NYC REACH

GIS TOOLS FOR ASSESSING SDOH AND HRSN

Guide

2026

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Contents

What is the purpose of this guide?

This guide aims to support community-based organizations (CBOs), health care organizations (HCOs) and primary care practices as they implement routine screening and referral of patients to needed services to address health-related social needs (HRSN). This guide demonstrates how specific publicly available GIS tools can be used to better understand social needs that may negatively impact health outcomes, health equity and the distribution of environmental factors, community factors and resources that could help address HRSN in your patient or client populations.

While HRSN are addressed through individual screening and referral to services, understanding community-level Social Determinants of Health (SDOH) factors can help providers identify potential resources, collaborations and partnerships that would be most helpful to their patients or clients.

GIS Tools Use Scenario

Clinical Practice

Practice A has decided to develop workflows around HRSN screening and referrals to help patients meet pressing needs in their life, negatively affecting their ability to address their health care needs and improve their health.

Questions to consider:

What are the common community-level SDOH and possible HRSN in your service area?
What screening tools should you use to screen for most common HRSN in your patient population? (i.e., PRAPARE; AHC)
Given the many questions in these screening tools, which ones make sense to select?
To form partnerships with community organizations, which ones should be prioritized based on SDOH and HRSN your patient population may be facing?

Community Organization

Community organization A is deciding whether to partner with or get certified to deliver lifestyle modification services for chronic conditions, such as diabetes or hypertension.

Questions to consider:

What is the community-level diabetes or hypertension prevalence in the communities you serve?
What screening tools should you use for assessing need for diabetes or hypertension management services?

What is GIS and how can it help providers screen and refer for social needs?

A Geographic Information System (GIS) is a computer-based instrument that can be employed to capture, create, store, interpret, analyze, and visualize spatial data overlayed with information from various sources. GIS allows interaction and visualization of data to understand better how context, location, and geography impact health. Using multiple databases, surveys, and maps, it becomes possible to identify the pathways of health inequities and plan targeted interventions. For example, GIS

can illuminate deficiencies in patients' built environments, such as access to reliable transportation, and visualize barriers to health in their local community.

This guide aims to support community-based organizations (CBOs), health care organizations (HCOs) and primary care practices to use datasets and GIS tools to effectively tailor their HRSN screening and referral workflows.

Social Determinants of Health (SDOH)

SDOH are broad, community-level conditions, in which people are born, grow, work, live, and age. These are shaped by distribution of money, power, and resources, institutional factors like bias, discrimination, and racism, economic policies, and social structures.

SDOH are the community-level factors associated with health outcomes. Understanding SDOH factors in the communities your patients reside in, will be helpful in planning and preparing for implementing social needs screening and referral workflows by helping providers make decisions about potential resource needs, partnership and collaboration needs that would be most beneficial to your patient populations.

The U.S. Department of Health and Human Services, through its Healthy People 2030 framework, defines SDOH through five overlapping domains:[1]

These five domains include many specific indicators:

- *Education access and quality*: Early childhood development and education, enrollment in higher education, high school graduation, and language and literacy.
- *Healthcare access and quality*: Access to health services, access to primary care, and health literacy.
- *Neighborhood and built environment*: Access to healthy food, crime and violence, environmental conditions, and quality of housing.
- *Social and community context*: Civic participation, discrimination, incarceration, and social cohesion.

Significant social and structural processes that facilitate social exclusion, such as stigmatization, marginalization, and structural and interpersonal discrimination based on race and ethnicity (racism), sexual and gender identities (SOGI), disability, age, and low socioeconomic status (poverty), are captured in the various domains and subdomains of SDOH.[2] Immigration status is not explicitly

addressed in the SDOH framework, but new research has highlighted immigration status as another SDOH.[3]

Health-Related Social Needs (HRSN)

HRSN are individual-level and family-level social and economic needs experienced by individuals that affect their ability to maintain health and wellbeing. These are often a result of broader SDOH and health inequities. Through the implementation of HRSN screening and referral workflows, healthcare providers can directly address nonmedical social needs of their patients.

Common HRSN that can affect patients and their families include:

- Housing instability
- Food insecurity
- Lack of transportation
- Lack of access to healthcare and health insurance
- Personal safety concerns
- Lack of green spaces and safe places for walking and exercise

Publicly available GIS tools can be used to analyze neighborhood environments where most of your patients reside to assess needs in relation to health disparities and leverage data to guide decision-making as we begin the HRSN screening and referral journey.

How do SDOH and HRSN impact chronic conditions such as cardiovascular health?

All SDOH and associated HRSN are relevant to chronic diseases and, especially, cardiovascular health (CVH).[4] SDOH and consequently, HRSN, vary across different racial and ethnic groups, and it is essential to consider their intersectional and combined effects on CVH.[5] Societal inequities directly impact heart health by creating environments and conditions that make it harder for certain groups to maintain good cardiovascular health. Cardiovascular disease (CVD) continues to be the leading cause of mortality both among men and women in New York City (NYC) and nationally.[6,7] New evidence is emerging that addressing SDOH and associated personal-level HRSN may reduce the enormous burden of CVD.[8]

GIS tools profiles

The NYC Department of Health, other NYC agencies, and CDC have developed interactive GIS tools to look at various demographic, clinical, and SDOH factors in specific areas, with an option to narrow geo-units down to districts, neighborhoods, and ZIP Codes.

