



## 2015 COMMUNITY HEALTH NEEDS ASSESSMENT

University Hospitals' (UH) long-standing commitment to the community spans more than 145 years. This commitment has grown and evolved through significant thought and care in considering our community's most pressing health needs. One way we do this is by conducting a periodic, comprehensive Community Health Needs Assessment (CHNA) for each UH hospital facility.

The most current assessments were completed by an external health care consulting service working with UH and include quantitative and qualitative data that serve to guide both our community benefit and strategic planning.

Through our CHNA, UH has identified the greatest health needs among each of our hospital's communities, enabling UH to ensure our resources are appropriately directed toward outreach, prevention, education and wellness opportunities where the greatest impact can be realized.

The following document is a detailed CHNA for University Hospitals Rainbow Babies & Children's Hospital (UH Rainbow Babies & Children's Hospital). UH Rainbow Babies & Children's Hospital is a 244-bed, full-service pediatric

hospital and academic medical center that is solely dedicated to the health care needs of children. A trusted leader in children's health care for more than 125 years, UH Rainbow Babies & Children's Hospital consistently ranks among the top children's hospitals in the nation.

UH Rainbow Babies & Children's Hospital offers myriad programs and activities to address the surrounding community health needs. These include child safety programs through the Rainbow Injury Prevention Center and Healthy Kids, Healthy Weight™, a free child obesity treatment program, as well as leading-edge treatment and research programs in clinical areas such as cystic fibrosis, pediatric sickle cell disease and neonatology.

UH Rainbow Babies & Children's Hospital continually strives to meet the health needs of its community. Please read the document's introduction below to better understand the health needs that have been identified.

Adopted by the UH Board of Directors September 24, 2015.

# TABLE OF CONTENTS

---

INTRODUCTION TO REPORT . . . . .	3
EXECUTIVE SUMMARY . . . . .	4
DESCRIPTION OF PROCESS AND METHODS . . . . .	7
A. Definition of Market Area (Community Served by the Hospital) . . . . .	7
B. Introduction to Data Analysis . . . . .	14
C. Demographic Characteristics of UH Rainbow Babies & Children’s Hospital’s Market Area . . . . .	22
D. UH Rainbow Babies & Children’s Hospital Patients Served . . . . .	33
E. Ambulatory Care Sensitive Discharges . . . . .	36
F. ACS Analysis of Vulnerable Populations . . . . .	43
G. Greater University Circle Analysis . . . . .	47
H. Primary Analysis of Representative Sample of Market Area Population . . . . .	51
I. Infant Mortality . . . . .	60
J. Other Health Indicator Trends . . . . .	64
K. Vulnerable Populations . . . . .	65
CONCLUSIONS . . . . .	66
A. Priority Health Needs . . . . .	66
B. Resources Available to Address Priority Health Needs within the Community Served by the Hospital . . . . .	68
APPENDIX . . . . .	69
A. Qualifications of Consulting Companies . . . . .	69
B. Infant Mortality in Cleveland . . . . .	70
C. 2012 – 2015 Implementation Strategy Objectives . . . . .	72
D. ACS Conditions and ICD-9-CM Codes . . . . .	73
E. Discharges By Municipality/ZIP Code, 2013 . . . . .	74
F. Federally Qualified Health Centers in Market . . . . .	81
G. 2015 CHNA Community Leader Survey . . . . .	83
H. 2015 CHNA Community Leader Interview Guide . . . . .	87

## INTRODUCTION TO REPORT

---

This report identifies and assesses community health needs in the areas served by University Hospitals Rainbow Babies & Children's Hospital (UH Rainbow Babies & Children's Hospital) in accordance with regulations promulgated by the Internal Revenue Service pursuant to the Patient Protection and Affordable Care Act (ACA), 2010. This CHNA was adopted by the UH Board of Directors on September 24, 2015.

This is the second UH Rainbow Babies & Children's Hospital CHNA in response to the federal government regulation.<sup>1</sup> Prior to the ACA, UH Rainbow Babies & Children's Hospital had conducted needs assessments to determine pressing health needs in the community and consider how to allocate resources to respond to those needs. Provisions in the ACA standardized and formalized the community needs assessment work already being undertaken by UH Rainbow Babies & Children's Hospital.

The 2015 UH Rainbow Babies & Children's Hospital CHNA will serve as a foundation for developing an implementation strategy to address those needs that (a) the hospital determines it is able to meet in whole or in part; (b) are otherwise part of its mission; and (c) are not met (or are not adequately met) by other programs and services in the hospital's service area. The 2015 UH Rainbow Babies & Children's Hospital CHNA is the foundation for an implementation strategy as required by applicable regulations. To assist with the assessment, UH Rainbow Babies & Children's Hospital retained The Center for Health Affairs and Cypress Research Group. More information about The Center for Health Affairs and Cypress Research Group is provided in the Appendix.

Objectives: CHNAs seek to identify priority health status and access issues for particular geographic areas and populations by focusing on the following questions:

- Who in the community is most vulnerable in terms of health status or access to care?
- What are the unique health status and/or access needs for these populations?
- Where do these people live in the community?
- Why are these problems present?

The question of how the hospital can best use its limited charitable resources to assist communities in need will be the subject of the hospital's implementation strategy. To answer these questions, this assessment considered multiple data sources, some primary (survey of market area residents, hospital discharge data) and some secondary (regarding demographics, health status indicators and measures of health care access).

This report addresses the following broad topics:

- Demographics of UH Rainbow Babies & Children's Hospital's primary and secondary market areas;
- Economic issues facing the hospital's primary and second market areas (e.g., poverty, unemployment);
- Community issues (e.g., environmental concerns and crime);
- Health status indicators (e.g., morbidity rates for various diseases and conditions, and mortality rates for leading causes of death);
- Health access indicators (e.g., uninsured rates, ambulatory care sensitive (ACS) discharges, and use of emergency departments);
- Health disparities indicators; and
- Availability of health care facilities and resources

<sup>1</sup>UH Rainbow Babies & Children's Hospital followed the 2013 Proposed Regulations, published by the Treasury Department and IRS on April 5, 2013, in the Federal Register (REG-106499-12, 2-13-21 I.R.B. 1111, [78 FR 20523]), in accordance with Notice 2014-2 that confirms that hospital organizations can rely on proposed regulations under section 501(r) of the Internal Revenue Code issued on June 26, 2012, and April 5, 2013, pending the publication of final regulations or other applicable guidance. The final rule entitled "Additional Requirements for Charitable Hospitals; Community Health Needs Assessments for Charitable Hospitals"; Requirement of a Section 4959 Excise Tax Return and Time for Filing the Return, was published by the IRS on December 31, 2014, and requires compliance after December 29, 2015.

## EXECUTIVE SUMMARY

---

### UH Rainbow Babies & Children's Hospital Community by the Numbers

- 8 Primary Service Area Counties: Ashtabula, Cuyahoga, Geauga, Lake, Lorain, Medina, Portage, Summit
- 7 Secondary Service Area Counties: Ashland, Erie, Huron, Mahoning, Stark, Trumbull, Wayne
- Population under 18, 2013: 888,765
- 31.7% of community population resides in Cuyahoga County
- 95% of inpatient discharges originate from the Primary Service Area
- 67.3% of patient discharges were for patients with Medicaid; Medicaid coverage was most prevalent in Cuyahoga County (74.2%)
- In the primary service area, Cuyahoga County has the highest proportion of households with children living under the poverty line (23.9%).
- Approximately one in four children in Ashtabula, Cuyahoga, Lorain, Portage and Summit counties live beneath the poverty line.
- There exists a wide range of health status and access challenges across the community

This assessment focuses on the priority problems that impact the overall health of the UH Rainbow Babies & Children's Hospital community.

UH Rainbow Babies & Children's Hospital's service area extends into eight primary service area (PSA) counties: Ashtabula, Cuyahoga, Geauga, Lake, Lorain, Medina, Portage and Summit, and seven secondary service area (SSA) counties: Ashland, Erie, Huron, Mahoning, Stark, Trumbull and Wayne. Key findings from analyses of the PSA and SSA counties are as follows.

Poverty and unemployment in the area create barriers to access (to health services, healthy food and other necessities) and thus contribute to poor health. Racial and ethnic minorities are more likely to lack economic and social resources and be at risk for poor health.

- Most counties within UH Rainbow Babies & Children's Hospital's service area saw lower average income levels in 2013 than in 2010.
- All counties, except Geauga and Ashtabula, had a decrease in average household income from 2010 to 2013.

- The proportion of economically vulnerable residents in UH Rainbow Babies & Children's Hospital's service area increased from 2010 to 2013.
- 18.7% of Cuyahoga County residents were living in poverty in 2013.
  - 23.9% of Cuyahoga County households with children living under the poverty line
- In the Greater University Circle area, 35% of the population lives under the poverty; 44% of the Black population in this area lives in poverty (24.5% of the White population).
- At UH Rainbow Babies & Children's Hospital, 28.9% of pediatric discharges of residents within the PSA in 2013 were found to be Ambulatory Care Sensitive (ACS) or potentially preventable if patients are access primary care resources at optimal rates. The most common conditions were: Asthma, Epilepsy, Dehydration/Volume Depletion, Bacterial Pneumonia, Cellulitis and Diabetes. In the UH Rainbow Babies & Children's Hospital community, ACS discharges are also prevalent for uninsured patients.
- The prevalence of ACS conditions was higher for Black pediatric patients (35.3%) than White pediatric patients (29.7%) among Cleveland residents. The same was true for residents of suburbs surrounding the Cleveland (31.7% for Black discharges and 24.1% for White discharges).
- City of Cleveland patients were much more likely to have a primary diagnosis of asthma than those living outside of the city, regardless of race. That diagnosis was especially prevalent among Black patients from the City of Cleveland (17.7%). Asthma was, by far, the most prevalent ACS condition among Black pediatric patients in 2014 in UH Rainbow Babies & Children's Hospital.
- In 2013, 30.9% of pediatric discharged patients who were residents of the Greater University Circle market area had ambulatory care sensitive (ACS) primary diagnoses. The most common ACS diagnosis, by far, was asthma (11.9%)

## Priority Health Needs

Poor health status results if a complex interaction of challenging social, economic, environmental and behavioral factors combined with a lack of access to care is present. Addressing these “root” causes is an important way to improve a community’s quality of life and to reduce mortality and morbidity.

After careful analysis of both qualitative and quantitative data, UH Rainbow Babies & Children’s Hospital identified three categories of health needs that impact the community served by the hospital. These include (not listed in a specific order):

- Vulnerable Population Conditions
  - Increase in non-White populations
  - Increase in poverty rates
  - Increase in children living in poverty
  - Increase in unemployment
- Adult health needs that influence children and youth
  - Lack of access to primary care
    - Transportation
    - Cost
    - Prenatal care
  - Adult risk behaviors
    - Smoking
    - Drug abuse
    - Alcohol abuse
    - Gun ownership
- Child and youth health needs
  - High infant mortality rates (especially among Black population)
  - Asthma
  - Diabetes
  - Obesity
  - Mental illness
  - Lack of access to primary care
  - Lack of access to dental care
  - Violence
  - Youth risk behaviors
    - Seatbelt use
    - Alcohol consumption
    - Drinking/driving
    - Smoking

- Drug use
- Soft drink consumption
- Gun access
- Sexual activity/no birth control

Within those three broad categories of health needs, UH Rainbow Babies & Children’s Hospital has prioritized three primary health needs for this CHNA:

1. Lack of Access to Primary Care
2. Lack of Access to Dental Care
3. High Rates of Infant Mortality

These three primary health needs were selected in order to devote resources to them in a meaningful way, rather than to spread resources too thin over a broader list of priorities. Because UH Rainbow Babies & Children’s Hospital cares for children, the adult health needs identified through this CHNA are not directly prioritized.

Within the primary categories of prioritized child and youth health needs fall several additional health issues identified through this CHNA. As such, these additional health issues will serve as second tier priorities for UH Rainbow Babies & Children’s Hospital.

Lack of Access to Primary Care includes two broader subcategories of health needs: (1) disease issues and (2) youth risk behaviors. UH Rainbow Babies & Children’s Hospital believes that the focus of a newly developed model of primary care (which will be explained in the UH Rainbow Babies & Children’s Hospital Implementation Strategy) will lead to efforts to positively influence issues related to childhood obesity, mental illness, diabetes and asthma and increase access to resources related to this critical health issues. This focus on primary care access will also drive a focus on many youth risk behaviors through a variety of educational opportunities. These priorities include safety (seatbelt use/gun access/drinking and driving), substance abuse (drugs/alcohol) and smoking.

Lack of access to dental care is closely connected with access to primary care and as such, it is important to tie these two priority health needs together.

Efforts to influence high rates of infant mortality are largely connected to social services to address the social determinants of health. As such, it is anticipate that efforts to address infant mortality will include efforts that will drive change around the vulnerable population conditions identified in this CHNA (e.g., workforce programs to address the increases in unemployment rates).

## **CHNA Collaboration**

UH Rainbow Babies & Children's Hospital worked closely with The Center for Health Affairs and Cypress Research Group to complete the data assessment and summary portions of the 2015 CHNA. University Hospitals Health System, Inc. retained The Center for Health Affairs to assist in data collection and analysis to ensure the entire community served by the hospital was captured. The Center for Health Affairs is the leading advocate for Northeast Ohio hospitals. The Center advocates on behalf of 34 hospitals in six counties. Cypress Research Group provides custom research services to meet various market and business research needs. More information about The Center for Health Affairs and Cypress Research Group is provided in the Appendix.

## DESCRIPTION OF PROCESS AND METHODS

### A. Definition of Market Area (Community Served by the Hospital)

UH Rainbow Babies & Children's Hospital is located in Cuyahoga County, within the City of Cleveland and the Greater University Circle neighborhood. University Circle is a cultural enclave boasting museums and institutions including the Cleveland Museum of Art, Severance Hall, the Cleveland Institute of Music, and Case Western Reserve University. Greater University Circle includes portions of Cleveland's Fairfax, Wade Park-Glenville, Hough, Little Italy, and Buckeye-Shaker neighborhoods.

Shown in [Figure 1: UH Rainbow Babies & Children's Hospital Market Areas](#) and [Table 1: UH Rainbow Babies & Children's Hospital – Primary and Secondary Market Areas](#), UH Rainbow Babies & Children's Hospital's market areas lie within 15 counties in Northeast Ohio, with the strong majority of 2013 discharges (95.4%) being residents of the hospital's primary market area, which includes all of Ashtabula, Cuyahoga, Geauga, Lake, Lorain, Medina, Portage and Summit counties. A comprehensive list of all ZIP codes included in UH Rainbow Babies & Children's Hospital's market area, along with their 2013 discharge numbers, is shown in the Appendix.

In terms of population, UH Rainbow Babies & Children's Hospital's largest county in its market area is Cuyahoga, which contains 31.7% of the population within the hospital's market area. Shown in [Table 2: UH Rainbow Babies & Children's Hospital: Hospital Discharges – Primary and Secondary Market Areas](#), the hospital had 8,958 discharges in 2013. Of those discharges, 60.4% of UH Rainbow Babies & Children's Hospital's were residents of Cuyahoga County. Lorain County was home to 11.2% of UH Rainbow Babies & Children's Hospital's discharges in 2013.

In 2014, as shown in [Table 3: UH Rainbow Babies & Children's Hospital: Emergency Room Visits – Primary and Secondary Market Areas](#), UH Rainbow Babies & Children's Hospital had 31,457 visits to the emergency room; 98.2% were residents from the hospital's primary market area, and 0.8% were residents from its secondary market area. Only 1% of emergency room visits were from patients residing outside of the hospital's market area.

### County Health Rankings

The Robert Wood Johnson Foundation produces an annual report that ranks counties in Ohio based on two major indices of population health: health outcomes (length and quality of life) and health factors (clinical care, health behaviors/alcohol and drug use, social/environmental factors and physical environment). A rank of "1" is the best, "88" is the worst in the state of Ohio.

[Table 4: UH Rainbow Babies & Children's Hospital County Health Rankings: Health Outcomes](#) and [Table 5: UH Rainbow Babies & Children's Hospital County Health Rankings: Health Factors](#) illustrate the ranks of UH Rainbow Babies & Children's Hospital's service area counties.

For health outcomes, Geauga and Medina counties rank among the highest in Ohio in terms of both length and quality of life. In contrast, Ashtabula, Mahoning and Trumbull counties rank among the lowest on those health outcomes measures.

Cuyahoga County, where UH Rainbow Babies & Children's Hospital is located and where the bulk of its inpatients and emergency room visitors live, ranks in the middle (51 out of 88 counties) in terms of length of life and near the bottom of Ohio counties regarding quality of life (72 out of 88 counties).

For health factors, Geauga, Lake and Medina counties all rank among the highest in Ohio in terms of health behaviors, clinical care and social/economic factors. No county in UH Rainbow Babies & Children's Hospital's primary market area ranks high in Ohio in terms of physical environment. Ashtabula ranks relatively poorly in terms of all health factor measures.

In UH Rainbow Babies & Children's Hospital's secondary market area, Wayne County ranks high in the state for health behaviors (five out of 88 counties) and social/economic factors (18 out of 88 counties). Regarding health behaviors, Huron County ranks among the weakest in the state (84 out of 88 counties). Trumbull County ranks the lowest in terms of clinical care (rank of 59) and Mahoning County ranks lowest in terms of physical environment (rank of 85) in the hospital's secondary market.

It is important to note that in many of Ohio's counties, the differential between health outcomes and health factors is relatively small.

FIGURE 1: UH RAINBOW BABIES & CHILDREN'S HOSPITAL MARKET AREAS

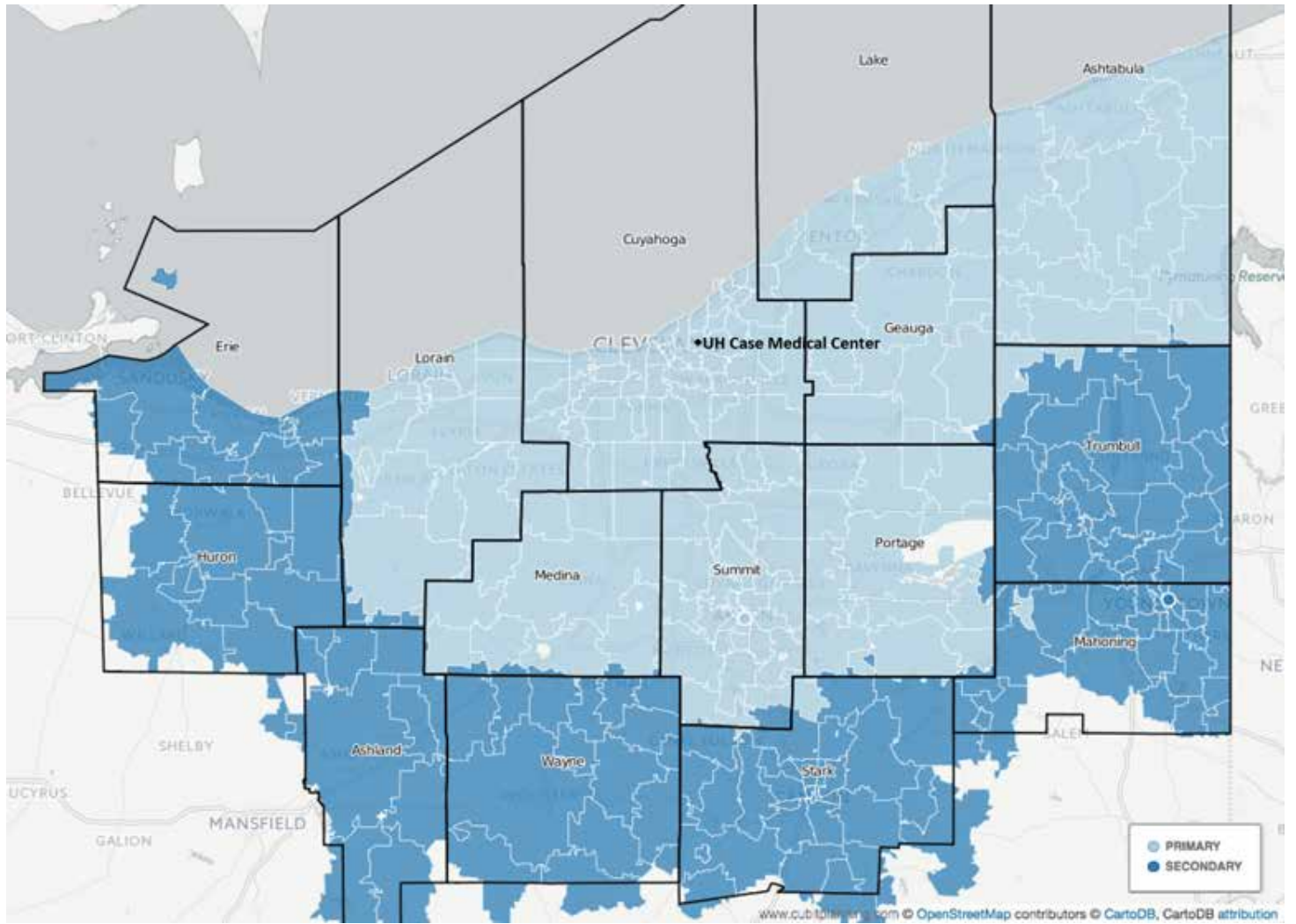




TABLE 1: UH RAINBOW BABIES & CHILDREN'S HOSPITAL – PRIMARY AND SECONDARY MARKET AREAS

Geography	2010 Number of People Under Age 18	2013 Number of People Under Age 18	% Change
<b>Primary Market Area</b>	<b>Number</b>	<b>Percent</b>	<b>Number</b>
Ashtabula	24,280	22,907	-6.0%
Cuyahoga	294,416	278,636	-5.7%
Geauga	24,451	23,373	-4.6%
Lake	51,391	49,354	-4.1%
Lorain	72,541	70,331	-3.1%
Medina	43,992	42,381	-3.8%
Portage	34,029	32,282	-5.4%
Summit	125,067	119,666	-4.5%
<b>Subtotal Primary Market</b>	<b>670,167</b>	<b>638,930</b>	<b>-4.9%</b>
<b>Secondary Market Area</b>			
Ashland	12,594	12,291	-2.5%
Erie	17,257	16,382	-5.3%
Huron	15,768	15,018	-5.0%
Mahoning	52,135	49,318	-5.7%
Stark	86,905	83,653	-3.9%
Trumbull	47,325	44,505	-6.3%
Wayne	29,331	28,668	-2.3%
<b>Subtotal Secondary Market</b>	<b>261,315</b>	<b>249,835</b>	<b>-4.6%</b>
<b>Total</b>	<b>931,482</b>	<b>888,765</b>	<b>-4.8%</b>

Source: U.S. Census, American Community Survey, 2010 Decennial projection to 2013

TABLE 2: UH RAINBOW BABIES & CHILDREN'S HOSPITAL: HOSPITAL DISCHARGES – PRIMARY AND SECONDARY MARKET AREAS

Geography	Number of UH Rainbow Babies & Children's Hospital Discharges (2013)	Percent of UH Rainbow Babies & Children's Hospital Discharges* (2013)	2013 Population (American Community Survey, U.S. Census Projection)**	
Primary Market Area	Number	Percent	Number	Percent
Ashtabula	444	5.0%	99,779	2.5%
Cuyahoga	5,413	60.4%	1,263,837	31.7%
Geauga	288	3.2%	94,059	2.4%
Lake	781	8.7%	229,634	5.8%
Lorain	999	11.2%	303,006	7.6%
Medina	225	2.5%	174,792	4.4%
Portage	179	2.0%	161,423	4.0%
Summit	214	2.4%	541,787	13.6%
<b>Subtotal Primary Market</b>	<b>8,543</b>	<b>95.4%</b>	<b>2,868,317</b>	<b>71.9%</b>
Secondary Market Area				
Ashland	10	0.1%	53,117	1.3%
Erie	180	2.0%	76,134	1.9%
Huron	44	0.5%	58,889	1.5%
Mahoning	36	0.4%	234,336	5.9%
Stark	37	0.4%	375,222	9.4%
Trumbull	84	0.9%	206,480	5.2%
Wayne	24	0.3%	115,144	2.9%
<b>Subtotal Secondary Market</b>	<b>415</b>	<b>4.6%</b>	<b>1,119,322</b>	<b>28.1%</b>
<b>Total</b>	<b>8,958</b>		<b>3,987,639</b>	

\*Ohio Hospital Association hospital discharge data, 2013

\*\*Source: U.S. Census, American Community Survey, 2010 Decennial projection to 2013

TABLE 3: UH RAINBOW BABIES & CHILDREN'S HOSPITAL: EMERGENCY ROOM VISITS – PRIMARY AND SECONDARY MARKET AREAS

Geography	Number of UH Rainbow Babies & Children's Hospital Emergency Room Visits (2014)*		2013 Population **	
Primary Market Area	Number	Percent	Number	Percent
Ashtabula	313	1.0%	99,779	2.5%
Cuyahoga	28,367	90.2%	1,263,837	31.7%
Geauga	244	0.8%	94,059	2.4%
Lake	918	2.9%	229,634	5.8%
Lorain	556	1.8%	303,006	7.6%
Medina	137	0.4%	174,792	4.4%
Portage	134	0.4%	161,423	4.0%
Summit	215	0.7%	541,787	13.6%
<b>Subtotal Primary Market</b>	<b>30,884</b>	<b>98.2%</b>	<b>2,868,317</b>	<b>71.9%</b>
<b>Secondary Market Area</b>				
Ashland	5	0.0%	53,117	1.3%
Erie	85	0.3%	76,134	1.9%
Huron	30	0.1%	58,889	1.5%
Mahoning	27	0.1%	234,336	5.9%
Stark	26	0.1%	375,222	9.4%
Trumbull	65	0.2%	206,480	5.2%
Wayne	12	0.0%	115,144	2.9%
<b>Subtotal Secondary Market</b>	<b>250</b>	<b>0.8%</b>	<b>1,119,322</b>	<b>28.1%</b>
<b>Other Market</b>	<b>323</b>	<b>1.0%</b>		
<b>Total</b>	<b>31,457</b>	<b>100%</b>	<b>3,987,639</b>	

\*UH Rainbow Babies & Children's Hospital

\*\*Source: U.S. Census, American Community Survey, 2010 Decennial projection to 2013

TABLE 4: UH RAINBOW BABIES & CHILDREN'S HOSPITAL COUNTY HEALTH RANKINGS: HEALTH OUTCOMES

County	Length of Life		Quality of Life	
	Z-Score**	Rank*	Z-Score**	Rank*
<b>Primary Service Area:</b>				
Ashtabula	0.41	71	0.14	57
Cuyahoga	0.07	51	0.35	72
Geauga	-0.91	3	-0.75	2
Lake	-0.49	15	-0.24	29
Lorain	-0.26	31	-0.18	30
Medina	-0.86	4	-0.53	5
Portage	-0.47	16	-0.31	22
Summit	-0.10	40	0.08	53
<b>Secondary Service Area:</b>				
Ashland	-0.26	30	-0.28	24
Erie	-0.12	38	0.45	79
Huron	-0.08	43	-0.15	32
Mahoning	0.39	70	0.24	64
Stark	-0.12	39	0.08	52
Trumbull	0.42	73	0.35	71
Wayne	-0.40	20	-0.48	9

Source: County Health Rankings & Roadmaps; Robert Wood Johnson Foundation program, 2015.

\*Rank is out of 88 counties in Ohio. A score of 1 designates the county in Ohio which has the most favorable measure.

\*\*Z-score is a measure of how each county compares to the average of all Ohio counties. It is calculated for each measure for each county:  $(\text{Measure} - \text{Average of state counties}) / (\text{Standard Deviation})$ . A strong negative Z-score (closer to -1) is associated with that county having a relatively favorable measure.

