

ISSUE BRIEF

Pediatric asthma control in the Finger Lakes region compares favorably to national rates, but areas for improvement remain

Asthma is a condition in which airways narrow, swell and produce extra mucus. The chronic illness can make breathing difficult and may trigger coughing, wheezing, chest tightening and shortness of breath. Most of the time, asthma can be well controlled with primary and specialty care which prevent the need for hospitalization. However, differences in the rates of pediatric hospitalizations for asthma point to the need for improvements in asthma management in underserved areas.¹ Improved asthma control can be attributed to multiple factors, including access to primary and specialty medical care, levels of physical activity, and engagement in a treatment plan. Asthma control is also related to environmental factors such as reduced exposure to second hand smoke, dust mites, molds, cockroaches, pets, chemical irritants, wood smoke and outdoor air pollution.

According to the 2012 National Health Interview Survey, Asthma is one of the most common chronic conditions among children in the United States, affecting 6.8 million, or 9 percent of children aged 0-17 in 2012.² An estimated 10.5 million school days a year are missed due to pediatric asthma.³

Without timely access to necessary primary and specialty care, asthma may lead to potentially avoidable hospitalizations of children. Hospital stays can be a frightening experience for children, and their parents, especially when they are associated with a life-threatening event such as difficulty breathing. They are also expensive. In 2012, potentially preventable pediatric asthma hospitalizations cost \$417.2 million nationally.⁴

This paper compares the potentially avoidable hospitalizations of children with asthma living in the Finger Lakes region of New York State (Livingston, Monroe, Ontario, Seneca, Wayne, Yates, Chemung, Schuyler and Steuben counties) to recently published national data. It also analyzes health disparities among children in the Finger Lakes region. By identifying children most at risk, we can propose target populations and a potential intervention to reduce preventable pediatric asthma hospitalizations.

For the period 2003 to 2012 children with asthma in the Finger Lakes region consistently had lower rates of potentially avoidable hospitalizations than children in the United States.

¹ H-CUP. Marguerite L. Barrett, M.S., Lauren M Weir, MPH and Raynard Washington, Ph.D. M.P.H. Statistical Brief #169 "Trends in Pediatric and Adult Hospital Stays for Asthma, 2000-2010. January 2014.

² Bloom, B. Jones LI, Freeman G. Summary health statistics of U.S. Children: National Health Interview Survey, 2012. National Center for Health Statistics. Vital and Health Statistics 10(258). 2013.

³ <http://amerihealthcaritaspartnership.org/programs/healthyhoops/index.aspx>

⁴ H-CUP. Kathryn Fingar, PhD and Raynard Washington, PhD "Potentially Preventable Hospital Inpatient Stays for Asthma and Diabetes, 2003-2012." Agency for Healthcare Research and Quality. Healthcare Cost and Utilization Project, Statistical Brief #192, June 2015. p. 4.

