

IMPROVING HISPANIC CHILDHOOD OBESITY USING AN ALGORITHM-BASED
QUALITY INITIATIVE IN PEDIATRIC PRIMARY CARE

A Doctor of Nursing Practice Project Report

by

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Submitted in Partial Fulfillment of the Requirements for the Degree of

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This Doctor of Nursing Practice Project Report meets the standards for scope and quality of Texas A&M University-Corpus Christi College of Nursing and Health Sciences and is hereby approved.

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DEDICATION

I would like to dedicate this work to all the Healthcare Providers who work with patients who are overweight or obese and to all the children dealing with weight related issues.

ACKNOWLEDGEMENTS

I would like to express my gratitude towards my family and friends for their encouragement which helped me in the completion of this project. My supportive mother, who has been by my side since the beginning of my nursing journey, my father, husband, and my two daughters who served as inspiration to continue to advance my education.

I would like to express my sincere gratitude to my DNP chair, Dr. Theresa Garcia, for providing invaluable guidance, support, encouragement, and knowledge throughout my entire project and DNP endeavor. I would also like to thank the rest of my committee members, Dr. Yolanda Keys, Dr. Adrienne Platt, and Dr. Faye Bruun for their words of encouragement and support throughout the course of this project.

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TABLE OF CONTENTS

CONTENTS	PAGE
DEDICATION.....	v
ACKNOWLEDGEMENTS.....	vi
TABLE OF CONTENTS.....	vii
LIST OF FIGURES.....	ix
ABSTRACT.....	1
INTRODUCTION.....	2
Background.....	3
Review of Literature.....	3
Problem Description in the Setting.....	5
Project Purpose and Aims.....	6
Guiding Frameworks.....	8
METHODS.....	9
Ethical Issues.....	9
Project Design.....	9
Intervention.....	10
Data Collection.....	13
Measurement Tools.....	14
Data Analysis.....	16

RESULTS	16
DISCUSSION	24
Limitations	25
Interpretation.....	26
CONCLUSION.....	27
REFERENCES	28
LIST OF APPENDICES.....	32

LIST OF FIGURES

FIGURES	PAGE
Figure 1: Provider Management Practice for Children with BMI \geq 85%.....	20
Figure 2: Provider Documentation of Assessment Practices for Children seen for a Wellness Exam or Physical Exam	23
Figure 3: Provider Documentation of Counseling Practices for Children seen for a Wellness Exam or Physical Exam	24

LIST OF TABLES

TABLES	PAGE
Table 1: Children’s Demographic Characteristics	17
Table 2: Provider Management Practices for Children with BMI Percentile \geq 85%	19
Table 3: Provider Documentation of Assessment and Counseling Practices for all Children seen for a Wellness Exam or Child Physical Exam	22

ABSTRACT

Child obesity is increasing and is considered one of the most serious health concerns of the 21st century. Hispanic children represent the largest group of obese children in the U.S. when compared to other ethnic groups. Health care providers (HCPs) have been recognized as key players in the prevention and treatment of child obesity, yet many studies indicate clinical practice guidelines are not always followed. The purpose of this quality initiative was to improve HCP management, and counseling of overweight and obese Hispanic children between the ages of 6-16 years, by providing an educational session and management tools to pediatric providers in a South Texas clinic. HCPs attended a 30-minute educational session, guided by the American Academy of Pediatrics' algorithm for childhood obesity management; and the 5210 Healthy Habits Questionnaire was used to assist providers with assessment and counseling of patients and parents. Provider practice changes were compared to the same timeframe a year earlier via chart review. The sample of charts reviewed included 193 children, 51% male, 41% overweight or obese in 2019 and 135 children, 41% male, 47% overweight or obese in 2020; at least 96% identified as Latino/Hispanic and mean age was 10.4 years in both groups. Provider documentation of healthy activities assessment improved 17-25%, healthy habit counseling 12-21.5%, and referrals to dietitian 6%, post-intervention. Results were promising and trending toward positive practice changes, however greater improvement in HCP practices and patient outcomes may have been realized if the timeline of the project had not been interrupted by competing healthcare priorities due to the COVID-19 pandemic. Providing algorithm-based education and resources for primary care providers in a pediatric clinic can improve practice and has the potential to impact outcomes for overweight and obese Hispanic children.

Improving Provider Practice to Decrease Hispanic Childhood Overweight and Obesity Using an Educational Intervention – A Quality Improvement Project

INTRODUCTION

The occurrence of child obesity has increased over the years and is now considered to be one of the most serious health concerns of the 21st century (World Health Organization [WHO,] 2019). According to the Centers for Disease Control and Prevention ([CDC,] 2019b), the prevalence of childhood obesity nationwide in 2015-2016 was 18.5 % and it affected about 13.7 million children and adolescents. Hispanic children (25.8%) currently represent the largest group of child obesity when compared to non-Hispanic blacks (22%), non-Hispanic whites (14.1%), and non-Hispanic Asians (11%) (CDC, 2019b). Healthcare providers (HCP's) have been recognized as key players in the prevention and treatment of child obesity, yet many studies have shown that screening and management guidelines are not always followed (Busch, et al., 2018; Rhee, et al., 2018). The American Academy of Pediatrics Institute for Healthy Childhood Weight (Barlow & Expert Committee, 2007) developed an algorithm to guide HCPs in the management of childhood obesity for children two years and older. An organized team approach where all HCPs are educated and play an active role in the implementation of clinical guidelines, such as the American Academy of Pediatrics (AAP's) algorithm, can improve HCPs' practice patterns in managing children who are overweight (OW) and obese (OB) (Gibson, 2016). The growing severity of the childhood obesity problem, especially in Hispanic children, coupled with reported inadequate primary care management, brings substantial negative health consequences to children, that can and must be prevented.

