such information to interdisciplinary teams and the patient as well as their families has the potential to enable a comprehensive approach to reduce rates of childhood obesity (Huang et al., 2011). The US Preventive Services Task Force (USPSTF) guidelines for childhood obesity prevention states that all children and adolescents between the ages of 6 -18 should be screened by utilizing both weight and height so these children's BMI and weight status can be evaluated. Afterward, those who are found to be overweight or obese can be included in prevention and reduction programs (American Academy of Pediatrics, 2018). Childhood obesity screening protocols have recently been introduced to pediatric clinicians in a suburban area in Atlanta, GA. The clinicians were not following the nationally recommended guidelines to effectively screen all children 6 years and older to determine BMI/weight status to manage patients appropriately or refer patients and their families for better outcomes.

In this project, patients' electronic charts were retrospectively and prospectively reviewed as pre-intervention and post-intervention respectively. The patients' electronic chart review was done to determine whether the clinic's clinicians were abiding by the recommended guidelines to screen children and adolescents to determine BMI/weight status by correctly documenting both

weight and height in the clinic's database and manage or refer patients as appropriate for better outcomes.

Purpose Statement

The purpose of this quality improvement project was to improve the adherence to national obesity guidelines of clinicians in a primary care clinic. For the purposes of this project, the DNP student focused on the age groups of 6-16 years.

Project Objectives

The objectives of the project were the following:

1) Improve clinicians' proficiency in identifying children at risk for obesity.
2) Determine if an amendment is needed in the pediatric clinic's obesity screening process
3) Identify how such practices and protocol might improve the overall health of children.

PICOT Question

For childhood obesity prevention, will aligning a pediatric primary care clinic's obesity screening process with nationally recommended clinical childhood obesity prevention guidelines increase screening rates and maximize the detection of overweight/obese children to ensure proper follow-up in 8 weeks?

Obese children suffer from poorer health throughout childhood and have an increased risk of poor health later in life when compared with children with healthy weight (Van Kruk, Kortekaas, Lucas, and Jager-wittnaar, 2013). Interventions are therefore required which can effectively identify children at risk and prevent or minimize the risk factors in early stages of childhood (Van Kruk, Kortekaas, Lucas, and Jager-wittnaar, 2013). Most clinicians are aware of the risk factors associated with childhood obesity and recognize the importance of preventing it. Understanding whether or not clinicians take an active part in screening, identifying, and

reducing the disorder is an issue that requires further exploration (Schalkwijk, Nijpels, Bot, & Elders, 2016). Screening children to detect obesity and collaborating with patients, their families, and interdisciplinary teams is vital and has the potential to make patients and families feel valued. This may increase their motivation and ability to modify their lifestyles for healthier outcomes. If families understand the benefits, they will buy-in to plans that change behaviors that directly impact childhood obesity, one child, one family at a time (American Academy of Pediatrics, 2018).

Review of Evidence and Conceptual Framework

The literature review focused on research related to the implementation and utilization of guidelines by clinicians related to overweight and obesity among children. Because the project was conducted in a pediatric primary care clinic, the review also included a focus on issues that the clinicians might encounter when using the recommended clinical childhood obesity prevention guidelines.

Utilized search tracker

Databases searched were CINAHL, Cochrane Library, Pubmed, Medline, and ProQuest, American Academy of Pediatrics, US Preventive Services Task Force, and Mayo Clinic's websites. Articles were included if they had been peer-reviewed and had Medical Subject Headings (MeSH). Only articles published within the last seven years were included. Keywords used for the search were the following: *childhood obesity and chronic disease, obesity screening in children, BMI screening to prevent childhood obesity, practice guidelines for childhood obesity, approach for obesity prevention in children, importance of screening for obesity in children, healthcare provider, prevention of obesity in children, obese and overweight children,*

and consequences of childhood obesity. A total of 9 articles met inclusion criteria and were reviewed. (Hall and Roussell, 2017) (Polit, 2017).

Narrative data synthesis of the Body of Evidence

A number of key themes were found in the literature related to the monitoring and identification of overweight and obesity amongst children.

Barriers to implementation of guidelines

A study conducted by Schalkwijk et al (2016) explored the needs of healthcare providers and the barriers they encounter concerning implementing integrated healthcare standards related to childhood obesity. The clinicians involved in the study recognized the importance of and need for the management of obesity in their patients. Most of the general practitioners indicated that they presently have no role in childhood obesity prevention, and only a few had actually managed a child living with obesity. Some of the clinicians considered their function to be limited to measuring the weight of patients and making referrals as necessary. Pediatricians viewed their role as mainly focused upon the management of the comorbidities experienced by obese children. The study concluded that merely publishing guidelines was not sufficient to bring about meaningful change in childhood obesity prevention. The study found that an important step was the development of strategies to promote change in clinical practice.

Screening for childhood obesity

The US Preventive Task Force 2017 recommendation statement proposes that screening for childhood obesity by utilizing a child's BMI is a vital step in effectively reducing childhood obesity. The Institute of Medicine (IOM) recommended that healthcare providers maximize their role in measuring (i.e., screening) and utilizing BMI-specific-for-age to detect the weight status of children, while also highlighting the importance of collaboration in interdisciplinary

teams. Following the recommendations has the potential to provide appropriate care for better outcomes (Daniels & Hassink, 2015). Increased rate of routine screening by clinicians to determine childhood obesity, sharing this information with patients and their families, collaborating with interdisciplinary teams is a comprehensive approach to monitoring, managing, and reducing childhood obesity (Huang et al., 2012).

Summary of Evidence

The evidence identifies the critical factors involved in effective and successful screening to determine BMI and management of childhood obesity. All the studies included in this review indicated that abiding by clinical guidelines for childhood obesity prevention is the most effective measure to prevent or reduce childhood obesity rates. The literature supports best practice for clinicians seeking to screen children for obesity by utilizing BMI-specific-for-age to determine weight status, communicating weight status to the family, and referring the patient and their families to an interdisciplinary team for management.

Theoretical Framework

Levin's change management model has three stages, unfreeze, change/transition, and refreeze/freeze. The model can be used for guiding practice change implementation (Connelly (2016). Kaminski (2011) also noted that Lewin's change theory is a projected change guide that comprises of three specific crucial stages that include: unfreezing, change or upgrading to a new level, and refreezing.

The unfreezing stage involves educating the pediatric practice clinicians on the need for a change, and then helping them to prepare to move away from the current practice that is not meeting standards. A force field analysis in the unfreezing stage weighs pros and cons and the entire practice decides if the advantages outweigh the disadvantages prior to moving to the next

stage and initiating action. The unfreezing stage entails moving practitioners, departments, or an entire practice towards a desire to change (Connelly, 2016).

The change/transition stage entails a process of change in behavior, feelings, thoughts, or all three together that is in some way more productive or more emancipating than practicing the former way. Support is important in this stage and can be provided through coaching, training, and promoting an understanding that mistakes are expected as part of the process. Utilizing role models and allowing individuals to develop their own solutions will enhance the change process. It is highly useful to maintain effective communication regarding the desired change, with an emphasis on the benefits of adhering to the new guidelines, so individuals do not lose sight of what the practice is trying to achieve (Connelly, 2016).

The refreezing stage comprises of establishing the stability of change as a new process so that it becomes standard 'operating procedure.' Without refreezing, the change can easily backslide into the previous practice. The implemented changes are 'frozen' to ensure that they have become part of regular/routine working procedures. This can be achieved by establishing supportive mechanisms such as policies, ongoing support, and a particular orientation to the new system for the onboarding personnel (Kaminski, 2011).

Application to the DNP project

Lewin's change management theory can be applied to clinical practice change. New health information technology, process, and ideas are continually being introduced and established to promote quality care and patients' safety within the healthcare system. This change management theory can be applied in this project with a hope to increase clinicians' adherence to the nationally recommended clinical childhood obesity prevention guidelines to

effectively screen children 6 years and older regardless of the visit type to determine obesity in children.

A new protocol to screen children to determine weight status had recently been introduced to this pediatric clinic. It was uncertain if the clinicians were consistently abiding by the nationally recommended clinical childhood obesity prevention guidelines. Retrospectively reviewing patients' electronic charts to determine a need to change the practice was done. A discussion of the findings (a need) helped the clinicians to recognize the need for change in the practice for a better outcome (s). The clinic's staff then aligned the clinic's electronic charting process to align with the nationally recommended childhood obesity prevention guidelines. Patient charts were reviewed post-intervention to determine if the implemented change was being used effectively and reinforced stability.

Implementation

Design/ Sample/setting

This DNP project was conducted in a pediatric primary care clinic in a suburban area of Atlanta, Georgia. This clinic staff consisted of one office manager, one medical doctor (MD), three nurse practitioners (NPs), and three medical assistants (MAs). The project consisted of randomly selected patients' electronic chart review on a targeted sample size of 60 patients who fell within the age ranges of 6 – 16 years of age (birth years 2002 – 2012). For the initial chart review, the patients had been seen by clinicians during the months of December 2018 to January 2019 for both acute and wellness visits (Table 1). For the follow-up chart review, the patients were seen by clinicians in the pediatric primary care clinic from April 2019 to May 2019 for both acute and wellness visits (Table 2). The sampling was a random convenience sampling. There were no patient contacts with the DNP student, who conducted the project; therefore, no

identifying information was collected. Electronic access was given to the DNP student. The DNP project consisted of four stages: stage 1 (retrospective chart review); stage 2 (educating/instructing staff about the importance of aligning childhood obesity screening process with the recommended clinical guidelines: intervention); stage 3 (follow-up chart review); and stage 4 (post-intervention questionnaire). All four stages were implemented by the DNP student in the pediatric primary care clinic.

Stage one: Retrospective electronic chart review

Sixty randomly selected patients' electronic charts with the birth years 2002 -2012 (6 – 16 years old) that had been seen from 12/2018- 01/2019 for both acute and wellness visits were reviewed to determine whether the pediatric clinic's staff followed the obesity screening process. The process aligned with the recommended childhood obesity prevention guidelines to electronically document weight and height on all patients ages 6 -16, determine BMI to identify overweight/obese patients, and manage patients' underlying weight issues at the clinic or refer the patient to an interdisciplinary team for appropriate care. Charts were also evaluated to determine what, if any, follow-up recommendations occurred once obesity/overweight was determined. The data were documented into an Excel worksheet by the DNP student. Findings of the retrospective chart review indicated that only 36.7% (22/60 patients') had a mixture of weight and height documented correctly to determine a BMI, were diagnosed as overweight or obese, and were managed at the clinic with follow-up documentation.