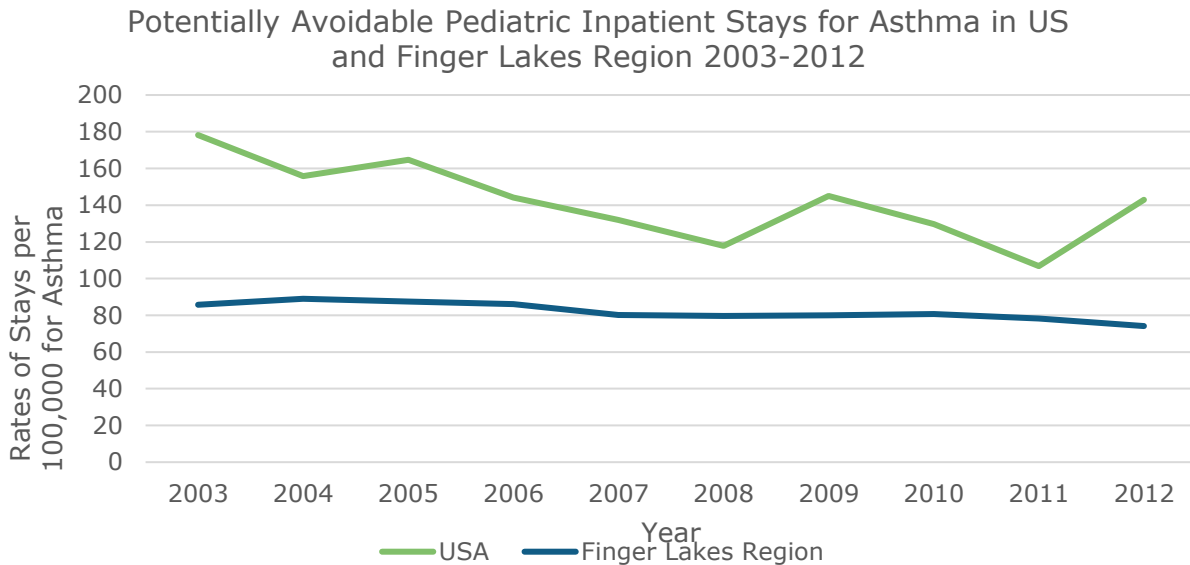


Figure 1. Rates of Potentially Preventable Pediatric Inpatient Stays for Asthma in the Finger Lakes Region and U.S., 2003-2012. Sources: NYS-DOH SPARCS Data, H-CUP Statistical Brief #192; June, 2015.

2012 statistics show potentially preventable asthma hospitalizations rates for boys were higher than for girls in this region and nationally. Regional asthma rates for both boys and girls were approximately 39 percent lower than national rates (Figure 2).

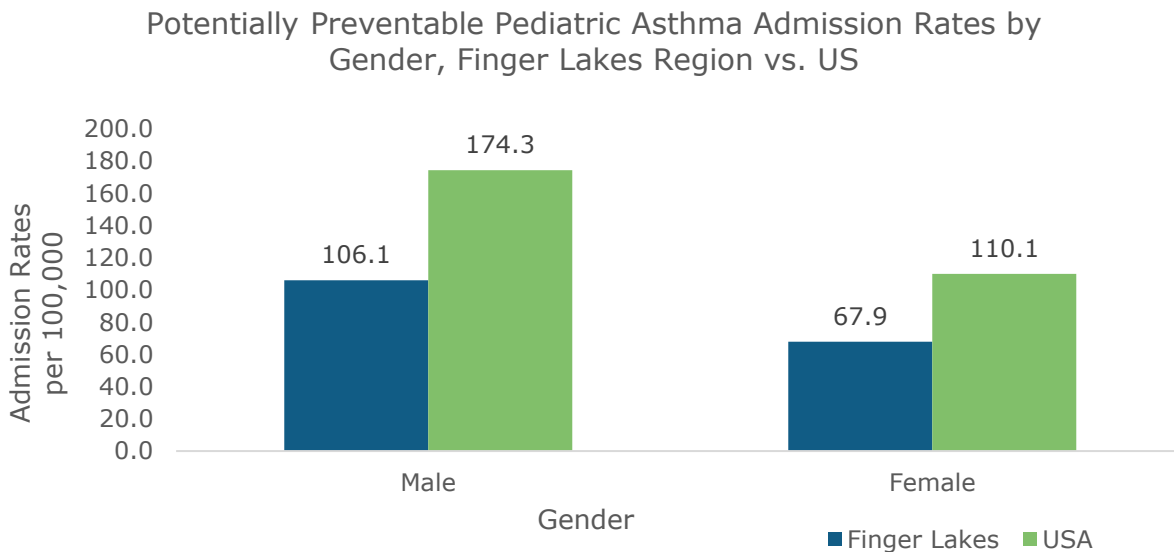


Figure 2. Potentially Preventable Pediatric Asthma Inpatient Admission Rates by Gender Finger Lakes Region and U.S. 2012. Sources: SPARCS Data three year average 2012; H-CUP, Statistical Brief 3192, July 21, 2015

An examination of potentially preventable asthma hospitalization rates by pediatric age groups found that, in each age cohort, admission rates for this region were lower than national rates. However, the disparities between the local and national rates lessened across

age groups as the rates of potentially preventable hospitalization declined. The data suggest that asthma may be better managed in younger children in this region than nationally. (Figure 3). Given the prevalence of asthma in children under 10, these younger children may offer the greatest opportunity for driving down preventable hospital admissions.