Background

According to the National Health and Nutrition Examination Survey (NHANES) of 2015-2016 the prevalence of obesity among U.S. youth between 6-11 years old was 18.4% and 20.6% among 12-19-year old's (CDC, 2019b). CDC growth charts are the most frequently used tools to measure the size and growth of children in the United States. Body mass index (BMI) is an anthropometric measurement of weight and height that is defined as body weight in kilograms divided by height in meters squared (CDC, 2014). BMI percentile is a commonly accepted index to classify adiposity in children, teens, and adults. It is a screening tool rather than a diagnostic tool used to identify individuals who are underweight, OW, or obese. In children, OW is defined as a BMI at or above the 85th percentile and below the 95th percentile; OB is defined as a BMI at or above the 95th percentile (CDC, 2018a).

To combat obesity, the 2007 Expert Committee convened by the CDC and the American Medical Health Association Health Resources and Service Administration, recommended that healthcare providers (HCPs) assess weight status of children aged two and above by calculating BMI, plotting BMI percentiles on growth charts, and developing a treatment plan when OW and OB has been identified (Robson, et al., 2016). HCPs generally agree with these recommendations; however, studies have shown that these recommendations are not regularly followed (Robson et al., 2016).

Review of Literature

Although HCPs play a critical role in the prevention and management of childhood obesity, a significant gap exists between HCP knowledge of the need to assess and follow-up for pediatric child OW and OB and the knowledge and tools to implement practice that closely follows child obesity management and prevention guidelines (Dera-de Bie, et al., 2016).

Piccinini-Vallis (2011) surveyed physicians' practices in the assessment of overweight and obesity in their patients and their familiarity with practice guidelines; they found that only 37.5% of the respondents reported they were aware of the guidelines. A study by Rhee, et al. (2018) used a mixed methods approach to examine the views and practices of pediatric providers regarding obesity management in the primary care setting. They found one of the most commonly reported issues was lack of knowledge on management principles or guidelines (Rhee, et al., 2018). Furthermore, these providers reported the most common practice-based barriers were poor training and lack of referral resources in the office and community. These studies showed that HCPs, although aware better management for these patients was needed, felt largely unprepared, or were unaware of current recommendations.

Changing HCP childhood obesity management practices requires educational support as well as resource support to assist HCPs in counseling and following up with patients and families. Providing educational sessions and tools focused on child obesity guidelines to HCPs significantly improves routine screening and identification of OW and OB (Dera-de Bie, et al., 2016). Child obesity education, provision of counseling and screening resources to HCPs has significantly improved practitioner knowledge in a variety of areas, including intent to improve practice, and confidence in the ability to address parent barriers in prevention of childhood overweight (Gance-Cleveland, et al., 2009). The study by Gance-Cleveland, et al. (2009) showed a 4-hour training session based on a clinical practice guideline that was aimed to prevent OW in children, can be effective to help HCPs improve their ability to maintain a patients' healthy weight. Significant improvements were noted in intent to conduct growth assessment, assessment of family history, and physical activity assessment ($p < .001$) were reported post-training (Gance-Cleveland, et al., 2009). Results from the Sanchez-Ramirez, et al. (2018) study

showed that a one-day interprofessional learning activity can improve professional skills and attitudes for HCPs who are caring for individuals who are obese or at risk for obesity. The use of educational tools has been associated with improved HCP confidence in approaching patients with obesity ($r=0.46$, $p<0.001$), and decrease the likelihood of avoiding the topic ($r=0.35$, $p=0.004$) (Sanchez-Ramirez, et al., 2018). These studies have shown that educational approaches focused on educating providers on child obesity management guidelines and providing resources to assist with screening, counseling, referral and follow-up can improve HCP child obesity management practice patterns.

Problem Description in the Setting

An organizational assessment of child obesity management practices was done in a South Texas Pediatric clinic. An initial assessment was done by interviewing the owner of the clinic, a pediatrician with over ten years of experience. She related HCPs in the practice were fairly consistently screening for overweight and obesity using BMI percentiles and occasionally referring to a dietician but were not routinely assessing and counseling patients and caregivers on specific healthy behaviors or tracking (following-up with) patients after the referral. She related that she and her providers were very interested and motivated to bring their obesity management practice processes more in line with recommendations from the AAP.

To further gather baseline data, a retrospective chart review was conducted of all well-child visits and child physical exams for patients aged 6-16 years old, in March 2019, a year before the start of the project. The electronic health record (EHR), was used to review patient demographic information such as date of birth, age, gender, ethnicity, health insurance, height, weight, BMI, and BMI percentile. Provider practice data was also collected; this included:

- HCP who saw the patient

- was a follow up appointment was ordered
- how far out the follow up appointment was ordered,
- whether there was a referral to a dietician if the patient was OW or OB,
- whether there was a dietician note placed in the patient's chart,
- whether there was documentation that the HCP reviewed the dietician's note, and
- documentation of assessment and counseling of the 5210 Healthy Habits message (or similar patient/parent teaching).

During this review, it was found that patients who were OW or OB frequently had orders for a follow up appointment at three months rather than one month as recommended by AAP.

Patients who were classified as OW or OB were not being referred to a dietician and there was lack of documentation of assessment and counseling of the 5210 Healthy Habits message (similar patient/parent teaching). These results were discussed with clinic owner/pediatrician who was interested in her clinic participating in a quality initiative to improve provider management practices, quality of care, and patient outcomes for her patients.

Project Purpose and Aims

The purpose of this quality improvement (QI) project was to improve HCP management, and counseling of OW and OB Hispanic children between the ages of 6-16, by providing an educational session, and needed management tools and resources to pediatric providers in a South Texas clinic. The clinical question guiding this quality improvement project was: In a South Texas pediatric clinic, does an educational session and counseling resources provided to pediatric providers, based on clinical practice guidelines, improve provider assessment, counseling, and management practices for OW and OB Hispanic children between the ages of 6-16 years, in a 3-month period?

The specific aims for the project were:

Aim #1: To improve monthly follow-up appointments in this pediatric clinic for children who were OW or OB between the ages of 6-16. HCPs and the clinic staff received an educational session guided by AAP Guidelines (2016) that introduced a protocol to ensure appropriate follow-up recommendations were made and appointments were scheduled. The specific goal was to increase appropriate scheduling of follow-up appointments (monthly) as recommended by AAP for OW or OB children between the ages of 6-16, by at least 20%, when compared to the year before, by the end of the 1-month period of the project.

