JOHN REX ENDOWMENT

Mapping Social Determinants of Health for Children and Families in Wake County

February 15, 2018

THE NORTH CAROLINA
Institute *for* Public Health

UNC
GILLINGS SCHOOL OF
GLOBAL PUBLIC HEALTH

Webinar Leaders

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Webinar Agenda

- Webinar Housekeeping
- Overview of Assessment

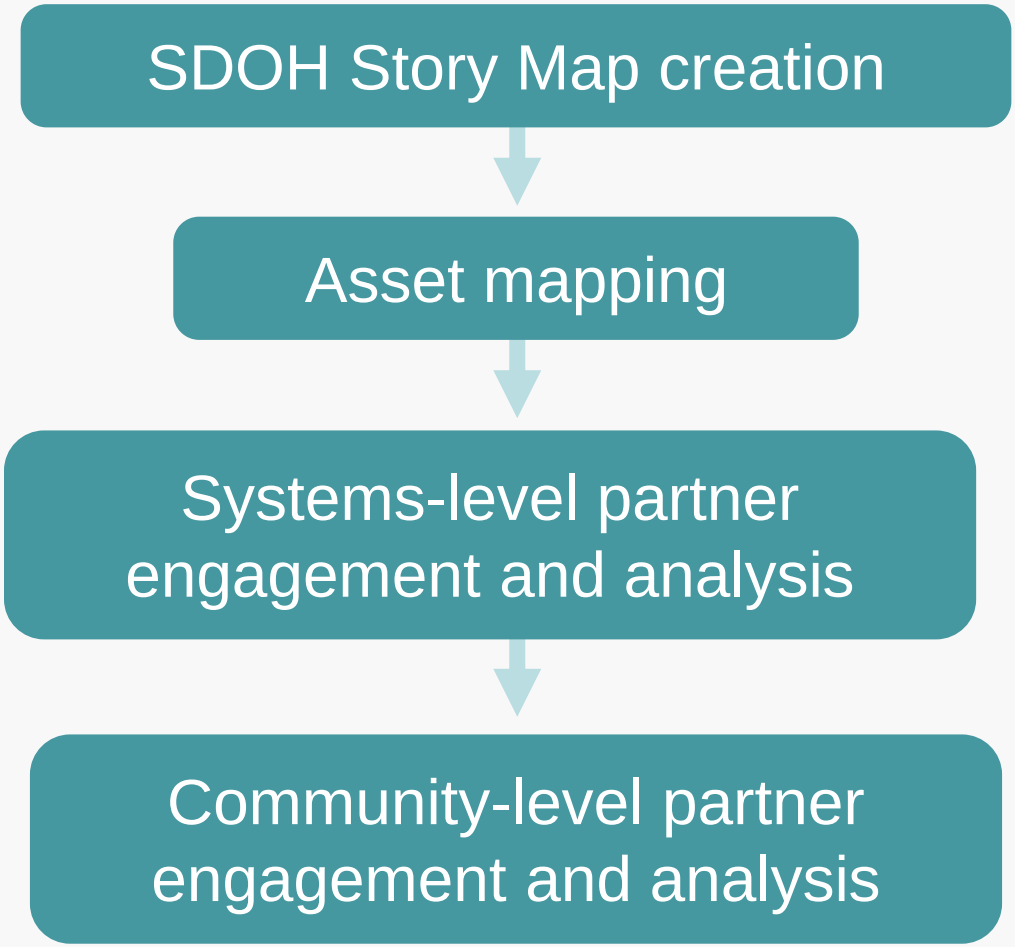
- Social Determinants of Health
  - Frameworks, Indicator Selection and Index
- Story Map Demo
- Asset Map Demo

ASSESSMENT OF SOCIAL DETERMINANTS OF HEALTH IN WAKE COUNTY

Purpose of the assessment

- Graphically and contextually locate vulnerable children and their families;
- Identify trends, consistencies, gaps and disparities;
- Provide guidance on interpretation and utilization of the SDOH data and key informant interviews.

Iterative Process



Lay of the land

Lay of the land*

249,114 children

Race/ethnicity of those children:

- 52% White
- 22% Black or African-American
- 15% Hispanic

Photo courtesy of the U.S. Department of Agriculture
https://www.flickr.com/photos/usdagov/13434141274

*Data source: U.S. Census, American Community Survey 5-year estimates (2011-2015)

Vulnerable families

- 33% of families living in poverty in Wake County*
- 15,000 children living in 14 neighborhoods with “high opportunity for positive change”
  - 17% headed by single mothers
  - 49% high housing costs
  - 32% low access to food and transportation