Summary of the tools

Title	*SDOH of interest*	*Geographies*
Community Health Profiles	NYC social; economic; housing; neighborhood conditions; maternal and child health; health behaviors; access; and outcomes (rates of chronic diseases)	59 NYC Community Districts (CDs)
Environment and Health Data Portal	NYC air quality; climate; housing; inequality and health inequities; active design; public space; transportation; environmental health outcomes; child health; pests and pesticides; food and drink	59 CDs, 42 United Hospital Fund (UHF) neighborhoods
EpiQuery	NYC health behaviors; healthcare access; chronic health conditions; and vital statistics	59 CDs, 42 UHF, ZIP Codes
Care Across Communities Dashboard	NYS primary care access and utilization; health outcomes; and socio-demographic status	ZIP Codes
NYC Equitable Development Data Explorer	Interactive tool based on data on housing affordability; displacement; and racial equity in New York City	Public Use Microdata Area (PUMA) scale, approximate CDs
NYC Population FactFinder	NYC demographic data; social; economic; and housing	Census tracts, CDs
NYC Facilities Explorer	Description of each NYC facility (parks, social service agencies; supermarkets; libraries; medical facilities; and schools etc.)	59 CDs, ZIP Codes
Community District Profiles	NYC built environment and socioeconomic and demographic characteristics	59 CDs
CDC PLACES	National indicators include nine SDOH and seven HRSN measures	Census tracts, ZIP Codes
Social Vulnerability Index (SVI)	SVI includes national data: socioeconomic status; household characteristics; racial & ethnic minority status; housing type & transportation	Census tracts, ZIP Codes

COMMUNITY HEALTH PROFILES

The Community Health Profiles tool provides neighborhood-level health data, accompanied by data visualizations and narrative explanations. You can select one of 59 New York City community districts (CDs) to see data on over 50 measures of social, economic, housing, and neighborhood conditions; maternal and child health; and health behaviors, access, and outcomes. You can also compare communities to gain a greater understanding of health inequities.

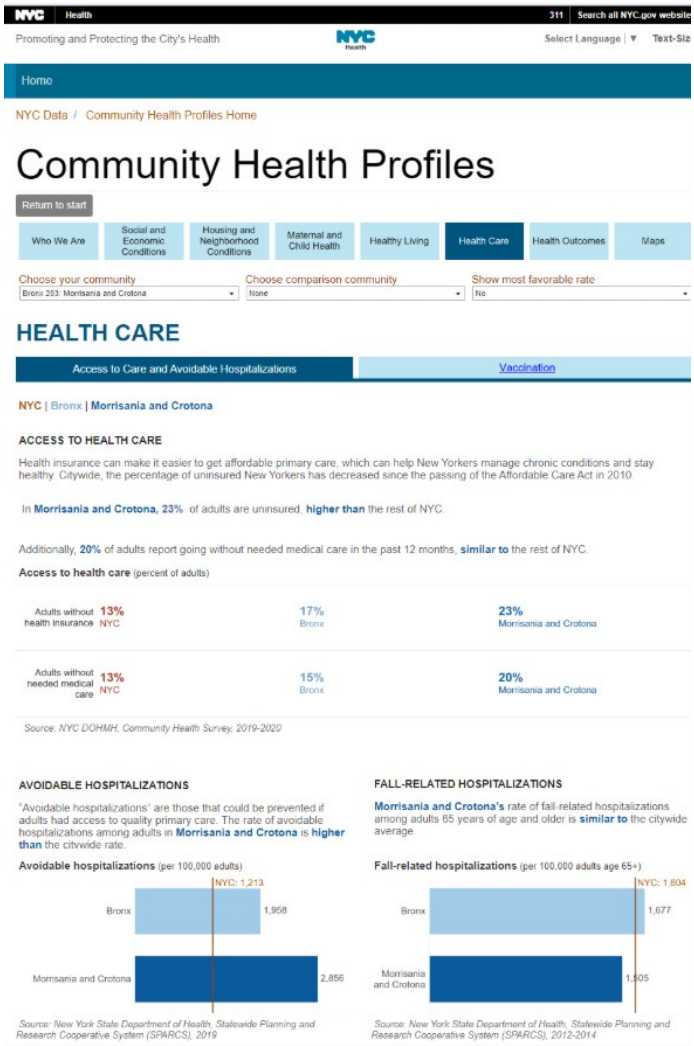
The data for the community health profiles comes from the annual NYC Community Health Survey, vital statistics (births and deaths), and other data sources.

From the Community Health profiles website:

“Why does health differ by neighborhood?

Some New Yorkers live longer, healthier lives than others. Structural racism contributes to the disproportionate burden of disease in some communities. The New York City Community Health Profiles highlight disparities among neighborhoods. They can be used by policymakers, community groups, health professionals, researchers, and residents to encourage community engagement and action.

Our health starts where we live, work, and play. Interpret these data with an understanding that good health is not only determined by personal choices. Many other factors shape differences in health outcomes, including past and current discrimination based on race, ethnicity, national origin, gender, sexual orientation, and other identities.”