TABLE 5: UH RAINBOW BABIES & CHILDREN'S HOSPITAL COUNTY HEALTH RANKINGS: HEALTH FACTORS

	Health Behaviors		Clinical Care		Social and Economic Factors		Physical Environment	
County	Z-Score**	Rank*	Z-Score**	Rank*	Z-Score**	Rank*	Z-Score**	Rank*
<b>Primary Service Area:</b>								
Ashtabula	0.20	77	0.11	67	0.29	77	0.04	76
Cuyahoga	-0.05	36	-0.16	6	0.29	78	0.02	68
Geauga	-0.38	3	-0.13	9	-0.37	8	0.02	61
Lake	-0.23	9	-0.08	25	-0.21	15	0.01	58
Lorain	-0.04	37	-0.05	31	0.04	51	0.02	63
Medina	-0.34	4	-0.17	5	-0.42	7	0.03	70
Portage	-0.08	28	-0.04	37	-0.14	28	0.05	81
Summit	-0.10	21	-0.09	24	0.00	48	0.05	82
<b>Secondary Service Area:</b>								
Ashland	-0.14	16	-0.10	18	-0.18	24	0.02	66
Erie	-0.08	27	-0.13	12	-0.02	45	0.00	45
Huron	0.28	84	-0.02	49	0.13	57	-0.01	41
Mahoning	0.01	53	-0.12	14	0.21	71	0.05	85
Stark	-0.03	40	-0.13	10	0.00	47	0.04	80
Trumbull	0.15	70	0.04	59	0.26	75	0.04	79
Wayne	-0.32	5	-0.04	35	-0.21	18	0.01	51

Source: County Health Rankings & Roadmaps; Robert Wood Johnson Foundation program, 2015.

\*Rank is out of 88 counties in Ohio. A score of 1 designates the county in Ohio which has the most favorable measure.

\*\*Z-score is a measure of how each county compares to the average of all Ohio counties. It is calculated for each measure for each county:  $(\text{Measure} - \text{Average of state counties}) / (\text{Standard Deviation})$ . A strong negative Z-score (closer to -1) is associated with that county having a relatively favorable measure.

## B. Introduction to Data Analysis

This report analyzed both primary and secondary data to draw conclusions regarding the priority health needs of the population within the UH Rainbow Babies & Children's Hospital community.

### Primary Data

There were two main sources of primary data:

#### A. Survey Data

- UH Rainbow Babies & Children's Hospital's primary market area contains eight counties in Northeast Ohio (Ashtabula, Cuyahoga, Geauga, Lake, Lorain, Medina, Portage and Summit counties). UH Rainbow Babies & Children's Hospital's secondary market area contains seven other Northeast Ohio counties: Ashland, Erie, Huron, Mahoning, Stark, Trumbull and Wayne counties). Various mail surveys of adults, youth (ages 12 to 18) and parents of young children (ages 0 to 11) were conducted in some of those counties at various points in time from 2011 to 2015. These surveys provide behavioral and attitudinal data for populations within many of the counties served by UH Rainbow Babies & Children's Hospital. Survey data are available for the following counties and populations.

### Availability of County-Based Community Member Survey Data

	Child (0 – 11)	Youth (12 – 18)	Adult
Ashtabula (2011)		✓	✓
Cuyahoga (2012)			✓
Gauga (2011)	✓	✓	✓
Lake (2014)		✓	
Lorain (2011)		✓	✓
Medina (2012)	✓	✓	✓
Portage (2015)	✓		✓

#### B. Hospital Discharge Data

- Discharge data from the Ohio Hospital Association was used to describe hospital admission patterns for UH Rainbow Babies & Children's Hospital from 2011 to 2013.

#### C. Qualitative Data

- Three focus groups were hosted in May 2015. 26 community agency leaders participated, as did 28 community residents.
- Interviews were conducted with two public health leaders and two social service agency leaders.
- A survey was sent to 28 community leaders from organizations that serve the populations in the hospital's service area. 24 responses to the survey were received.

## Qualitative Data Analysis

From January 2015 – July 2015, UH Rainbow Babies & Children’s Hospital, in collaboration with UH Case Medical Center, UH Regional Hospitals, UH Parma Medical Center and UH Ahuja Medical Center, solicited the input of individuals who represent the broad interests of the community and individuals in leadership roles in public health. This included a series of focus groups, interviews and mail surveys.

### Focus Groups

On May 21, 2015, UH commissioned a qualitative research study that included: (1) One 90-minute focus group with a total of 26 community agency leaders and staff, representing health care services, social services, religious organizations, government agencies, and others, and (2) Two 90-minute focus groups with a total of 28 community residents selected at random from specific ZIP codes in the Greater University Circle area. The focus groups were facilitated by an independent moderator, audio-recorded and transcribed.

Community resident participants reflected a mix of ages, from 21 to 64. In total, 61% were female, 39% male. The majority (81%) were African- American; 15% self-classified as White and 4% as Other. Participants reported a wide range of educational backgrounds and represented 10 ZIP codes from the community.

Participating community agency leaders are identified in the chart below.

Name		Title		Agency
Mr.	Chuck Ackerman	Associate Director		Famicos
Ms.	Janean Aikens	Community Engagement Coordinator		St. Clair Superior Development Corporation
Ms.	Deborah Aloschen	Head of Nursing		Cleveland Metropolitan School District
Mr.	Jerome Baker	Community Engagement Supervisor		YWCA
Dr.	David Bass	VP for Research/Senior Research Scientist II		Benjamin Rose Institute on Aging
Ms.	Maria Campanelli	Executive Director		The Children’s Museum of Cleveland
Ms.	Carrie Clark	Executive Director		MedWorks
Ms.	Susan Conover	Manager of WIC Operations		WIC
Ms.	Valeria David			Moms First/City of Cleveland, Dept. of Public Health
Mr.	William Denihan	Chief Executive Officer		ADAMHS Board Cuyahoga County
Ms.	Lisa Fiorilli	Breastfeeding Coordinator		WIC
Ms.	Michelle Hall	RN Case Manager		Caresource
Mr.	Neal Hodges	Community Network Builder		Neighborhood Connections
Minister	R. L. Jones	Minister		Mt. Hermon Baptist Church
Ms.	Linda Kimble	Executive Director		Minority Organ/Tissue Transplant Educ. Program
Mr.	Jeffrey Lox	Chief Clinical Officer		Wingspan/Bellefaire JCB/Applewood
Ms.	Jackie Matloub	Research Associate		CWRU-Family Medicine & Community Health
Ms.	Caitlin McDermott	Director, Annual Fund & Special Events		St. Martin De Porres High School
Mr.	Ryan Miday	Vice President, Government Relations		The Centers for Family and Children
Ms.	Sondra Miller	President & CEO		Cleveland Rape Crisis Center
Ms.	Sherita Mullins	Manager of Social Enterprises		Burten, Bell, Carr Development, Inc.
Ms.	Alisa Powell	Director of Programs and Services		Ronald McDonald House of Cleveland
Ms.	Tiffanie M. Riggs	Community Outreach		Molina Healthcare of Ohio, Inc.
Mr.	Ron Soeder	President		Boys & Girls Clubs of Cleveland
Ms.	Millette Tucker	Assistant Principal		Stepstone Academy
Ms.	Tatiana Wells	Promise Early Learning Navigator		Starting Point

Community residents and community agency representatives who participated in the focus groups identified a wide range of challenges to the health and general well-being of community residents.

The issues that elicited the strongest concern and greatest amount of focus across some or all of the focus groups include:

1. Access to health care services, particularly primary care, urgent care, mental health services, children's physical/mental health services and dental health.
2. Access to resources that facilitate positive health and well-being, such as affordable healthy foods, support services for seniors and a one-stop-shopping directory of available resources.
3. Aspects of the community environment that affect health and well-being, including violence/safety, housing, and workforce- and unemployment-related issues.
4. Barriers: cultural stigma associated with the use of preventive, behavioral health, HIV/AIDS, cancer care and other services; lack of awareness of available services and how to access them; lack of extended-hour services; and transportation.

Community residents identified a wide range of personal, household and community health challenges. Based on the frequency of mention and the detail provided, the key issues they identified as affecting themselves and the community included:

1. Cost of health care
2. Access to health care and supportive services
3. Children's health
4. Senior health
5. Nutrition/access to healthy food
6. Community safety
7. Stigma

Community residents reported that access to and use of health care services are challenged by high/unaffordable costs in several respects including the cost of health insurance, the cost of medications, and the cost of services. They also expressed a lack of understanding in the community about available health care resources and how to access them.

Gaps also were identified with respect to:

- The continuum of mental health services: for children, and for those leaving residential treatment programs.
- Long wait times to obtain an appointment for certain services.
- "Second class" treatment of community residents in some of the local clinics, leading to mistrust of the system.
- Lack of clinical care (primary and specialty) resources in the immediate community.

Both children's health issues and senior's health issues were of concern to the community residents. Participants associated children's health and well-being issues with the settings in which children spend their time. In the family setting, there are generational changes in family dynamics, challenging economics of healthy eating at home, and challenges to parents' ability to model healthy lifestyles.

In the schools, there is poor nutrition in school cafeterias; decreasing/minimal time for recess, gym and fitness; limited health education; and peer pressure for unhealthy behaviors. In the broader community, children face earlier and more frequent exposure to violence, drug and alcohol abuse and other negative lifestyles. They lack safe environments and programs for indoor and outdoor recreation.

Finally, in the health system, there is a lack of resources/difficulty identifying resources to aid in early diagnosis of children's health conditions, including mental and physical health issues; difficulty identifying supportive resources for children with conditions such as autism and ADHD; and physician hours that do not synch with parents' schedules.

At the opposite end of the spectrum, focus group participants felt there was insufficient investment in the health and well-being of seniors in their community. A huge barrier is a lack of free or low-cost transportation.

Community residents noted several challenges in maintaining a healthy lifestyle by making healthy food choices. Fresh produce is scarce and expensive, and there is a lack of availability of healthy options in local stores. Childhood obesity is a huge concern.

Violence was also a key discussion point for community residents. Many community residents are reluctant to venture outside in their community, or to send their children out to play, especially on dark evenings, due to potential violence, illegal drug transactions/use in the open and other concerns.



Community agency participants identified a range of key health and wellness concerns affecting residents of the community:

1. Violence
2. Mental health
3. Prevention/early detection
4. Well-being: Nutrition and exercise
5. Housing
6. Dental health
7. Access
8. Workforce
9. Inter-agency coordination

Violence at various levels – in the home, on the streets, and in other communities – was identified as the underlying cause of a considerable unserved need with respect to mental health services. Agency leaders were particularly focused on the impact of violence in children. They further identified considerable mental health needs affecting the community, beyond those related to violence. These included trauma and chronic stress, depression, the autism “epidemic,” youth transition out of foster care, dementia and other mental health issues affecting seniors, lack of integration of mental health within physical health services, and lack of follow-up and continuing services.

Agency leaders identified the need to move the community from a focus on only interventional care to a focus on prevention and wellness. Challenges to this include over-reliance on the emergency department; limited availability of clinics in public schools; shortage of primary care providers in the community; lack of funding for prevention and wellness services; and limited access to care managers for those with chronic conditions.

Participating agency leaders voiced several challenges that echoed the sentiments of community residents. These included challenges related to healthy eating, safety considerations outside the home/violence, housing and infrastructure issues, lack of dental care, and a host of challenges relating to health care access.

## Public Health Interviews

*Toinette Parrilla – Cleveland Department of Public Health*

Cleveland Department of Public Health (CDPH) Director, Toinette Parrilla, was interviewed on June 26, 2015. CDPH serves the 400,000 residents of the City of Cleveland and provides supplementary services to the broader populations of Cuyahoga County. Within CDPH, there are three primary divisions: (1) Health, which is focused on emergency preparedness, HIV/AIDS prevention and treatment, housing, behavioral health, mental health, substance abuse, nursing services, infant mortality, women’s health, immunizations, and health/wellness initiatives; (2) Environment, which focuses on licensing and inspecting 20 different types of establishments, nuisance control and issues related to lead; and (3) Air Quality, which provides services for all of Cuyahoga County related to enforcement, engineering, permitting, asbestos, toxins and emissions. CDPH also has a robust epidemiology department and oversees the Department of Vital Statistics.

Director Parrilla described the greatest health issues she believes residents of the City of Cleveland currently face. She listed the primary concerns for the youngest portion of the population, aged 0 – 17 years, as lack of reproductive health services; needing a better understanding of what health and wellness is; lack of education on healthy lifestyles; poor nutrition; high rates of childhood obesity; and high rates of lead poisoning.

In the young adult category, ages 18 – 44, Director Parrilla placed infant mortality at the top of the list of health issues. She also listed high rates of STDs/HIV/AIDS; youth violence; mental health issues; and substance abuse issues.

For ages 45 – 65, Director Parrilla noted issues of obesity; hypertension; COPD; cardiovascular disease; diabetes; lack of healthy eating/active living lifestyles; mental health issues; and drug abuse, particularly with heroin.

Director Parrilla identified several health issues that impact the senior population, aged 65+ including chronic conditions based on lifestyle; mental health issues; and substance abuse issues.

The population served by CDPH is predominantly comprised of minorities including African-Americans, Latinos and Asians. This population is largely impoverished. In fact, 100% of children in the Cleveland Municipal School District receive free breakfast and lunch at school. Director Parrilla noted that there are significant issues related to structural racism and minority health disparities that plague the population. A good example is the vast number of food deserts found throughout the city, driving countless health issues related to poor nutrition.

Director Parrilla cited several public health indicators that illustrate the severe health disparities that impact the population of the City of Cleveland. She noted that infant mortality rates (particularly for the African-American population) are among the worst in the country. Director Parrilla believes a key driver to this issue is the lack of coordination between agencies and providers with services to address this.

Another indicator noted by the Director was continued high rates of lead poisoning. She attributes this to the immense need for abatement and demolition of dilapidated housing stock in the City.

Childhood obesity was also noted as a key health status indicator for the population served by CDPH. It is tied to the issues generally associated with unhealthy neighborhoods, including violence, lack of safety, food deserts, lack of access to health care, poverty and poor nutrition.

Finally, Director Parrilla stated that mental health issues are on the rise in the City of Cleveland. She believes that increased rates of violence are also on the rise as a direct result of the mental health issues faced by residents.

Director Parrilla believes that coordination and collaboration are key to addressing the health needs discussed in her interview. She believes that there are a significantly large number of assets, particularly at Cleveland's anchor institutions, that can work together to impact in areas of need. In order to achieve a collective impact, a coordinated strategic plan is required.

#### *Terry Allan – Cuyahoga County Board of Health*

Cuyahoga County Board of Health (CCBH) Commissioner, Terry Allan, was interviewed on June 23, 2015. CCBH serves 855,000 people in Cuyahoga County and provides supplemental services regionally for seven counties. While CCBH serves this robust population, services are generally targeted to low-income, high need and often minority communities.

Mr. Allan believes that the biggest driver impacting health status in the community is poverty and education. He stated that social determinants of health have a vast impact across all age groups.

Among the youth/young adult age group the biggest issues driven by the social determinants of health are infant mortality, healthy eating/active living, tobacco use, violence, asthma, teen pregnancy and childhood vaccination.

Mr. Allan believes that many of these issues drive health issues as people age. In the age group of adults age 18 – 44, he identified the biggest health issues as preventive health,

healthy eating/active living, chronic disease management, housing and employment.

As the population continues to age, Mr. Allan believes that chronic disease management continues to play an important role in population health. Employment among 45- to 65-year-olds is also a critical health indicator because it provides access to care, as well as family stabilization.

In the senior population, Mr. Allan cited senior fall prevention, preventive screenings and pneumonia vaccines as primary health concerns.

Demographic trends have played a significant role in the health status of Cuyahoga County residents. In the past 10 years, the population of the City of Cleveland has shrunk considerably. Following that trend, first-ring communities have become higher need (more aligned with the city). The first-ring school districts are facing challenges that hadn't been seen in the suburbs previously because of a rise in poverty.

There has been an increase in the concentrations of immigrants and minority populations (upward of 50% in the City of Cleveland) that face their own unique health challenges. Importantly, care needs to become much more culturally competent to address these challenges.

Mr. Allan described several public health indicators that show challenges faced by the community. Overall, Cuyahoga County has decreased rates of lead poisoning among children. However, there remains a subset of neighborhoods in the most impoverished parts of the community that consistently have high rates of poisoning.

Similarly, trends in infant mortality remain deplorable among the minority populations in certain hotspots throughout the city. There are also negative trends in teen pregnancy disparities by race, even though the rate of teen pregnancy is going down overall. Diabetes-related health issues are also a big concern among the minority community.

Mr. Allan explained that while residents don't often find a need to leave the community to receive health services, they often migrate out of the community to meet other needs, which further drives the challenges associated with poverty for those who are left behind. He explains several reasons the population of Cuyahoga County has migrated out of the county in recent years:

- It is less expensive to live in counties further from the City of Cleveland, and people are worried about living wage
- Taxes outside of Cuyahoga County are lower
- People hunt for school systems they believe are best for their children
- Some have perceptions about safety and space in outer communities (race-related)

Challenges related to access to health care, mental and behavioral health, and social services for community members are largely driven by poverty. Lack of transportation is a major barrier to access. Additionally, a variety of social determinants of health impact access, including stress, employment and housing. Mr. Allan believes that communities that are more integrated, over time, fare better. The racial polarity that is a reality in Cuyahoga County is a huge problem.

Mr. Allan suggests that a variety of stakeholders in the health care and social services sector must work together in a new way, in order to really drive change in the social determinants of health. He suggests that anchor agencies can play the role of facilitation, by managing the big issues in their areas of expertise. It is important to build a plan in an integrated way that provides collective impact and shared measurement and evaluation. If this doesn't happen, the community will continue to have organizations tripping over each other, because everyone tries to address the same issues without communication. Resources should be targeted based on data to address disparities and engage the community. Infant Mortality would be a great starting point to demonstrate how such collaboration could succeed.

### **Social Services Interviews**

On June 23, 2015, interviews were conducted with Joanne Mraz, Educational Program Director at the American Diabetes Association (ADA), and Jeffrey Lox, Chief Clinical Officer at Bellefaire JCB (Bellefaire).

The Northeast Ohio office of ADA works primarily with diabetic populations in need in the Cleveland area, working to close the resource gap for those that have the least access to resources. The organization primarily reaches its target population through work at community centers, senior centers, county facilities, libraries and hospitals. They provide fundamental diabetes education, including biometric measurements, blood sugar screenings, blood pressure screenings and body mass index screenings. They couple screenings with fundamental, baseline education, such as food groups, mapping resources in the community, and how to access healthy options at local stores, like a dollar store.

Joanne explained that the majority of her low-income, diabetic population does not go to specialists like endocrinologists for care. At best, they work with primary care physicians to treat their disease, but often report to emergency room visits for emergent care only.

Bellefaire JCB serves 22,000 children and families each year. It is the largest behavioral health provider between Chicago and New York City. The organization treats kids with behavioral health issues, mental health issues and substance abuse issues. Bellefaire has a residential treatment facility on its Cleveland Heights campus, which houses approximately 100 young people. That includes a locked

intensive treatment facility that treats kids ages 11 – 18; a four-bed crisis stabilization unit for kids who need help but won't qualify to be in a psychiatric unit at a hospital; and a residential program for 40 kids, age 6 – 22 on the autism spectrum. Bellefaire also houses the Monarch School, a day school for 150 students with autism, and recently spun off an adult program for those with autism, which treats those who age out of Bellefaire's childhood programs.

Outside of these on-campus programs, Bellefaire has a robust school-based program that serves kids in 180 Northeast Ohio schools; an in-home family therapy program; a foster care program; an adoption program; traditional outpatient therapy, and several other social services programs for local children.

The children seen through Bellefaire's programs are generally multineed kids with multisystem, complex medical needs.

Ms. Mraz and Mr. Lox expressed robust needs faced by their target audiences in the Cleveland area. To summarize, Ms. Mraz identified three primary issues: (1) health literacy, (2) lack of access to resources, and (3) lack of education. Mr. Lox identified: (1) a fundamental need for education, (2) issues of poverty and disenfranchisement, and (3) a lack of care coordination.

While Bellefaire and ADA primarily work with populations at the opposite ends of the age spectrum, their target audiences are impacted by similar trends and significant challenges associated with poverty. Mr. Lox noted that the children his organization works with appear more ill, come from more poverty and more abuse and neglect. They have not seen any appreciable growth in circumstances based on the Affordable Care Act.

Mr. Lox also noted that for children with autism, there is a national epidemic, which is the result of a growing population with services/technologies that can't keep pace. They see more children diagnosed with autism spectrum disorders and are in turn seeing an aging population with related problems.

Bellefaire has not traditionally had a large population of uninsured children because kids have traditionally qualified for Medicaid. However, the organization is seeing a new problem that has resulted from families that cannot qualify for Medicaid, but cannot afford the expenses associated with private insurance.

Finally, Mr. Lox noted that there is a growing crisis related to heroin/opiate addiction. He stated that the problem is huge and his organization is seeing younger and younger children with addiction problems – they currently have an 11-year-old girl in their residential program for treatment of heroin addiction.

Poverty is also an underlying, growing issue for the populations Ms. Mraz works with through ADA. She noted that lifestyle is, both literally and figuratively, a killer for her patients. They do not have access to healthy food and do not properly exercise, and as such, contribute to the impact of their disease. There is also a significant population treated by ADA's programs that are underinsured and cannot afford copays associated with their insurance coverage. These patients do not visit their physicians regularly, do not receive the necessary durable goods to properly manage their disease, and are not properly educated on diabetes management.

Both leaders expressed that the community has a lack of mental health resources available for treatment of all ages. This is particularly a problem for kids on the autism spectrum, as there are no psych hospitals in town that will admit kids with a primary autism diagnosis. There was consensus that community members have several challenges related to access to health care. These primarily stem from a lack of access to primary care physicians and specialists that are willing to treat low-income individuals. There is also a lack of mental health providers that accept Medicaid (most have waiting lists) and a shortage of psych beds.

Mr. Lox and Ms. Mraz agreed that there is opportunity to improve circumstances for both of their target populations by bringing together community resources in creative, collaborative ways. The current challenge is that there is not a current, active, navigational hub to coordinate such efforts. There is a need to organize resources by health population and help individuals and families navigate through them.

## Surveys

Surveys were sent to 28 community leaders from organizations that serve the populations in the hospital's service area. 24 responses to the survey were received. A copy of the survey can be found in the Appendix.

The organizations solicited are listed below, those in **bold** responded.

Benjamin Rose Institute on Aging  
ADAMHS Board Cuyahoga County  
Alzheimers Association  
American Cancer Society  
American Diabetes Association  
American Heart Association  
Cleveland City Council

### **Cleveland Council of Black Nurses**

### **Cleveland Department of Public Health**

### **Cleveland Public Library**

### **Commission on Cancer**

### **Cuyahoga County Department of Health**

### **East End Neighborhood House**

Fairhill Partners  
Medina County Health Department  
Mental Health Advocacy Coalition  
Mental Health and Recovery Board of Portage County  
NAMI Greater Cleveland  
Neighborhood Family Practice

### **NEON**

North Coast Health Ministry  
Ohio Commission on Minority Health  
Portage County Health Department

### **Susan G. Komen NEO**

The Free Medical Clinic of Greater Cleveland

### **UH Seidman Cancer Center**

### **Upward Bound**

Western Reserve Area Agency on Aging

The top six health issues identified by those surveyed were: Cancer, Diabetes, Obesity, Substance Abuse, Access/Insurance and Mental Health. Furthermore, survey participants identified cancer as the most significant health issue in the community.

Moreover, gaps in access to the following services were identified: (1) access to dentists, (2) access to bilingual providers, (3) access to mental/behavioral health providers, and (4) access to transportation.

When asked to identify the most significant barriers that keep people in the community from accessing health care when they need it, the following barriers were prioritized: (1) lack of transportation, (2) inability to pay out-of-pocket expenses (copays, prescriptions, etc.), (3) inability to navigate health care system, (4) time limitations, (5) basic needs are not being met (food/shelter), (6) lack of health insurance coverage, (7) lack of trust, (8) availability of providers/appointments, (9) lack of child care, and (10) language/cultural barriers. When asked to prioritize the most significant of these barriers, a majority of respondents selected inability to pay out-of-pocket expenses and lack of transportation.

Respondents predominantly agreed that there are specific populations in the UH Rainbow Babies & Children's Hospital service area that are not being adequately served by local health services. The most commonly identified populations included the poor, African-American, uninsured, seniors, homeless and Hispanic populations. Other populations identified as underserved included immigrants, young adults, disabled individuals and children/youth. Moreover, several participants added their own opinion that the mental health population was underserved.

There was a strong consensus that the majority of uninsured and underinsured individuals in this community use the hospital emergency department as their primary point of care when in need of medical care.

All respondents agreed that there are a number of resources and services related to health and quality of life that are missing in the community. Free/low-cost dental care was the highest ranked missing service that was identified, closely followed by transportation and mental health services. Other identified missing services included free/low-cost medical care, medical specialists, substance abuse services, prescription assistance, health screenings, primary care providers, bilingual services, and health education/info/outreach.

Responses varied when asked what challenges people in the community face in trying to maintain healthy lifestyles. Examples include the expenses of both exercise facilities and healthy food options; violence creating a lack of safe places to exercise within the community; food deserts and lack of quality grocery stores making it difficult to obtain healthy

foods; poor education system; and structural racism and health inequity.

Respondents provided several recommendations that may help to improve the health and quality of life in the community. Some recommendations included creating UH van transportation services to help patients travel to appointments; increasing the collaboration between clinical care providers and public health organizations; gaining more community input on issues within the community; continuing education about healthy lifestyles from school-aged kids to seniors; bring educational outreach programs to churches and senior centers; increase the number of patient navigators; community gardens; host free semi-annual health fairs; and have doctors/nurses speak on health issues at quarterly collaborate meetings. The respondents to this survey included leaders from public health organizations, health care organizations, nonprofit organizations, social service agencies, aging services, faith-based organizations, education/youth services and local government.

## Secondary Data

There were several sources of secondary data:

- U.S. Census, 2010 Decennial Census, American Community Survey (projections to 2013) (demographic data; poverty data);
- U.S. Bureau of Labor Statistics, 2015 (unemployment data);
- U.S. Health Resources and Services Administration (HRSA) (medically underserved areas and populations and food deserts);
- Case Western Reserve University, Prevention Research Center for Healthy Neighborhoods (youth survey data for Cuyahoga County);
- Cleveland Department of Health, Office of Biostatistics (infant mortality data for the City of Cleveland);
- Health status and access indicators available from:
  - County Health Rankings & Roadmaps; Robert Wood Johnson Foundation program, 2014;
  - Ohio Department of Health, 2015;
  - U.S. Centers for Disease Control and Prevention, CHSI Information for Improving Community Health, Community Health Status Indicators Project, 2015;
  - Community Commons, 2015

## Information Gaps

To the best of The Center for Health Affairs' and Cypress Research Group's knowledge, no information gaps have affected UH Rainbow Babies & Children's Hospital's ability to reach reasonable conclusions regarding community health needs.

### C. Demographic Characteristics of UH Rainbow Babies & Children's Hospital's Market Area

Cuyahoga County has, by far, the largest total population among UH Rainbow Babies & Children's Hospital's market area counties. Second in population size is Summit County (population of 541,943 in 2014).

Illustrated in [Table 6: UH Rainbow Babies & Children's Hospital Market Area: County Population Trends](#), overall, UH Rainbow Babies & Children's Hospital's primary market area saw a slight (-0.5%) decrease in population size from 2010 to 2014. Ashtabula and Cuyahoga counties had the biggest decreases in population size (-2.2% and -1.4%, respectively) during that time period. Medina County had the biggest population increase (+2.0%).

The hospital's secondary market area saw a larger decrease in population size overall (-1.0%). Among those counties, Mahoning (-2.2%) and Trumbull (-2.2%) showed the larger decreases, and Wayne and Stark counties showed the only increases (+0.9% and +0.1%, respectively).

UH Rainbow Babies & Children's Hospital's market area saw two small but significant changes in demographic composition from 2010 to 2014. Shown in [Table 7: Demographic Trends in UH Rainbow Babies & Children's Hospital's Market Area: by Age](#), the first is the age of the population. In all counties (in primary and secondary markets), the proportion of those ages 19 and below decreased (by a minimum of 0.6% to a maximum of 1.2%). While the absolute level of this change is small, it is significant in that the use of health care increases exponentially with age, especially after age 65. Therefore, the aging of the population will have significant impacts on the demand for health care in regions where the proportion of older citizens is increasing. This stress on the health care system could impact access to resources for the youngest members of the population.

[Table 8: Demographic Trends in UH Rainbow Babies & Children's Hospital's Market Area: by Race](#) illustrates the second important shift, which is the small change in the racial composition of the market area counties. All counties in UH Rainbow Babies & Children's Hospital's market area are majority White. However, overall in the hospital's primary and to a lesser degree, secondary market area, the proportion of non-White residents increased. Cuyahoga (-1.0%) and Summit (-0.8%) Counties showed the largest decreases in the proportion of Whites in the general population.