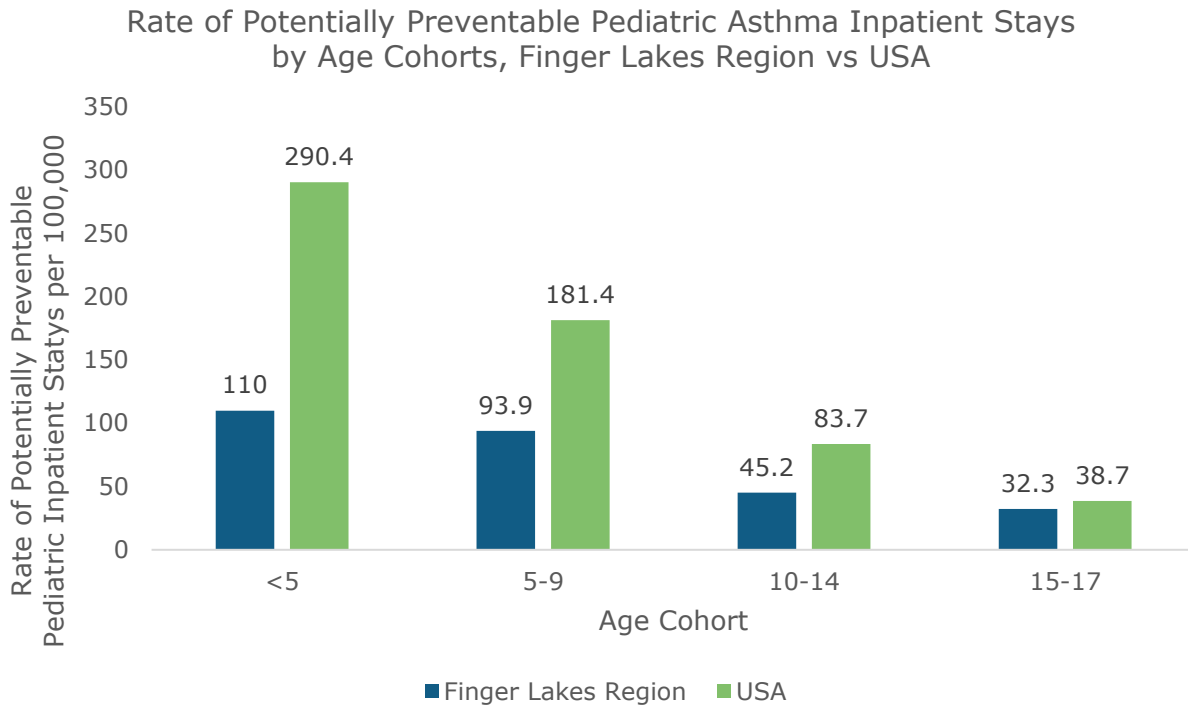


Figure 3. Potentially Preventable Pediatric Asthma Inpatient Stays by Age Cohorts: Finger Lakes Region Compared to USA for 2012. Sources: NYS-DOH SPARCS Data, H-CUP Statistical Brief #192; June 2015.

Regional data on preventable pediatric emergency room visits by children with asthma are shown in Figure 4. The data show that Black-non-Latino children had age-sex adjusted emergency department utilization rates more than 4.6 times higher than White non-Latino children, while Hispanic youth had rates 4 times higher than White non-Latino youth, and youth in other racial/ethnic groups had rates nearly as high as the Hispanic youth.

