

# Contextual Factors Relevant for External Causes of Death: Policy, Availability, and Population Health

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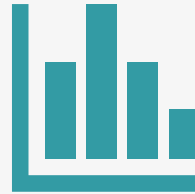
LAUREN GAYDOSH & ILIYA GUTIN

2024 ADD HEALTH USERS CONFERENCE

# Outline



Motivation



Description of  
measures



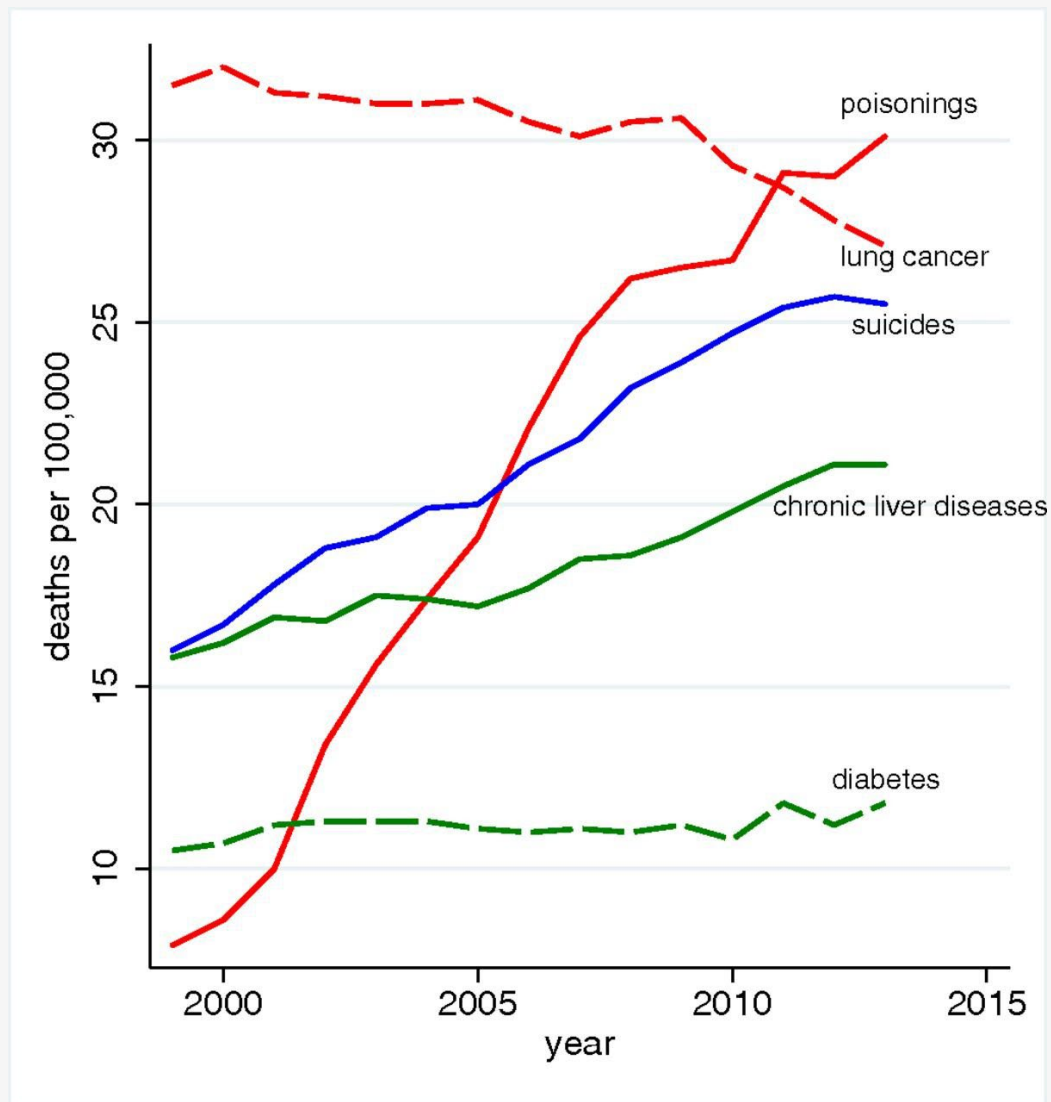
Preliminary results



# Motivation

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# Rising midlife mortality



Suicide

Drug overdose

Alcohol related liver disease



# Middle-Aged White Americans Are Dying of Despair

Even as longevity increases across the rich world, uneducated white Americans are living sicker and dying earlier. Two economists speculate on the reasons why.

