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### Documenting Body Mass Index and Lifestyle Counseling for Pediatric Patients: A Quality Improvement Project at a Federally Qualified Healthcare Facility

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**Documenting Body Mass Index and Lifestyle Counseling for Pediatric Patients: A Quality  
Improvement Project at a Federally Qualified Healthcare Facility**

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## Abstract

**Background:** Screening and monitoring growth throughout childhood and adolescence, as well as providing the necessary education on positive lifestyle choices is vital in combating the childhood obesity epidemic. Counseling children on the importance of nutrition and physical activity also helps to prevent numerous comorbid conditions associated with obesity. The United States Preventive Services Task Force recommends that healthcare workers screen for obesity at least annually in all patients 3-17 years of age, as well as offer lifestyle counseling regardless of Body Mass Index ranking.

**Aim:** The aim of this quality improvement project was to improve the current percentage of pediatric patients with up-to-date documentation of Body Mass Index percentile and proof of receiving counseling for both physical activity and nutrition. Specifically, this project aimed to increase child BMI screening and counseling rates at a federally qualified healthcare facility from 49% to the agency goal of 60% by July 30th, 2022.

**Interventions:** A root-cause analysis was performed by completing an initial chart audit of 176 patient charts. After analyzing the audit results it was determined that the most common error was failure to document providing patient education on physical activity and nutrition. This information was then used to develop an educational presentation for clinical staff to learn about the measure and how to properly document patient counseling in the Electronic Medical Record. A focus group was then conducted to understand the current barriers staff face with meeting the measure, and receive feedback on ways to improve. The two providers with the lowest compliance rates were given additional education on documenting the measure and at-the-elbow support was provided.

**Results:** The data revealed that the educational intervention had not been effective in improving compliance rates of the measure. By the end of June 2022, the percent compliance rate had actually decreased to 46%. During the focus group staff expressed concerns about not having enough time to complete education, along with having their patients present annually for physical exams.

**Discussion:** Screening pediatric patients for obesity, in addition to providing the appropriate education for implementing healthy lifestyle habits is vital for growth and development. As the results have shown the educational intervention to be unsuccessful, a different approach should be taken in the future to help improve compliance.

**Implications for the CNL:** Focusing on the role of the CNL, healthcare technologies were used to obtain and evaluate data regarding the quality of patient-centered care. Leadership and communication skills were utilized to strengthen interprofessional partnerships, which served as vital during the implementation phase. The necessary steps taken throughout this project has emphasized the roles of the CNL as a lifelong learner, continuously striving to improve the quality of healthcare.

**Key Words:** Childhood obesity, EMR documentation, quality improvement, healthcare

## **Introduction**

### **Problem Description**

Childhood obesity is known as a worldwide health concern due to the number of significant risks this condition poses to an individual's overall health, development, and well-being. As the rates of childhood obesity continue to rise, comorbid conditions such as hypertension, hyperlipidemia and insulin insensitivity are being observed at an increasingly early age (Brown et al., 2019). Additionally, individuals living with obesity during childhood and adolescence are more likely to develop type 2 diabetes mellitus (T2DM) and cardiovascular disease (CVD) in adulthood (Brown et al., 2019). In efforts to combat this, it is vital for healthcare providers to identify and treat at-risk populations. This process begins with obtaining and tracking growth over time, as well as offering education about the modifiable risk factors of disease such as physical activity and nutrition.

The setting for this quality improvement (QI) project was an outpatient community health center. This facility strives to advocate for health promotion and disease prevention. One of the major disease prevention processes used within the microsystem is tracking Body Mass Index (BMI) percentiles, and providing counseling for nutrition and physical activity to pediatric patients and their caretakers. As of February 2022, the facility was operating at 49% documentation compliance in the electronic medical record (EMR) for this metric; 11% below the organizational goal of 60%. Due to the adverse effects' obesity has on one's health, it is important to improve this metric. Ultimately, identifying at-risk children and providing them with the necessary counseling and treatment to improve health can decrease the chances of developing mental and physical comorbidities.

## **Available Knowledge**

Approximately 32% of children and adolescents in the United States are classified as overweight or obese in regards to BMI percentile (United States Preventative Services Task Force, 2017). Due to its increasing prevalence and negative impact on health, it is crucial for clinicians to prioritize the prevention and treatment of this chronic condition (Brown et al., 2019). In efforts to combat this, healthcare providers must work alongside other members of the interdisciplinary team to help patients implement health enhancing behaviors (Wilfley, Kass and Kolko, 2011). However, in order to provide proper treatment and counseling, individuals must first be screened for obesity by obtaining their height and weight, which may then be used to calculate BMI rating and percentile.

In order to research the importance of tracking body mass index (BMI), and the impact of providing appropriate dietary and physical activity counseling to pediatric patients, search engines such as PubMed, Google Scholar, Cochrane Library, and Joanna Briggs Institute (JBI) were used to find evidence. Keywords included “body mass index (BMI), electronic health record (EHR), pediatrics, childhood obesity, overweight, obese, electronic medical record (EMR), intervention, diet, exercise, counseling, and nutritional education.” Altogether, these databases produced a plethora of results in regards to the importance of both components. After removing the duplicates, research was narrowed down by excluding articles published more than ten years ago, research conducted on adults, those not published in English, and those that did not focus on the screening and treatment for child and adolescent obesity. As a result, three systematic reviews and two experimental studies were included in this review. Of these articles, the focus remained on screening and treating patients 18 years of age and younger for overweight and obesity.

The purpose of the Electronic Clinical Quality Improvement (eCQI) Resource Center is to provide standards and shared technologies to monitor and analyze both the quality of care provided, and patient outcomes (2022). As a federally funded facility, the healthcare center is required to track and report multiple eCQI measures each year. The consequent literature will provide information pertaining to the following eCQI measure: *Weight Assessment and Counseling for Nutrition and Physical Activity for Children and Adolescents*. As the norms for youth BMI vary with age and sex, this measure assesses BMI percentile, rather than an absolute BMI value to improve accuracy in the measurement (eCQI, 2022).

The U.S. Preventive Services Task Force (USPSTF) is another helpful resource in regards to this topic, as they aim to provide recommendations about the effectiveness of specific clinical preventive services for patients without obvious related signs or symptoms (2017). Currently, the USPSTF recommends that healthcare workers screen for obesity in children and adolescents, as well as offer or refer them to behavioral interventions to help promote improvements in weight status (2017).

Saviñon et al. (2012) began to examine the importance of using the EMR to document BMI in pediatric patients by comparing their virtual charting system with written records. This study was conducted within a federally funded community health center, similar to the setting for this project. Prior to the implementation of EMR, the facility had only reported 2.6% of their pediatric patients accurately diagnosed as overweight or obese in 2009, equating to 11 out of 421 patients. As a result of this data, Saviñon et al. aimed to examine the effects of customizing the EMR using evidence-based practice (EBP) guidelines on improving the rate of screening and diagnosis of pediatric obesity (2012). Participants included patients aged 7-18 years old that presented for an annual well-child visit. By performing a chart audit, the study compared 40

written records with 34 EMR. The research showed that use of the EMR, as opposed to written records, increased the frequency of BMI documentation, the completion of growth charts, and scoring questionnaires. Additionally, overweight and obesity diagnoses increased from 2.6% to 12% with use of the EMR. In regards to the level of evidence (LOE), this study falls under a level III, as it follows the quasi-experimental design (Ackley et al., 2008). We are unable to generalize these results to all practices due to the small sample size. However, the process should be repeated throughout various different settings for further evaluation. Ultimately, this data supports the use of an electronic medical record to track pediatric BMI.