Stage two:

Once the obesity screening rates were determined and the measures taken by the clinicians were examined through retrospective chart review finding, the DNP student reviewed/discussed the findings with the clinic staff. The importance of following the nationally

recommended childhood obesity prevention clinical guidelines was stressed. The guideline required screening/collecting and documenting both weight and height on all children with particular attention to those ages 6 - 16 to determine BMI. Second, emphasis was placed on using BMI to diagnose whether patients were overweight or obese; and third, discussed with staff how to manage or refer patients and their families to an interdisciplinary team to ensure better outcomes. All members of the pediatric clinic staff were instructed to collect and electronically document both weight and height for both acute and wellness visits on all patients, especially, ages 6 -16 years of age, document whether patients were overweight or obese, manage patients at the clinic, or refer patients to an interdisciplinary team, and follow-up for better outcomes to prevent childhood obesity. The goal for the staff/clinicians was to significantly maximize the screening rate and the number of patients identified as overweight/obese and, within that group, identify those who would need to be managed or referred in the first few weeks of being identified. Staff were informed that a second review of 60 randomly selected patients' charts would be conducted in 8-weeks' time to determine whether the obesity screening rate had increased in the clinic, how many diagnosed overweight/obese children staff had managed at the clinic, and how many diagnosed children were being referred to an interdisciplinary team for appropriate care and better outcomes.

Stage three: Prospective electronic chart Review

Sixty randomly selected patients' electronic charts with the birth years 2002 -2012 (6 – 16 years old) that had been seen from 04/2018- 05/2019 for both acute and wellness visits were reviewed to determine whether the clinicians at the pediatric clinic's obesity screening process aligned with the recommended clinical childhood obesity prevention guidelines by electronically documenting weight and height on all patients ages 6 -16 to determine BMI. The charts were

also evaluated to determine whether patients were diagnosed as overweight/obese, managed at the clinic, or referred to an interdisciplinary team for a suitable intervention to improve overall health. Charts were evaluated to determine what, if any, follow-up recommendations occurred once obesity/overweight was determined based on anthropometric measurements. The data were documented into an Excel spreadsheet by the DNP student. Findings of the chart review revealed a significant improvement in the clinic's screening rate, overweight/obesity diagnoses, and management at the clinic with follow-up documentations. The rates of a mixture of weight and height documented correctly to determine a BMI, diagnosed as overweight or obese, and managed at the clinic with follow-up documentations increased from 36.6% (22/60 patients) to 91.7% (55/60 patients'). Findings were discussed with the pediatric primary care clinic staff.

Stage four: Post-intervention questionnaire

The post-intervention questionnaire was provided to all the clinicians/staff at the pediatric clinic to determine the usefulness of the amendment made to the clinic's childhood obesity screening process, and obesity management process plus the measures needed to maintain stability. A majority (86%) of the responses indicated that the amendment/change made to the clinic's obesity screening process and obesity management process were useful. In addition, staff (95%) expressed the belief that they will be able to maintain the new standard for better outcomes.

Data collection/procedure

The DNP student performed an electronic retrospective chart review from 12/2018 to 01/2019 to review for pre-intervention, intervention, and an 8-week follow-up chart review to determine whether the amendment made to the clinic's obesity screening process was useful and will be maintained. Data collected related to weight, height, BMI specific-for-age-and-sex,

diagnosis of overweight or obese, and clinician's documentation of counseling/managing patient at the clinic or referring patient. These variables were recorded on an excel spreadsheet and encrypted on the DNP student's personal laptop.

Ethics/protection of human subjects

The project concentrated on practice change related to the implementation of procedures and protocols developed for the monitoring and management of childhood obesity. This DNP project was conducted in a pediatric clinic located in a suburban area in Atlanta, Georgia. To maintain confidentiality, no identifying information was collected. Therefore, there is no link to personal information of individuals or their families and report of the study's results is made in aggregate. Confidentiality was ensured by the DNP student. Statistical analysis was conducted on the patient data; however, the data were anonymous. The DNP student was the only one collecting the data; there was no risk involved in the subjects of this project. Data was disposed/discarded off post completion of the DNP project.

Permission to implement the project at the pediatric clinic was granted by the pediatric primary care clinic. The pediatric primary care clinic (project site) did not require Institutional Review Board (IRB) approval. IRB exemption approval was obtained from the University of Alabama in Huntsville (UAH) IRB. This practice site utilizes the Health Insurance Portability and Accountability Act (HIPAA) in place of consent. Patients/parents complete and sign acknowledgement of privacy practice (HIPAA form) when they first enter the clinic; this notice describes how medical information about the patient may be used and disclosed. Therefore, no patient consent was obtained. There was no incentive given in this project. This project was not funded.

Aligning Stakeholders

In studies seeking to better understand childhood obesity, stakeholders include organizations, government officials, individuals, healthcare professionals, or unorganized groups who declare an interest and stake in the problem. The stakeholders for this project were the following: the clinic's interdisciplinary team, which includes: nurse practitioner, registered nurses, office manager, patients and families, and medical assistants. The involvement of the stakeholders is paramount to the success of the project because of the power or their influence and their interest in the project (Agency for Healthcare and Quality, 2014). With the stakeholders' influence and interest, they can marshal resources for the project and encourage involvement. The clinic's computers and material were utilized for this project.

Potential Barriers to the Project and Strategies to Overcome Them

The following were the potential barriers to the successful undertaking and implementation of this project: 1) stakeholder's lack of knowledge about the project; 2) stakeholders' worries about the cost of this project (i.e., financial restrictions); and 3) unpleasant attitudes toward the project and its value (Melnyk & Fineout-Overholt, 2015, p. 206).

Strategies to overcome potential barriers

The DNP student overcame the potential barriers to the successful undertaking of the study by identifying stakeholders' resistance to change through developing an understanding of the change management theory. Face-to-face information was given to stakeholders regarding aspects of the project and benefits to children, the practice, and the community as a whole.

Instruments/Scales and measurement of outcomes

Weight, height and screening rate for BMI, and a survey questionnaire (see Appendix C) were used as variables in this project. The instrument has been repeatedly tested in numerous

studies with positive outcomes; therefore, it is valid and reliable based on USPTF recommended guidelines for childhood obesity prevention. Utilizing these instruments improves screening rate; improves identification of child at risk for overweight/obesity; and encourages timely intervention for children who are at risk for obesity (American Academy of Pediatrics, 2018). Because this is a true representation of the population, the result, demonstrated through the changes in BMI screening rates, can be duplicated making BMI a reliable indicator.

Evaluation Plan and Data Outcomes: Software/analysis/evaluation

Microsoft Excel and the Statistical Package for Social Sciences (SPSS) software were utilized to analyze data in this project. Data were collected on Excel spreadsheet for both chart reviews. Data were then imported into SPSS software for analysis. Statistical findings were the following: Pre-intervention: 22/60 = 36.7% and Post-intervention: 55/60 = 91.7%

	Screened	Not screened
Pre	22	38
Post	55	5

Chi-square analysis test was used to test for statistical significance (p-value). The odds ratio was also calculated for the finding to show the strength of the association. The odds ratio (OR) of screening was 19 times higher during the post-intervention period versus the pre-intervention period (95% confidence interval [95% CI] = 6.61 – 54.59). Chi-square analysis was used to test for a significant difference in the rate of screening from pre-intervention to post-intervention. Frequency statistics were used to generate the rates for each intervention period. Unadjusted odds ratio (OR) with 95% confidence intervals (95% CI) was used as measure of strength of

association. All analyses were conducted using SPSS Version 25 (Armonk, NY: IBM Corp) and statistical significance was assumed at an alpha value of 0.05.

Statistical Results: The pre-intervention rate of screening was 22/60 or 36.7%. The post-intervention rate was 91.7% (55/60). There was a statistically significant increase in the rate of screening from pre-intervention to post-intervention, $\chi^2(1) = 39.47$, $p < 0.0001$, OR = 19.0, 95% CI 6.61 – 54.59. See Figure 1 for the rates of each intervention period. (See Figure 1).

Adaptation of clinical guidelines for childhood obesity prevention was successfully implemented resulting in a significant increase in the pediatric primary care clinic's screening rate, identification of youth at risk for overweight or obesity and referrals for those who were already overweight or obese. Youth who were diagnosed as overweight or obese and their families were counseled/educated and provided with resources by the clinicians for better outcomes (Table 1, 2, 3 & figure 1).

Discussion

Clinically recommended childhood obesity prevention guidelines are available for pediatric clinicians to utilize to screen and identify at risk children for overweight/obesity; however, adaptation by clinicians in pediatric clinics can be challenging. The importance of abiding by the recommended obesity screening process was easily communicated and appropriately utilized by clinicians to screen all children for overweight/obesity regardless of the type of visit at the pediatric primary care clinic by correctly documenting both weight and height to obtain BMI to determine weight status. The aim of the project was to promote adherence to the nationally recommended childhood obesity screening process by pediatric practice clinicians. The clinicians would become change agents to identify children at-risk for obesity, manage the patients and their families through education to modify lifestyle, provide patients' families with

community resources, and/or refer at-risk patients to an interdisciplinary team for better outcomes. Levin's change management model (unfreeze, change, and refreeze) was used to promote adherence to the guidelines. The obesity screening rate significantly increased at the pediatric clinic evidenced by the correct documentation of both weight and height to calculate BMI to determine weight status. The DNP student received encouraging/supportive feedback from the pediatric primary clinic's staff. The adoption of the recommended screening process improved practice by increasing the obesity screening rate leading to more identification of overweight or obese children whose underlying behaviors could be managed at the clinic or referred to an interdisciplinary team for better outcomes.

