



500 Cities Final Report: *Health, Housing, and Energy Disparities by Neighborhood: Improving the Health and Homes of Families Living in Chicago's Bungalow Belt*¹

Introduction

The goal of this project was to use the 500 Cities data to foster a "Culture of Health"- to make the case that health, energy and housing disparities exist by neighborhood, and to engage with local stakeholders to inform cross-cutting policies and programs that improve the health, homes, and communities of families in Chicago, particularly families that live low- and moderate income neighborhoods. These outcomes are not limited to Chicago, however. Equitable health, housing, and community outcomes can be achieved by broad cross-sector collaboration between the energy, health, and housing communities nationally. The specific energy goal for using these data is to inform investment for health and safety policies and programs that can be implemented over the next three years.

Elevate Energy completed the analyses at the end of August 2018 and used the fall of 2018 and Jan-March 2019 to create and execute stakeholder engagement. Our target was six or more meetings with local stakeholders across health, housing, and energy to share findings and discuss strategies for integrating into existing or new programs and policies. Additionally, the learnings were presented to national audiences at 3 conferences.

We were successful with exceeding our target outreach numbers, but more importantly, what we achieved with Urban Institute's support. We made significant progress toward cross-sector collaboration between the energy, health, and housing communities to achieve more equitable health outcomes and to target resources to the communities that need them most.

Stakeholder Engagement Key Outcomes & Summary of Activities Leading to Research, Programs, and Policy Initiatives

The 500 Cities work was presented to local, regional, state, and national stakeholders over the last 6 months and we expect that the work will continue to influence new research, pilot programs, and policy.

We heard several themes from stakeholders.

- Utilities and energy efficiency policy and program implementers nationally were eager to see successful program models that delivered both energy efficiency and health measures. They were interested in how programs can be designed, administered and funded at scale.
- Local community and planning organizations were not surprised at the geographic and racial disparities. They noted the analyses and data complement their focus areas, whether it be housing, community development, energy efficiency, or racial equity. They noted that homeowners and renters desired tangible ways to improve their home and health, whether it was through a formal program, or information about do-it-yourself measures.

¹ *This research is based upon work supported by the Urban Institute through funds provided by the Robert Wood Johnson Foundation. We thank them for their support but acknowledge that the findings and conclusions presented in this report are those of the author(s) alone, and do not necessarily reflect the opinions of the Urban Institute or the Robert Wood Johnson Foundation.*

- City, state, and national policymakers all echoed the need for data-driven and geography specific integrated planning across sectors (housing, transportation, health, community and economic development, energy, resiliency, etc.) and set objectives on prioritizing vulnerable communities and meeting multiple goals.

Key outcomes, partially informed by this project include:

- Funding for health and safety home repairs that improve health, homes, and enable energy efficiency upgrades
- Integrated health and energy programs and policy
- Integrated energy and health data

Funding for health and safety home repairs that improve health, homes, and enable energy efficiency upgrades

ComEd is the electric utility that serves approximately 3.5 million households in Northern IL. In 2018, ComEd's income eligible programs, invested \$33 million per year for energy efficiency programs that serve low and moderate-income households. This program includes a flexible pool of funding to remediate minor repairs that cause health and safety issues such as small roof leaks, replacing broken glass in windows, replacing rotted basement doors. The Chicago Bungalow Association, Elevate Energy's project partner on this project, is the program implementer for ComEd's income eligible single-family program. Since the additional health and safety funds, the Chicago Bungalow Association Energy Savers (weatherization) program now serves 85% of all applicants, as opposed to 50% previously. From 2014-2017, one of every two applicants to the Chicago Bungalow Association Energy Savers program from income-qualified households' homes were rejected and could not be weatherized because of significant health and safety issues.

