# AHRQ SDOH Database: Opportunities for Geographic Data Linkages

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AHRQ Social Determinants of Health Database

- "One stop" standardized community level SDOH data from multiple public sources
  - Social context, economic context, education, healthcare context, physical infrastructure

- Purpose
  - Make community-level SDOH data easier to use
  - Account for differences across areas
  - Link with other datasets for comprehensive analyses
  - Identify effective interventions
  - Inform efforts to improve health, equity

- Linkable by geography
  - County level (2009-2020)
  - Zip code level (2011-2020)
 - Census Tract level (2009-2020)

Premature Mortality and Social Vulnerability Index across Counties in the U.S., 2018
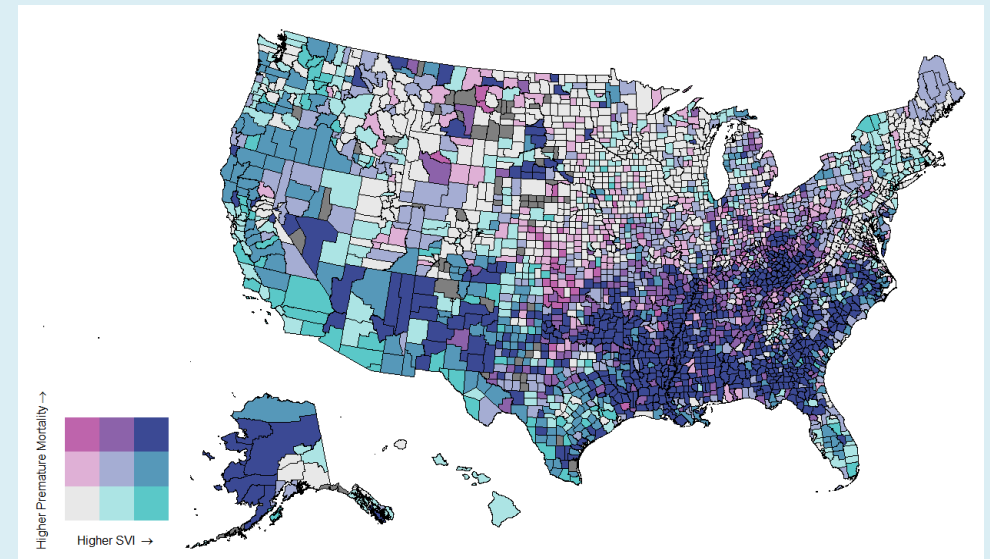
Source: AHRQ SDOH Database, version 1, from 2018 County Health Rankings and 2018 CDC SVI. Darker shading is higher.

Overview of SDOH Database

- First launched in 2018, then updated in July 2022; currently preparing for Version 2

- Data spans multiple years and 3 geographic levels

- Database contents draw from 44 different data sources, including over 17,000 variables across all geographies and years
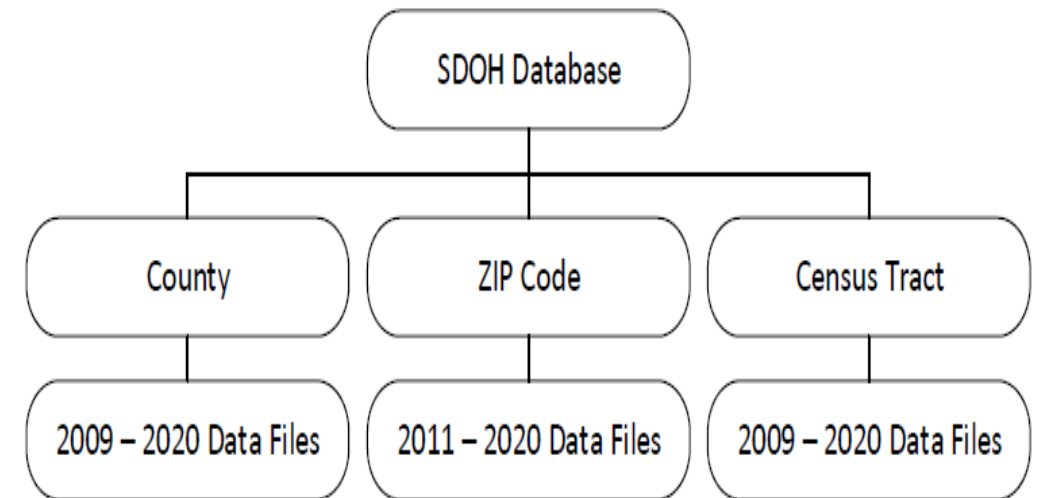
Overview of Planned Updates to SDOH Database