## Explanations

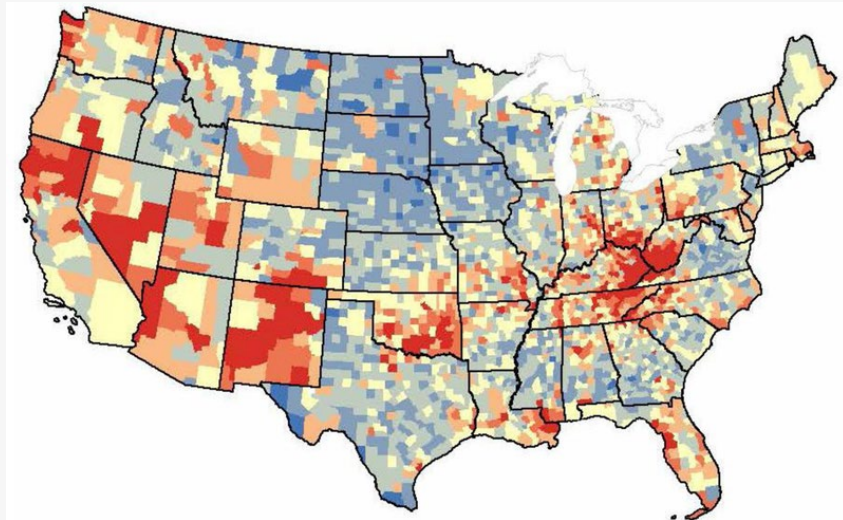
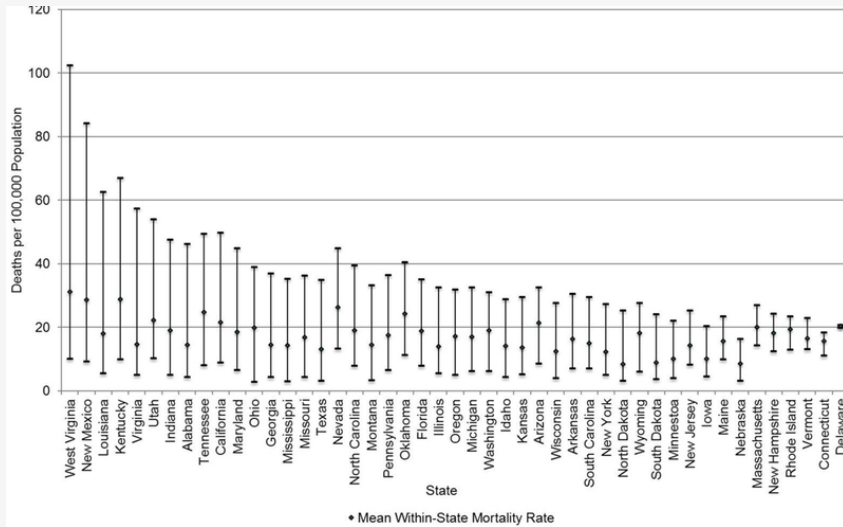
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### Demand side

- Social isolation
- Macroeconomic and social changes

### Supply side

- Availability
- Prescribing



# Importance of place

Mortality exhibits wide variation based on “place”, suggesting **geographic context matters** in understanding social etiology of declines in life expectancy

