



## **Rapid Health Impact Assessment of Elmira Housing**

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## Executive Summary

Substandard housing conditions within impoverished neighborhoods throughout Elmira and select ZIP codes in Chemung County may be contributing to regional health disparities. Over 90 percent of housing in Elmira dates pre-1950 with conditions which may be contributing to elevated rates of premature mortality, environmental health hazards, and chronic disease leading to emergency department utilization.

Common Ground Health produced this Rapid Health Impact Assessment (HIA) to inform community partners in their decision-making and pursuit of transformational projects in an effort to advance health-informed decision making. In addition, this HIA serves to identify the role housing plays as a central social determinant of health for the local population. Health disparities researched within this Rapid HIA include:

- Respiratory diseases, including Chronic Obstructive Pulmonary Disease (COPD) and asthma
- Elevated Blood Lead Levels (EBLL) among children

This report focuses on housing and health impacts for residents of ZIP code 14901 located in Chemung County and includes recommendations which may further assist in addressing the challenges of substandard housing in an effort to improve health outcomes. The recommendations include:

- Strengthen ESPRI partnerships within census tracts 6 and 7 to promote neighborhood hubs to offer screening services to augment community provider and health department efforts in preventive care. ESPRI neighborhood hubs work with Chemung County Department of Health to develop and facilitate an annual self-reported survey to identify households with environmental health hazards potentially impacting residents' health.
- Expand existing public-private partnerships to increase access to quality and affordable housing to accommodate the residential needs of the populations of census tracts 6 and 7.
- Propose that the City of Elmira explore the feasibility of developing new housing policies that proactively identify environmental health hazards based on home inspections and code enforcement violations.
- Establish a healthy homes program beginning in census tracts 6 and 7 and apply for the New York State Healthy Neighborhoods Program.

The recommendations in this Rapid HIA will build upon existing efforts and integrate new solutions which may increase the quality of life for residents, improve housing conditions, improve the availability of stable and affordable housing, contribute to addressing the identified health disparities, and foster improved health outcomes in the City of Elmira and Chemung County.

## Section 1: Introduction

In November 2018, Common Ground Health presented an opportunity to conduct a HIA to members of the Central Southern Tier Health Alliance in an effort to inform one of their priority areas of focus - addressing chronic disease within the non-employed population. The impact of housing on health emerged as a critical issue to address, citing profound levels of poverty and inequities in health-related outcomes specific to neighborhoods within the City of Elmira and ZIP code 14901. Empire State Poverty Reduction Initiative's (ESPRI) recent development of neighborhood hubs working to connect impoverished individuals with a variety of social programs within census tracts 6, 7 and 10 supported the decision for this HIA to focus on the same neighborhoods. In addition, the region has experienced success securing dollars that align with overall community development through Southern Tier Economic Growth (STEG), while coordinating with ESPRI in downtown revitalization initiatives.

### Elmira Housing

#### History

The City of Elmira, founded in 1828, has a longstanding challenge of both poverty and pre-war era (1950 and earlier) substandard housing. These housing conditions are associated with the age of the homes, the effects of poverty, absentee landlords, and historic natural disasters including the Flood of 1972. Research indicates that there are well established connections between housing conditions and health through environmental housing hazards. An opportunity exists to further understand how the historic and aged housing within Elmira may be leading to disparate health outcomes.

Dating back more than a decade, the Chemung County Health Department reports that EBLL in children has been elevated throughout the county. A report highlighting programmatic initiatives to address the challenges of childhood lead poisoning in Chemung County indicated that ZIP code 14901 was an area of primary concern. Initial progress on lowering rates of EBLL in Chemung County and Elmira has occurred, but EBLL remains prevalent in the community (*Korfmacher and George 2009*).



*Figure 1 Example of substandard housing.*

In the fall of 2018, housing and neighborhood revitalization experts at Arbor Housing and Development provided Common Ground Health the opportunity to tour the housing and neighborhood conditions of the ESPRI census tracts within the City of Elmira.

### Partners

Based on recent independent efforts of the Chemung County Health Department, STEG, ESPRI, and Arbor Housing and Development, it is evident that health and housing are segmented areas of concern. In conducting a HIA however, there exists an opportunity to further link and integrate these community partners and overcome siloes that address *either* health or housing. This HIA will convene a multidisciplinary table of experts in health, housing, and economic development, to analyze housing as a social determinant of health and to create a collaborative approach toward overcoming both challenges of health and housing throughout neighborhoods in and around the City of Elmira.

### **Central Southern Tier Alliance**

The Central Southern Tier Health Alliance is a multi-stakeholder strategic planning and oversight group that formed in 2016 to address the complex issues affecting the health and well-being of residents in the Central Southern Tier of the Finger Lakes region (Steuben, Schuyler and Chemung counties). Comprised of over 30 regional leaders, alliance partners include hospital administrators, public health directors, health planners, business, education, and behavioral health and community-based organizations. The alliance focuses

on addressing the complex medical, behavioral and social needs of vulnerable community residents and prioritized reducing inequities in health disparities related to health care access and outcomes.

### **Empire State Poverty Reduction Initiative (ESPRI)**

ESPRI was created in 2016 to address and reduce poverty in sixteen localities across New York State. Elmira was selected as an ESPRI locality, and along with a \$1 million planning and implementation grant, convened residents and stakeholders to identify opportunities and create a plan to meaningfully reduce poverty. ESPRI also focuses on unsafe rental housing conditions, vacant and abandoned housing, re-zoning, aggressive code enforcement, and neighborhood revitalization.

### **City of Elmira**

The City of Elmira's Code Enforcement Department is responsible for issuing violations to properties not in compliance with New York State Property Maintenance Code, City of Elmira Codes of Ordinances and Zoning Ordinance. NYS Property Maintenance Code applies to all structures and provide a minimum standard for safe and sanitary maintenance.

### **Arnot Health**

Arnot Health is a regional health care system for a five-county service area, with hospitals in Chemung and Steuben Counties, including two hospitals located in Elmira, Arnot Ogden Medical Center, founded in 1888, and St. Joseph's Hospital, founded in 1910. In addition to diagnostic, ambulatory, acute care, Arnot Health provides substance abuse, psychiatric and wellness services to the community.

### **Chemung County Health Department**

The Chemung County Health Department serves the residents of Chemung County by preventing disease and premature death and promoting good health. The county health department staff are responsible for sanitary surveillance, public health promotion, and disease surveillance and prevention efforts. The department's Environmental Health Section conducts environmental site evaluations at homes occupied by children with EBLL.

### **Arbor Housing and Development**

Founded in 1969 during the War on Poverty, Arbor Housing and Development is a non-profit corporation with the stated mission to enhance the quality of life in communities of the Southern Tier by building independence and creating housing options. A HUD Certified Housing Counseling Organization, Arbor provides behavioral health and domestic violence services to individuals and families to assist in housing security and safety. Arbor also develops, rehabilitates and manages quality affordable rental sites.

## **Southern Tier Economic Growth**

STEG serves as the local economic development agency. By connecting private business people with elected officials, education and community leaders, STEG fosters prosperity and vitality in Chemung County through planning, promotion and implementation of economic development programs.

## **Elmira Housing Rapid HIA Methodology**

### **What is a Rapid Health Impact Assessment?**

As defined by the National Research Council, "HIA is a systematic process that uses an array of data sources and analytic methods and considers input from stakeholders to determine the potential effects of a proposed policy, plan, program, or project on the health of a population and the distribution of those effects within the population. HIA provides recommendations on monitoring and managing those effects." (National Research Council of the National Academies 2017)

A Rapid Health Impact Assessment is an abbreviated form of HIA that uses limited primary research and stakeholder engagement. A Rapid HIA often utilizes a singular in-person stakeholder meeting or workshop to obtain feedback on the screening and scoping of the HIA with follow-up engagement conducted remotely. We utilized this approach and format for the Elmira Rapid HIA based on our project scope and timeline (Design for Health 2011) (American Planning Association 2016).

According to the Health Impact Project, there are more than 420 completed or currently in-progress HIAs across the U.S. Addressing local, county, state and federal projects, HIAs evaluate a vast variety of topics impacting transportation, land use, physical activity and more. (The PEW Charitable Trusts 2015) In New York State, we are aware of six completed HIAs, two of which have been published to the Health Impact Project website, including one studying access to waterways in Rochester, N.Y.

A HIA's six steps are illustrated and summarized below. They also appear in this report as a section-by-section guide to illustrate how each step was applied to the Elmira Housing Rapid HIA:



Figure 2 - Diagram courtesy of Kansas Health Institute and PEW Charitable Trusts.

- **Screening** - Determine whether an HIA is needed and likely to be useful.
- **Scoping** - In consultation with stakeholders, develop a plan for the HIA, including the identification of potential health risks and benefits.
- **Assessment** - Describe the baseline health of affected communities and assess the potential impacts of the decision.
- **Recommendations** - Develop practical solutions that can be implemented within the political, economic or technical limitations of the project or policy being assessed.
- **Reporting** - Disseminate the findings to decision makers, affected communities and other stakeholders.
- **Monitoring and Evaluation** - Monitor the changes in health or risk factors and evaluate the efficacy of measures that are implemented and the HIA process as a whole (PEW Charitable Trusts 2014).



## HIA Project Team

The HIA Project Team consisted of five Common Ground Health staff members:

**Benjamin Woelk** – Health and Community Infrastructure Analyst

**Amie Kulak** – Director of Analytics

**Melissa Wendland** – Director of Strategic Initiatives

**Melissa Pennise** – Associate Director of Strategic Initiatives

**Jeffrey Freeman** - Senior Health Planning Research Analyst

## Steering Committee

A Steering Committee was established with experts from Chemung County and the City of Elmira to assist in the guidance and oversight of this HIA. Members included representatives from public health, higher education, poverty impact specialists, economic and community development experts, municipal code enforcement and health.