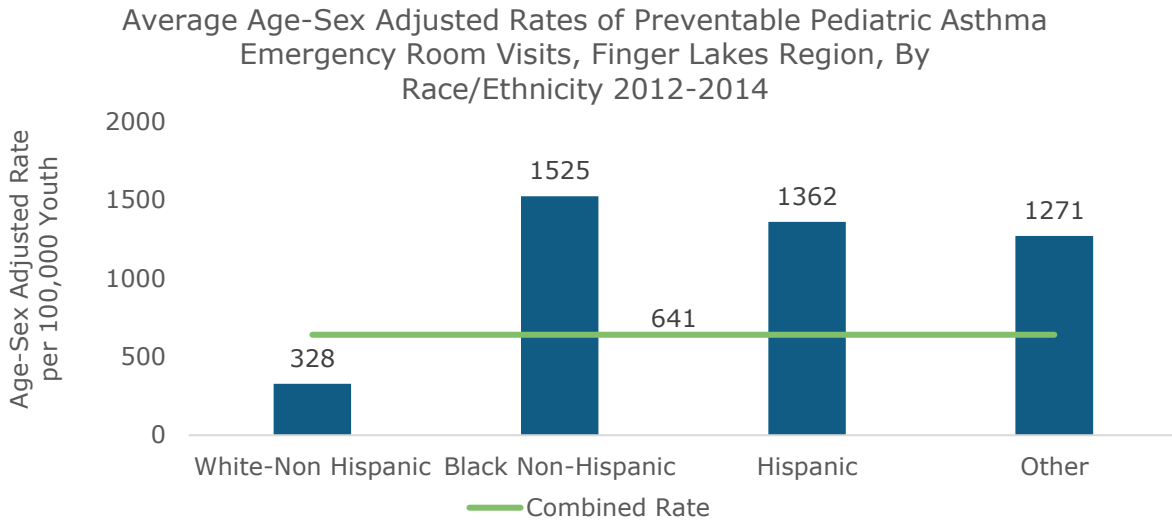


Figure 4. Preventable Pediatric Asthma Emergency Room Visits by Race/Ethnicity in the Finger Lakes region –Three Year Average 2012-2014. Source: NYS-DOH SPARCS Data 2012-2014.

SPARCS data shown in Figure 5 demonstrate that potentially preventable pediatric asthma hospitalization rates are highest for black-non-Latino youth in the Finger Lakes region for the years 2012-2014. The data indicate that black non-Latino children had rates 4.2 times higher than white non-Latino youth, and Hispanic youth had rates 2.4 times higher than white non-Latino youth during this period. A comparison of that preventable hospitalization rates, Figure 5, are lower than preventable rates of emergency room visits for all children, Figure 4.

