Title The Effect of an Automated Point of Care tool on Diagnosis and Management of Childhood Obesity in Primary Care

Name Natalie Gentile, MD, PGY-2 Mayo Clinic Family Medicine Residency in Rochester, MN

Other Authors/Investigators V. Cristiani MD, B. Lynch MD, P. Wilson, A. Weaver, L. Rutten PhD, D. Jacobson MS, S. Sriram, S. Kumar MD

Abstract

Objective or Hypothesis Childhood obesity is at epidemic proportions in the United States. However, childhood obesity is often underdiagnosed in primary care settings. The Generic Disease Management System (GDMS) is an electronic point of care tool that alerts the health care team about preventive services due for a patient and alerts clinicians to the child's BMI status. It is not known if the implementation of the automated point of care tool in children results in improvement in diagnosis and management of obesity. This study aimed to examine rates of weight-related diagnoses and management before and after implementation of GDMS in primary care sites at an academic institution.

Population children aged 2 to 18 years undergoing outpatient well child visits at four primary care sites during 3 calendar years (2009, 2011, and 2013)

Methods We performed a retrospective record review of children aged 2 to 18 years undergoing outpatient well child visits at four primary care sites during 3 calendar years (2009, 2011, and 2013). Age- and sex-specific BMI percentiles were calculated using the 2000 CDC growth charts. Children with BMI percentile at or above the 95th percentile were categorized as obese. Records belonging to obese children were electronically searched for weight-related diagnostic and management terms. Temporal trends in weight-related diagnoses and treatment recommendations were tested using the Cochran-Armitage trend test. To assess the association with receiving a weight-related diagnosis or management in the post-GDMS period (2011 and 2013) compared to the pre-GDMS period (2009), generalized estimating equations (GEE) logistic regression was performed using the subset of children with obesity. Multivariable GEE logistic regression models were used to adjust for potential patient confounders including sex, age, race, severity of obesity (moderate or severe), Medicaid status and practice confounders such as provider specialty (family medicine or pediatrics) and provider type (staff, RN/NP, Resident).

Main Results Overall the percentages of obese children remained constant: 9.4% of 9,944 children seen in 2009, 10% of 10,306 in 2011 and 9.6% of 10,227 in 2013. Amongst obese children, there was a statistically significant increase across time for both weight-related diagnoses (45.5% in 2009, 52.3% in 2011 and 50.4% in 2013, $p=0.04$) and weight related management (66.8% in 2009, 75.2% in 2011 and 77.9% in 2013, $p<.0001$). Using 2011 as the reference, we found that children with obesity in 2009 were less likely to receive a weight-related diagnosis [odds ratio (OR), 95% confidence interval (CI): 0.73, 0.61-0.89] and management (OR, 95% CI: 0.75, 0.60-0.94) while the results between 2011 and 2013 were not significantly different.

Conclusions The implementation of a point of care tool regarding BMI was associated with improvement in diagnosis of childhood obesity and management. Further studies are needed to determine the role of clinical decision support tools in improving diagnosis and management of childhood obesity.

IRB Approval ☒ **HIPAA Compliance** ☒ **Mentor(s)** Seema Kumar, MD **Funding Sources** MN-AAP