While the basic demography in UH Rainbow Babies & Children's Hospital's market area counties did not see significant changes from 2010 to 2013, the economic situations for many residents did. Shown in [Table 9: Trends in UH Rainbow Babies & Children's Hospital's Service Areas: by Household Income](#), the median and mean household income in the state as a whole decreased by 3.7% and 2.1%, respectively, from 2010 to 2013. Most counties within UH Rainbow Babies & Children's Hospital's market area saw lower average income levels in 2013 than in 2010.

All counties, except Geauga and Ashtabula, had a decrease in average household income from 2010 to 2013. While Ashtabula County experienced rising average incomes, its average household income rose to just the second lowest in UH Rainbow Babies & Children's Hospital's primary market area.

The proportion of economically vulnerable residents in many counties in UH Rainbow Babies & Children's Hospital's market area increased from 2010 to 2013, shown in [Figure 2: Most Economically Vulnerable Market Area Residents: UH Rainbow Babies & Children's Hospital](#). The percent of people living in poverty increased from 2010 to 2013 in all counties in the hospital's primary market area except for Ashtabula County. Cuyahoga County had the highest proportion of people living in poverty in 2013 (18.7%). Ashtabula, Lorain, Portage and Summit counties show similarly high poverty levels in 2013.

Shown in [Figure 3: Most Economically Vulnerable UH Rainbow Babies & Children's Hospital Service Area Residents](#), the proportion of households with resident children living under the poverty line increased in all primary market counties in UH Rainbow Babies & Children's Hospital's primary market area from 2010 to 2013, with the exception of Ashtabula and Geauga counties.

The same increased economic distress is seen in the percent of children living in poverty, which increased in all primary market area counties except for Ashtabula, Geauga and Lake. In the secondary market area, only Erie and Huron counties had improved poverty rates for children from 2010 to 2013.

In the primary market area, Cuyahoga County has the highest proportion of households with children living under the poverty line (23.9%). Geauga (8.3%) and Medina (8.2%) counties have the lowest proportion of households with children living under the poverty line.

Approximately one in five children in Ashtabula, Cuyahoga, Lorain, Portage and Summit counties live beneath the poverty line. These poverty rates are twice the rates for children living in Geauga or Lake counties.

The dynamics of the market area's health insurance status also changed during that time period in Ohio overall. While the percent overall with any health coverage stayed about the same (slight increase of 0.3%), the percent with public coverage increased by 2.6%, shown in [Figure 5: Health Insurance Coverage UH Rainbow Babies & Children's Hospital Service Area Residents](#). No county within UH Rainbow Babies & Children's Hospital's market area (except Ashtabula or Ashland counties) saw a reduction in the proportion of residents with public health coverage in 2013 compared to 2010.

UH Rainbow Babies & Children's Hospital's market areas improved significantly from 2010 to 2015, illustrated by [Figure 7: Unemployment Rate](#). In April of 2015, Lorain County had the highest unemployment rate (6%) within UH Rainbow Babies & Children's Hospital's primary market area, and Huron County had the highest unemployment rate (6.3%) in the secondary market area. The unemployment rate for Ohio overall in April of 2015 was (4.6%) and (5.4%) for the United States overall.

Finally, while very recent poverty rates are not available, there are signs of improved prosperity – at least for county residents as a group. The unemployment rate for

TABLE 6: UH RAINBOW BABIES & CHILDREN'S HOSPITAL MARKET AREA: COUNTY POPULATION TRENDS

Service Area	2010	2011	2012	2013	2014	Five-Year Trend
<b>Primary Market Area</b>						
Ashtabula	101,409	101,101	100,264	99,779	99,175	-2.2%
Cuyahoga	1,278,172	1,269,839	1,265,889	1,263,837	1,259,828	-1.4%
Geauga	93,422	93,403	93,917	94,059	94,295	0.9%
Lake	229,993	229,787	229,365	229,634	229,230	-0.3%
Lorain	301,478	301,932	301,695	303,006	304,216	0.9%
Medina	172,493	173,438	173,704	174,792	176,029	2.0%
Portage	161,355	161,770	161,336	161,423	161,882	0.3%
Summit	541,612	541,111	540,867	541,787	541,943	0.1%
<b>Subtotal Primary Market</b>	<b>2,879,934</b>	<b>2,872,381</b>	<b>2,867,037</b>	<b>2,868,317</b>	<b>2,866,598</b>	<b>-0.5%</b>
<b>Secondary Market Area</b>						
Ashland	53,329	53,288	53,240	53,117	53,035	-0.6%
Erie	77,013	76,662	76,442	76,134	75,828	-1.5%
Huron	59,599	59,431	59,295	58,889	58,714	-1.5%
Mahoning	238,406	237,314	235,787	234,336	233,204	-2.2%
Stark	375,398	374,248	374,844	375,222	375,736	0.1%
Trumbull	209,897	208,991	207,439	206,480	205,175	-2.2%
Wayne	114,501	114,718	114,990	115,144	115,537	0.9%
<b>Subtotal Secondary Market</b>	<b>1,128,143</b>	<b>1,124,652</b>	<b>1,122,037</b>	<b>1,119,322</b>	<b>1,117,229</b>	<b>-1.0%</b>
<b>Total</b>	<b>4,008,077</b>	<b>3,997,033</b>	<b>3,989,074</b>	<b>3,987,639</b>	<b>3,983,827</b>	<b>-0.6%</b>

Source: U.S. Decennial Census, American Community Survey projections to 2014

TABLE 7: DEMOGRAPHIC TRENDS IN UH RAINBOW BABIES & CHILDREN'S HOSPITAL'S MARKET AREA: BY AGE

	Ages 0 to 19		
Primary Market Area	2010	2013	Percent Change
Ashtabula	26.2%	25.1%	-1.1%
Cuyahoga	25.6%	24.6%	-1.0%
Geauga	28.4%	27.4%	-1.0%
Lake	24.6%	23.7%	-0.9%
Lorain	26.8%	25.9%	-0.9%
Medina	27.8%	26.6%	-1.2%
Portage	26.0%	25.3%	-0.7%
Summit	25.8%	24.7%	-1.1%
<b>Secondary Market Area</b>			
Ashland	27.3%	26.6%	-0.7%
Erie	24.4%	23.5%	-0.9%
Huron	28.8%	27.6%	-1.2%
Mahoning	24.4%	23.3%	-1.1%
Stark	25.8%	24.9%	-0.9%
Trumbull	24.8%	23.7%	-1.1%
Wayne	28.8%	28.2%	-0.6%



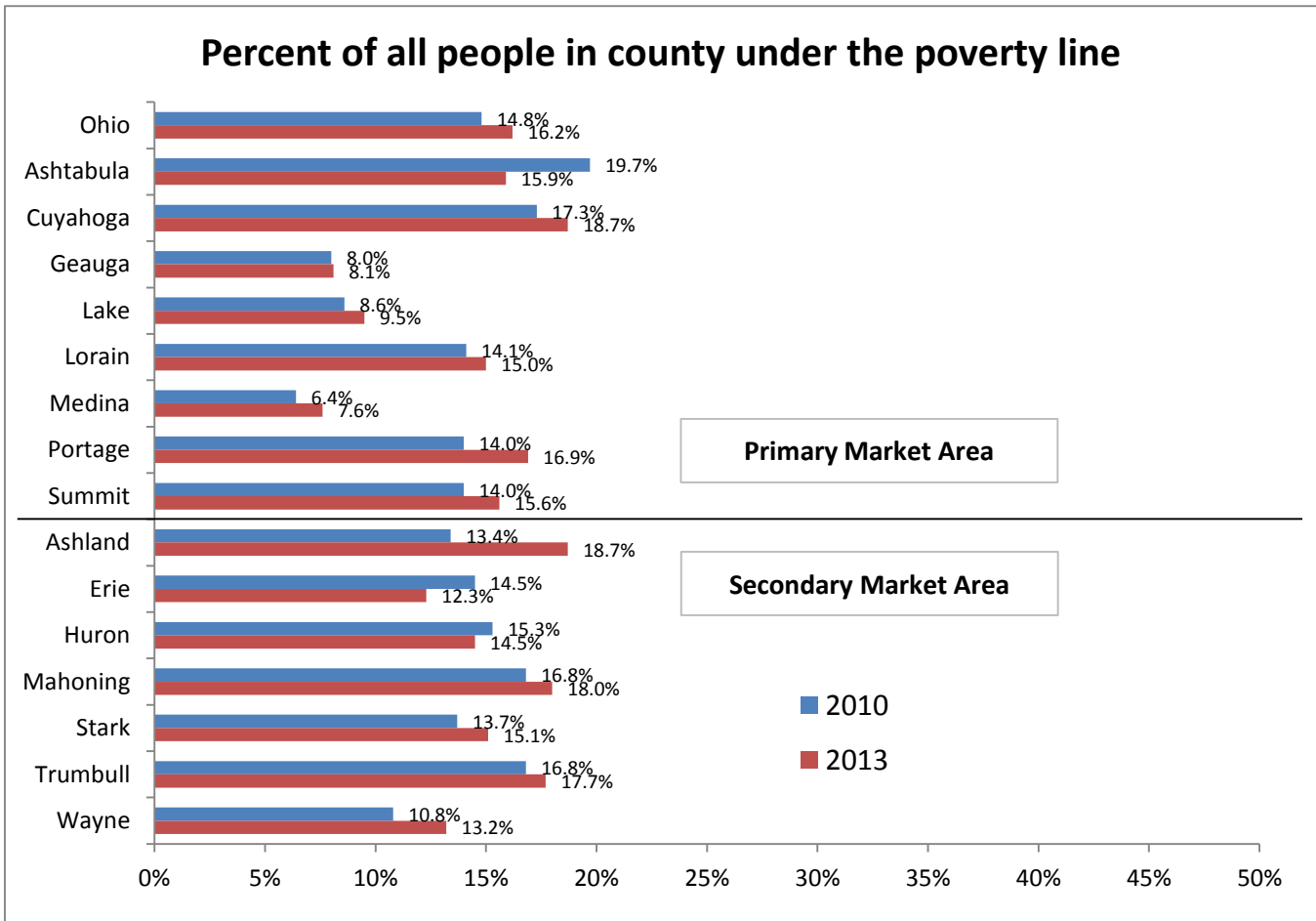
TABLE 8: DEMOGRAPHIC TRENDS IN UH RAINBOW BABIES & CHILDREN'S HOSPITAL'S MARKET AREA: BY RACE

		White	Black or African-American	American Indian and Alaska Native	Asian	Native Hawaiian and Other Pacific Islander	Some other race
<b>Primary Service Area Counties:</b>							
Ashtabula	2010	93.1%	3.8%	0.1%	0.1%	0.0%	0.4%
	2013	93.4%	3.5%	0.2%	0.5%	0.0%	0.3%
	Percent Change	+0.3%	-0.3%	+0.1%	+0.4%	0.0%	-0.1%
Cuyahoga	2010	64.9%	29.6%	0.2%	2.6%	0.0%	0.9%
	2013	63.9%	29.7%	0.2%	2.7%	0.0%	1.2%
	Percent Change	-1.0%	+0.1%	0.0%	+0.1%	0.0%	+0.3%
Geauga	2010	97.2%	1.0%	0.1%	0.6%	0.0%	0.1%
	2013	96.9%	1.4%	0.0%	0.6%	0.0%	0.1%
	Percent Change	-0.3%	+0.4%	-0.1%	0.0%	0.0%	0.0%
Lake	2010	93.5%	3.1%	0.1%	1.2%	0.0%	0.6%
	2013	92.9%	3.7%	0.1%	1.2%	0.0%	0.5%
	Percent Change	-0.6%	+0.6%	0.0%	0.0%	0.0%	-0.1%
Lorain	2010	84.7%	8.4%	0.4%	1.0%	0.0%	2.4%
	2013	85.7%	8.2%	0.2%	0.9%	0.1%	1.5%
	Percent Change	+1.0%	-0.2%	-0.2%	-0.1%	+0.1%	-0.9%
Medina	2010	95.9%	1.3%	0.1%	0.9%	0.0%	0.6%
	2013	96.0%	1.3%	0.2%	1.0%	0.0%	0.2%
	Percent Change	+0.1%	0.0%	+0.1%	+0.1%	0.0%	-0.4%
Portage	2010	92.3%	4.0%	0.1%	1.4%	0.0%	0.4%
	2013	91.8%	3.8%	0.0%	1.7%	0.0%	0.3%
	Percent Change	-0.5%	-0.2%	-0.1%	+0.3%	0.0%	-0.1%
Summit	2010	81.0%	14.4%	0.1%	2.1%	0.0%	0.4%
	2013	80.2%	14.2%	0.2%	2.3%	0.0%	0.4%
	Percent Change	-0.8%	-0.2%	+0.1%	+0.2%	0.0%	0.0%
<b>Secondary Market Area Counties:</b>							
Ashland	2010	97.3%	0.6%	0.3%	0.7%	0.1%	0.3%
	2013	97.0%	0.7%	0.2%	0.5%	0.0%	0.4%
	Percent Change	-0.3%	+0.1%	-0.1%	-0.2%	-0.1%	+0.1%
Erie	2010	87.7%	8.0%	0.4%	0.5%	0.0%	0.7%
	2013	86.9%	8.3%	0.5%	0.6%	0.2%	0.7%
	Percent Change	-0.8%	+0.3%	+0.1%	+0.1%	+0.2%	0.0%
Huron	2010	94.1%	0.9%	0.4%	0.3%	0.0%	2.6%
	2013	95.8%	1.1%	0.1%	0.3%	0.0%	0.9%
	Percent Change	+1.7%	+0.2%	-0.3%	0.0%	0.0%	-1.7%
Mahoning	2010	80.6%	16.0%	0.1%	0.7%	0.0%	0.9%
	2013	80.2%	15.3%	0.3%	0.8%	0.0%	1.0%
	Percent Change	-0.4%	-0.7%	+0.2%	+0.1%	0.0%	+0.1%
Stark	2010	88.9%	7.4%	0.2%	0.7%	0.0%	0.3%
	2013	88.8%	6.9%	0.1%	0.8%	0.0%	0.2%
	Percent Change	-0.1%	-0.5%	-0.1%	+0.1%	0.0%	-0.1%
Trumbull	2010	89.3%	8.2%	0.2%	0.4%	0.0%	0.2%
	2013	89.0%	8.0%	0.1%	0.6%	0.0%	0.2%
	Percent Change	-0.3%	-0.2%	-0.1%	+0.2%	0.0%	0.0%
Wayne	2010	96.1%	1.4%	0.2%	0.8%	0.0%	0.2%
	2013	95.8%	1.6%	0.1%	0.7%	0.0%	0.3%
	Percent Change	-0.3%	+0.2%	-0.1%	-0.1%	0.0%	+0.1%

TABLE 9: TRENDS IN UH RAINBOW BABIES & CHILDREN'S HOSPITAL'S SERVICE AREAS: BY HOUSEHOLD INCOME

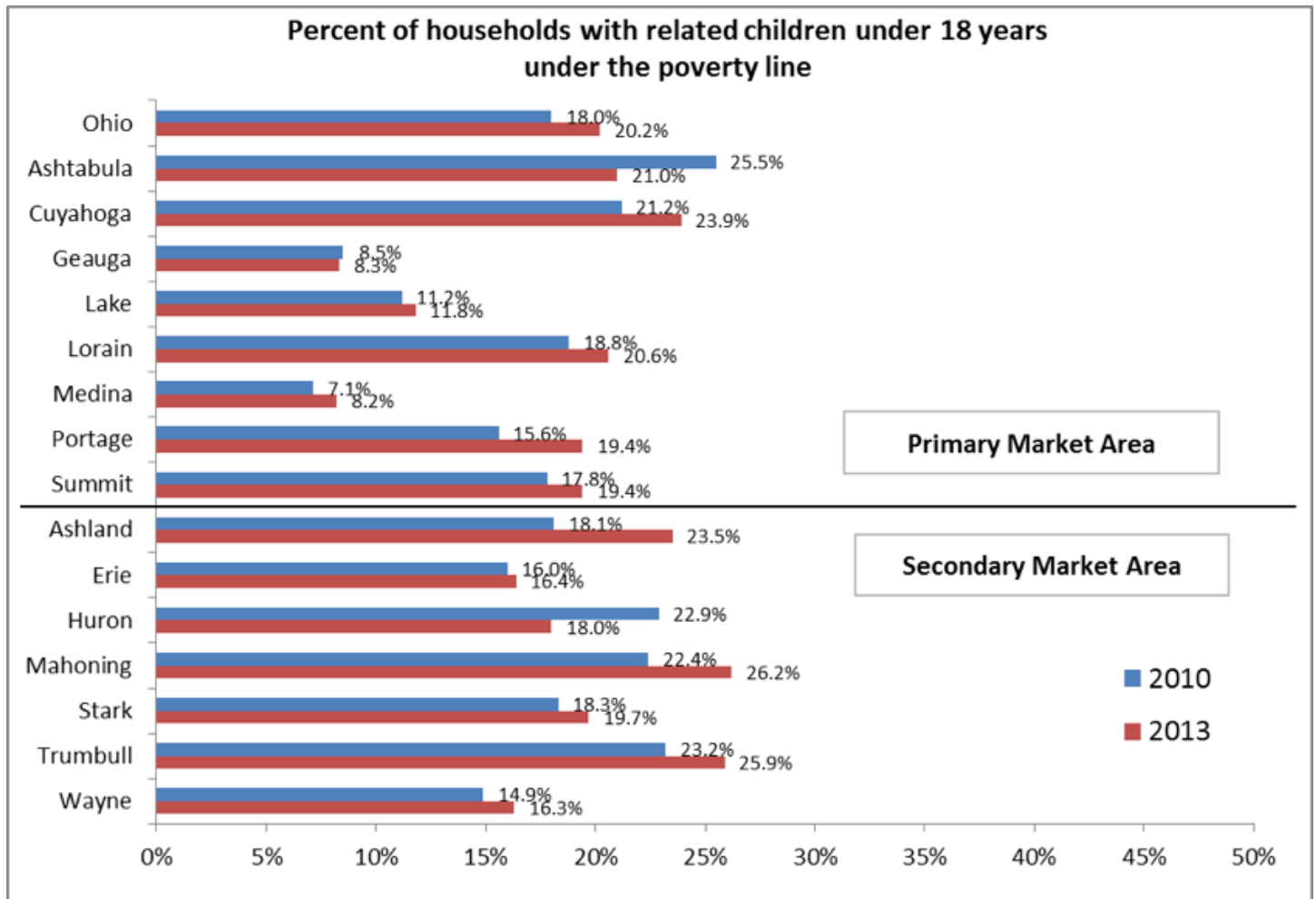
		Total households	Median household income (dollars)*	Mean household income (dollars)*
All Ohio	2010	4,544,687	\$49,641	\$65,596
	2013	4,551,497	\$47,782	\$64,206
	Percent Change	0.1%	-3.7%	-2.1%
<b>Primary Service Area</b>				
Ashtabula County, Ohio	2010	39,103	\$39,012	\$48,744
	2013	38,650	\$44,376	\$53,717
	Percent Change	-1.2%	13.7%	10.2%
Cuyahoga County, Ohio	2010	534,653	\$45,184	\$64,552
	2013	532,702	\$43,112	\$63,340
	Percent Change	-0.4%	-4.6%	-1.9%
Geauga County, Ohio	2010	34,567	\$66,565	\$93,619
	2013	34,563	\$68,107	\$91,988
	Percent Change	0.0%	2.3%	-1.7%
Lake County, Ohio	2010	94,198	\$57,875	\$72,539
	2013	93,496	\$54,830	\$69,336
	Percent Change	-0.7%	-5.3%	-4.4%
Lorain County, Ohio	2010	115,757	\$54,198	\$67,349
	2013	116,633	\$51,614	\$66,066
	Percent Change	0.8%	-4.8%	-1.9%
Medina County, Ohio	2010	65,071	\$68,851	\$83,483
	2013	65,513	\$64,963	\$80,496
	Percent Change	0.7%	-5.6%	-3.6%
Portage County, Ohio	2010	61,912	\$54,241	\$66,677
	2013	60,323	\$52,213	\$65,711
	Percent Change	-2.6%	-3.7%	-1.4%
Summit County, Ohio	2010	222,330	\$50,138	\$67,534
	2013	219,214	\$49,146	\$66,648
	Percent Change	-1.4%	-2.0%	-1.3%
<b>Secondary Service Area</b>				
Ashland County, Ohio	2010	20,382	\$47,266	\$56,637
	2013	20,083	\$44,810	\$56,601
	Percent Change	-1.5%	-5.2%	-0.1%
Erie County, Ohio	2010	31,795	\$47,934	\$63,781
	2013	32,113	\$47,513	\$61,821
	Percent Change	1.0%	-0.9%	-3.1%
Huron County, Ohio	2010	22,758	\$49,321	\$59,342
	2013	22,324	\$48,152	\$57,632
	Percent Change	-1.9%	-2.4%	-2.9%
Mahoning County, Ohio	2010	98,796	\$42,479	\$58,415
	2013	97,661	\$40,745	\$53,921
	Percent Change	-1.1%	-4.1%	-7.7%
Stark County, Ohio	2010	150,099	\$47,135	\$61,728
	2013	149,912	\$45,333	\$59,672
	Percent Change	-0.1%	-3.8%	-3.3%
Trumbull County, Ohio	2010	86,311	\$43,913	\$53,751
	2013	86,446	\$41,872	\$53,051
	Percent Change	0.2%	-4.6%	-1.3%
Wayne County, Ohio	2010	42,287	\$50,889	\$62,670
	2013	42,804	\$48,201	\$59,967
	Percent Change	1.2%	-5.3%	-4.3%

FIGURE 2: MOST ECONOMICALLY VULNERABLE MARKET AREA RESIDENTS: UH RAINBOW BABIES & CHILDREN'S HOSPITAL



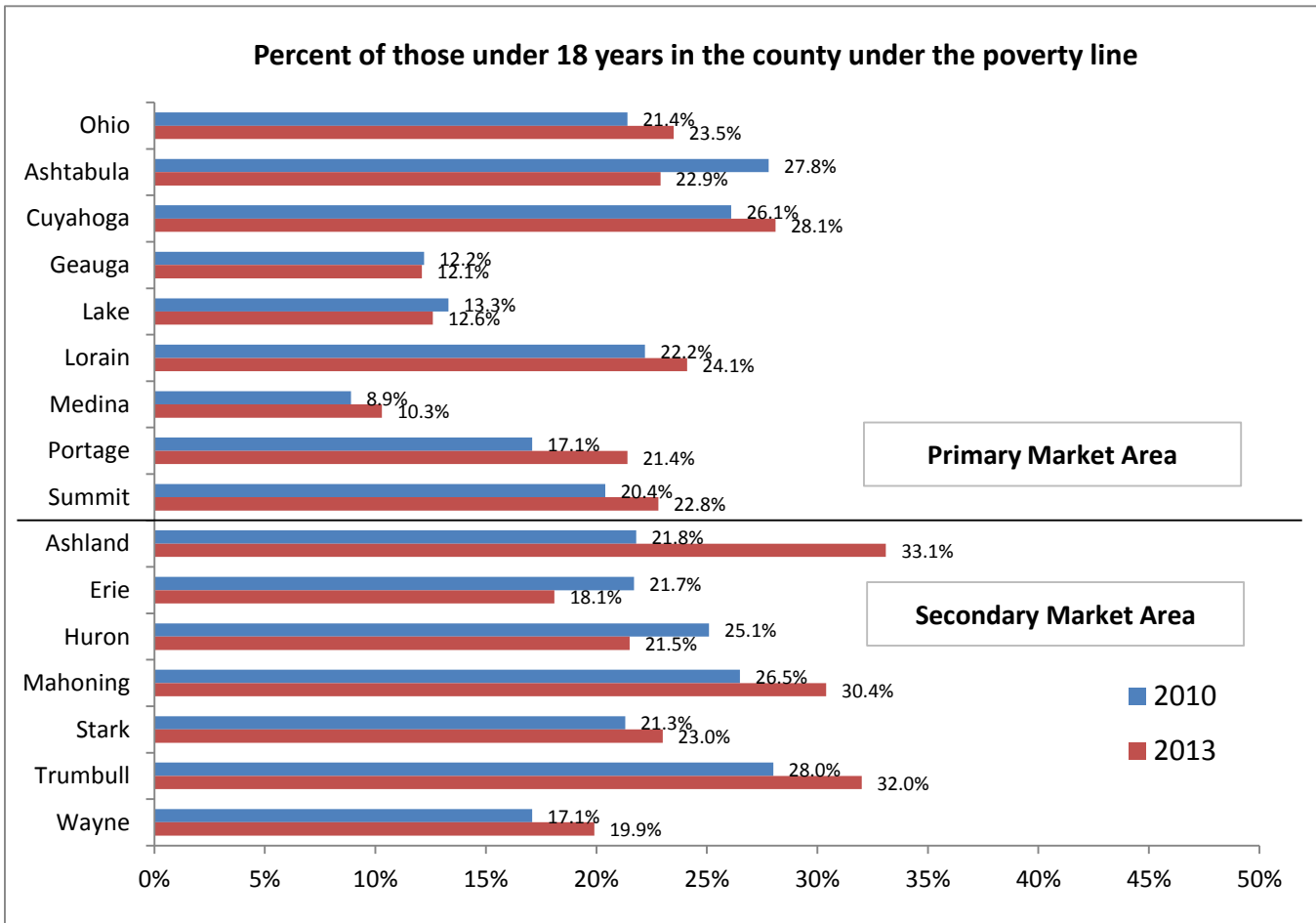
Source: U.S. Decennial Census, American Community Survey

FIGURE 3: MOST ECONOMICALLY VULNERABLE UH RAINBOW BABIES & CHILDREN'S HOSPITAL SERVICE AREA RESIDENTS



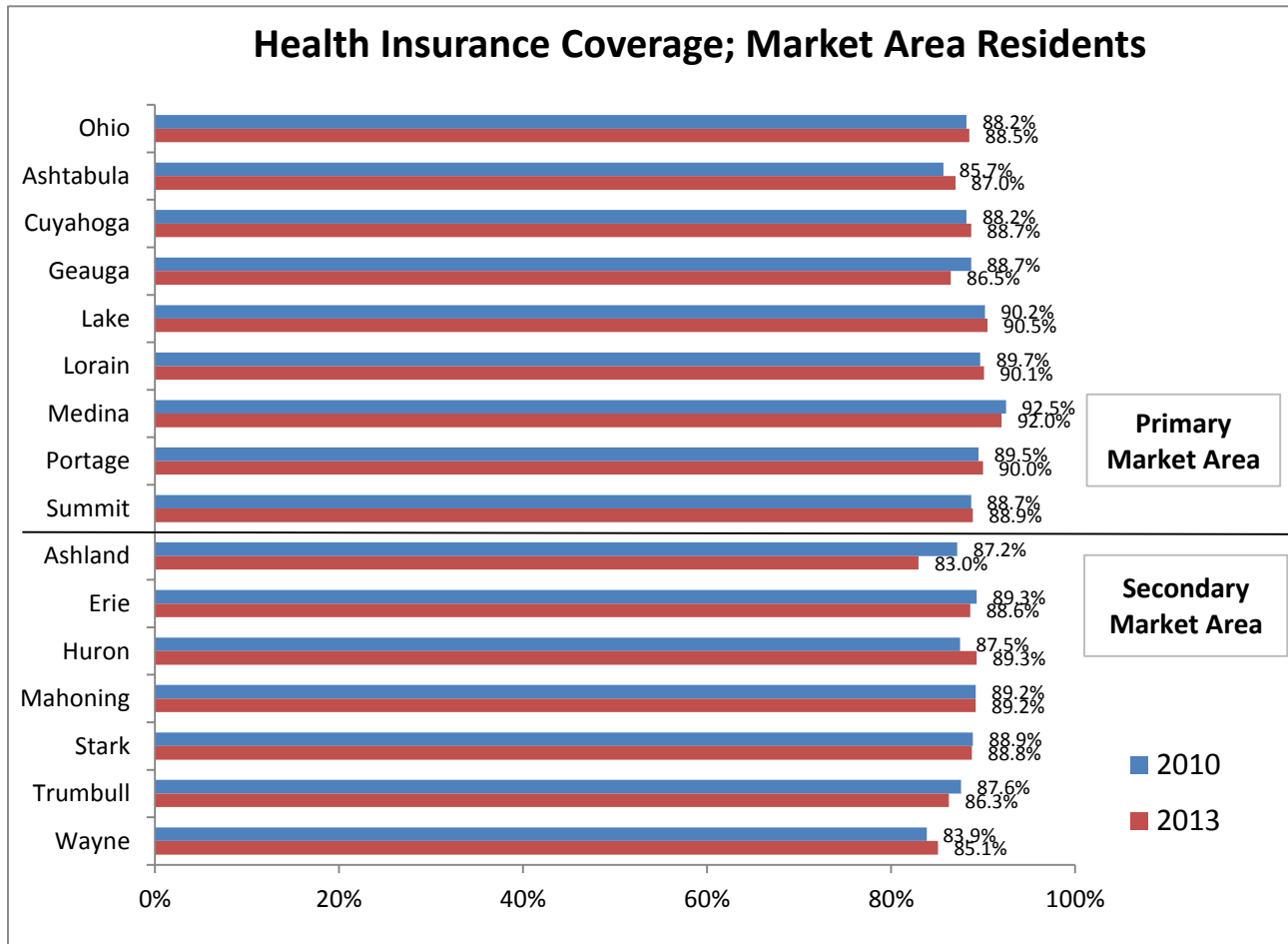
Source: U.S. Decennial Census, American Community Survey