- Updating Version 2 database files in summer 2025, including
    - New geography at census block group level
    - New sources / variables (10-15 new sources / variables)

- Ongoing assessment and dissemination activities

- Planning for Version 3 database files (summer 2026)
    - Additional 10-15 new sources / variables
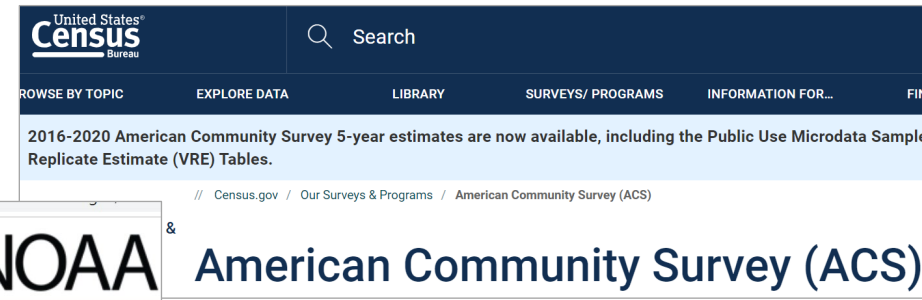
Examples of Data Sources

Community-level SDOH Indicators Organized by Domains and Topics

Social Context

- Demographics
- Disability
- Immigration
- Living conditions
- Segregation
- Socioeconomic disadvantage indices

Economic Context

- Employment
- Income
- Poverty

Education

- Attainment
- Education funding
- Literacy
- Numeracy
- School system

Physical Infrastructure

- Access to Exercise
- Crime
- Environment
- Food access
- Housing
- Industry composition
- Internet connectivity
- Migration
- Social services
- Transportation

Healthcare Context

- Characteristics of healthcare (facilities, providers)
- Distance to providers
- Health behaviors
- Healthcare quality
- Health insurance status
- Utilization and cost
- Health outcomes

Source: AHRQ SDOH Database, version 1

Example Analysis using MEPS linked to SDOH Database:

# High Ambient Temperature and the Risk of Emergency Department Visits

Linkage

- From the SDOH database:
  - ▶ County FIPS
  - ▶ Mean, Minimum and Maximum Temperature by month

- From the Medical Expenditure Panel Survey:
  - ▶ Household longitude and latitude, county FIPS (available in secure data centers)
  - ▶ A variety of individual characteristics, experiences, attitudes
  - ▶ All medical events with dates, charges and payments
  - ▶ Conditions associated with events (ICD-10 and CCSR codes)