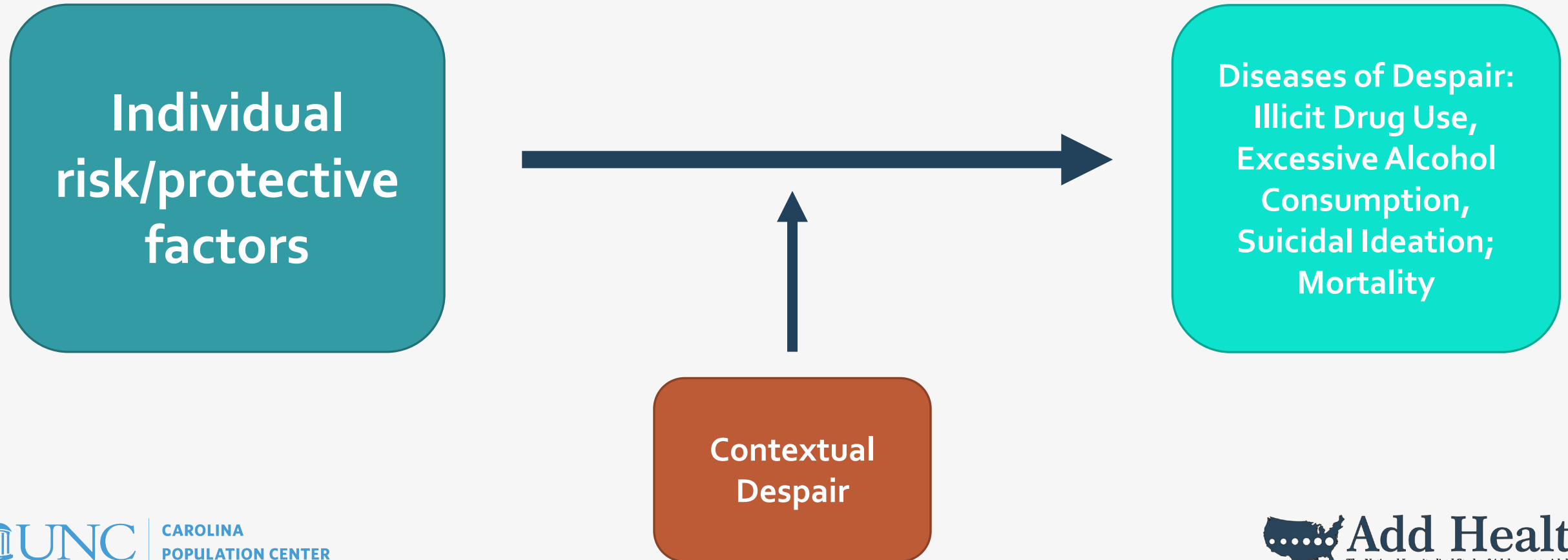
# What can individual-level, longitudinal data help explain?

Individuals embedded in places over time helps to **distinguish between effects of individual versus community factors** (i.e., avoiding the ecological fallacy)

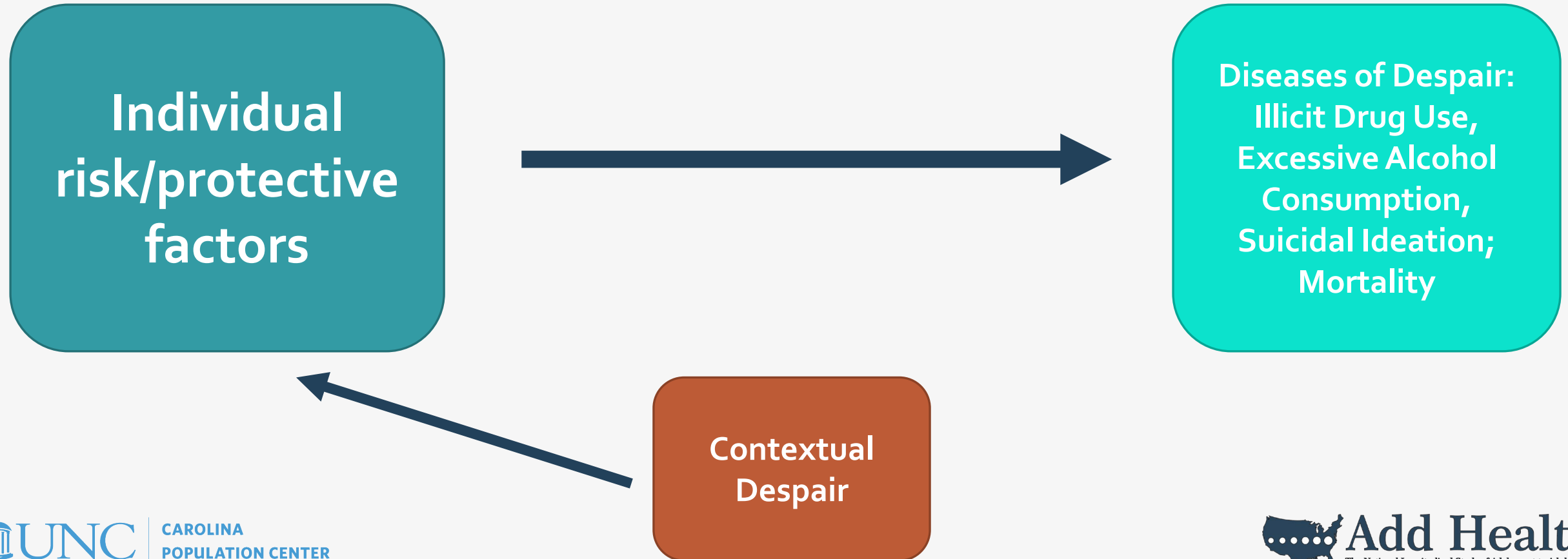
Associations with “**precursor**” risk behaviors (i.e., “diseases” of despair) earlier in life

