Harnessing Maps and Mapping Tools to Advance Health Equity

Moving From Disparities to Inequities: Measuring, Depicting, Understanding and Explaining

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PHI 11-07-08
Outline

- Defining health disparities
- Defining health inequities
- Depicting health inequities
- GIS mapping
  - Scale issues
- Case Studies
  - Bay Area Regional Health Inequities Initiative
  - Connecticut Association of Directors of Health
  - Virginia Office of Minority Health
Health Disparities
Eliminate Health Disparities

The second goal of Healthy People 2010 is to eliminate health disparities among segments of the population, including differences that occur by gender, race or ethnicity, education or income, disability, geographic location, or sexual orientation.
“Differences in the incidence, prevalence, mortality and burden of diseases and other adverse health conditions that exist among specific population groups in the United States”

- NIH Working Group on Health Disparities
## Low Birth Weight*, Northern VA, 2006

<table>
<thead>
<tr>
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<th>NOVA</th>
<th>Virginia 2006</th>
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<tr>
<td>Number</td>
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<td>8750</td>
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<tr>
<td>Percent LBW (&lt;2500 g)</td>
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<tr>
<td>Percent VLBW (&lt;1500 g)</td>
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<tr>
<td>White</td>
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<tr>
<td>Hispanic/Latino</td>
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*Singleton births
Health Disparities → Inequities
Definition of Inequities

“Inequities refer to material, social, gender, racial, income, and other social and economic inequalities that are beyond the control of individuals and are therefore considered unfair and unjust.”

-Health Canada, Population & Public Health Branch

“Health inequities are differences in health status and mortality rates across population groups that are systemic, avoidable, unfair, and unjust.”

-Margaret Whitehead
Moving from Disparities to Inequities

- Health departments are challenged to explain the extent to which health disparities are generated by the social determinants of health.
- Inequities are often better described by summary measures (life expectancy, all-cause mortality, infant mortality) as opposed to disease specific measures because of perceived and real differences in genetic variability, cultural norms and practices, and quality of and access to health care.
Moving from Disparities to Inequities

Depicting health inequities: THE RELATIONSHIP between health disparities and social determinants can be illustrated in many ways, including:

- bivariate correlations,
- frequency distributions,
- and GIS mapping.
Bivariate Correlations

Social Gradients (e.g. Smoking prevalence by educational attainment, mortality by poverty, etc.)
Life Expectancy by Tract

Life Expectancy at Birth
- Green: ≥ 80.0
- Yellow: 74.3 - 80.0
- Red: < 74.3

Age Adjusted Mortality Rates: All

Poverty category: the percent of the population living in the census tract with incomes below the poverty level

![Graph showing the relationship between poverty category and mortality rates per 100,000.](image)

- **Age Adjusted Mortality Rates:**
  - **All Alameda**
  - **All Hennepin**

Mortality rates per 100,000:
- <10%: 677.5
- 10% - 19.9%: 819.3
- 20% - 29.9%: 950.4
- 30%+:
  - All Alameda: 1185.4
  - All Hennepin: 1272.5
Frequency Distributions
BARHI Mortality Rate By Tract

Mean = 751.479
Std. Dev. = 205.0978
N = 1,265
Life Expectancy by Tract

High school grads: 90%
Unemployment: 4%
Poverty: 7%
Home ownership: 64%
Non-White: 49%

High school graduates: 81%
Unemployment: 6%
Poverty: 10%
Home ownership: 52%
Non-White: 59%

Life Expectancy by Tract

Life Expectancy at Birth
- Green: > 80.0
- Yellow: 74.3 - 80.0
- Red: < 74.3

High school grads: 65%
Unemployment: 12%
Poverty: 25%
Home ownership: 38%
Non-White: 89%
The Connecticut Association of Directors of Health, Inc., has developed a health equity index, a tool that provides a way to conceptualize and measure the influence of community context on population health and health disparities at a neighborhood level.

It is based on a set of nine Social Determinants linked to health status: Economic Security, Livelihood and Employment, Education, Environmental Quality, Health Care Access, Housing, Civic Involvement, Community Safety, and Transportation. Indicator data are categorized into a six-point scale ranging from low to high, i.e. the more favorable a specific condition the higher the score.
What is the Health Equity Index (HEI)?

- A way to conceptualize and measure community contextual influences on population health and health disparities.
- Aims to trigger policy and regulatory improvements to reduce inequity.
The OMHPHP is applying (GIS) technology to mapping and targeting areas where populations experience significant racial/ethnic health inequities. Analyses would determine the associations between risk of infant deaths and the distribution of social determinants of health. This information would permit the OMHPHP to target and design specific, culturally-competent community-based participatory interventions to address particular health disparities and the associated social determinants.
Low-Birth Weight Rate (LBW, per 100) by Census Tract, 1996-2005