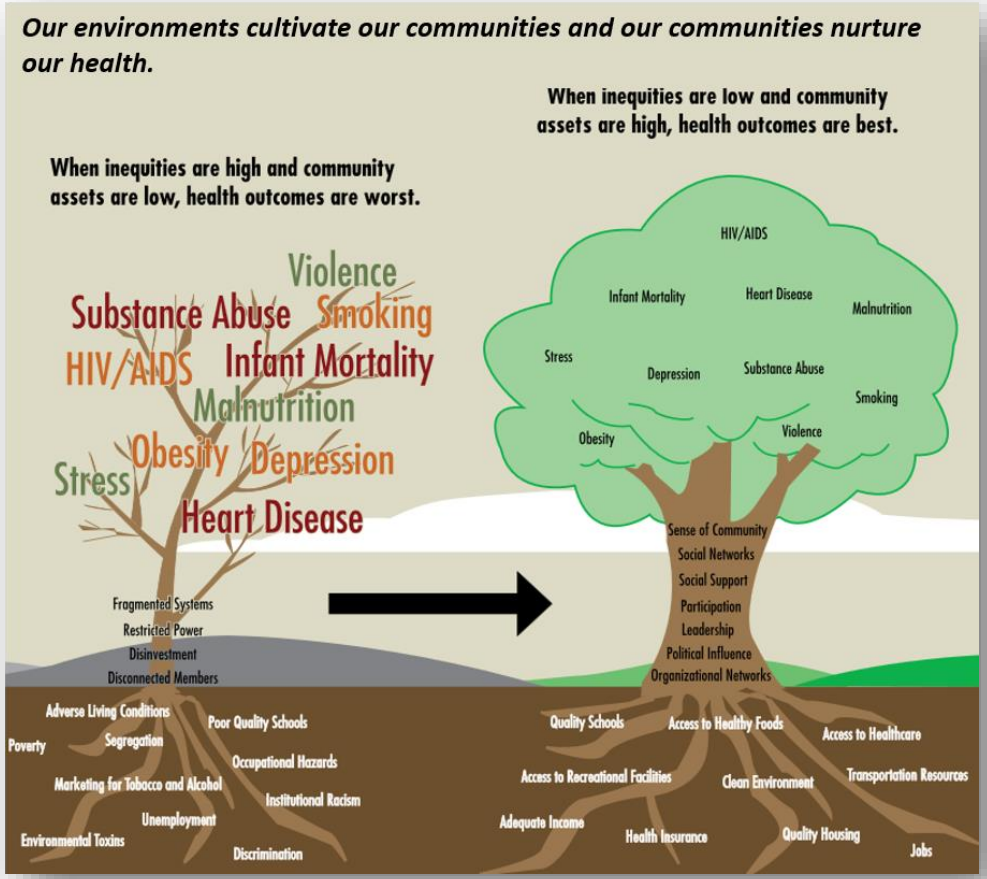
*200% FPL, families with children, 2015 ACS

SOCIAL DETERMINANTS OF HEALTH

Social Determinants of Health (SDOH)

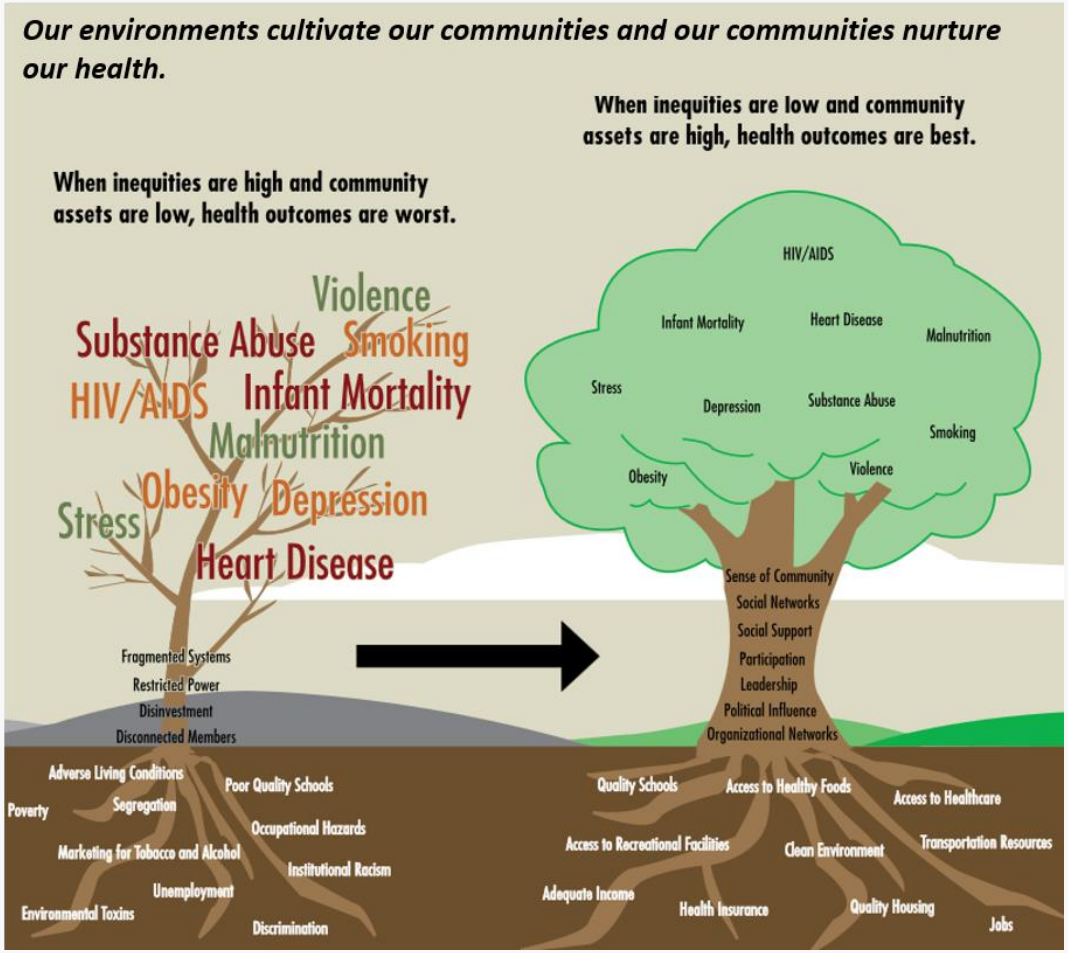
Conditions in the environment in which people live, work, play and worship that affect a wide range of health and quality of life outcomes.