Aim #2: To improve the quality of HCP assessment and counseling in children who were OW or OB between the ages of 6-16. HCPs received an educational module on using and documenting the 5210 Healthy Habits message (Gibson, 2014). The specific goal was to increase documentation of assessment and counseling of the 5210 Healthy Habits message in at least 50% of the patients who were seen for a wellness or child physical exam by the end of the 1-month period of the project.

Aim #3: To decrease weight in children diagnosed with OW or OB between the ages of 6-16. Children received education by HCPs on the 5210 Healthy Habits message and were referred to a dietician/nutritionist for dietary counseling. The specific goal was to have a decrease in weight by 2 pounds in these children by the end of the 1-month project period.

This project aligned with DNP Essential VII: Clinical Prevention and Population Health for Improving the Nation's Health (American Association of Colleges of Nursing [ANCC], 2006). The implementation of clinical prevention and population health is essential to achieve improvement of health status in a population (ANCC, 2006). By improving HCPs practices, such as the scheduling of timely follow-up appointments, assessment and counseling of healthy habits,

and increased added support, such as a dietician referral, HCPs are able to closely monitor patients and provide additional support to prevent obesity related complications.

Guiding Frameworks

The Plan-Do-Study-Act (PDSA) was introduced in the 1920's by Walter Shewhart as a four-step model used to carry out change (National Health Services Improvement, n.d), and served as an overarching guide for this QI project. This project was the first PDSA cycle for this planned improvement in pediatric provider child obesity management practices. The PDSA model is cyclical, allowing for several cycles of improvement. It can be repeated again and again for continuous improvement.

Kurt Lewin's Change Theory is a three-stage model of change consisting of three stages, unfreezing - change - refreezing (Nursing Theory, 2016). Lewin's Change Theory helped to more specifically guide the steps taken in this QI project because it recognizes the need to change an old practice pattern of unhealthy weight recognition and referral (unfreeze stage), established a positive change of adding structured counseling, provision of educational resources and a plan for follow-up (change stage), and then assessed whether that change was successful. If the change was successful, then it would continue to be implemented (refreezing stage). If not, "unfreezing" is applied again, until ready to "refreeze."

The Chronic Care Model (CCM) by Ed Wagner supports evidence-based health care system changes that meet the needs of individuals with chronic disease (Stellefson, et al., 2013). This model provided a theoretical framework that addressed chronic health conditions through a QI approach which included provider decision support, clinical information systems (CIS), self-management support, and health care delivery system design, all in the context of the health care system and community resources (Cygan, et al., 2018). Several of the elements in the CCM

helped to explain the actions taken in this project. For example, the provider decision support element explained how educating HCPs on AAP recommendations improved the HCP's preparation and ability to proactively communicate with the patient. The health care delivery system element explained how scheduling routine follow-up appointments by the system improved interactions between patient and provider and improved outcomes.

METHODS

Ethical Issues

This project plan was reviewed by the Texas A&M University-Corpus Christi Institutional Review Board (IRB) for project classification and received a determination of "Not Human Subjects Research" and permission to proceed as a quality improvement (QI) project. (See Appendix A). Personal Health Information (PHI) was collected for project purposes only following execution by the Project Director (PD) of a HIPAA Confidentiality Agreement from the facility. A letter of support was provided by the clinic office manager and owner/pediatrician agreeing to fully support the project and acknowledging collection of PHI for project purposes only. (See Appendix B.)

Project Design

This QI project was a provider protocol initiative, using a before and after design. The project included an educational session to educate HCPs on clinical recommendations with an emphasis on follow-up appointments and healthy habits counseling, to manage children with OW or OB. Educational sessions and tools that focus on child obesity guidelines have shown to improve routine screening and identification of OW and OB (Dennison, et al., 2009; Dera-de Bie, et al., 2016). During the organizational assessment, we learned providers were not closely following the latest clinical practice guidelines to guide their practice in managing children who

were OW and OB. They were, however, very concerned with child obesity, especially within the Hispanic culture. Thus, this project focused on providing an educational intervention guided by the latest AAP recommendations to improve management of children with obesity in this pediatric primary care clinic.

Initially one of the main concerns for the success of the project was possible lack of participation by HCPs, due to lack of time. However, all HCP's were willing to make the necessary changes to not only improve their practice but also to improve outcomes for their patients. Unfortunately, the timing of this project in this very busy practice coincided with the COVID-19 pandemic, which resulted in many unplanned and unanticipated setbacks.

Intervention

Participants were included in the project if they were providers (physician, NP, or PA) in the South Texas clinic where the project was conducted and provided care to children between the ages of 6-16. During project implementation the clinic had a total of five providers, including one pediatrician, three nurse practitioners, and one physician assistant. HCPs attended a 30-minute educational session, provided by the PD, guided by AAP recommendations and algorithm (American Academy of Pediatrics Institute for Healthy Childhood Weight, 2016). The educational session was provided via a PowerPoint presentation. HCPs received a copy of the presentation, the AAP algorithm, and the 5210 Healthy Habits Questionnaire (Main Health, 2019). The sessions were scheduled twice during the week with two providers attending at a time. During this week the lead MA was educated by the PD and provided with written guidelines on how to properly weigh and measure height in 6-16-year-old children, as recommended by the CDC. The MA educated and provided a copy of the guidelines to the rest of the MA team. Laminated posters with the 5210 Healthy Habits message were placed in each

patient room and in the triage area. Laminated growth charts were also placed in patients' rooms to assist providers with counseling sessions. Each room had a manila folder with the 5210 Healthy Habits message that was given to each patient (and parent) who was scheduled for a wellness exam or a child physical exam.

The *Let's Go! 5210* program is a nationally recognized childhood obesity prevention program designed to increase healthy eating and active living in children (Gibson, 2014). The program uses evidence-based strategies to improve healthy eating habits and physical activity in children (Main Health, 2019). The *5210* program encourages consumption of at least five servings of fruits and vegetables daily, limiting screen time to two hours or less each day, at least one hour of physical activity daily, and avoiding sugar sweetened beverages and replacing them with water or low-fat milk (Gibson, 2014).