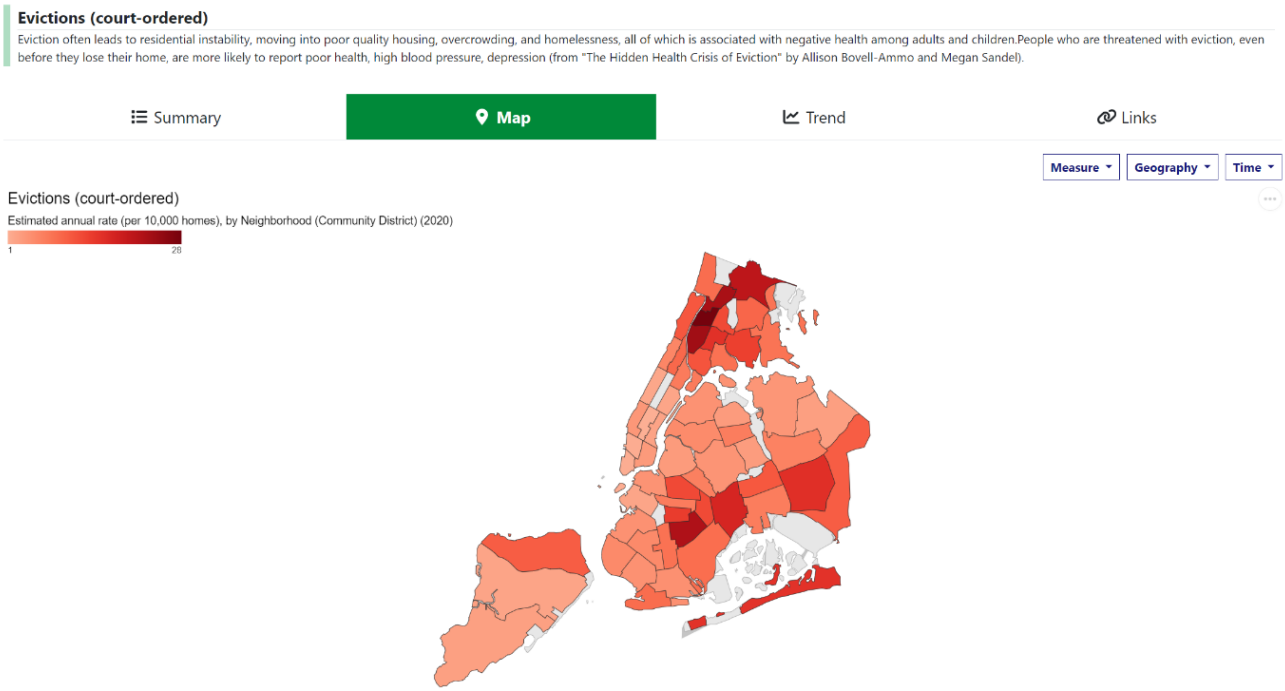


Community Health Profiles are developed by NYC Department of Health and Mental Hygiene.

ENVIRONMENT AND HEALTH DATA PORTAL

The Environment and Health Data Portal is focused on NYC environmental factors and provides downloadable data with data stories, visualizations, and narrative explanations. Users can view data by different geographies, including the five boroughs, 42 United Hospital Fund (UHF) neighborhoods (made up of adjoining ZIP Codes), and 59 community districts (CDs).

The portal includes over 200 environmental health indicators across eight topics: outdoor air and weather, built environment, pests and pesticide use, food and drink, environmental sustainability, health outcomes, behavior, and social factors. The interactive interface of the portal allows individuals to explore data in a user-friendly and highly visual way. Data stories, briefs, features, and narrative neighborhood reports provide ready-to-use and easy-to-read data analyses.



Housing stability indicator visualization example.

The Environment and Health Data Portal developed by NYC Department of Health and Mental Hygiene.

