The COVID Local Risk Index and City Responses to COVID-19

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Learning Objectives

- Learn about and understand the Dashboard’s COVID Local Risk Index, its components and uses
- Learn how the COVID Local Risk Index can help identify vulnerable neighborhoods in your city
- Explore trends in COVID risk across cities and states
- Use the Index to capture disparities in COVID risk within cities
Our goal is to help cities across the U.S. leverage the power of data to improve the health and well-being of everyone in their community.
What Gets Measured Gets Done
The Challenge
US cities are responsible for many strong influences on health

- Safe and affordable housing
- Smoking policies
- Access to healthy food
- Walkability
What does health look like in your city?

Gary, IN
Many cities do not know.

Most health-related data exists only at the county or state level.
Without data cities are making decisions in the dark.
Over 35 measures of health, the factors that shape health, and the drivers of health equity to guide local solutions for 750+ U.S. cities.
Data Enables Change

Without data cities are making decisions in the dark
Measures by Category

- Clinical Care
- Health Behaviors
- Physical Environment
- Health Outcomes
- Social and Economic Factors

City Health Dashboard
## Clinical Care

<table>
<thead>
<tr>
<th>Service</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prenatal care</td>
<td>NVSS</td>
</tr>
<tr>
<td>Primary care physicians</td>
<td>AMA</td>
</tr>
<tr>
<td>Preventive services</td>
<td>500 Cities (BRFSS)</td>
</tr>
<tr>
<td>Dental care</td>
<td>500 Cities (BRFSS)</td>
</tr>
<tr>
<td>Uninsured</td>
<td>ACS</td>
</tr>
</tbody>
</table>
## Health Behaviors

<table>
<thead>
<tr>
<th>Behavior</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teen Births</td>
<td>NVSS</td>
</tr>
<tr>
<td>Smoking</td>
<td>500 Cities (BRFSS)</td>
</tr>
<tr>
<td>Binge Drinking</td>
<td>500 Cities (BRFSS)</td>
</tr>
<tr>
<td>Physical Inactivity</td>
<td>500 Cities (BRFSS)</td>
</tr>
</tbody>
</table>
### Physical Environment

<table>
<thead>
<tr>
<th>Physical Environment</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air pollution – particulate matter</td>
<td>ALA</td>
</tr>
<tr>
<td>Park access</td>
<td>ParkServe®</td>
</tr>
<tr>
<td>Walkability</td>
<td>Walk Score®</td>
</tr>
<tr>
<td>Limited access to healthy foods</td>
<td>USDA</td>
</tr>
<tr>
<td>Housing with potential lead risk</td>
<td>ACS</td>
</tr>
<tr>
<td>Lead exposure risk index</td>
<td>ACS</td>
</tr>
</tbody>
</table>
# Health Outcomes

<table>
<thead>
<tr>
<th>Health Outcome</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>COVID Local Risk Index</td>
<td>City Health Dashboard</td>
</tr>
<tr>
<td>Breast cancer deaths</td>
<td>NVSS</td>
</tr>
<tr>
<td>Premature deaths (all causes)</td>
<td>NVSS</td>
</tr>
<tr>
<td>Cardiovascular disease deaths</td>
<td>NVSS</td>
</tr>
<tr>
<td>Low birthweight</td>
<td>NVSS</td>
</tr>
<tr>
<td>Colorectal cancer deaths</td>
<td>NVSS</td>
</tr>
<tr>
<td>Opioid overdose deaths</td>
<td>NVSS</td>
</tr>
<tr>
<td>Obesity</td>
<td>500 Cities (BRFSS)</td>
</tr>
<tr>
<td>Diabetes</td>
<td>500 Cities (BRFSS)</td>
</tr>
<tr>
<td>High blood pressure</td>
<td>500 Cities (BRFSS)</td>
</tr>
<tr>
<td>Frequent physical distress</td>
<td>500 Cities (BRFSS)</td>
</tr>
<tr>
<td>Frequent mental distress</td>
<td>500 Cities (BRFSS)</td>
</tr>
<tr>
<td>Life expectancy</td>
<td>USALEEP (NCHS)</td>
</tr>
</tbody>
</table>

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**USALEEP** (National Center for Health Statistics)