Additionally, ComEd, as a regulated electric utility, undergoes a formal energy efficiency program evaluation. The 2018-2020 evaluation plan includes evaluating impacts on participant health, safety and comfort from ComEd funded home upgrades. Asthma outcomes are included. They also have plans to ask about ventilation, dust, moisture, mold, ventilation, and smoking which may better inform asthma results. They also expect or may find improved mental health (stress, anxiety, etc.), an improved ability to afford prescriptions, reduced need for short term loans, reduce asthma, COPD, and cardiovascular disease, and other impacts. The purpose of these evaluations is to enable the utility energy efficiency programs to get credit for the health benefits of energy efficiency, by identifying energy efficiency investments that are cost effective when health and other non-energy impacts are included. These investments would thus count toward the utility meeting its energy efficiency targets.

Integrated health and energy policy: Clean Energy Jobs Act

The new Clean Energy Jobs Act (HB3624 / SB2132)² was introduced in the Illinois General Assembly in February. It was championed by the Illinois Clean Jobs Coalition (ICJC), which is made up of hundreds of environmental groups, healthcare professionals, environmental justice champions, businesses, community leaders, consumer advocates, and faith-based organizations from across the state. Elevate Energy is a member of the Illinois Clean Jobs Coalition. The legislation calls for a permanent funding source to address health and safety measures in affordable housing, economically disadvantaged communities, and nonprofit buildings. A low-income health and safety fund would be well funded with an allocation of \$150 million over 6 years. This would cover health and safety repairs found in the course of energy efficiency and solar upgrades to low-income homes and affordable apartment buildings. If this fund did not include roof repair and replacement for potential

² The health and safety funding is imbedded in the energy efficiency laws on page 182:

<http://www.ilga.gov/legislation/fulltext.asp?DocName=10100HB3624ham001&GA=101&SessionId=108&DocTypeId=HB&LeID=120336&DocNum=3624&GAID=15&Session=>

solar clients, the total cost of the program would be \$30 million over 6 years for repairs found in the course of energy efficiency upgrades.

Further investments in healthy homes are included in Illinois Governor Pritzker's transition report.³ This calls for the state to work with local union labor to address fundamental deficiencies in housing stock, such as public health and safety violations that make energy efficiency upgrades difficult. This initiative should prioritize older housing stock in low-income communities that might be left out of energy efficiency and clean energy upgrades. This program could be administered alongside existing income-eligible energy efficiency programs, like Illinois Solar for All.

It's expected that similar initiatives that include coordinated health and housing strategies will be presented to Chicago's Mayor-elect Lori Lightfoot.

Integrated health and energy programs

In early April the utility announced several research projects that will improve and quantify health outcomes for lower income households. The purpose of the ComEd Emerging Technologies program is to identify test, validate, and integrate new energy efficiency technologies and program delivery strategies into ComEd's energy efficiency program portfolio. Elevate Energy is leading two health projects supported by the ComEd Emerging Technologies program:

- In partnership with the Green & Healthy Homes Initiative and AMITA Health, Elevate Energy is piloting a coordinated service delivery model that combines home-based asthma prevention with energy efficiency and achieves a whole-home retrofit for households with significant health, safety, and energy needs.
- In partnership with the Illinois Institute of Technology, Elevate Energy is evaluating three different approaches to installing mechanical ventilation systems in existing homes in terms of their impact on indoor air quality, asthma symptoms, and energy use. This is an existing project funded by the U.S. Department of Housing and Urban Development; with ComEd' support the project is installing and evaluating energy efficient furnace motors in eligible study homes to reduce the energy needs of the mechanical ventilation systems.

Integrated energy and health data

Elevate Energy is coordinating with the City Health Dashboard team to integrate energy burden data with the health and other data on the dashboard.⁴ Energy burden refers to the percent of household income spent on energy costs, and it can be used as a basic measure for energy affordability. The DOE's Low Income Energy Affordability Data Tool provides census tract level data on energy burdens by income group, building age, and heating fuel.⁵ The City Health Dashboard compiles data at the census tract level to offer a nuanced local picture of health outcomes as well as health behaviors, the physical environment, and social and economic factors that impact health. Elevate Energy has connected the City Health Dashboard team with the U.S. Department of Energy (DOE) data leads with the goal of adding energy burden data, and possibly vulnerability indices to the dashboard.