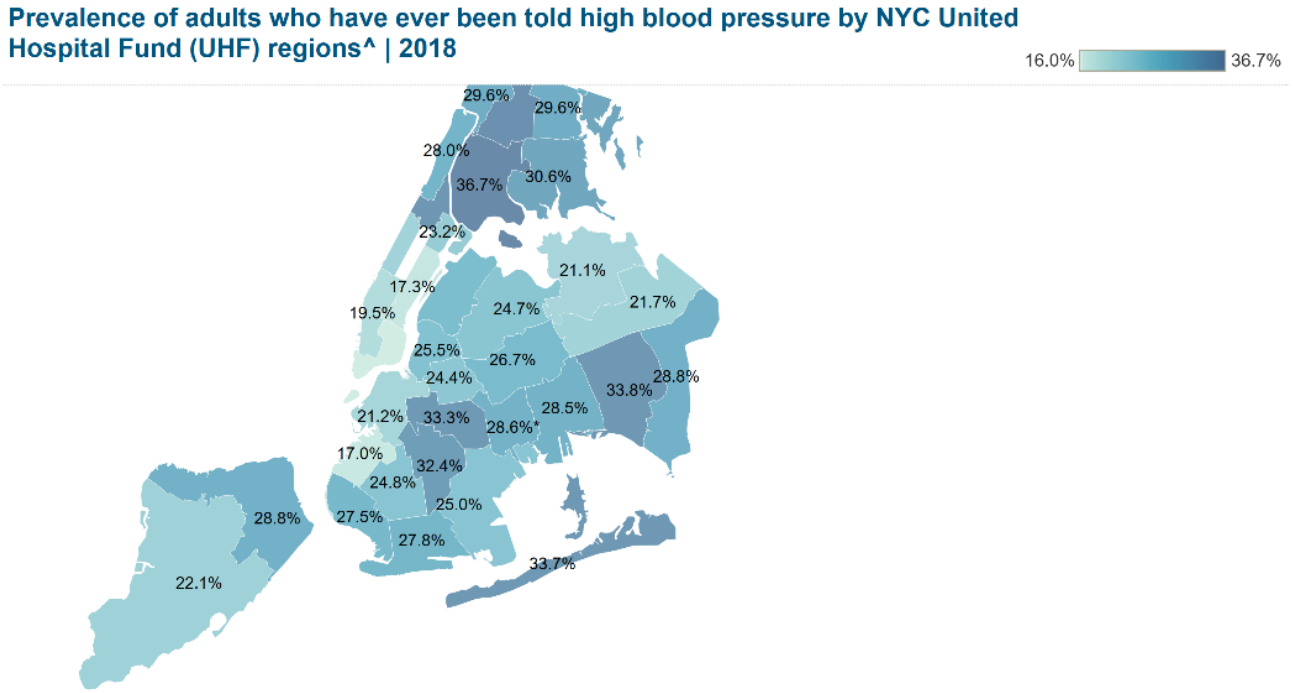
EPIQUERY

EpiQuery allows users to explore relationships and trends across health behaviors, healthcare access, and chronic health conditions, as well as analyze and visualize data from health surveys, disease reports, and vital statistics and download customized reports. You can filter data by sex, race and

ethnicity, age group, borough or neighborhood (59 CDs, 42 UFH) and ZIP codes), area-based poverty, and other stratifications.

To navigate to a desired map, first select a subtopic of interest on the EpiQuery homepage. EpiQuery will produce a table of indicators related to the chosen subtopic. To produce a map, click a cell in the table for the indicator and year of interest, then select to analyze by neighborhood. For example, the map shown below was produced by selecting Diseases and Conditions -> Chronic Diseases from the list of topics, then selecting the cell for high blood pressure in 2018, and finally selecting to analyze by neighborhood.

The data sources for this tool include NYC Youth Risk Behavior Survey, NYC Health and Nutrition Examination Survey, Community Health Survey, NYC Child Health Data, Communicable Disease Surveillance Data, HIV-AIDS Data, Tuberculosis, Sexually Transmitted Infections and Syndromic Surveillance Data, Vaccine-Preventable Disease Data, and vital statistics (births and deaths).



EpiQuery visualization examples.

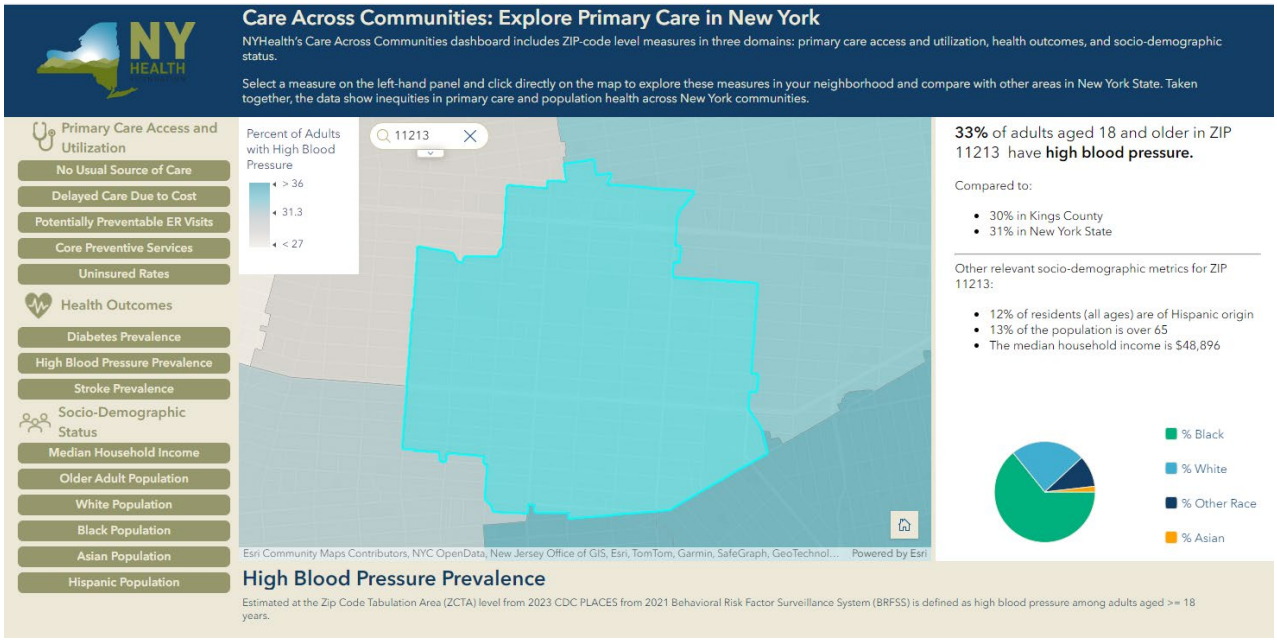
EpiQuery is developed by NYC Department of Health and Mental Hygiene.