FIGURE 4: PERCENT UNDER POVERTY LINE



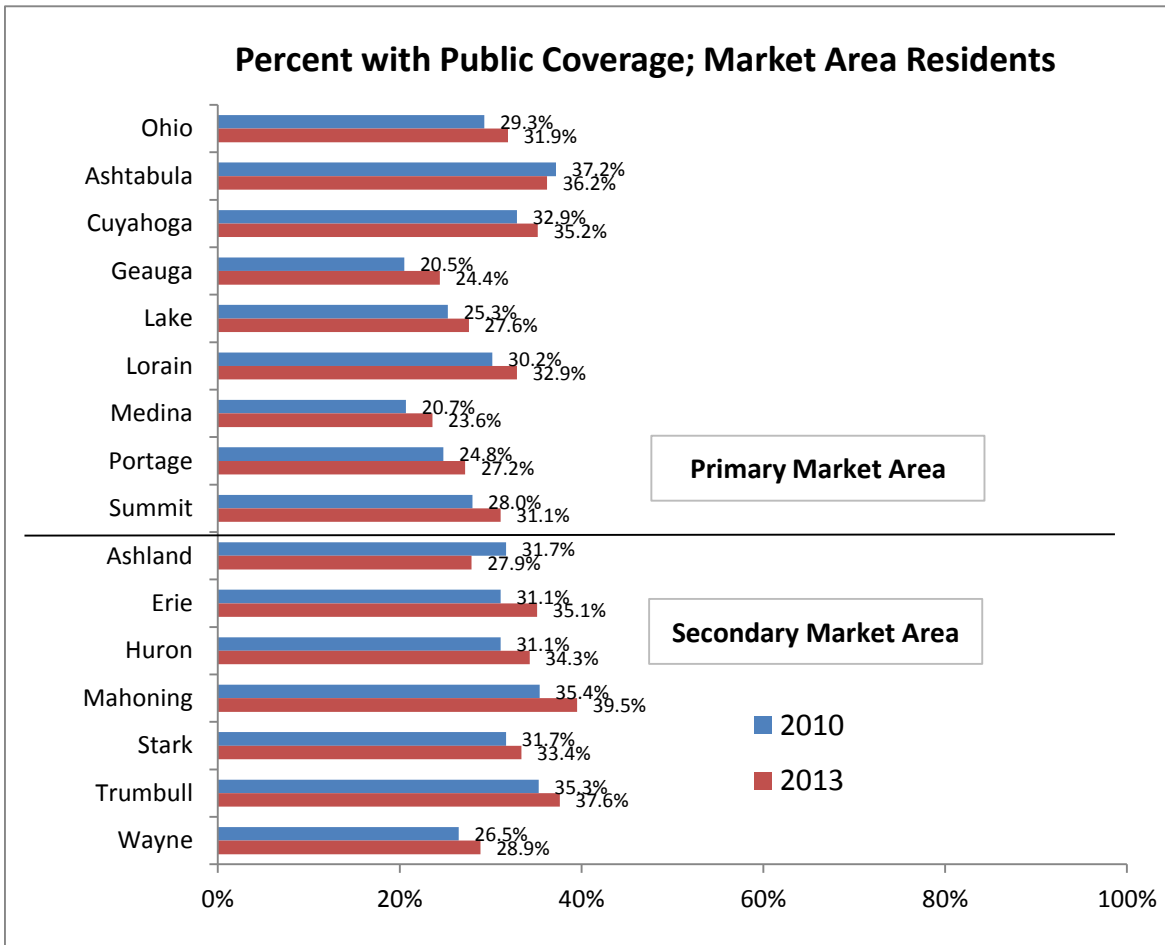
Source: U.S. Decennial Census, American Community Survey projections to 2013

FIGURE 5: HEALTH INSURANCE COVERAGE UH RAINBOW BABIES & CHILDREN'S HOSPITAL SERVICE AREA RESIDENTS



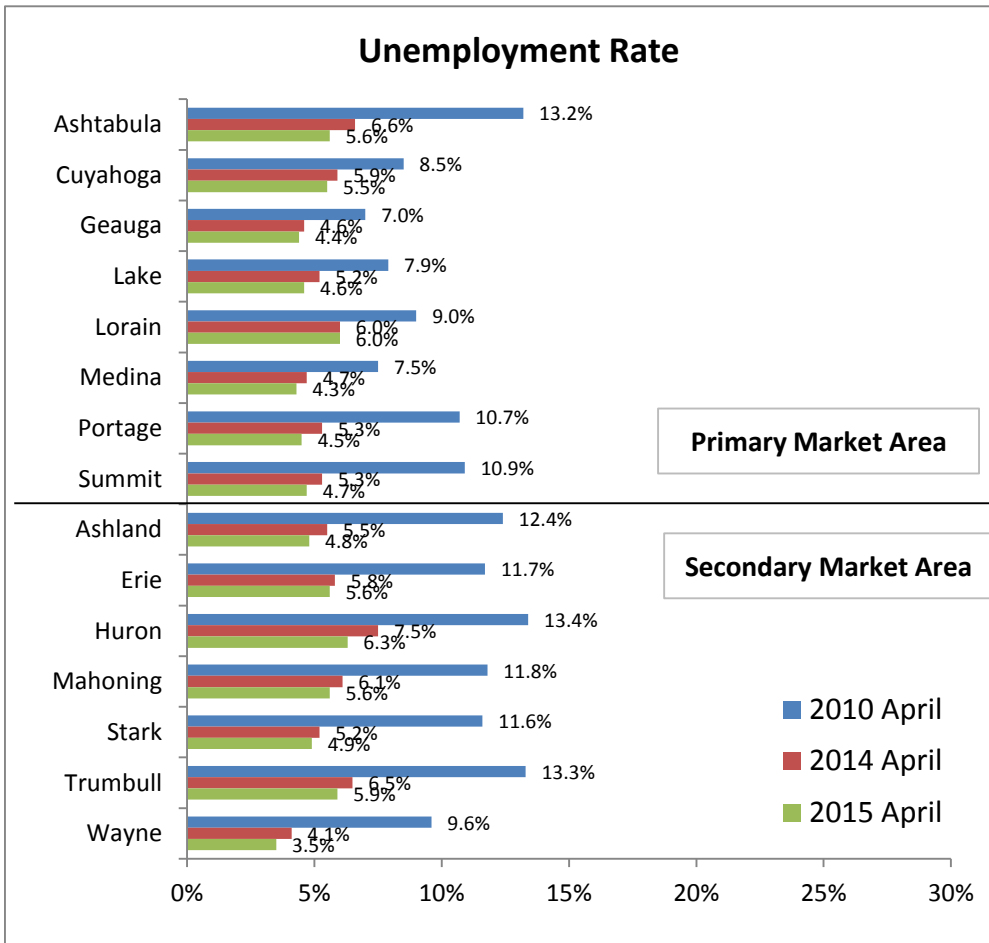
Source: U.S. Decennial Census, American Community survey projections to 2013

FIGURE 6: PUBLIC COVERAGE



Source: U.S. Decennial Census, American Community Survey

FIGURE 7: UNEMPLOYMENT RATE



Source: U.S. Bureau of Labor Statistics



## D. UH Rainbow Babies & Children's Hospital Patients Served

Table 10: UH Rainbow Babies & Children's Hospital, 2013 Discharges, 2011 – 2013 shows that in 2013, UH Rainbow Babies & Children's Hospital had 8,970 patient discharges. The total number of patients in 2013 represents a 13.8% increase from 2011 levels.

Shown in Table 11: UH Rainbow Babies & Children's Hospital, 2013 Discharges, by Payer, health insurance coverage differed by primary and secondary markets and by counties within those markets.

Within the primary market area, 67.3% of patients discharged from UH Rainbow Babies & Children's Hospital

in 2013 were covered by Medicaid. Medicaid coverage was most prevalent in Cuyahoga County (74.2%).

Of all discharges in 2013, just over two-thirds (66.7%) were Medicaid patients and 26% had commercial insurance. The percentage of Medicaid patients was higher in the primary market (67.3%) than the secondary market (54.8%). The proportion of self-pay patients was very low in all counties.

In 2013, one-fourth of patients discharged from UH Rainbow Babies & Children's Hospital were newborns or infants. Another one-fourth (27.8%) were youth (ages 12 to 19), shown in Figure 8: Age of UH Rainbow Babies & Children's Hospital's Discharged Patients, 2013, Total Market.

TABLE 10: UH RAINBOW BABIES & CHILDREN'S HOSPITAL, 2013 DISCHARGES, 2011 – 2013

	Primary Market	Secondary Market	Total
2011	7,401	480	7,881
2012	8,188	507	8,695
2013	8,553	417	8,970
2011 to 2013 Change	15.6%	-13.1%	13.8%

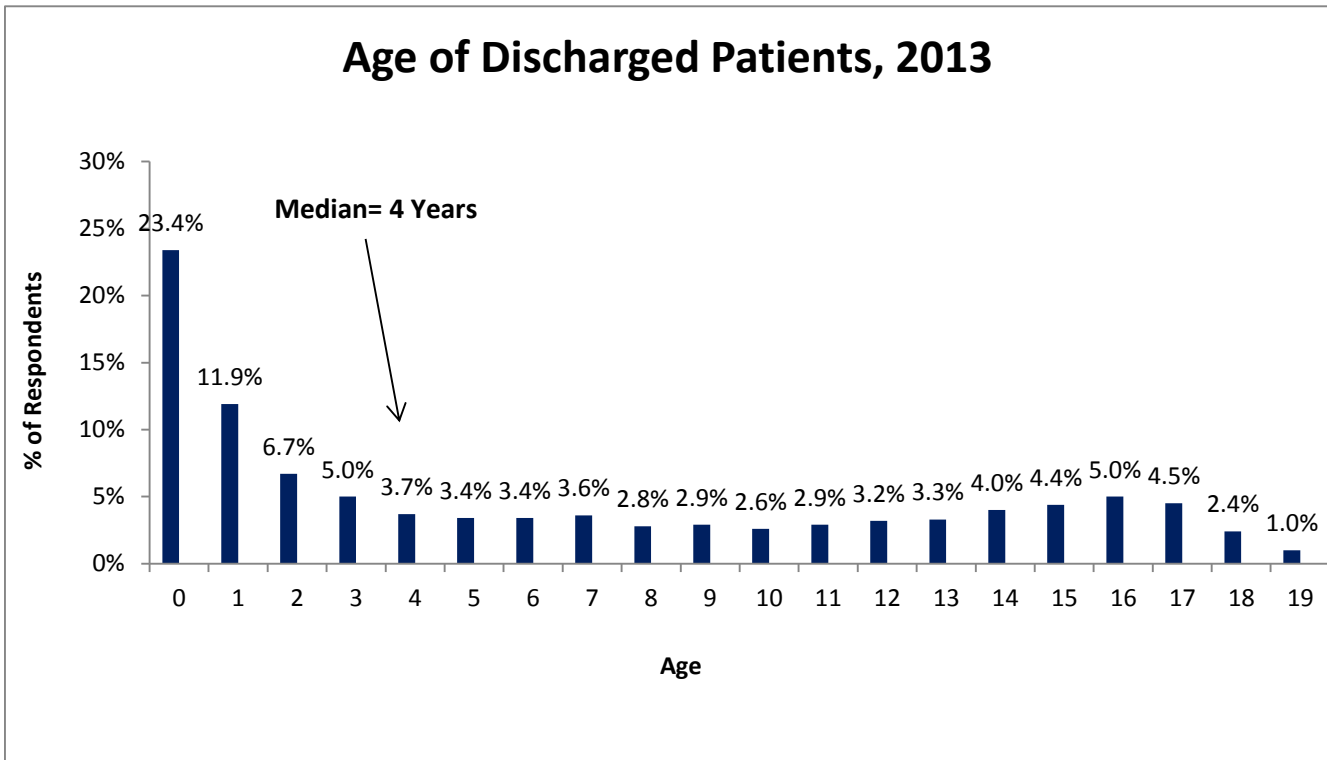
TABLE 11: UH RAINBOW BABIES & CHILDREN'S HOSPITAL, 2013 DISCHARGES, BY PAYER

Service Area	Number of UH Rainbow Babies & Children's Hospital Discharges (2013)	Medicaid	Commercial	Other	Self-Pay
<b>Primary Market Area</b>					
Ashtabula	444	74.0%	20.5%	3.4%	2.1%
Cuyahoga	5,413	74.2%	19.0%	5.7%	1.1%
Geauga	288	43.4%	32.7%	21.4%	2.5%
Lake	781	47.5%	40.0%	11.7%	0.8%
Lorain	999	68.4%	27.2%	3.9%	0.5%
Medina	225	28.0%	66.8%	5.1%	0.0%
Portage	179	44.5%	45.8%	9.7%	0.0%
Summit	214	29.8%	65.4%	4.3%	0.5%
Total Within Primary Market	8,543	67.3%	25.2%	6.4%	1.0%
<b>Secondary Market Area</b>					
Ashland	10	50.0%	50.0%	0.0%	0.0%
Erie	180	54.5%	44.3%	1.1%	0.0%
Huron	44	63.6%	34.1%	2.3%	0.0%
Mahoning	36	56.3%	34.4%	9.4%	0.0%
Stark	37	75.0%	25.0%	0.0%	0.0%
Trumbull	84	47.4%	40.8%	9.2%	2.6%
Wayne	24	38.1%	61.9%	0.0%	0.0%
Total Within Secondary Market	415	54.8%	41.3%	3.4%	0.5%
Total Market	8,958*	66.7%	26.0%	6.3%	1.0%

Source: Ohio Hospital Association discharge data

\*12 cases have missing ZIP code information.

FIGURE 8: AGE OF UH RAINBOW BABIES & CHILDREN'S HOSPITAL'S DISCHARGED PATIENTS, 2013, TOTAL MARKET



Source: Ohio Hospital Association discharge data

## E. Ambulatory Care Sensitive Discharges

Using discharge data from UH Rainbow Babies & Children's Hospital, which includes the reason for patient admission into the hospital, "ambulatory care sensitive discharges" can be identified. Ambulatory care sensitive (ACS) conditions are conditions for which "good outpatient care can potentially prevent the need for hospitalization or for which early intervention can prevent complications or more severe disease," according to the Agency for Healthcare Research and Quality. The incidence of ambulatory care sensitive discharges has been used as an index of adequate primary care in a market area. The diagnostic categories (and associated ICD-9-CM codes) can be found in the Appendix.

Table 12: Distribution of ACS Discharges, Primary Market Only, Age <19 (Newborns Removed From Analysis) shows the number of pediatric discharges for UH Rainbow Babies & Children's Hospital in 2013 and the percent that were ACS cases. For all discharges, there are both primary and nonprimary diagnoses ("secondary" diagnoses), and both are shown in the table below. Patients can have up to 21 different secondary diagnoses.

For UH Rainbow Babies & Children's Hospital, 28.9% of pediatric discharges of residents within the primary market area were ACS discharges. Note that newborns were removed from this analysis.

More than one-quarter (28.9%) of patients discharged from UH Rainbow Babies & Children's Hospital in 2013 had a primary diagnosis of an ACS condition. This signals a potential issue within the community regarding primary care for pediatric patients. The most common primary ACS diagnoses for UH Rainbow Babies & Children's Hospital's discharged patients in 2013 were asthma (7.3%) and epilepsy (3.8%).

Table 12 showed the incidence of ACS cases among discharged patients for UH Rainbow Babies & Children's Hospital in 2013, and that is useful to point out the proportion of discharged patients who may have avoided hospitalization if, for example, they had increased access to primary medical care.

Table 13: Most Common ACS Discharges (Primary Diagnosis) in 2013, Ages 19 and Below isolates the number of Cuyahoga County resident pediatric discharges with ACS conditions as a primary diagnosis. These discharges for UH Rainbow Babies & Children's Hospital in 2013 are compared to the same categories of discharges for all other hospitals

located in Cuyahoga County. Isolating by geography and age (newborns removed from analysis) allows for an apples-to-apples comparison to understand the prevalence of ACS hospitalizations for children in Cuyahoga County – from which almost two-thirds of UH Rainbow Babies & Children's Hospital patient are drawn.

This analysis shows that the proportion of ACS cases among Cuyahoga County resident pediatric discharges in 2013 is very high (36.6% for UH Rainbow Babies & Children's Hospital's and 21.2% for all other hospitals). This is more supportive evidence that access to primary care for pediatric patients in Cuyahoga County may be limited.

A review of the more common ACS conditions by payer can also shed light on particular primary care-related issues that are more or less common within certain subpopulations, shown in Table 14: UH Rainbow Babies & Children's Hospital, Primary Diagnosis of Pediatric (Ages 0 to 19) ACS Versus Non-ACS Discharges in 2013, by Primary Payer.

Asthma, the most common ACS condition afflicting UH Rainbow Babies & Children's Hospital's pediatric patients in 2013, was more than twice as prevalent among Medicaid patients than among those with commercial insurance. Cellulitis was also more common among Medicaid patients. In contrast, diabetes was twice as common among those with commercial insurance (3.5%) compared to Medicaid patients (1.7%).

There are also differences, both in the prevalence of any ACS condition and in the type of ACS condition, based on pediatric age group, shown in Table 15: UH Rainbow Babies & Children's Hospital, Primary Diagnosis of Pediatric (Age 0-19) ACS Versus Non-ACS Discharges in 2013, by Pediatric Age Group. Infants (ages 11 months or less) were the least likely, by far, to have an ACS condition as a primary diagnosis. Preschoolers (ages 1 to 5 years) were the most likely to have an ACS condition (45.3%). For both preschoolers and older children (ages 6 to 11), asthma was the most common ACS condition, inflicting more than one in 10 in those age groups. All of the more common ACS conditions were significantly more prevalent among those ages 1 to 5 years compared to any other age group, with two exceptions: epilepsy, which was almost twice as common among those ages 6 to 11 than among preschoolers (or youth/teens), and diabetes, which was more prevalent among those ages 6 to 11 than among preschoolers. However, diabetes was the most prevalent ACS condition among youth/teens (ages 12 to 19).

TABLE 12: DISTRIBUTION OF ACS DISCHARGES, PRIMARY MARKET ONLY, AGE <19  
(NEWBORNS REMOVED FROM ANALYSIS)

	Primary Diagnosis		Secondary Diagnosis	
	Number With Diagnosis	Percent With Diagnosis	Number With Diagnosis	Percent With Diagnosis
No ACS Condition	5,893	71.1%	n/a	n/a
Specific ACS Conditions:	2,390	28.9%	n/a	n/a
Asthma	602	7.3%	859	10.4%
Epilepsy	313	3.8%	239	2.9%
Dehydration/Volume Depletion	260	3.1%	619	7.5%
Bacterial Pneumonia	256	3.1%	187	2.3%
Cellulitis	256	3.1%	110	1.3%
Diabetes	174	2.1%	69	0.8%
Convulsions	169	2.0%	71	0.9%
Severe ENT Infections	146	1.8%	654	7.9%
Kidney/Urinary Infections	79	1.0%	95	1.1%
Failure to Thrive	43	0.5%	190	2.3%
Dental Conditions	23	0.3%	98	1.2%
Iron Deficiency Anemia	14	0.2%	118	1.4%
Gastroenteritis	10	0.1%	76	0.9%
Immunization-Related and Preventable Conditions	9	0.1%	13	0.2%
Congestive Heart Failure (CHF)	9	0.1%	39	0.5%
Pelvic Inflammatory Disease	8	0.1%	6	0.1%
Hypoglycemia	7	0.1%	22	0.3%
Nutritional Deficiencies	5	0.1%	25	0.3%
Hypertension	4	0.0%	190	2.3%
Chronic Obstructive Pulmonary Disease (COPD)	3	0.0%	34	0.4%

Source: Ohio Hospital Association discharge data.

Source: Definition of ACS conditions: Billings J, Zeitel L, Lukomnik J, Carey TS, Blank AE, Newman L. Impact of socio-economic status on hospital use in New York City. Health Affairs (Millwood) 1993; 12(1):172-173.

TABLE 13: MOST COMMON ACS DISCHARGES (PRIMARY DIAGNOSIS) IN 2013, AGES 19 AND BELOW CUYAHOGA COUNTY ONLY; NON-NEWBORNS/INFANTS

	<b>UH Rainbow Babies &amp; Children's Hospital, Cuyahoga County Patients Only</b>	<b>All Other Hospitals, Cuyahoga County Patients Only</b>
No ACS Condition	63.4%	78.8%
ACS Condition	37.6%	21.2%
Asthma	11.9%	4.0%
Epilepsy	4.9%	3.3%
Cellulitis	3.9%	2.9%
Bacterial Pneumonia	3.6%	2.3%
Dehydration/Volume Depletion	3.5%	1.5%
Diabetes	2.4%	2.8%
Convulsions	2.3%	0.9%
Severe ENT Infections	1.5%	0.9%
Kidney/Urinary Infections	0.8%	1.1%

TABLE 14: UH RAINBOW BABIES & CHILDREN'S HOSPITAL, PRIMARY DIAGNOSIS OF PEDIATRIC (AGES 0 TO 19) ACS VERSUS NON-ACS DISCHARGES IN 2013, BY PRIMARY PAYER

	Medicaid	Commercial	Other	Self-Pay*
No ACS Condition	69.2%	76.0%	74.2%	69.0%
Asthma	8.7%	3.5%	4.6%	5.7%
Epilepsy	3.6%	3.6%	5.7%	9.2%
Cellulitis	3.5%	2.0%	2.2%	5.7%
Dehydration/Volume Depletion	3.3%	2.7%	2.2%	2.3%
Bacterial Pneumonia	3.1%	3.0%	2.6%	1.1%
Convulsions	2.1%	2.3%	2.2%	1.1%
Severe ENT Infections	1.8%	1.4%	1.8%	1.1%
Diabetes	1.7%	3.5%	2.4%	1.1%
Kidney/Urinary Infections	1.1%	0.8%	1.1%	0.0%
Failure to Thrive	0.7%	0.4%	0.2%	0.0%
Dental Conditions	0.4%	0.2%	0.0%	1.1%
Immunization-Related and Preventable Conditions	0.1%	0.0%	0.0%	0.0%
Chronic Obstructive Pulmonary Disease (COPD)	0.1%	0.1%	0.0%	0.0%
Congestive Heart Failure (CHF)	0.1%	0.1%	0.0%	0.0%
Hypoglycemia	0.1%	0.1%	0.0%	0.0%
Gastroenteritis	0.1%	0.1%	0.2%	0.0%
Iron Deficiency Anemia	0.1%	0.2%	0.2%	0.0%
Nutritional Deficiencies	0.1%	0.0%	0.2%	0.0%
Pelvic Inflammatory Disease	0.1%	0.1%	0.0%	1.1%
Hypertension	0.0%	0.0%	0.4%	1.1%

\*Small number of discharged patients; interpret with care.

Source: Ohio Hospital Association discharge data.

Source: Definition of ACS conditions: Billings et al 1993.

TABLE 15: UH RAINBOW BABIES & CHILDREN'S HOSPITAL, PRIMARY DIAGNOSIS OF PEDIATRIC (AGE 0-19) ACS VERSUS NON-ACS DISCHARGES IN 2013, BY PEDIATRIC AGE GROUP

	Infant	Ages 1 to 5	Ages 6 to 11	Ages 12 to 19
Number of Discharges, 2013:	2,033	2,660	1,584	2,405
No ACS Condition	91.4%	54.7%	62.4%	78.5%
Any ACS Condition	8.6%	45.3%	37.6%	21.5%
Asthma	0.1%	12.1%	11.9%	4.0%
Epilepsy	0.7%	4.1%	7.4%	3.7%
Bacterial Pneumonia	1.3%	5.8%	3.3%	1.3%
Dehydration/Volume Depletion	1.0%	5.9%	3.2%	1.7%
Cellulitis	0.7%	5.5%	3.0%	2.2%
Diabetes	0.0%	0.7%	3.3%	5.0%
Convulsions	0.5%	4.6%	1.8%	1.1%
Severe ENT Infections	1.9%	3.1%	1.1%	0.5%
Kidney/Urinary Infections	0.8%	1.2%	1.2%	0.7%
Failure to Thrive	0.9%	1.0%	0.2%	0.0%

### UH Rainbow Babies & Children's Hospital Discharges

This section again examines UH Rainbow Babies & Children's Hospital's discharge data from 2013. These data provide primary and secondary diagnosis information for each patient discharged in 2013. This data seeks to identify particular diagnoses or diagnostic categories that can shed light on how public health or preventive care initiatives could impact the overall health of market area babies, children and youth.

Table 16: UH Rainbow Babies & Children's Hospital, Primary and Secondary Diagnosis of Pediatric Cases (Ages 19 and Younger), Discharged in 2013 shows the number and percentage of discharges based on the major diagnostic category of pediatric patients' primary diagnoses. There are more than 17,000 different medical diagnostic codes. For specific diagnoses, only those that were relatively common are shown.

In 2013, the most common primary diagnostic category (20.8%) was diseases of the respiratory system, in particular asthma and acute bronchitis. Other data show that about one in four adults in the hospital's market area (varies by county) are smokers. It is also known that second-hand smoke can trigger asthma episodes and increase the severity of attacks. Second-hand smoke is also a risk factor for new cases of asthma in preschool-aged children who have not already exhibited asthma symptoms.<sup>2</sup>

Conditions arising from the perinatal period was the second most common diagnostic category (11%). Almost one in 10 patient discharges in 2013 had a primary diagnosis related to injury or poisoning. The types of injuries/poisonings were extremely varied; no single type represented a significant proportion of cases.

<sup>2</sup>Source: American Lung Association, 2015.



TABLE 16: UH RAINBOW BABIES & CHILDREN'S HOSPITAL, PRIMARY AND SECONDARY DIAGNOSIS OF PEDIATRIC CASES (AGES 19 AND YOUNGER), DISCHARGED IN 2013

	Primary Diagnosis		Secondary Diagnoses	
	Number of Cases With Diagnosis*	Percent of All Cases*	Number of Cases With Diagnosis	Percent of All Cases**
Diseases of the respiratory system	1,725	20.8%		
Most common specific diagnoses in category:				
Asthma	609	7.0%	896	10.3%
Acute bronchitis and bronchiolitis	387	4.5%	107	1.2%
Pneumonia, organism unspecified	244	2.8%	184	2.1%
Acute upper respiratory infections of multiple or unspecified sites	96	1.1%	384	4.4%
Certain conditions originating in the perinatal period	907	11.0%		
Most common specific diagnoses in category:				
Repair of laceration	308	3.5%	704	8.1%
Newborn respiratory condition	203	2.3%	646	7.4%
Other perinatal condition	173	2.0%	660	7.6%
Respiratory distress syndrome in newborn	142	1.6%	189	2.2%
Perinatal infection	133	1.5%	227	2.6%
Perinatal jaundice	82	0.9%	641	7.4%
Injury and poisoning	783	9.5%		
Diseases of the digestive system	679	8.2%		
Most common specific diagnoses in category:				
Diseases of esophagus	118	1.4%	505	5.8%
Functional digestive disease	110	1.3%	459	5.3%
Symptoms, signs and ill-defined conditions	620	7.5%		
Most common specific diagnoses in category:				
Symptoms concerning nutrition metabolism and development			413	4.8%
Mental disorders	587	7.1%		
Most common specific diagnoses in category:				
Affective psychoses	322	3.7%	179	2.1%
Depressive disorder, not elsewhere classified	129	1.5%	170	2.0%
Hyperkinetic syndrome			559	6.4%
Specific developmental delays			501	5.8%
Neurotic disorders			488	5.6%
Endocrine, nutritional and metabolic diseases, and immunity disorders	542	6.5%		
Most common specific diagnoses in category:				
Fluid/electrolyte diseases	297	3.4%	1,374	15.8%
Diabetes mellitus	192	2.2%	72	0.8%
Diseases of the nervous system	435	5.3%		

	Primary Diagnosis		Secondary Diagnoses	
	Number of Cases With Diagnosis*	Percent of All Cases*	Number of Cases With Diagnosis	Percent of All Cases**
Most common specific diagnoses in category:				
Epilepsy	332	3.8%	246	2.8%
Diseases of the blood and blood-forming organs	327	3.9%		
Most common specific diagnoses in category:				
Hereditary hemolytic anemia	173	2.0%	238	2.7%
Diseases of the skin and subcutaneous tissue	315	3.8%		
Most common specific diagnoses in category:				
Other cellulitis/abscess	233	2.7%		
Infectious and parasitic diseases	296	3.6%		
Most common specific diagnoses in category:				
Viral infection in other diseases, not otherwise specified	83	1.0%	498	5.7%
Septicemia			35	0.4%
Bacterial infection in other diseases, not otherwise specified			498	5.7%
Other	233	2.8%		
Congenital anomalies	200	2.4%		
Diseases of the genitourinary system	198	2.4%		
Diseases of the musculoskeletal system and connective tissue	157	1.9%		
Diseases of the sense organs	88	1.1%		
Diseases of the circulatory system	87	1.1%		
Neoplasms-malignant	62	0.7%		
Neoplasms-benign	29	0.4%		
Complications of pregnancy, childbirth and the puerperium	11	0.1%		

\*Total includes all diagnoses within this category, not just those shown.