**Jeffrey Eaton** - *CEO, Arbor Housing and Development*

**Robert Lambert, MD** – *Former CEO, Arnot Ogden Hospital*

**Peter Buzzetti** – *Public Health Director, Chemung County Health Department*

**Brian Hart** – *Acting Commissioner, Chemung County Department of Human Services*

**Tom Skebey** – *Director of Code Enforcement, City of Elmira*

**Andrea Ogunwumi** - *Co-chair, Empire State Poverty Reduction Initiative (ESPRI)*

**Don Keddell** – *Co-chair, Empire State Poverty Reduction Initiative (ESPRI)*

**Jessica Renner** – *Regional President – Southern Tier, Excellus BCBS*

**Carl Hayden** - *Chancellor Emeritus, New York State Board of Regents*

**Mike Krusen** - *President, Southern Tier Economic Growth (STEG)*

## Screening

The purpose of screening is to determine the HIA's value and feasibility in a particular decision-making context. Screening starts with the identification of a specific decision or proposal. (Bahtia 2011). An initial project list was vetted across departments at Common Ground Health using a six-step Screening Exercise, outlined in Appendix A, to determine which project may have the highest need for assessment and to demonstrate viability.

## Scoping

The HIA focuses on Chemung County, ZIP code 14901, and census tracts 6 and 7 located in the city of Elmira. ZIP code 14901 was prioritized based on its alignment with a portion of the ESPRI target neighborhoods, including census tract 6 & 7 which both fall within ZIP code 14901. Target areas have been identified as highly impoverished that are currently facing challenges that include both substandard housing and health disparities. Recommendations in this report prioritize the most localized levels of intervention at a census tract level.

In an effort to obtain stakeholder feedback on a range of social determinants of health, a detailed Scoping exercise, outlined in Appendix B, was conducted with the Steering Committee. A meeting with the Steering Committee was held and initially led to

identification of three prioritized health outcomes, including mental health.

Ultimately, the following health outcomes were prioritized to assess disparities due to housing conditions:

- Respiratory Disease (Asthma, COPD)
- Elevated Blood Lead Levels (EBLL)

## Demographics of Target Area

### Chemung County

There are 88,681 residents living in Chemung County, 87 percent of whom are white non-Hispanic. Black non-Hispanic accounts for 6 percent of the county population while Hispanics account for 3 percent. 15,000 residents or 18.2 percent of Chemung County's population live below the federal poverty level. The total population by age group is provided in the following table:

<b>Population By Age Group</b>	<b>Percent of Population (%)</b>
0-17	22
18-44	33
45-64	29
65+	16

*Source: U.S. Census Bureau, 2010-2014 American Community Survey 5-year Estimates*

### City of Elmira

The City of Elmira has an annual estimated population of 28,300 (U.S. Census Bureau American Community Survey 5-Year Estimates 2013-2017). This population includes a total of 12,000 households with annual median household income of \$32,646. Thirty one percent of residents have incomes below the Federal Poverty Level. The City of Elmira population consists of 77 percent white non-Hispanic, 15 percent black non-Hispanic, and 5 percent Hispanic. Population shifts from 2000 to 2013 include an increase in black non-Hispanic and Hispanic populations by 2 percent and 25 percent, respectively, with a corresponding decrease in white non-Hispanic of 11 percent from 2000-2013 (U.S. Census Bureau American Community Survey 5-Year Estimates 2013-2017). Census tract 6 represents the highest population density within the City of Elmira, while Census tract 7 has experienced the highest population growth since 2000 (Payne, Norman and Wagoner 2017).

The table below indicates the total population distribution by age of the resident for specific census tracts:

Resident Age	Census Tract 6	% of Tract 6	Census Tract 7	% of Tract 7
Total	3,767	NA	2,527	NA
Under 5 years	277	7.3 %	303	11.9 %
5 to 19 years	1,130	29.9 %	247	9.7 %
20 to 64 years	2,097	55.6%	1,427	56.4 %
65 and up	263	6.9 %	560	22.1 %

Source: U.S. Census Bureau, 2013-2017 American Community Survey 5-Year Estimates

### ZIP code 14901

ZIP Code 14901 has a population of 16,038. That population comprises 6,220 households with a median household income of \$29,022. Thirty six percent of individuals living in 14901 are impoverished. (U.S. Census Bureau American Community Survey 5-Year Estimates 2013-2017) The U.S. Census Bureau uses a set of income thresholds that vary by family size and composition to determine who is in poverty. If a family's total income is less than the corresponding threshold, then that family and every individual in it is considered in poverty. (U.S. Census Bureau 2018)

### Families in Poverty

Census tracts 6 and 7 have a disproportionate concentration of poverty as compared to the city of Elmira. The table below indicates percentage of families in poverty with a further assessment of penetration of poverty for those families with children (% of families in poverty for those with children under 18 and children under 5):

	Census Tract 6 (%)	Census Tract 7 (%)	City of Elmira (%)
All families	37.9	54	27.4
With related children under 18	58.5	77.4	40.6
With related children under 5	72.4	90.5	48.2
All people	45.3	51.6	30.4
Under 18 years	65.7	80.6	43
Percentage of residents receiving SNAP (Food Stamp Benefits)	42	60.6	N/A

Source: U.S. Census Bureau, 2010-2014 American Community Survey 5-year Estimates

As of 2019, both Census Tract 6 and 7 are classified as Low-Income Housing Tax Credit Qualified Census Tracts (QCT) by the U.S. Housing and Urban Development (HUD). In order to be a qualified census tract, the tract must have 50 percent of households with incomes below 60 percent of the Area Median Gross Income (AMGI) or have a poverty rate of 25 percent or more. The table below indicates the Median Household Income of the most recently available census data and identifies the average rates of poverty within Census Tract 6 and 7:

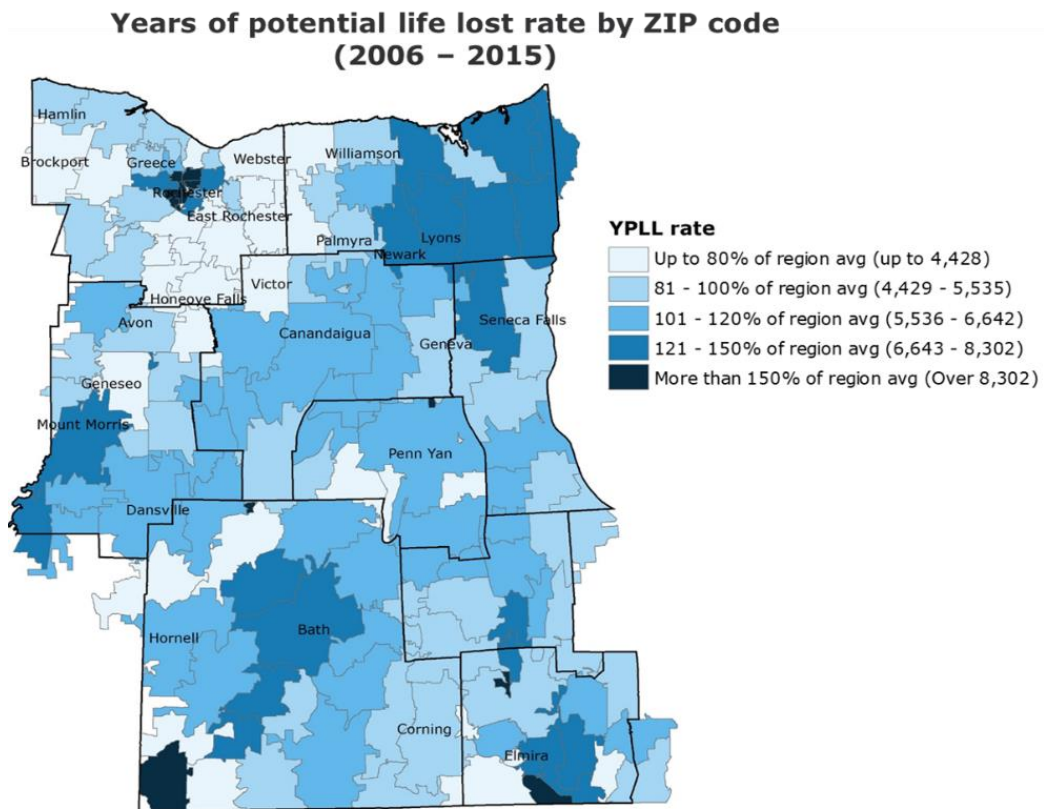
Census Tract	Median Household Income	Average Rate of Poverty
<b>6</b>	\$24,500	45.1%
<b>7</b>	\$13,909	47.4%

*Source: U.S. Census Bureau, 2013-2017 American Community Survey 5-Year Estimates*

*Source: U.S. Department of Housing and Urban Development, 2019 Qualified Census Tracts (QCT)*