CARE ACROSS COMMUNITIES DASHBOARD

Care Across Communities Dashboard: Explore Primary Care in New York was launched in June 2024, on the premise that understanding disparities in primary care access and utilization is crucial for improving public health outcomes and ensuring equitable health care delivery. The Care Across Communities dashboard offers a detailed ZIP Code-level exploration of New York's primary care landscape.

This tool is designed to provide comprehensive insights into primary care across three domains and 14 indicators:

- Primary care access and utilization (usual source of care, delayed care due to cost, preventable ER visits, core preventative services and uninsured rates),
- Health outcomes (diabetes, high blood pressure and stroke prevalence), and
- Socio-demographic status (median household income, older adults, white, Black, Asian, and Hispanic populations).



Care Across Communities Visualization example.

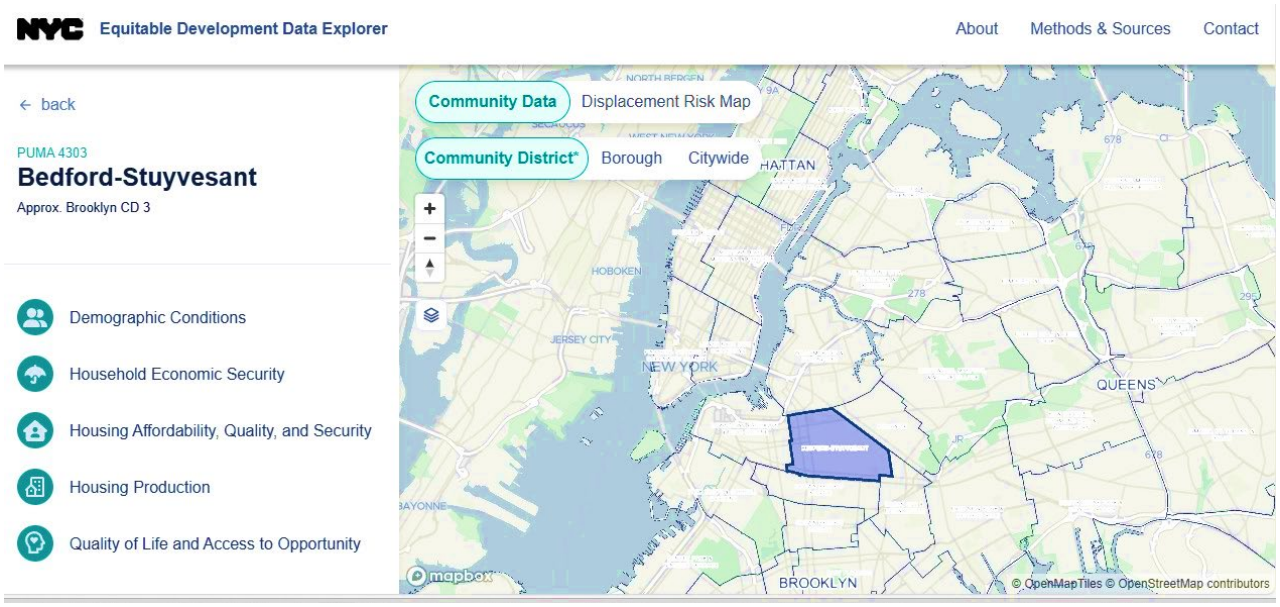
Care Across Communities Dashboard: Explore Primary Care in New York was developed by NY Health Foundation.

NYC EQUITABLE DEVELOPMENT DATA EXPLORER

NYC Equitable Development Data Explorer (EDDE) is an interactive, publicly accessible data resource to support fair housing, equitable development, and community planning across the five boroughs. Its creation was mandated by Local Law 78 of 2021. The tool was rolled out publicly in 2022 following engagement with community stakeholders, advocacy groups, and planning professionals.

EDDE brings together a wide range of neighborhood-level data on demographics, housing production, economic conditions, and quality-of-life indicators, often disaggregated by race and geography (e.g., Community Districts, Neighborhood Tabulation Areas). Users can visualize and compare patterns in population change, housing affordability, displacement risk, household income, access to transit, and other metrics that are central to discussions about equitable development and fair housing policy.

By centralizing complex data in an accessible interactive interface, the EDDE's goal is to improve transparency, support informed public dialogue about equity and housing, and equip communities to advocate for development strategies that protect long-term residents and expand opportunities broadly across New York City.



Equitable Development Data Explorer visualization example.

