

# **How State Population Relates to Emergency Room Wait Times and Care Compliance in the U.S.**



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# Introduction:

**Research Question:** How does state population correlate with ER efficiency and care compliance?

## Motivation:

- Rural vs. Urban disparities
- Healthcare access differences
- CDC statistics



# Data:

## Data Source:

- Timely & Effective Care Dataset from the Centers for Medicare and Medicaid Services
- US State Population Dataset

## Variables:

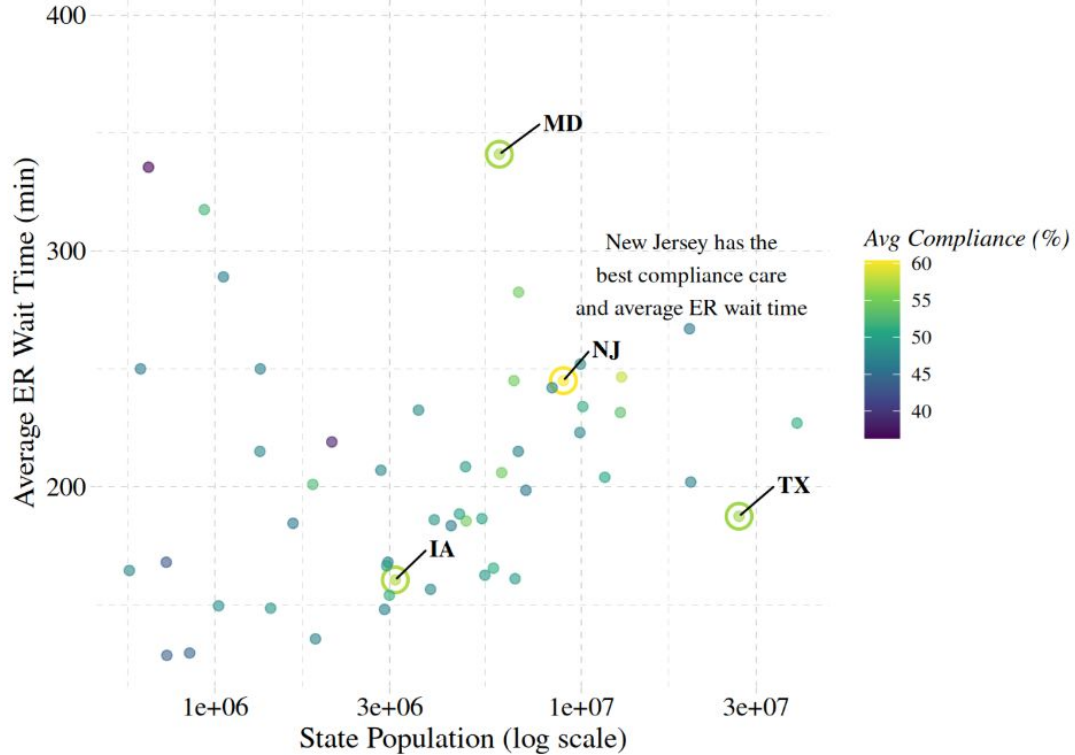
- ER wait times (Min.)
- Care Compliance (%)
- State Population

## Unit of Analysis:

- State-level averages



## State Population vs ER Wait Times and Care Compliance



$$r = 0.166$$



Figure 1: Average ER wait times weakly predict state population and care compliance