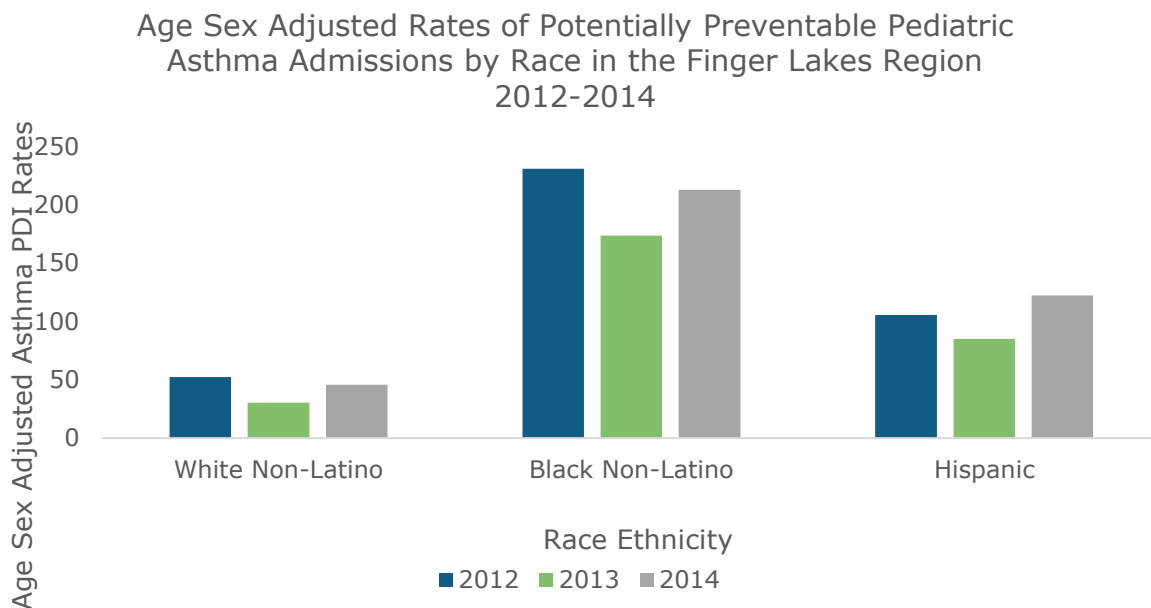


Figure 5. Potentially Preventable Pediatric Asthma Hospitalization Rates by Race in Finger Lakes Region 2012-2014. Source: NYSDOH. SPARCS Data 2012-2014.

For the years 2003 and 2012, regional rates of potentially preventable pediatric asthma hospital admissions were examined by socio-economic status (SES) cohorts.⁵ In 2003 the highest hospital admission rates were in the lowest socio-economic group. The admission rates declined as socio-economic status increased as shown in Figure 6.

In 2012, asthma hospitalization rates were highest in the lowest SES group, but did not follow a consistent pattern of decline in the other socio-economic cohorts. The data in Figure 6 shows reduced rates of preventable pediatric admissions from 2003 to 2012 in four of the five SES groups. The fourth SES group does not show a statistically significant difference in pediatric asthma admissions between 2003 and 2012.

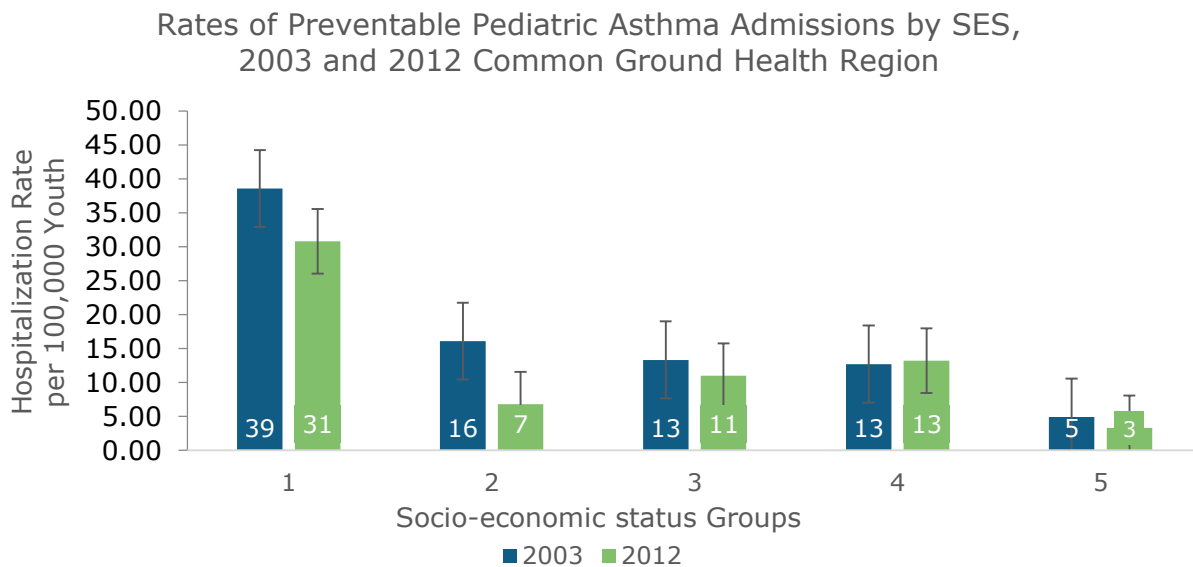
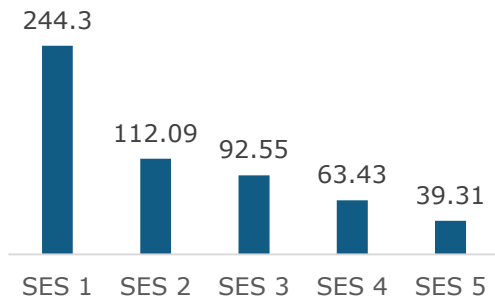