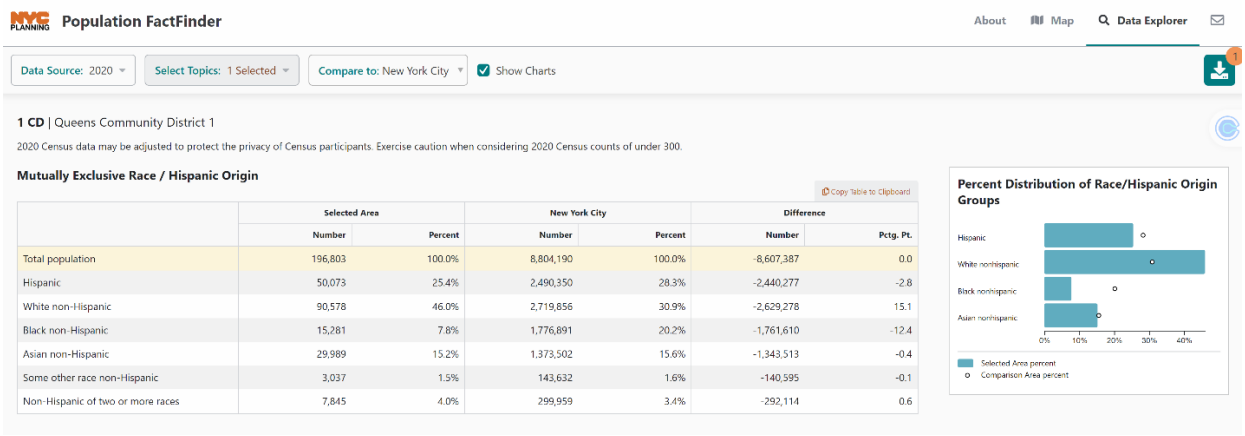
Equitable Development Data Explorer was developed by the NYC Department of City Planning (DCP) and the NYC Department of Housing Preservation and Development (HPD).

POPULATION FACTFINDER

The NYC Population FactFinder is an interactive online tool developed by the New York City Department of City Planning. It allows users to define study areas within New York City and examine

detailed population profiles. The geographies include census tracts and NYC Community districts (CDs). The tool allows you to examine associated NYC population data showing the latest demographic, social, economic, and housing characteristics and how these characteristics have changed over time.

You can use the Population FactFinder to create profiles for specific areas, compare different neighborhoods, and explore various aspects of the city's population. It's a great resource for understanding the diverse and dynamic nature of New York City. It has been recently updated with the 2020 census data. American Community Survey (ACS) and 2020 Census data are the main data sources for the 20 indicators of the Population FactFinder.



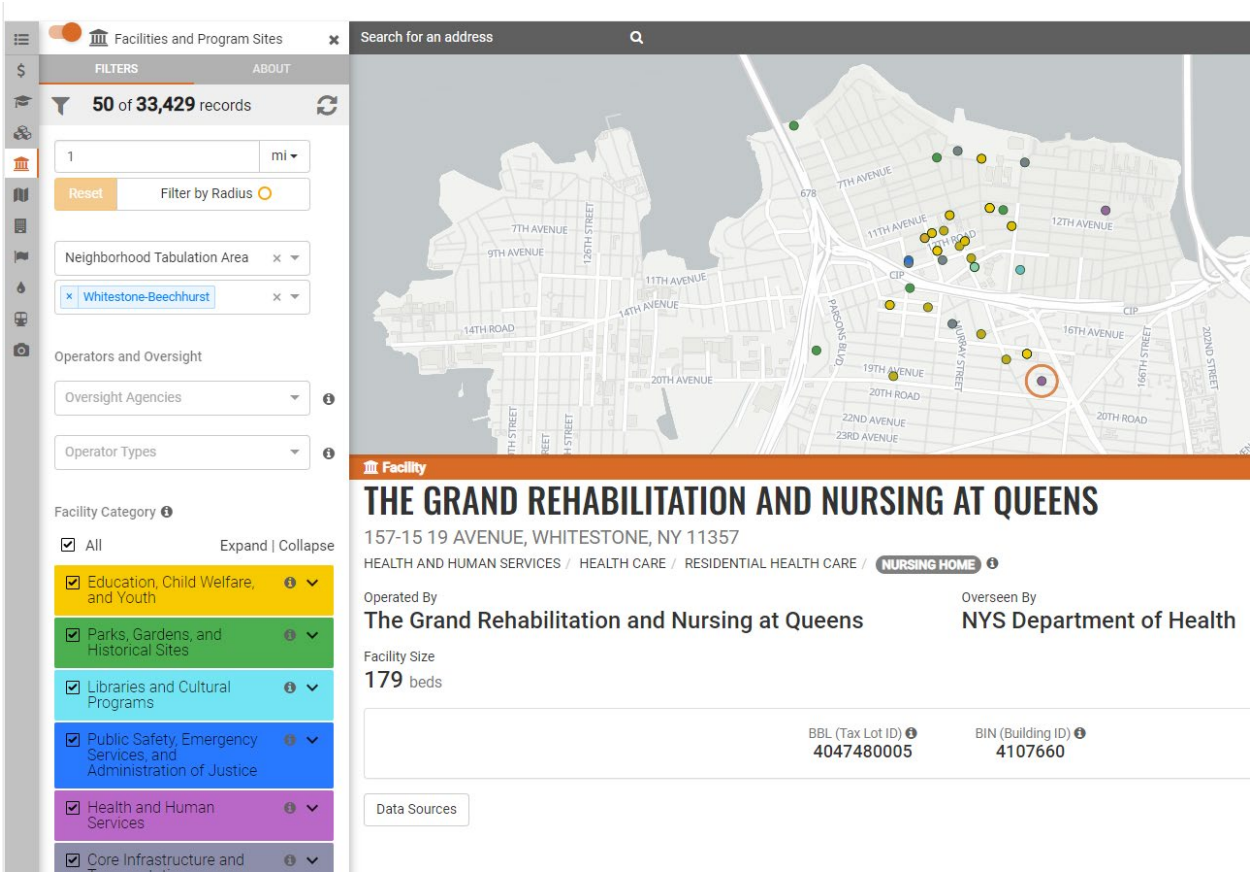
NYC Population FactFinder Visualization example.

