The Healthy Eating Active Living Total Health (HEALTH) Model Improves the Quality of Pediatric Obesity Prevention

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Abstract

BACKGROUND: Prevalence rates of childhood overweight and obesity have tripled in the past 30 years as a result of increased energy intake and insufficient physical activity. There are many published recommendations to address pediatric obesity, yet countless physicians are challenged by the time and resources required to provide obesity screening and counseling in a busy practice. OBJECTIVE: To determine the effects of a motivational interviewing (MI) program and an electronic health record (EHR) reminder system to improve physician performance in identifying and counseling patients about obesity prevention and management. METHODS: Baseline and two post-intervention cohorts were created with patients, ages 5-18 years, from 100 consecutive well child visits at an academic teaching practice in Feb 2014, Feb 2015, and Aug 2015. The HEALTH model was created to improve care by providing in-room family education tools, provider training in MI, an evidence-based pathway to standardize care, and family coaching between visits. A second intervention added an alert in the EHR to notify providers if a patient's body mass index (BMI) was >85%ile. P-values were calculated using Chi-Squared or Fisher's Exact tests. RESULTS: Post HEALTH implementation, physicians improved their identification of patients with elevated BMI, improved the quantity and quality of healthy lifestyle counseling, and increased compliance with prevention plus recommendations for follow up. CONCLUSIONS: After implementation of the HEALTH model and electronic reminders, physicians significantly improved their performance in identifying and counseling patients with elevated BMI. They also increased performance in counseling about healthy lifestyle behaviors for patients of all BMI categories.

Introduction

The prevalence of childhood obesity has tripled in the past 30 years.[1] In Arizona, 36.7% of children are overweight or obese.[2] While there is strong evidence supporting prevention efforts that can be implemented to combat obesity, answers regarding exactly what constitutes the best physician treatment strategy remain unclear. Physicians are challenged by the time and resources required to provide adequate screening and counseling.[3]

The aim of this quality improvement project is to implement a family education program using motivational interviewing, implement an electronic health record (EHR) reminder for elevated BMI, and improve physician performance with identification and counseling for obesity prevention and management at well-child visits. We hypothesize that after training physicians on how to implement elements of the HEALTH model in well-child visits, there will be an increase in the number of physicians who screen for obesity and educate patients on lifestyle modifications in order to treat and prevent pediatric obesity.

Methods

The Healthy Eating Active Living Total Health (HEALTH) quality improvement model was implemented Aug 2014-Aug 2016 at Phoenix Children's Hospital, Division of Pediatric and Adolescent Medicine. Three cohorts consisting of 100 consecutive well child visits (ages 5-18) were constructed: Baseline Feb 2014, Post-HEALTH intervention Feb 2015, and Post-EHR alert Aug 2015.

The HEALTH model is a standardized protocol which provided an education toolbox in each exam room, provider training in motivational interviewing (MI), well-child checklist and algorithm, and lifestyle coaching between visits. HEALTH model trainings were held at noon conferences, faculty meetings and continuity clinic sessions starting July 2015. The EHR was introduced in Nov 2015, and EHR BMI alerts (if BMI >85%ile) were implemented in April 2015.

Primary outcome measures included:

- Documentation of BMI percentiles
- Identification of BMI status
- Quantity and quality of lifestyle counseling
- Documentation of a specific action plan
- Recommendations for follow up for elevated BMI.

BMI categories included normal weight (<85%ile), overweight (85-94%ile), and obese (>94%ile). P values were calculated using Chi-Squared or Fisher's Exact tests.

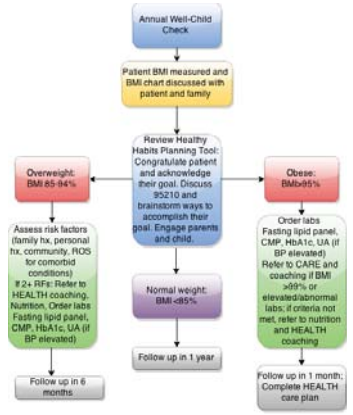


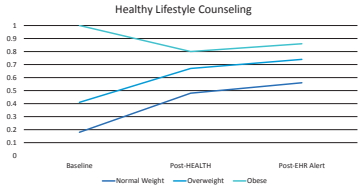
Figure 1: Flowchart of HEALTH model guidelines implemented at Phoenix Children's Hospital, Division of Pediatric and Adolescent Medicine

Results

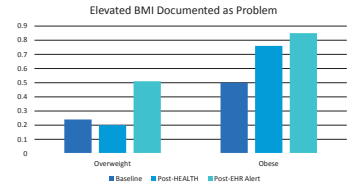
Cohort Descriptions

	Baseline (n=100)	Post-HEALTH (n=100)	Post-EHR Alert (n=100)
Normal	61%	60%	58%
Overweight	29%	15%	15%
Obese	10%	25%	26%

Post HEALTH implementation, physicians improved identification of patients with obesity from 50% (baseline) to 76% (HEALTH) to 85% (HEALTH and alerts). Physicians improved the quantity of healthy lifestyle counseling by increasing counseling about screen time and sleep ($p<0.001$) while maintaining high rates of counseling about nutrition, exercise, and sugary beverages. Providers increased documentation of a specific, personalized action plan from 33% to 59% post HEALTH intervention ($p<0.001$). Physicians significantly increased recommendations for follow up to monitor BMI compared to baseline ($p<0.005$).



Graph 1: Proportion of normal weight, overweight, and obese patients who received healthy lifestyle counseling at Baseline, Post-HEALTH, and Post-EHR Alert



Graph 2: Proportion of overweight and obese patients who were identified as having elevated BMI in the problem list at Baseline, Post-HEALTH, and Post-EHR Alert

Discussion and Conclusions

Using a QI model, Phoenix Children's Hospital, Division of Pediatric and Adolescent Medicine improved physician performance in adhering to evidence-based obesity prevention guidelines. Physicians significantly increased rates of identifying patients with elevated BMI and increased healthy lifestyle counseling for patients of all BMI categories. Despite having providers of diverse levels of training, practice change was possible with multiple strategies for improvement. The HEALTH QI model combined with EHR alerts provides a means to implement evidence-based obesity prevention guidelines into clinical practice.

Acknowledgements

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