The week following the provider and staff educational sessions, implementation of the new changes for eligible patients began. The following protocol was to be followed by the clinic:

- 1) MA's administered the 5210 Questionnaire to all children or parents, as applicable, aged 2-16 years old scheduled for a wellness exam or physical exam. The questionnaire was provided in Spanish and English.
- 2) The *5210* questionnaires were then to be reviewed and discussed with the patient and family by the HCP. HCPs were then responsible for explaining the *5210* Healthy Habits message.
- 3) HCPs were instructed to use the laminated BMI growth charts or the EHR growth chart to educate and plot the child's BMI percentiles.

- 4) A small strip of paper with the colorful *52/10* Healthy Habits message was to be given to the patient during the patient provider encounter. See Appendix C for an example of the strip of paper that was provided to each patient.
- 5) Any patient with a BMI at or above the 85th percentile was to be referred to a dietician and order a one month follow up. The one-month follow-up allowed for the HCP to address any overweight and obesity related issues, review the dietician's consult note or ensure the appointment was scheduled, evaluate weight loss progress, and reinforce healthy habits.
- 6) The appointment was then to be scheduled in the EHR by the front desk staff.
- 7) Reminders on new documentation and referral procedures were placed in the HCPs office bulletin board.
- 8) The front desk staff was responsible for making phone call reminders the day before the patient was scheduled for their follow up appointment.
- 9) The dietician's office was responsible for making phone call reminders the day before the patient was scheduled for their dietary consult.
- 10) The PD was to verify patient attendance at the follow-up visits and reschedule patients who missed appointments.

Unfortunately, due to the COVID-19 pandemic, multiple changes occurred, and the full protocol was not consistently instituted. The initial 3-month project plan was decreased to one month due to the local government issuing a shelter in place order for the county to slow the spread of the pandemic. Although the clinic remained open, fewer patients were seen and the PD, being non-essential to the clinic, was unable to collect data weekly as previously planned and to provide HCPs and staff with verbal reminders to follow the protocol. The dietician's

office was also closed temporarily, delaying the scheduling of referral appointments. Patient census dropped dramatically, and HCPs understandably prioritized current pandemic issues over implementation of a new obesity management protocol.

During the month of March 2020, prior to the “stay at home” order, MAs provided eligible patients seen for a wellness exam or a child physical exam with a *5210* Healthy Habits Questionnaire. The BMI was then automatically calculated by the EHR. The HCP’s were responsible for reviewing the *5210* Healthy Habits Questionnaire responses (assessing behaviors), reviewing the patient’s chart, providing healthy behavior counseling using the *5210* Healthy Habits message, identifying weight classification, referring any child between 6-16 years of age to a dietician with a BMI at or about 85th percentile, ordering a one-month follow-up, and documenting assessment and counseling of the *5210* Healthy Habits. The front desk personnel were responsible for scheduling the one-month follow-up appointment, sending the dietician referral, prior authorizations, and making appointment reminders by phone. The PD was responsible for ensuring the patient was scheduled with the dietician and tracking patients who were referred. Please see a timeline in Appendix D for a visual diagram of the estimated time it took to conduct each part of this project, from collection of organizational assessment data to dissemination of results.

Data Collection

A retrospective chart review of all eligible patients seen March 2019 to May 2019, the same time frame of the project, but a year earlier, had been planned. Due to COVID-19 restrictions, only data from the month of March 2019 was collected for the retrospective review because the project was only implemented in March 2020 and the PD was not allowed in the clinic to collect data or oversee implementation of the project in April due to the shelter in place

order. The PD was allowed to collect data from March 2019 and March 2020 during March, before the “shelter in place” order, and sporadically in May 2020. A year before project implementation, the clinic had a total of four providers, which included, one pediatrician, two nurse practitioners, and one physician assistant. Charts from March 2019 were reviewed for patient demographics including gender, ethnicity, date of birth, health insurance information, height, weight, BMI, and BMI percentile. Provider management information collected included: HCP’s name (alphanumeric code) and whether there was documentation of assessment and counseling of 5210 Healthy Habits, follow-up appointments ordered, when follow-ups were ordered, dietician referral, and presence of a dietician’s consult note in the patient’s chart. The same information was collected for eligible patients seen in March 2020 prior to the shelter in place order. All data was collected by the PD. Initially data was collected in a notebook kept in a locked file cabinet in the PD’s home office and then transferred to SPSS, using only deidentified data. Data will be kept for three years and then shredded.

Measurement Tools

The CDC weight status categories based on age, gender and BMI percentiles were formulated through expert committee recommendations (CDC, 2020). The BMI does not measure body fat directly, but much research has shown BMI to be associated with more direct measures of body fat such as, skin fold thickness measurements, dual energy x-ray absorptiometry (DXA), and others (CDC, 2018a). BMI for age at greater than or equal to the 95th BMI percentile has moderately high (70%-80%) sensitivity and positive predictive value, along with high specificity (95%) for identifying children with excess body fat (Freeman & Bettylou, 2009). The CDC BMI calculator (CDC, 2019a) was used to calculate BMI percentiles and to

identify possible differences in calculations between the EHR and the CDC calculations. There were no significant differences in calculations noted.

Follow-up appointment, scheduled visits with the dietician and dietician consult notes data were collected from the EHR. Follow up appointments and referral to the dietician appointments were found in the patient's progress note in the EHR. All dietician consults notes were to be placed in each patient's chart under dietary notes. This format allowed for easy access to all HCPs and front desk staff.