For further examination, a systematic review by Smith et al. (2013) was conducted on the use of health information technology (HIT) to assess its impact on patient outcomes and care management for individuals with a diagnosis of pediatric obesity. Online databases were searched to find randomized control trials (RCTs), before-and-after studies, and cross-sectional studies regarding the use of HIT to deliver obesity screening and treatment to pediatric patients. The review included 13 studies all conducted on children and adolescents from 2 to 18 years of age. The results of the systematic review revealed an association between EMR use and increased rates of BMI screening. This article is classified as a level II in regards to LOE, as some studies included RCTs (Ackley et al., 2008). Smith et al. (2013) further signifies the importance of using electronic interventions to improve access to obesity screening and treatment.

The systematic review by Yabut and Rosenblum (2017) takes a similar approach, as this research was conducted to explore the use of the EMR as a means to identify children at-risk for obesity, and furthermore, to prevent disease and manage care. Online databases were inspected, leading to the utilization of nine research articles to support the use of the EMR for documenting



and identifying pediatric obesity. The research found a positive correlation between documentation of obesity through use of EMR and measurement of BMI. One study directly mentioned that the use of HIT was valuable to pediatricians and their patients, similar to that stated by Smith et al. (2013). In addition, the literature notes that most healthcare providers expressed a desire for convenient and easily accessible educational materials to provide for their patients. This article also displays a level II LOE, as a few RCTs were included in the research (Ackley et al., 2008). The results of the review conclude that using an EMR system increases BMI documentation along with the identification of children at-risk for obesity (Yabut and Rosenblum, 2017).

After utilizing the EMR to document and assess BMI, counseling on proper dietary and exercise habits should be conducted in order to help guide patients towards health. Brown et al. (2019) conducted a systematic review to determine the importance of providing diet and physical activity interventions in order to prevent and treat childhood obesity. This review consisted of 153 RCTs, found by exploring online databases from 2015 to 2018. Due to the plethora of quality RCTs included in this systematic review, the level of evidence for this article is categorized as a level I (Ackley et al., 2008). The results ultimately revealed that different interventions have varying effects on different age groups. For example, Brown et al. (2019) report that nutrition and physical activity interventions combined can reduce the risk of developing obesity in children 0 to 5 years of age. However, interventions focusing solely on physical activity did not prove to be effective in this group. In contrast, physical activity interventions did reduce the risk of obesity in patients 6 to 18 years of age. Although it is important to address both the diet and the exercise component when counseling patients, it may

be useful to also consider the patient's age and developmental level when directing the core focus of the counseling.

As previously recognized, there are numerous evidence-based strategies healthcare providers can utilize while working with pediatric patients and their families to help mitigate the prevalence of childhood obesity. The review article by Kaufman, Lynch, and Wilkinson (2020) makes recommendations based on the reports of different expert committees such as USPSTF, the American Academy of Family Physicians (AAFP), the American Academy of Pediatrics (AAP), the National Heart, Lung and Blood Institute, and the Pediatric Endocrine Society. As a result, the level of evidence falls within the level VII category (Ackley et al., 2008). This article suggests that providers address the issue of childhood obesity when it arises. As simple as this may seem, clinicians may forget to do so without proper documentation in the EMR. The article states, "in addressing the issue, providers should support families through effective, positive relationships. Providers must be aware of their biases; their language should be appropriate and non-stigmatizing. Helpful interventions should focus on behavior, not weight, health, or appearance" (Kaufman, Lynch, and Wilkinson, 2020, p. 1). In addition to providing counseling, this quote highlights the importance of building rapport and ensuring high-quality counseling is provided. Ultimately, the research provided by this article can help providers develop different strategies that may be helpful when counseling patients and their families.

### **Rationale**

The Plan Do Study Act (PDSA) framework was used to guide quality improvement throughout this project. The planning phase consisted of performing a chart audit and a root cause analysis to identify the main issues at hand. A fishbone diagram was then completed to visualize the causes of noncompliance with pediatric BMI and counseling documentation. After

reviewing 176 patient charts, it was found that 133 charts did not have proper documentation of up-to-date counseling, and 90 charts did not have documentation of an up-to-date BMI percentile. These results have prompted the change idea of educating clinical staff on proper documentation of BMI percentile and counseling in the EMR, which occurred during the implementation phase. It was expected that staff education would help improve metric rates, as many errors identified during the chart audit revolved around incorrect or absent documentation. The results were then studied by updating the current run chart which is used to track facility progress on a monthly basis. The data presented at the culmination of each month allowed for progression into the “Act” phase, as the results were used to determine progress towards the goal.

### **Global Aim**

The global aim of this QI project was to improve the percentage of pediatric patients who receive adequate counseling for physical activity and nutrition, thus leading to a decrease in the rates of pediatric and adolescent obesity as a whole.

### **Specific Aim**

The specific aim of this QI project was to increase documentation rates for child BMI screening and counseling from 49% to the agency goal of 60% by July 30th, 2022.

## **Methods**

### **Context**

As previously noted, childhood obesity is a national concern shared by this microsystem. In addition to the negative effect’s obesity has on one’s physical, mental, and emotional health, this condition also challenges the financial side of healthcare. Treating childhood obesity is a very costly measure, which becomes increasingly expensive if the condition carries on into

adulthood. In the United States alone, approximately \$14.1 billion of direct expenses goes to treating childhood obesity through prescription medications, emergency department visits and outpatient costs each year (Yabut and Rosenblum, 2017). Additionally, an estimated \$237.6 million is spent on inpatient treatment. These costs increase dramatically as obesity carries into adulthood, costing \$146 billion annually (Yabut and Rosenblum, 2017). Treating and preventing obesity during childhood can not only improve one's quality of life, but can also mitigate the annual cost in healthcare expenditures.

Due to the financial impact of obesity in healthcare, the organization has incentivized the current measure: *Child & Adolescent Body Mass Index (BMI) with Counseling for Nutrition & Activity*. This measure accounts for the percentage of patients 3 to 17 years of age who had an outpatient visit with a Primary Care Physician (PCP) or Obstetrician/ Gynecologist (OB/GYN) and who had evidence of height, weight and BMI percentile documentation, along with documentation of counseling for both nutrition and physical activity. Providers that have met all components of this measure will receive \$125.00 per patient. This incentive is paid quarterly, and incentives will be disbursed if the provider's desktop contains no elements which are older than seven calendar days. If elements exist that are older than seven days, the payment will occur in the following month, again, assuming the desktop contains no items older than seven days. Incentivizing this measure further highlights the importance of tracking child BMI and counseling, and the impact it has on the cost of healthcare.

## **Intervention**

After completing a chart audit of 176 pediatric patient charts, a root cause analysis was performed to determine the main issues with the current metrics. Ultimately, the research revealed that most issues stemmed from incorrect or incomplete documentation in the electronic medical record (EMR). This may indicate that the EMR documentation workflow does not fit the end-user's needs. After consulting with the Data Analyst about the findings, it was discovered that within the EMR there are two boxes that need to be checked in order to meet the measure: one that calculates BMI percentile, and one that states the provider has counseled the patient on the importance of healthy nutrition and physical activity. In efforts to improve the metric, the proposed method of intervention included conducting EMR education for providers and medical assistants (MAs). Yabut and Rosenblum (2017) believe that utilizing the EMR as a tool marker to identify childhood obesity early on will significantly reduce healthcare costs associated with adult obesity.