\*\*These are duplicated counts; patients may have more than one secondary diagnosis.

Source: Ohio Hospital Association discharge data.

## F. ACS Analysis of Vulnerable Populations

It is well established that access to medical care and health outcomes are weaker in the lowest income areas throughout the U.S. To shine a light on this problem and help policymakers properly allocate resources, HRSA identified Medically Underserved Areas/Populations. There are several such areas in the City of Cleveland and UH Rainbow Babies & Children's Hospital's primary and secondary markets.

Hospital discharge data can also be evaluated to help understand the specific medical nature of this problem. An earlier analysis showed that UH Rainbow Babies & Children's Hospital's inpatient discharges, as a group, had a higher prevalence of ambulatory care sensitive conditions (38.6%) than pediatric cases discharged from other Cuyahoga County hospitals (21.2%). Those data can be further examined to isolate UH Rainbow Babies & Children's Hospital's discharges by race, shown in [Table 17: Poverty Levels, by Race, Cuyahoga and Surrounding Counties, 2013\\*](#).

In Northeast Ohio, Blacks are three to six times more likely to live in poverty than Whites, depending on the county. One-third (33.5%) of Blacks in Cuyahoga County lived in poverty in 2013.

There are not socioeconomic indicators associated with hospital discharge data, but the association between race and hospital discharge findings can be used to illuminate possible health care access issues within the economically vulnerable counties UH Rainbow Babies & Children's Hospital serves.

Before looking at UH Rainbow Babies & Children's Hospital's data, it is useful to examine any race differences that exist statewide for pediatric hospital inpatients. [Table 18: Most Common ACS Conditions, By County, White versus Black Pediatric \(18 and Under\) Discharges, 2014](#) shows the prevalence of ACS discharges within the six counties in Ohio that contain a metropolitan area. These are the only geographic designations with a large enough racial minority population to allow for reliable analysis. Included here are Cuyahoga County, which is in UH Rainbow Babies & Children's Hospital's primary market area, and Summit County, which is in UH Rainbow Babies & Children's Hospital's secondary market area.

In most counties that contain a significant urban area in Ohio, the incidence of ACS cases is higher among Black discharged pediatric patients than White discharged pediatric patients. Black pediatric patients are about two times as likely to be admitted with a primary diagnosis of an ACS condition as Whites in those counties. This may signal an issue with inadequate access to primary care among Blacks compared to Whites. The exception to this is Summit County, where Black pediatric patients are slightly less likely to be admitted to the hospital with an ACS condition.

**This seems to be driven by specific ACS diagnoses**, in particular asthma. In all counties, including Summit County, a primary diagnosis of asthma was significantly higher among Black pediatric discharged patients than White pediatric discharged patients in 2014.

Data from Cuyahoga County, and more specifically at Cleveland, can be examined more closely to determine needs in the area most proximate to UH Rainbow Babies & Children's Hospital. [Table 19: More Prevalent Pediatric ACS Conditions](#) compares the prevalence of ACS conditions as a primary diagnosis in 1) the five Ohio counties that contain urban centers besides Cuyahoga County (Summit, Franklin, Montgomery, Hamilton and Lucas counties); 2) discharges from Cuyahoga County who do not live in Cleveland; and, 3) discharges from the City of Cleveland.

This data shows that pediatric ACS prevalence is highest in the City of Cleveland. Asthma cases were notably more prevalent among Black discharged patients in 2014 than White discharged patients in all three geographic locations.

The differences between Blacks and Whites in Cuyahoga County (including the City of Cleveland) were more pronounced than in the rest of Ohio, looked at as a single group.

The analyses above describe the prevalence of ACS cases among Black and White discharges from any hospital within these specific geographic areas. [Table 20: More Prevalent ACS Conditions](#) shows the same type of data for the City of Cleveland and Cleveland's suburbs specifically for UH Rainbow Babies & Children's Hospital discharges.

For UH Rainbow Babies & Children's Hospital discharges in 2014, ACS diagnoses overall (for any ACS condition) were somewhat higher for residents of the City of Cleveland compared to residents of Cuyahoga County not living in Cleveland, and this was true for both Black (+3.6%) and White patients (+5.6%).

The prevalence of ACS conditions was higher for Black pediatric patients (35.3%) than White pediatric patients (29.7%) among Cleveland residents. The same was true for residents of suburbs surrounding the Cleveland (31.7% for Black discharges and 24.1% for White discharges).

City of Cleveland patients were much more likely to have a primary diagnosis of asthma than those living outside of the city, regardless of race. That diagnosis was especially prevalent among Black patients from the City of Cleveland (17.7%). Asthma was, by far, the most prevalent ACS condition among Black pediatric patients in 2014 in UH Rainbow Babies & Children's Hospital.

TABLE 17: POVERTY LEVELS, BY RACE, CUYAHOGA AND SURROUNDING COUNTIES, 2013\*

Geography	Percent below poverty level	
	White	Black
Cuyahoga County, Ohio	11%	33.5%
Erie County, Ohio	10.5%	33.7%
Lake County, Ohio	8.3%	25.3%
Lorain County, Ohio	11.3%	38.5%
Medina County, Ohio	6.8%	33.3%
Summit County, Ohio	11.4%	33.8%

Source: U.S. Census Bureau, American Community Survey 2013 5-year Estimates (Table: S1701)

TABLE 18: MOST COMMON ACS CONDITIONS, BY COUNTY, WHITE VERSUS BLACK PEDIATRIC (18 AND UNDER) DISCHARGES, 2014

Discharges from All Hospitals

	Cuyahoga County (Cleveland)		Summit County (Akron)		Franklin County (Columbus)		Hamilton County (Cincinnati)		Lucas County (Toledo)		Montgomery County (Dayton)	
	White	Black	White	Black	White	Black	White	Black	White	Black	White	Black
Number of discharges:	10,983	10,843	5,146	1,661	10,968	6,147	8,627	6,431	3,185	1,925	5,418	2,234
No ACS Condition*	92.0%	84.1%	93.3%	94.0%	92.2%	84.3%	94.5%	90.0%	88.6%	80.3%	94.4%	89.5%
Any ACS Condition	8.0%	15.9%	6.7%	6.0%	7.8%	15.7%	5.5%	10.0%	11.4%	19.7%	5.6%	10.5%
Asthma	1.6%	7.0%	1.4%	2.5%	2.0%	7.6%	1.0%	4.7%	2.3%	9.1%	1.2%	5.1%
Epilepsy	1.2%	1.4%	0.8%	0.3%	0.7%	0.7%	0.6%	0.6%	1.2%	1.5%	0.8%	1.0%
Cellulitis	1.1%	1.4%	1.1%	1.0%	1.2%	1.6%	0.5%	0.8%	1.6%	1.6%	0.8%	1.4%
Bacterial Pneumonia	0.8%	1.2%	0.8%	0.4%	0.9%	1.1%	0.8%	0.9%	2.0%	2.0%	0.3%	0.6%
Kidney/Urinary Infections	0.7%	0.4%	0.5%	0.0%	0.5%	0.3%	0.6%	0.3%	0.9%	0.7%	0.4%	0.2%
Diabetes	0.7%	0.9%	0.6%	0.2%	0.7%	1.3%	0.6%	0.5%	1.0%	2.0%	0.6%	0.6%
Dehydration/Volume Depletion	0.5%	0.9%	0.4%	0.3%	0.4%	0.5%	0.2%	0.1%	1.1%	0.6%	0.4%	0.3%

\*This refers to any ACS condition. Only the most prevalent ACS conditions are shown in the table.

**TABLE 19: MORE PREVALENT PEDIATRIC ACS CONDITIONS**

City of Cleveland versus Cuyahoga County (not Cleveland) versus Other Ohio Counties

Black versus White Discharges from All Hospitals, 2014

	Rest of Ohio			Cuyahoga County, Outside of Cleveland			Cleveland		
	White	Black	Difference	White	Black	Difference	White	Black	Difference
Number of discharges:	62,925	21,819		8,644	6,393		2,339	4,450	
No ACS Condition*	92.7%	87.8%	-4.9%	92.3%	84.9%	-7.4%	90.6%	83.0%	-7.6%
Any ACS Condition	7.3%	12.2%	4.9%	7.7%	15.1%	7.4%	9.4%	17.0%	7.6%
Asthma	1.4%	5.6%	4.2%	1.3%	6.3%	5.0%	2.4%	8.1%	5.7%
Cellulitis	1.0%	1.2%	0.2%	1.0%	1.4%	0.4%	1.6%	1.4%	-0.2%
Bacterial Pneumonia	1.0%	1.0%	0.0%	0.8%	1.1%	0.3%	0.9%	1.4%	0.5%
Diabetes	0.7%	0.9%	0.2%	0.6%	1.0%	0.4%	0.9%	0.9%	0.0%
Epilepsy	0.8%	0.8%	0.0%	1.3%	1.6%	0.3%	0.8%	1.2%	0.4%
Severe ENT Infections	0.4%	0.5%	0.1%	0.3%	0.9%	0.6%	0.6%	1.0%	0.4%
Failure to Thrive	0.2%	0.5%	0.3%	0.2%	0.3%	0.1%	0.3%	0.3%	0.0%
Convulsions	0.4%	0.5%	0.1%	0.5%	0.7%	0.2%	0.3%	0.9%	0.6%
Dehydration/Volume Depletion	0.5%	0.4%	-0.1%	0.5%	0.9%	0.4%	0.5%	0.9%	0.4%
Kidney/Urinary Infections	0.5%	0.3%	-0.2%	0.6%	0.4%	-0.2%	0.8%	0.4%	-0.4%

\*This refers to any ACS condition. Only the most prevalent ACS conditions are shown in table.

TABLE 20: MORE PREVALENT ACS CONDITIONS

City of Cleveland versus Cuyahoga County (not Cleveland)

Black versus White Discharges from UH Rainbow Babies & Children's Hospital, 2014

	Cuyahoga County, Outside of Cleveland			Cleveland		
	White	Black	Difference (Black-White)	White	Black	Difference (Black-White)
Number of discharges:	1,218	2,265		256	1,556	
No ACS Condition*	75.9%	68.3%	-7.6%	70.3%	64.7%	-5.6%
Any ACS Condition	24.1%	31.7%	7.6%	29.7%	35.3%	5.6%
Asthma	4.2%	14.5%	10.3%	8.2%	17.7%	-9.5%
Cellulitis	2.5%	2.6%	0.1%	3.5%	2.8%	-0.7%
Bacterial Pneumonia	2.3%	2.3%	0.0%	2.0%	3.0%	1.0%
Diabetes	2.5%	1.5%	-1.0%	2.0%	1.6%	-0.4%
Epilepsy	4.2%	3.2%	-1.0%	3.9%	2.1%	-1.8%
Severe ENT Infections	0.8%	1.9%	1.1%	1.2%	2.0%	0.8%
Failure to Thrive	0.7%	0.7%	0.0%	0.4%	0.4%	0.0%
Convulsions	1.4%	1.4%	0.0%	1.6%	2.2%	0.6%
Dehydration/ Volume Depletion	2.5%	2.0%	-0.5%	2.7%	2.0%	-0.7%
Kidney/Urinary Infections	1.5%	0.7%	-0.8%	1.6%	0.8%	-0.8%

## G. Greater University Circle Analysis

UH Rainbow Babies & Children's Hospital has a primary market area that includes close to 3 million residents. There are almost 400,000 residents living in the area immediately surrounding UH Rainbow Babies & Children's Hospital ("University Circle" market area).

The University Circle market area includes the following 17 ZIP codes/neighborhoods, and as shown in [Table 21: UH Rainbow Babies & Children's Hospital's University Circle Market Area: Population Trends](#), has seen a 1.0 percent decrease in overall population from 2010 to 2013.

The proportion of those under age 19 decreased by 0.9 percent from 2011 to 2013. Thus, the size of the pediatric market in the University Circle market area showed a small decline, illustrated in [Table 22: Demographic Trends in UH Rainbow Babies & Children's Hospital's University Circle Market Area: By Age](#).

The demographic composition of the population within UH Rainbow Babies & Children's Hospital's University Circle market area was fairly stable from 2011 to 2013, shown in [Table 23: Demographic Trends in UH Rainbow Babies & Children's Hospital's University Circle Market Area: By Race](#). The proportion of both White and Black residents decreased slightly (no more than 0.5%); the proportion of those who classify themselves as some 'other' race than White, Black, American Indian/Alaskan Native, Asian, or Native Hawaiian/Other Pacific Islander increased slightly (+0.7 percentage points) during that time period.

[Table 24: Most Economically Vulnerable UH Rainbow Babies & Children's Hospital University Circle Market Area Residents](#) shows that on the whole, the economic status of households within UH Rainbow Babies & Children's Hospital's University Circle market declined significantly in the two years between 2011 and 2013: 2.7 percent more households were living below the poverty line in 2013 compared to 2011. A greater proportion of Black households were impacted in this way (an increase of 2.7% to 44.1%) compared to White households (an increase of 2.5% to 24.5%).

In 2013, about one in five (19.7%) University Circle market area residents were without health insurance coverage. Of those covered, 55.2 percent had public coverage.

## Ambulatory Care Sensitive Discharges

[Table 25: Distribution of ACS Discharges from UH Rainbow Babies & Children's Hospital University Circle Market Only, Age <19, 2013](#) shows in 2013, 30.9 percent of pediatric discharged patients who were residents of the University Circle market area had ambulatory care sensitive (ACS) primary diagnoses. The most common ACS diagnosis, by far, was asthma (11.9%) followed by cellulitis (3.5%). Note that asthma was a secondary diagnosis for an additional 11.9 percent of patients who were residents of the University Circle market area; about one in four discharged patients who were residents of the University Circle market area had a primary or secondary diagnosis of asthma.

Comparing discharges from inside the University Circle market area in 2013 to those outside of the University Circle market area, shows that the incidence of ACS cases is higher inside the University Circle market area (30.9% versus 28.0%), shown in [Table 26: Distribution of Most Common ACS Discharges from UH Rainbow Babies & Children's Hospital University Circle Market Area versus Non-University Circle Market Area Age <19, 2013](#).

Asthma and cellulitis as primary diagnoses were more common among discharged patients who were residents of the University Circle market area than the remainder of the hospital's market. Epilepsy, diabetes, and convulsions were more than marginally higher among those outside the University Circle market area.

TABLE 21: UH RAINBOW BABIES & CHILDREN'S HOSPITAL'S UNIVERSITY CIRCLE MARKET AREA: POPULATION TRENDS

	2010	2011	2012	2013	4-year Trend
University Circle Market Area	395,436	402,598	395,545	391,474	-1.0%

Source: U.S. Decennial Census, American Community Survey

TABLE 22: DEMOGRAPHIC TRENDS IN UH RAINBOW BABIES & CHILDREN'S HOSPITAL'S UNIVERSITY CIRCLE MARKET AREA: BY AGE

Age Cohort	2011	2013	Percent Change
0 to 19	28.00%	27.10%	-0.90%
20 to 44	34.10%	34.50%	0.40%
45 to 64	26.00%	26.40%	0.40%
65 and Older	12.00%	12.10%	0.10%

Source: U.S. Census Bureau, American Community Survey 2011 & 2013 5-year Estimates

TABLE 23: DEMOGRAPHIC TRENDS IN UH RAINBOW BABIES & CHILDREN'S HOSPITAL'S UNIVERSITY CIRCLE MARKET AREA: BY RACE

Race	2011	2013	Percent Change
White	43.50%	42.90%	-0.60%
Black or African-American	49.70%	49.40%	-0.30%
American Indian and Alaska Native	0.30%	0.30%	0.00%
Asian	2.00%	2.20%	0.20%
Native Hawaiian and Other Pacific Islander	0.00%	0.00%	0.00%
Some other race	4.40%	5.10%	0.70%

Source: U.S. Census Bureau, American Community Survey 2011 & 2013 5-year Estimates

TABLE 24: MOST ECONOMICALLY VULNERABLE UH RAINBOW BABIES & CHILDREN'S HOSPITAL UNIVERSITY CIRCLE MARKET AREA RESIDENTS

Economic Vulnerability	2011	2013	Percent Change
Percent of All People Under the Poverty Line	32.4%	35.1%	+2.7%
<b>By Race</b>			
White	22.0%	24.5%	2.5%
Black	41.4%	44.1%	2.7%

Source: U.S. Census Bureau, American Community Survey 2011 & 2013 5-year Estimates



TABLE 25: DISTRIBUTION OF ACS DISCHARGES FROM UH RAINBOW BABIES & CHILDREN'S HOSPITAL  
UNIVERSITY CIRCLE MARKET ONLY, AGE <19, 2013

	Primary Diagnosis		Secondary Diagnosis	
	Number With Diagnosis	Percent With Diagnosis	Number With Diagnosis	Percent With Diagnosis
No ACS Condition	1,658	69.1%	-	-
Specific ACS Conditions:	742	30.9%	-	-
Asthma	285	11.9%	285	11.9%
Cellulitis	83	3.5%	34	1.4%
Dehydration/Volume Depletion	72	3.0%	166	6.9%
Epilepsy	68	2.8%	56	2.3%
Bacterial Pneumonia	67	2.8%	68	2.8%
Diabetes	42	1.8%	28	1.2%
Convulsions	36	1.5%	17	0.7%
Severe ENT Infections	35	1.5%	213	8.9%
Kidney/Urinary Infections	18	0.8%	20	0.8%
Failure to Thrive	12	0.5%	51	2.1%
Dental Conditions	9	0.4%	18	0.8%
Nutritional Deficiencies	3	0.1%	8	0.3%
Pelvic Inflammatory Disease	2	0.1%	1	0.04%
Hypertension	2	0.1%	57	2.4%
Congestive Heart Failure (CHF)	2	0.1%	15	0.6%
Chronic Obstructive Pulmonary Disease (COPD)	1	.04%	8	0.3%
Hypoglycemia	1	.04%	4	0.2%
Gastroenteritis	1	.04%	22	0.9%
Iron Deficiency Anemia	0	0%	31	1.3%
Immunization Related – Preventable diseases	0	0%	3	0.1%
Congenital Syphilis	0	0%	2	0.1%

TABLE 26: DISTRIBUTION OF MOST COMMON ACS DISCHARGES FROM UH RAINBOW BABIES & CHILDREN'S HOSPITAL

UNIVERSITY CIRCLE MARKET AREA VERSUS NON-UNIVERSITY CIRCLE MARKET AREA

AGE <19, 2013

	University Circle Market Area	UH Rainbow Babies & Children's Hospital Market Area Outside of University Circle Market Area
No ACS Condition	69.1%	72.0%
Specific ACS Conditions:	30.9%	28.0%
Asthma	11.9%	5.2%
Cellulitis	3.5%	2.8%
Dehydration/Volume Depletion	3.0%	3.1%
Epilepsy	2.8%	4.1%
Bacterial Pneumonia	2.8%	3.1%
Diabetes	1.8%	2.4%
Convulsions	1.5%	2.4%
Severe ENT Infections	1.5%	1.8%
Kidney/Urinary Infections	0.8%	1.1%

## H. Primary Analysis of Representative Sample of Market Area Population

The ACS analysis section provided evidence from UH Rainbow Babies & Children's Hospital's discharge data the market area residents may lack full access to primary care. The proportion of ACS cases in UH Rainbow Babies & Children's Hospital in 2013 was higher in the hospital's primary and secondary market areas than in Ohio overall.

To further understand market area health needs, the following section presents the results of a mail survey of adults, youth (ages 12 to 18) and parents of young children (ages 0 to 11) who reside in UH Rainbow Babies & Children's Hospital's market areas regarding their health and access to health care. Random mail surveys of households in market area counties were conducted between 2011 – 2015. Surveys were commissioned by County Health Partners and conducted by the Hospital Council for Northwest Ohio to capture a comprehensive picture of residents' health status.

### Population Health Status

This section describes the health status of some of the population within UH Rainbow Babies & Children's Hospital's market area. Survey respondents for the county-wide data were designated as residents of UH Rainbow Babies & Children's Hospital's market area via their residential ZIP code. The sample sizes for each of these surveys is around 400.

#### Survey of Adults

This section presents survey data regarding adult attitudes and behaviors which relate to their children's health and access to health care.

### Health Care Utilization

Table 27: Adult Access to Health Care shows that between one-fourth and one-third of adults in the market area reported that cost might be a barrier to obtaining health care for themselves. A small proportion reported that lack of transportation may prevent them from receiving care (especially in Ashtabula County). These barriers may have an impact on children in the household obtaining needed health care.

### Unhealthy Behaviors by Adults that Impact Children

Certain unhealthy or risky behaviors are fairly prevalent among adults in UH Rainbow Babies & Children's Hospital's primary market area; many could impact the health and well-being of the children in their communities, shown in Table 28: Incidence of Unhealthy/Risky Behaviors Among Adults: UH Rainbow Babies & Children's Hospital Primary and Secondary Market.

Survey results found that 11.5% to 21.9% of those within UH Rainbow Babies & Children's Hospital's primary market area were smokers at the time of their survey. The CDC

reported that roughly one in five adults in Cuyahoga County were smokers in 2014. In addition, between 4.5% and 10.7% reported using illicit drugs recreationally.

A significant proportion of households in UH Rainbow Babies & Children's Hospital's primary market area store a firearm that is not locked but is loaded (2.4% to 4.8%).

Among the adult population, unhealthy consumption of alcohol (binge drinking) occurred two or more times for between 22.9% and 41.4% of the adult population in the 30 days prior to being surveyed. Many (7.1% to 17.4%) reported binge drinking (five or more drinks) at least once a week.

These surveys corroborate what has been found in many other studies: about one-fourth to one-third of adults are obese. Many studies have shown that children with obese parents are at a much higher risk of developing obesity.<sup>3</sup>

Surveys asked about prenatal care for pregnancies during the five years prior to the survey. Shown in Table 30: Prenatal Care and Unhealthy Behaviors During Pregnancy, respondents noted that during their last pregnancy, not all women reported receiving prenatal care within the first three months of pregnancy: between 66% and 72%, depending on the county. The percent of women who took a prenatal vitamin during their last pregnancy ranged from 53% to 74% across counties and just 40% to 50% took folic acid.

Unhealthy practices during pregnancy were uncommon – few, in any county, smoked cigarettes or used illegal or nonprescribed drugs during pregnancy. Cigarette smoking during pregnancy was more common in Geauga and Lorain counties.

Perinatal depression was fairly common (affecting 9% to 17% of pregnancies). A small but important percentage of mothers in Lorain and Portage counties experienced domestic violence during their most recent pregnancy (5% and 3%, respectively).

<sup>3</sup>Sources: Gibson, L. Y., Byrne, S. M., Davis, E. A., Blair, E., Jacoby, P., & Zubrick, S. R. (2007). *The role of family and maternal factors in childhood obesity*. *Medical Journal of Australia*, 186(11), 591-595.

Maffeis, C., Talamini, G., & Tato, L. (1998). *Influence of diet, physical activity and parents' obesity on children's adiposity: A four-year longitudinal study*. *International Journal of Obesity and Related Metabolic Disorders*, 22(8), 758-764.

Schaefer-Graf, U. M., Pawliczak, J., Passow, D., Hartmann, R., Rossi, R., Buhner, C., et al. (2005). *Birth weight and parental BMI predict overweight in children from mothers with gestational diabetes*. *Diabetes Care*, 28(7), 1745-1750.

Wang, Z., Patterson, C. M., & Hills, A. P. (2002). *Association between overweight or obesity and household income and parental body mass index in Australian youth: Analysis of the Australian National Nutrition Survey, 1995*. *Asia Pacific Journal of Clinical Nutrition*, 11(3), 200-205.

Whitaker, R. C., Wright, J. A., Pepe, M. S., Seidel, K. D., & Dietz, W. H. (1997). *Predicting obesity in young adulthood from childhood and parental obesity*. *New England Journal of Medicine*, 337(13), 869-873

TABLE 27: ADULT ACCESS TO HEALTH CARE

	Cuyahoga County	Ashtabula County	Geauga County	Lorain County	Medina County	Portage County
Reported that cost might be a barrier to obtaining medical care if needed	33.6%	33.3%	29.6%	19.6%*	34.4%	25.3%
Have transportation issues preventing access to health care	2.8%	7.0%	4.1%	15.4%*	2.7%	1.5%

\*'Has been a barrier to receiving care.'

Source: Hospital Council of Northwest Ohio Community Health Needs Assessment

TABLE 28: INCIDENCE OF UNHEALTHY/RISKY BEHAVIORS AMONG ADULTS: UH RAINBOW BABIES & CHILDREN'S HOSPITAL PRIMARY AND SECONDARY MARKET

Type of Unhealthy/ Risky Behavior	Cuyahoga County	Ashtabula County	Geauga County	Lorain County	Medina County	Portage County
Smoke cigarettes	18.8%	21.9%	12.7%	21.9%	11.5%	12.8%
Used recreational drugs within past six months	9.3%	7.8%	4.5%	10.7%	6.0%	Not available
Have firearm(s) in home which is unlocked/loaded	2.4%	4.8%	3.3%	3.8%	Not available	4.6%
Binge drinking, two or more times a month (within past 30 days)	39.6%	22.9%	25.1%	39.0%	41.4%	21.7%
Binge drinking once a week or more	16.5%	13.4%	9.2%	17.4%	15.1%	7.1%

Source: Hospital Council of Northwest Ohio Community Health Needs Assessment

TABLE 29: OBESITY LEVELS, UH RAINBOW BABIES & CHILDREN'S HOSPITAL PRIMARY MARKET AREA COUNTIES

	Percent Overweight (BMI 25 – 29.9)	Percent Obese (BMI 30+)
Cuyahoga County	43.1%	23.6%
Ashtabula County	36.0%	32.0%
Geauga County	37.8%	21.6%
Lorain County	35.0%	32.0%
Medina County	37.7%	23.2%
Portage County	30.1%	28.4%

Source: Hospital Council of Northwest Ohio Community Health Needs Assessment

TABLE 30: PRENATAL CARE AND UNHEALTHY BEHAVIORS DURING PREGNANCY

	Cuyahoga County	Geauga County	Lorain County	Portage County
Get prenatal care within the first three months	71%	66%	72%	68%
Take a multivitamin	74%	72%	68%	53%
Take folic acid	47%	Not available	40%	50%
Smoke cigarettes	Not available	9%	10%	0%
Consume alcoholic beverages	Not available	3%	1%	0%
Use marijuana	Not available	0%	1%	0%
Use any drugs not prescribed	Not available	0%	1%	0%
Experience perinatal depression	9%	13%	13%	17%
Experience domestic violence	Not available	0%	5%	3%

Source: Hospital Council of Northwest Ohio Community Health Needs Assessment

## Survey of Youth

This section presents the results of surveys of Ashtabula, Geauga, Lake and Medina county youth regarding their health and safety behaviors and attitudes. Survey data were obtained from a 2011 survey of Ashtabula County youth, a 2011 survey of Geauga County youth (ages 12 to 18), a 2014 survey of Lake County youth, and a 2012 survey of Medina County youth.