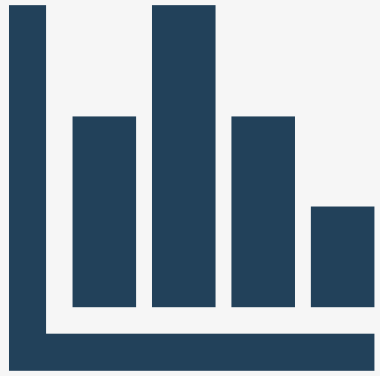
Are deaths of despair “**contagious**”?

# Conceptual Model



# Conceptual Model





# Description of measures

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# New Add Health Data Release

Add Health Investigators,

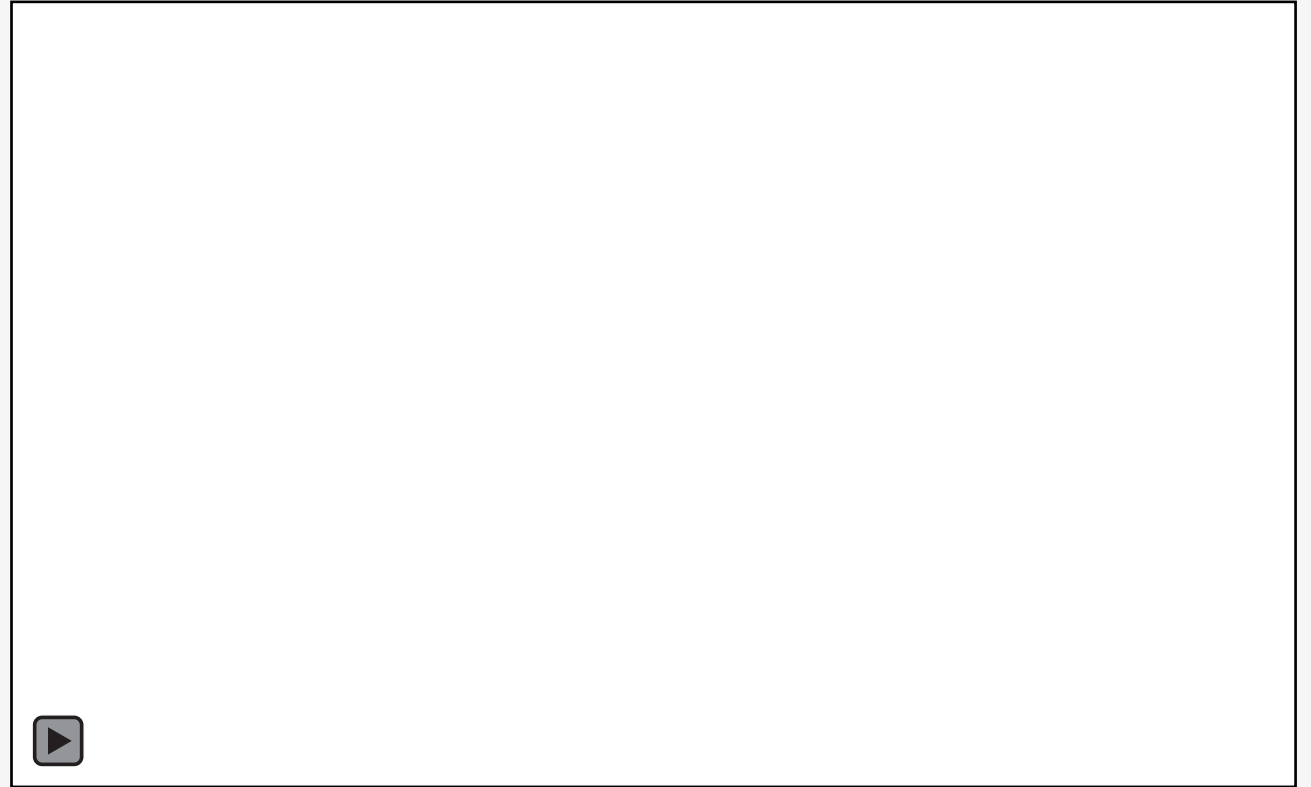
The following data are now available to Add Health contract researchers.