The team involved in carrying out the education piece included a Clinical Nurse Leader (CNL), a CNL student, and a data analyst. After receiving permission from the clinical nursing supervisor, it has been determined that an education segment will be conducted for all providers (physicians, nurse practitioners (NPs), and physician's assistants (PAs), nurses, and MAs during the next clinical staff meeting on June 1st, 2022. This segment consisted of a presentation regarding the current metrics, chart audit results, relevance to practice, and a step-by-step display of how to properly document all aspects of the measure in the EMR. An example of the EMR education display presented can be found in Appendix A. After providing education, one clinical day was spent providing at-the-elbow support for providers and MAs throughout their pediatric visits to observe barriers and encourage proper documentation of both elements. The goal of this intervention was to reinforce clinical staff to properly document information regarding BMI

percentile and counseling in the EMR. Conducting this intervention was expected to lead to the long-term goal of improving the rates of childhood obesity by increasing screening and counseling.

The intervention was then studied by assessing the metric itself in addition to provider and staff feedback. The impact of the intervention was assessed by analyzing the percentage of patients who had up-to-date documentation of both components in the EMR at the end of each month. A run chart was updated monthly, as the trend of the run chart reveals if the intervention resulted in a change. Throughout the project, the run chart displayed very little variation in monthly percentages. If a significant increase was seen on the run chart after the intervention had taken place, it would be clear that the intervention caused the change. In addition, feedback from staff helped to indicate the usefulness of the intervention.

### **Measures**

This metric is measured each month according to each facility and provider. For the purpose of this project, the focus remained solely on the facility scoring the lowest on the metric and their associated providers. The measure is tracked by comparing the percentage of patients with the proper documentation in relation to the total number of eligible patients. For this measure, BMI percentile is tracked instead of BMI value. The BMI percentile is more accurate, as it compares the individual's height and weight to other children of their age and sex, whereas BMI value determines the general weight status based solely on height and weight. For example, a 10-year-old male with a BMI value of 23 would be considered obese, falling within the 95th percentile for his age and sex (Appendix B). Proper counseling regarding nutrition and physical activity looks different for each provider, as it is left to the provider's discretion.

However, the provider must be sure to include counseling for both nutrition and physical activity, as mention of only one will not suffice.

A run chart is a data analysis tool, visualized as a line graph of data plotted over time. By collecting and charting the data at numerous time periods, trends and patterns in the process are revealed (P.Q. Systems, n.d.). By continuing to track this measure on the run chart each month, we were able to determine if the educational intervention resulted in a change.

### **Analysis**

Data regarding provider compliance was obtained automatically through the EMR system at the end of each month. After obtaining the statistics from the EMR, the run chart was updated to visualize the current trend. As of March 1st, the facility reported 48% compliance with documentation of this metric in the EMR. The goal was to reach 60% compliance by July 30th, 2022. A successful intervention would have been indicated by an increase in percent compliance as visualized on the run chart.

In addition to the quantitative data, a qualitative analysis was conducted. To do this, staff were asked for feedback, satisfaction rates, and any trends they might have noticed in tracking this measure during the staff meeting on June 15th, 2022. Qualitative data was tracked and analyzed by having staff members complete a survey. Communicating with frontline staff directly can help identify any additional challenges or barriers they may face with tracking this measure. The run chart data and staff feedback collectively helped to determine if another Plan Do Study Act (PDSA) cycle was necessary to implement a second intervention.

### **Ethical Considerations**

Ethical considerations for this quality improvement project typically revolve around the parent or guardian's role in their child's health. For example, ethical concerns for family-based

interventions include the guardians' rights and responsibilities to protect their children, perceptions of obesity as child abuse or neglect, and the guardian's role as decision-makers on their child's behalf due to the child's limited capacity to comprehend the risks and benefits of treatment (Perryman, 2011). Barriers to family-based interventions may also exist due resource inaccessibility related to socioeconomic status (SES), caregiver free time, and food security within communities. Additionally, health-focused programs for children and families might be offered only in certain areas. Currently, the organization is working to partner with Granite YMCA to provide discounted services in order to promote physical activity and improve access to health resources. Although family dynamics are known to play a major role in childhood obesity, they are often overlooked by healthcare professionals. As interventions are developed, consideration needs to be given to societal factors, such as the food environment, the tendency toward sedentary behaviors, and the limited financial resources of communities (Perryman, 2011).

### **Results**

After performing a chart audit and analyzing the results, it was clear that the main issue with compliance stemmed from providers not documenting counseling for diet and exercise in the electronic medical record (EMR).



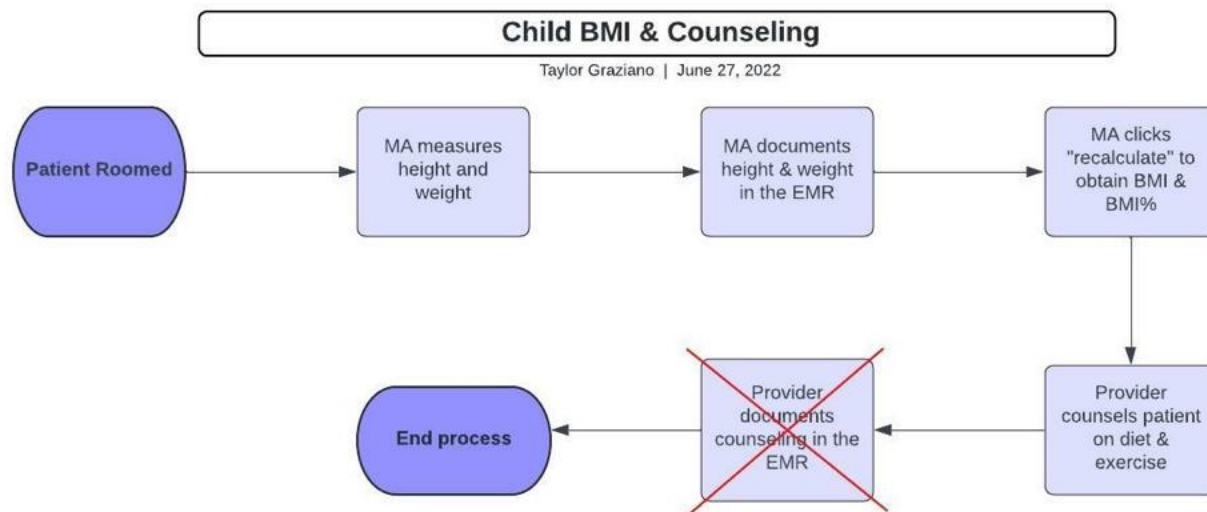


Figure 1 - Current State Process Flow Chart

Although most patients had been counseled at some point, 60% of patients had not been counseled within the past year (135 out of 176 total patient charts). The results also revealed that the counseling was most often being missed during acute visits, as opposed to well-child checks.