### Average state ER wait time by state size

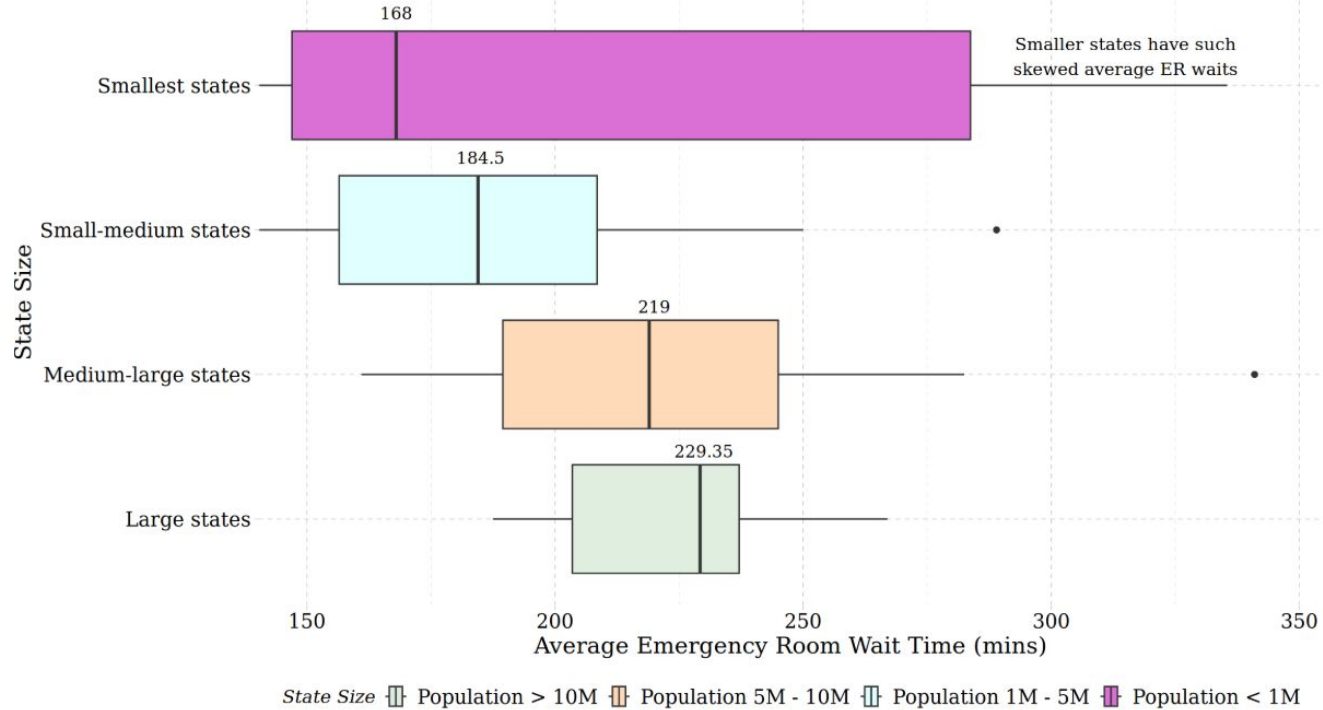


Figure 3: Average ER wait times by state population size.