## Wave V Contextual Despair

This contextual data set focuses on the social, political, and resource environment of Add Health respondents at the tract, county, and state level that are relevant to the prevailing causes of death in midlife – namely alcohol-related diseases, drug overdoses and accidental poisonings, and suicide and self-inflicted harm. Most measures are specific to Wave V residential location, though several measures span multiple waves. Measures include the sociodemographic and segregation context, proximity to firearms distributors and alcohol outlets, opioid dispensing, and policies related to alcohol, drugs, and firearms. N=20,745, v=266s

Current Add Health investigators can log in to the [CPC Data Portal](#) and use the “Request More Data” button to order these datasets.

**265 variables!**





# New measures

- Wave V
  - 1. Sociodemographic and segregation
  - 2. Social capital
  - 3. Walkability
  - 4. Indicators of poor health/health behaviors and availability of health care/treatment
  - 5. Opioid dispensing
  - 6. Proximity to and concentration of facilities/businesses relevant to substance use and access to firearms
  - 7. State policies regulating alcohol and firearms
- Multi-wave
  - 8. State policies on drugs and firearms (I-V)
  - 9. Cause-specific mortality (III-V)

# Wave V measures

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2016-2018



# 1. Sociodemographic and segregation measures

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Tract and county-level

American Community Survey 2014-2018 5-year estimates

Socioeconomic disadvantage (no HS, female headed HH, unemployment, poverty, divorce; derived socioeconomic index)

Social isolation (single person HH, drive to work alone, renter occupied, disconnected youth, linguistic isolation; derived social isolation index)

Labor market (proportion working in farming, manufacturing, white collar)

Segregation (LISA, Duncan's dissimilarity, Hoover's delta, Absolute centralization, isolation, clustering)



## 2. Social capital

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County level

2015 data - Northeast Regional Center for Rural Development at Pennsylvania State University

Rupasingha et al. 2006 methodology - factor score based on a principal component analysis of the above four factors, accounting for population size

1. different types of associations (e.g., religious organizations, civic and social associations, business associations, political organizations, etc.),
2. voter turnout
3. Census response rate
4. non-profit organizations



# 3. Walkability

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## Tract level

The National Walkability Index is a weighted score provided by Environmental Protection Agency based on multiple measures of the built environment in an area affecting individuals' probability of walking as a mode of transportation.







## 4. Indicators of poor health/health behaviors and availability of health care/treatment

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County level

2020 County Health Rankings & Roadmaps (CHR&R)

Years of life lost

Population with poor/fair self-rated health

Number of poor mental and physical health days

Adults who smoke, with obesity, excessive drinking, no insurance, no physical activity, diabetes, food insecurity

Food environment index, housing environment

Primary care physicians, dentists, mental health providers

Violent crimes, social memberships



## 5. Opioid dispensing

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County level

Mapping Medicare Disparities by Population from CMS

Opioid Dispensing Rate Map CDC

2016 data

- Overall dispensing rate (# prescriptions per 100 persons)
- Opioid dispense rate per 100 claims among Medicare Part D
- Percent Medicare with chronic kidney disease
- Percent Medicare with COPD



## 6. Proximity to and concentration of facilities/businesses relevant to substance use and access to firearms

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County and tract level

SAMHSA – behavior health treatment, medication assisted treatment

Federal Firearms Listings from ATF – store with federal firearms license

Alcohol outlets from Dun & Bradstreet

1. Nearest population-weighted distance
2. Count in a tract
3. Area density
4. Population density relative to facility per 1000 persons





## 7. State policies regulating alcohol and firearms

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### State level

- Alcohol policy scale
- Alcohol policy information system
- Giffords state gun law scorecard
- State firearm laws

# Alcohol policy scale

Blanchette et al. (2020) - "based on 29 policies, after weighting each present policy by its efficacy and degree of implementation"

The scale is standardized to have a hypothetical range of 0-100.