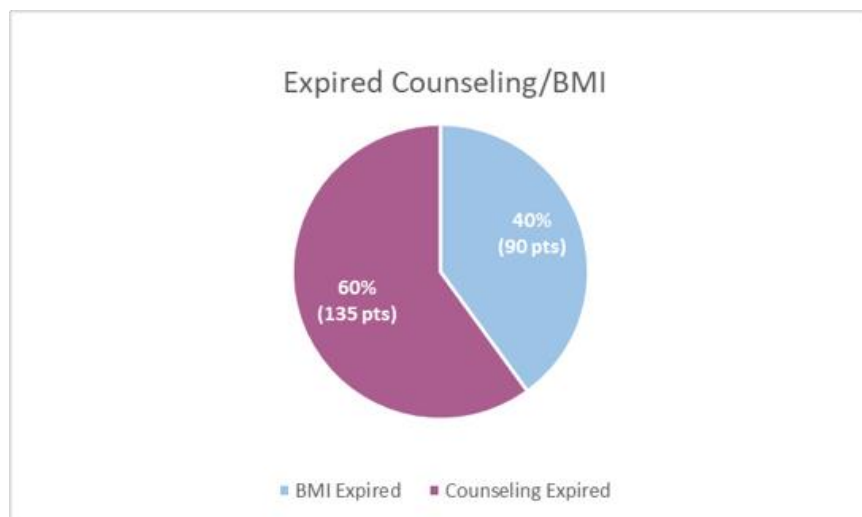


Figure 2 - Pie Chart of Initial Chart Audit Findings

After reviewing the results from the initial chart audit, conducting education for all clinical staff was deemed appropriate in attempts to improve compliance. The intervention began during the monthly staff meeting, where an education segment was provided via PowerPoint

regarding the steps to properly document BMI percentile and counseling in the EMR.

Additionally, the importance of tracking the measure, current performance by facility, and tips to improve compliance were discussed. Staff were also reminded that the measure is not specific to physical exam visits, and should be tracked at least once per year at any visit. One week after performing staff education, at-the-elbow support was conducted for providers and medical assistants throughout the day. This helped to understand the barriers staff members have faced with meeting the measure and answered questions about documentation. Additionally, a weekly email was sent to all clinical staff members reminding them to document the measure and included the previous PowerPoint. A bulletin board was also created for the measure and shared in the common area for staff to reinforce the importance of documentation.

In order to further dissect the data, performance rates were analyzed by team. Clinical staff at this health center are separated into four different teams consisting of ~2-3 providers in each. After analyzing the data, it was brought to light that team two had the lowest compliance rate for the month of May.

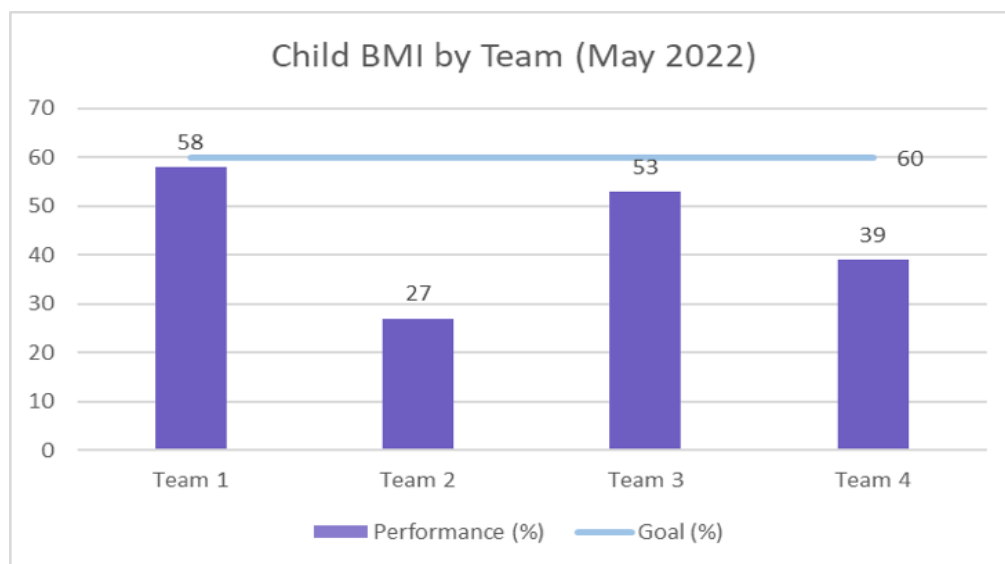


Figure 3 - Compliance Rates Broken Down by Team

As a result, two additional chart audits were completed; one for each provider on team two. The data revealed that the majority of each provider's pediatric patients had expired documentation for physical activity and nutrition counseling.

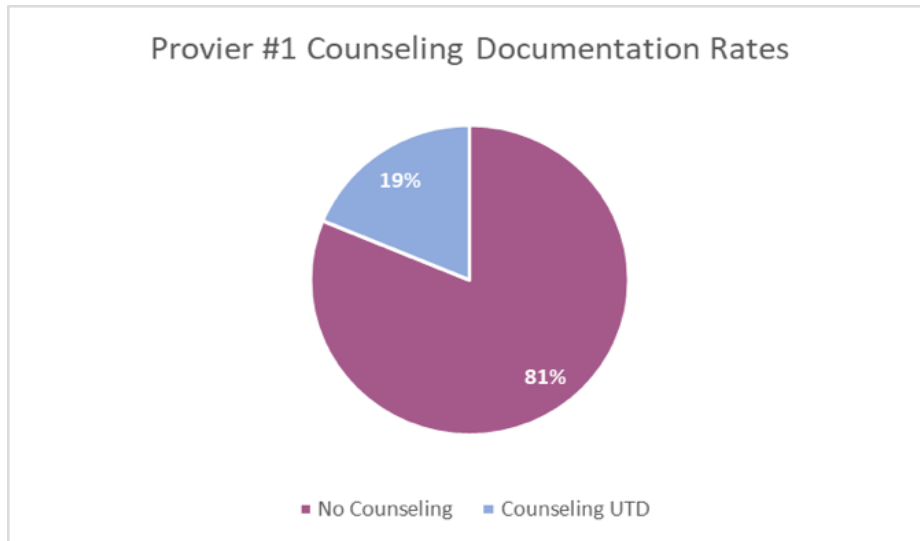


Figure 4 - Provider #1 Compliance Rate

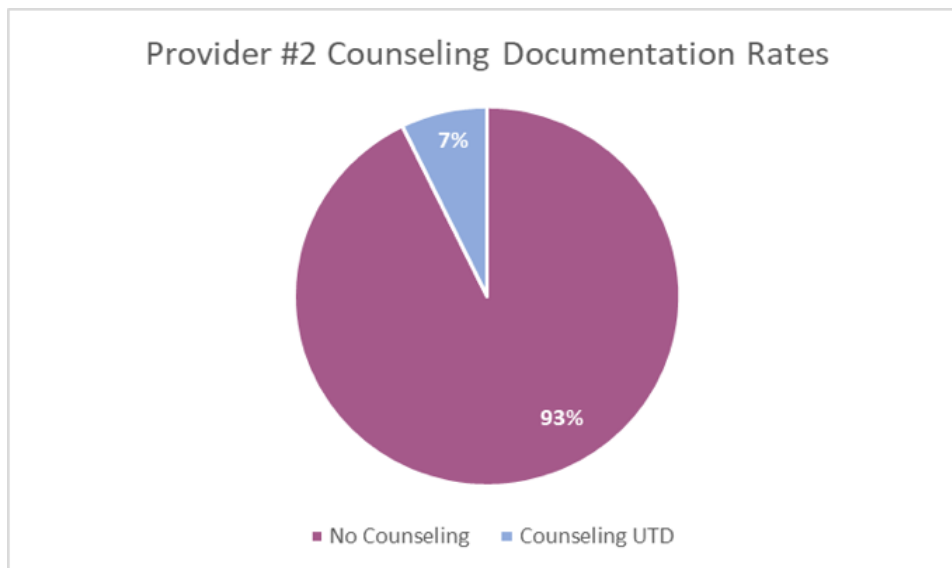


Figure 5 - Provider #2 Compliance Rate

After analyzing these results, the quality improvement team decided to conduct further education with the providers on team two. This education consisted of meeting with each provider individually to provide them with their current compliance rates along with a tutorial on proper documentation of counseling. Each provider was reminded that this measure is incentivized, and therefore, they will receive \$125.00 for each patient with up to date documentation. On July 1st, data was obtained for June compliance rates by facility.