Almost one in four youth in UH Rainbow Babies & Children's Hospital's primary market area overall live in single family homes. Shown in [Table 31: Personal Safety: Risky Environments and Behaviors](#), 4% of youth living in UH Rainbow Babies & Children's Hospital's market area within Lake County reported not having enough food to eat in the home at least one day per week.

Teens in Ashtabula, Geauga, Lake and Medina counties often engage in risky behavior. Depending on the county, 15% to 36% of surveyed youth reported not choosing to wear a seatbelt always or most of the time, and 14 to 20% had driven in a car with someone who had been drinking in the 30 days prior to the survey. 2 to 7% of youth survey respondents reported driving after drinking in the 30 days prior to the survey. Many (8% to 11%) carried a weapon in the 30 days prior to the survey.

About one-third of youth in Ashtabula and Lake counties are sexually active, and 3 to 4% of Ashtabula and Lake county teens in UH Rainbow Babies & Children's Hospital's market area were both sexually active and used no method of birth control during their most recent sexual encounter prior to the survey.

[Table 32: Personal Safety: Harmed By Others](#) shows that many teens in UH Rainbow Babies & Children's Hospital's market area reported being physically harmed by boyfriends or girlfriends (6%) or adults or other caregivers (8% to 16%) within the year prior to the survey. Roughly one-fourth of surveyed youth had been in a physical fight, and about half reported being bullied, within the year prior to the survey.

Mental health issues, illustrated in [Table 33: Mental Health](#), were frequent diagnoses among UH Rainbow Babies & Children's Hospital discharges in 2013. Surveyed youth also reported frequent mental health issues.

Unhealthy and often dangerous habits are not uncommon among UH Rainbow Babies & Children's Hospital's market area youth, shown in [Table 34: Unhealthy Habits](#). Smoking prevalence (10% to 15%) is almost at adult levels, and consumption of alcohol is even more common (19% to 31%).

Use of illegal drugs is also fairly common: 10% to 20% of youth in the hospital's market area reported using marijuana within the past 30 days. Lifetime use of cocaine, inhalants, heroin, methamphetamines, and steroid pills or shots ranged from 1% to 11% of surveyed youth, depending on the county and the substance. 2% of youth in Ashtabula and Geauga counties have injected illegal drugs via a needle. Just over one in 10 surveyed youth in Geauga, Lake and Medina counties had been offered an illegal drug while at school within the year prior to being surveyed.

[Table 35: Nutrition](#) shows that consumption of soft drinks is very high among teens in some counties within UH Rainbow Babies & Children's Hospital's market area, but particularly high in Ashtabula County. Obesity among youth is highest in Ashtabula County and lowest in Medina County.

Finally, not all youth are clear on parental disapproval regarding their choices (Ashtabula County and Geauga County data are not available), illustrated in [Table 36: Parental Approval](#). When asked whether or not their parents would disapprove of their use of various unhealthy or illegal substances, not all were affirmative.

TABLE 31: PERSONAL SAFETY: RISKY ENVIRONMENTS AND BEHAVIORS

	Ashtabula County	Geauga County	Lake County	Medina County
Ride in car, within past 30 days, with a driver who had been drinking alcohol	18%	17%	20%	14%
Wear seat belt while riding in a vehicle, not always or most of the time	23%	36%	Not available	15%
Drive a car after drinking alcohol (within past 30 days)	4%	7%	2%	4%
Carry a weapon (within past 30 days)	10%	11%	8%	10%
Sexually active	39%	Not available	30%	Not available
Is sexually active and used no form of birth control for most recent sexual activity	3%	Not available	4%	Not available

Source: Hospital Council of Northwest Ohio Community Health Needs Assessment

TABLE 32: PERSONAL SAFETY: HARMED BY OTHERS

	Ashtabula County	Geauga County	Lake County	Medina County
Threatened or injured by someone with a weapon on school property (within past year)	6%	5%	5%	7%
Physically harmed by boyfriend/girlfriend (within past year)	6%	6%	6%	6%
Physically harmed by adult or caregiver (within past year)	8%	12%	15%	16%
In a physical fight (within past year)	23%	23%	28%	23%
Bullied (physically, verbally, cyber, sexually) (within past year)	42%	55%	53%	54%

Source: Hospital Council of Northwest Ohio Community Health Needs Assessment

TABLE 33: MENTAL HEALTH

	Ashtabula County	Geauga County	Lake County	Medina County
Mental health, within the past year:				
Feelings of sadness or hopelessness every day for more than two weeks enough to stop normal activities	23%	19%	30%	25%
Attempted suicide which required treatment by a doctor or a nurse	2%	4% *	2%	2%
Engaged in self-hurting activity (cutting, etc.)	25%	Not available	Not available	Not available

\*Question was worded: "within past 12 months...actually attempt suicide."

Source: Hospital Council of Northwest Ohio Community Health Needs Assessment

TABLE 34: UNHEALTHY HABITS

	Ashtabula County	Geauga County	Lake County	Medina County
Smoke cigarettes	15%	14%	12%	10%
Consumed alcohol within past 30 days	19%	31%	29%	22%
Binge drinking within past 30 days	14%	20%	15%	13%
Used marijuana within past 30 days	10%	14%	20%	12%
Used cocaine in lifetime	5%	4%	4%	4%
Used inhalants in lifetime	5%	8%	5%	11%
Used heroin in lifetime	1%	2%	1%	2%
Used methamphetamines in lifetime	2%	2%	2%	3%
Used steroid pills or shots in lifetime	4%	1%	2%	2%
Took prescription medications not prescribed to you in lifetime	8%	9%	7%	13%
Tried other recreational "party" drugs (ecstasy, cough syrup, GbH, etc.)	12%	Not available	10%	11%
Injected illegal drugs via a needle	2%	2%	Not available	Not available
Been offered illegal drugs on school property within past year	Not available	13%	11%	14%

Source: Hospital Council of Northwest Ohio Community Health Needs Assessment

TABLE 35: NUTRITION

	Ashtabula County	Geauga County	Lake County	Medina County
Drink at least one serving of a soft drink most days of the week	54%	Not available	29%	Not available
Drink at least one serving of an 'energy' drink most days of the week	Not available	Not available	16%	Not available
Ate at a fast food restaurant at least three days per week	Not available	Not available	20%	Not available
Overweight (not obese)	13%	7%	13%	9%
Obese	20%	10%	18%	9%

Source: Hospital Council of Northwest Ohio Community Health Needs Assessment

TABLE 36: PARENTAL APPROVAL

	Lake County	Medina County
<b>Parents would disapprove of youth</b> ....		
...smoking cigarettes	80%	88%
...drinking alcohol	70%	79%
...using marijuana	78%	86%
...misusing prescription drugs	81%	88%

Source: Hospital Council of Northwest Ohio Community Health Needs Assessment



## Survey of Households with Children (ages 0 to 11 years)

Surveys of households with children were conducted in three different counties within UH Rainbow Babies & Children's Hospital's market area. The objective was to describe access to health care for families with young children along with the prevalence of various health conditions among children.

Shown in [Table 37: Type of Health Insurance](#), most (87.7%) children ages 0 to 11 in Geauga County have health insurance coverage, and almost all children in Medina and Portage Counties are covered. The most common type of insurance was provided by the survey respondent's employer or someone else's employer. Government sources of insurance for children were most common in Portage County. The Portage County survey was conducted in 2015; that survey found that 1% of children were insured through the Insurance Marketplace.

The great majority of children in Geauga County within UH Rainbow Babies & Children's Hospital's market area obtained health care services from a doctor's office (90%); slightly fewer (88%) did so in Medina County and Portage County (80%), shown in [Table 38: Places Where Health Care Services, Health Information are Obtained](#). In Portage County, parents were somewhat more likely to use 'multiple locations' for health care services for their child (including a doctor's office). A hospital emergency room was not frequently relied on for nonemergent care.

While few respondents reported using a hospital emergency department as a typical place to obtain health care for children, many in Geauga County (17.1%) did report taking their child to the emergency room at least once in the year prior to the survey. One in four (25.5%) Medina County survey respondents reported taking their child to a hospital emergency room in the year prior to their survey. For most (14%), there was only one occurrence of an emergency room visit.

Although most reported that a doctor's office was the chief place where health care is sought for their child(ren), one in five respondents in Geauga County reported that their child does not have someone that they think of as their child's "personal doctor or nurse." More (one in four) reported that in Portage County. One in 10 children were found to not have a regular primary care provider in Medina County (not shown).

A small but significant proportion of respondents (10.5% to 12.9%, depending on the county) said that their child did not receive all of the medical care he/she needed in the year prior to the survey. The barriers to receiving care were extremely varied, but cost was the most commonly cited barrier.

Another small but significant proportion of respondents reported that their child could not obtain the prescription drug he/she required (6.5% to 7.7%). There were many reasons why this was true, but the high cost of prescriptions dominated responses.

Respondents were shown a list of the most common health issues facing children and were asked if their child has ever been diagnosed with any of the health conditions. Shown in [Table 39: Morbidity of Childhood Health Issues](#), the most commonly diagnosed health issue among children in the three participating counties was asthma (9.7% to 15.3%). The second most common health issue was a speech/language delay (Medina and Portage county only), followed by attention deficit disorder/attention deficit hyperactivity disorder.

TABLE 37: TYPE OF HEALTH INSURANCE

	Geauga County			Medina County			Portage County		
	Children Ages 0 to 5	Children Ages 6 to 11	Total	Children Ages 0 to 5	Children Ages 6 to 11	Total	Children Ages 0 to 5	Children Ages 6 to 11	Total
No health insurance coverage	11.5%	13.3%	12.3%	1.0%	0.7%	0.8%	0.0%	0.8%	0.5%
Your employer insurance	54.0%	50.9%	52.6%	62.7%	68.1%	66.9%	65%	64.9%	64.9%
Someone else's employer insurance	11.9%	12.8%	12.3%	14.7%	17.9%	17.0%	13%	12.7%	12.8%
You or someone else buys on your own	4.2%	7.8%	5.8%	5.9%	4.5%	4.8%	2.4%	3.5%	3.1%
Medicaid or State Children's Health Insurance Program (S-CHIP)	7.7%	5.5%	6.7%	9.8%	5.5%	7.1%	21.1%	18.8%	19.6%
Medicare	1.1%	1.8%	1.5%	2.0%	0.3%	0.5%	2.4%	3.8%	3.4%
Some other source of coverage	8.4%	6.9%	7.7%	3.9%	2.7%	3.0%	0.0%	0.0%	0.0%
Insurance Marketplace*							1.6%	0.8%	1.0%
Other	1.1%	0.9%	1.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

\*Only applicable after the implementation of the Affordable Care Act.  
 Source: Hospital Council of Northwest Ohio Community Health Needs Assessment

TABLE 38: PLACES WHERE HEALTH CARE SERVICES, HEALTH INFORMATION ARE OBTAINED

	Geauga County			Medina County			Portage County		
	Children Ages 0 to 5	Children Ages 6 to 11	Total	Children Ages 0 to 5	Children Ages 6 to 11	Total	Children Ages 0 to 5	Children Ages 6 to 11	Total
A doctor's office	88.1%	92.2%	90.0%	81.6%	90.3%	88.0%	80.1%	78.1%	80.4%
Multiple places including doctor's office	6.5%	5.0%	5.8%	11.7%	7.6%	8.7%	7.4%	13.3%	11.4%
Urgent care center	0.8%	1.4%	1.0%	1.0%	0.3%	0.5%	1.7%	1.6%	1.6%
A public health clinic or community health center	0.8%	0.0%	0.4%	0.0%	0.0%	0.0%	3.3%	1.2%	1.9%
In-store health center	0.8%	0.0%	0.4%	1.0%	0.7%	0.8%	0.0%	1.6%	1.1%
Hospital Emergency Room	0.0%	0.0%	0.0%	1.0%	0.0%	0.5%	1.7%	1.8%	1.1%
Other	3.0%	1.4%	2.4%	3.7%	1.1%	2.3%	5.8%	2.4%	2.5%

Source: Hospital Council of Northwest Ohio Community Health Needs Assessment

TABLE 39: MORBIDITY OF CHILDHOOD HEALTH ISSUES

	Geauga County	Medina County	Portage County
Asthma	9.7%	11.0%	15.3%
Speech/Language delay	Not assessed	9.2%	11.0%
Attention deficit disorder or attention deficit hyperactivity disorder	7.1%	6.0%	7.3%
Developmental delay	6.3%	3.4%	5.5%
Pneumonia	5.2%	6.3%	4.3%
Behavioral or conduct problems	4.5%	2.9%	5.5%
Urinary tract infections	4.2%	3.9%	3.5%
Hearing problems	4.0%	1.6%	3.0%
Learning disability	4.0%	3.1%	6.3%
Anxiety problems	3.1%	4.4%	6.3%
Birth defect	3.1%	1.0%	2.8%
Bone, joint or muscle problems	2.7%	1.6%	1.0%
Head injury	2.6%	1.6%	1.5%
Vision problems (not corrected by glasses)	2.5%	1.6%	3.3%
Depression problems	2.1%	2.1%	2.0%
Genetic diseases	1.9%	0.5%	0.8%
Autism	1.3%	1.3%	1.8%
Epilepsy	1.0%	3.9%	0.8%
Digestive tract	0.6%	0.5%	0.3%
Appendicitis	0.6%	0.3%	0.0%
Diabetes	0.4%	0.8%	0.5%
Cancer	0.2%	0.5%	0.3%

Source: Hospital Council of Northwest Ohio Community Health Needs Assessment

## I. Infant Mortality

This indicator reports the rate of deaths to infants less than one year of age per 1,000 births. This indicator is relevant because high rates of infant mortality may indicate the existence of broader issues pertaining to access to care and maternal and child health. Here we show the infant mortality rates for all of the counties that fall within UH Rainbow Babies & Children's Hospital's market areas. Please see the Appendix for infant mortality data for the City of Cleveland.

Shown in [Table 40: Infant Mortality Trends, 2007 to 2012, U.S., UH Rainbow Babies & Children's Hospital Counties, per 1,000 Births](#), of the counties that contain UH Rainbow Babies & Children's Hospital's primary market area, Cuyahoga County had the highest infant mortality rate in 2012 (8.86 per 1,000 births). Rates were slightly lower in Ashtabula (8.09) County. For both of these counties, the infant mortality rate was higher than in Ohio overall (7.57). For all other counties in UH Rainbow Babies & Children's Hospital's primary market area, infant mortality rates were significantly lower.

In UH Rainbow Babies & Children's Hospital's secondary market area, infant mortality rates were highest in Mahoning (10.81) and Stark (9.78) counties. Mahoning County had the highest infant mortality rate among all of the counties in UH Rainbow Babies & Children's Hospital's market area.

Infant mortality rates for Blacks have been significantly higher in the U.S. In fact, according to the most recently available data, infant mortality rates for Blacks were almost twice as high as infant mortality rates for Whites in 2012. This disparity is also true for all counties which are part of UH Rainbow Babies & Children's Hospital's market area, with the exception of Geauga County for which reliable data are not available.

Note that infant mortality rates for Blacks within many of UH Rainbow Babies & Children's Hospital's primary market area counties (Ashtabula, Lake, Lorain, Medina and Portage) fluctuate a great deal from 2007 to 2012; this is because the absolute number of births for Blacks in these counties is low (fewer than 500), and small changes in the number of infant mortalities are reflected as large changes in infant mortality rates. The infant mortality rate for Blacks in Geauga County could not be calculated due to low numbers of Black births in that county.

[Figure 9: Infant Mortality Trends](#) shows the contrast between White and Black infant mortality rates for the geographic areas reported above where there are significant Black populations. This shows the large and consistent racial disparities in infant mortality rates, from 2007 to 2012, for Cuyahoga and Summit counties, Ohio, and the U.S. overall. While the Black infant mortality rate for the U.S. overall inched down from 2007 to 2012 (down 2.05 births per 1,000), there was a smaller reduction within Ohio and Cuyahoga County during that time period (down 0.9 and 0.8 births per 1,000, respectively). Black infant mortality rates were variable in Summit County during those six years, but mirrored the U.S. rate in 2012. With the exception of 2011, Summit County Black infant mortality rates were lower than Cuyahoga County's in all years.

TABLE 40: INFANT MORTALITY TRENDS, 2007 TO 2012, U.S., UH RAINBOW BABIES & CHILDREN'S HOSPITAL COUNTIES, PER 1,000 BIRTHS

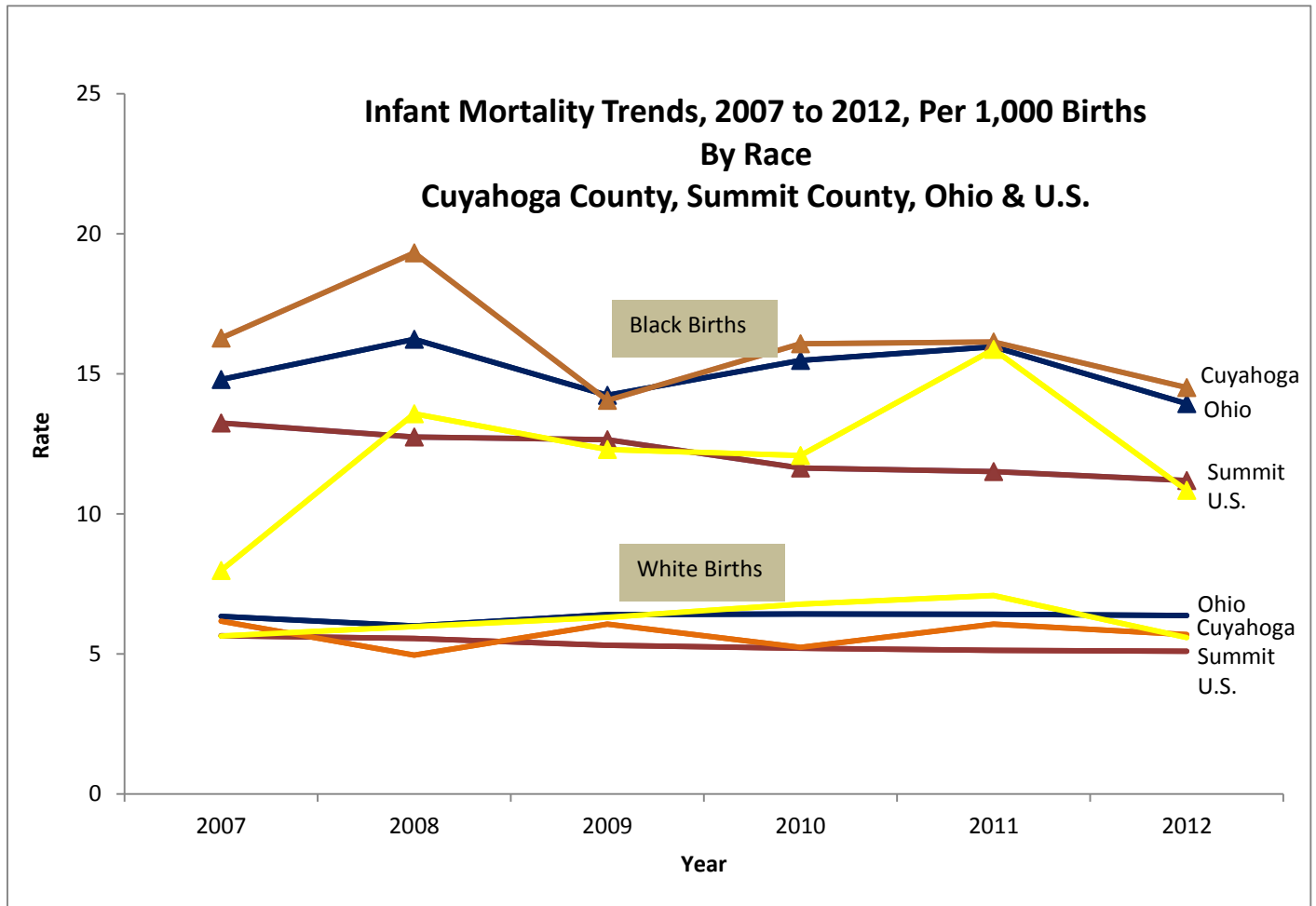
Geography	Race	Infant Mortality Rate					
		'07	'08	'09	'10	'11	'12
United States Overall	Total	6.75	6.61	6.39	6.15	6.07	5.98
	White	5.64	5.55	5.30	5.20	5.12	5.09
	Black	13.24	12.74	12.64	11.63	11.51	11.19
Ohio Overall	Total	7.71	7.70	7.67	7.68	7.87	7.57
	White	6.34	6.00	6.40	6.42	6.41	6.37
	Black	14.79	16.23	14.23	15.47	15.96	13.93
<b>UH Rainbow Babies &amp; Children's Hospital Primary Market Area</b>							
Cuyahoga County	Total	9.97	10.59	9.08	9.07	9.47	8.86
	White	6.17	4.95	6.06	5.23	6.06	5.69
	Black	16.27	19.32	14.05	16.07	16.13	14.51
Ashtabula County	Total	9.69	6.64	10.43	8.56	8.76	8.09
	White	7.83	6.07	10.95	7.31	6.78	7.99
	Black	56.60*	21.74*	0.00*	76.92*	46.51*	26.32*
Summit County	Total	6.23	7.49	7.57	8.04	8.91	6.67
	White	5.63	5.97	6.30	6.77	7.08	5.58
	Black	7.97	13.57	12.29	12.08	15.87	10.84
Lorain County	Total	8.37	6.84	7.31	8.31	5.20	6.26
	White	7.50	4.20	4.52	6.32	3.64	6.39
	Black	14.99*	24.14*	24.79*	25.58*	18.96*	9.80*
Medina County	Total	3.06	5.31	1.08	0.57	3.39	6.40
	White	3.18	5.49	1.12	0.60	2.96	6.74
	Black	0.00*	0.00*	0.00*	0.00*	29.41*	0.00*
Geauga County	Total	8.23	2.21	2.22	2.13	7.84	6.36
	White	8.46	2.25	2.27	2.18	8.03	6.67
	Black	0.00*	0.00*	0.00*	0.00*	0.00*	0.00*
Portage County	Total	7.79	8.30	7.08	7.52	5.43	5.06
	White	7.18	8.93	5.61	6.07	5.22	4.83
	Black	21.05*	0.00*	31.58*	20.83*	0.00*	10.20*
Lake County	Total	8.31	6.71	3.38	2.53	3.95	4.12
	White	8.15	5.63	3.70	1.96	4.08	4.34
	Black	14.39*	24.39*	0.00*	14.60*	8.62*	6.49*

Geography	Race	Infant Mortality Rate					
		'07	'08	'09	'10	'11	'12
<b>UH Rainbow Babies &amp; Children's Hospital Secondary Market Area</b>							
Mahoning County	Total	8.72	8.87	10.86	11.58	6.94	10.81
	White	6.19	7.05	6.80	10.35	6.85	5.97
	Black	16.42	14.03	22.09	16.95	7.27	23.65
Stark County	Total	7.67	8.60	7.48	9.08	8.13	9.78
	White	6.02	7.29	4.82	6.55	7.10	8.53
	Black	20.60	18.87	28.23*	28.02*	16.32*	19.69*
Trumbull County	Total	9.03	8.08	9.68	9.98	8.13	8.62
	White	7.90	6.39	9.45	8.24	6.44	7.40
	Black	19.31*	20.55*	12.05*	22.81*	18.66*	17.62*
Erie County	Total	3.42	13.17	7.60	10.74	7.91	7.60
	White	2.70	11.36	7.34	11.27	4.75	1.52
	Black	7.87*	24.39*	9.90*	9.62*	8.77*	35.4*
Wayne County	Total	7.51	5.60	8.92	5.59	1.95	5.96
	White	7.05	5.09	8.52	5.80	2.01	6.17
	Black	35.71*	37.04*	41.67*	0.00*	0.00*	0.00*
Huron County	Total	5.78	4.58	6.50	4.04	8.61	5.53
	White	5.90	4.67	6.68	4.42	9.16	5.94
	Black	0.00*	0.00*	0.00*	0.00*	0.00*	0.00*
Ashland County	Total	0.00	12.42	6.43	3.06	1.74	3.16
	White	0.00	12.58	6.56	3.14	1.78	3.21
	Black	0.00*	0.00*	0.00*	0.00*	0.00*	0.00*

\*Total number of births is less than 500; interpret with care

\*\*Source: Ohio Department of Health

FIGURE 9: INFANT MORTALITY TRENDS



Mortality and Morbidity

## J. Other Health Indicator Trends

Table 43: UH Rainbow Babies & Children's Hospital Primary Service Area: Total Births by Types 2006 to 2013 and Table 44: UH Rainbow Babies & Children's Hospital Secondary Service Area: Total Births by Types 2006 to 2013, illustrate data related to various events that impact the health of infants and children. Note that these figures are aggregate totals from 2006 to 2013.

TABLE 43: UH RAINBOW BABIES & CHILDREN'S HOSPITAL PRIMARY SERVICE AREA:  
TOTAL BIRTHS BY TYPES 2006 TO 2013

Indicator	Ashtabula	Cuyahoga	Geauga	Lake	Lorain	Medina	Portage	Summit
Total Births	10,828	143,069	8,546	21,850	31,984	16,879	14,002	57,923
Percent of Total Births:								
Births to Unmarried Women	48.3%	51.2%	15.3%	34.1%	45.5%	24.0%	37.3%	42.6%
Births to Women 40 and Older	1.8%	2.7%	4.8%	2.8%	2.3%	3.1%	2.4%	2.3%
Births to Women 15 to 19	11.4%	10.2%	3.3%	6.0%	9.6%	4.7%	7.2%	8.7%
Premature Births	11.7%	14.2%	9.5%	11.0%	11.6%	11.3%	11.5%	13.1%
Very Low Birth Weight (<1500g)	1.4%	2.3%	0.9%	1.2%	1.5%	1.3%	1.3%	1.7%
Low Birth Weight (1500g to 2499g)	6.7%	8.2%	5.2%	6.3%	6.2%	5.7%	6.4%	7.2%

Source: Ohio Department of Health, 2006 to 2013

TABLE 44: UH RAINBOW BABIES & CHILDREN'S HOSPITAL SECONDARY SERVICE AREA:  
TOTAL BIRTHS BY TYPES 2006 TO 2013

Indicator	Ashland	Erie	Huron	Mahoning	Stark	Trumbull	Wayne
Total Births	5,935	7,398	7,149	22,785	39,417	20,372	14,406
Percent of Total Births:							
Births to Unmarried Women	29.0%	50.9%	44.8%	51.5%	45.5%	48.8%	26.8%
Births to Women 40 and Older	2.4%	1.7%	1.3%	2.0%	1.8%	1.9%	2.0%
Births to Women 15 to 19	7.0%	10.4%	10.5%	11.0%	9.5%	10.1%	6.2%
Premature Births	9.6%	12.8%	10.4%	13.8%	11.9%	11.6%	10.1%
Very Low Birth Weight (<1500g)	0.8%	1.4%	1.1%	1.8%	1.7%	1.4%	1.0%
Low Birth Weight (1500g - 2499g)	5.9%	6.8%	5.8%	8.3%	7.1%	7.4%	5.5%

Source: Ohio Department of Health, 2006 to 2013



## K. Vulnerable Populations

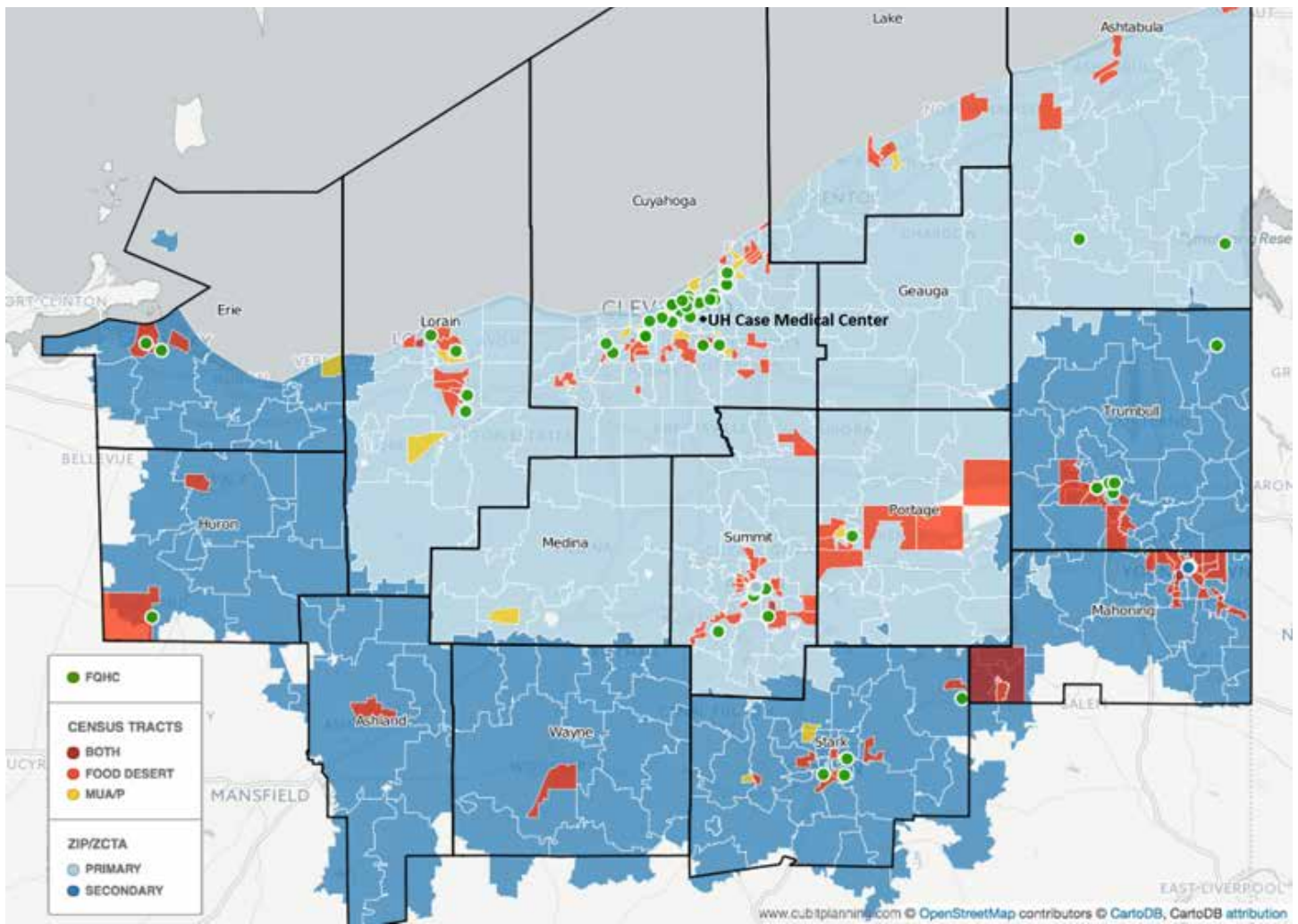
Medically underserved areas/populations are areas or populations designated by the U.S. Department of Health and Human Services' Health Resources and Services Administration (HRSA) as having insufficient primary care providers, a high infant mortality rate, high poverty or a high elderly population. There are several MUA/Ps within UH Rainbow Babies & Children's Hospital's market areas. MUA/Ps tend to be more common in rural areas.