Choropleth of August Maximum Temperature by County
Source: 2019 SDOH Database
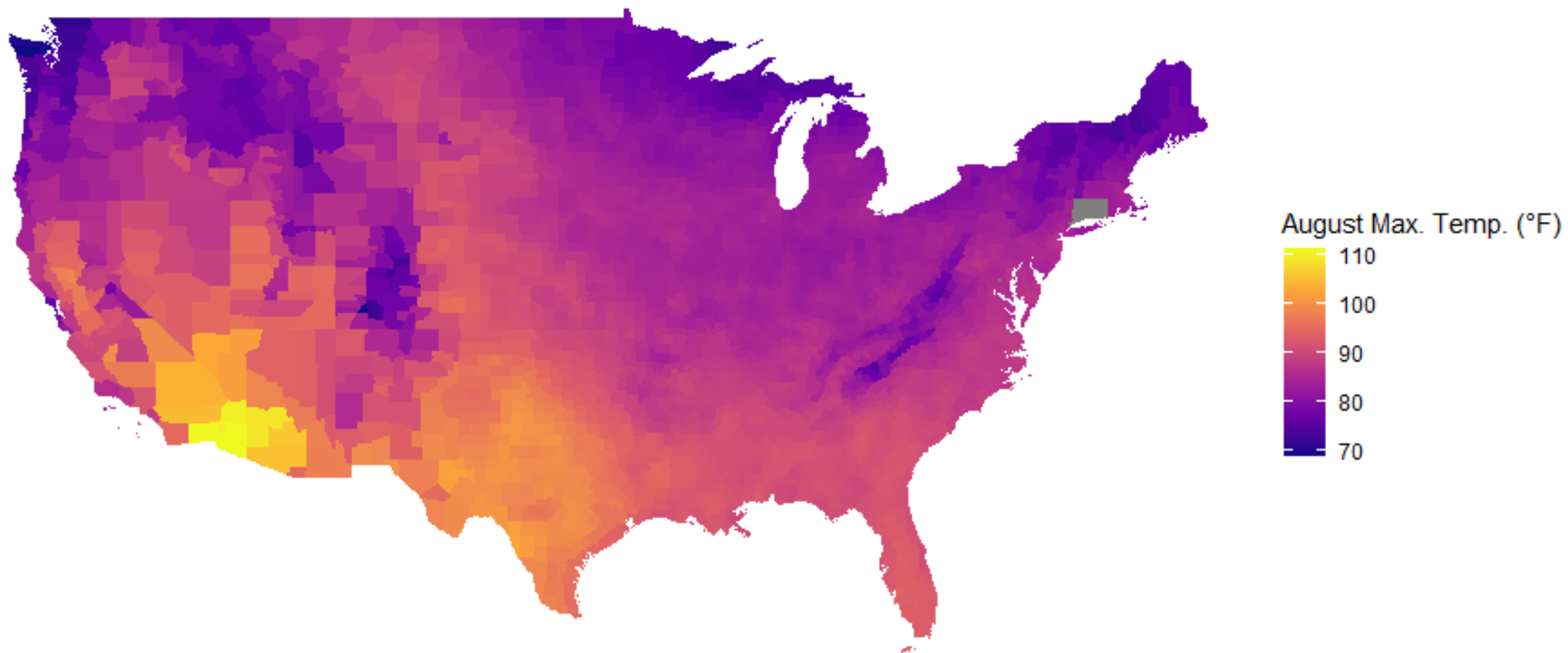
- Linear probability models with person fixed effects
  - ► Unit of analysis is the person-month
  - ► Sample restricted to six hottest months (April-September)