- Healthy People 2020



CDC adapted from Anderson et al, 2003; Marmoetal, 1999; and Wilkinson et al, 2003.39–41

Social Determinants of Health



Source: CDC

Social Determinants of Health

Figure 2

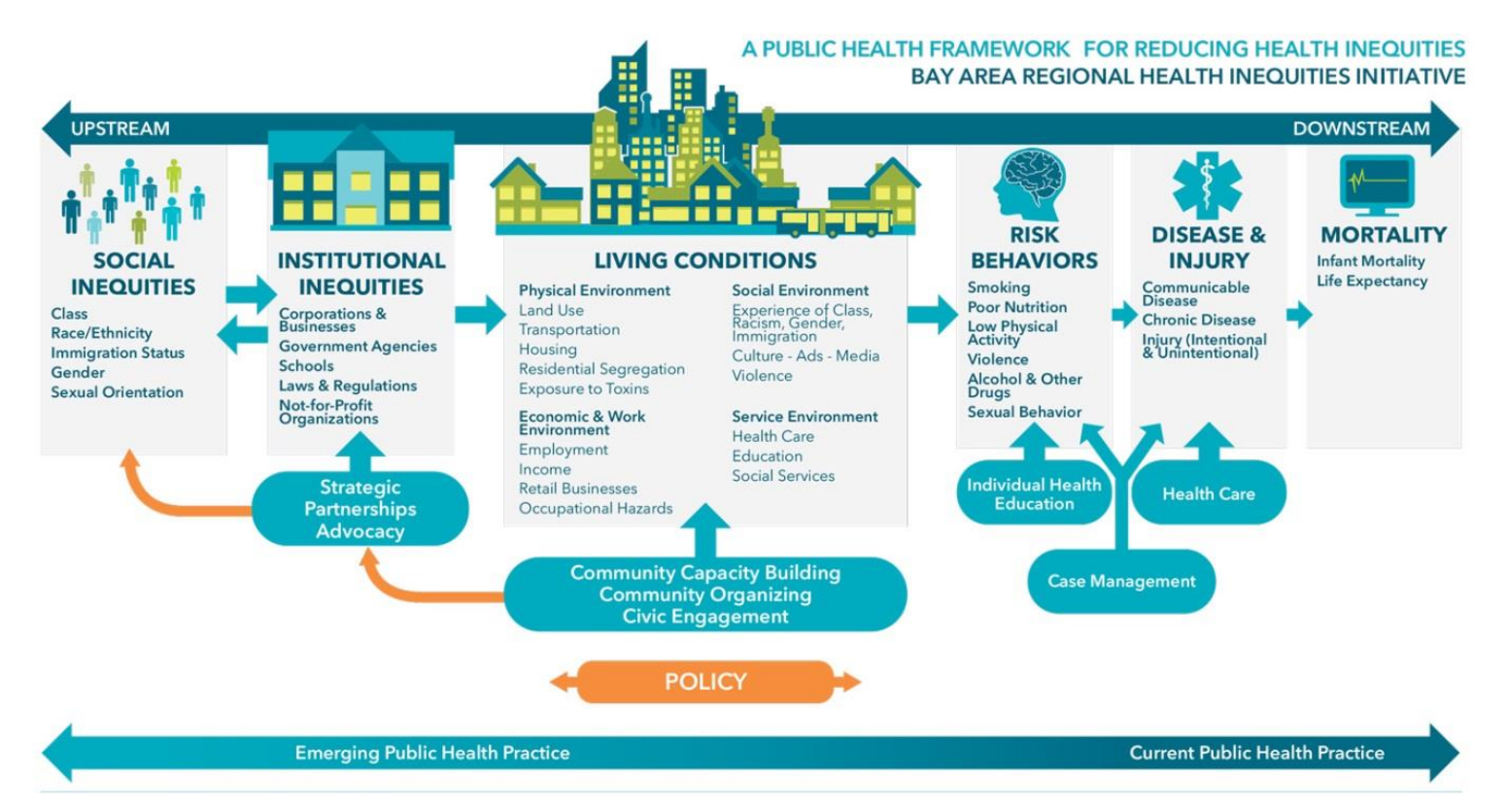
Social Determinants of Health

Economic Stability	Neighborhood and Physical Environment	Education	Food	Community and Social Context	Health Care System
Employment	Housing	Literacy	Hunger	Social integration	Health coverage
Income	Transportation	Language	Access to healthy options	Support systems	Provider availability
Expenses	Safety	Early childhood education		Community engagement	Provider linguistic and cultural competency
Debt	Parks	Vocational training		Discrimination	Quality of care
Medical bills	Playgrounds	Higher education			
Support	Walkability				

Health Outcomes
Mortality, Morbidity, Life Expectancy, Health Care Expenditures, Health Status, Functional Limitations