## Years of Potential Life Lost

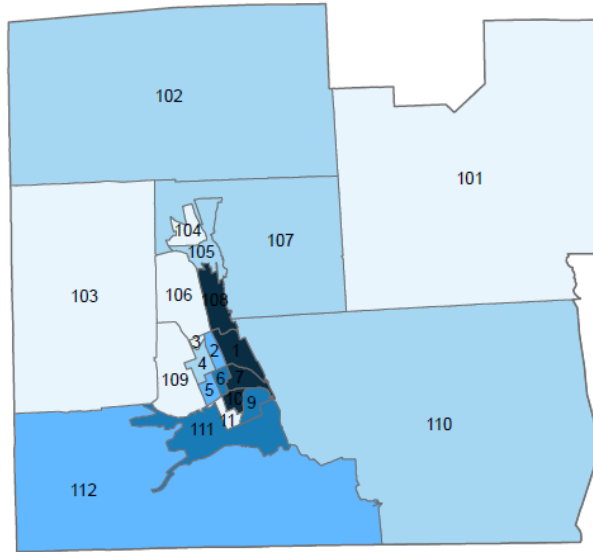
Years of Potential Life Lost or YPLL is a common measure of premature mortality to broadly understand population health. YPLL is the average number of years lost when individuals die before the age of 75. We investigated premature mortality by calculating rates of years of potential life lost (YPLL) (per 100,000) by ZIP code for the nine-county Finger Lakes region. The YPLL rate for the Southern Tier region falls at 101-120 percent of the regional average. Several ZIP codes in Chemung County, including 14901 (8,164 YPLL/100k) had YPLL rates that exceeded the Finger Lakes regional average by 121-150 percent. The below map further illustrates our findings:








Source: NYSDOH 2016 Vital Stats; Analysis by Common Ground Health

We also examined YPLL rates by census tract for the City of Elmira. Census tract 7 had the highest rate of YPLL within both Chemung County and the City of Elmira with 13,694 years of potential life lost per 100,000. The map below further illustrates our findings:

**Years of Potential Life Lost (YPLL)  
by Census Tract, 2012-2016  
Chemung County**



**YPLL rate per 100,000**

-  less than 4,428
-  4,429-5,535
-  5,536-6,642
-  6,643-8,302
-  greater than 8,302

Source: NYSDOH 2016 Vital Stats; Analysis by Common Ground Health

## Section 2: Respiratory Disease

### 2.1 Respiratory Disease and Housing Literature Review

A variety of substandard housing issues that include water leaks, poor ventilation, and dirty carpets can lead to an increase in mold, mites and other allergens associated with poor respiratory health (Robert Wood Johnson Foundation 2011). Research indicates that damp houses provide a nurturing environment for mites, respiratory viruses, and molds, all of which play a role in the development of respiratory disease (Bierman 1996) (Billings and Howard 1998) (Verhoeff, et al. 1995) (Karim, et al. 1985) (Institute of Medicine (US) Committee on the Assessment of Asthma and Indoor Air 2000) (Oie, et al. 1999) (Eggleston and Arruda 2001). Epidemiological studies also link substandard housing with an increased risk of chronic disease. Mold, damp or cold housing has been identified as leading to asthma and other chronic respiratory symptoms, even after accounting for other factors including income, social class, smoking, crowding, and unemployment. (Bornehag, et al. 2001) (Peat, Dickerson and J 1998) (Hyndman 1998) (Robinson and P 1992) (Strachan 1993) (Marsh, Gordon and Pantazis C 1999) (Platt, Martin, et al., Damp housing mold growth and symptomatic health state. 1989) (Dales, et al. 1991) (Brunekreef, et al. 1989) (IJ, et al. 1997) (Platt, Martin, et al. 1989) (University of Rochester Medical Center 2019).

#### Asthma and Housing

In a summary of health statistics of children across America, indoor allergens were identified as a critical factor in the onset and exacerbation of chronic respiratory illness which includes asthma. According to the Centers for Disease Control (CDC) asthma is the most prevalent chronic disease, affecting 6 million children and nearly 20 million adults nationwide (Bloom and Cohen 2007) (Lanphear, Aligne and Auinger, Residential Exposures Associated with Asthma in U.S. Children 2001) (Center for Disease Control 2018) (Zahran, et al. 2001-2016). Childhood poverty and substandard housing environments are also linked to exposure to poor air quality and allergens associated with children's respiratory problems, notably asthma (G. Evans 2004).

According to research, one of the other factors that continues to link housing and health is asthma morbidity (Mannino, et al. 1998) (Gergen and Weiss 1992). The American Lung Association and CDC reported that from 1999-2009 asthma mortality rates fell by 26 percent in the United States from 4,657 deaths in 1999 to 3,388 deaths in 2009 (Center for Disease Control and Prevention, National Center for Health Statistics. 2012). However, since that time mortality rates have remained stable and are slightly elevated, with the most recent data from 2016 indicating that 3,518 deaths occurred prematurely due to asthma (Center for Disease Control and Prevention 2017). One study suggests that disparities in asthma morbidity and mortality may be attributable, in part, to disproportionate exposure to indoor environmental asthma triggers associated with living in substandard housing (Huss, et al. 1994) (Kane, et al. 1999). Mortality due to asthma has declined substantially in most high-income areas across the world however, the United States is an exception to this trend and has seen no significant reduction of asthma mortality in the last decade, especially among asthma patients with low-income (Global Initiative for Asthma 2014)

(Braman 2006) (Masoli, et al. 2004) (Burney, Jarvis and Perez-Padilla 2015) (Akdis and Agache 2014).

In one environmental health study, customized household interventions, combined with the elimination of moisture intrusion, leaks, and removal of mold were identified as reducing asthma morbidity (Breysse, et al. 2004). Some studies have reported that up to 40 percent of all diagnosed asthma among children could be attributed to residential exposures (Lanphear, Kahn, et al. 2001) (Russo, Jiang and Barrett 2007). Residential exposures linked to respiratory illness include tobacco smoke, pollutants from heating and cooking with gas (nitrogen dioxide), volatile organic compounds, and asbestos (Phelan, et al. 2005). Another study indicated that households in substandard condition had 50 percent higher odds of an asthma-related Emergency Department visit in the past year, even after adjusting for housing quality and the presence of housing-related exposures known to be associated with asthma. Compared to renters, homeowners had nearly 40 percent lower odds of an Emergency Department visit (Krieger, et al. 2010).

Multiple studies have identified evidence-based interventions for improving asthma outcomes by bettering housing quality (Krieger, et al. 2010). In the most recent American Housing Survey conducted by the U.S. Census in 2017 it was indicated that the emergence of asthma as a major public health issue has led to renewed interest in improving indoor environmental quality. Health departments and municipalities from cities across the United States including Boston, Cambridge, Cleveland, Detroit, New York, Philadelphia, San Diego and San Francisco have developed "Healthy Homes" initiatives as a response. The purpose of these programs is to educate households about the resources available to improve the quality and safety in their homes (Krieger and Higgins 2002).

One example of a Healthy Homes project in the United States is the Seattle King County Healthy Homes Project (SKCHHP). Developed through a partnership of public and private agencies, this program aims to improve asthma-related health status by reducing exposure to allergens and irritants in low-income households of families with asthmatic children. This program includes home visiting by community home environmental specialists over a 12-month period. Using a home environmental checklist, the specialists assess household exposures, knowledge, and actions related to indoor asthma triggers and indoor chemical hazards, and provides a specific home environmental action plan for each household. Five additional home visits by the community home environmental specialist provide additional education and social support to the affected household. The program encourages changes in habits and also assists in repairing minor structural deficiencies. It also assists tenants in working with their landlords for household improvements or if necessary, helps tenants move out of unstable housing situations. The project's scope expanded to include injury hazards, and "Healthy Homes" projects in areas with higher prevalence of lead exposure to assist with lead assessment and abatement (Krieger, et al. 2000) (Krieger, et al. 2002).

There are programs offered throughout the Finger Lakes region that are modeled after these programs including the Rochester Healthy Homes Partnership. This initiative, facilitated by the University of Rochester Environmental Health Sciences Center Community Outreach and Engagement Core, supports local efforts to reduce home environmental health



hazards throughout the Rochester community, particularly for children and low-income residents of the City of Rochester. This program supports healthy homes outreach through a series of monthly meetings that have been held since 2009 (University of Rochester Medical Center 2019).

Statewide, the New York State Department of Health runs a "Healthy Neighborhood Program." According to the program's website, the New York State Healthy Neighborhoods Program (HNP), "seeks to reduce the burden of housing related illness and injury through a holistic, healthy homes approach." The program is similar to the aforementioned examples and also offers in-home assessments and interventions for asthma, indoor air quality, and lead among screening for other environmental health hazards. The HNP targets housing in high-risk areas that are identified using housing, health, and socioeconomic indicators from census and surveillance data. Currently, the program is offered in 19 counties across NYS including Monroe County, but the program is not currently operating in Chemung County or within the Southern Tier (New York State Department of Health 2018).

Some programs have sought to identify potential health disparities through identification of substandard housing or structural deficiencies by cataloging and categorizing code enforcement data of potential home and health related deficiencies. In California, legislators enabled code enforcement officials to treat visible mold as evidence of substandard housing. A guideline of code enforcement for water leakage/dampness was established with more than 10 types of dampness and water leakage codes ascribed as being related to impacting health. Some examples of those codes included: dampness of habitable rooms, visible mold growth, faulty weather protection, lack of proper ventilation, and plumbing problems (California Department of Health 2017).

### COPD and Housing

Chronic Obstructive Pulmonary Disease (COPD) is a progressive inflammatory disease with high morbidity and mortality that contributes to large economic and social burdens throughout the world (Mathers and Loncar 2006) (Lopez, et al. 2006). According to studies and a recent report from the World Health Organization, COPD is the third leading cause of death globally (Loddenkemper 2003) (Guarascio, et al. 2013) (World Health Organization 2018). COPD's highest prevalence is found in adults over 40 years of age around 10 percent of the global population of COPD diagnoses (Halbert, et al. 2006).