**NVSS** (National Vital Statistics System)

**BRFSS** (Behavioral Risk Factors Surveillance System)
## Social and Economic Factors

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absenteeism</td>
<td>NCES/Civil Rights</td>
</tr>
<tr>
<td>Third-grade reading proficiency</td>
<td>State data</td>
</tr>
<tr>
<td>High School Graduation</td>
<td>State data</td>
</tr>
<tr>
<td>Children in poverty</td>
<td>ACS</td>
</tr>
<tr>
<td>Income inequality</td>
<td>ACS</td>
</tr>
<tr>
<td>Neighborhood racial/ethnic segregation</td>
<td>ACS</td>
</tr>
<tr>
<td>Racial/ethnic diversity</td>
<td>ACS</td>
</tr>
<tr>
<td>Housing cost, excessive</td>
<td>ACS</td>
</tr>
<tr>
<td>Unemployment</td>
<td>ACS</td>
</tr>
<tr>
<td>Violent Crime</td>
<td>UCR</td>
</tr>
</tbody>
</table>
Measures by Category

**Health Outcomes**
- Breast cancer deaths
- Cardiovascular disease deaths
- Colorectal cancer deaths
- COVID Local Risk Index
- Diabetes
- Frequent physical distress
- Frequent mental distress
- High blood pressure
- Life expectancy
- Low birthweight
- Obesity
- Opioid overdose deaths
- Premature deaths (all causes)

**Clinical Care**
- Dental care
- Prenatal care
- Preventive services
- Primary care physicians
- Uninsured

**Physical Environment**
- Air pollution – particulate matter
- Housing with potential lead risk
- Lead exposure risk index
- Limited access to healthy foods
- Park access
- Walkability

**Health Behaviors**
- Binge Drinking
- Physical Inactivity
- Smoking
- Teen Births

**Social and Economic Factors**
- Absenteeism
- Children in poverty
- High School Graduation
- Housing cost, excessive
- Income inequality
- Neighborhood racial/ethnic segregation
- Racial/ethnic diversity
- Third-grade reading proficiency
- Unemployment
- Violent Crime

City level
Neighborhood level
The City Health Dashboard

www.cityhealthdashboard.com
The COVID Local Risk Index

What is it, how did we create it, how can you use it?
The Need for a COVID Local Risk Index

- State and city policy makers need granular data to guide COVID preparation and response

- Other data tools exist to assess neighborhood risk but most have limitations:
  - Use of state or county data
  - Focus on access to health care services
  - Do not incorporate clinical factors related to severity
Purpose of the COVID Local Risk Index

◦ To provide state and city stakeholders granular information about city and neighborhood-level COVID risk

◦ To help stakeholders allocate resources to communities at greatest risk for COVID infection and poor COVID outcomes

◦ Not intended to predict case counts or mortality
  ◦ Numerous unmeasured factors affect case counts, including especially variation in COVID testing, seeding (travel patterns), and local super spreader events
  ◦ Health systems and health access affect mortality, granular data not available
Components and weighting

- The index is comprised of three primary groups of variables:
  - Group one: CDC’s Social Vulnerability Index
    - A combination of demographic and economic variables drawn from US Census data which captures tract-level susceptibility to natural disasters
    - Validated against COVID case rate data, used in other data tools
  - Group two: Clinical health conditions related to severe COVID outcomes
  - Group three: Two factors that merit additional weight
    - Age, percent minority
- Variables weighted according to evidence based on synthesis of high quality studies. Weighting will be reviewed periodically as evidence accrues