THE HENRY J. KAISER FAMILY FOUNDATION

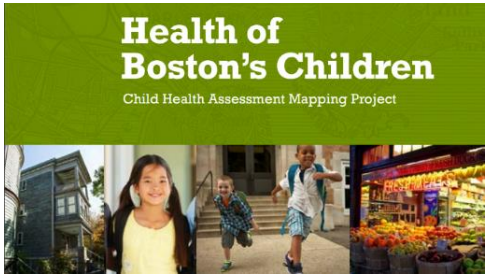
Social Determinants of Health



Source: CDC

Indicator Selection Process

- Lit review
  - California Disadvantage Index
  - Health of Boston's Children
  - Child Opportunity Index
  - School-based Health Alliance
  - AAP Child Health Mapping Project
- SME review
- Shared initial list of 40 indicators with John Rex Endowment



diversitydatakids.org
data for a diverse and equitable future

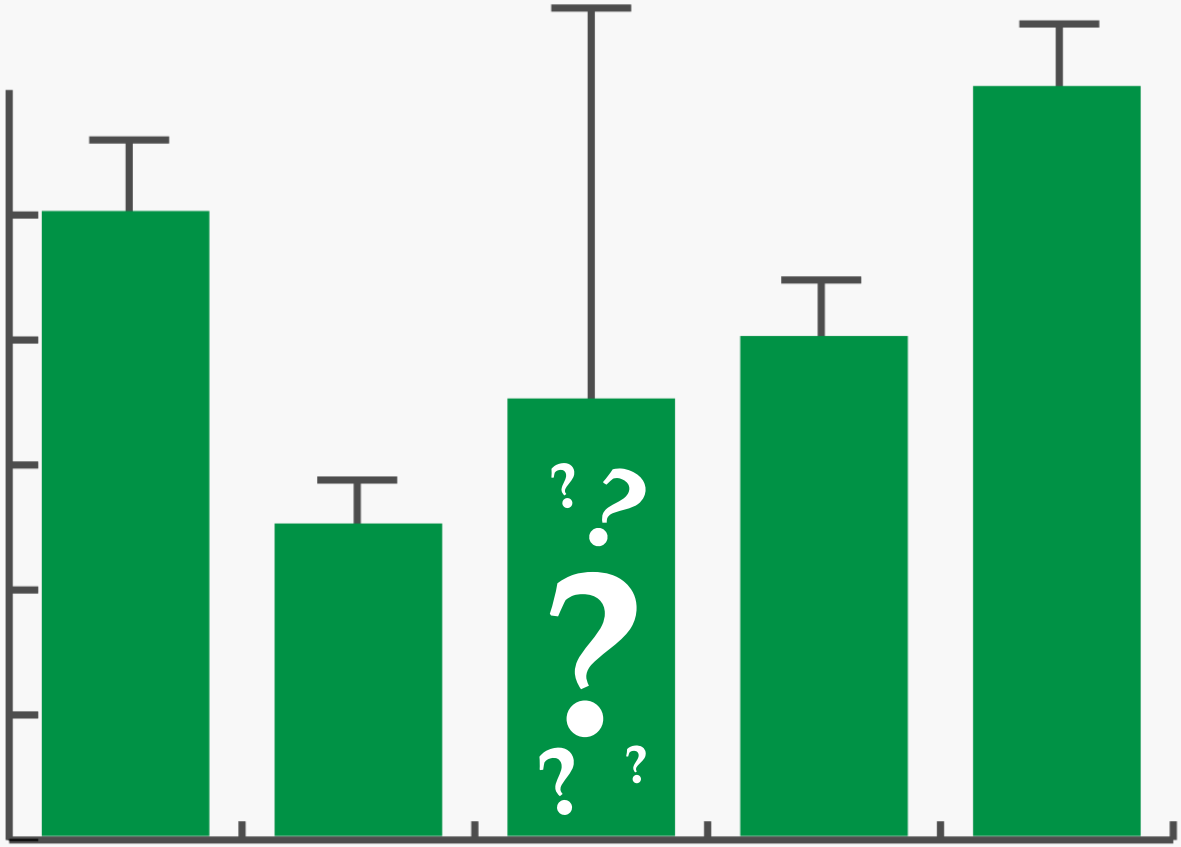
SCHOOL-BASED
HEALTH ALLIANCE
Redefining Health for Kids and Teens

American Academy
of Pediatrics
DEDICATED TO THE HEALTH OF ALL CHILDREN™

Data Sources

- American Community Survey 2015 (5-year)
- USDA Food Deserts 2015
- Wake Long Range Planning Department
  - Important community services (libraries, parks, pediatricians, police and fire stations etc.)
  - NC CDEE (HQ Child Care Centers)

Reliability Assessment



Reliability Assessment

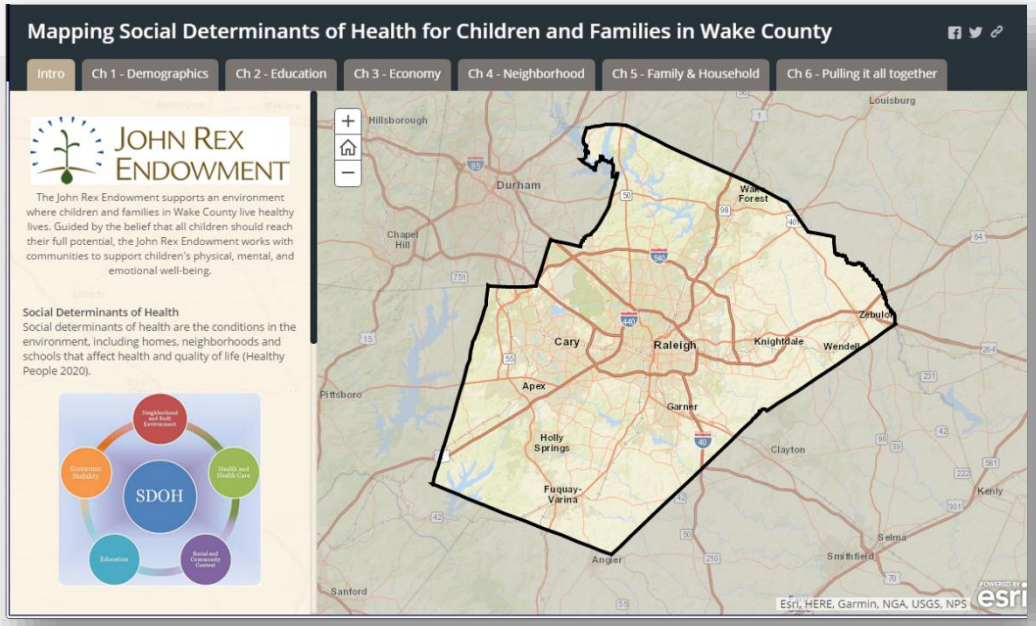
- For Census data
  - Margin of error used to calculate a coefficient of variation which translates to a reliability
  - Published reliability for every SDOH indicator
- Eliminated indicators based on poor reliability
  - Unemployment (median margin of error was 57.5% of estimate for Wake County, ~1/3 low reliability)

