Burden of Diseases, Injuries, and Risk Factors among US States,

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Outline

1) GBD
2) US burden of disease
3) US counties
4) Other areas of work and future direction
The Institute for Health Metrics and Evaluation

Focused on answering three critical questions:

- *What are the world’s health problems?*
- *How well are we addressing these problems?*
- *How do we best allocate resources for maximum health impact?*

Dedicated to providing independent, rigorous, and timely scientific measurements to accelerate progress in health.
Multiple metrics for health

1) **Traditional metrics**: Disease and injury prevalence and incidence, death numbers and rates.

2) **Years of life lost** due to premature mortality (YLLs) – count the number of years lost at each age compared to a reference life expectancy of 86 at birth.

3) **Years lived with disability** (YLDs) for a cause in an age-sex group equals the prevalence of the condition times the disability weight for that condition.

4) **Disability-adjusted life years (DALYs)** are the sum of YLLs and YLDs and are an overall metric of the burden of disease.

5) **Healthy life expectancy (HALE)** is a positive summary measure counting the expected years of life in full health.
All data sources in the GBD indexes in on-line catalog with metadata on 80,000+ GBD sources
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U.S. DALYs attributable to level 2 risk factors for males, 2016
U.S. DALYs attributable to level 2 risk factors for females, 2016

- High body-mass index
- Tobacco
- Dietary risks
- High fasting plasma glucose
- High blood pressure
- Alcohol & drug use
- High total cholesterol
- Impaired kidney function
- Occupational risks
- Air pollution
- Low physical activity
- Malnutrition
- Sexual abuse & violence
- Low bone mineral density
- Unsafe sex
Mental and substance use disorders

Age: 30-34 years
Percent: 35.31% (31.5% – 38.51%)
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Life Expectancy
Census tract-level life expectancy in King County, WA
What are the drivers of these trends?

- Socio-economic inequalities
- Lack of financial access to health care
- Poor quality of care
- Preventable causes of death
### Potential drivers of inequality in life expectancy

<table>
<thead>
<tr>
<th>Socioeconomic &amp; race/ethnicity factors</th>
<th>Behavioral &amp; metabolic risk factors</th>
<th>Health care access &amp; quality factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poverty (%)</td>
<td>Obesity (%)</td>
<td>Insurance (%)</td>
</tr>
<tr>
<td>Median income (log $)</td>
<td>Physical inactivity (%)</td>
<td>Quality</td>
</tr>
<tr>
<td>High school education (%)</td>
<td>Smoking (%)</td>
<td>Medical doctors (per 1,000 population)</td>
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<tr>
<td>College education (%)</td>
<td>Hypertension (%)</td>
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<tr>
<td>Unemployment (%)</td>
<td>Diabetes (%)</td>
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<td>Black (%)</td>
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<td>American Indian/Alaska Native (%)</td>
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<tr>
<td>Hispanic (%)</td>
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</tbody>
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GBD related analytics

1) Burden of disease amenable to health care
2) Forecasts of the GBD 25 years into the future by location
3) Finer grained spatial estimation: 2nd administrative level or 5x5 km pixel level
4) Quantifying health system access, quality and impact
5) Tracking resources for health
Welcome Your Questions

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