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2. For clinical outcomes citations see CHDB Metric One page at [https://www.cityhealthdashboard.com/metric/1452](https://www.cityhealthdashboard.com/metric/1452)
<table>
<thead>
<tr>
<th>Theme</th>
<th>Data Source</th>
<th>Theme Weight</th>
<th>Component</th>
<th>Component Weight</th>
</tr>
</thead>
</table>
| Social Vulnerability | CDC Social Vulnerability Index, calculated using American Community Survey 2018 5 Year Estimates | 45% | Group 1: Socioeconomic Status  
- Persons below 100% of the federal poverty line  
- Civilian (age 16+) unemployed  
- Per capita income  
- Persons (aged 25+) with no high school diploma | 3% per component |
| | | | Group 2: Household Composition & Disability  
- **Persons aged 65+**  
- Persons aged 17 and younger  
- Civilian non-institutionalized population with a disability  
- Single parent household with children under 18 |  |
| | | | Group 3: Minority Status & Language  
- **Minority (all persons except white, non-Hispanic)**  
- Persons (age 5+) who speak English "less than well" |  |
| | | | Group 4: Housing Type & Transportation  
- Housing in structures with 10+ units  
- Mobile homes  
- **At household level (occupied housing units), more people than rooms**  
- Households with no vehicle available  
- Persons in institutionalized group quarters |  |
| COVID-related Chronic Health Conditions | 500 Cities Project, 2017 1 Year Modeled Estimate | 45% | High blood pressure among adults aged 18+ | 14% |
| | | | Coronary heart disease among adults aged 18+ | 7% |
| | | | Diagnosed diabetes among adults aged 18+ | 7% |
| | | | Chronic kidney disease among adults aged 18+ | 7% |
| | | | Obesity among adults aged 18+. | 10% |
| COVID-related Demographics | American Community Survey, 2018 5 Year Estimates | 10% | Minority (all persons except non-Hispanic white) | 3% |
| | | | Persons aged 75 to 84 | 2% |
| | | | Persons aged 85+ | 5% |
What should the index be used for?

- Guide resource allocation
- Direct testing and outreach efforts
- Identify neighborhoods that have more or fewer than expected cases
- Advocate for more resources (state, local, federal)
What should the index *not* be used for?

- Predicting case counts
- Predicting deaths
- Evaluating prevention efforts
Does it work?

- Difficult to validate because data are lacking
- “This tracks”
- Correlated with tract-level case rates
Manchester city officials encourage all residents to be tested for COVID cases rise locally, statewide

By Keith Inman Sun Staff Writer 18 hrs ago

Those in elevated risk

JONESBORO — City officials may have more than one face mask measure to consider as the number of coronavirus cases in Arkansas continues to grow.

On another front, Jonesboro is listed as a city that is at risk for serious impacts from COVID-19 rates.

The Department of Population Health at New York University has developed a City Health Dashboard Local Risk Index among the 500 most populous cities in the country. On a scale of 1 to 10, Jonesboro rates a 7, because of risk levels based on factors that could contribute to high numbers of COVID-19 cases and severe health outcomes, such as socioeconomic status, age and underlying health conditions.
Prosper Waco Collaboration

- Prosper Waco (Waco, TX) has used the Index to craft the city’s response to COVID

  "Sentinel death"

- Attempting to identify neighborhoods that could benefit from more testing

- Also trying to identify ‘protective factors’ that may contribute to preventing high positive test counts in high-risk neighborhoods
  - “Sentinel death”
Findings in Waco

- Five neighborhoods are at the highest risk, scoring 10 out of 10 for local risk
- Risk is concentrated in two city council districts
- Social and demographic factors seem to be driving vulnerability
Impact on Progress

- The index has spurred on curiosity and underscored the need for looking at case and testing data at the neighborhood level.

  Places in the city with relatively high risk scores but few cases could imply a testing issue. This may be the case in at least two Waco neighborhoods.

  Questions we are considering moving forward:

  - What is the demographic makeup of our city relative to the high risk neighborhoods?
  - How many essential workers are within high risk neighborhoods? What industry is the major employer of a given census tract?
  - Are COVID-related deaths and hospitalizations connected to high risk neighborhoods?
  - What are the resources available in these high risk communities (testing, clinics, community health workers, meals sites, transportation, messaging)?
  - What observations do community organizers and residents have about these neighborhoods and their risks/protective factors that might be worth verifying?
City and Neighborhood Findings
Cities in the news

- Miami
  - COVID Local Risk Index: 10 Neighborhood Range: 1 - 10
- Jacksonville
  - COVID Local Risk Index: 10 Neighborhood Range: 1 - 10
- Dallas
  - COVID Local Risk Index: 8 Neighborhood Range: 1 - 10
- Phoenix
  - COVID Local Risk Index: 6 Neighborhood Range: 1 - 10
Why does range matter?

- COVID can take root in any neighborhood at any time
- Higher-risk neighborhoods may provide a foothold for the disease
- Should receive more resources
- Ethics always
- Almost 40% of cities (193/500) have neighborhood range of 1 – 10
What now?
Data to Action

◦ City data available at www.cityhealthdashboard.com

◦ Email me for data files
  ◦ Benjamin.spoer2@nyulangone.org

◦ Work with us!

◦ Stay well/ get well
Thank you!

www.cityhealthdashboard.com
Thank you!

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info@cityhealthdashboard.com

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