Reliability Assessment

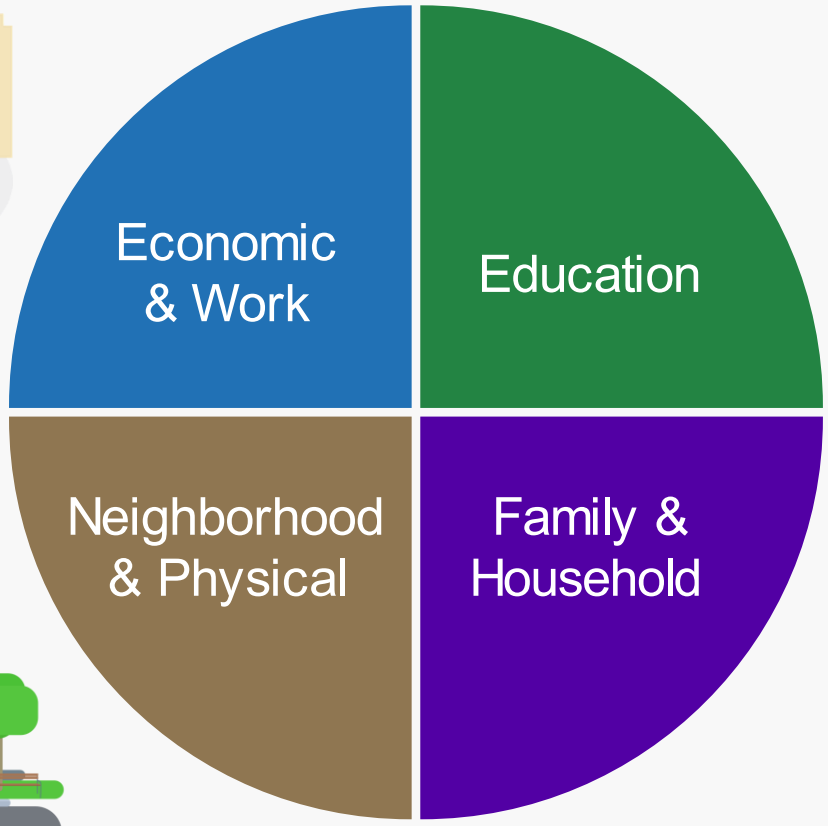
- Binned indicators differently to improve reliability
  - Education > High School
  - School enrollment ages 3-18

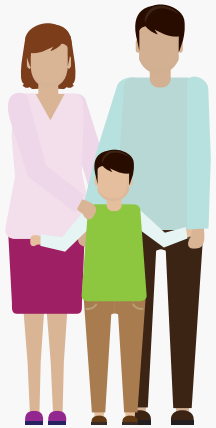
Mapping SDOH

- 12 SDOH indicators at the neighborhood level (Census Tracts)
- Interactive web map
- Created index to summarize all indicators into a single variable



SDOH Index Creation



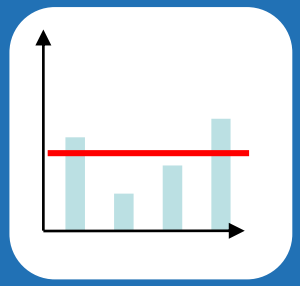


- Family poverty
- Households receiving Food Stamps/SNAP
- Uninsured individuals

- % of families with children <18 years old, below 200% federal poverty line (FPL)