Figure 6. Potentially Preventable Pediatric Asthma Admission Rates by Socio-Economic Status in the Finger Lakes Region 2003 and 2012. Source: NYS-DOH SPARCS 2003 and 2012.

Data in Figures 7 and 8 show that pediatric hospital admission rates and pediatric patient days are inversely correlated to the socio-economic ZIP code status of the child in Monroe County. The data show that children in the lowest socio-economic group had the highest age sex adjusted rates of hospitalization for asthma, and they also had the highest age sex adjusted rates of hospital days. The ZIP Codes with the lowest socio-economic status and highest age sex adjusted rates of hospital days were 14605, 14621, 14611, 14619, and 14608. All of these ZIP codes are in the City of Rochester.

⁵ Socio-economic status is driven by the zip code in which the child lives.
CommonGroundHealth.org

Age-Sex Adjusted Hospital Discharge Rates for Pediatric Asthama in Monroe County, 2010-2014



Age-Sex Adjusted Hospital Day Rates for Pediatric Asthama in Monroe County, 2010-2014

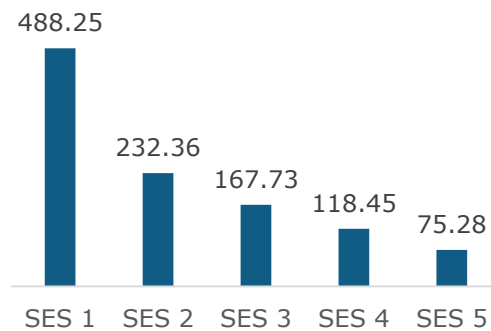


Figure 5. Age Sex Adjusted Hospital Days for Pediatric Asthma Patients in Monroe County for the Years 2010-2014 by ZIP codes by SES Source: NYSDOH, SPARCS Data, Three Year Average.

Figure 6. Age Sex Adjusted Hospital Admission Rates for Pediatric Asthma Cases in Monroe County for the Years 2010-2014 by ZIP codes by SES. Source: NYSDOH, SPARCS Data, Three Year Average.

Summary of Findings:

Where it was possible to compare Finger Lakes regional data to national pediatric asthma data, the regional rates were consistently better than national rates.

- For the period 2003-2012 this nine-county region of Upstate New York demonstrated lower rates of potentially preventable pediatric asthma admissions.
- When analyzed by gender, asthma rates for boys were higher than for girls both in this region and nationally in 2012, with regional rates being approximately 39 percent lower than national rates.
- In 2012, both the regional and national rates of potentially preventable pediatric asthma admissions declined by age groups. The local rates were consistently lower than the national rates across all age groups.
- The difference between the local and national preventable pediatric asthma admission rates diminished across the older age cohorts.
- The local rates of potentially avoidable hospitalizations for children with asthma were 62 percent lower than national rates for children under age 5. These rates diminished by age cohorts, until there was only a 17 percent difference in the rates for youth between 15-17 years of age.

While the regional data were consistently better than national data, there were marked disparities across regional data and within Monroe County data.

- Local rates of preventable hospitalizations for pediatric asthma were highest in the lowest socio-economic group, and lowest in the highest socio-economic group in 2003 and 2012.
- In the nine county Finger Lakes region, Black children had potentially preventable hospitalization rates of asthma 4.2 times higher than White non- Latino children.

- Three year average age sex adjusted asthma hospitalization rates and age sex adjusted hospital days were highest for children in the lowest socio-economic ZIP codes of Monroe County.
- Taken together the data indicate that children under 10 years of age, Black children, and children in the lowest socio-economic ZIP codes should be given priority consideration when developing interventions for improved asthma management.