³ Health and safety measures are at the top of page 4:

https://www2.illinois.gov/sites/gov/Documents/Transition/Reports/Transition_Power.pdf

⁴ NYU Langone Department of Population Health, <https://www.cityhealthdashboard.com/>

⁵ U.S. Department of Energy Low-Income Energy Affordability Data Tool: <https://openei.org/doe-opendata/dataset/celica-data>

Results: Health, Housing, and Energy Disparities by Neighborhood: Improving the Health and Homes of Families Living in Chicago's Bungalow Belt

Elevate Energy has conducted an analysis of health, energy, and housing across eight Chicago neighborhoods, which found disparities in energy use, housing value/cost, and health outcomes. The analysis focused on iconic Chicago bungalow style homes. These ubiquitous homes – almost 80,000 in Chicago – were constructed in the 1920's and are nearly identical in style, size, and construction, yet they house families with very different experiences related to energy use and health.

Figure 1: Photos of bungalow homes



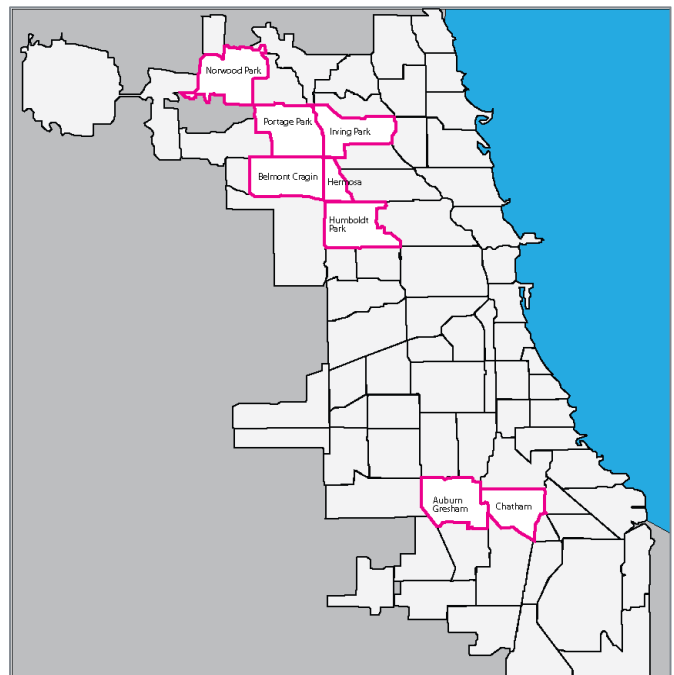
Chatham

Belmont Cragin

Irving Park

The analysis focused on **three clusters of community areas** based on prevalence of bungalow style homes, energy use, income, and existing health disparities. The furthest northwest cluster consists of the community areas of **Irving Park, Portage Park, and Norwood Park**. The north cluster includes **Humboldt Park, Belmont Cragin, and Hermosa**. The south cluster includes the **Chatham and Auburn Gresham** community areas. Each of the clusters include at least 4,300 brick style homes, have households that have participated in both energy and health programs, and include communities that have been identified as high priority areas by *Healthy Chicago 2.0*⁶ and/or the *Sinai Community Health Survey*⁷. Elevate Energy used 500 Cities data on crude asthma and COPD prevalence and conducted a shallow real estate analysis.

Figure 2: Location of neighborhood clusters



⁶ City of Chicago. 2016. *Healthy Chicago 2.0: Partnering to Improve Health Equity 2016-2020*.

<https://www.cityofchicago.org/content/dam/city/depts/cdph/CDPH/Healthy%20Chicago/HC2.0Upd4152016.pdf>

⁷ Sinai Urban Health Institute. 2017. *Community Health Counts: Sinai Community Health Survey 2.0*.