## ER Wait Times by Region

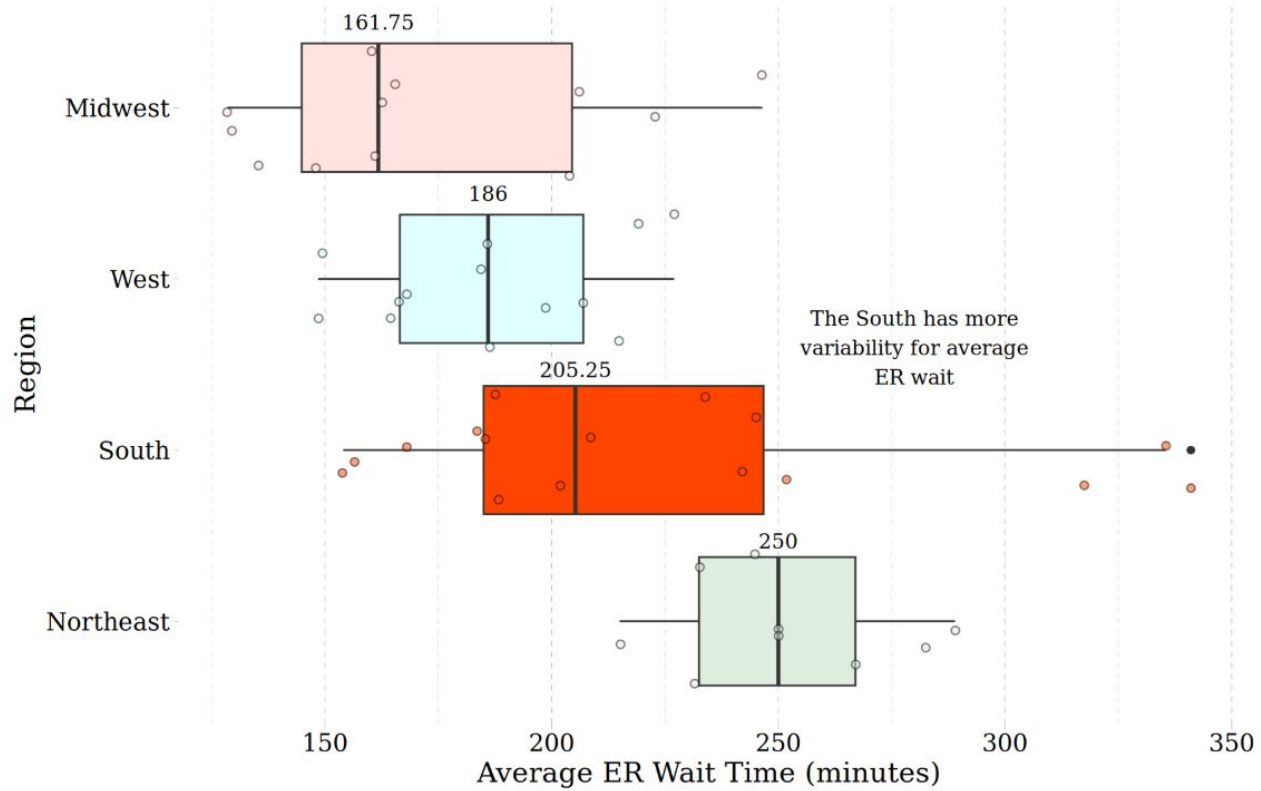
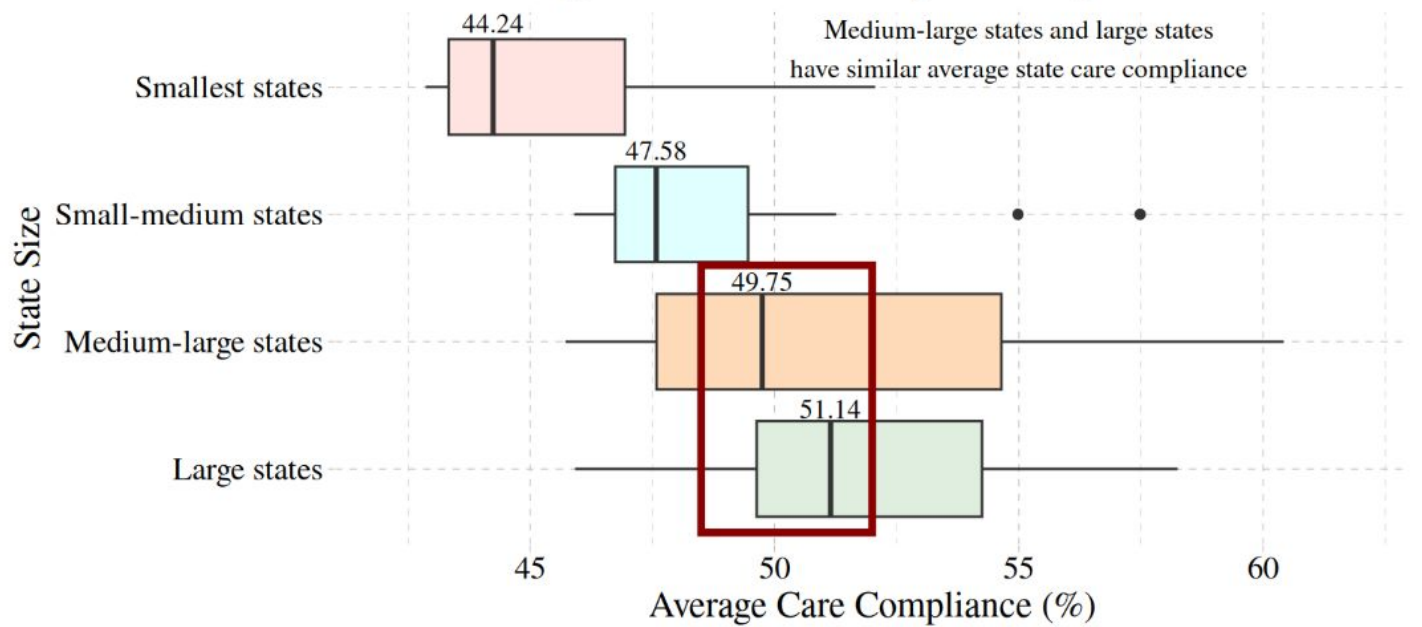


