Health Equity

“For public health, climate change is the defining issue for the 21st century.”

Margaret Chan, WHO

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Director, Master of Public Health Program
Associate Professor, Diagnostic Medicine/Pathobiology
What is Health Equity?

• Health equity is when everyone has the opportunity to be as healthy as possible.
What are Health Disparities?

• Health Disparities = Differences
• Differences in the incidence, prevalence, & burden of diseases & other adverse health conditions that exist among specific population groups (NIH).
• Health disparities are differences in health outcomes & their causes among groups of people (CDC).
• Reducing health disparities creates better health.
• Achieving health equity, eliminating disparities, & improving the health of all U.S. population groups is one of the goals of Healthy People 2020 (healthypeople.gov)
Social Determinants of Health
Conditions in which people are born, live, work, & age that affect health.

Economic Stability
- Poverty
- Employment
- Food Insecurity
- Housing Instability

Education
- High School Graduation
- Enrollment in Higher Education
- Language & Literacy
- Early Childhood Education & Development

Neighborhood & Built Environment
- Access to Foods that Support Healthy Eating
- Quality of Housing
- Crime & Violence
- Environmental Conditions

Health & Health Care
- Access to Health Care
- Access to Primary Care
- Health Literacy

Social & Community Context
- Social Cohesion
- Civic Participation
- Discrimination
- Incarceration

https://www.healthypeople.gov/2020/topics-objectives/topic/social-determinants-of-health
The Leading Health Disparities in the U.S.

- Cardiovascular Disease
- Cancer
- Stroke
- Diabetes
- HIV/AIDS
- Infant Mortality
- Asthma
- Mental Health
- Obesity

CDC Office of Minority Health & Health Equity (OMHHE)
Where you live, how you are educated, what you earn, what you consume...

• These are all inter-related:
  • Poverty
  • Education
  • Obesity
  • Tobacco

• Can we leave the zip-code/status/poverty into which we are born?
Poverty

• Wealthier Americans live longer
  (Brookings Institution; U. of Michigan Health & Retirement Study)

• Kansas: State medians for premature death, children in poverty lower than the US median
Tobacco Usage

• Cigarette smoking is the leading cause of preventable disease & death in the United States, accounting for more than 480,000 deaths every year, or 1 of every 5 deaths.

• 15 of 100 U.S. adults aged 18 years or older smokes cigarettes.

• Highest Smoking rates:
  • Deceased education
  • Poverty
  • Hispanic
  • 25-44 Years
  • Varies widely with location (37 % in Kentucky #50, 18% in Kansas #28)

Obesity

- 37% of adults at the lower end of the income ladder are obese, compared with 31% at the higher end (National Academy of Sciences).

(Kansas, 31% of adults)

**Obesity in children**

**Adults meeting aerobic physical activity**

*Data source: National Health and Nutrition Examination Survey (NHANES), CDC/NCHS*

*Data source: National Health Interview Survey (NHIS), CDC/NCHS*
Indicators vary by county

<table>
<thead>
<tr>
<th>Indicator</th>
<th>KS Median</th>
<th>USA Median</th>
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</thead>
<tbody>
<tr>
<td>Obesity (23-39)</td>
<td>31%</td>
<td>31%</td>
</tr>
<tr>
<td>Children in Poverty (7-32)</td>
<td>17%</td>
<td>22%</td>
</tr>
<tr>
<td>Cigarette Use in Adults (11-22)</td>
<td>18%</td>
<td>17%</td>
</tr>
<tr>
<td>Premature Death (YPLL before 75)* (4,300-11,900)</td>
<td>6,800</td>
<td>7,700</td>
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</tbody>
</table>

*(per 100,000)

County-level: Riley, Seward; Johnson, Wyandotte; Johnson, Geary; Cheyenne, Wyandotte; Johnson, Osborne.
Climate change & Inequality
Environmental Equity or Inequity?

• How will Climate Change further exacerbate Health Disparity & Inequity?

• Health Indicators in Environmental Health/Quality
  • Air
  • Water
  • Infectious Disease Transmission
Anything that impairs the respiratory or circulatory system will increase risk of heat-induced injury: Obesity, diabetes, COPD, heart disease, & renal disease.

The Uninhabitable Earth
Famine, economic collapse, a sun that cooks us: What climate change could wreak — sooner than you think.

By David Wallace-Wells

July 10, 2017, issue of New York Magazine

https://www.climaterealityproject.org
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Air: Asthma, Respiratory Allergies & Airway Diseases

• Ozone, Particulate Matter, Lead, NO\textsubscript{x}, CO, SO\textsubscript{x}
• Children living within 150m of a freeway were more likely to be diagnosed with asthma.
• Children who had higher levels of nitrogen dioxide in the air around their homes were more likely to develop asthma symptoms.
• Increased ground level ozone & fine particle concentrations:
  • trigger reactions including chest pains, coughing, throat irritation,
  • reduce lung function & cause inflammation of the lungs

Water Quality

Streams and rivers rise, which contributes to flooding of homes, businesses, and critical infrastructure like sewer and storm water systems.

Floodwaters can become contaminated with agricultural waste, chemicals, raw sewage, and other pollutants.

Floodwaters can contain disease-causing bacteria, viruses, and parasites.

Flooded materials in homes, schools, and businesses can cause molds to grow and be inhaled.

Extreme weather events led to OVER 200 DEATHS in the last two years.

51% of WATER-BORNE OUTBREAKS followed extreme precipitation events.

159 DEATHS from Superstorm Sandy in October 2012.

https://www.climaterealityproject.org
Temperature & Disease/Vector Expansion

• More than 30,000 cases of Lyme disease reported annually (tick)
• 42,000 cases of West Nile Virus since 1999 (mosquito)
• Vectors are sensitive to changing local climates.
• Warmer winters & longer summers may alter life-cycles.
• Bacterial sporulation

Year of Climate Change & Health series
# 2017 Federal Poverty Guidelines

Federally facilitated marketplaces will use the 2016 guidelines to determine eligibility for Medicaid and CHIP.

<table>
<thead>
<tr>
<th>Household Size</th>
<th>100%</th>
<th>133%</th>
<th>150%</th>
<th>200%</th>
<th>250%</th>
<th>300%</th>
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</table>

Adult Cigarette Smoking by Educational Attainment

Adult Cigarette Smoking by Family Income
(percent poverty threshold)

Adult Cigarette Smoking by Location

Data source: National Health Interview Survey (NHIS), CDC/NCHS