The 5210 Healthy Habits Questionnaire (Main Health, 2019) was a survey that was provided in Spanish or English for a child and/or their caregiver that helped to identify their current healthy habits. If the child was able to read and write the questionnaire was given to child instead of the caregiver. The 5210 Healthy Habits Questionnaire is based on the "5210 *Let's Go!*" message developed by Main Health (Main Health, 2019). The questionnaire helps HCPs to access children's current healthy habits. No actual reliability statistics for this measure have been gathered because the tool has several qualitative responses; however, this tool has been widely used nationally to screen for and assist in counseling children and parents (Main Health, 2019; Institute for Healthy Childhood Weight, n.d; Gonzalez, et al., 2015). The questionnaire is composed of a total of 10 questions that include fill in the blank answers and yes or no questions. Example of questions included: How many serving of fruits and vegetables does your child eat a day? How many hours a day does your child watch TV/movies or sit and play video/computer game? This questionnaire was used for this QI project to help HCPs assess healthy behaviors and provide guidance with counseling. The questionnaire also assisted patients and parents in learning about healthy habits and hopefully sparked conversation about whether these habits were being followed at home.

Data Analysis

Descriptive statistics were used to describe patient demographic information such as age of the child, BMI, BMI percentile, gender, height, weight, ethnicity, and insurance information. To analyze whether monthly follow-up appointments were scheduled for children who were OW or OB, we used descriptive statistics to determine the percentage of children referred for a monthly follow-up during the months of March 2019 and March 2020. We compared these percentages to determine if a 20% improvement was achieved. To determine whether the quality of HCP assessment and counseling had improved by 50%, the PD reviewed charts using the EHR from both March 2019 and March 2020, noting whether there was documentation the 5210 message had been used to guide assessment and counseling, whether follow-ups had been ordered and when they were scheduled, and if a dietitian consult had been ordered and scheduled. Descriptive statistics were used compare percentages of each of these items from 2019 to 2020.

The third aim of the project was to see at least a two-pound decrease in the weight of the children from their initial visit to their three-month follow-up visit. Due to the pandemic, we were unable to follow children to their three-month visit, so this assessment will need to be carried out by the clinic in the next PDSA cycle of the project.

RESULTS

For March 2019 there was 193 patients and for March 2020 135 patients who were between the ages of 6-16 that were seen for either a wellness or physical exam. In March 2020, the average age group was 10, average weight was 99 pounds, 41% were males, 60% were females, 96% were Hispanic/Latino, and 67% were on Medicaid/CHIP. Although there were no major changes in patient demographic information when comparing March 2019 to March 2020,

in March 2019 there were more male patients than female patients. Please see Table 1 for a summary of children’s demographic characteristics.

Table 1: Children’s Demographic Characteristics

Children’s Demographic Characteristics

	2019 (N=193) Mean (SD) or %	2020 (N=135) Mean (SD) or %	<i>p</i> -level
Age (years)	10.42 (3.07)	10.48 (3.30)	.84
Height	54.80 (7.22)	55.56 (7.34)	.35
Weight	91.69 (39.96)	97.88 (41.24)	.17
BMI	20.36 (5.12)	21.26 (6.03)	.15
BMI Percentile	68.04 (28.82)	73.60 (26.51)	.07
BMI percentile > 85%	40.9	46.7	-----
Gender			-----
Male	50.8	40.7	
Female	49.2	59.3	
Ethnicity			-----
Hispanic/Latino	99	96.3	
White/Caucasian	0.0	0.7	
African American	0.0	1.5	
Asian	0.0	0.0	
Other	0.0	1.5	

	2019 (N=193) Mean (SD) or %	2020 (N=135) Mean (SD) or %	<i>p</i> -level
Refused to Report	1.0	0.0	
<hr/>			
Health Insurance			-----
Medicaid/CHIP	64.2	67.4	
Private Insurance	31.1	27.4	
Self-Pay	4.7	5.2	

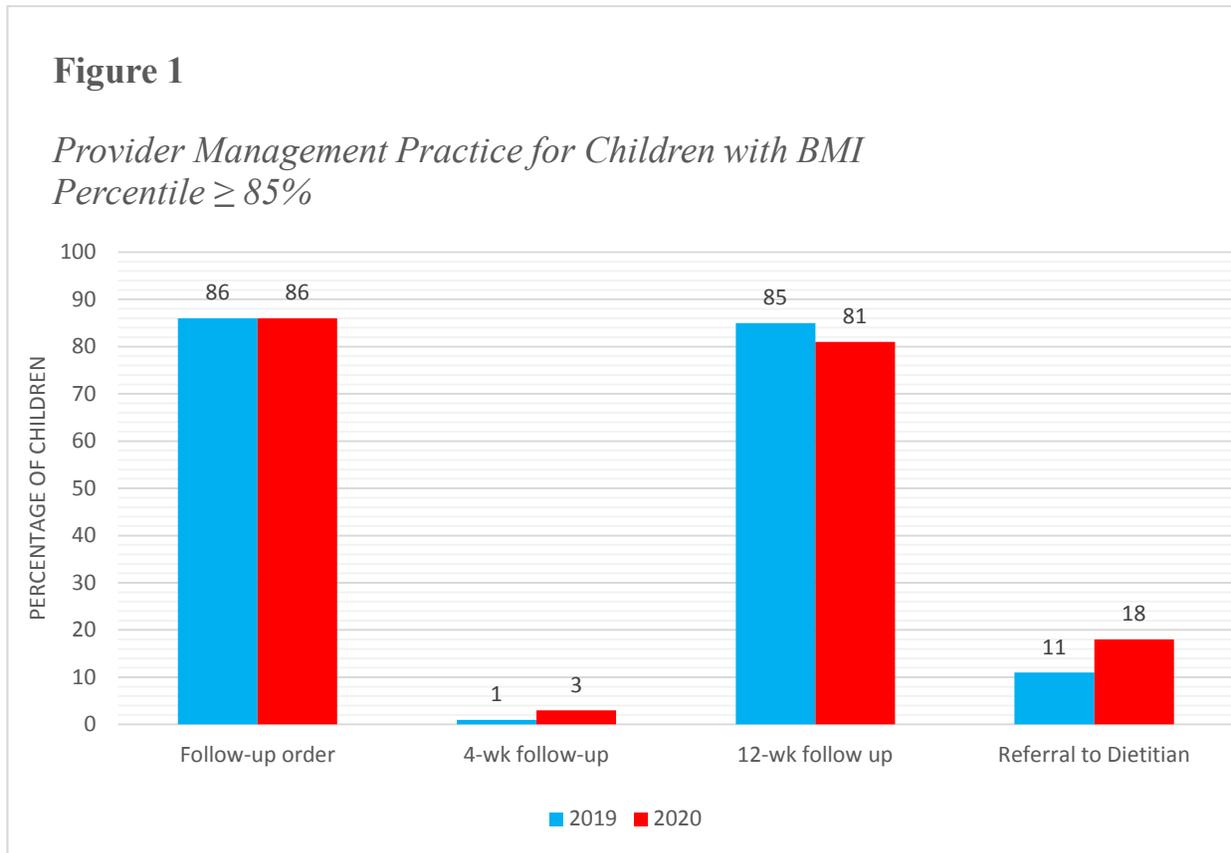
Out of the 83 children in March 2019 who had a BMI at or above the 85th percentile, 86% had a follow-up appointment ordered and out of 60 children seen in March 2020, 86% also had a follow up appointment ordered. In March 2019, 1% had a follow-up ordered at 4 weeks and 85% had a follow-up ordered at 12 weeks. For March 2020, 3% had a follow-up ordered at 4 weeks and 81% at 12 weeks. Referral to a dietitian was 11% in March 2019 and 18% in March 2020. Unfortunately, due to the current pandemic, COVID-19, the 20% improvement in scheduling monthly follow-up appointments was unable to be reached. During this time, shelter in place was ordered for the county and this caused a decrease in patient census, increased HCPs stress, temporary closure of the dietitian facility, and limited PD time at the clinic to provide frequent reminders. Please see Table 2 and Figure 1 for provider management practices for children with a BMI at or above the 85th percentile.