Figure 2: Average ER Wait Time by Region



## Average State Care Compliance by State Size



$r = 0.327$

State Size Population > 10M Population 5M - 10M Population 1M - 5M Population < 1M

Figure 5: As states get bigger, the average care compliance gets more similar

## State population vs hospital care compliance

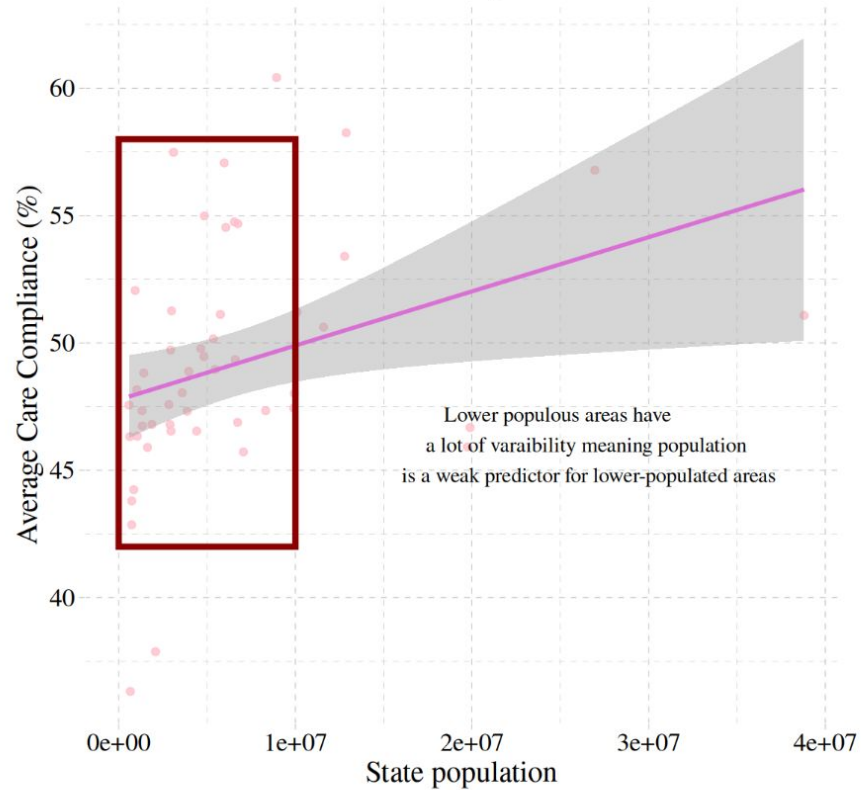


Figure 4: Strong variability in lower populous areas



# Conclusions & Limitations:

## Key Conclusions:

- Weak relationship between state population and average ER wait time
- Moderately positive relationship between population and compliance
- Weak relationship between wait time and compliance

## Limitations:

- State-level aggregation
- Unobserved variables (funding, staffing, etc.)

## Future work:

- Facility-level data
- Longitudinal analysis