Federally Qualified Health Centers (FQHCs) are community-based organizations that provide comprehensive primary care and preventive care, including health, oral, and mental health/substance abuse services to persons of all ages, regardless of their ability to pay or health insurance status. There are 41 FQHCs in UH Rainbow Babies & Children's Hospital's market area (one is a 'look-alike,' which is funded differently but provides the same services). All are in urban centers throughout the market area. Please see the Appendix for a list of the FQHCs in UH Rainbow Babies & Children's Hospital's market area.

In addition, pinpointing food desert locations in a hospital's service area can help to identify areas with insufficient access to healthy and affordable food. According to the U.S. Department of Agriculture, food deserts are defined as "urban neighborhoods and rural towns without ready access to fresh, healthy and affordable food." Rather than having grocery stores in these communities, there may be no food access or limited access to healthy, affordable food options. The Food Desert Locator, created by the U.S. Department of Agriculture's Economic Research Service, is a web-based mapping tool that pinpoints food desert locations in the U.S. Food deserts in UH Rainbow Babies & Children's Hospital's service area are located in both urban centers and rural areas.

Figure 10: Medically Underserved Areas/Populations, FQHCs and Food Deserts: UH Rainbow Babies & Children's Hospital overlays medically underserved areas and food deserts in UH Rainbow Babies & Children's Hospital's market areas to determine areas that may have the highest need for services. To provide further context, the map also pinpoints the location of FQHCs.

FIGURE 10: MEDICALLY UNDERSERVED AREAS/POPULATIONS, FQHCs AND FOOD DESERTS: UH RAINBOW BABIES & CHILDREN'S HOSPITAL



## CONCLUSIONS

---

### A. Priority Health Needs

The list that follows describes the priority health issues identified through this CHNA.

- Vulnerable Population Conditions
  - Increase in non-White populations
  - Increase in poverty rates
  - Increase in children living in poverty
  - Increase in unemployment
- Adult health needs that influence children and youth
  - Lack of access to primary care
    - Transportation
    - Cost
    - Prenatal care
  - Adult risk behaviors
    - Smoking
    - Drug abuse
    - Alcohol abuse
    - Gun ownership
- Child and youth health needs
  - High infant mortality rates (especially among Black population)
  - Asthma
  - Diabetes
  - Obesity
  - Mental illness
  - Lack of access to primary care
  - Lack of access to dental care
  - Violence
  - Youth risk behaviors
    - Seatbelt use
    - Alcohol consumption
    - Drinking/driving
    - Smoking
    - Drug use
    - Soft drink consumption
    - Gun access
    - Sexual activity/no birth control

From this list, UH Rainbow Babies & Children's Hospital has prioritized three primary categories of health needs for this CHNA:

1. Lack of Access to Primary Care
2. Lack of Access to Dental Care
3. High Rates of Infant Mortality

This list of health needs was compiled based on the variety of data assessed throughout this report. For example, issues like diabetes and obesity were found prevalently throughout the data sets; including in hospital discharge data, Hospital Council of Northwest Ohio Community Health Needs Assessment Data, and qualitative data collected through focus groups, surveys and public health interviews. Health needs were categorized into three primary categories of health needs, which encompassed a broader list of specific, related needs.

To prioritize these health needs, a process was developed that included input from hospital leaders who work closely with the community and have an in-depth understanding of community needs. After reviewing the primary and secondary data analysis for the UH Rainbow Babies & Children's Hospital service area, a team of leaders from the hospital assembled to determine priority health needs. This team included:

1. Aparna Bole, MD
2. Kathryn Wesolowski, Director, Women's and Children's Community Outreach
3. Rachel Hanna, Outreach Coordinator, UH Rainbow Babies & Children's Hospital Physician Extension Team

The team met in July 2015 and together determined a set of specific criteria with which to identify priority health needs. These criteria included: (1) magnitude of the problem, (2) alignment of the problem with organizational strengths and priorities, (3) impact of the problem on vulnerable populations, (4) existing resources addressing the problem; and (5) ability to measure outcomes related to implementation efforts. Feedback from external community leaders, as described in the Qualitative Data Analysis section of this report, was a driving factor in this prioritization process as well.

The team determined that it would be best to focus on three primary priorities in order to devote resources to them in a meaningful way, rather than to spread resources too thin over a broader list of priorities. These priorities align with the priorities addressed in UH Rainbow Babies & Children's Hospital's 2012 Implementation Strategy. Because UH Rainbow Babies & Children's Hospital cares for children, the adult health needs identified through this CHNA are not directly prioritized.

Within the primary categories of prioritized child and youth health needs fall several additional health issues identified through this CHNA. As such, these additional health issues will serve as second tier priorities for UH Rainbow Babies & Children's Hospital.

Lack of Access to Primary Care includes two broader subcategories of health needs: (1) disease issues and (2) youth risk behaviors. The focus of UH Rainbow Babies & Children's Hospital's new model of primary care (which will be explained in the UH Rainbow Babies & Children's Hospital Implementation Strategy) will lead to efforts to positively influence issues related to childhood obesity, mental illness, diabetes and asthma and increase access to resources related to this critical health issues. This focus on primary care access will also drive a focus on many youth risk behaviors through a variety of educational opportunities. These priorities include safety (seatbelt use/gun access/drinking and driving), substance abuse (drugs/alcohol) and smoking.

Lack of access to dental care is closely connected with access to primary care and as such, it is important to tie these two priority health needs together.

Efforts to influence high rates of infant mortality are largely connected to social services to address the social determinants of health. It is anticipated that efforts to address infant mortality will include efforts that will drive change around the vulnerable population conditions identified in this CHNA (e.g., workforce programs to address the increases in unemployment rates).

## **B. Resources Available to Address Priority Health Needs within the Community Served by the Hospital**

The following is a list of available facilities and resources that the hospital uses to assist in meeting identified community health needs:

### **UH Resources**

- HCAP Application Processing and Assistance
- Clinical Laboratory Testing
- Patient Access Financial Counseling
- Pharmacy Services
- Ronald McDonald CareMobile
- Tapper Dental Clinic
- 340B Pharmaceutical Drug Access Program
- Healthy Kids, Healthy Weight™
- Family Learning Center Outpatient Education
- Centering Pregnancy Program
- Family Learning Center Preventative Care Classes
- Infant Care PREEMIE
- Art Therapy/Music Therapy
- Social Services Support Groups
- Transplant Support Groups
- Pediatric Psychiatric Inpatient Unit
- Cancer Awareness/Education
- Child Life Community Education
- Child Life Intervention Children
- Community Safety Belt Promotion
- Family Resource Center
- Rainbow Injury Prevention Center

### **Representative Community Resources**

- American Heart Association
- American Jewish Committee Cleveland Chapter
- American Liver Foundation
- American Red Cross
- Antioch Baptist Church
- Autism Speaks
- Benjamin Rose Institute on Aging
- Boys & Girls Clubs of Cleveland
- Breakthrough Schools
- Burten, Bell, Carr Development, Inc.
- CareSource
- Centers for Families & Children
- Children's Museum of Cleveland

- Cleveland Department of Public Health
- Cleveland Metropolitan Housing Authority
- Cleveland Metropolitan School District
- Cleveland Public Library
- Cleveland Sight Center
- Courageous Steps
- Cuyahoga County Board of Health
- Epilepsy Foundation of NE Ohio
- Fatherhood Initiative
- Fatima Family Center
- HIP-Cuyahoga
- Hope on the Slopes
- Hospice of the Western Reserve
- Hunger Network
- Invest in Children
- LGBT Center
- Lifebank
- Medwish
- Medworks Milestones Autism Organization
- Midtown Cleveland
- Minority Organ and Tissue Transplant Education Program
- Molina Healthcare of Ohio, Inc.
- Mt. Hermon Baptist Church
- National Council of Jewish Women
- Neighborhood Connections
- Neighborhood Progress Inc.
- Newbridge Cleveland
- North Coast Health Ministry
- Northeast Ohio Nursing Initiative
- Ohio Organization of Nurse Executives
- Olivet Baptist Church
- Rainey Institute
- Rape Crisis Center
- Ronald McDonald House of Cleveland
- St. Clair Superior Development Corporation
- St. Martin De Porres
- Starting Point
- Stepstone Academy
- The Children's Museum of Cleveland
- Towards Employment
- Wingspan/Bellefaire JCB/Applewood
- YWCA

### A. Qualifications of Consulting Companies

#### The Center for Health Affairs, Cleveland, Ohio

The Center for Health Affairs is the leading advocate for Northeast Ohio hospitals. With a rich history as the Northeast Ohio hospital association, dating back to 1916, The Center serves as the collective voice of 34 hospitals spanning six counties.

The Center recognizes the importance of analyzing the top health needs in each community while ensuring hospitals are compliant with IRS regulations governing nonprofit hospitals. Since 2010, The Center has helped hospitals fulfill the CHNA requirements contained within the Affordable Care Act. The Center offers a variety of CHNA services to help hospitals produce robust and meaningful CHNA reports that can guide a hospital's community health improvement activities. Beyond helping hospitals with the completion of timely CHNA reports, The Center spearheads the Northeast Ohio CHNA Roundtable, which brings member hospitals and other essential stakeholders together to spur opportunities for shared learning and collaboration in the region.

The 2015 CHNA prepared for UH Rainbow Babies & Children's Hospital was directed by The Center's vice president of corporate communications, managed by The Center's community outreach director and supported by a project manager. The Center engaged Cypress Research Group to provide expertise in data analysis and statistical methods.

More information about The Center for Health Affairs and its involvement in CHNAs can be found at [www.chanet.org](http://www.chanet.org).

#### Cypress Research Group, Cleveland, Ohio

Founded in 1997, Cypress Research Group focuses on quantitative analysis of primary and secondary market and industry data. Industry specialties include health care, hi-tech and higher education. Since 2002, Cypress Research Group has partnered with The Center for Health Affairs to conduct a range of studies including building forecast models for nurses and most recently to analyze data for CHNAs.

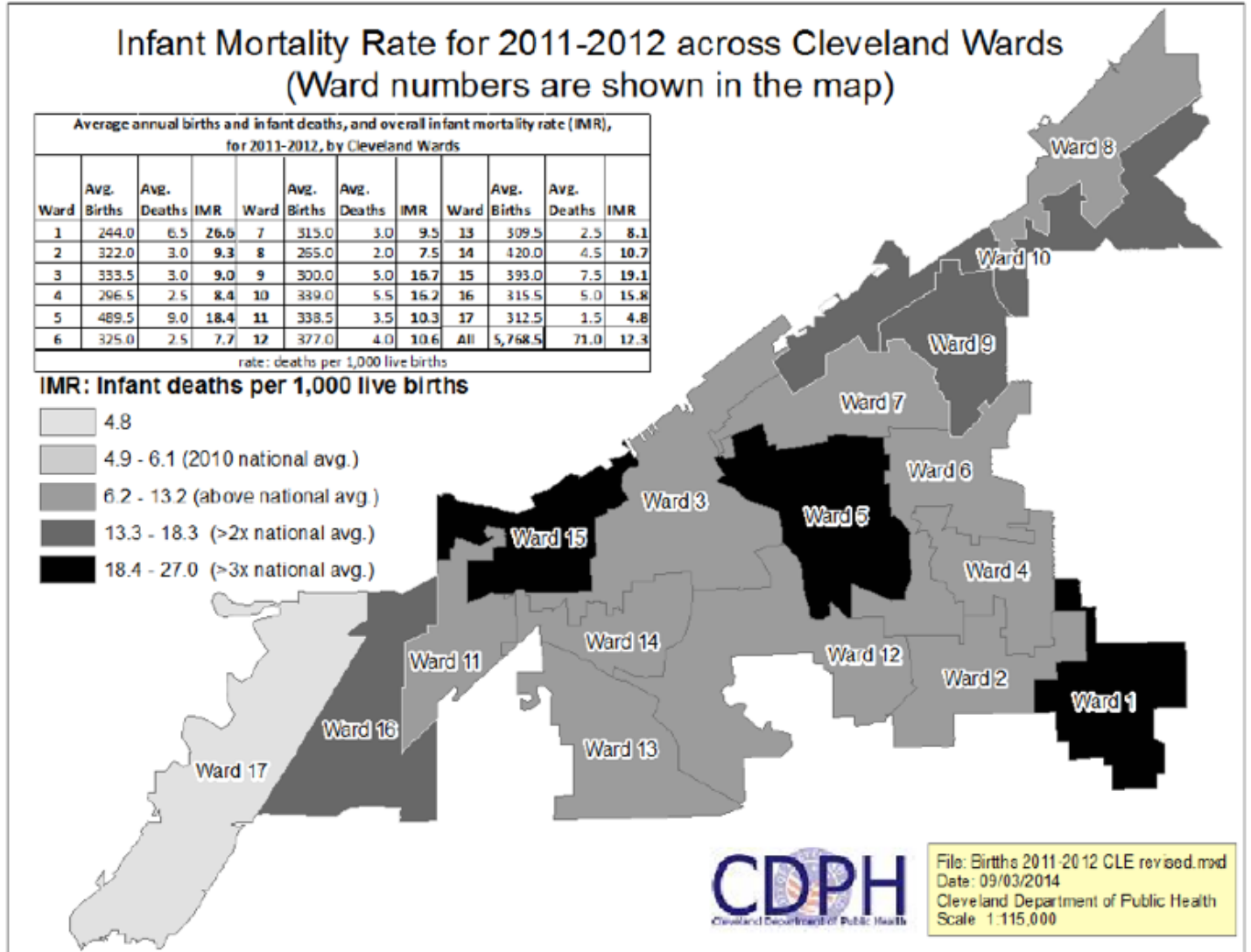
UH Rainbow Babies & Children's Hospital's CHNA was directed by the company's president and supported by the work of associates and research analysts. The company's president, as well as all associates and research analysts, hold graduate degrees in relevant fields.

## B. Infant Mortality in Cleveland

### Magnitude of the Problem

In 2011 and 2012 combined, there were 11,537 births and 142 infant mortalities in Cleveland, Ohio (a resultant infant mortality rate of 12.3 per 1,000 births). Preliminary infant mortality rates for 2013 show no change in the overall rate within the City of Cleveland. Cause of death was obtained via the Cuyahoga County Medical Examiner's Office by the Cuyahoga County Board of Health. Infant mortality is defined as death within the first year of life among all live births.<sup>4</sup>

A review of infant mortality rates (IMRs) showed differences by ward. Wards 5, 15 and 1 showed the highest IMRs in 2011/2012: 18.4, 19.1 and 26.6 – all three to four times the national rate. Ward 5 had the highest number of infant deaths in 2011/2012, but Ward 1 had the highest rate of infant deaths. Ward 5 includes the Central, northern Kinsman and Buckeye-Slavic Village neighborhoods. Ward 15 includes parts of the Ohio City, Detroit-Shoreway and Edgewater neighborhoods. Ward 1 encompasses the Lee-Harvard, Lee-Seville and eastern Union-Miles neighborhoods.



<sup>4</sup>Source: *Infant Mortality in Cleveland – A Report for Cleveland City Council Health Committee*, Cleveland Department of Health Office of Biostatistics, 2014.

## Demographics

There are many risk factors for infant mortalities, but the infant mortality rate for Blacks, both nationally and within the City of Cleveland, is higher than that for Whites. In 2011/2012, the IMR for Black infants was 15.7 per 1,000 births compared to 11.84 for White infants and 10.87 for Hispanic infants.

However, there is a much smaller difference in neonatal death rates among races. Neonatal death is defined as the death of a baby within the first 28 days of life. In the City of Cleveland in 2011/2012, the neonatal death rate was slightly

(8%) higher for White neonates than Black neonates and 20% higher for White neonates than for Hispanic neonates.

Prematurity includes babies born with both very low and moderately low birth weights. The prematurity rate was 2.8 (very low birth weights) times and 1.5 (moderately low birth weights) times higher among Black infants than White infants in 2012.

## Causes of Infant Mortality

Infant mortality is divided into four basic causes, which differ greatly in terms of prevalence:

TABLE 45: INFANT MORTALITIES, CAUSES OF DEATH, CLEVELAND, 2008 TO 2012

Cause of Death Category	Percent of Infant Mortalities	Highest Rate in Any Ward
Prematurity or In-Utero Complications	57%	82%, Ward 10
Labor and Delivery-Related	15%	26%, Ward 15
Generally Preventable*	18%	30%, Ward 15
All other causes	10%	25%, Ward 3

\*Sudden/unexplained infant death, noxious influences transmitted to placenta or breastmilk, exposure to narcotics, accidents, asphyxia, strangulation, suffocation, unspecified cause.

Risk factors for premature births, the largest cause of infant mortality in the U.S., are\*:

- Race. Black mothers are 60% more likely to deliver prematurely than White mothers.
- Chronic health problems in the mother, such as high blood pressure, diabetes and clotting disorders.
- Cigarette smoking, alcohol use or illicit drug use during pregnancy.
- Carrying more than one baby (twins, triplets or more).
- Certain infections during pregnancy.
- Problems with the uterus or cervix.

\*Source: Centers for Disease Control and Prevention, 2015

Also, mothers younger than 18 and older than 35 are more likely to have a premature delivery. However, age of the mother is not available for births examined in this analysis.

## C. 2012 – 2015 Implementation Strategy Objectives

Listed below are the programs and objectives outlined in UH Rainbow Babies & Children's Hospital's 2012 – 2015 Implementation Strategy, as well as a status update reporting the progress in implementing these objectives.

### A. Reduce high rates of emergency room use.

- a. Establish the Rainbow Physician Extension Team ("PET"). (STATUS: PET up and running. Increased interactions with patients and community each year)
  - i. The PET model creates a meaningful partnership across pediatric primary care providers ("PCP"), hospitals, patients, managed care organizations and the Office of Health Plans (which administers the state Medicaid program) to drive change and achieve improved health care delivery services, lowered costs and improved patient health.
  - ii. The PET model's global aim is to create a sustainable pediatric ambulatory care system that decreases emergency room visits, improves care and health of children with complex chronic conditions through a broad comprehensive care coordination program, improves behavioral health through an integrated behavioral health service, and increases PCP adherence to evidence-based national quality measures.
  - iii. This program is funded through a grant from the Centers for Medicare and Medicaid Innovation.
- b. Provide services through the Rainbow Call Center. (STATUS: Call center fully integrated)
  - i. The Rainbow Call Center is the largest nurse triage call center in the country for pediatric-aged patients. Nurses are trained in the unique aspects of pediatric telephone triage which includes assessing illness in newborns and childhood disease.
  - ii. Integrated in the Rainbow Call Center is the Northern Ohio Poison Center that provides hotline information on accidental and intentional ingestions as well as poison prevention and awareness education.

### B. Improve access to affordable dental care.

- a. Provide dental health services through the Tapper Pediatric Dental Clinic at the Hospital (the "Tapper Clinic") for children from infancy through young adulthood. (STATUS: Ongoing programming seeing thousands of patients)
  - i. The Tapper Clinic is uniquely equipped to treat children with acute or chronic problems, including special health care needs.

- ii. The Tapper Clinic provides services for Medicaid recipients.
- b. Provide dental health services through the Ronald McDonald Care Mobile® operated by the Tapper Clinic. (STATUS: Ongoing)
    - i. The 42-foot-long mobile dental unit provides much needed dental care to children ages 3 – 12, in underserved populations throughout Northern Ohio.
    - ii. The Ronald McDonald Care Mobile® removes barriers to dental care access by bringing services directly to medically underserved children at Head Start, Pre-K and special needs schools in the Hospital's PSA and SSA.
  - c. The Hospital is coordinating with UH Conneaut Medical Center to bring the Ronald McDonald Care Mobile® to schools in the service area. (STATUS: Ongoing)

### C. Improve infant and maternal care.

- a. Centering Pregnancy Program ("CPP") is a joint program between UH MacDonald Women's Hospital ("MacDonald Hospital") and the Hospital. (STATUS: Ongoing expansion of program to include larger cohorts of women)
  - i. CPP provides a groundbreaking group approach to prenatal care that empowers at-risk expectant mothers by encouraging responsibility and accountability for their own health.
  - ii. The group dynamic helps reduce stress and depression among new young mothers who are often alone or isolated during pregnancy and afterward.
- b. CPP educates participants about breast feeding and helps provide essential services during pregnancy for improved neonatal outcomes.

### D. Increase the availability of health education.

- a. In collaboration with MacDonald Hospital, the Hospital plans to create the Women's and Children's Health Education Center (the "Center") within the Rainbow Injury Prevention Center. (STATUS: Ongoing programming touching thousands of community members and patients)
  - i. The Center's mission will be to provide education about health, wellness and injury prevention, with a special focus on medically underserved populations. Maternal-fetal health will be a topic of focus. Community outreach by the Center's staff through public events, health fairs and other opportunities will provide health information and aid in patient access to health care resources.



## D. ACS Conditions and ICD-9-CM Codes

Below are the general categories of ACS conditions and their associated ICD-9-CM codes.

1. Congenital Syphilis: ICD-9-CM code 090 (newborns only).
2. Immunization-Related and Preventable Conditions: ICD-9-CM codes 033, 037, 045, 390, 391; (also including haemophilus meningitis for children ages 1-5 only, ICD-9-CM code 320.0; ICD-10-CA code G00.0).
3. Epilepsy: ICD-9-CM code 345.
4. Convulsions: ICD-9-CM code 780.3.
5. Severe ENT Infections: ICD-9-CM codes 382, 462, 463, 465, 472.1; (cases of otitis media, ICD-9-CM code 382).
6. Pulmonary Tuberculosis: ICD-9-CM code 011.
7. Other Tuberculosis: ICD-9-CM codes 012-018.
8. Chronic Obstructive Pulmonary Disease (COPD): ICD-9-CM codes 491, 492, 494, 496.
9. Acute Bronchitis: (only included if a secondary diagnosis of COPD is also present, diagnosis codes as above), ICD-9-CM code 466.0.
10. Bacterial Pneumonia: ICD-9-CM codes 481, 482.2, 482.3, 482.9, 483, 485, 486; (patients with a secondary diagnosis of sickle-cell anemia, ICD-9-CM code 282.6; and patients less than two months of age are excluded).
11. Asthma: ICD-9-CM code 493.
12. Congestive Heart Failure (CHF): ICD-9-CM codes 402.01, 402.11, 402.91, 428, 518.4.
13. Hypertension: ICD-9-CM codes 401.0, 401.9, 402.00, 402.10, 402.90.
14. Angina: ICD-9-CM codes 411.1, 411.8, 413 (patients with any surgical procedure coded are excluded).
15. Cellulitis: ICD-9-CM codes 681, 682, 683, 686 (patients with any surgical procedure coded are excluded, except for incisions of skin and subcutaneous tissue, ICD-9-CM procedure code 86.0).
16. Diabetes: ICD-9-CM codes 250.0, 250.1, 250.2, 250.3, 250.8, 250.9.
17. Hypoglycemia: ICD-9-CM code 251.2.
18. Gastroenteritis: ICD-9-CM code 558.9.
19. Kidney/Urinary Infections: ICD-9-CM codes 590, 599.0, 599.9.
20. Dehydration/Volume Depletion: ICD-9-CM code 276.5.
21. Iron Deficiency Anemia: ICD-9-CM codes 280.1, 280.8, 280.9.
22. Nutritional Deficiencies: ICD-9-CM codes 260, 261, 262, 268.0, 268.1.
23. Failure to Thrive: ICD-9-CM code 783.4; ICD-10-CA code R62 (patients less than one year of age only).
24. Pelvic Inflammatory Disease: ICD-9-CM code 614; ICD-10-CA codes N70, N73, N99.4 (female patients only, patients with a hysterectomy procedure coded are excluded, ICD-9-CM procedure codes 68.3-68.8).
25. Dental Conditions: ICD-9-CM codes 521, 522, 523, 525, 528.

