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Title: Childhood Obesity Rates in Monroe County in 2012

Background: Childhood obesity is a major problem facing the United States. According to the CDC, nationwide, approximately 17% of people between the ages of 2 and 18 years—that is, 12.7 million children and adolescents—have obesity. Recent research estimates the annual healthcare cost of childhood obesity in the U.S. to be \$14 billion. Furthermore, childhood obesity puts children at greater risk for a multitude of poor health outcomes including but not limited to heart disease, diabetes, orthopedic problems, sleep apnea, as well as social and psychological problems. As part of a community-wide strategy to prevent childhood obesity, the Greater Rochester Health Foundation and Department of Pediatrics at URMC partnered in 2007 to examine the prevalence of childhood obesity in Monroe County. In 2012, the Health Foundation convened the Department to replicate the original study and thereby allow for a cross-sectional comparison of childhood obesity rates in the County from 2007 to 2012.

Objectives: To analyze and describe the prevalence and trends for obesity in children and adolescents, ages 2 to 18 years, in Monroe County in 2012. Also, to compare the prevalence and trends of childhood obesity in the County between 2007 and 2012.

Design/Methods: A retrospective cohort study examining data from a cross-sectional, proportional chart review throughout Monroe County was done. Subjects included 44,292 children and adolescents between the ages of 2 and 18 years who received a well-child visit with their pediatric provider between July 1, 2011 and December 31, 2012. The rates of childhood obesity in Monroe County in a randomly selected subsample were calculated and compared to those of a randomly selected subsample from 2007 by sex, age group (i.e., 2-10 and 11-18 years), and residence (i.e., city vs. suburb). Bivariate analyses using chi-square tests were conducted to determine whether significant differences in childhood obesity existed by sex; age group (i.e., 2-5, 6-11, and 12-18 years); race (i.e., White, Black, Hispanic, and Other); residence (i.e., city vs. suburb); city quadrant (for subjects living in the city); town (for subjects living in the suburbs); or legislative district. Multivariate analyses using logistic regression were also conducted to test for the association of childhood obesity with the same demographic variables. The association of childhood obesity was specifically tested with the following models: (1) by sex and age group; (2) by sex, age group, and race; (3) by sex, age group, and residence; (4) by sex, age group, race, and residence; (5) by sex, age group, and city quadrant; (6) by sex, age group, and town; and (7) by sex, age group, and legislative district.

Results: The overall rate of childhood obesity in Monroe County was 15.1% in 2007 and 15.2% in 2012. Childhood obesity rates differed significantly by all demographic variables included in bivariate analyses ($p < .001$). With respect to the multivariate models, when controlling for sex and age group, compared to White children and adolescents, Blacks had 58.2% higher odds of having obesity; Hispanics had 79.0% higher odds; and “Others” had 26.3% higher odds. When controlling for sex and age group, youth living in the city had 76.6% higher odds of having obesity compared to youth living in the suburbs. Finally, when controlling for sex, age group,

and race, youth living in the city had 32.0% higher odds of having obesity than youth living in the suburbs.

Conclusions: The rates of childhood obesity in Monroe County between 2007 and 2012 remained essentially unchanged. There was a small increase in the obesity rate among children in the suburbs (from 11.6 to 12.9%) and small decreases among adolescents (from 16.5 to 15.6%) and children in the city (from 21.8 to 20.7%). However, even while controlling for sex, age group, and race, the substantially higher odds of youth living in the city having obesity compared to youth living in the suburbs evinces the fact that childhood obesity disproportionately affects children and adolescents living within the city of Rochester. Both the plateau in the overall childhood obesity rate between 2007 and 2012 and geographic disparities in childhood obesity in Monroe County have implications on prevention and treatment for population health strategies under healthcare reform. Specific population health strategies should include targeting resources, implementing evidence-based policies and practices, as well as community advocacy.