- 200% FPL chosen to better account for high cost of living in Wake

- Other indicators considered: individual poverty, child poverty, unemployment



Family Poverty

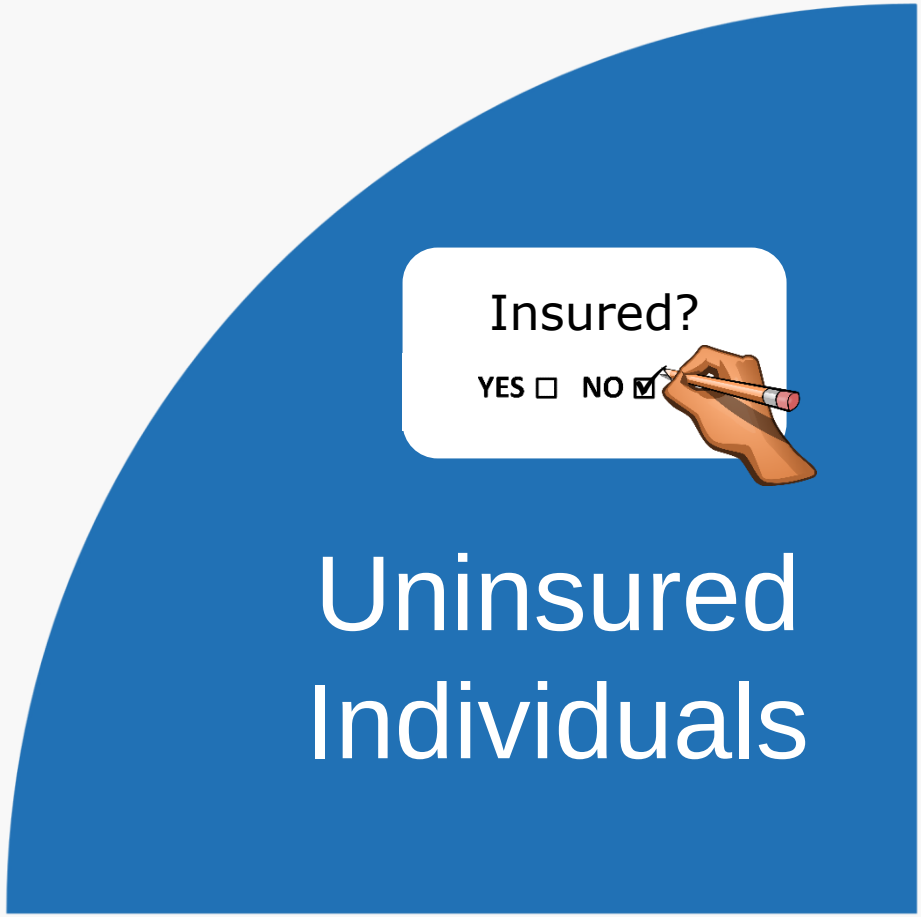
- % of households receiving food stamps/SNAP

- SNAP eligibility determined by FPL (130-200%) and resource test

- Other indicators considered: public assistance rate (cash, SSI), children receiving SNAP, housing assistance, free-lunch

Food Stamps/ SNAP

- % of individuals without public or private insurance
- Financial stability and access to preventative care
- Other indicators considered: uninsured children



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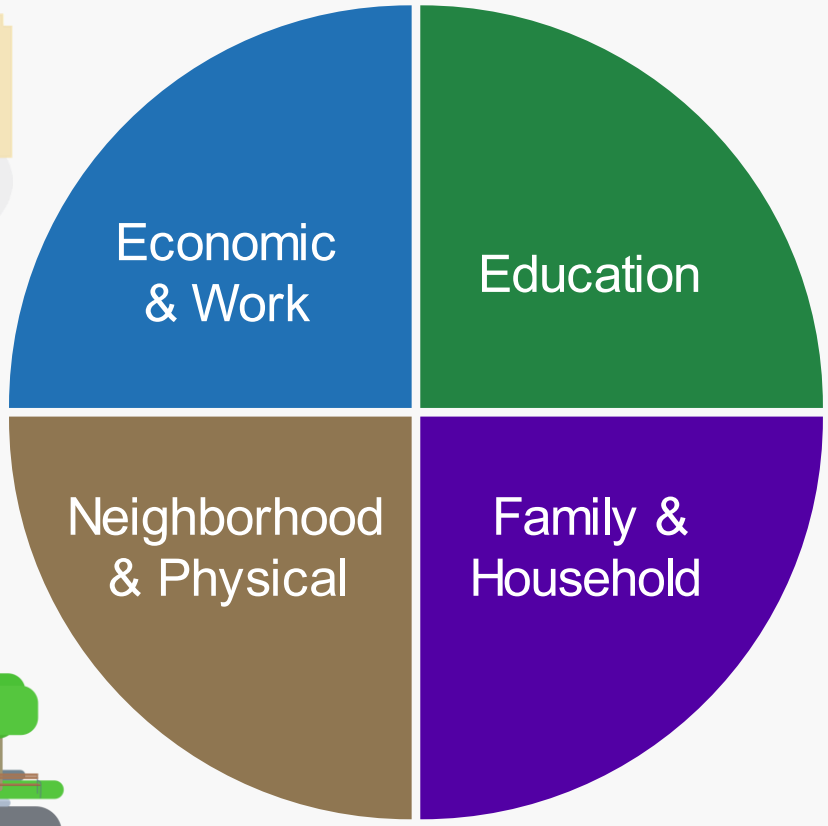
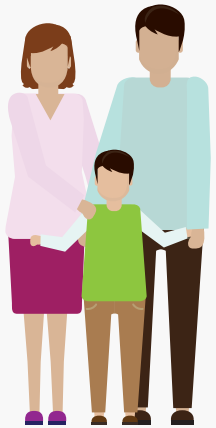
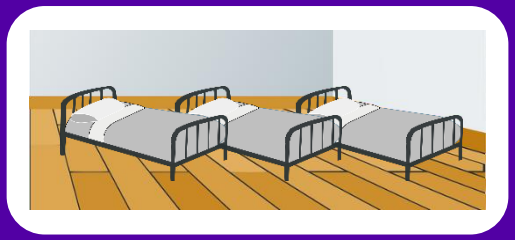




Family & Household

- Crowded households
- High housing costs
- Single-parent female headed households

Crowded Households



- More than one person/room
- An indicator of severe housing problems used by School-Based Health Alliance
- Other indicators considered, lacking complete plumbing or kitchen facilities