In the United States, 16 million people are currently diagnosed with COPD which is the fourth leading cause of death in the nation. The CDC indicates that millions more have the disease who have not yet been diagnosed or treated (Center for Disease Control and Prevention 2018). According to the National Heart, Lung, and Blood Institute (NHLBI), COPD onset happens gradually and over time can make it difficult to breathe which begins to interfere with routine tasks. The disease is not contagious but has no cure, and damage caused by COPD to the lungs from the disease is irreparable. NHLBI reports that the first step to slow the progression of the disease and manage its symptoms is to avoid exposure to lung irritants (National Heart, Lung, and Blood Institute 2019). One study indicated that COPD had the potential to impact daily living with more adverse impacts than of those who have lung cancer. Gore et al found that when compared to patients with advanced lung cancer, "patients with COPD were found to have significantly worse physical, social, and emotional functioning than patients diagnosed with lung cancer." The link of COPD and mental health has also been established, with patients with COPD "more likely to be

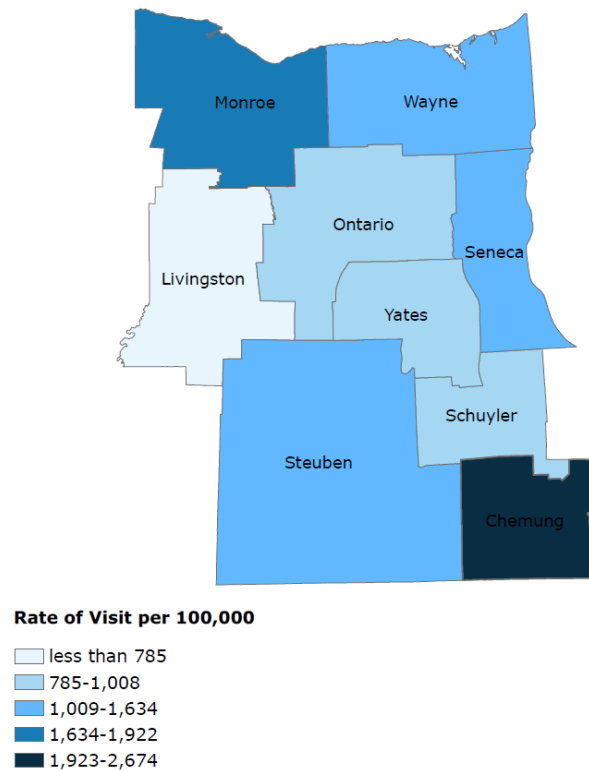
suffering from clinical depression and anxiety (90%), when compared to the lung cancer patients (52%)” (Gore, Brophy and Greenstone 2000). Smoking is the main risk factor for onset of COPD, but biomass fuel (wood-burning), air quality, and population aging also play a factor in the onset and progression of the disease (Regalado, et al. 2006) (Jaganath, et al. 2015) (MacNee, Rabinovich and Choudhury 2014).

Studies also indicate that as many as 25 percent of people with COPD have never smoked. Long-term exposure to other lung irritants including chemical fumes or dusts contribute to COPD. A rare genetic condition called alpha-1 antitrypsin (AAT) deficiency can also cause the disease. (National Heart, Lung, and Blood Institute 2019) (Antuni et al. identifies that additional factors that may play a role in the onset of COPD include gender, socioeconomic status, and disadvantageous factors in childhood (Antuni and Barnes 2016). In a recent study of housing and respiratory illness, housing was associated with COPD and other respiratory disease based in part on issues of quality of insulation and the effects on indoor air quality (Gan, et al. 2017). Cold air conditions are also known to exacerbate COPD symptoms in both indoor and outdoor conditions. In one study of living rooms in households, it was found that, “independent of age, lung function, smoking and outdoor temperatures, poorer respiratory health status was significantly associated with fewer days of warmth at 69 degrees Fahrenheit in the Living Room.” The study determined that maintaining a minimum temperature of 69 degrees Fahrenheit in occupied living areas for at least 9 hours per day was associated with better health status for COPD patients. Maintaining this level of warmth in their homes during the cold months was associated with a reduction in COPD symptoms. Those patients in the study who had fewer days of 69 degrees Fahrenheit for at least 9 hours a day, had significantly worse respiratory symptom ratings and outcomes (Osman, et al. 2008).

Several studies also point to socioeconomic status (SES) and level of education obtained as particularly important indicators in the onset and increased mortality from COPD. The report indicates that SES is the second most important risk factor for COPD after smoking (Gershon, et al. 2012) (Prescott and Vestbo 1999). While Eisner et al confirms that SES “affects the social environment on COPD development, diagnosis and outcome” (Eisner, et al. 2011).

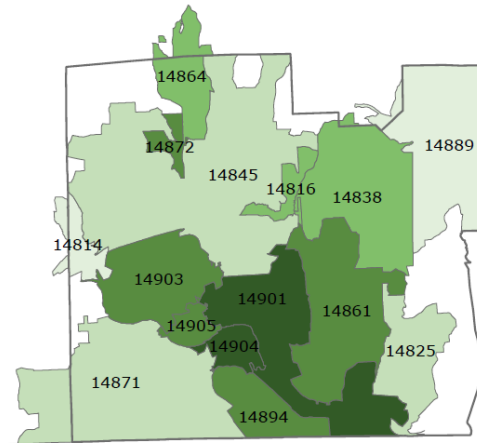
## 2.2 Respiratory Disease and Elmira

Using data from the Statewide Planning and Research Cooperative System (SPARCS), we examined asthma-related emergency department (ED) outpatient visits in 2012-2016 coded with the International Classification of Diseases 10<sup>th</sup> Revision (ICD-10) code J45 for the nine county Finger Lakes region. The highest ED asthma rates per 100,000 population were found in Chemung County, with rates of 1,923-2,674 per 100,000. The map below further illustrates our regional findings:



Source: SPARCS 2012-2016 Outpatient; Analysis by Common Ground Health

Within Chemung, 14901 had the highest rates of ED visits with 2,673 - 5,403 per 100k, only neighboring ZIP code 14904 had similar rates. The map below details our findings:

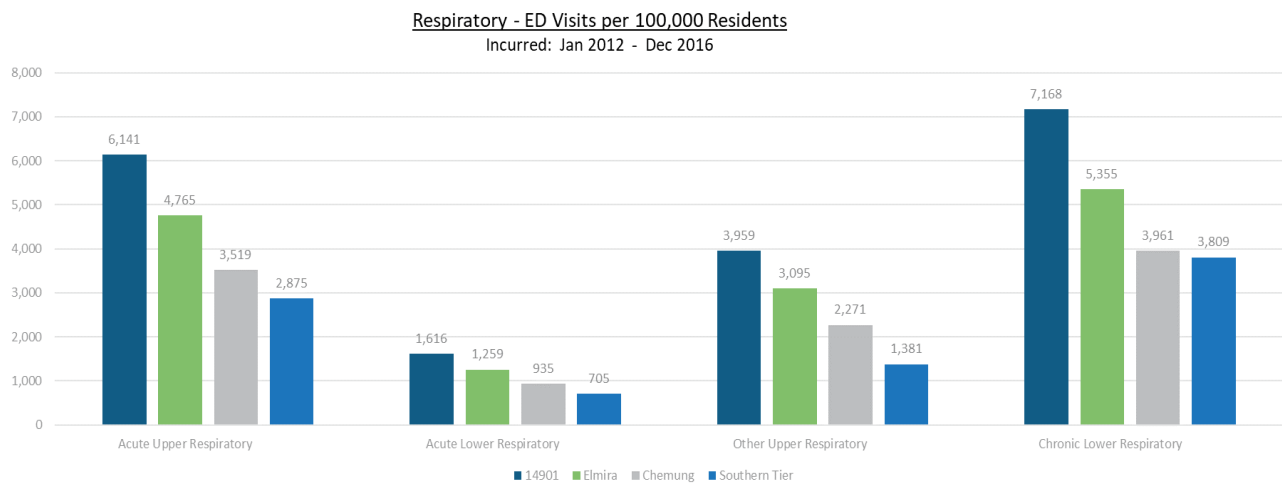


**Rate of Visit per 100,000**

- 382-601
- 602-1,196
- 1,197-1,527
- 1,528-2,672
- 2,673-5,403

Source: SPARCS 2012-2016 Outpatient; Analysis by Common Ground Health

When examining all ICD-10 codes related to diseases of the respiratory system, ZIP code 14901 had the highest rates of respiratory-related ED utilization. The following bar chart details those findings:



Source: SPARCS 2012-2016 Outpatient; Analysis by Common Ground Health

## COPD and Premature Mortality

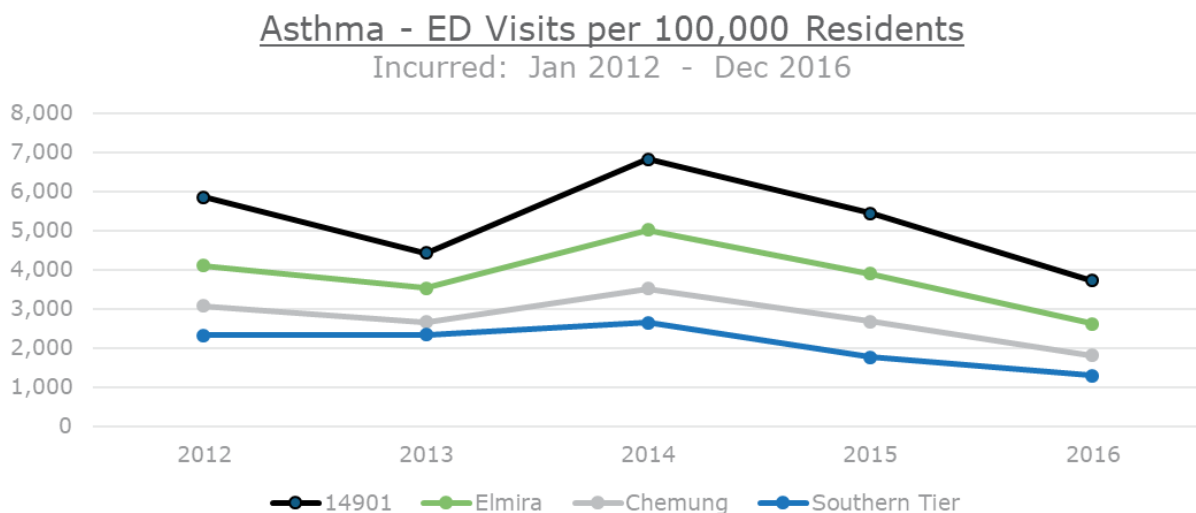
New York State Department of Health (NYSDOH) collects and reports on COPD as cause of death through the Vital Statistics Program. COPD's highest prevalence is found in adults over 40 years old. Rates for COPD YPLL per 100k among those 45 and over in 2016, indicate that Census Tract 7 is more than double that of Chemung County and the Southern Tier (Chemung, Schuyler and Steuben). The below table further clarifies the data:

<u>COPD YPLL over age 45</u>	<u>Avg. Population</u>	<u># COPD Deaths</u>	<u>COPD Deaths/100k</u>	<u>COPD YPLL/100k</u>
<b>Census Tract 6 &amp; 7</b>	2,031	32	315	1,260
<b>ZIP Code 14901</b>	6,107	62	203	825
<b>Chemung County</b>	39,674	425	214	693
<b>Southern Tier</b>	94,664	891	188	641

Source: Source: NYSDOH 2016 Vital Stats; Analysis by Common Ground Health

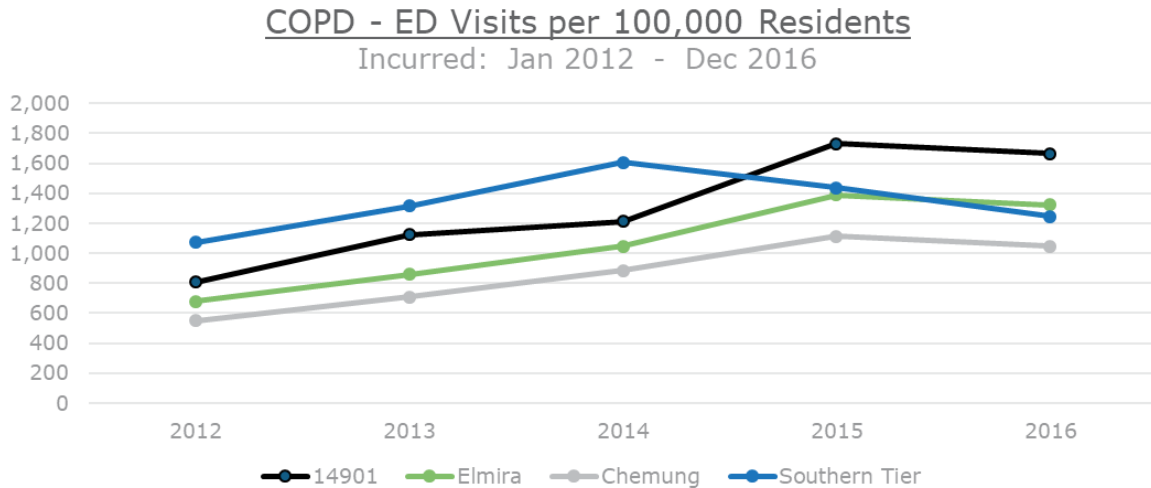
## Summary of Asthma and COPD ED Visits

Between 2012 and 2016, rates of ED visits for asthma were consistently higher in ZIP code 14901 compared to Elmira, Chemung County, and the three Southern Tier counties combined. The below graph further illustrates our findings:



Source: SPARCS 2012-2016 Outpatient; Analysis by Common Ground Health

Rates of COPD ED visits for residents of ZIP code 14901 increased between 2014 and 2015, surpassing the rates for Elmira, Chemung County and the Southern Tier. COPD ED visit rates for the three counties combined have decreased between 2014 and 2016:



Source: SPARCS 2012-2016 Outpatient; Analysis by Common Ground Health

#### Number of Asthma ED Visits in ZIP Code 14901

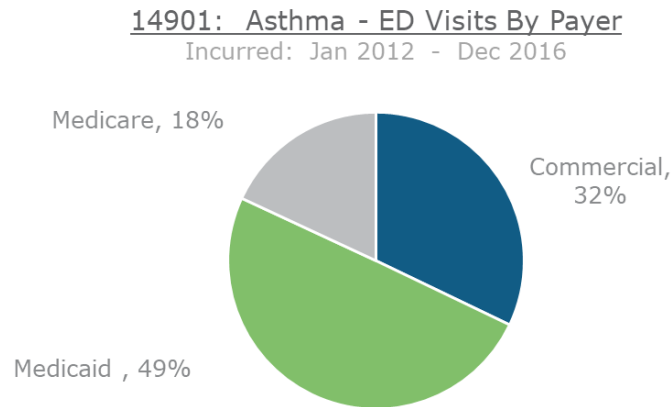
The below table indicates the number of Asthma ED visits/100k between 2012-2016 in zip code 14901 when compared to visits per 100k in the 9 county Finger Lakes region (Chemung, Livingston, Monroe, Ontario, Schuyler, Seneca, Steuben, Wayne, Yates.) The rates of Asthma ED visits/100k in 14901 are elevated above the region in both those aged 17 and under and those ages 18 and over. The below table further indicates those findings:

	# of ED Visits	Avg. Population	14901 Visits/100k	Finger Lakes Region Visits/100k
Ages 17 and under	666	17,223	<b>3,867</b>	<b>1,796</b>
Ages 18 and over	3,684	63,287	<b>5,821</b>	<b>1,724</b>

Source: SPARCS 2012-2016 Outpatient; Analysis by Common Ground Health

### 14901 Profile of Asthma ED Utilization by Payer and Facility

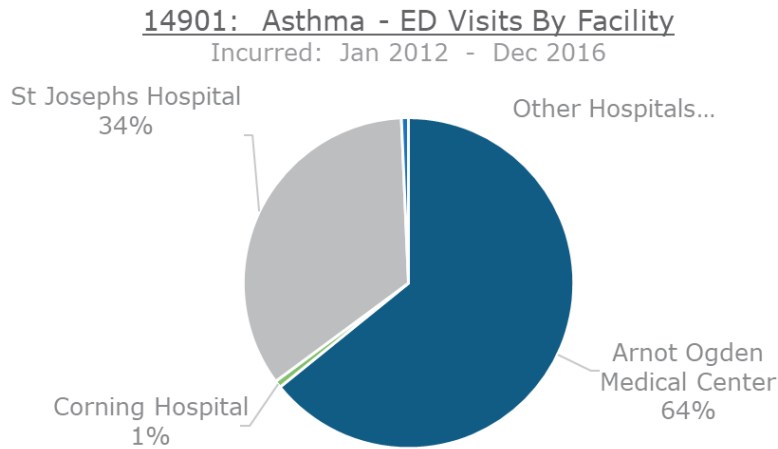
Because the rates of asthma ED visits per 100k from 2012-2016 for ZIP Code 14901 were nearly double that of the Southern Tier, this HIA sought to examine asthma ED visits by payer and facility for patients from 14901. Three facilities within close proximity of Elmira (within 15 miles) and within the boundaries of New York State were analyzed. The following chart indicates ED Visits by Payer for Asthma from those residing in 14901:



*Source: SPARCS 2012-2016 Outpatient; Analysis by Common Ground Health*

The above chart indicates that Medicaid covers half (49%) of the asthma ED visits for residents in ZIP code 14901. This aligns with the literature that vulnerable and low-income populations are disproportionately affected by asthma.

Our data indicates that the majority of asthma ED visits for patients from 14901 occur at Arnot Ogden Medical Center (64 percent) which is also located adjacent to ZIP code 14901, in ZIP code 14905. Thirty four percent of asthma ED visits were at St. Joseph’s Hospital (34 percent), located in ZIP code 14901:



Source: SPARCS 2012-2016 Outpatient; Analysis by Common Ground Health

**2018 Asthma and COPD ED Visits by ED Patient ZIP Code**

The most recent available data of Patient ED Visits was obtained from community partners at St. Joseph’s Hospital and Arnot Ogden Medical Center, both located in the City of Elmira. Their data provides the most recent look at hospitalizations for respiratory illness. Based on the reported patient ZIP codes, 14901 has the most asthma (111) and COPD (56) ED visits throughout Elmira. The table below further indicates these findings:

<b>Arnot Ogden Medical Center &amp; St. Joseph’s Hospital</b>					
<b>2018 ED Visits by patient zip code:</b>					
	<u>14901</u>	<u>14902</u>	<u>14903</u>	<u>14904</u>	<u>14905</u>
Asthma	111	90	94	97	15
COPD	56	34	41	41	18

Note: Diagnosis codes include ICD-10 J44 (COPD) and J45 (Asthma).

