IHME US disease expenditure research project

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Disease Expenditure (DEX) research project

Strengths:
1. Many stakeholders think in terms of diseases
2. Comprehensive but detailed perspective
3. Can connect these estimates of population health outcomes
Major analytical steps

A. Collect and harmonize data
B. Map diagnosis to 154 health conditions
C. Adjust data for imperfections and comorbidities
D. Fill in the gaps
E. Scale to the National Health Expenditure Account
Results: https://vizhub.healthdata.org/dex/
Explaining factors driving increases in spending

Diagram showing the change in spending associated with each factor, 1996-2013, in billions.

- Diabetes mellitus
- Low back and neck pain
- Treatment of hypertension

Factors include population size, population age, disease prevalence or incidence, service utilization, service price and intensity, and total change.
Health spending attributable to risk factors

**Chart:**

- **Attributable spending by risk factor and aggregated health condition category**
  - **High BMI:** $238.5 billion
  - **High systolic blood pressure:** $179.9 billion
  - **High fasting plasma glucose:** $171.9 billion
  - **Dietary risks:** $143.6 billion
  - **Tobacco smoke:** $130.0 billion
  - **Environmental or occupational risks:** $75.5 billion
  - **High LDL cholesterol:** $46.6 billion
  - **Alcohol use:** $36.5 billion
  - **Impaired kidney function:** $34.0 billion
  - **Low bone mineral density:** $27.2 billion
  - **Drug use:** $21.7 billion
  - **Low physical activity:** $15.7 billion
  - **Unsafe sex:** $13.1 billion
  - **Child and maternal malnutrition:** $11.8 billion
  - **Childhood maltreatment:** $6.5 billion
  - **Intimate partner violence:** $6.3 billion

**Legend:**
- **Red:** Communicable, maternal, neonatal, and nutritional disorders
- **Cyan:** Cardiovascular diseases
- **Light Blue:** Chronic respiratory diseases
- **Light Cyan:** Cirrhosis
- **Blue:** Digestive diseases
- **Blueish-Green:** Neurological disorders
- **Blackish-Red:** Mental and behavioural disorders
- **Yellow:** Diabetes and urogenital, blood, and endocrine diseases
- **Green:** Musculoskeletal disorders
- **Light Green:** Injuries
- **Dark Green:** Expenditure on treatment of risk factors

**Spending (billion US$):**
- 0 to 280
Paper accepted disaggregating by race/ethnicity
Decomposing differences in spending, 2016

Percent that age-standardized spending per person is above the all-population mean

Difference due to changes in: Utilization of services  Price and intensity of services
Moving forward

Personal health spending

Demographic Framework – 40 age and sex groups

Epidemiologic Framework – 145 health conditions

Type of Care Framework – inpatient, ED, ambulatory, dental, nursing facility care, retail pharma, home health

Payer Framework – Medicare, Medicaid, other government insurance, private insurance, and out-of-pocket

Geographic Framework – 3110 US counties
Moving forward

State- or county-level data
• Medicare claims
• Medicaid claims
• PRA Health Services claims
• MarketScan claims
• SIDS, SEDDS, NIS, and NEDS
• IQVIA sales data
• ADA survey data
• APCD PUFS
Discussion questions:

• How can we engage and collaborate with those doing similar work at the state-level, and specifically those leading APCD efforts?

• Specific interests:
  o Partnering on focused state- and county-level analyses
  o Learning about what outputs would be most useful to members and stakeholders

• Please reach out: dieleman@uw.edu