Application to Practice

1) Screening rate for childhood obesity to determine BMI and weight status will be increased in pediatric primary care clinics for better outcomes; taking measures to manage obese child in a pediatric primary care clinic or referring obese children and their families to an interdisciplinary team for appropriate care will improve practice. Aligning the pediatric clinics obesity screening process and obesity management process with the recommended clinical obesity prevention guidelines will improve practice.
2) Clinicians/nurses can partner with healthcare administrators and stakeholders to incorporate national clinical childhood obesity prevention guidelines into pediatric clinics' obesity screening process for clinicians to utilize during a patient's clinic visit to identify obese and overweight children for a better outcome and manage or refer these children and their families to an interdisciplinary team for a better outcome.

Limitations

Generalizability is limited due to the size of the pediatric clinic and the number of charts reviewed. Although the sample was small, the increase in rates was significant. Another limitation is the duration of the intervention. The intervention implementation time period was short.

Descriptions of Materials

Development of instrument

1) A questionnaire survey was developed and utilized to gain the clinicians at the pediatric clinic's perception about the project and thoughts of the stability of the change (see Appendix C).
2) DNP student's laptop and the clinic's computers were utilized for this project.

Teaching outline

a) Description of childhood obesity.
b) Prevalence of childhood obesity in the community and the nation as a whole.
c) Recommended national clinical childhood obesity prevention guidelines and the importance of abiding by the guidelines to prevent childhood obesity.
d) Outcomes of utilizing the recommended childhood obesity prevention guidelines to screen children to detect BMI and/or weight status.
e) A literature review of the health-related risk factors associated with overweight/obesity in children (See Appendix F).

Clinical protocol or policy developed

a) Childhood obesity screening processes in the pediatric care clinic was amended to aligned with the recommended childhood obesity prevention guidelines to increase BMI screening rate (see Appendix F).

b) **Timeline for the Project**:

1. 08/16/2018: visited the clinic to discuss the DNP project with the clinical mentor to determine the need for the project at the clinic.
2. 10/05/2018: Met with the clinic staff (i.e., MD, NPs, MAs, and office manager) to discuss what the project entails and asked for permission to utilize the electronic charting system.
3. 12/19/2018: obtained a letter from the clinic stating that the clinic does not need IRB
4. 02/13/2019: Project Implementation Review (PIR) meeting
5. 02/26/2019: obtained a permission letter to utilized/have access to the clinic's database
6. 03/12/2019 & 04/10/2019: obtained IRB approval from UAH.
7. 03/18/2019: Conducted retrospective chart review for 12/2018 – 01/2019 charts
8. 03/21/2019: Reviewed findings from the reviewed chart and the changes needed to make to the clinic's database to align with the USPSTF guidelines to the staff plus educate to prepare staff for the change.
9. 03/20/2019 - 03/29/2019: Conducted staff education regarding the importance of aligning clinic's obesity screening process with the USPSTF's recommended childhood obesity guidelines to increase screening rate.
10. 03/29/2019 – 06/04/2019: Staff began utilization of the USPSTF's childhood obesity prevention guidelines to screening rate at the clinic.

11. 06/05/2019 – 06/06/2019: Conducted follow-up chart review for chart from 04/01/2019 – 06/01/2019 done by the DNP student. Data entered into excel software and encrypted. Discussed prospective chart review findings with staff and the clinical mentor. Post-intervention questionnaire survey was provided to the staff and collected for analysis.
12. 06/24/2019: discussed findings with the DNP project Chairperson.
13. 08/23/2019: Submit final paper to faculty chair
14. 10/09/2019: Project Final Presentation.
15. 11/01/2019: Submission of DNP Project to College Dean.
16. 11/15/2019: Non-Thesis Final Oral Exam

Conclusion

This quality improvement project has shown the effectiveness of adopting a recommended clinical guideline for childhood obesity prevention in a pediatric primary care clinic. Abiding by the recommended clinical guidelines in a pediatric clinic guided the clinicians to screen all children, especially children and adolescents 6 years and older for BMI by correctly documenting both weight and height in the electronic charting system to determine weight status. This project led to an increase in the obesity screening rate at the clinic. In addition, there was an increase in the clinicians' identification of children and adolescents who were at risk for obesity and clinician management of the diagnosed obese youth and the families in the clinic or referral for better outcomes. Correctly documenting child's weight and height to determine BMI regardless of the type of visit at a pediatric primary clinic is an important first step in identification of children who are obese or at risk of becoming obese. Nurses provide care, counseling, advocating, and assistance to patients and their communities. Pediatric nurses must consider the importance of screening children to determine weight status and managing care

with the patient and family at the clinic or refer to an interdisciplinary team for healthful outcomes. Identification of children at risk of being or becoming obese is the first step in successfully reducing childhood obesity rates and promoting health.

Professional Journal Selection

Scope of the Journal

Pediatric Nursing Journal is the premier resource for evidence-based clinical information, research studies, and advances in child health care. Published six times a year. Pediatric Nursing presents information that is both theoretically grounded and clinically relevant to educate the novice, enrich the generalist, and advance the pediatric specialist toward providing professional care of the highest quality.

Aim of the Journal

The aim of Pediatric Nursing Journal is to reflect trends, policies, practice, and research in pediatric nursing.

Title of Manuscript

Adaptation of Clinical Guidelines to Improve Childhood Obesity Screening

Manuscript

Adaptation of Clinical Guidelines to Improve Childhood Obesity Screening

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Abstract

Childhood obesity is a deadly disorder impacting the health of youth within our communities. Childhood obesity is a substantial global health burden. Approximately 12.7 million (16%) United States (US) children are obese. Childhood obesity rates among US youth ages 2 – 19 years have reached 18.9% (13.7 million) with its associated medical complications cost topping $14 billion and is expected to increase. The etiology is both behavioral and genetic.

Question: Will aligning a pediatric primary care clinic's screening process with nationally recommended clinical childhood obesity prevention guidelines increase screening rates and maximize the detection of overweight/obese children to ensure proper follow-up in 8 weeks?

Procedure: Pre-intervention chart reviews were conducted on a randomly-selected sample size of 60 patients within the age ranges of 6 – 16 years seen in a pediatric primary care clinic located in a suburban area of Atlanta, Georgia from 12/2018 – 01/2019. Following an educational intervention on the recommended standards and results of the initial chart review, a post-intervention chart review was conducted on patients seen between 04/2019 – 05/2019.

Findings: The pre-intervention rate of screening was 22/60 (36.7%). The post-intervention rate was 55/60 (91.7%). This indicates a statistically significant increase in the rate of screening from pre-intervention to post-intervention, $\chi^2(1) = 39.47$, $p < 0.0001$, OR = 19.0, 95% CI 6.61 – 54.59.

Conclusion: Education on national standards for obesity screening improved rates of screening pediatric patients in a pediatric primary care clinic.

Keywords: Childhood obesity screening, BMI screening in children, guidelines for childhood obesity, childhood obesity prevention.

Childhood obesity is a non-communicable disorder negatively impacting the health of youth in our communities (Weiss, Yepiz, Mouttapa, McMahan, and Gedissman, 2015). Childhood obesity leads to chronic conditions such as type 2 diabetes, fatty liver disease, hypertension, hyperlipidemia, stroke, metabolic syndrome, sleep disorders, chronic respiratory disorders, musculoskeletal disorders, vascular issues, integumentary issues, gastrointestinal disorders and mental health issues (Mayo Clinic, 2018). Sadly, these life altering clinical conditions were previously only seen in adults.

Childhood obesity is a substantial global health burden, especially in the United States (US). This condition is viewed as a public health concern. Overweight and obesity status in children is determined by body mass index (BMI= kg/m^2 (kilograms/height in meters squared)), which is sex-and age-specific (BM-for-age). The Centers for Disease Control and Prevention (CDC) utilizes age and sex-specific percentiles for BMI to decide a child's weight status (CDC, 2018). In children, a BMI equal to or above the 85th percentile but below the 95th is considered overweight, while a BMI equal to or above the 95th percentile is considered obese (CDC, 2018). Approximately 16% (12.7 million) of children and adolescents aged 2 to 19 in the US had a BMI at or greater than the 95th percentile in 2012 (CDC, 2014). Numerous studies have found the etiology for childhood obesity to be both behavioral and genetics (Mayo Clinic, 2018). Being overweight or obese places burdens on the health of individuals, a burgeoning issue that requires interventions and measures to help reduce the prevalence of the condition within both current and future generations. Effectively identifying and implementing interventions to manage at a pediatric clinic or referring obese children to an interdisciplinary team can help prevent childhood obesity and its associated complications affecting US youth (Van Kruk, Kortekaas, Lucas, and Jager-wittnaar, 2013).

Clinicians working in pediatric care settings can play an essential role in screening, monitoring, managing, and prevention of childhood obesity. Pediatric clinicians are frontline healthcare personnel who can effectively identify children who are already overweight or obese or who are at risk of becoming overweight or obese, then guide the whole family to make choices that will lead to long-term improvements in their overall health outcomes. Financial burden is also one of the consequences of childhood obesity. Therefore, interventions which can achieve reductions in the rate of obesity are also likely to reduce its financial burden. The pediatric level is therefore the most effective place to offer this type of health intervention. Parents might 'buy-in' if they were fully aware of the cost-effectiveness of preventive measures (Vine, Hargreaves, Briefel, & Orfeld, 2013).

The Institute of Medicine (IOM) has recommended healthcare providers to maximize their role in measuring (screening) and utilizing BMI-specific-for-age to detect the weight status of pediatric patients, while also collaborating with interdisciplinary teams to provide appropriate care for better health outcomes (Daniels & Hassink, 2015). Maximizing the use of screening for childhood obesity, healthy lifestyle education, referral and follow-ups, and family lifestyle modification as a family are the recommended approaches to reduce childhood obesity and promote an overall healthy lifestyle. However, many clinicians are not following the recommended clinical guidelines to screen for childhood obesity. In spite of the severity of the childhood obesity prevalence in US, a recent study revealed that only 38.5% of family physicians and 68% of US pediatricians routinely assessed weight status utilizing BMI percentile in their pediatric population, despite the majority measuring the height and weight of their patients (Huang, Borowski, Liu, Galuska, Ballard-Barbarsh, Yanovski, Olster, Atienza, and Smith, 2011). Furthermore, a majority of the clinicians reported not referring patients to an interdisciplinary

team for further evaluation and management or follow-up with the patients' lifestyle modification status. These results suggest that clinicians and other healthcare professionals have considerable room for improvement in screening for weight status in a pediatric clinical setting (Huang, et al., 2011).