- $Y_{it} = \beta_0 + BX_{it} + \alpha_i + \varepsilon_{it}$
  - Y_{it} is an indicator variable that identifies whether person i had an ED visit in month t
  - X_{it} is a vector of variables measuring high temperature quartiles in counties
  - α_i fixed effects for each person
  - Models stratified by self-rated health, poverty and insurance status
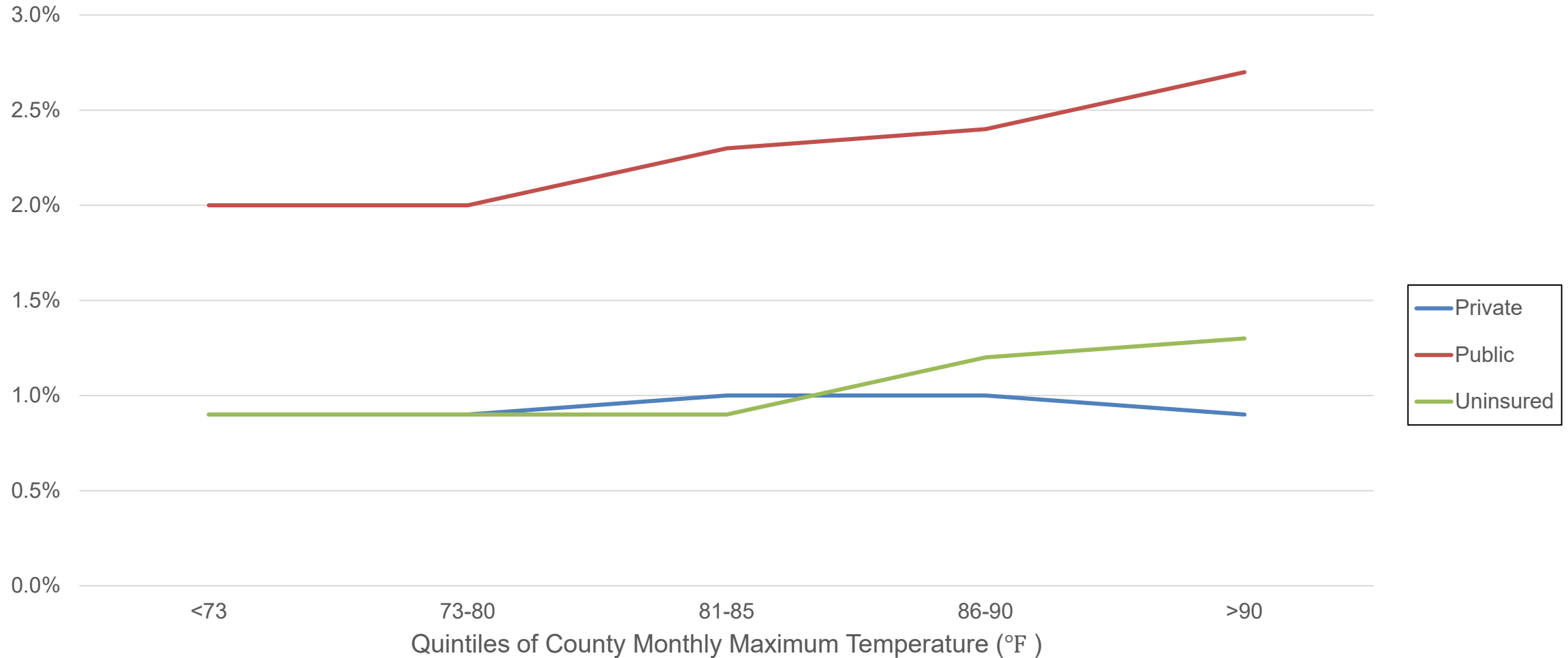
Adjusted Probability of Having an ED Visit by Monthly Maximum Temperature, April-September 2018-2019
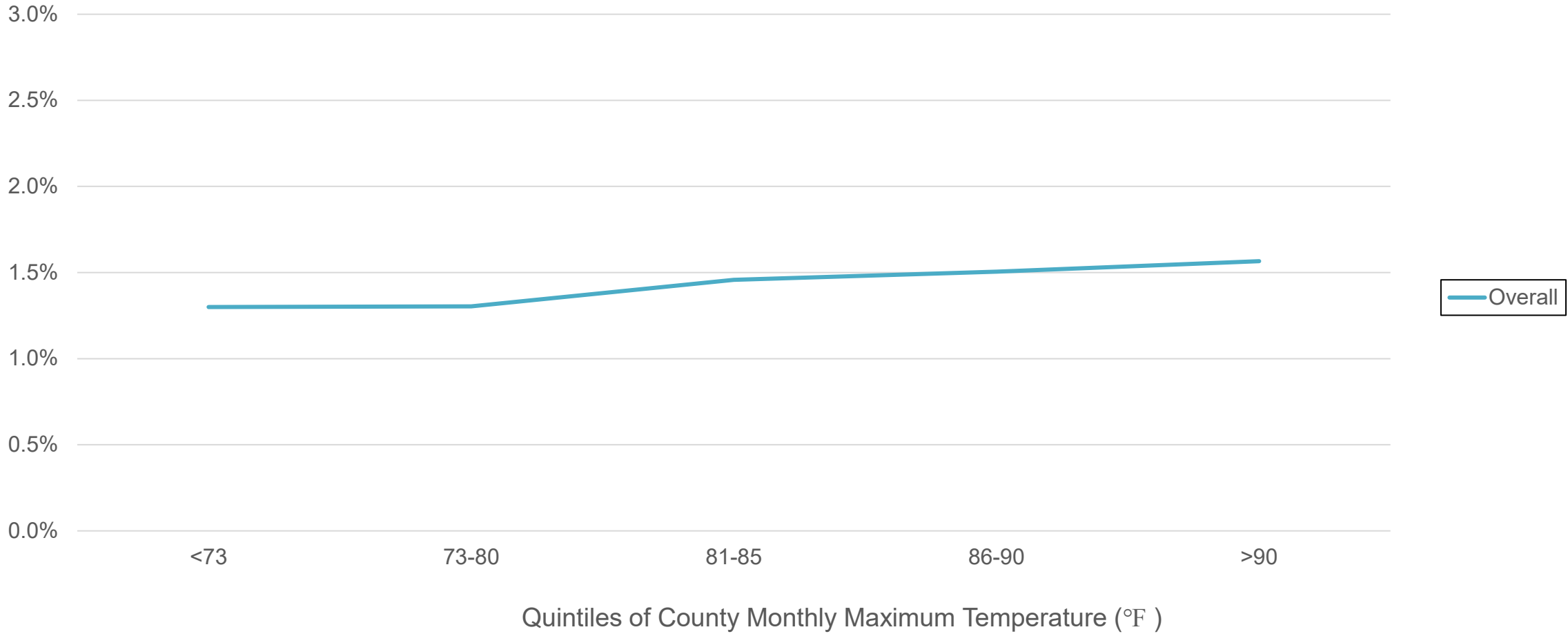
Adjusted Probability of Having an ED Visit by Monthly Maximum Temperature and Self-rated Health, April-Sept 2018-2019
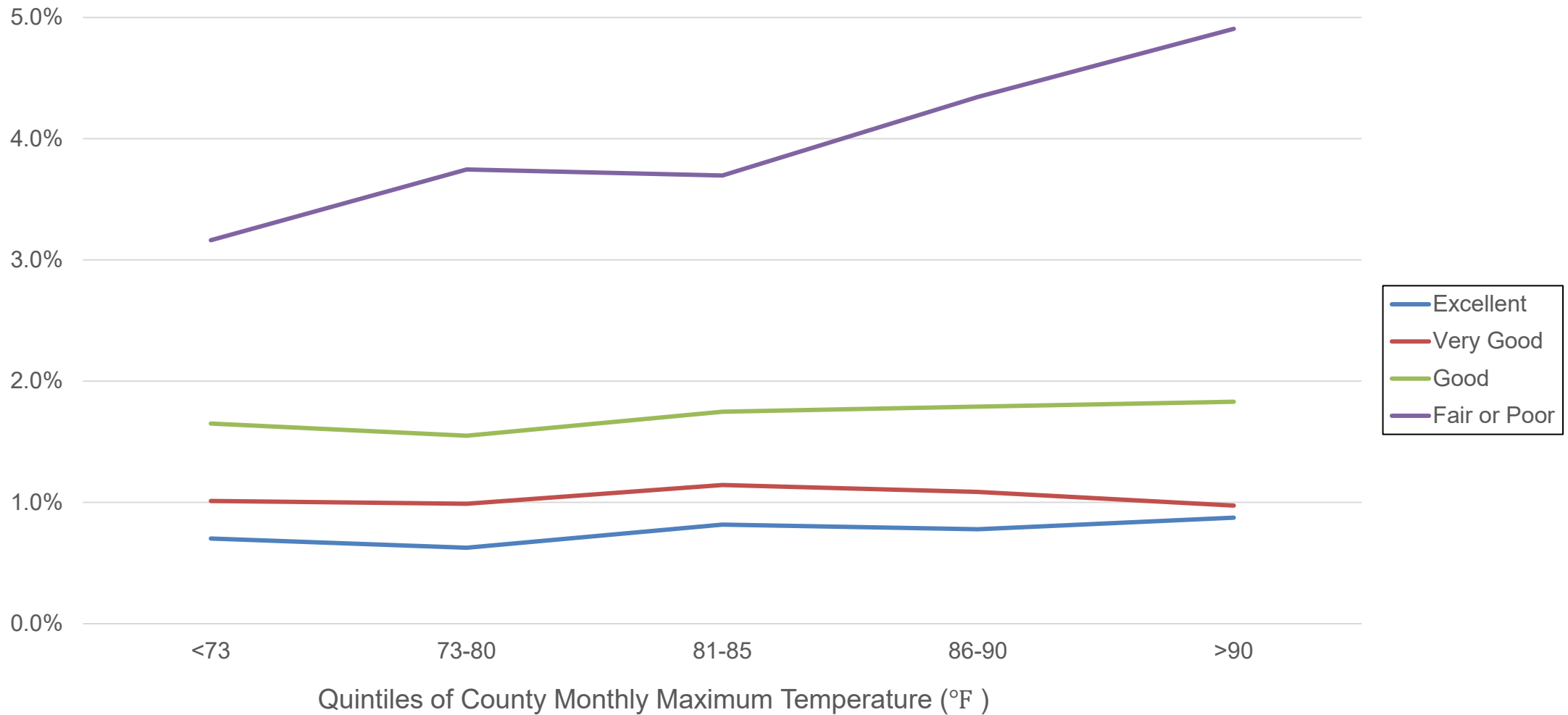
Adjusted Probability of Having an ED Visit by Monthly Maximum Temperature and Insurance Coverage, April-Sept 2018-2019

Summary of Findings

- Net of all time-invariant individual and county characteristics, higher temperatures are associated with increased risk of having an ED visit during the six warmest months of the year

- The strength of the association differs by individual characteristics

- Relative risk ratios (hottest vs. coolest months):
  - ► Overall (RR=1.20)
  - ► Among those who report poor or fair health (RR = 1.74)
  - ► Among those with Medicaid (RR = 1.34), Medicare (RR = 1.44), or uninsured (RR=1.44)

Thank You!!

Feedback is welcome!

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