Table 1: Household income and housing characteristics in selected neighborhoods

	Median household income	# of households	Average household size (# of residents)	% of households earning ≤80% AMI	# of single family homes	% single family homes
Chatham	\$32,222	13,560	2.3	67%	5366	33%
Auburn Gresham	\$30,469	17,158	2.7	72%	8416	49%
Humboldt Park	\$32,073	16,519	3.3	70%	4158	21%
Belmont Cragin	\$43,534	21,726	3.6	64%	8771	36%
Hermosa	\$39,157	7099	3.6	66%	2246	29%
Irving Park	\$51,997	20,300	2.8	48%	5643	25%
Norwood Park	\$71,282	14,311	2.5	37%	11,193	71%
Portage Park	\$57,031	22,589	2.9	47%	10,422	42%

Table 2: Racial makeup of selected neighborhoods

	White (%)	Latino/a (%)	Black (%)	Asian (%)
Norwood Park	80.8	11.8	0.9	4.2
Portage Park	50.3	41.8	1.3	4.4
Irving Park	40.1	46.6	2.2	8.2
Belmont Cragin	14.2	80	3.1	1.5
Hermosa	7.4	88.2	1.5	1.4
Humboldt Park	5.4	52	40.9	0.5
Auburn Gresham	0.5	1.5	96.9	0.3
Chatham	1.2	0.9	96.6	0.3

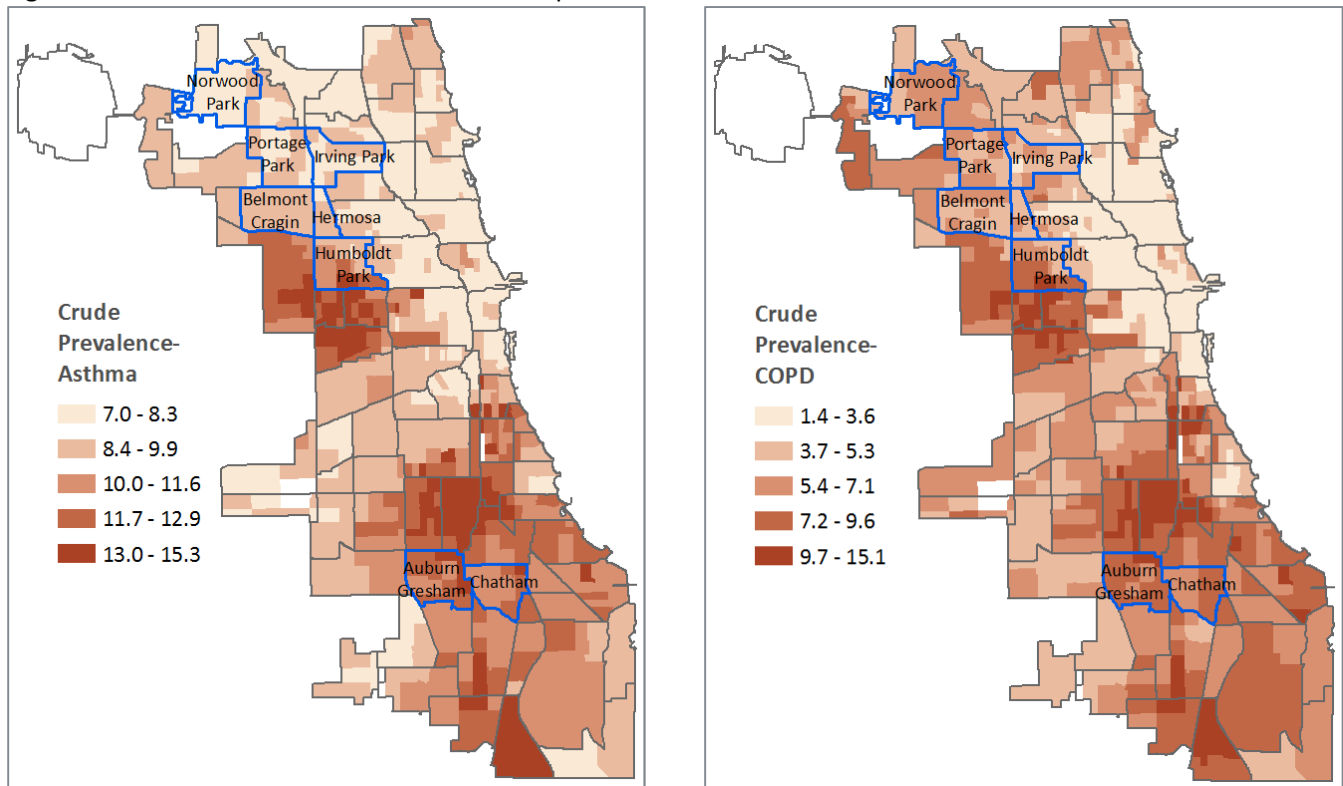
The analysis found geographic disparities in energy, housing, and health. These disparities were not always between lower and higher income neighborhoods. Bungalow owners in the northern Humboldt Park community and southern cluster neighborhoods of Chatham and Auburn Gresham experience higher rates of asthma and COPD, consistent with findings of previous analyses by *Healthy Chicago 2.0* and the *Sinai Community Health Survey*.