Increasing rates of routine screening and relaying of such information to interdisciplinary teams and the patient as well as their families has the potential to enable a comprehensive approach to reduce rates of childhood obesity (Huang et al., 2011). The US Preventive Services Task Force (USPSTF) guidelines for childhood obesity prevention states that all children and adolescents between the ages of 6 -18 should be screened by utilizing both weight and height so these children's BMI and weight status can be educated. Afterward, those who are found to be overweight or obese can be included in prevention and reduction programs (American Academy of Pediatrics, 2018). Childhood obesity screening protocols have recently been introduced to pediatric clinicians in a suburban area in Atlanta, GA. The clinicians were not following the nationally recommended guidelines to effectively screen all children 6 years and older to determine BMI/weight status to manage patients appropriately or refer patients and their families for better outcomes.

In this project, patients' electronic charts were retrospectively and prospectively reviewed as pre-intervention and post-intervention respectively to determine whether the clinic's clinicians were abiding by the recommended guidelines to screen children and adolescents to determine BMI/weight status by correctly documenting both weight and height in the clinic's database and manage or refer patients as appropriate for better outcomes.

Purpose

The purpose of this quality improvement project was to improve the adherence to national obesity guidelines of clinicians in a primary care clinic. For the purposes of this project, the DNP student focused on the age groups of 6-16 The specific PICOT question was: Will aligning a pediatric primary care clinic's screening process with nationally recommended clinical childhood obesity prevention guidelines increase screening rates and maximize the detection of overweight/obese children to ensure proper follow-up in 8 weeks?

The project was designed to improve clinicians' proficiency in identifying children at risk for obesity. This was achieved by chart reviews to determine whether clinicians were aligned with the nationally recommended childhood obesity prevention guidelines. The process engaged the clinicians by sharing issues surrounding childhood obesity and increasing their knowledge of the nationally recommended guidelines. The broader aim of the study was the consideration of how such practices might improve the overall health of children.

Design and Implementation

Design/ Sample/setting /Data collection/procedure

This DNP project was conducted in a pediatric primary care clinic in a suburban area of Atlanta, Georgia. The clinic staff consisted of one office manager, one medical doctor (MD), three nurse practitioners (NPs), and three medical assistants (MAs). The quality improvement project consisted of pre-intervention and post-intervention electronic chart reviews on a randomly selected sample size of 60 patients who fell within the age ranges of 6 – 16 years of age (birth years 2002 – 2012). For the pre-intervention chart review, patients were selected who had been seen during the months of December 2018 to January 2019 for both acute and wellness visits (Table 1). For the post-intervention chart review, patients who were seen from April 2019

to May 2019 for both acute and wellness visits (Table 2). The sampling was a random convenience sampling. No identifying information was collected. Permission to implement this project at the pediatric clinic was granted by the pediatric primary care clinic. The pediatric primary care (project site) did not require Institutional Review Board (IRB) approval. IRB exemption approval was obtained from the University of Alabama in Huntsville (UAH) IRB. No incentive was offered to the participants for their involvement in the study. This practice utilizes the Health Insurance Portability and Accountability Act (HIPAA) in place of consent. Patients/parents complete and sign acknowledgement of privacy practice (HIPAA form) when they first enter the clinic; this notice describes how medical information about the patient may be used and disclosed. Therefore, no consent was obtained. There was no incentive for the given in this project. This project was not funded.

The project was comprised of four stages: stage 1: Pre-intervention chart review); stage 2: Intervention educating/instructing staff about the importance of aligning childhood obesity screening process with the recommended clinical guidelines); stage 3: Post-intervention chart review; and stage 4: Post-intervention questionnaire, which comprised the following were implemented to gain the clinicians' insight of the (See Figure 1):

Stage one: Pre-intervention electronic chart review

Sixty randomly selected electronic charts of patients with the birth years 2002 -2012 (6 – 16 years old) who had been seen from 12/2018- 01/2019 for both acute and wellness visits were reviewed to determine whether the clinicians' obesity screening process aligned with the recommended clinical childhood obesity prevention guidelines. This process required clinicians to electronically document weight and height on all patients ages 6 -16 to determine BMI to identify overweight/obese patients, manage patients' underlying weight issues at the clinic, or

refer patient to an interdisciplinary team for an appropriate care. Charts were also evaluated to determine if any follow-up recommendations occurred once obesity/overweight was determined. The data were documented in an Excel worksheet. Findings of the pre-intervention chart review indicated that only 36.7% (22/60 patients') had weight and height documented correctly to determine a BMI, were diagnosed as overweight or obese, and were managed at the clinic with follow-up documentation (See Table 1).

Stage two: Intervention

Once the obesity screening rate and the measures taken by the clinicians were determined, the findings were reviewed with the clinic staff. Of importance was collecting and documenting both weight and height on all children with particular attention to the ages of 6 - 16 to determine BMI. Second, to use the BMI to diagnose whether patients were overweight or obese; and third, to initiate a discussion with staff about how to manage or refer patients and their families to an interdisciplinary team to ensure better outcomes were discussed. All members of the pediatric clinic staff were instructed to collect and electronically document both weight and height for both acute and wellness visits on all patients with a focus on those 6 -16 years of age, and to document whether the patients were overweight or obese, were they managed at the clinic or referred to an interdisciplinary team, and follow-up provided. The goal for the staff/clinicians was to significantly increase the screening rate and the number of patients identified as overweight/obese and, within that group, identify those who would need to be managed or referred in the first few weeks of being identified. Staff were informed that 60 randomly selected patients' charts would be reviewed in 8-weeks to determine whether the obesity screening rate had increased, how many diagnosed overweight/obese children had been

managed at the clinic, and how many diagnosed children had been referred to an interdisciplinary team.

Stage three: Post-Intervention electronic chart review

Sixty electronic charts of patients with the birth years 2002 -2012 (6 – 16 years old) who had been seen from 04/2018- 05/2019 for both acute and wellness visits were randomly selected. These were reviewed to determine if the obesity screening process aligned with the recommended clinical childhood obesity prevention guidelines. The charts were reviewed to determine if the intervention affected the staff's documentation and management of obesity as previously stated. The data were documented in an Excel spreadsheet. Findings of the post-intervention chart review revealed a significant improvement. The rate of weight and height documented correctly to determine a BMI, diagnosed as overweight or obese, and managed at the clinic with follow-up documentations increased from 36.6% (22/60 patients) to 91.7% (55/60 patients') The overall post-intervention rate including screening rate and interventions rate (See Table 2). Findings were discussed with the pediatric primary care clinic staff.

Stage four: Post-intervention questionnaire

The post-intervention questionnaire was provided to all the clinicians/staff at the pediatric clinic to determine the usefulness of aligning the clinic's childhood obesity screening process with the nationally recommended childhood obesity prevention guidelines. Majority of the response indicated that the change made to the clinic's obesity screening process and obesity management process were useful and staff verbalized a belief that they will be able to maintain the new standard for better outcomes (See Table 3).

Statistical Analysis

Microsoft Excel and the Statistical Package for Social Sciences (SPSS) software was utilized to analyze data in this project. Data was collected on Excel spreadsheet for both retrospective and prospective phases of the project. Data was then imported into SPSS software for analysis. Statistical findings: Pre-intervention: 22/60 = 36.7% and Post-intervention: 55/60 = 91.7% (See Table 4)

Chi-square analysis test was used to test for statistical significance (p-value). The odds ratio was calculated for the finding to show the strength of the association. The odds ratio (OR) of screening was 19 times higher during the post-intervention period versus the pre-intervention period (95% confidence interval [95% CI] = 6.61 – 54.59). Statistical Methods: Chi-square analysis was used to test for a significant difference in the rate of screening from pre-intervention to post-intervention. Frequency statistics were used to generate the rates for each intervention period. Unadjusted odds ratio (OR) with 95% confidence intervals (95% CI) was used as a measure of strength of association. All analyses were conducted using SPSS Version 25 (Armonk, 2017, NY: IBM Corp) and statistical significance was assumed at an alpha value of 0.05.

Results

The pre-intervention rate of screening was 22/60 or 36.7%. The post-intervention rate was 91.7% (55/60). There was a statistically significant increase in the rate of screening from pre-intervention to post-intervention, $\chi^2(1) = 39.47$, $p < 0.0001$, OR = 19.0, 95% CI 6.61 – 54.59. See Figure 2 for the rates of each intervention period.

Adaptation of clinical guidelines for childhood obesity prevention successfully took place resulting in a significant increase in the pediatric primary care clinic's screening rate,

identification of youth at risk for overweight or obesity and those who were already overweight or obese. Youth who were diagnosed as overweight or obese and their families were counseled/educated and provided with resources by the clinicians for better outcomes.

Discussion

Despite the fact that childhood obesity and its associated complications are increasing at an alarming rate, many clinicians are not routinely screening pediatric patients for obesity by obtaining and documenting both weight and height for every patient encounter to determine BMI and weight status. Clinically recommended obesity prevention guidelines are available for clinicians to screen and identify at risk children for overweight/obesity; however, adaptation by clinicians in pediatric clinics can be challenging. Only 22 out of 60 (36.7%) pediatric patients were routinely screened appropriately for obesity through correct documentation of both weight and height to determined BMI or weight status. Counseling, obesity management at the clinic, referral, and follow-ups were limited in the pre-intervention. Identified at-risk for obesity and obese patients together with their families were not often counseled as recommended by the USPSTF to help prevent childhood obesity.

The clinic staff was instructed on the importance of following the nationally recommended childhood obesity screening process. The guidelines call for clinicians to screen all children and adolescents for BMI to determine-weight status regardless of the type of visit. The clinic staff improved their screening process by correctly documented both weight and height to obtain an accurate BMI on their patients. 55 out of 60 (91.7%) patients were appropriately screened for obesity by correctly documenting both weight and height, diagnosed as overweight or obese, counseled many diagnosed patients together with their families, more diagnosed patents were managed or referred out with follow-up in the post-intervention.