Source: Arnot Ogden Medical Center/St. Joseph’s Hospital 2018 SPARCS Outpatient; Analysis by Common Ground Health

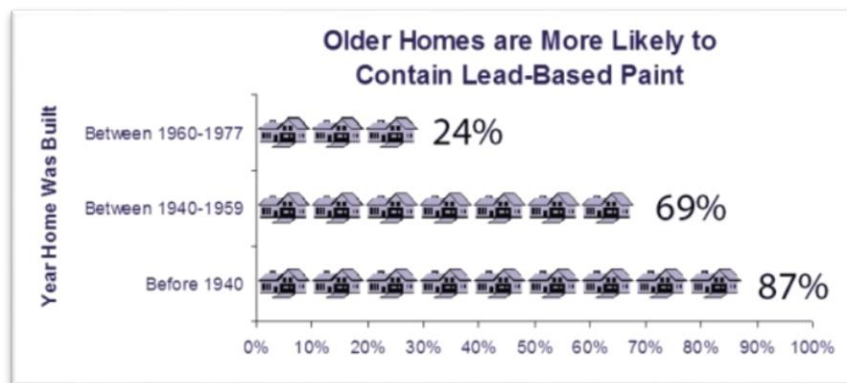


## Section 3: Lead

### 3.1 Lead and Housing Literature Review

A significant housing-related health disparity is driven by household exposure to lead. Lead is a highly toxic metal which causes a range of health problems, especially in young children. When lead is absorbed into the body, it can cause damage to the brain and other vital organs, including the kidneys, nervous system, and circulatory system. Lead may also cause behavioral problems, learning disabilities, seizures and in extreme cases, death (U.S. Department of Housing and Urban Development 2019). Research indicates that there is a clearly established relationship between lead exposure from lead-based paint and neurodevelopmental abnormalities (Rosen 1995) (Needleman, et al. 1990). Lead exposure may also lead to hypertension (abnormally high blood pressure) (Schwartz 1988). Throughout the history of public health involvement in housing, the identification of lead-based paint as a health hazard is considered to be a significant chapter according to Markowitz et al. It was as early as 1914 that lead exposure health disparities were recognized in medical literature. Soon after, strong evidence emerged that lead harmed and poisoned those exposed to it, and that lead was especially harmful to vulnerable populations like young children (Markowitz and D 2000) (Fee 1990).

Lead-based paint was banned for use in housing in 1978. Today, most lead exposures occur in homes built before 1978 that often contain lead-based paint and lead in the plumbing systems. Deteriorating paint in older homes is the primary source of lead exposure for children, who may ingest paint chips and inhale lead-contaminated dust (Robert Wood Johnson Foundation 2011). The Environmental Protection Agency (EPA) reports that the highest amount of lead is found in homes built before 1940 (United States Environmental Protection Agency 2019). The below graphic created by the EPA identifies how the likelihood of lead increases based on the age of housing infrastructure:



Source: United States Environmental Protection Agency, 2019

As of 2000, 47.8 percent of all households in Chemung County were constructed prior to 1950, when compared to the New York State average (excluding New York City) of 36.6 percent (New York Department of Health 2019). The ESPRI Community Needs assessment noted that the City of Elmira's housing stock is largely (almost two-thirds) of the pre-war (1950) vintage; with that brings both interesting architecture and the challenges of maintaining older housing stock (Payne, Norman and Wagoner 2017). According to NYSDOH 2000 data, 23.2 percent of children of 5 years of age are living in poverty in Chemung County, compared to the New York State average (excluding NYC) of 14.6 percent (New York Department of Health 2019).

The CDC reports that more than 4 million households have children living in them who are being exposed to high levels of lead. Approximately half a million children in the United States between the ages of 1-5 years old have EBL. The CDC recently updated the acceptable reference blood lead level from above 10 micrograms per deciliter to a far more stringent reference level of 5 micrograms per deciliter. At 5 micrograms or above, CDC now recommends public health interventions should be initiated (Center for Disease Control and Prevention 2018). This new threshold is based on the U.S. population of children ages 1-5 years who are in the highest 2.5 percent of children when tested for lead in their blood (Center for Disease Control 2017). As of March 2019, the New York State Legislature has also followed after the CDC's model, and initially passed a bill in the NYS assembly that would lower the acceptable EBL reference level from 10 to 5 micrograms per deciliter. The NYS Senate Finance Committee is considering the bill and also appropriates an additional \$1 million for municipalities for costs related to inspections and remediation. (New York Association of County Health Officials 2019) The New York State Association of County Health Officials (NYSACHO) has requested additional funding, to effectively implement the BLL reduction proposal based on the new more stringent EBL potential to, "significantly increase underfunded demands on local health departments" (NYSACHO 2019).

A recently released report in the journal of the American Academy of Pediatrics (AAP) questions the CDC's total number of EBL cases in children, citing only 64 percent of reported EBL cases across the country. The authors argue that CDC's estimated 607,000 cases comprised half of AAP's total identified EBL cases. The AAP report estimates that there may be as many as 1.2 million children living with EBL above 10 micrograms per deciliter based on reported levels in the United States from 1999-2010 (Roberts, et al. 2017). It is important to note that lead toxicity effects are irreversible and that exposure affects the brain and neurodevelopmental processes. One study identified that 17 percent of low-income children living in the United States had blood lead levels greater than 10 micrograms per deciliters. The CDC also indicates that children at greatest risk of lead exposure are those who live in older housing and those who live in poverty, with African-Americans and Mexican-Americans disproportionately affected by lead poisoning (Center for Disease Control and Prevention 2011). An inverse relationship between blood lead concentration and arithmetic and reading scores was observed for children, even with blood lead concentrations under 5 micrograms per deciliter (Lanphear, et al. 2000).

A report on the environments of childhood poverty states that the linkages of lead exposure and children living in poverty and substandard housing conditions has been established (G. Evans 2004). Evans et al, also conducted a separate study of substandard housing in five rural counties in New York State (the counties were not identified by the study) and concluded that, "the steps needed to prevent childhood exposures to neurotoxicants are founded in core public health practice." The authors suggest that these public health practices include, "determining the sources of exposure, defining unacceptable levels of

exposure, and developing and testing interventions through implementing effective policies and screening programs” (Evans, Saltzman and Cooperman, Housing quality and children's socioemotional health 2001). According to the United States Department of HUD) Healthy Homes program, childhood lead exposure occurs from children putting their hands or other lead-contaminated objects into their mouths or consuming paint chips found in homes with peeling or flaking lead-based paint. The program recommends having children tested at early ages of 1 or 2 years old especially if they live in a pre-1978 home or visit one often (U.S. Department of Housing and Urban Development 2019). It is important to note that lead can also affect adults as well. As with children, lead exposure occurs in adults when lead dust or fumes are inhaled, or when lead is unintentionally consumed or absorbed by the body. According to the New York State Department of Health, more than 90 percent of lead in the body is accumulated and absorbed into the bones, where it stays permanently. Once lead reaches the bones it may be released into the blood and continue to re-expose vital organ systems long after the initial exposure (New York State Department of Health 2009).

Recent government programs have aimed to control and reduce lead exposure. In 1992 Congress enacted the Residential Lead-Based Paint Hazard Reduction Act with the goal of eliminating lead-based paint hazards in all housing as quickly as possible with a specific emphasis on reducing childhood lead poisoning. In 2002 HUD awarded over \$67 million to protect children from environmental lead hazards (Center for Disease Control and Prevention 2018). (In February 2019, Congress allocated an additional \$304 million for lead paint remediation. Senator Charles Schumer specifically stated that “our children in Upstate New York still continue to suffer the insidious consequences of toxic lead.” Of the funding \$25 million will go towards further assisting public housing agencies with lead-based paint interventions (Madison 2019).

### **3.2 Lead and Chemung County**

From 2008-2009 the New York Health Foundation sponsored a one year program to support communities in the development of local coalitions to prevent childhood lead poisoning occurred. University of Rochester and Catholic Charities of Chemung County organized the efforts in Chemung County. The initiative culminated with a report of lead findings in Chemung County and Elmira. The report found that lead poisoning was the most significant children’s environmental health threat in New York State and that even with lead poisoning rates decreasing across the nation, rates of childhood blood lead levels remained high in upstate New York, particularly among low-income children living in older housing. NYSDOH data showed that in 2005, 1.89 percent of the children screened for lead in Chemung County were newly identified with EBLL that rate was above the state incidence of 1.18 percent at the time. The report also identified that Elmira ZIP code 14901 represented the 65th highest incidence rate of all ZIP codes (2,158) in the state. The report noted that a low screening rate made it unlikely that data on EBLL accurately depicted the extent of lead poisoning across the county.