## E. Discharges by Municipality/ZIP Code, 2013

Geography	Municipalities & ZIP Codes	UH Rainbow Babies & Children's Hospital Discharges (2013)		2013 Population (American Community Survey, U.S. Census Projection)**	
		Number	Percentage	Number	Percentage
<b>Primary Market Area</b>					
Cuyahoga	Lakewood (44107)	70	0.8%	51,899	1.3%
	Midpark (44130)	101	1.1%	50,416	1.3%
	Cleveland (44102)	125	1.4%	44,026	1.1%
	Pearlbrook (44109)	98	1.1%	41,372	1.0%
	West Park (44111)	63	0.7%	40,321	1.0%
	Cleveland Heights (44118)	244	2.7%	39,767	1.0%
	Lyndhurst/Mayfield (44124)	87	1.0%	37,971	0.9%
	Briggs (44134)	119	1.3%	37,945	0.9%
	Newburg (44105)	294	3.3%	37,857	0.9%
	Shaker Heights (44120)	319	3.6%	36,313	0.9%
	Beachwood (44122)	101	1.1%	34,654	0.9%
	South Euclid (44121)	203	2.3%	33,252	0.8%
	North Olmsted (44070)	46	0.5%	32,818	0.8%
	Westlake (44145)	58	0.6%	32,552	0.8%
	North Royalton (44133)	51	0.6%	30,335	0.8%
	Bedford (44146)	141	1.6%	29,676	0.7%
	Cranwood Station (44128)	220	2.5%	29,667	0.7%
	Parma (44129)	81	0.9%	29,260	0.7%
	Garfield Heights (44125)	139	1.6%	28,633	0.7%
	Puritas Park (44135)	66	0.7%	28,131	0.7%
	University Circle (44106)	203	2.3%	26,373	0.7%
	Strongsville (44136)	44	0.5%	25,775	0.6%
	Glenville-Bratenahl (44108)	303	3.4%	25,355	0.6%
	Solon (44139)	65	0.7%	24,154	0.6%
	Richmond Heights (44143)	77	0.9%	24,044	0.6%
	Cleveland (44104)	326	3.6%	23,307	0.6%
	Maple Heights (44137)	158	1.8%	23,080	0.6%
	East Cleveland (44112)	245	2.7%	22,593	0.6%
	Olmsted Falls (44138)	43	0.5%	21,907	0.5%
	Brooklyn (44144)	42	0.5%	21,654	0.5%
	Collinwood (44110)	221	2.5%	21,133	0.5%
	Independence (44131)	30	0.3%	20,361	0.5%
	Rocky River (44116)	23	0.3%	20,170	0.5%
	Broadview Heights (44147)	37	0.4%	19,331	0.5%
	Berea (44017)	50	0.6%	19,266	0.5%
	Brook Park (44142)	42	0.5%	19,126	0.5%
	Cleveland (44113)	43	0.5%	18,933	0.5%

Geography	Municipalities & ZIP Codes	UH Rainbow Babies & Children's Hospital Discharges (2013 )		2013 Population (American Community Survey, U.S. Census Projection)**	
		Number	Percentage	Number	Percentage
	Strongsville (44149)	40	0.4%	18,894	0.5%
	Cleveland (44103)	169	1.9%	17,990	0.5%
	Euclid (44123)	100	1.1%	16,675	0.4%
	Chagrin Falls (44022)	31	0.3%	16,655	0.4%
	Fairview Park (44126)	8	0.1%	16,641	0.4%
	Bay Village (44140)	21	0.2%	15,550	0.4%
	Euclid (44132)	106	1.2%	14,883	0.4%
	Brecksville (44141)	36	0.4%	13,875	0.3%
	Beachland Station (44119)	68	0.8%	12,435	0.3%
	Euclid (44117)	72	0.8%	10,367	0.3%
	Playhouse Square (44115)	101	1.1%	7,502	0.2%
	Public Square (44114)	26	0.3%	5,130	0.1%
	Willow Station (44127)	53	0.6%	4,581	0.1%
	Gates Mills (44040)	4	0.0%	3,191	0.1%
Summit	Barberton (44203)	4	0.0%	41,346	1.0%
	Stow (44224)	10	0.1%	38,443	1.0%
	Akron (44312)	4	0.0%	31,874	0.8%
	Cuyahoga Falls (44221)	5	0.1%	29,875	0.7%
	Hudson (44236)	13	0.1%	25,277	0.6%
	Akron (44313)	4	0.0%	24,611	0.6%
	Akron (44310)	5	0.1%	23,362	0.6%
	Akron (44319)	1	0.0%	22,616	0.6%
	Akron (44306)	17	0.2%	22,348	0.6%
	Akron (44305)	2	0.0%	21,899	0.5%
	Akron (44320)	2	0.0%	21,228	0.5%
	Northfield (44067)	37	0.4%	20,457	0.5%
	Twinsburg (44087)	56	0.6%	20,030	0.5%
	Akron (44314)	1	0.0%	18,950	0.5%
	Akron (44333)	7	0.1%	18,541	0.5%
	Cuyahoga Falls (44223)	5	0.1%	18,266	0.5%
	Tallmadge (44278)	0	0.0%	17,844	0.4%
	Akron (44301)	0	0.0%	15,700	0.4%
	Copley (44321)	7	0.1%	14,933	0.4%
	Mogadore (44260)	0	0.0%	13,152	0.3%
	Macedonia (44056)	21	0.2%	11,326	0.3%
	Clinton (44216)	0	0.0%	9,665	0.2%
	Akron (44311)	1	0.0%	9,107	0.2%
	Akron (44303)	0	0.0%	7,635	0.2%
	Akron (44302)	1	0.0%	6,119	0.2%
	Richfield (44286)	5	0.1%	5,942	0.1%

Geography	Municipalities & ZIP Codes	UH Rainbow Babies & Children's Hospital Discharges (2013 )		2013 Population (American Community Survey, U.S. Census Projection)**	
		Number	Percentage	Number	Percentage
	Akron (44307)	1	0.0%	5,830	0.1%
	Akron (44304)	3	0.0%	5,611	0.1%
	Munroe Falls (44262)	1	0.0%	4,981	0.1%
	Peninsula (44264)	1	0.0%	2,571	0.1%
	Akron (44308)	0	0.0%	735	0.0%
	Akron (44325)	0	0.0%	0	0.0%
Ashtabula	Ashtabula (44004)	147	1.6%	33,250	0.8%
	Conneaut (44030)	70	0.8%	16,875	0.4%
	Geneva (44041)	64	0.7%	14,766	0.4%
	Jefferson (44047)	41	0.5%	9,208	0.2%
	Andover (44003)	18	0.2%	4,962	0.1%
	Orwell (44076)	34	0.4%	4,599	0.1%
	Rock Creek (44084)	11	0.1%	3,623	0.1%
	Rome (44085)	15	0.2%	3,227	0.1%
	Kingsville (44048)	7	0.1%	2,843	0.1%
	Austinburg (44010)	9	0.1%	1,891	0.0%
	Windsor (44099)	13	0.1%	1,836	0.0%
	Dorset (44032)	6	0.1%	1,628	0.0%
	Pierpont (44082)	5	0.1%	1,354	0.0%
	Williamsfield (44093)	4	0.0%	1,104	0.0%
Lorain	Elyria (44035)	259	2.9%	63,911	1.6%
	North Ridgeville (44039)	69	0.8%	30,216	0.8%
	Lorain (44052)	214	2.4%	29,946	0.7%
	Avon Lake (44012)	38	0.4%	22,708	0.6%
	Avon (44011)	40	0.4%	21,440	0.5%
	Lorain (44055)	139	1.6%	20,373	0.5%
	Amherst (44001)	35	0.4%	20,358	0.5%
	Lorain (44053)	84	0.9%	17,551	0.4%
	Grafton (44044)	30	0.3%	15,509	0.4%
	Sheffield Lake (44054)	26	0.3%	12,707	0.3%
	Oberlin (44074)	15	0.2%	11,829	0.3%
	Wellington (44090)	23	0.3%	11,467	0.3%
	Columbia Station (44028)	13	0.1%	8,380	0.2%
	Lagrange (44050)	14	0.2%	6,323	0.2%
Portage	Kent (44240)	16	0.2%	41,288	1.0%
	Ravenna (44266)	12	0.1%	33,702	0.8%
	Aurora (44202)	56	0.6%	19,598	0.5%
	Streetsboro (44241)	31	0.3%	16,214	0.4%
	Garrettsville (44231)	16	0.2%	8,625	0.2%
	Mantua (44255)	38	0.4%	8,416	0.2%

Geography	Municipalities & ZIP Codes	UH Rainbow Babies & Children's Hospital Discharges (2013 )		2013 Population (American Community Survey, U.S. Census Projection)**	
		Number	Percentage	Number	Percentage
	Atwater (44201)	0	0.0%	6,456	0.2%
	Rootstown (44272)	0	0.0%	5,115	0.1%
	Kent (44243)	0	0.0%	4,239	0.1%
	Hiram (44234)	1	0.0%	4,234	0.1%
	Windham (44288)	9	0.1%	3,829	0.1%
	Diamond (44412)	0	0.0%	2,620	0.1%
	Deerfield (44411)	0	0.0%	2,082	0.1%
Medina	Medina (44256)	39	0.4%	62,303	1.6%
	Brunswick (44212)	141	1.6%	43,937	1.1%
	Wadsworth (44281)	12	0.1%	30,231	0.8%
	Hinckley (44233)	11	0.1%	7,714	0.2%
	Seville (44273)	3	0.0%	6,704	0.2%
	Lodi (44254)	2	0.0%	4,809	0.1%
	Valley City (44280)	9	0.1%	4,476	0.1%
	Spencer (44275)	1	0.0%	3,264	0.1%
	Litchfield (44253)	4	0.0%	3,241	0.1%
	Chippewa Lake (44215)	3	0.0%	2,288	0.1%
	Homerville (44235)	0	0.0%	2,070	0.1%
Geauga	Chardon (44024)	70	0.8%	23,430	0.6%
	Bainbridge (44023)	39	0.4%	17,374	0.4%
	Middlefield (44062)	87	1.0%	15,293	0.4%
	Chesterland (44026)	19	0.2%	11,218	0.3%
	Burton (44021)	37	0.4%	6,052	0.2%
	Newbury (44065)	10	0.1%	4,487	0.1%
	Novelty (44072)	8	0.1%	4,227	0.1%
	Huntsburg (44046)	8	0.1%	2,339	0.1%
	Thompson (44086)	8	0.1%	2,277	0.1%
	Montville (44064)	2	0.0%	1,676	0.0%
Lake	Mentor (44060)	185	2.1%	60,780	1.5%
	Painesville (44077)	273	3.0%	56,334	1.4%
	Willoughby (44094)	87	1.0%	35,334	0.9%
	Eastlake (44095)	103	1.1%	33,613	0.8%
	Madison (44057)	67	0.7%	19,780	0.5%
	Wickliffe (44092)	47	0.5%	16,754	0.4%
	Perry (44081)	19	0.2%	6,779	0.2%
<b>Subtotal Primary Market Area</b>		<b>8,543</b>	<b>95.4%</b>	<b>2,847,156</b>	<b>71.2%</b>

Geography	Municipalities & ZIP Codes	UH Rainbow Babies & Children's Hospital Discharges (2013 )		2013 Population (American Community Survey, U.S. Census Projection)**	
		Number	Percentage	Number	Percentage
<b>Secondary Market Area</b>					
Stark	Massillon (44646)	5	0.1%	46,219	1.2%
	Canton (44720)	1	0.0%	39,118	1.0%
	Alliance (44601)	8	0.1%	34,527	0.9%
	Uniontown (44685)	1	0.0%	28,116	0.7%
	Canton (44708)	1	0.0%	25,341	0.6%
	Louisville (44641)	4	0.0%	20,377	0.5%
	Canton (44709)	2	0.0%	19,019	0.5%
	Massillon (44647)	0	0.0%	18,850	0.5%
	Canton (44705)	2	0.0%	18,581	0.5%
	Canton (44706)	2	0.0%	18,558	0.5%
	Canton (44721)	2	0.0%	13,381	0.3%
	Canal Fulton (44614)	2	0.0%	12,454	0.3%
	Canton (44718)	4	0.0%	11,642	0.3%
	Minerva (44657)	0	0.0%	10,943	0.3%
	Hartville (44632)	1	0.0%	10,012	0.3%
	Canton (44710)	0	0.0%	9,640	0.2%
	Navarre (44662)	1	0.0%	9,461	0.2%
	Canton (44714)	0	0.0%	9,249	0.2%
	Canton (44703)	0	0.0%	8,862	0.2%
	Canton (44707)	0	0.0%	8,794	0.2%
	Canton (44730)	0	0.0%	6,339	0.2%
	Canton (44704)	0	0.0%	3,826	0.1%
	Magnolia (44643)	0	0.0%	3,305	0.1%
	North Lawrence (44666)	0	0.0%	3,264	0.1%
	Waynesburg (44688)	0	0.0%	3,067	0.1%
	East Sparta (44626)	0	0.0%	2,957	0.1%
	Beach City (44608)	0	0.0%	2,638	0.1%
	Brewster (44613)	0	0.0%	2,247	0.1%
	Paris (44669)	0	0.0%	1,240	0.0%
	Canton (44702)	1	0.0%	1,014	0.0%
	Mahoning	Youngstown (44512)	12	0.1%	34,019
Youngstown (44515)		6	0.1%	27,381	0.7%
Youngstown (44514)		6	0.1%	22,095	0.6%
Canfield (44406)		2	0.0%	21,622	0.5%
Youngstown (44505)		3	0.0%	20,138	0.5%
Youngstown (44511)		1	0.0%	19,935	0.5%
Youngstown (44509)		3	0.0%	12,532	0.3%
Struthers (44471)		2	0.0%	11,024	0.3%
Youngstown (44502)	0	0.0%	10,219	0.3%	

Geography	Municipalities & ZIP Codes	UH Rainbow Babies & Children's Hospital Discharges (2013 )		2013 Population (American Community Survey, U.S. Census Projection)**	
		Number	Percentage	Number	Percentage
	Campbell (44405)	0	0.0%	8,138	0.2%
	Youngstown (44507)	0	0.0%	5,536	0.1%
	Youngstown (44504)	1	0.0%	5,303	0.1%
	Sebring (44672)	0	0.0%	4,769	0.1%
	New Middletown (44442)	0	0.0%	4,132	0.1%
	Beloit (44609)	0	0.0%	4,127	0.1%
	Lowellville (44436)	0	0.0%	3,692	0.1%
	North Jackson (44451)	0	0.0%	3,146	0.1%
	North Lima (44452)	0	0.0%	2,861	0.1%
	Berlin Center (44401)	0	0.0%	2,818	0.1%
	Lake Milton (44429)	0	0.0%	2,551	0.1%
	Youngstown (44510)	0	0.0%	2,543	0.1%
	Youngstown (44506)	0	0.0%	1,965	0.0%
	New Springfield (44443)	0	0.0%	1,945	0.0%
	North Benton (44449)	0	0.0%	1,292	0.0%
	Youngstown (44503)	0	0.0%	914	0.0%
	Petersburg (44454)	0	0.0%	900	0.0%
	Youngstown (44555)	0	0.0%	0	0.0%
Trumbull	Warren (44483)	12	0.1%	26,047	0.7%
	Warren (44484)	7	0.1%	23,136	0.6%
	Niles (44446)	3	0.0%	20,310	0.5%
	Cortland (44410)	9	0.1%	17,331	0.4%
	Warren (44485)	7	0.1%	15,777	0.4%
	Girard (44420)	9	0.1%	15,368	0.4%
	Hubbard (44425)	2	0.0%	14,675	0.4%
	Warren (44481)	3	0.0%	10,819	0.3%
	Newton Falls (44444)	2	0.0%	10,489	0.3%
	Leavittsburg (44430)	1	0.0%	5,520	0.1%
	Mineral Ridge (44440)	3	0.0%	4,915	0.1%
	Masury (44438)	0	0.0%	4,443	0.1%
	Mc Donald (44437)	1	0.0%	4,127	0.1%
	Brookfield (44403)	0	0.0%	4,003	0.1%
	Southington (44470)	1	0.0%	3,859	0.1%
	Vienna (44473)	0	0.0%	3,769	0.1%
	West Farmington (44491)	18	0.2%	3,248	0.1%
	Bristolville (44402)	2	0.0%	2,924	0.1%
	Kinsman (44428)	2	0.0%	2,873	0.1%
	North Bloomfield (44450)	1	0.0%	2,733	0.1%
	Burghill (44404)	1	0.0%	1,708	0.0%
	Farmdale (44417)	0	0.0%	1,596	0.0%

Geography	Municipalities & ZIP Codes	UH Rainbow Babies & Children's Hospital Discharges (2013 )		2013 Population (American Community Survey, U.S. Census Projection)**	
		Number	Percentage	Number	Percentage
	Fowler (44418)	0	0.0%	1,464	0.0%
Wayne	Wooster (44691)	8	0.1%	42,807	1.1%
	Orrville (44667)	1	0.0%	14,249	0.4%
	Rittman (44270)	1	0.0%	8,784	0.2%
	Doylestown (44230)	5	0.1%	8,161	0.2%
	West Salem (44287)	2	0.0%	7,806	0.2%
	Fredericksburg (44627)	1	0.0%	7,799	0.2%
	Apple Creek (44606)	0	0.0%	7,571	0.2%
	Dalton (44618)	0	0.0%	6,771	0.2%
	Shreve (44676)	2	0.0%	4,807	0.1%
	Creston (44217)	2	0.0%	4,031	0.1%
	Smithville (44677)	2	0.0%	2,523	0.1%
	Marshallville (44645)	0	0.0%	2,502	0.1%
	Burbank (44214)	0	0.0%	2,083	0.1%
	Sterling (44276)	0	0.0%	1,879	0.0%
Huron	Norwalk (44857)	27	0.3%	23,499	0.6%
	Willard (44890)	4	0.0%	11,348	0.3%
	Wakeman (44889)	4	0.0%	6,699	0.2%
	New London (44851)	5	0.1%	5,169	0.1%
	Greenwich (44837)	0	0.0%	4,522	0.1%
	Monroeville (44847)	4	0.0%	3,655	0.1%
	Collins (44826)	0	0.0%	1,578	0.0%
	North Fairfield (44855)	0	0.0%	1,351	0.0%
Ashland	Ashland (44805)	6	0.1%	32,524	0.8%
	Loudonville (44842)	0	0.0%	5,513	0.1%
	Jeromesville (44840)	0	0.0%	3,721	0.1%
	Perrysville (44864)	2	0.0%	3,195	0.1%
	Sullivan (44880)	1	0.0%	3,118	0.1%
	Polk (44866)	0	0.0%	2,426	0.1%
	Nova (44859)	1	0.0%	1,161	0.0%
	Erie	Sandusky (44870)	87	1.0%	41,126
Vermilion (44089)		70	0.8%	15,938	0.4%
Huron (44839)		10	0.1%	12,586	0.3%
Castalia (44824)		3	0.0%	3,673	0.1%
Milan (44846)		5	0.1%	3,148	0.1%
Berlin Heights (44814)		5	0.1%	2,800	0.1%
Kelleys Island (43438)		0	0.0%	177	0.0%
<b>Subtotal Secondary Market Area</b>		<b>415</b>	<b>4.6%</b>	<b>1,150,472</b>	<b>28.8%</b>
<b>Total</b>		<b>8,958</b>	<b>100%</b>	<b>3,997,628</b>	<b>100%</b>



## F. Federally Qualified Health Centers in Market

<b>Ashtabula County</b>		
Ashtabula Community Health Center	5266 State Route 45	Rome
Andover Primary Care	5594 State Route 7	Andover
<b>Cuyahoga County</b>		
Miles Broadway Health Center	9127 Miles Ave	Cleveland
East Cleveland Health Center	15201 Euclid Ave	Cleveland
Neighborhood Family Practice Mobile Van 1	3569 Ridge Rd	Cleveland
Asian Services In Action	3631 Perkins Ave Ste 2aw	Cleveland
Central Neighborhood Clinic	2916 Central Ave	Cleveland
St. Clair Clinic	1530 Saint Clair Ave Ne	Cleveland
NEON Dental Mobile Unit	15320 Euclid Ave	East Cleveland
Carl B. Stokes Clinic	6001 Woodland Ave	Cleveland
Neighborhood Health Care, Inc.	3569 Ridge Rd	Cleveland
Hough Health Center	8300 Hough Ave	Cleveland
Tremont Health Center	2358 Professor Ave	Cleveland
Norwood Health Center	1468 E 55th St	Cleveland
Mobile Clinic	1530 Saint Clair Ave Ne	Cleveland
Superior Health Center	12100 Superior Ave	Cleveland
The Free Medical Clinic of Greater Cleveland	12201 Euclid Ave	Cleveland
Neighborhood Family Practice at Puritas	14037 Puritas Avenue A & D	Cleveland
Riverview Towers Clinic	1795 W 25th St	Cleveland
Centers West Office Health Center	3929 Rocky River Dr	Cleveland
Detroit Shoreway Health Center	6412 Franklin Blvd	Cleveland
NEON Administration Center	4800 Payne Ave	Cleveland
Care Alliance - The Centers Clinic	4400 Euclid Ave	Cleveland
Collinwood Health Center	15322 Saint Clair Ave	Cleveland
Asian Services In Action - International Community Health Center	3820 Superior Ave E	Cleveland
Magnolia Clubhouse	11101 Magnolia Dr	Cleveland
Southeast Health Center	13301 Miles Ave	Cleveland
Neighborhood Health Care, Inc. Administrative Annex	3600 Ridge Rd	Brooklyn
<b>Erie County</b>		
Erie County Health Department	420 Superior St	Sandusky
Family Health Services of Erie County, Inc.	1912 Hayes Ave	Sandusky
<b>Huron County</b>		
Community Health Services Willard	3909 State Route 103 S	Willard

<b>Lorain County</b>		
Lorain County Health & Dentistry	1205 Broadway	Lorain
Wilkes Villa Public Housing	105 Loudon Ct	Elyria
Lorain County Health & Dentistry	412 E River St	Elyria
Lorain County Health and Dentistry	3745 Grove Ave	Lorain
<b>Mahoning County</b>		
Youngstown Community Health Center	726 Wick Ave	Youngstown
<b>Portage County</b>		
AxessPointe Community Health Center/ Kent	1993 State Route 59	Kent
<b>Stark County</b>		
Good Samaritan Community Health Center	1390 S Arch Ave	Alliance
9th Street Family Health Center	408 9th St Sw	Canton
Head Start	3015 Mahoning Rd Ne	Canton
Canton Community Clinic Site	2725 Lincoln St E	Canton

## G. 2015 CHNA Community Leader Survey

### KEY HEALTH ISSUES

1. What are the top five (5) health issues you see in your community?

- |   |  |
|---|--|
| <input type="checkbox"/> Access to Care/Uninsured | <input type="checkbox"/> Overweight/Obesity            |
| <input type="checkbox"/> Cancer                   | <input type="checkbox"/> Sexually Transmitted Diseases |
| <input type="checkbox"/> Dental Health            | <input type="checkbox"/> Stroke                        |
| <input type="checkbox"/> Diabetes                 | <input type="checkbox"/> Substance Abuse/Alcohol Use   |
| <input type="checkbox"/> Heart Disease            | <input type="checkbox"/> Tobacco                       |
| <input type="checkbox"/> Maternal/Infant Health   | <input type="checkbox"/> Other (specify):              |
| <input type="checkbox"/> Mental Health/Suicide    |  |

2. Of those health issues mentioned, which one (1) is the most significant?

- |   |  |
|---|--|
| <input type="checkbox"/> Access to Care/Uninsured | <input type="checkbox"/> Overweight/Obesity            |
| <input type="checkbox"/> Cancer                   | <input type="checkbox"/> Sexually Transmitted Diseases |
| <input type="checkbox"/> Dental Health            | <input type="checkbox"/> Stroke                        |
| <input type="checkbox"/> Diabetes                 | <input type="checkbox"/> Substance Abuse/Alcohol Use   |
| <input type="checkbox"/> Heart Disease            | <input type="checkbox"/> Tobacco                       |
| <input type="checkbox"/> Maternal/Infant Health   | <input type="checkbox"/> Other (specify):              |
| <input type="checkbox"/> Mental Health/Suicide    |  |

3. Please share any additional information regarding these health issues and your reasons for ranking them this way below:

### ACCESS TO CARE

4. On a scale of 1 (strongly disagree) through 5 (strongly agree), please rate each of the following statements about Health Care Access in the area.

Residents in the area are able to access a primary care provider when needed (Family Doctor, Pediatrician, General Practitioner)	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5
Residents in the area are able to access a medical specialist when needed (Cardiologist, Dermatologist, Neurologist, etc.)	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5
Residents in the area are able to access a dentist when needed	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5
There is a sufficient number of providers accepting Medicaid in the area	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5
There is a sufficient number of bilingual providers in the area	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5
There is a sufficient number of mental/behavioral health providers in the area	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5
Transportation for medical appointments is available to area residents when needed	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5

5. What are the most significant barriers that keep people in the community from accessing health care when they need it?  
(Select all that apply)

- Availability of Providers/Appointments
- Basic Needs Not Met (Food/Shelter)
- Inability to Navigate Health Care System
- Inability to Pay Out-of-Pocket Expenses (Copays, Prescriptions, etc.)
- Lack of Child Care
- Lack of Health Insurance Coverage
- Lack of Transportation
- Lack of Trust
- Language/Cultural Barriers
- Time Limitations (Long Wait Times, Limited Offices Hours, Time off Work)
- Non/No Barriers
- Other (specify):

6. Of those barriers mentioned, which one (1) is the most significant?

- Availability of Providers/Appointments
- Basic Needs Not Met (Food/Shelter)
- Inability to Navigate Health Care System
- Inability to Pay Out-of-Pocket Expenses (Copays, Prescriptions, etc.)
- Lack of Child Care
- Lack of Health Insurance Coverage
- Lack of Transportation
- Lack of Trust
- Language/Cultural Barriers
- Time Limitations (Long Wait Times, Limited Offices Hours, Time off Work)
- Non/No Barriers
- Other (specify):

7. Please share any additional information regarding barriers to health care below:

8. Are there specific populations in this community that you think are not being adequately served by local health services?

\_\_\_ Yes \_\_\_ No

9. If yes, which populations are underserved? (Select all that apply)

- Uninsured/Underinsured
- Low-income/Poor
- Hispanic/Latino
- Black/African-American
- Immigrant/Refugee
- Disabled
- Children/Youth
- Young Adults
- Seniors/Aging/Elderly
- Homeless
- None
- Other (specify):

10. In general, where do you think MOST uninsured and underinsured individuals living in the area go when they are in need of medical care? (Choose one)

- Doctor's Office
- Health Clinic/FQHC
- Hospital Emergency Department
- Walk-in/Urgent Care Center
- Don't Know
- Other (specify):

11. Please share any additional information regarding uninsured/underinsured individuals and underserved populations below:

12. Related to health and quality of life, what resources or services do you think are missing in the community?  
(Select all that apply)

- Free/Low-Cost Medical Care
- Free/Low-Cost Dental Care
- Primary Care Providers
- Medical Specialists
- Mental Health Services
- Substance Abuse Services
- Bilingual Services
- Transportation
- Prescription Assistance
- Health Education/Information/Outreach
- Health Screenings
- None
- Other (specify):

#### CHALLENGES & SOLUTIONS

13. What challenges do people in the community face in trying to maintain healthy lifestyles like exercising and eating healthy and/or trying to manage chronic conditions like diabetes or heart disease?

14. In your opinion, what is being done well in the community in terms of health and quality of life?

15. What recommendations or suggestions do you have to improve health and quality of life in the community?

**CLOSING**

Please answer the following demographic questions.

16. Name and Contact Information

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Organization: \_\_\_\_\_

Email Address: \_\_\_\_\_

Phone Number: \_\_\_\_\_

17. Which one of these categories would you say BEST represents your community affiliation (Choose one):

- Health Care/Public Health Organization
- Mental/Behavioral Health Organization
- Nonprofit/Social Services/Aging Services
- Faith-Based/Cultural Organization
- Education/Youth Services
- Government/Housing/Transportation Sector
- Business Sector
- Community Member
- Other (specify):

18. What is your gender?    \_\_\_ Male    \_\_\_ Female

19. Which one of these groups would you say BEST represents your race/ethnicity?

- White/Caucasian
- Black/African-American
- Hispanic/Latino
- Asian/Pacific Islander
- Other (specify):

20. University Hospitals will be using the information gathered through these surveys to develop a community health implementation plan. Please share any other feedback you may have for them below:

## H. 2015 CHNA Community Leader Interview Guide

### Community Health Needs Assessment Survey Questions

Name: \_\_\_\_\_

Organization: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

Do we have your permission to list your name in the report? \_\_\_\_\_

#### Questions:

1. Briefly describe the services your organization offers, and the population you serve.

2. Are your services targeted toward a particular geographical area (city, ZIP code, school, etc.)? Are they county-wide?

3. In your opinion, what is the biggest issue or concern facing the people served by your agency/in your community?  
In surrounding counties? Particular age groups (0 – 17, 18 – 44, 45 – 65, 65+)?  
*(Note: If not health care related, what is biggest health care related issue or concern?)*

4. Please share any trends seen in the following areas (and where, geographically they are occurring):

a. Demographic – changes in the size, age, racial/ethnic diversity, or other characteristics of the population (particularly those who are “vulnerable”)

b. Economic variables – their impact on health

c. Provider community – physicians, hospitals – who is taking care of the poor?

d. Health status/public health indicators (what illnesses/needs/issues are getting worse or better? Why?)

e. Access to care – why?



5. If residents are leaving the community to receive certain services, what services are not accessible locally? Why do residents need to travel for care? Are people entering the county for services? Why/from where? Particular age groups (0 – 17, 18 – 44, 45 – 65, 65+)?

6. Please discuss the kinds of problems that the people served by your agency (by community agencies) have in accessing health care, mental and behavioral health, and/or social services for themselves and/or their families?  
*(Prompt: In answering this question you may wish to consider the following problems – language barriers, transportation, no health insurance, lack of information on available resources, delays in getting needed care, economic constraints, and/or dissatisfaction with treatment.)*

7. What are the community organizations/assets that are or could be working to address these needs?

8. Is there capacity within your organization to serve additional clients? If not, what are the biggest barrier(s) impacting your ability to increase capacity?

9. What role do you see the hospital(s) in your area currently playing to help address the community health issues faced by the low-income people who live here?

What role do you think the hospitals in your area should play?

10. If resources were not a concern, what specific initiative(s) would you recommend to address the most pressing access or health status problems in the community? Why?