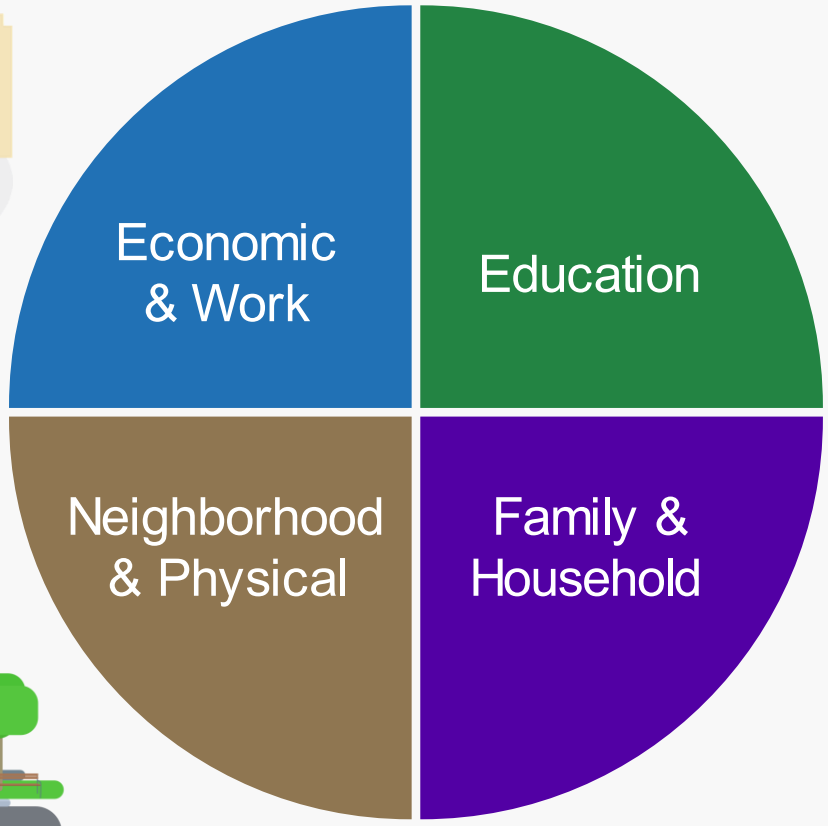
High Housing Costs

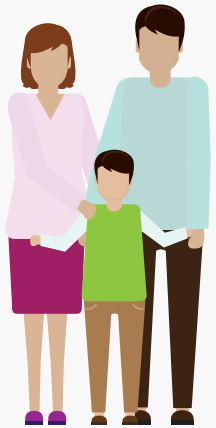
- Households paying more than 30% of their income on rent or a mortgage
- Frequent moves, poor health, behavioral, and academic problems
- Other indicators considered: percent renters, cost of living

Single-parent, female-headed households

- % of families with children headed by females
- More likely to be food insecure and living in poverty
- Other indicators considered: single-parent households

SDOH Index Creation





- Low access to healthy food sources
- Access to community services and resources
- Income inequality (80/20 ratio)

Neighborhood & Physical

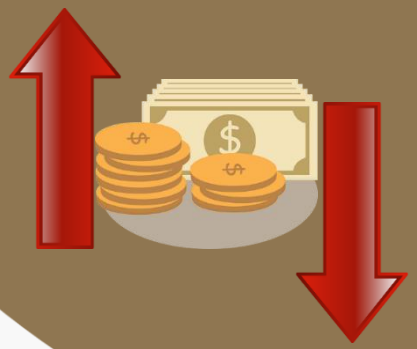
Low Access to Healthy Food Sources

- USDA Food Desert data defined as low income neighborhoods with <u>low access to supermarkets and low vehicle access</u>
- More than ½ mile (urban areas) or more than 10 miles (rural areas) from the nearest supermarket, supercenter, or large grocery store
- Note that reliability is not published by USDA

- Density measure of community services:
  - Gas stations, pediatric offices, libraries, fire and police stations, EMS stations schools, public parks, and public transportation stations
- Number of people ‘served’ by each resource
- Wake Long Range Planning data – Places of Interest

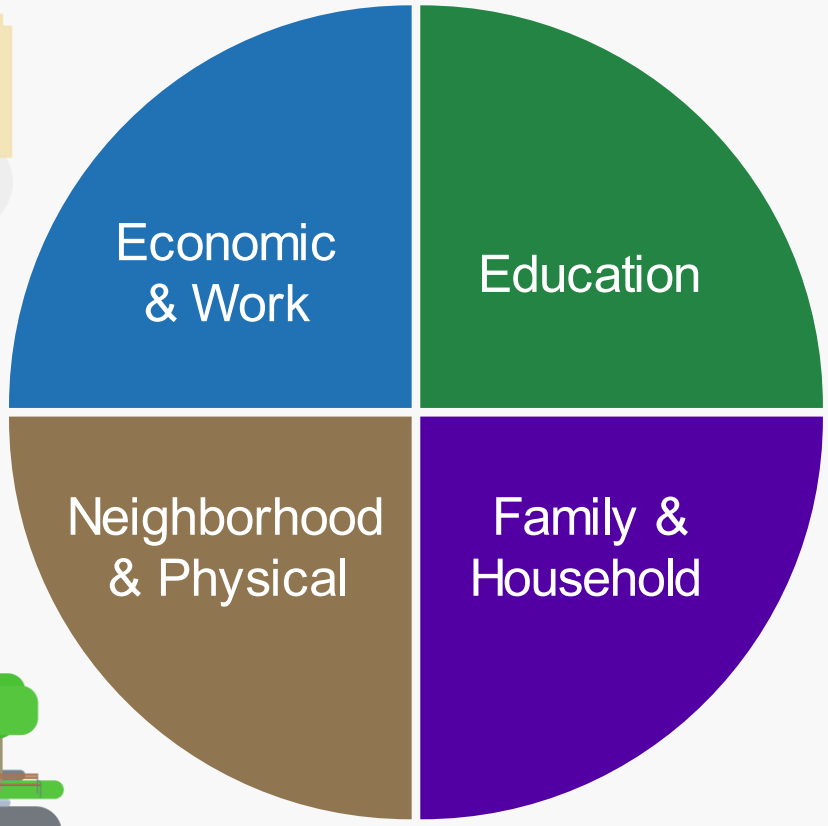
Access to community services and resources