These data prove that adaptation of nationally recommended clinical childhood obesity prevention guidelines helps clinicians to effectively screen, diagnose, manage, or refer at-risk for or obese children and follow-up for healthful outcomes. Significant differences are noted between pre-intervention and post-intervention with regards to the prevalence of identifying overweight/obesity, delivering counseling, managing obesity, or referring and follow-ups. These may be resulted from the strong emphasis on the USPSTF recommended childhood obesity prevention education provided to the clinicians at this pediatric primary care clinic. The project aims were to help the pediatric practice to follow the nationally recommended childhood obesity prevention guidelines, guide the clinicians to become change agents to identify children at-risk for obesity, and manage the patients and their families through education to modify lifestyle. The lifestyle modification provides patients' families with community resources, and referral of at-risk patients to an interdisciplinary team for better outcomes.

Adaptation of clinically recommended guidelines to screen children to identify overweight and obese children was viewed as successful in increasing obesity screening rate at the practice. Obesity screening rates significantly increased at the pediatric clinic through correct documentation of both weight and height to calculate BMI and follow up or referral to obesity team. The increase in screening rates indicate a change in clinicians' recognition of the importance of diagnosing and managing obesity early to help prevent the disorder, reduce the rate, or help eradicate the condition and its associated co-morbidities or complications. The DNP student received encouraging/supportive feedback from the pediatric primary clinic's staff. The adaption of the recommended screening process improved practice by increasing the obesity screening rates leading to more identification of overweight or obese children whose underlying

behaviors could be managed at the clinic or referred to an interdisciplinary team for better outcomes.

Limitation

The project's limitation is the generalizability due to the size of the pediatric clinic and the number of charts reviewed. Though the sample was small, the increase in rates was statistically significant. Another limitation is the duration of the intervention. The intervention implementation time period was short.

Application to Practice

Screening rates for childhood obesity to determine BMI and weight status can be increased in pediatric primary care clinics or settings for better patient outcomes. Taking measures to manage obese children in a pediatric primary care clinic or referring obese children and their families to an interdisciplinary team for appropriate care will improve practice. Aligning the pediatric clinics obesity screening process and obesity management process with the recommended clinical obesity prevention guidelines will improve practice. Clinicians/nurses can partner with healthcare administrators and stakeholders to incorporate nationally recognized clinical childhood obesity prevention guidelines into pediatric clinics' obesity screening process. Clinicians can utilize the nationally recognized clinical during a pediatric patient's clinic visit to identify obese and overweight children for a better outcome. Following the nationally recognized clinical childhood obesity prevention guidelines will most importantly guide clinician to manage or refer these children and their families to an interdisciplinary team for a better outcome.

Conclusion

This quality improvement project has shown the effectiveness of adapting a recommended clinical guideline for childhood obesity prevention in a pediatric primary care

clinic. Abiding by the recommended clinical guidelines in a pediatric clinic guided the clinicians to screen all children, regardless of visit type, for BMI by correctly documenting both weight and height to determine weight status. The project helped increased the practices' obesity screening rate, ultimately leading to an increase in identification of children and adolescents at risk for obesity. It also prompted the clinicians to either implement management strategies for the children and families in the clinic or refer to multidisciplinary teams for better outcomes. Correctly documenting the child's weight and height to determine BMI regardless of the type of visit at a pediatric primary clinic is the first and important step to identify children who are obese or at risk of becoming obese. Incorporating a screening process can help reduce childhood obesity rate or prevent the disorder. Nurses will continue to provide care, counseling, advocating, and assistance to patients and their communities; therefore, being consistent and knowledgeable in those tasks by abiding by the nationally recommended guidelines is important. Pediatric clinicians must consider the importance of screening children aged 6 – 16 to determine weight status and manage together with the families at the clinic or refer to an interdisciplinary team for healthful outcome. identification of children at risk of being or becoming obese is the first step in successfully reducing childhood obesity rates and promote health.

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Table 1. Pre-intervention chart review result:

Randomly selected 60 patients' chart for pre-intervention chat review.								
Charts	Sex: Girl = 1, Boy = 2	Weight in lbs	Height	BMI Percentile	Overweight	Obese	Documented staff intervention	NP/MD/STUDENT
1	1	83.9	4' 10.5"	66th				NP
2	1	65	4' 4"	73th				NP
3	2	81	NOT DONE	NOT DONE				NP
4	1	59	4' 3"	70th				NP
5	1	91	4' 8"	70th				MD
6	2	88	5' 0"	28th				NP
7	2	60	NOT DONE	NOT DONE				NP
8	1	62	NOT DONE	NOT DONE				MD
9	2	NOT DONE	NOT DONE	NOT DONE				NP
10	1	41	NOT DONE	NOT DONE				MD
11	2	NOT DONE	NOT DONE	NOT DONE				NP
12	1	50	NOT DONE	NOT DONE				NP
13	2	56	NOT DONE	NOT DONE				NP
14	1	92	NOT DONE	NOT DONE				MD
15	1	56	NOT DONE	NOT DONE				NP
16	2	62	NOT DONE	NOT DONE				MD
17	1	51	NOT DONE	NOT DONE				MD
18	1	54	NOT DONE	NOT DONE				NP
19	1	98	5' 4"	82th				MD
20	2	109	NOT DONE	NOT DONE				NP
21	1	121	NOT DONE	NOT DONE				MD
22	2	82	4' 8.5"	91th	OVERWEIGHT		NO INTERVENTION DOCUMENTED	NP
23	2	80	NOT DONE	NOT DONE				NP
24	1	46	3' 8.5"	75th				MD
25	1	68	NOT DONE	NOT DONE				MD
26	2	62	3' 11"	98th		OBESE	NO INTERVENTION DOCUMENTED	NP
27	1	68	NOT DONE	NOT DONE				MD
28	2	48	4' 0"	26th				NP
29	1	124	5' 5"	88th	OVERWEIGHT		DIETARY AND EXERCISE COUNSELING	MD
30	1	91	NOT DONE	NOT DONE				MD
31	2	101	4' 7.5"	98th		OBESE	DIETARY AND EXERCISE COUNSELING PLUS FOLLOW UP	MD
32	1	59	NOT DONE	NOT DONE				NP
33	1	47	NOT DONE	NOT DONE				MD
34	2	218	5' 1"	99th		OBESE	DIETARY AND EXERCISE COUNSELING PLUS FOLLOW UP	NP
35	1	64	4' 6'	24th				NP
36	2	145	4' 9"	99th		OBESE	NO INTERVENTION DOCUMENTED	NP
37	1	237	5' 6"	99th		OBESE	DIETARY AND EXERCISE COUNSELING PLUS FOLLOW UP	NP
38	1	130	5' 1"	92th	OVERWEIGHT		NO INTERVENTION DOCUMENTED	MD
39	1	75	4' 3"	87th	OVERWEIGHT		NO INTERVENTION DOCUMENTED	NP
40	2	42	NOT DONE	NOT DONE				NP
41	1	58	NOT DONE	NOT DONE				NP
42	1	105	NOT DONE	NOT DONE				NP
43	2	54	NOT DONE	NOT DONE				NP
44	1	84	4' 11"	84th				NP
45	1	59	3' 9.8	95th		OBESE	NO INTERVENTON DOCUMENTED	NP
46	2	71	4' 4.5"	86th	OVERWEIGHT		NO INTERVENTON DOCUMENTED	MD
47	2	51	NOT DONE	NOT DONE				NP
48	1	78	NOT DONE	NOT DONE				MD
49	2	76	NOT DONE	NOT DONE				NP
50	1	171	NOT DONE	NOT DONE				NP
51	2	NOT DONE	NOT DONE	NOT DONE				MD
52	1	59	NOT DONE	NOT DONE				NP
53	2	75	NOT DONE	NOT DONE				MD
54	1	52	NOT DONE	NOT DONE				NP
55	1	126	5' 3.5	98th		OBESE		NP
56	1	77	NOT DONE	NOT DONE				NP
57	2	206	NOT DONE	NOT DONE				MD
58	2	101	NOT DONE	NOT DONE				NP
59	1	68	NOT DONE	NOT DONE				NP
60	1	78	NOT DONE	NOT DONE				NP

Table 2. Post-intervention chart review result:

Randomly selected 60 patients' chart for post-intervention chat review								
Charts	Sex: Girl = 1, Boy = 2	Weight in lbs	Height	BMI Percentile	Overweight	Obese	Documented staff intervention	NP/MD/STUENT
1	2	81	4' 2"	96th		OBESE	DIETARY AND EXERCISE COUNSELING	MD
2	1	136	5' 2.5"	95th		OBESE	DIETARY AND EXERCISE COUNSELING	NP
3	1	99	5' 0"	74th				NP
4	2	163	5' 4"	98th		OBESE	DIETARY AND EXERCISE COUNSELING	MD
5	1	110	5' 1"	79th				NP
6	1	124	5' 9"	44th			DIETARY AND EXERCISE COUNSELING	NP
7	2	131	5' 9.5"	27th				MD
8	1	272	5' 6"	99th		OBESE	DIETARY AND EXERCISE COUNSELING PLUS FOLLOW UP	NP
9	2	69	4' 6.5"	44th			DIETARY AND EXERCISE COUNSELING	MD
10	1	154	5' 4"	91th	OVERWEIGHT		DIETARY AND EXERCISE COUNSELING	MD
11	2	110	5' 5"	10th				NP
12	1	104	4' 8"	96th		OBESE	DIETARY AND EXERCISE COUNSELING	MD
13	1	84	4' 10"	70th				NP
14	2	62	NOT DONE	NOT DONE				NP
15	2	86	4' 10"	53th				NP
16	1	105	5' 1"	76th			DIETARY AND EXERCISE COUNSELING	NP
17	2	151	5' 4"	95th		OBESE	DIETARY AND EXERCISE COUNSELING	MD
18	1	71	4' 2"	43th			DIETARY AND EXERCISE COUNSELING	NP
19	1	120	5' 9"	35th				NP
20	1	85	4' 8.5"	26th				NP
21	2	66	NOT DONE	NOT DONE				MD
22	1	66	4' 6"	52th				MD
23	1	143	5' 3"	86th	OVERWEIGHT		NOT DONE	NP
24	2	51	3' 10"	84th			DIETARY AND EXERCISE COUNSELING	NP
25	2	50	4' 0"	36th			DIETARY AND EXERCISE COUNSELING	NP
26	2	58	4' 1"	80th				MD
27	1	49	3' 10"	78th				NP
28	2	55	4' 3"	33th				NP
29	2	58	NOT DONE	NOT DONE				NP
30	1	47	3' 11"	37th			DIETARY AND EXERCISE COUNSELING	MD
31	1	59	3' 8"	99th		OBESE	DIETARY AND EXERCISE COUNSELING PLUS FOLLOW UP	MD
32	2	67	4' 3"	91th	OVERWEIGHT		NOT DONE	NP
33	2	68	4' 4"	26th				MD
34	1	103	5' 0.5"	59th				NP
35	2	181	5' 3"	99th		OBESE	DIETARY AND EXERCISE COUNSELING PLUS FOLLW UP	NP
36	2	113	NOT DONE	NOT DONE				NP
37	2	180	5' 3"	99th		OBESE	DIETARY AND EXERCISE COUNSELING	NP
38	1	58	3' 11"	86th	OVERWEIGHT		NOT DONE	NP
39	1	55	4' 1"	46th				NP
40	2	43	3' 11"	4th			DIETARY AND EXERCISE COUNSELING	NP
41	1	55	4' 1"	64th				MD
42	2	66	4' 5"	73th				MD
43	2	99	4' 7"	97th		OBESE	DIETARY AND EXERCISE COUNSELING	NP
44	1	119	5' 5"	48th				MD
45	1	97	5' 1"	85th	OVERWEIGHT		DIETARY AND EXERCISE COUNSELING	NP
46	1	109	4' 10"	95th		OBESE	DIETARY AND EXERCISE COUNSELING	NP
47	2	112	5' 5"	31th				NP
48	2	100	5' 3"	48th				NP
49	2	72	4' 4"	86th	OVERWEIGHT		DIETARY AND EXERCISE COUNSELING	NP
50	2	67	4' 5"	52th				MD
51	1	54	NOT DONE	NOT DONE				MD
52	2	68	4' 9"	6th				MD
53	2	58	4' 0"	83th			DIETARY AND EXERCISE COUNSELING	NP
54	1	143	4' 10"	98th			DIETARY AND EXERCISE COUNSELING PLUS FOLLOW UP	MD
55	1	53	4' 3"	17th				NP
56	2	51	4' 1"	28th				NP
57	2	58	4' 2"	53th				NP
58	1	44	3' 9"	46th				NP
59	2	65	4' 9"	10th				NP
60	2	53	3' 11"	79th				NP

Table 3 Results both pre-intervention and post-intervention chart review:

Randomly selected 60 patient electronic charts for both pre-intervention and post-intervention reviews		
Dates	Patients correctly screened for BMI/diagnosed/managed/referred	Number of electronic charts reviewe
12/2018 - 01/2019 (Pre-intervention)	22	
04/2019 - 05/2019 (Post-intervention)	55	

Table 4. **Number of patients screened/diagnosed/managed and number of patients not screened**

	Screened	Not screened
Pre	22	38
Post	55	5

Figure 1: Post-Interventional Questionnaire:

Please help to improve practice by providing a feedback on the project implemented at the clinic. Our interest is your true or sincere opinion, either positive or negative. Please provide answers to all the questions. Your suggestions and comments are also welcome. Thank you so much. Your help is well appreciated. Please circle your answers for questions 1-5:

1. Did the screening process effectively identify children at risk for overweight or obesity? Yes, completely effective; Somewhat effective; did not work most of the time; Not at all effective

2. Did you feel that collecting and documenting both weight and on every patient to calculate BMI helps clinicians to identify at-risk children for overweight/obesity and manage or refer patients for better outcome(s)? Yes or No

3. Did you feel that Abiding by the recommended clinical guidelines to screen children for obesity increase the obesity screening rate at the clinic? Yes or No

4. Did you feel that study/project helps clinicians to correctly detect overweight and obese children then manage these children at the clinic or refer these children together with their families to an interdisciplinary team for better outcome? Yes, I completely felt it did; It sometimes did; Hardly did; No, I did not feel that.

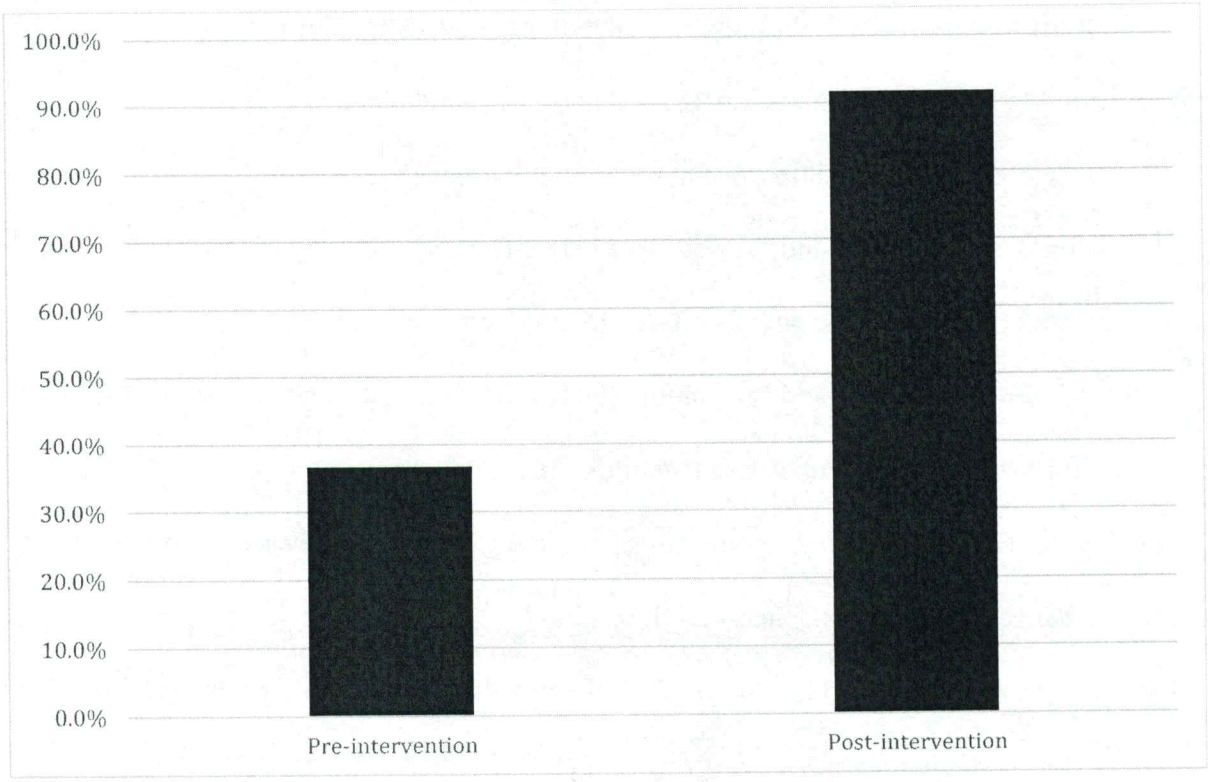
5. Do think abiding with the recommended clinical guidelines to screen children 6 years and older for obesity and manage these children at the clinic or refer them and their families for appropriate care will improve practice and lead to financial reimbursement from organizations such as Center for Medicare & Medicaid Services (CMS).

Yes, It will; Somewhat; Will not most of the time; Not at all

All four stages were implemented by the DNP student in the pediatric primary care clinic. The following sections provide details of each stage:

Figure 2

Rates of Screening



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TABLES

Table 1. Retrospective chart review result:

Randomly selected 60 patients' charts for retrospective chat review.