Key principles for pediatric asthma management⁶

According to the Medicaid Health Plans of America Center for Best Practice, the best treatment practices for pediatric asthma include the following:

- Treatment with long-term control medication to prevent asthma attacks;
- Having short-acting Broncho dilating agents available to treat asthma attacks;
- Development of an asthma action plan agreed to by both the patient/family and the providers;
- Removal of environmental triggers where possible; and
- Management of other triggers.

Embedded in these pediatric asthma principles are potential explanations for why asthma rates may be higher and less well controlled in certain groups. The fact that asthma rates are highest in the lowest SES ZIP codes is partly caused by environmental factors including air pollution, second-hand smoke and insect infestations. These factors are more prevalent in low income neighborhoods.⁷ Another cause is that poor inner city children are likely to have less access to suburban physicians who specialize in assessing and prescribing individualized treatment plans for young people with asthma.⁸

Best Practice Model for Consideration

Keystone Mercy initiated what has come to be recognized as a national best practice model to address childhood asthma in the Philadelphia metro area. The “Healthy Hoops” initiative uses basketball as a platform to engage children with asthma and their families. The program teaches them to manage asthma through proper nutrition, exercise and appropriate medication use. It also provides comprehensive health screening, individualized asthma action plans and targeted health education aimed at decreasing childhood obesity and increasing cardiovascular activity. This intervention won the National Committee on Quality Assurance’s “Innovation in Multicultural Health Care” award.⁹ Today, through AmeriHealth Caritas Partnership, Healthy Hoops programs are in 20 states and cities as close as Erie, Pa.

A case for trying this model in Rochester can be made. The area is unique in several ways:

⁶ Medicaid Health Plans of America Center for Best Practice. “Best Practices Compendium in Childhood Asthma Care.” 2011, p. 11.

⁷ Paul Emrath and Heather Taylor. “Housing Values, Cost, and Measures of Physical Adequacy.” City Scope 14:1, 99-125.2012.

⁸ Common Ground Health. “Barriers to Health Equity: Place-based Disparities in Clinical Care” June 2017.

⁹ Medicaid Health Plans of America Center for Best Practice. Op.Cit. p.21.

- The city of Rochester is the only city its size in the United States where more than half of the children live in poverty,¹⁰ including 55 percent of African American and 56 percent of Hispanic children.¹¹
- The Greater Rochester Region is one of a few communities in the United States to have the benefit of a “State of Play Report” conducted by the Aspen Institute and funded by the Ralph C. Wilson Foundation.
- The State of Play Report found that:
 - Only 12 percent of children in the Rochester region are physically active 60 minutes a day, and
 - Of those who are active, basketball is the most commonly played sport, which engages 27 percent of boys and 11 percent of girls.
- In 2015, the University of Rochester Department of Sports Medicine partnered with the City School District and hosted a free clinic for city athletes. They ran drills and got tips from doctors about nutrition.¹²
- The Ralph C. Wilson Foundation has grants for youth sports in this region.
- These factors suggest Rochester has both the need and potential building blocks to organize a Healthy Hoops program.

While this region’s overall rates of preventable pediatric asthma hospitalizations are better than national rates, a deeper dive into the local data indicates that children of color especially Black youth and children living in the poorest ZIP code neighborhoods, have asthma hospitalization rates more than 4 times higher than white, non-Latino children or children from higher income neighborhoods. A best practice, multi-focused pediatric intervention, such as Healthy Hoops, that takes an individualized holistic approach to managing asthma in a manner that is both fun and effective may be one step toward addressing our local pediatric asthma challenge.

¹⁰ Dougherty, Edward J. Benchmarking Rochester Poverty, Rochester Area Foundation and ACT Rochester.

¹¹ “Family Support: Children in Poverty by Race/Ethnicity.” ACT Rochester.

¹²Sharp, Brian, “Sports Combine Aims to Boost City Athletes,” Rochester Democrat & Chronicle, July 22, 2015