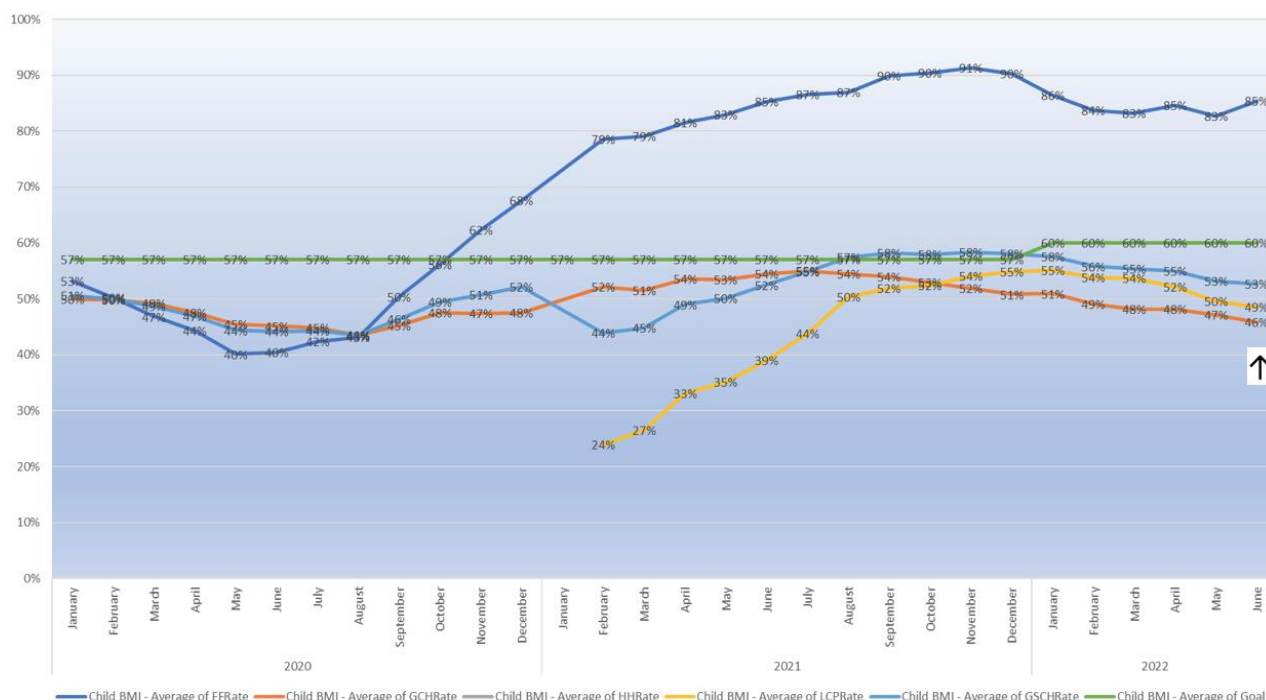


Figure 6 - Child BMI & Counseling Documentation Rates by Facility

As the chart reveals, compliance had actually decreased by 1% from May to June at the facility of focus for this QI project. In order to understand why the compliance rate had decreased, a focus group was held with the pediatric providers at the facility. During the focus group, most providers expressed concern that they did not have enough time to provide counseling during acute visits. They also explained that it has been difficult to get each patient to

be seen for a well-child check annually, as many of their patients experience transportation and insurance barriers. However, these barriers are experienced across all facilities within the organization, yet one facility is operating consistently above the goal. In order to gain insight as to why compliance rates are greatly increased at this facility, a meeting was held with the pediatric providers at this facility as well. The providers at this facility explained that their compliance rates began to increase as their number of well-child check appointments increased. This was ultimately due to the facility creating a pediatric desktop in the EMR. This feature alerts administrators when each child is due for their annual well-child check, which reminds them to call each household and send letters reminding them to schedule their visit. The pediatric desktop was implemented at this facility in February of 2021, which has made a significant improvement on compliance rates. Additionally, the main pediatric provider at this facility is a pediatrician, whereas the other facility consists of all primary care providers that see pediatric patients.

Ultimately, this quality improvement project did not result in improvement of the Child BMI and Counseling measure. Limitations to this project included the short amount of time given to implement the interventions. Additionally, provider buy-in was weak, as most providers expressed that this measure is typically not a priority during an acute visit, unless the reason for the visit is related to the measure. Going forward, the next PDSA cycle for this project would include the implementation of a pediatric desktop at all facilities within the organization in attempts to improve compliance rates. Although the measure is tracked for all visits, it may help to start by focusing on improving the rates of counseling at well-child checks first.

## Discussion

### Summary

Following the PDSA framework, the “study” phase began as we obtained and analyzed the June compliance rate for the measure. Unexpectedly, compliance had decreased by 1% from 47% in May to 46% in June. After analyzing these results, it was deemed that the intervention was unsuccessful in reaching the specific aim of 60% compliance by June 30th 2022. After reviewing these results and receiving feedback from staff during a clinical meeting, the conclusion was made that education, although important, may not be the best intervention to improve this measure. Subsequently, the “act” stage will then consist of formulating a new idea for future intervention.

Fortunately, this measure is continuously tracked across all three facilities within the organization, even though the project had only focused on the current lowest ranking facility. Tracking this measure across multiple different facilities allows for comparison in compliance rates. It was found that one facility had consistently been operating well above the organizational goal of 60%. This sparked the idea to meet with the pediatric providers at this facility to gain insight on their current processes for meeting the measure, in hopes that this could help drive the next PDSA cycle for the lower ranking facility. It was found that compliance rates at the facility began to increase as more pediatric patients were attending their annual well-child checks. The increase in well-child checks had been due to the implementation of a specific pediatric desktop in the EMR, which alerts staff to reach out to each patient’s family when the child is due for their annual exam. Due to the information obtained at this meeting, implementing a pediatric desktop at the other facility in the following PDSA cycle may help to improve compliance rates at this facility as well.

Other strengths of this project include the many chart audits that were performed to help identify the root cause of the issue at hand. These audits ultimately shed light to the fact that the main problem is in remembering to provide and document lifestyle counseling to pediatric patients. The educational intervention, although unsuccessful in improving compliance, was still crucial to address, as staff should be properly educated on the topic of childhood obesity and ways to prevent and treat the condition. Additionally, staff should also be educated on the correct documentation process in the EMR in order to provide efficient and effective patient-centered care. Ultimately, this project brought more focus to the issue of childhood obesity and the importance of tracking BMI percentile and providing counseling on physical activity and nutrition regardless of BMI results or appearance. In the future, reinforcing education on these topics should be done to ensure adequate knowledge on the subject matter, however, this should be combined with other interventions in order to improve the percentage of pediatric patients with up-to-date documentation of both BMI percentile and lifestyle counseling.

### **Interpretations**

Initially, the root cause analysis had revealed the main issue in compliance stemmed from the staff's lack of knowledge on the measure and proper documentation. After presenting the results from the initial chart audit, many staff members expressed that they were unaware of the fact that they should be obtaining the child's height and weight at every visit, along with providing nutrition and physical activity counseling at least once per year. In addition, some providers had also expressed that they were conducting lifestyle counseling, but it was not being documented correctly in the EMR. For example, if the provider documents that they have counseled the patient in free text, but does not check the appropriate box in the provider care

plan section, then the measure is not met. As a result, providing education to clinical staff about the measure and proper documentation in the EMR was deemed to be a viable intervention.