Population FactFinder was developed by the NYC Department of City Planning.

NYC FACILITIES EXPLORER

The NYC Facilities Explorer is a new comprehensive dataset of public and private facilities and program sites that shape the quality of New York City neighborhoods. You can see facilities in each ZIP Code or neighborhood (community districts (CDs) and Neighborhood Tabulation Area (NTA)) and descriptions of each facility with its address and other identification information (parks, social service agencies, supermarkets, libraries, medical facilities, schools, etc.).

The main categories of physical facilities and program sites displayed are: education, child welfare, and youth, parks, gardens, and historical sites, libraries and cultural programs, public safety, emergency services, and administrative justice, health and human services, core infrastructure and transportation, administration of government.



NYC Facilities Explorer example.

The NYC Facilities Explorer was developed by the NYC Department of City Planning.

COMMUNITY DISTRICT PROFILES

Community District Profiles shows data, maps, and other resources describing New York City's 59 Community Districts (CDs), each represented by a community board. This web tool enables users to learn more about the city's community districts through interactive graphics and maps that help illustrate each district's built environment through the indicators on:

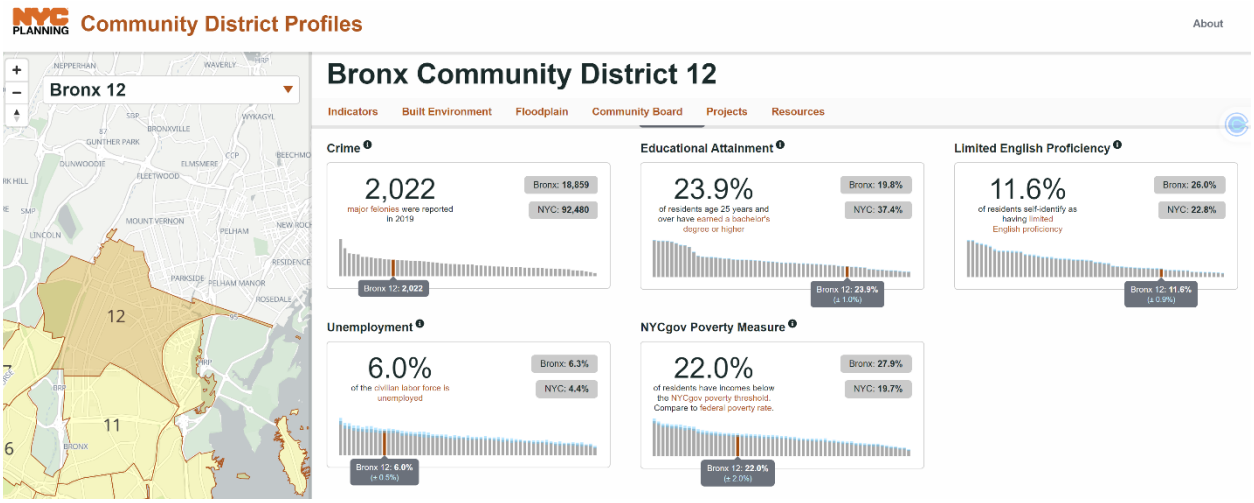
- land use, zoning, facilities,
- flood risks.

as well as socioeconomic and demographic characteristics:

- age,
- NYC poverty measure,
- access to parks,
- rent burden,
- street cleanliness,

- crime
- and other.

It includes a wealth of data and resources that can be easily downloaded in different formats.



NYC Community District Profiles example.

Community District Profiles were developed by the NYC Department of City Planning.

CDC PLACES

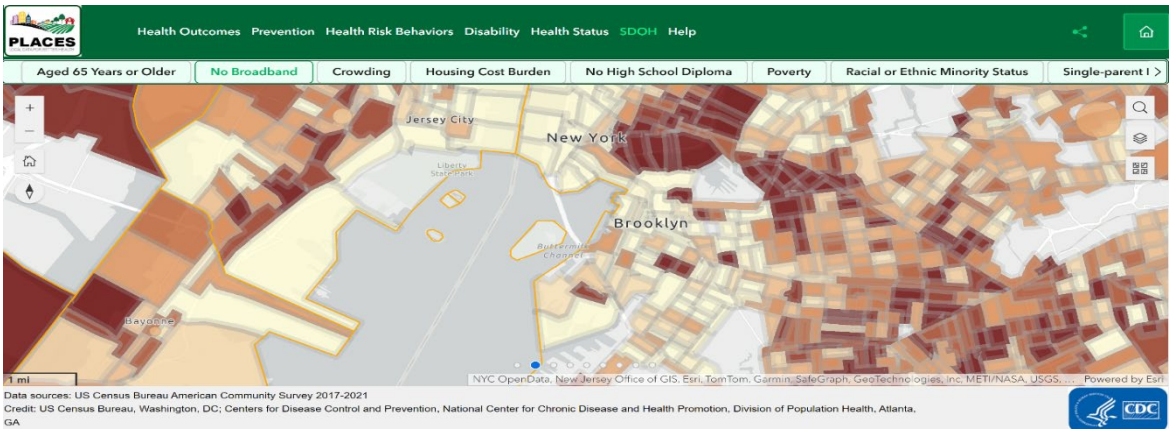
CDC PLACES provides health data for small areas across the country. The geographies range from state to county to ZIP Codes to census tracts. This allows local health departments and jurisdictions, regardless of population size and rurality, to better understand the burden and geographic distribution of health measures in their areas and assist them in planning public health interventions.