Table 2: Provider Management Practices for Children with BMI Percentile $\geq 85\%$

Provider Management Practices for Children with BMI Percentile $\geq 85\%$

	2019 (N=83)	2020 (N=60)
	% Yes	%Yes
Follow-up visit ordered	86.1	85.7
4-weeks follow-up ordered	1.3	3.2
12-week follow-up ordered	84.8	81
Referred to dietitian	11.4	17.5

Figure 1: Provider Management Practice for Children with BMI \geq 85%



Out of the 193 children between the ages of 6-16 who were seen in March 2019 for a wellness exam or a child physical exam, none of the records reviewed had documentation in the EHR that an assessment was done using the 5210 Healthy Habits questionnaire or a description of a similar type of healthy habits assessment. In March 2020, 25% of the 135 records reviewed included documentation of an assessment of patient consumption of fruits and vegetables, 22% had documentation of assessment of screen time, 19% had documentation on assessment of time spent in physical activity per day, and 17% documented assessing the frequency of sugary drinks per day.

In March 2019, 37% of the records reviewed included documentation that counseling was provided recommending consumption of 5 fruits and 5 vegetables daily, 47% included documentation of counseling the parent and child to spend 2 hours or less on-screen time per day, 96% included documentation of the need to engage in at least 1 hour of physical activity, and none of the providers documented counseling regarding omitting all sugary drinks. In 2020, 49% of records included documentation of encouraging parents and children to eat 5 fruits and 5 vegetables daily, 60% documented counseling to limit screen time to less than 2-hours per day, 96% documented discussing the need to engage in at least 1-hour of physical activity per day, and 22% of the records had documentation that parents and children had been counseled to cut out consumption of all sugary drinks. Although the 50% increase in documentation of appropriate assessment and counseling was not reached, there was a clear, clinical improvement noted following the education session and introduction of the new protocol, except in counseling for physical activity. This remained the same. Please see Table 3 and Figures 2 and 3 for a more detailed comparison between both years.

Table 3: Provider Documentation of Assessment and Counseling Practices for all Children seen for a Wellness Exam or Child Physical Exam

Provider Documentation of Assessment and Counseling Practices for all Children seen for a Wellness Exam or Child Physical Exam

	2019	2020
	(N=193)	(N=135)
	% Yes	% Yes
Assessment		
5 fruits 5 vegetables	0	25.2
2-hours or less of screen time	0	21.5
1-hour of physical activity	0	18.5
0 sugary drinks	0	17
Counseling		
5 fruits 5 vegetables	36.8	48.9
2-hours or less of screen time	46.6	60
1-hour of physical activity	96.4	95.6
0 sugary drinks	0	21.5

Figure 2: Provider Documentation of Assessment Practices for Children seen for a Wellness Exam or Physical Exam