It was expected that providing this education to staff would increase the number of compliant charts in the EMR as staff would learn to understand the process of meeting the measure for each pediatric patient. However, the outcome was unexpected as the compliance rate had actually decreased by one percent after the educational intervention was performed and reinforced throughout the month. There are a few suspected explanations for this difference in the observed and anticipated outcomes. First, the project was conducted over a very short period of time. As this measure accounts for all pediatric patients seen at this facility, the project had a very large denominator. In order to see a true change in compliance, the majority of pediatric patients would have needed to be seen over the course of one month which is unrealistic, as many of these patients are not even seen annually. Additionally, it is difficult to make a sustainable impact over the course of one month. In order to determine if the intervention truly resulted in sustainable change, a run chart would need to be evaluated over a series of months to determine if there is a trend. Ultimately, more time would be needed to understand if the intervention had made an impact on documentation rates, as more pediatric charts would need to be evaluated over the course of many months.



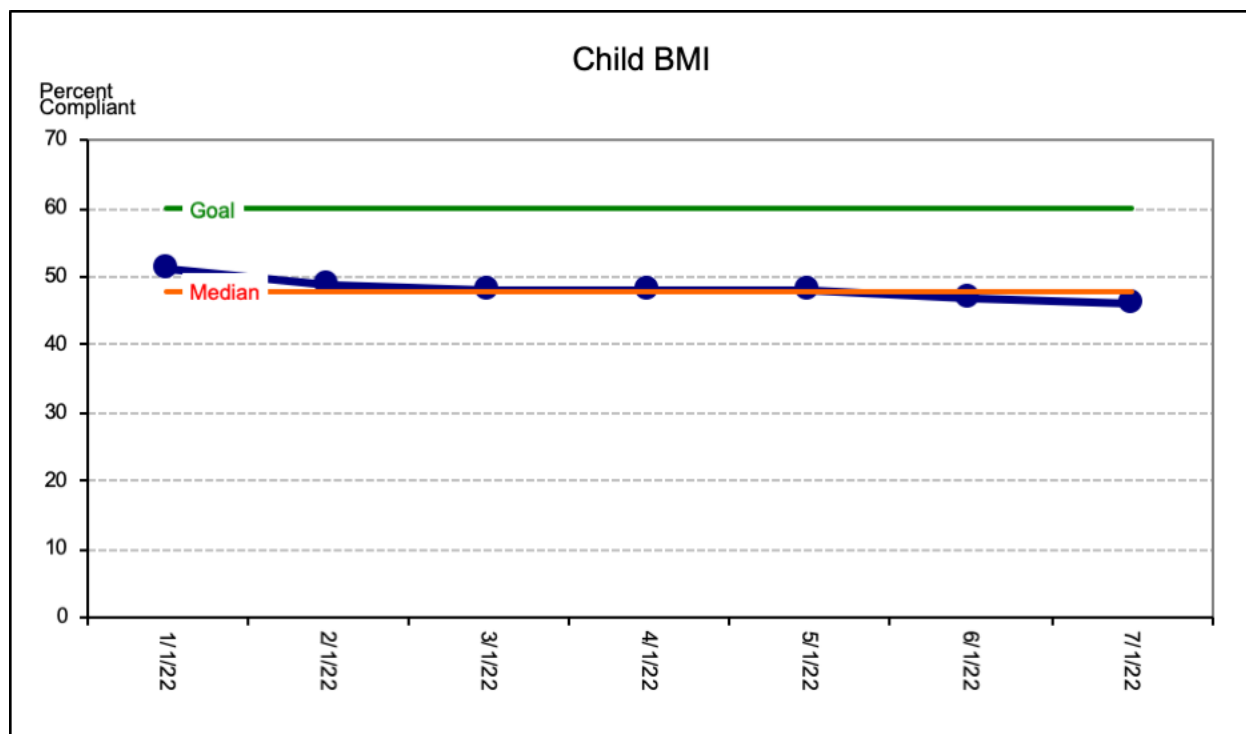


Figure 7. Run Chart of Child BMI Documentation Compliance

Multiple research articles support the use of the EMR in tracking and identifying childhood obesity. For instance, the systematic review by Smith et al. (2013) concluded that EMR use was associated with increased rates of BMI screening. Similar to this study, Yabut and Rosenblum (2017) also found an association between BMI screening and use of the EMR to document child obesity. However, the study also states that most healthcare providers desire more convenient and accessible educational materials to provide for their patients when discussing obesity counseling (Yabut and Rosenblum, 2017). This statement suggests that providing the pediatric healthcare providers with more resources to use in counseling could help improve compliance rates as well. Providers may be more inclined to conduct counseling with their patients if they feel that they have more resources on the topic.

Another barrier faced during this project was provider buy-in. All providers agreed that counseling on nutrition and physical activity is necessary, however, many were not willing to do this during visits other than well-child checks due to the time constraints on the visit. Kaufman, Lynch, and Wilkinson (2020) suggest that providers address child obesity with patients and their families as it arises. In contrast with the literature, the measure accounts for all children, regardless of BMI and regardless of the type of visit they are being seen for.

The literature also mentions the importance of training providers to effectively and efficiently conduct lifestyle counseling with their patients. In the future, a more focused training could help providers feel more comfortable discussing this topic with patients, leading to an increase in counseling rates. Both Brown et al. (2019) and Kaufman, Lynch, and Wilkinson (2020) suggest using motivational interviewing as an effective technique to promote health habits. In addition, Brown et al. (2019) mentions that different counseling strategies work better for different age groups. These findings suggest that creating a specialized provider training, teaching them about different useful strategies could help improve rates of counseling as a whole.

Through providing education, this project has impacted clinical staff directly, leading to enhanced knowledge around the topic of child BMI and EMR documentation. As education continues to be conducted and reinforced to staff, it is expected that this project will positively impact the facility's pediatric population as well. Currently, this project does not have an impact at the organizational level. However, if the facility begins to increase compliance rates on the measure the facility will receive more funding from multiple organizations.

As a federally funded healthcare facility, this organization receives grant money from Health Resources and Services Administration (HRSA), under the condition that the facility

tracks and reports certain quality measures annually. As documentation of pediatric BMI percentile and counseling for nutrition and physical activity is one of these measures, the facility will receive money as they improve on this measure. In competition with all other FQHCs in the country, performers in the top 10% will receive additional grant money to spend on quality projects annually. This measure is incentivized for pediatric providers as well. Providers will receive \$125.00 for every month their compliance rate is above the facility's goal (currently 60%). Insurance companies such as WellSense and New Hampshire Healthy Families will also provide the facility with extra funding for meeting this measure. Ultimately, improving performance on this measure can help the facility secure numerous grants and funding, which can be used to extend services and improve the quality of care provided.

### **Limitations**

The most significant limitation of this project was the time constraint. Due to the large denominator used, realistically, it would take much longer than one month to display a sustainable change. Additionally, when compared with the trend over time, the one data point from June is not very significant. To improve the generalizability of this project, data should be tracked over multiple months with numerous PDSA cycles to determine which interventions produce a significant impact on compliance rates. Additionally, this project was conducted at a community health center, where the majority of patients are a part of the underserved population. This population typically faces more barriers to care when compared with the general population. As a result, these patients are less likely to be seen regularly, which may affect the data as well.