Charts	Sex: Girl = 1, Boy = 2	Weight in lbs	Height	BMI Percentile	Overweight	Obese	Documented staff intervention	NP/MD/STUDENT
1	1	83.9	4' 10.5"	66th				NP
2	1	65	4' 4"	73th				NP
3	2	81	NOT DONE	NOT DONE				NP
4	1	59	4' 3"	70th				NP
5	1	91	4' 8"	70th				MD
6	2	88	5' 0"	28th				NP
7	2	60	NOT DONE	NOT DONE				NP
8	1	62	NOT DONE	NOT DONE				MD
9	2	NOT DONE	NOT DONE	NOT DONE				NP
10	1	41	NOT DONE	NOT DONE				MD
11	2	NOT DONE	NOT DONE	NOT DONE				NP
12	1	50	NOT DONE	NOT DONE				NP
13	2	56	NOT DONE	NOT DONE				NP
14	1	92	NOT DONE	NOT DONE				MD
15	1	56	NOT DONE	NOT DONE				NP
16	2	62	NOT DONE	NOT DONE				MD
17	1	51	NOT DONE	NOT DONE				MD
18	1	54	NOT DONE	NOT DONE				NP
19	1	98	5' 4"	82th				MD
20	2	109	NOT DONE	NOT DONE				NP
21	1	121	NOT DONE	NOT DONE				MD
22	2	82	4' 8.5"	91th	OVERWEIGHT		NO INTERVENTION DOCUMENTED	NP
23	2	80	NOT DONE	NOT DONE				NP
24	1	46	3' 8.5"	75th				MD
25	1	68	NOT DONE	NOT DONE				MD
26	2	62	3' 11"	98th		OBESE	NO INTERVENTION DOCUMENTED	NP
27	1	68	NOT DONE	NOT DONE				MD
28	2	48	4' 0"	26th				NP
29	1	124	5' 5"	88th	OVERWEIGHT		DIETARY AND EXERCISE COUNSELING	MD
30	1	91	NOT DONE	NOT DONE				MD
31	2	101	4' 7.5"	98th		OBESE	DIETARY AND EXERCISE COUNSELING PLUS FOLLOW UP	MD
32	1	59	NOT DONE	NOT DONE				NP
33	1	47	NOT DONE	NOT DONE				MD
34	2	218	5' 1"	99th		OBESE	DIETARY AND EXERCISE COUNSELING PLUS FOLLOW UP	NP
35	1	64	4' 6'	24th				NP
36	2	145	4' 9"	99th		OBESE	NO INTERVENTION DOCUMENTED	NP
37	1	237	5' 6"	99th		OBESE	DIETARY AND EXERCISE COUNSELING PLUS FOLLOW UP	NP
38	1	130	5' 1"	92th	OVERWEIGHT		NO INTERVENTION DOCUMENTED	MD
39	1	75	4' 3"	87th	OVERWEIGHT		NO INTERVENTION DOCUMENTED	NP
40	2	42	NOT DONE	NOT DONE				NP
41	1	58	NOT DONE	NOT DONE				NP
42	1	105	NOT DONE	NOT DONE				NP
43	2	54	NOT DONE	NOT DONE				NP
44	1	84	4' 11"	84th				NP
45	1	59	3' 9.8	95th		OBESE	NO INTERVENTON DOCUMENTED	NP
46	2	71	4' 4.5"	86th	OVERWEIGHT		NO INTERVENTON DOCUMENTED	MD
47	2	51	NOT DONE	NOT DONE				NP
48	1	78	NOT DONE	NOT DONE				MD
49	2	76	NOT DONE	NOT DONE				NP
50	1	171	NOT DONE	NOT DONE				NP
51	2	NOT DONE	NOT DONE	NOT DONE				MD
52	1	59	NOT DONE	NOT DONE				NP
53	2	75	NOT DONE	NOT DONE				MD
54	1	52	NOT DONE	NOT DONE				NP
55	1	126	5' 3.5	98th		OBESE		NP
56	1	77	NOT DONE	NOT DONE				NP
57	2	206	NOT DONE	NOT DONE				MD
58	2	101	NOT DONE	NOT DONE				NP
59	1	68	NOT DONE	NOT DONE				NP
60	1	78	NOT DONE	NOT DONE				NP

TABLES

Table 2. Prospective chart review result:

Randomly selected 60 patients' charts for prospective chat review								
Charts	Sex: Girl = 1, Boy = 2	Weight in lbs	Height	BMI Percentile	Overweight	Obese	Documented staff intervention	NP/MD/STUENT
1	2	81	4' 2"	96th		OBESE	DIETARY AND EXERCISE COUNSELING	MD
2	1	136	5' 2.5"	95th		OBESE	DIETARY AND EXERCISE COUNSELING	NP
3	1	99	5' 0"	74th				NP
4	2	163	5' 4"	98th		OBESE	DIETARY AND EXERCISE COUNSELING	MD
5	1	110	5' 1"	79th				NP
6	1	124	5' 9"	44th			DIETARY AND EXERCISE COUNSELING	NP
7	2	131	5' 9.5"	27th				MD
8	1	272	5' 6"	99th		OBESE	DIETARY AND EXERCISE COUNSELING PLUS FOLLOW UP	NP
9	2	69	4' 6.5"	44th			DIETARY AND EXERCISE COUNSELING	MD
10	1	154	5' 4"	91th	OVERWEIGHT		DIETARY AND EXERCISE COUNSELING	MD
11	2	110	5' 5"	10th				NP
12	1	104	4' 8"	96th		OBESE	DIETARY AND EXERCISE COUNSELING	MD
13	1	84	4' 10"	70th				NP
14	2	62	NOT DONE	NOT DONE				NP
15	2	86	4' 10"	53th				NP
16	1	105	5' 1"	76th			DIETARY AND EXERCISE COUNSELING	NP
17	2	151	5' 4"	95th		OBESE	DIETARY AND EXERCISE COUNSELING	MD
18	1	71	4' 2"	43th			DIETARY AND EXERCISE COUNSELING	NP
19	1	120	5' 9"	35th				NP
20	1	85	4' 8.5"	26th				NP
21	2	66	NOT DONE	NOT DONE				MD
22	1	66	4' 6"	52th				MD
23	1	143	5' 3"	86th	OVERWEIGHT		NOT DONE	NP
24	2	51	3' 10"	84th			DIETARY AND EXERCISE COUNSELING	NP
25	2	50	4' 0"	36th			DIETARY AND EXERCISE COUNSELING	NP
26	2	58	4' 1"	80th				MD
27	1	49	3' 10"	78th				NP
28	2	55	4' 3"	33th				NP
29	2	58	NOT DONE	NOT DONE				NP
30	1	47	3' 11"	37th			DIETARY AND EXERCISE COUNSELING	MD
31	1	59	3' 8"	99th		OBESE	DIETARY AND EXERCISE COUNSELING PLUS FOLLOW UP	MD
32	2	67	4' 3"	91th	OVERWEIGHT		NOT DONE	NP
33	2	68	4' 4"	26th				MD
34	1	103	5' 0.5"	59th				NP
35	2	181	5' 3"	99th		OBESE	DIETARY AND EXERCISE COUNSELING PLUS FOLLW UP	NP
36	2	113	NOT DONE	NOT DONE				NP
37	2	180	5' 3"	99th		OBESE	DIETARY AND EXERCISE COUNSELING	NP
38	1	58	3' 11"	86th	OVERWEIGHT		NOT DONE	NP
39	1	55	4' 1"	46th				NP
40	2	43	3' 11"	4th			DIETARY AND EXERCISE COUNSELING	NP
41	1	55	4' 1"	64th				MD
42	2	66	4' 5"	73th				MD
43	2	99	4' 7"	97th		OBESE	DIETARY AND EXERCISE COUNSELING	NP
44	1	119	5' 5"	48th				MD
45	1	97	5' 1"	85th	OVERWEIGHT		DIETARY AND EXERCISE COUNSELING	NP
46	1	109	4' 10"	95th		OBESE	DIETARY AND EXERCISE COUNSELING	NP
47	2	112	5' 5"	31th				NP
48	2	100	5' 3"	48th				NP
49	2	72	4' 4"	86th	OVERWEIGHT		DIETARY AND EXERCISE COUNSELING	NP
50	2	67	4' 5"	52th				MD
51	1	54	NOT DONE	NOT DONE				MD
52	2	68	4' 9"	6th				MD
53	2	58	4' 0"	83th			DIETARY AND EXERCISE COUNSELING	NP
54	1	143	4' 10"	98th			DIETARY AND EXERCISE COUNSELING PLUS FOLLOW UP	MD
55	1	53	4' 3"	17th				NP
56	2	51	4' 1"	28th				NP
57	2	58	4' 2"	53th				NP
58	1	44	3' 9"	46th				NP
59	2	65	4' 9"	10th				NP
60	2	53	3' 11"	79th				NP

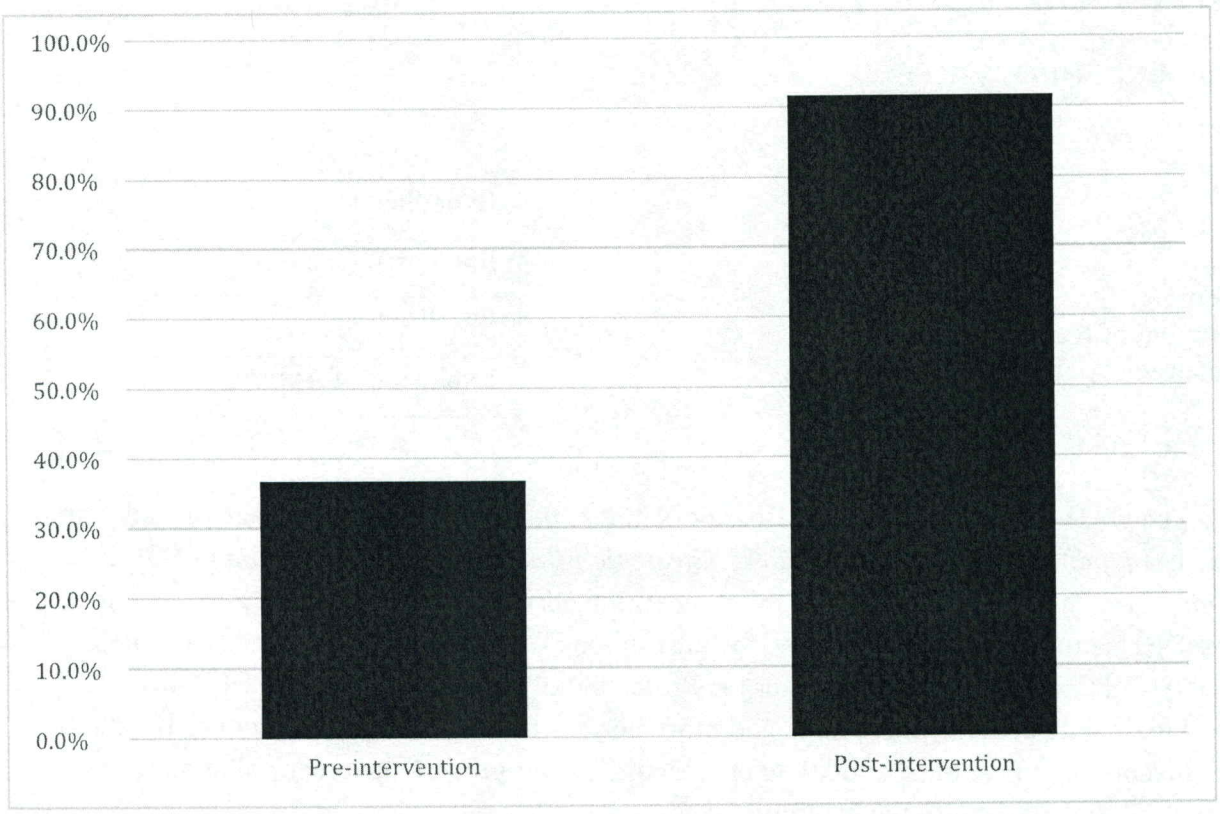
Table 3.

