Starting the Conversation: A Health Information Technology Tool to Address Pediatric Obesity

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ABSTRACT

Pediatric obesity continues to be a significant public health issue, and nurse practitioners are poised to intervene with innovative methods to address the issue. Health information technology offers nurses with contemporary methods to address pediatric obesity within varied settings and with varied populations. This article discusses an innovative health information technology–based approach by which to provide tailored education to families and children regarding pediatric obesity and related health behaviors. An additional adaptation of the health information technology tool is also given and discussed.

Keywords: health information technology, nurses, patient education, pediatric obesity

Nurses and nurse practitioners (NPs) are charged with improving health and health outcomes for patients and are being challenged to do so using innovative approaches. The Institute of Medicine's report on "the future of nursing" has recommended nurses develop and be involved with innovative approaches, such as health information technology (HIT), to advance and improve health and health care.[1] HIT systems are technology-based systems that allow information access and exchange, automate and enhance decision making, provide support to health care providers and patients, and help facilitate behavior changes that promote health and wellness.[2] HIT has the potential to improve the quality, cost, and reach of health care, and recent evidence has suggested HIT will play an increasingly significant role in chronic disease management.[3]

Pediatric obesity continues to be a significant public health problem. In the United States, nearly one third of children between 2 and 19 years old are either overweight or obese; 17% of children and adolescents are obese.[4] Recent estimates predict that if the incidence of obesity continues to rise, children will have shorter life expectancies than their parents.[5] Overweight and obesity in childhood can lead to future psychological and physical health problems including depression, sleep apnea, asthma, fatty liver disease, type 2 diabetes, orthopedic problems, and cardiovascular risk factors such as hypertension and high cholesterol.[6] Early prevention and recognition are essential to prevent overweight and obesity-related health problems throughout life.

HIT has many advantages in addressing pediatric obesity including patient education, instant feedback, personalization, and adaptation to specific behaviors.[7] The flexibility and adaptability of HIT as an educational tool allow it to be tailored to individual needs based on unique characteristics, risks, and behaviors. HIT interventions have been shown to improve screening and treatment of pediatric obesity.[8] The purpose of this article is to introduce an innovative HIT-based approach to address pediatric obesity and to discuss an example of how this technology can be adapted for use in a nontraditional setting to address a particular population. The goal of this article is to share technology-based work to date, and as more data are collected, they will also be published.

BACKGROUND AND SIGNIFICANCE

HIT refers to technologies that allow health care providers to better manage patient care by sharing and using health information; technologies capture patient information electronically through electronic health records (EHRs), share information through secure information exchange networks, provide a means for electronic prescribing, and engage patients and families in care via technology.[2] HIT has the potential to improve care and engage families and patients in their health in innovative ways.[9] HIT can be adopted to provide tailored patient education based on various patient characteristics such as demographics, health behaviors, and risk factors. Additionally, HIT may help health professionals improve care, adhere to clinical guidelines, facilitate decision making, and deliver tailored education in a variety of settings.

HIT has been used within the pediatric population and specifically applied to pediatric obesity and health-related behaviors with encouraging results. A recent systematic review was undertaken to examine studies using HIT to deliver obesity screening or treatment to children 2 to 18 years old.[8] A total of 13 studies were selected (2 telemedicine, 3 using text messaging or telephone support, 7 EHR studies, and 1 study using computerized decision support) and evaluated based on patient outcomes and care processes. Overall, HIT was associated with increased body mass index (BMI) screening rates in 5 of 8 studies. Longitudinally, telemedicine counseling was associated with changes in BMI percentile similar to in-person counseling and improved treatment access in 2 studies. Telephone or text message support was associated with maintenance of weight loss on 1 of the 3 related studies. Findings from this systematic review suggest HIT improves access and screening relative to pediatric obesity but indicates the need for further study related to the impact on weight loss.

An additional study using EHR to improve childhood obesity screening and diagnosis had similar findings to studies reviewed by Smith et al.[8] A retrospective review of patient encounters before and after implementation of a customized EHR component examined data relative to BMI documentation, growth chart completion, risk questionnaire scoring, and diagnosis of overweight or obesity.[10] The EHR was structured using current evidence-based practice guidelines[6,11] and provided tailored information to parents and children. After implementation, the authors found a significant increase in screenings; children were 62% more likely to have a BMI recorded with EHR growth chart, and questionnaire completion improved 94% with the EHR. Overall, overweight and obesity diagnosis improved with EHR use, as did documentation of evidence-based recommendations in a primary care setting.

Gance-Cleveland et al[12] (included in Smith et al[8]) evaluated a tailored HIT to identify and assess overweight children in a school-based health clinic (SBHC). A HeartSmart Kids (HSK) kiosk was incorporated into the SBHC to calculate, plot, and document BMI percentage/percentile, document blood pressure (BP), and collect cardiovascular risk factor history. Results indicated improvements in all measures with HIT implementation. BMI documentation increased from 64% to 86% ($P < .001$), BMI percentile documentation increased from 31% to 76% ($P < .001$), BP documentation improved from 83% to 97% ($P < .001$), and BP percentile documentation improved, increasing from 1% to 35% ($P < .005$). The significance of these findings is consistent with other studies[8,10] and supports the role of HIT in improving pediatric obesity recognition, documentation, and interventions.

HIT has also shown to be effective in addressing pediatric obesity in additional locations outside of primary care. Using the concept of secondary care, HIT was incorporated into referral-based obesity specific care (a healthy weight clinic) provided in a community health center.[13] A multidisciplinary team consisting of a pediatric provider, nutritionist, and case manager provided care augmented with HIT assessment and care. Initial evaluation of the program included patients with more than 1 clinic visit and examined selected behavioral outcomes; initial program evaluation found the following changes in patient outcomes: reduced screen time (30%), increased physical activity (45%), decreased sweetened beverages (32%), increased fruit/vegetables (33%), provider created self-management plan (100%), any lifestyle change (defined by increased physical activity