Aside from the time constraint, it is likely that the data itself is not 100% accurate. When completing the initial chart audit, it was found that oftentimes providers would document that they had provided counseling in their office visit notes instead of checking the box in the

provider care plan section of the EMR. In this case, although the counseling has been provided and documented, it does not show up in the data because the specific box is left unchecked. Therefore, when pulling the report from the EMR at the end of each month, the report itself is accurate, but the data may not be. During the initial chart audit of 176 pediatric patient charts, 11 charts were found to have incorrect documentation of counseling for both nutrition and physical activity in the EMR. As a result of these findings, it is predicted that some patient charts may have faced this issue for the month of June as well, displaying a compliance rate which is lower than the actual.

In attempts to minimize limitations, the scope of the project was first narrowed down from the entire agency, to just the current lowest scoring facility. This allowed for a smaller denominator, improving the accuracy of the chart audits. Various chart audits were conducted to verify the validity of the data reports. In efforts to improve accuracy in the data, the correct box was checked in the EMR for the 11 patient charts with prior incorrect documentation of physical activity and nutritional counseling. Going forward, it is important to further enforce this education to providers in order to reduce the rates of incorrect documentation and improve compliance rates.

### **Conclusions**

In efforts to combat the childhood obesity epidemic and mitigate the related adverse effects, the USPSTF recommends consistently screening and tracking BMI percentile for all children and adolescents, along with providing nutrition and physical activity counseling regardless of BMI status. In attempts to improve compliance rates of this measure at a federally qualified healthcare facility, education was presented to all clinical staff on the importance of properly documenting the measure. The data revealed the education segment was ultimately

unsuccessful in improving compliance. However, the time constraint on the project is suspected to have contributed to these unanticipated results.

Suggested next steps for practice include synthesizing new ideas for improvement, which would then be implemented through various PDSA cycles. Additionally, staff should regularly be reminded of the importance of tracking this measure, and refer back to the presentation provided on proper documentation for guidance. Through these efforts, there is potential to improve the quality of care provided to pediatric patients in regards to this measure overtime.

## References

- Ackley, B. J., Swan, B. A., Ladwig, G., & Tucker, S. (2008). *Evidence-based nursing care guidelines: Medical-surgical interventions*. (p. 7). St. Louis, MO: Mosby Elsevier.
- Brown, T., Moore, T. H., Hooper, L., Gao, Y., Zayegh, A., Ijaz, S., Elwenspoek, M., Foxen, S. C., Magee, L., O'Malley, C., Waters, E., & Summerbell, C. D. (2019). Interventions for preventing obesity in children. *The Cochrane Database of Systematic Reviews*, 7(7), CD001871. <https://doi.org/10.1002/14651858.CD001871.pub4>
- Centers for Disease Control and Prevention. (2021, March 17). *About child & teen BMI*. Centers for Disease Control and Prevention. Retrieved May 8, 2022, from [https://www.cdc.gov/healthyweight/assessing/bmi/childrens\\_bmi/about\\_childrens\\_bmi.html](https://www.cdc.gov/healthyweight/assessing/bmi/childrens_bmi/about_childrens_bmi.html)
- Electronic Clinical Quality Improvement Resource Center. (2022, February 14). *Weight assessment and counseling for nutrition and physical activity for children and adolescents*. eCQI Resource Center. Retrieved April 21, 2022, from <https://ecqi.healthit.gov/ecqm/ep/2021/cms155v9>
- Kaufman, T. K., Lynch, B. A., & Wilkinson, J. M. (2020). Childhood Obesity: An Evidence-Based Approach to Family-Centered Advice and Support. *Journal of Primary Care & Community Health*, 11, 1-6. <https://doi.org/10.1177/2150132720926279>
- Kim, J., & Lim, H. (2019). Nutritional management in childhood obesity. *Journal of Obesity & Metabolic Syndrome*, 28(4), 225–235. <https://doi.org/10.7570/jomes.2019.28.4.225>.
- Perryman, M.L. (2011). Ethical family interventions for childhood obesity. *Preventing Chronic Disease: Public Health Research, Practice, and Policy*, 21(5), 1-3.

<https://www.rwjf.org/en/library/research/2011/09/ethical-concerns-regarding-interventions-to-prevent-and-control-ethical-family-interventions-for-childhood-obesity.html#:~:text=Ethical%20concerns%20for%20family%2Dbased,the%20risks%20and%20benefits%20of>

P.Q. Systems. (n.d.). *Run Chart*. Quality Advisor. Retrieved April 28, 2022, from

[https://www.pqsystems.com/qualityadvisor/DataAnalysisTools/run\\_chart.php](https://www.pqsystems.com/qualityadvisor/DataAnalysisTools/run_chart.php)

Saviñon, C., Taylor, J. S., Canty-Mitchell, J., & Blood-Siegfried, J. (2012). Childhood obesity:

Can electronic medical records customized with clinical practice guidelines improve screening and diagnosis? *Journal of the American Academy of Nurse Practitioners*, 24(8), 463–471. <https://doi.org/10.1111/j.1745-7599.2012.00735.x>

Smith, A. J., Skow, Á., Bodurtha, J., & Kinra, S. (2013). Health information technology in screening and treatment of child obesity: A systematic review. *Pediatrics*, 131(3), e894–e902. <https://doi.org/10.1542/peds.2012-2011>

United States Preventative Services Task Force. (2017, June 20). Recommendation: *Obesity in children and adolescents: Screening*. Retrieved April 21, 2022, from

<https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/obesity-in-children-and-adolescents-screening#fullrecommendationstart>

Yabut, L., & Rosenblum, R. (2017). An integrative review of the use of EHR in childhood obesity identification and management. *Online Journal of Nursing Informatics*, 21(3)

<https://unh.idm.oclc.org/login?url=https://www-proquest-com.unh.idm.oclc.org/scholarly-journals/integrative-review-use-ehr-childhood-obesity/docview/1984811996/se-2>

## Appendix A

Appendix B displays two images of the electronic medical record education segment presented to all clinical staff at Greater Seacoast Community Health. Figure B1 is directed towards the medical assistants, as they are responsible for obtaining and calculating BMI. Figure B2 is used to show the providers where they need to document their counseling.

Ped Vital Signs: Daisy M T

2 years 5 months **BMI Classification: Overweight**

Measurements		Percentiles	
Weight measurement: <input checked="" type="radio"/> lbs only <input type="radio"/> lbs and oz		<b>Recalculate</b> <input type="checkbox"/> Override	Weight 95.5 %
Weight <input type="text"/> lbs <input type="text"/> oz			Height >99.9 %
35 lbs 15.91 kg 18.19 lbs (01/03/2018)			Head Circ <input type="text"/> %
<input type="text"/> Height 48 in <input type="text"/> 121.9 cm 27 in (01/03/2018)		Body Mass Index: 10.72 <0.1 %	
<input type="text"/> Head Circ <input type="text"/> in <input type="text"/> cm		Body Surface Area (m2): 0.76	
15 in (01/03/2018) 38.10 cm (01/03/2018)		<b>Growth Chart</b>	

**Vitals**

Temp (F)  Site  Respirations

Pul  Rhythm  BP:  /  mm Hg

Pe  PF (predicted)  02 Sat  %

**Sequential Pressures**

BP #1 (mm Hg):  /  BP #2 (mm Hg):  /  BP #3 (mm Hg):  /

**Sign Your Vitals** Taken by: Megan Atkins

Preferred appointment Day:  Time:

Preferred pharmacy  Verified WALGREENS - ROCHESTER #3520\* **Update**

**Check Protocols**

Figure A1. How to Document Height, Weight, BMI and BMI Percentile in the EMR



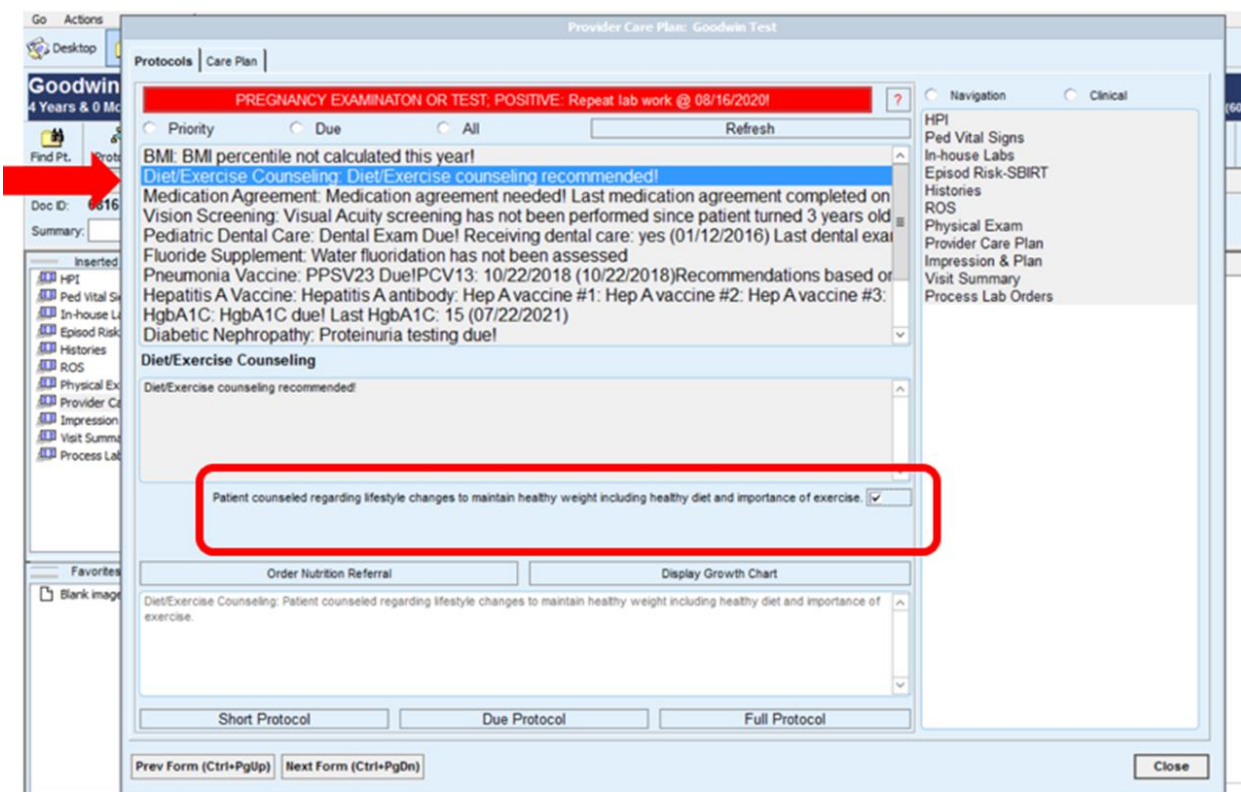


Figure A2. How to Document Counseling in the Provider Care Plan

### Appendix B

Appendix C displays a growth chart of an example of how BMI values and percentiles would be interpreted for a 10-year-old boy (Centers for Disease Control and Prevention, 2021)

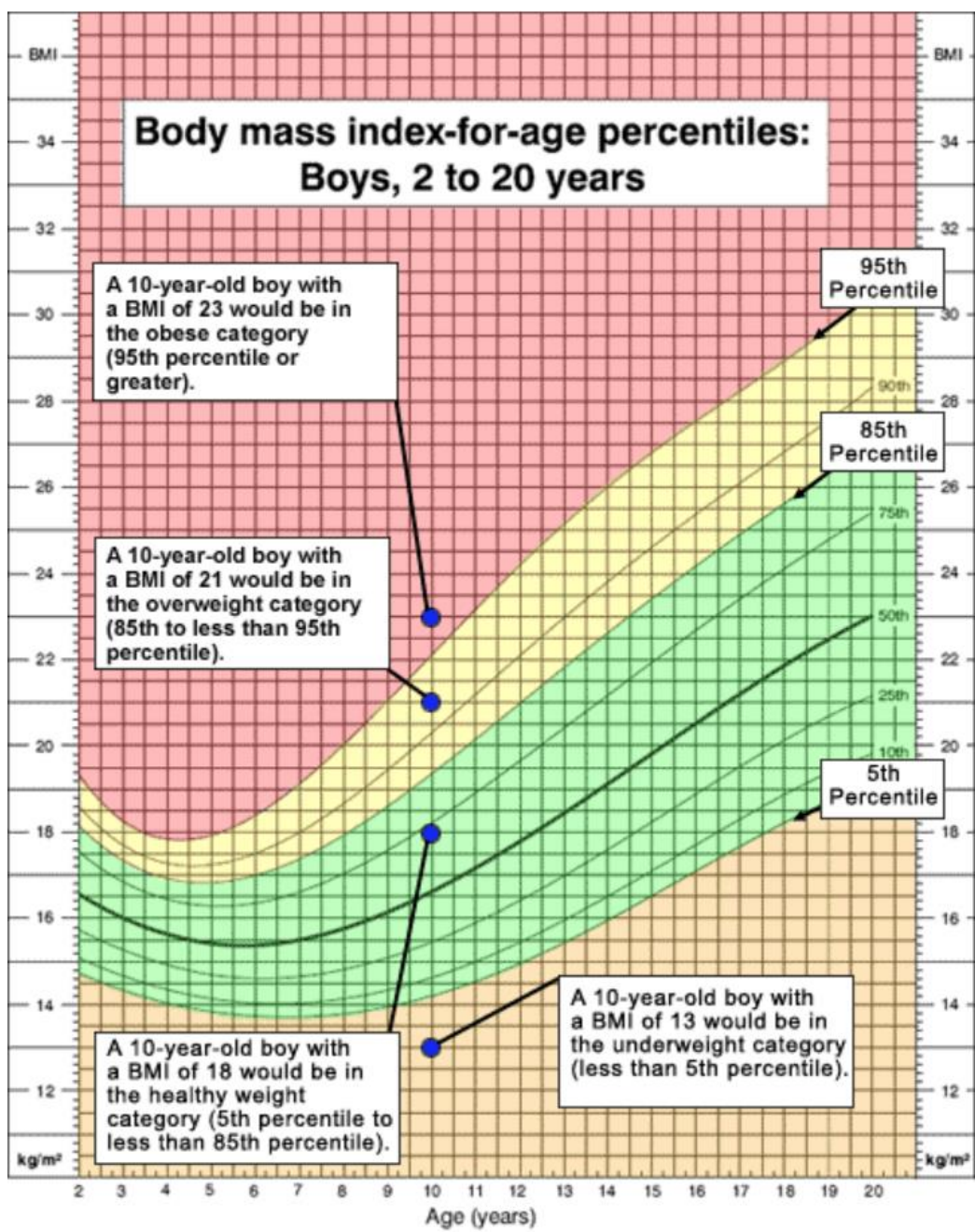


Figure B1: Example of Pediatric Growth Chart