- State-specific APS 2018
- APS score change 1999-2018
- Percent change 1999-2018

# Alcohol policy information system

10 categories, including 41 specific policy topics - “based on legal research conducted by trained attorneys in consultation with public health researchers.”

Policy was in place as of January 1st, 2016:

- No free alcohol promotions
- Serving >1 drink at a time
- Multiple servings for a single price
- No Happy Hours
- No unlimited drinks
- No free upgrades
- State sets price and profits
- Taxes for beer, wine, and spirits
- Sunday sales ban
- No unregistered kegs
- Legalized recreational cannabis

# Giffords state gun law scorecard

Giffords Law Center to Prevent Gun Violence

Throughout the year, legal experts at the Giffords Law Center to Prevent Gun Violence track and analyze gun legislation in all 50 states, assigning laws and policies point values based on their respective strengths or weaknesses. States are then ranked and given letter grades

- State gun law scorecard grade for 2016
- State gun law scorecard rank for 2016

# State firearm laws

State Firearm Laws Database, headed by Michael Siegel at the Boston University School of Public Health, with funding from the Robert Wood Johnson Foundation and the National Institute of Justice; Westlaw data

Policy was in place as of 2016:

- Total number of laws
- Background checks
- Mandatory minimum waiting period
- License or permit required
- Prohibits possession by people who have been involuntarily committed for inpatient/outpatient mental health; danger to themselves; convicted of drug-related misdemeanor; treatment for alcohol
- Must relinquish firearms when prohibited from possession
- Ammunition regulations – permits, same as firearms, background check

# Multi-wave measures

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# 8. Policies on drugs and firearms

State

Opioid related policies

Opioid relevant prescribing policies

Marijuana laws

Prescription drug abuse policy system

Firearms waiting periods

# Opioid related policies

Number of months between interview date and implementation of:

- Prescription drug monitoring program access
- Mandatory PDMP
- Prescription limit laws
- Pain clinic laws
- Good Samaritan laws
- Naloxone access laws
- Medicaid expansion



# Opioid relevant prescribing policies

Number of months between interview date and implementation of:

- Pharmacists to prescribe and dispense naloxone to any community member, as well as co-prescribe naloxone or offer a naloxone prescription when writing an opioid analgesic prescription if the patient presents risk factors for opioid overdose
- Authorization of pharmacists' authority to initiate naloxone dispensing under protocol
- Open recreational cannabis dispensaries

# Marijuana laws

Number of months between interview date and implementation of:

- Medical marijuana legalization
- Recreational marijuana legalization (data from Medical Marijuana Project)
- Recreational marijuana legalization (data from APIS)

# Prescription drug abuse policy system

Number of months between interview date and implementation of:

- Authorization of the prosecution of drug-related deaths as criminal killings. Oftentimes referred to as drug induced homicide laws, these laws establish criminal liability for individuals who furnish or deliver controlled substances to another individual who dies as a result
- Involuntary arrest, detention, and/or treatment of an individual for substance use. These types of laws determine the circumstances for commitment, the parties authorized to petition for a commitment, the requirement of a clinical assessment, the types of health professionals authorized to perform the assessment, the requirement of judicial review, the duration of the initial commitment, the types of treatments that may be performed without patient consent, and the provision of counsel

# Firearms waiting periods

Number of months between interview date and implementation of:

- law that establishes the minimum amount of time sellers must wait before delivering a long gun to a purchaser; includes waiting periods for permits to purchase where the permit is valid for a short period and only for a single transaction
- law that establishes the minimum amount of time sellers must wait before delivering a handgun to a purchaser; includes waiting periods for permits to purchase where the permit is valid for a short period and only for a single transaction



