Can Big Data Help Solve Our Biggest Problem?

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Too Many People Die of Heart Disease!
Most Common Cause of Death

Data source: Centers for Disease Control and Prevention. Map by Ben Blatt/Slate.
Driven by the Motor City...

Age-adjusted mortality rates per 100,000 for ten leading causes of death, Detroit, Michigan, and United States, 2014

Figure 2
Average BP by Census Tract

- **Month, Year of Arrival Data**
  - (All)

- **Gender**
  - (All)

- **Age - Years (Visit)**
  - 0 to 106

- **Race (group)**
  - (All)
  - Black/African American
  - Other Race
  - Spanish/Hispanic
  - White

- **Avg. SBP**
  - 122.49
Modifiable Risk Factors

Relatively Fixed Risk Factors

- Alcohol
- Smoking
- Low Potassium
- High Sodium
- Psychosocial Stress
- Premature Birth
- Low Birth Weight
- Chronic Kidney Disease
- Family History
- Increased Age
- Diabetes Mellitus
- High Cholesterol
- Overweight/Obesity
- Physical Inactivity
- Unhealthy Diet
- Obstructive Sleep Apnea
- Male Sex
- Low Socioeconomic Status
Health–disease continuum

Avoidable threshold 3: development of clinical disease

Avoidable threshold 2: development of subclinical target-organ damage

Avoidable threshold 1: development of elevated BP

Early vascular ageing

Average lifecourse

Ideal lifecourse

Lifecourse

Childhood  Early adulthood  Middle-age  Advanced age  Elderly (>80 years)

More individualised strategies (eg, absolute risk-based)

Population-based strategies