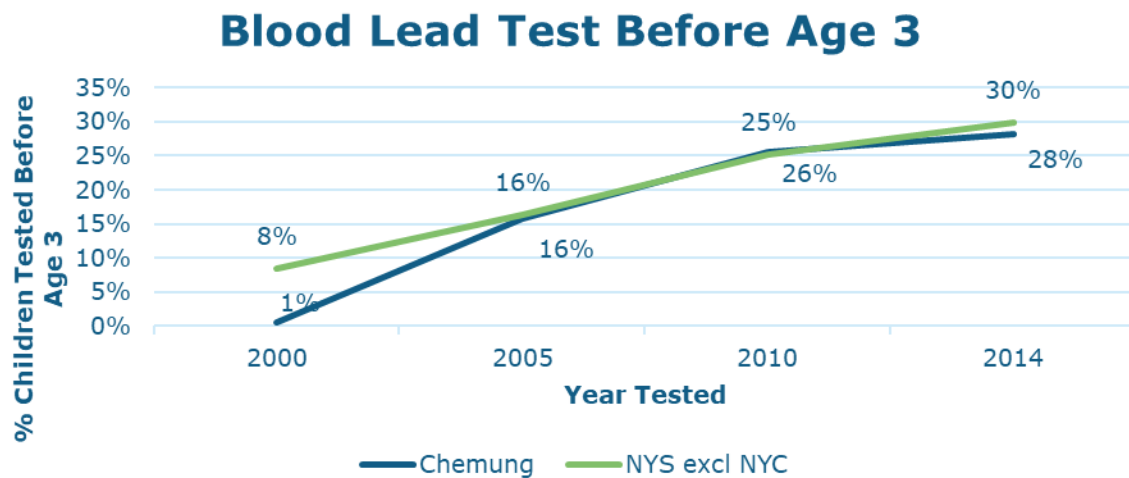
Key findings of the report demonstrated that while lead poisoning was heavily concentrated in the city of Elmira, it also affected all areas of the County. The report concluded that lead poisoning in Chemung County is almost entirely the result of lead paint in homes. At the time of the study, 90 percent of homes in Chemung County were built prior to 1978. The report also indicated that the cost of lead poisoning was substantial and lead to “increased Medicaid costs, pre-school special education, and criminal justice expense” which at the time represented, “three of the fastest rising cost areas in the County budget.” Finally, the

report recommended identifying homes with exposed lead paint or dust, finding the hazards, and safely remediating hazardous household conditions. The report concluded that addressing lead hazards was the only way to prevent lead poisoning moving forward (Korfmacher and George 2009).

### Lead Screening Trend

New York's Environmental Public Health Tracking (EPHT) Program focuses on tracking environmental and health patterns and trends. Environmental Public Health Tracking is a national program led by the CDC. Based upon the EPHT data, we explored blood lead screening trends between Chemung County and NYS excluding NYC.

The below graph shows how blood lead testing rates before the age 3 have increased over time:



Source: NYSDOH Environmental Public Health Tracker (EPHT) Program Childhood Lead Exposure; Analysis by Common Ground Health

### Elevated Blood Lead Level (EBLL) Trend

The most recent data (2014) from the NYSDOH EPHT on childhood lead exposure, indicate that seventy-four (74) children under the age of 3 (or 9.2 percent of those tested) had EBLL between 5-10 micrograms per deciliter; this rate is more than double the New York State average (excluding New York City) of 3.8 percent and ranks Chemung as the third worst county in NYS for this EBLL threshold in 2014. Fourteen (14) children tested above 10 micrograms per deciliter in 2014, representing 1.7 percent of all lead testing conducted in Elmira, and this is nearly double the New York State average (excluding New York City) of 1.0 percent. (New York Department of Health 2019)

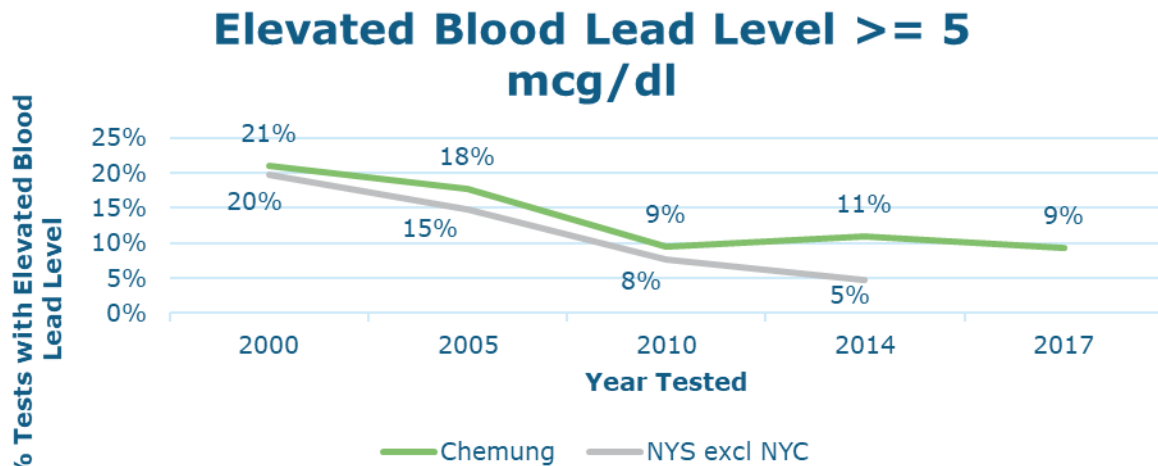
In order to compare 2014 trends to more recent blood lead level tests conducted in Chemung County, our partners at the Chemung County Health Department supplied us with the 2017 data reported to the New York State Health Commerce System.

Of 1,336 tests conducted in 2017 for children under the age of 3, 6.9 percent of test results were between 5-10 micrograms per deciliter, while 2.4 percent results were above 10

micrograms per deciliter. Of the 9 percent tested and found to have EBL, eight (8) children under the age of three had blood lead levels greater than 20 micrograms per deciliter.

There were 166 tests conducted in 2017 for children ages 3 and above, with 14% of those test results indicating EBL above 5 micrograms per deciliter. The NYSDOH EPHT does not report on lead test results for children age 3 and above.

The graph below illustrates that Chemung County is reporting EBL test results higher than NYS excluding NYC. However, for both NYS excluding NYC and Chemung County, EBL are trending down since 2000. For Chemung County, the EBL downward trend appears to have stalled between 2010 (9 percent) and 2017 (9 percent):



Source: 2017 New York State Health Commerce System Data provided by Chemung County Health Department; Analysis by Common Ground Health  
 Source: NYSDOH Environmental Public Health Tracker (EPHT) Program Childhood Lead Exposure; Analysis by Common Ground Health

## Section 4: Summary of Recommendations

The summary of recommendations synthesizes information for the two prioritized health outcomes: respiratory disease and lead. This section further identifies each actionable recommendation with rationale and suggests potential partners who may assist with implementation:

### Capacity Building

**1. Strengthen ESPRI partnerships within census tracts 6 and 7 to promote neighborhood hubs to offer screening services to augment community provider and health department efforts in preventive care; such as, lead, depression, mammography, childhood immunization, and tobacco use. ESPRI neighborhood hubs work with Chemung County Department of Health to develop, facilitate, collect and monitor an annual self-reported survey to identify households with environmental health hazards potentially impacting residents' health.**

**Rationale:** ESPRI is utilizing brick and mortar hubs within each of the three ESPRI prioritized census tracts. Based on the Phase 1 ESPRI Report, the initiative is already exploring plans to integrate telemedicine (remote diagnosis and treatment of patients by means of telecommunications technology) at each of their hubs to improve access to medical services. Evidence indicates that there is significant opportunity to improve blood lead screening rates at a neighborhood level by providing lead screenings at the ESPRI hubs to improve identification of EBLL in Elmira and Chemung County. The respiratory disease and lead data identify that 14901 and Chemung County have higher rates of asthma and EBLL when compared to the nine county Finger Lakes region. Literature suggests substandard housing conditions are associated with both lead and respiratory conditions such as asthma and COPD. Assessing housing conditions in addition to health and social concerns allows for a more comprehensive approach to improving individual and resident health.

By virtue of their neighborhood presence and community ambassadors, ESPRI hubs are ideally suited to foster the identification of substandard housing conditions by surveying or screening residents and providing linkages to assistance and community supports that address housing deficiencies. One of ESPRI's key priorities is to, "revitalize the vibrancy of the target neighborhoods, while increasing access to affordable rental housing and opportunities for homeownership and mixed income blocks" (Payne, Norman and Wagoner 2017).

**Potential partner(s):** ESPRI, Chemung County Health Department, Arbor Development, City of Elmira.

## Strategy

**2. Expand existing public-private partnerships with Chemung County, New York State Energy Research and Development Authority (NYSERDA), NYS Office of Homes and Community Renewal, and federal partners like HUD to increase access to quality and affordable housing to accommodate the residential needs of the populations of census tracts 6 and 7.**

**Rationale:** Public-private partnerships need to be strengthened to create a multidisciplinary approach to both overcome the current substandard housing conditions and create new affordable housing units within the community for current and future residents of census tracts 6 and 7. Chemung County Health Department is submitting a grant application for a HUD lead abatement grant in the fall of 2019 as one approach to improve the quality of housing in these neighborhoods.

**Potential partner(s):** Arbor Housing & Development, NYS Homes & Community Renewal, NYSERDA, Chemung County, City of Elmira, Chemung County Health Department, ESPRI.

## Policy

**3. Propose City of Elmira explore the feasibility of developing new housing policies that proactively identify environmental health hazards based on home inspections and code enforcement violations. Leverage the City of Elmira's BuildingBlocks program to identify and categorize code violations that may be negatively contributing to housing impacts including lead-paint or structural defects that may be contributing to respiratory disease (Asthma, COPD).**

**Rationale:** A majority of rental housing units in census tract 6 (76.6 percent), census tract 7 (88.8 percent) were built before 1978, as were 90 percent of homes in Elmira. Homes built before 1978 have higher lead levels. Based on the housing grades reported on by ESPRI (a majority of housing units that are C- Average or D- Economy) and the data from Arbor Development's curbside assessments, it is likely that some residents of these homes may have housing-related health conditions. Through this recommendation, the City of Elmira will proactively assess environmental home health hazards and require landlords address code violations before the property is certified as a rental.