## 9. Cause-specific mortality

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County

National Center for Health Statistics (NCHS) Multiple-Cause of Death, Detailed Mortality for All Counties (2000-2020)

Waves III - V

Suicide not involving firearms

Suicide involving firearms

Alcohol-related mortality

Opioid-related mortality

Household gun ownership proxy (firearm suicides/total suicides)



Preliminary  
results

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# County Population-weighted Distance to Nearest Alcohol Outlet



Frequency  
of  
Binge  
Drinking

# Other Alcohol Context Measures and Frequency of Binge Drinking

**Distance  
or  
Density**

**Policies  
or Laws**  
*(e.g., Alcohol  
Policy Scale,  
Serving >1  
Drink)*

**Morbidity  
and  
Mortality**  
*(e.g., Excess  
Drinking,  
Alcohol-related  
Mortality)*



# Opioid Dispensing Rate



# County Density of Behavioral Health Treatment (BAT) and Medication Assisted Treatment (MAT\*) Facilities



\*SAHMSA recently recommended replacing MAT with Medication for Opioid Use Disorder (MOUD)

# Tract Social Isolation



+

Depression

+

Suicidal Ideation

+

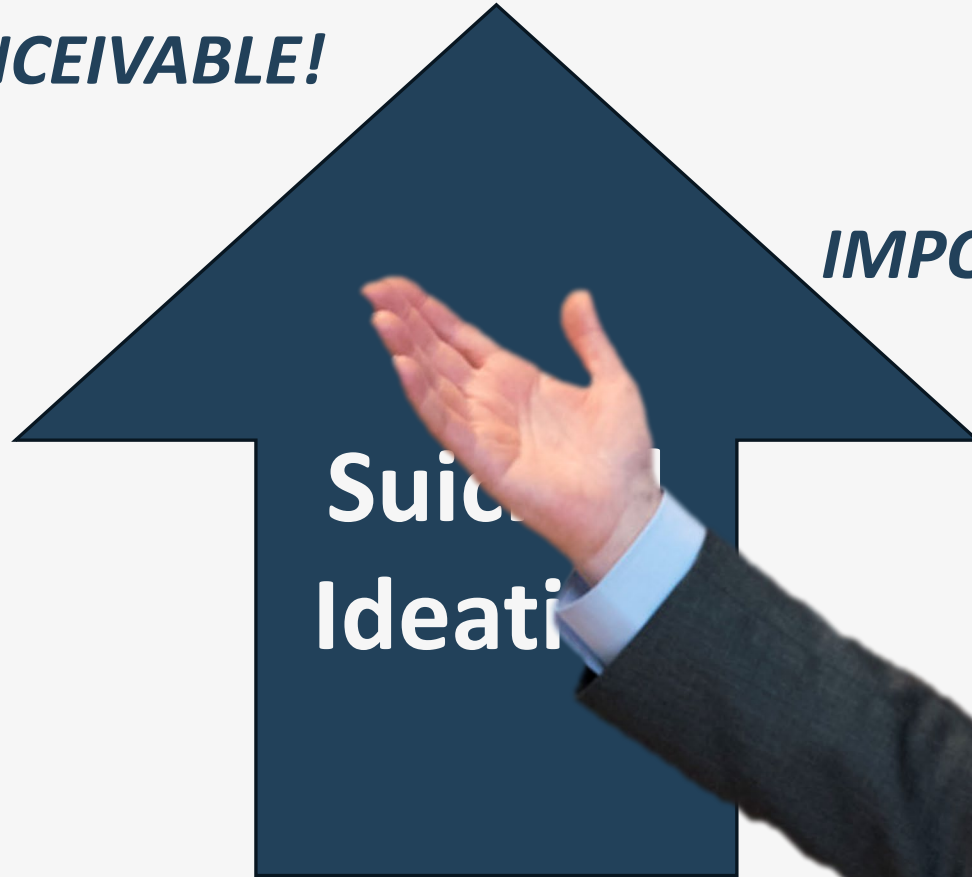
Suicide Attempt





# County Social Capital

*INCONCEIVABLE!*



*IMPOSSIBLE!*

Suicide  
Ideation



# County Social Capital

*INTRIGUING!*

# FOMO?

*MAYBE!*



# Thank you

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