Higher gas use and costs, and lower housing values were also observed in the south cluster neighborhoods. Specifically, gas usage, which is the fuel used to heat the homes, was 6% and 13% higher than the city median in Chatham and Auburn Gresham. Similarly, when looking at the real estate markets Chatham and Auburn Gresham's homes have higher market time, lower median sales price, lower appreciation since 2000, and a larger market recovery climb from the 2008 market crash.

Results: Health

Asthma prevalence is relatively low in the northwest cluster and substantially higher in the north and south clusters. All census tracts in the south cluster have asthma rates over 10% while some census tracts have even higher asthma rates of more than 13%. In the north cluster, Humboldt Park also has census tracts with asthma rates more than 13%, while Hermosa and Belmont Cragin census tracts have asthma rates between 8.4% and 11.6%. The overall asthma rate among adults in Humboldt Park is 23% (*Sinai Community Health Survey*). In contrast, census tracts in the northwest cluster all have asthma rates below 8.4%. Thus Chatham and Auburn Gresham neighborhoods with higher gas use also have higher asthma rates. Humboldt Park and Auburn Gresham also have census tracts with high rates of COPD (i.e. $\geq 7.2\%$ COPD prevalence).

Figure 3: Census tract-level asthma and COPD prevalence



Results: Real Estate

Although bungalows across the city are remarkably similar in size and floor plans, their purchase price, market time, home value, and recovery from the 2005-2007 housing bubble varies by neighborhood. The three neighborhood clusters illustrate these real estate market differences. The further northwest cluster of Irving Park, Portage Park, and Norwood Park are strong markets with consistent year over year growth, and experienced smaller bubble era peaks, and had lower but steady appreciation year over year. Comparatively, the northwest cluster of Humboldt Park, Belmont Cragin and Hermosa experienced larger changes in price appreciation and increased demand. The third, south cluster of Auburn Gresham and Chatham had higher market time, lower median sales price, lower appreciation since 2000, and a larger market recovery climb from the 2008 market crash.

Table 3: Real estate market changes during key periods since 2000

Submarket	Change since 2000	Change from Bubble Era Peak (2005-2007) to Current	Recovery from Bottom (2008-17)	Year-over-year change (2016-2017)
Chicago--Irving Park/Albany Park	89.30%	-3.90%	47.90%	3.60%
Chicago--Portage Park/Jefferson Park	70.80%	-15.70%	52.60%	1.80%
Chicago--Austin/Belmont Cragin	60.40%	-30.20%	65.00%	5.70%
Chicago--Humboldt Park/Garfield Park	74.10%	-40.70%	107.40%	7.40%
Chicago--Auburn Gresham/Chatham	13.20%	-43.30%	33.20%	4.30%
City of Chicago	63.60%	-23.30%	40.70%	2.80%
Suburban Cook County	37.80%	-21.90%	31.00%	2.70%

Source: Derived from Institute for Housing Studies Cook County Submarket Indices (4th Quarter 2017)

From April 1, 2017 to April 30, 2018 sales in Chicago on the Multiple Listing Service, 4,026 bungalows were listed in the city and 1,684 were sold. The sale price for homes in different communities varied substantially: in Portage Park bungalows sold for over two times higher than in Auburn Gresham. Homeowners in the northern clusters thus have more equity to tap into to make home upgrades that improve energy and health.

Figure 4: Median sale price for bungalows in five communities