A similar model was adopted by The City of Rochester through its Lead-Based Pain Poisoning Prevention Ordinance, enacted in 2005. This ordinance requires pre-1978 rental properties pass a lead safety inspection before receiving a Certificate of Occupancy. Properties in identified high-risk areas must undergo more frequent inspection. Analysis of public health data identified a decrease in blood lead levels in children in the two years after the ordinance was implemented. Rochester was recently awarded a "gold standard" from the National League of Cities (NLC) based on similar policy efforts centered on inspection policies of rental housing, their model serves as a regional example of success which may be implemented in Elmira (City of Rochester 2019) (National League of Cities 2018).

**Potential partner(s):** City of Elmira

## Programming

### **4. Establish a healthy homes program beginning in census tracts 6 and 7 and apply for the New York State Healthy Neighborhoods Program**

**Rationale:** The City of Elmira does not currently have a healthy homes program. This HIA identifies that substandard housing can lead to negative health impacts in respiratory disease and EBL, and demonstrates that there are best practices both nationally and regionally that Elmira can emulate. The advantage of the ESPRI hubs enables community managers or ambassadors work directly with local neighborhood populations to identify strategies and educate homeowners on how to create safer and more stable home environments.

The Chemung County Health Department may be able to prepare an application during the next funding cycle (over the next 5 years) to participate in the New York State Healthy Neighborhoods Program (HNP). The HNP uses a combination of door-to-door canvassing (roughly 67 percent of visits) and referrals (32 percent of visits) to reach residents in these high-risk areas. During a visit, the home is assessed for environmental health and safety issues. For problems or potential hazards identified during the visit, an outreach worker provides education (written and verbal), referrals and products to help residents correct or reduce housing hazards.

**Potential Partner(s):** City of Elmira (Code Enforcement), Chemung County Health Department, ESPRI, New York State Department of Health



## **Section 5: Monitoring & Evaluation**

### **Process Evaluation**

In the early days of this project, the scope was expanded from a Desktop HIA to Rapid HIA. Desktop HIAs traditionally do not involve any aspects of primary research beyond existing data and do not involve stakeholder engagement, but the convening of a Steering Committee enabled the HIA's scope and depth to broaden. We incorporated 2018 Chemung County Health Department and Chemung County Office of Mental Hygiene data to within this HIA to better understand the ongoing and most recent data on health disparities occurring throughout the City of Elmira and Chemung County. This HIA also enabled us to study EBLL over more than a decade timespan and compare the majority of those levels to New York State averages.

The Steering Committee provided guidance on the total scope and parameters of our study and were representative of populations and the social determinant of housing found within the target area. Throughout the 6-month project, the Steering Committee prioritized health determinants to analyze and synthesized new recommendations to increase health impacts and overcome health disparities.

### **Impact & Outcome Evaluation**

Over the next year, Common Ground Health will monitor any policy or programmatic changes made to Elmira Housing that align with the recommendations herein. We strongly encourage all decision-makers associated with the Elmira Housing to consider these recommendations in all decisions going forward and to collect data associated with health impacts as an evaluator component of any housing related projects.

### **Monitoring Plan**

The health indicators identified throughout this document provide a basis for further understanding the health impacts of Elmira Housing and the suggested recommendations. Several recommendations indicate a need to collect more data, including on how to better assist housing development decisions and health interventions based on residents self-reporting health and through the inclusion of advancing health services located at neighborhood hubs.

Based on this HIA's scope, other ideas for further study may include:

- Expanding research on outpatient claims data by obtaining Medicaid fee-for-service and managed care from NYSDOH. (Available claims data was limited to Excellus and MVP and are not reported on within this HIA, based on less than 30 percent total market share of each insurance provider throughout Chemung County).
- Expanding a HIA to include the full three ESPRI census tracts. (Census Tracts 6 & 7 were prioritized based on both falling within 14901 for research purposes)
- Further assessing concerns of gentrification and how to integrate the incoming 200-300 student population of (the currently under construction) Lake Erie College of Osteopathic Medicine.
- Broadening the health disparities to include injuries that occur within homes or the effects of smoking on indoor air quality and health.
- Further broadening the scope of this HIA to study health impacts of the surrounding neighborhoods including issues of walkability, safety, and crime.
- Exploring the creation and feasibility of a Health Improvement District or Medical Innovation District based on the proximity to area health care providers and surrounding neighborhood conditions (housing, poverty, health).

## Appendix A - Screening Exercise

Screening Criteria	City of Elmira/Chemung County
<p>Is there a DECISION regarding a policy, plan, or project, CURRENTLY UNDER CONSIDERATION whose outcomes are likely to impact health?</p>	<p><u>Key Focus Area</u></p> <p>The Empire State Poverty Reduction Initiative (ESPRI) is seeking to improve poverty, transportation, and housing opportunities. In 2016, NYS selected the City of Elmira as one of 16 communities to participate in ESPRI and the city was awarded a \$1 million planning and implementation grant. In addition, the city adopted its Elmira Refresh Plan, which includes creating vibrant community neighborhoods and overcoming blight and poverty as one of its strategic initiatives. The city (as part of its update to its comprehensive plan) also received \$10 million in Downtown Revitalization Initiative (DRI) funding.</p> <p>The ESPRI Phase One Report Strategic Priority #2 is to: <i>Revitalize the vibrancy of target neighborhoods while increasing access to affordable renting housing and opportunities for home ownership and mixed-income neighborhoods.</i></p> <p>Additional challenges and barriers identified within this strategic priority include: dilapidated housing, homelessness, crime, drug activity, evictions, walkability, absentee landlords, high rents for low quality, qualified renters/buyers, and zombie properties.</p> <p><u>Evidence and Examples</u></p> <p>Two thirds of the housing stock is pre-war vintage, with over 75 percent of homes renter occupied. Of 3,604 housing units nearly 15.5 percent are vacant, an additional 483 (or 13 percent) are zombie properties. The totals indicate that 28.5 percent of the Elmira housing supply is currently uninhabited.</p> <p><i>Stakeholders: ESPRI, City of Elmira, Chemung County, Southern Tier Economic Growth, Binghamton University, Corning Enterprises, I-86 Innovation Corridor, Central Southern Tier Alliance, Gateways Community Living Program.</i></p> <p>City of Elmira/Chemung County</p>
<p>Does the decision-making PROCESS allow for input from an HIA?</p>	<p>Yes, currently Common Ground Health has established connections with ESPRI, STEG, and the Southern Tier Alliance whose senior leadership has</p>

<p>Would the HIA bring NEW INFORMATION to the decision-making process? Is HEALTH already a part of the discussion?</p>	<p>indicated an interest in integrating an HIA into their decision-making.</p> <p>Yes, current regional work is ongoing in the realms of housing and poverty and is being funded by NYS through the ESPRI initiative. While health has been part of the conversation an opportunity to define the implications of the currents housing challenges and barriers in Elmira exists.</p>
<p>Can the HIA be completed within the TIMELINE for the decision, and with the RESOURCES available?</p>	<p>Yes, however a more detailed timeline of ESPRI immediate priorities will be made clear after the committee meets on 8/29.</p>
<p>What is the likelihood that the HIA findings and recommendations will RECEIVE CONSIDERATION by decision-makers?</p>	<p>Very likely, ESPRI is fully funded and its co-chair has indicated preliminary interest in conducting an HIA on the current and ongoing transitional and permanent housing initiatives occurring within the region.</p>
<p>Is there the potential for VULNERABLE POPULATIONS to be more adversely affected than others?</p>	<p>Yes, this HIA would deal specifically with those with low SES and affordable housing issues including those who are under or unemployed. This HIA may also identify issue of addiction and homelessness.</p>

## Appendix B – Scoping Exercise

Existing Conditions Research Questions	Framing	Indicators	Data Sources
How do demographics of populations living in Elmira compare to people living elsewhere?	What are the makeup of those populations? What populations are nearby to the identified ESPRI hubs in Census Tracts 6 & 7?	Population by Census Tract, Racial/Ethnic Make-up, Household Income, Family Size	U.S. Census - American Community Survey 2010-2015, City of Elmira data
What are the existing health conditions of those living in the ESPRI prioritized census tracts in Elmira?	What are the current rates of chronic diseases and poor mental health?	Chronic Disease (Obesity, Diabetes, Asthma, CAD, Stroke, HTN), Mental Health	TBD Chemung County Public Health Department, Arbor Development
What are the existing housing issues experienced by people living within the three prioritized ESPRI census tracts in Elmira? How do these housing conditions relate to health impacts elsewhere?	What is the percentage and number of abandoned, zombie, or subpar housing conditions per targeted census tract? How are current housing conditions impacting health?	Asthma, Mental Health, Lead Poisoning, Housing vacancy and zombie home rates, demographic data.	City of Elmira, Arbor Development, Chemung County Public Health, Lead Assessment Group? Other Housing HIAs.
What are the existing issues regarding poverty and vulnerable populations in Elmira?	What is the health profile of impoverished or underemployed people in Elmira? Is housing in Elmira considered affordable? What percentage of people in Elmira are considered impoverished or underemployed?	Chronic Disease (Obesity, Diabetes, Asthma, CAD, Stroke, HTN), Mental Health, SES, Median Housing/Rent costs	U.S. Census - 2010-2015 American Community Survey, City of Elmira, Arbor Development, Chemung County Department of Health/Labor?
How are the ESPRI hubs benefitting or impact chronic disease?	What services are the ESPRI hubs currently offering? What populations do the ESPRI hubs serve?	Chronic Disease (Obesity, Diabetes, Asthma, CAD, Stroke, HTN), Mental Health	ESPRI, City of Elmira, Arbor Development, Chemung County DOH?

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