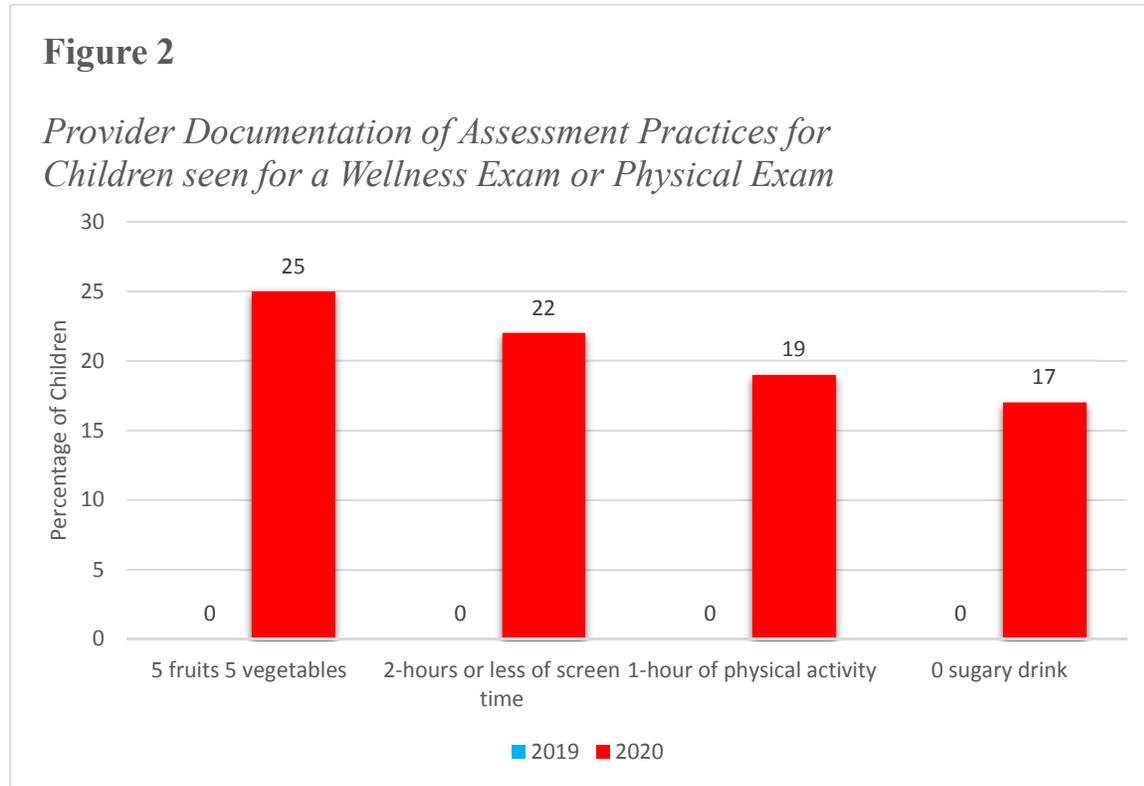
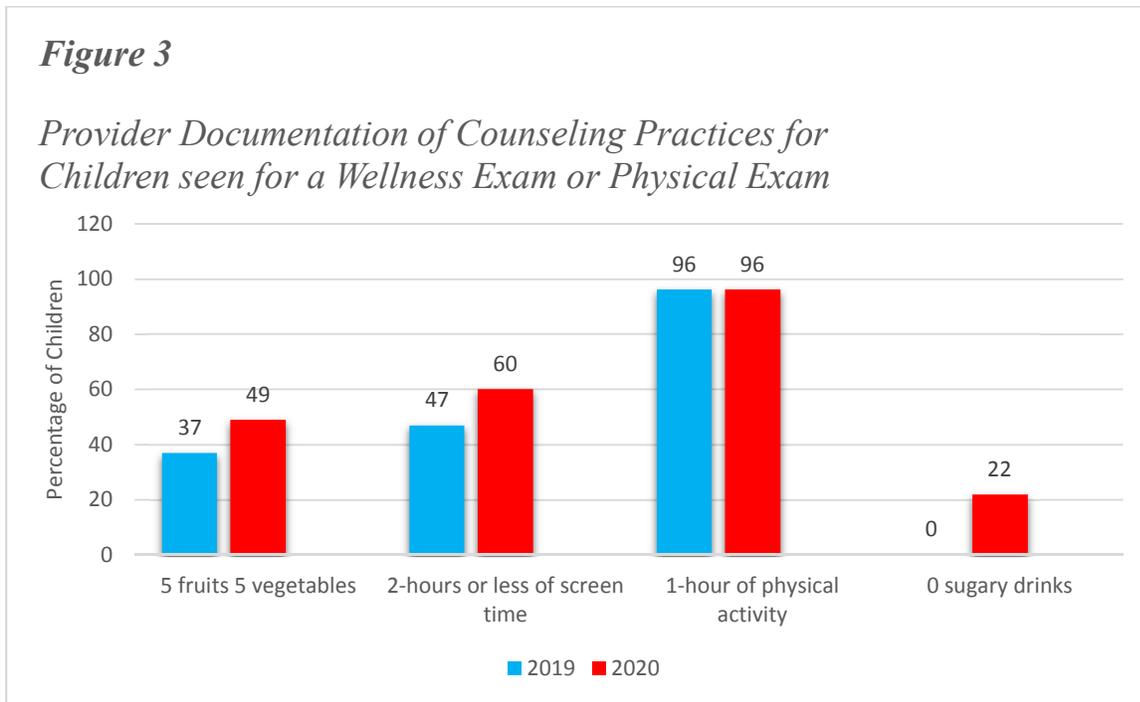


Figure 3: Provider Documentation of Counseling Practices for Children seen for a Wellness Exam or Physical Exam



Due to the current pandemic, Aim #3, which was to improve weight measurement by 2 pounds in children diagnosed with OW or OB had to be deferred. During this time, patient census dropped dramatically, and most patients who were seen in the clinic were seen for an acute illness. The number of children scheduled for wellness exams or child physical exams was greatly decreased due to the “shelter in place” order.

DISCUSSION

Although the project aims were not fully met, there were improvements noted in provider management practices in only one month. Providers ordered follow-up visits in one month slightly more frequently and referrals to a dietitian increased by 7 percentage points. A thorough assessment of health habits increased from no documentation of assessment to almost 20%

across assessment categories and documentation of counseling by HCPs increased by over 10% in March 2020 when compared to March 2019. As noted earlier, due to the inability to continue the project after the pandemic was declared, we were unable to see if these changes resulted in any decrease in the children's weight, as originally planned. Although this QI initiative was only carried out for one month, as much as 25% of the clinic's patients received improved obesity assessment, counseling and follow-up, indicating a substantial improvement in provider practice.

As we found in our project, the work of others has also shown that educational activities can improve HCP adherence to established pediatric weight management guidelines. A QI project by Cygan et al. (2014) found an improvement in the scheduling of follow up appointments and in diet/physical activity counseling after an educational intervention for HCPs. Their results were not statistically significant but were considered to be clinically important due to the increase in the number of patients who received appropriate follow up care and counseling (Cygan et al., 2014). The study by Dennison et al. (2009) found that mailing an educational toolkit to HCP's can also have a small but positive effect in clinical practice. Results showed an increase in HCP's reporting the use of sex specific BMI for age percentiles to screen for childhood obesity (Dennison et al., 2009). In our study, HCPs follow up order, documentation of assessment and counseling of Healthy Habits, and referrals improved after the educational intervention.