PLACES include nine SDOH measures from the Census American Community Survey:

- Persons aged ≥ 65 years
- No broadband internet subscription among households
- Crowding among housing units
- Housing cost burden among households
- No high school diploma among adults aged ≥ 25 years
- Persons living below 150% of the poverty level
- Persons of racial or ethnic minority status
- Single-parent households
- Unemployment among people ≥ 16 years in the labor force

There are also seven HRSN measures:

- Feeling socially isolated among adults
- Received food stamps in the past 12 months among adults
- Food insecurity in the past 12 months among adults
- Housing insecurity in the past 12 months among adults
- Utility services threat in the past 12 months among adults
- Lack of reliable transportation in the past 12 months among adults
- Lack of social and emotional support among adults



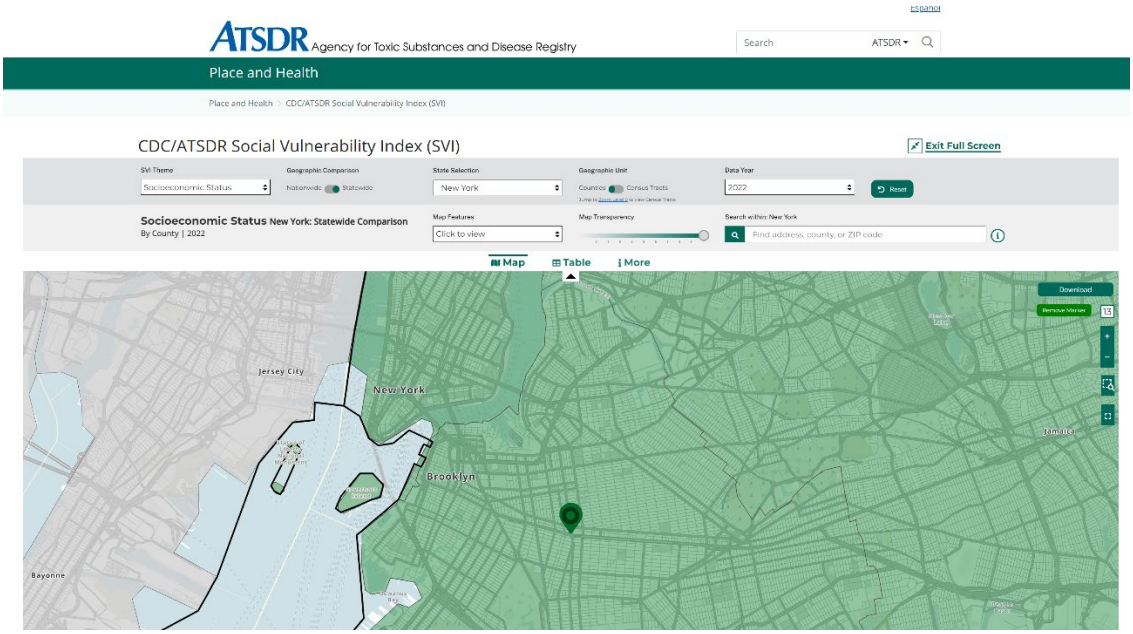
PLACES No Broadband Indicator example. CDC PLACES were developed by CDC, the Robert Wood Johnson Foundation, and the CDC Foundation.

SOCIAL VULNERABILITY INDEX (SVI)

Social Vulnerability Index (SVI) is a place-based index, database, and mapping application designed to identify and quantify communities experiencing social vulnerability, from low to high. The geographies include counties, ZIP Codes, and census tracts. Social vulnerability refers to the demographic and socioeconomic factors (such as poverty, lack of access to transportation, and crowded housing) that adversely affect communities that encounter hazards and other community-level stressors.

The current CDC/ATSDR Social Vulnerability Index uses 16 U.S. census variables from the 5-year American Community Survey (ACS) to identify communities that may need support before, during, or after disasters. These variables are grouped into four themes that cover four major areas of social vulnerability and then combined into a single measure of overall social vulnerability:

- Socioeconomic Status (below 150% Poverty, Unemployed, Housing Cost Burden, No High School Diploma, No Health Insurance)
- Household Characteristics (Aged 65 and Older, Aged 17 and Younger, Civilian with a Disability, Single-Parent Households, English Language Proficiency)
- Racial and Ethnic Minority Status
- Housing Type and Transportation (Multi-Unit Structures, Mobile Homes, Crowding, No Vehicle, Group Quarters)



SVI visualization example. SVI was developed by the Centers for Disease Control and Prevention and Agency for Toxic Substances and Disease Registry, CDC/ATSDR.

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