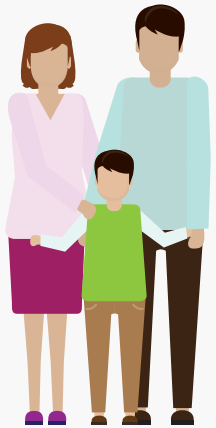
Income inequality (80/20 ratio)



- Ratio of income at the 80th percentile to income at the 20th percentile
  - $500,000 : $50,000 = 10
  - $100,000 : $50,000 = 2.0
- Wake = 4.3, NC = 4.8, US = 5.0
- Broad health impacts, social stress and loss of connections and sense of community
- Opportunity Index and RWJF County Health Rankings

SDOH Index Creation





- Access to high quality child care facilities
- School enrollment (3-17 years old)
- Individuals with at least a high school education

Access to High Quality Child Care Facilities

- Number of high quality child care facilities (4 and 5 stars) divided by the number of children < 5
  - 311 in Wake County
- NC Division of Child Development and Early Education
- Other indicator considered: 3-4 year old enrollment

School Enrollment

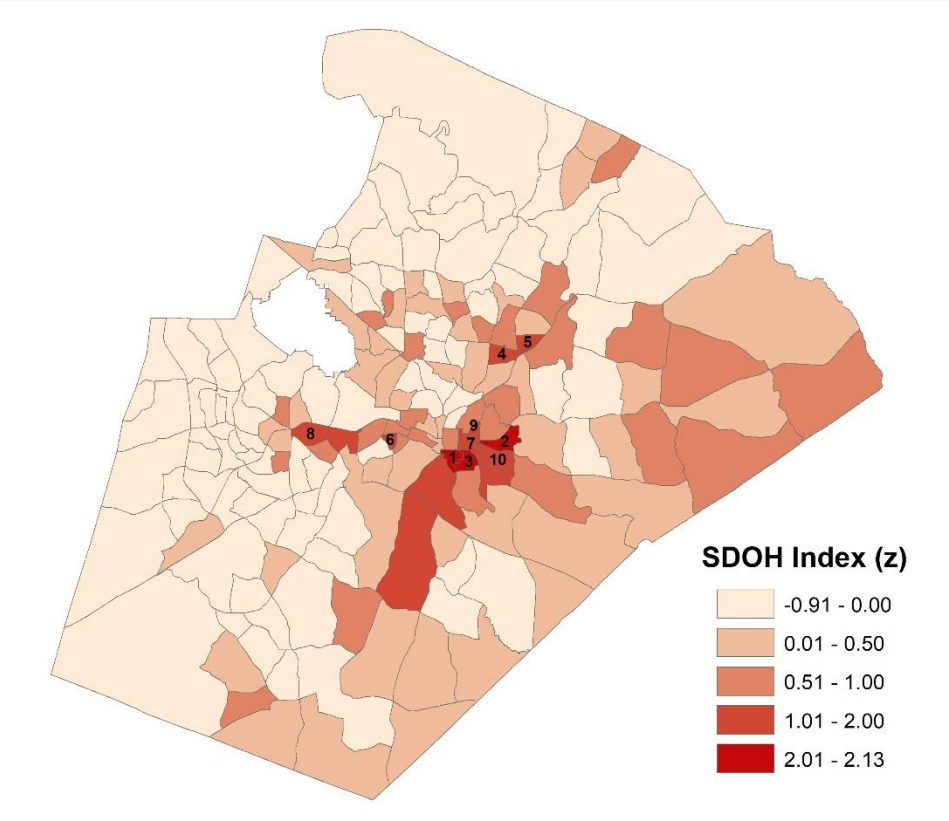
- Percentage of ALL children enrolled in school (ages 3-17)
- More variability and reliability by looking at entire range of ages
- Other indicators considered: test scores, reading and math levels

High School Education

- Includes people who received a diploma or GED
- Low education closely linked with poor health outcomes
- Other indicators considered: associate's or higher, < high school

Index

- z-scores
- Equally weighted
- A measure of how far above or below ALL indicators are from County average
- Wake-specific



STORY MAP DEMO

Follow along if you would like!

https://tinyurl.com/JREmap

- Basic navigation through the story
  - Chapter set up
  - Pan, zoom, identify
- Some interesting findings
- User Guide
  - https://tinyurl.com/JRE-Guide

Advanced Applications

ASSET MAPPING

Outline

- Navigating the layers and functions
- Uploading additional data
  - Your own data
  - Existing map and feature services on AGOL
- Facilitated Q&A

ASSET MAP DEMO

Contact

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