Limitations

Unfortunately, the COVID-19 pandemic resulted in many limitations for this project. Initially, the project's protocol initiative was planned for a 3-month period. The timeframe had to be decreased to 1 month, due to the "shelter in place" order from the county that caused time constraints and a delay in data collection. Patient census dropped by about 50% and most routine

wellness or child physical exam visits were canceled or rescheduled, with only acutely ill patients being seen during the second and third months of the planned project. The PD was unable to provide frequent verbal reminders to the providers, reinforcing AAP guidelines as originally planned, which may not have proven fruitful either, as most patients seen in the last two months did not meet the project inclusion criteria. During this time, HCPs were most concerned with staying up to date with current pandemic recommendations and protecting themselves and their patients from illness and COVID-19 complications and were not able to focus on implementing the obesity management practice changes. The dietitian to which the providers referred their OW and OB patients also closed temporarily so patients were not able to schedule appointments. Recommended follow-up visits for weight management were also postponed due to the dangers of the pandemic.

Interpretation

Kurt Lewin's Change Theory helped to guide the steps taken in this QI project and to provide the direction needed for the project to continue, despite the initial setbacks due to the COVID-19 pandemic. This project accomplished the first Unfreeze stage and Change stage through the initiation of the practice protocol. Unfortunately, due to the pandemic the change implemented was not completely ready to move on to the next stage, which is the refreezing stage. There is still room for improvement and more assessment to determine if this protocol is ready to be implemented as a policy. The second PDSA cycle can focus on ensuring that all children who are diagnosed with OW or OB get referred to the dietician and are scheduled for a 4 week follow up. EHR templates will also need to be modified to a 4 week follow up instead of a 12 week follow up. To increase dietary compliance, caregivers will also need to be informed

that they are able to consult with the dietitian via video conference, given the likely continued constraints of the pandemic, until a vaccine is made available.

CONCLUSION

Although pediatric obesity management educational interventions for providers have been shown to greatly improve HCP practices and patient outcomes, this quality improvement project was not able to demonstrate the magnitude of expected improvements, due to unforeseen circumstances of the current pandemic. Results were however promising and were trending toward significant positive practice changes. Changes in patient outcomes will continue to be monitored by the practice and have the potential to be positively impacted by practice changes through application of the algorithm-based protocol. One of the major lessons learned from this project was that because we live in a time of significant technological advancements in health care, implementation of an intervention should include options to use telehealth communication should obstacles such as a pandemic or other catastrophic events occur. Primary healthcare must continue. Future research should focus on introducing ways for HCPs to continue to manage children with OW and OB during unusual, unexpected and stressful situations, like a pandemic.

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LIST OF APPENDICES

APPENDIX	PAGE
APPENDIX A: Letter of Determination.....	33
APPENDIX B: Letter of Support	34
APPENDIX C: 5210 Healthy Habits Message.....	35
APPENDIX D: Project Timeline	36

APPENDIX A: Letter of Determination



OFFICE OF RESEARCH COMPLIANCE
Division of Research and Innovation
6300 OCEAN DRIVE, UNIT 5844
CORPUS CHRISTI, TEXAS 7842
O 361.825.2497

Human Subjects Protection Program **Institutional Review Board**

DATE: December 12, 2019
TO: Theresa Garcia, College of Nursing and Health Sciences
CC: Deborah Potter, Student
FROM: Office of Research Compliance
SUBJECT: Not Human Subjects Determination

Activities meeting the DHHS definition of research or the FDA definition of clinical investigation and involves human subjects are subject to IRB review and approval.

On December 12, 2019, the Texas A&M University-Corpus Christi Institutional Review Board reviewed the following submission:

Type of Review:	Not Human Subjects Determination
Title:	Improving Provider Practices to Decrease Hispanic Childhood Overweight and Obesity
Project Lead:	Theresa Garcia
IRB ID:	NHS 65-19
Funding Source:	None
Documents Reviewed:	IRB template_final_Potter Not Human Subjects Research Request- Potter

Texas A&M University-Corpus Christi Office of Research Compliance determined that the proposed activity does not meet the DHHS definition of research or the FDA definition of a clinical investigation.

Therefore, this project does not require IRB approval. You may proceed with this project.

This determination applies only to the activities described in the documents reviewed. **Any planned changes require submission to the IRB to ensure that the research continues to meet criteria for a non-human subject research determination.**

Please do not hesitate to contact me with any questions at irb@tamucc.edu or 361-825-2497.

Respectfully,

Matthew R. Digitally signed by Matthew R. Gaynor, J.D. Date: 2019.12.12 11:48:46 -06'00'
Gaynor, J.D.
Office of Research Compliance

APPENDIX B: Letter of Support

Sunshine Pediatrics

09-24-2019

Dr. Sara Baldwin
Associate Dean for Academic Programs
College of Nursing and Health Sciences
Texas A&M University – Corpus Christi
6300 Ocean Drive
Corpus Christi, TX 78412

Dear Dr. Baldwin,

The purpose of this letter is to provide Deborah Potter, a Doctor of Nursing Practice student at Texas A&M University College of Nursing and Health Sciences, support in conducting a quality improvement project at Sunshine Pediatrics. The project, *Use of a Primary Care Provider Educational Intervention to Decrease Hispanic Childhood Overweight and Obesity*, entails improving provider management practices and health outcomes for children who are overweight or obese through an educational intervention based on the American Academy of Pediatrics recommendations.

The purpose of this project is to improve provider knowledge, management processes, and interprofessional collaboration between the provider and the dietician in caring for children who are overweight or obese. Sunshine Pediatrics was selected for this project because the clinic frequently sees patients who are overweight or obese and is interested in working with the student to improve clinical practice and processes. Deborah Potter is not employed at this institution but has an interest in improving care at this facility.

I, Tania Jalil, owner/pediatrician at Sunshine Pediatrics, do hereby fully support Deborah Potter in the conduct of this quality improvement project, *Use of a Primary Care Provider Educational Intervention to Decrease Hispanic Childhood Overweight and Obesity* at Sunshine Pediatrics.

I also approve Deborah Potter to access protected health information (PHI) for purposes of conducting this quality improvement project. She has signed a HIPAA release form.

Sincerely,


[Tania Jalil, MD, PA]

APPENDIX C: 5210 Healthy Habits Message



*Keep TV/Computer out of the bedroom. No screen time under the age of 2.

APPENDIX D: Project Timeline