Randomly selected 60 patients electronic charts retrospectively and prospectively reviewed		
Dates	Patients corectly screened for BMI	Number of electronc charts reviewd
12/2018 - 01/2019 (Retrospective	22	60
04/2019 -05/2019 (Prospective)	55	60

FIGURES

Figure 1.

Rates of Screening



APPENDIX A

University of Huntsville IRB Approval Letter.

THE UNIVERSITY OF
ALABAMA IN HUNTSVILLE

Expedited (see pg 2)
Exempted (see pg 3)
Full Review
Extension of Approval

April 10th 2019

Ivy Fenin
Department of Nursing
University of Alabama in Huntsville

Dear Mrs. Fenin,

The UAH Institutional Review Board of Human Subjects Committee has reviewed your proposal, *Adaptation of Clinical Guidelines: Strategic Effort for Improving Childhood Obesity Screening in a Pediatric Clinic,* and found it meets the necessary criteria for approval. Your proposal seems to be in compliance with this institutions Federal Wide Assurance (FWA) 00019998 and the DHHS Regulations for the Protection of Human Subjects (45 CFR 46).

Please note that this approval is good for one year from the date on this letter. If data collection continues past this period, you are responsible for processing a renewal application a minimum of 60 days prior to the expiration date.

No changes are to be made to the approved protocol without prior review and approval from the UAH IRB. All changes (e.g. a change in procedure, number of subjects, personnel, study locations, new recruitment materials, study instruments, etc) must be prospectively reviewed and approved by the IRB before they are implemented. You should report any unanticipated problems involving risks to the participants or others to the IRB Chair.

If you have any questions regarding the IRB's decision, please contact me.

Sincerely,

Bruce Stallsmith

Bruce Stallsmith
IRB Chair
Professor, Biological Sciences

Expedited:

Clinical studies of drugs and medical devices only when condition (a) or (b) is met. (a) Research on drugs for which an investigational new drug application (21 CFR Part 312) is not required. (Note: Research on marketed drugs that significantly increases the risks or decreases the acceptability of the risks associated with the use of the product is not eligible for expedited review. (b) Research on medical devices for which (i) an investigational device exemption application (21 CFR Part 812) is not required; or (ii) the medical device is cleared/approved for marketing and the medical device is being used in accordance with its cleared/approved labeling.

Collection of blood samples by finger stick, heel stick, ear stick, or venipuncture as follows: (a) from healthy, nonpregnant adults who weigh at least 110 pounds. For these subjects, the amounts drawn may not exceed 550 ml in an 8 week period and collection may not occur more frequently than 2 times per week; or (b) from other adults and children, considering the age, weight, and health of the subjects, the collection procedure, the amount of blood to be collected, and the frequency with which it will be collected. For these subjects, the amount drawn may not exceed the lesser of 50 ml or 3 ml per kg in an 8 week period and collection may not occur more frequently than 2 times per week.

Prospective collection of biological specimens for research purposes by noninvasive means. Examples: (a) hair and nail clippings in a nondisfiguring manner; (b) deciduous teeth at time of exfoliation or if routine patient care indicates a need for extraction; (c) permanent teeth if routine patient care indicates a need for extraction; (d) excreta and external secretions (including sweat); (e) uncannulated saliva collected either in an unstimulated fashion or stimulated by chewing gumbase or wax or by applying a dilute citric solution to the tongue; (f) placenta removed at delivery; (g) amniotic fluid obtained at the time of rupture of the membrane prior to or during labor; (h) supra and subgingival dental plaque and calculus, provided the collection procedure is not more invasive than routine prophylactic scaling of the teeth and the process is accomplished in accordance with accepted prophylactic techniques; (i) mucosal and skin cells collected by buccal scraping or swab, skin swab, or mouth washings; (j) sputum collected after saline mist nebulization.

Collection of data through noninvasive procedures (not involving general anesthesia or sedation) routinely employed in clinical practice, excluding procedures involving x-rays or microwaves. Where medical devices are employed, they must be cleared/approved for marketing. (Studies intended to evaluate the safety and effectiveness of the medical device are not generally eligible for expedited review, including studies of cleared medical devices for new indications).

Research involving materials (data, documents, records, or specimens) that have been collected, or will be collected solely for nonresearch purposes (such as medical treatment or diagnosis).

Collection of data from voice, video, digital, or image recordings made for research purposes.

Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

Exempt

Research conducted in established or commonly accepted educational settings, involving normal educational practices, such as (a) research on regular and special education instructional strategies, or (b) research on the effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods. The research is not FDA regulated and does not involve prisoners as participants.

Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interviews, or observation of public behavior $_1$ in which information is obtained in a manner that human subjects cannot be identified directly or through identifiers linked to the subjects and any disclosure of the human subject's responses outside the research would NOT place the subjects at risk of criminal or civil liability or be damaging to the subject's financial standing, employability, or reputation. The research is not FDA regulated and does not involve prisoners as participants.

Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement) survey procedures, interview procedures, or observation of public behavior if (a) the human subjects are elected or appointed public officials or candidates for public office, or (b) Federal statute(s) require(s) without exception that the confidentiality of the personally identifiable information will be maintained throughout the research and thereafter. The research is not FDA regulated and does not involve prisoners as participants.

Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects. The research is not FDA regulated and does not involve prisoners as participants.

Research and demonstration projects which are conducted by or subject to the approval of department or agency heads, and which are designed to study, evaluate, or otherwise examine: (i) public benefit or service programs; (ii) procedures for obtaining benefits or services under those programs;(iii) possible changes in or alternatives to those programs or procedures; or (iv) possible changes in methods or levels of payment for benefits or services under those programs. The protocol will be conducted pursuant to specific federal statutory authority; has no statutory requirement for IRB review; does not involve significant physical invasions or intrusions upon the privacy interests of the participant; has authorization or concurrent by the funding agency and does not involve prisoners as participants.

Taste and food quality evaluation and consumer acceptance studies, (i) if wholesome foods without additives are consumed or (ii) if a food is consumed that contains a food ingredient at or below the level and for a use found to be safe, or agricultural chemical or environmental contaminant at or below the level found to be safe, by the Food and Drug Administration or approved by the Environmental Protection Agency or the Food Safety and Inspection Service of the U.S. Department of Agriculture. The research does not involve prisoners as participants.

[1] Surveys, interviews, or observation of public behavior involving children cannot be exempt.

APPENDIX B

Documentation of manuscript submission:

Manuscript was submitted to the Pediatric Nursing Journal on 08/13/2019.

APPENDIX C

The instrument that used

Clinicians/staff survey questionnaire that will be utilized to gain the clinicians/staff insight about the overall project and measures needed to maintain stability

Below is how the survey will look like:

Please help to improve practice by providing a feedback on the project implemented at the clinic. Our interest is your true or sincere opinion, either positive or negative. Please provide answers to all the questions. Your suggestions and comments are also welcome. Thank you so much. Your help is well appreciated. Please circle your answers for questions 1-5:

1. **Did the screening form/tool effectively identify children at risk for overweight or obesity?**
- Yes, completely effective
- Somewhat effective,
- did not work most of the time,
- Not at all effective

2. **Did you feel that collecting and documenting both weight and on every patient to calculate BMI helps clinicians to identify at-risk children for overweight/obesity and manage or refer patients for better outcome(s)?**
- Yes
- No

3. **Did you feel that Abiding by the recommended clinical guidelines to screen children for obesity increase the obesity screening rate at the clinic**?
- Yes
- Not

4. **Did you feel that study/project helps clinicians to correctly detect overweight and obese children then manage these children at the clinic or refer these children together with their families to an interdisciplinary team for better outcome?**
- Yes, I completely felt it did.
- It sometimes did.
- Hardly did.
- No, I did not feel that.

5. **Do think abiding with the recommended clinical guidelines to screen children 6 years and older for obesity and manage these children at the clinic or refer them and their families for appropriate care will improve practice and lead to financial reimbursement from organizations such as Center for Medicare & Medicaid Services (CMS).**
- Yes, It will.
- Somewhat.
- Will not most of the time.
- Not at all

APPENDIX D

Approval letter from the agency where the project was conducted will be added once it is obtained

HEALTHY STEPS PEDIATRICS LLc

HELPING TO GROW HEALTHY CHILDREN ONE STEP AT A TIME

December 19, 2018

To Whom It May Concern:

I have been in contact with Ivy Fenin regularly and she will be performing a DNP project in our office. We do not need to have an IRB on file. Please contact me should you have any questions or concerns.

Cordially,

Mary B. Hammock, MSN, CPNP

391 1 MARY ELIZA TRACE • SUITE 200 MARIETTA GA 30064
TEI-: 678-384-3480 • FAX: 678-384-3481 • WWW.PEDIATRICS4U.COM
HOURS: MONDAY-FRIDAY, 8:00 AM 5:00 PM

HEALTHY STEPS PEDIATRICS

HELPING TO GROW HEALTHY CHILDREN ONE STEP AT A TIME

February 26, 2019

To Whom It May Concern:

Ivy Fenin may have access to our patient database, with regards to her research project. She must comply with HIPAA compliance regarding patient information and confidentiality. Should you have any concerns, please do not hesitate to contact me.

Cordially,

Mary B. Hammock CPNP

Mary B. Hammock, MSN, CPNP

391 1 MARY ELIZA TRACE • SUITE 200 MARIETTA GA 30064
TEI-: 678-384-3480 • FAX: 678-384-3481 • WWW.PEDIATRICS4U.COM
HOURS: MONDAY-FRIDAY, 8:00 AM 5:00 PM

APPENDIX F
Teaching outlines, and clinical protocols.

Teaching outline

a) Description of childhood obesity.

b) Prevalence of childhood obesity in the community and the nation as a whole.

c) Recommended national clinical childhood obesity prevention guidelines and the importance of abiding by the guidelines to prevent childhood obesity.

d) Outcomes of utilizing the recommended childhood obesity prevention guidelines to screen children to detect BMI and/or weight status.

e) A literature review of the health-related risk factors associated with overweight/obesity in children.

Clinical protocol or policy developed

c) Childhood obesity screening processes in the pediatric care clinic was amended to aligned with the recommended childhood obesity prevention guidelines to increase BMI screening rate.