• No conflict of interest
• These are the views of the author and not those of Oregon State University.
What determines Public Health Decisions and Actions?
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What determines Public Health Decisions and Actions?
What is Public Health’s Responsibility if we know that a specific group ...  

• Is 2.5 times more likely to delay or forgo needed medical care?  

• Experiences chronic disease up to 5 times the rate of same-aged peers?  

• Reports unemployment rates more than double that of their peers?
Disabilities—An Unrecognized Disparity Population

I. The Many Faces of Disability
II. Documenting Disability-related Disparities
III. Disparities and Determinants
IV. What can we do?—Public Health Actions
1. The Many Faces of Disability
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I. The Many Faces of Disability
I. What Is Disability?

- Impairment in body function or structure
  - E.g., retinal detachment, missing limb

Limitation in activity
- E.g., difficulty seeing, hearing, walking, or problem-solving

Restriction in participation in daily and societal activities
- E.g., cooking a meal, driving an automobile

World Health Organization, 2001
I. International Classification of Functioning, Disability, and Health

- Health Condition *(Disorder/Disease)*
  - Body Function and Structure *(Impairment)*
    - Activities *(Limitations)*
      - Participation *(Restriction)*
        - Environmental Factors
          - Physical
          - Communication
        - Personal Factors
          - Policy
          - Social attitudes
I. Disability and Society

- Disability is not the health condition of a person

- It is the limitation experienced in the context of the community and society in which the individual lives

Societal and environmental accommodations are critical for people with limitations to engage in various daily activities

World Health Organization, 2001
I. Defining Disability in Data

• Differing definitions, conflicting data

• HP2010 and HP2020 Objectives

• New HHS disability identification standards
### Data Collection Standards - Disability Status (Yes or No)

<table>
<thead>
<tr>
<th></th>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Are you deaf or do you have serious difficulty hearing?</td>
</tr>
<tr>
<td>2</td>
<td>Are you blind or do you have serious difficulty seeing, even when wearing glasses?</td>
</tr>
<tr>
<td>3</td>
<td>Because of a physical, mental, or emotional condition, do you have serious difficulty</td>
</tr>
<tr>
<td></td>
<td>concentrating, remembering, or making decisions? (5 years old or older)</td>
</tr>
<tr>
<td>4</td>
<td>Do you have serious difficulty walking or climbing stairs? (5 years old or older)</td>
</tr>
<tr>
<td>5</td>
<td>Do you have difficulty dressing or bathing? (5 years old or older)</td>
</tr>
<tr>
<td>6</td>
<td>Because of a physical, mental, or emotional condition, do you have difficulty doing</td>
</tr>
<tr>
<td></td>
<td>errands alone such as visiting a doctor's office or shopping? (15 years old or older)</td>
</tr>
</tbody>
</table>
I. Disability Prevalence

• One Billion people globally live with disability (WHO, 2011)

• ~15% of the world’s population

• ~12-13% in U.S. report serious limitation
Adults with and without Disabilities by Age Group
United States, 2010
(Weighted Population Estimates)

Adults with and without Disabilities by Age Group
United States, 2010
(Weighted Population Estimates)

Prevalence of Functional Limitations among U.S. Adults

Co-occurring disabilities: Total >100%

- Walk/climb: 46%
- Problem-solve: 39%
- Hear: 26%
- See: 21%
- Dependence: 35%

National Health Interview Survey, 2010–2011

Percent
II. Determining “Disparity”

Disparity Requirements:

1. Health differences that are linked to a history of social, economic or environmental disadvantage;
2. These differences in health outcomes are at the population level; and
3. These differences are regarded as avoidable
II. Determining “Disparity”

Disparity Requirements:

• **Health differences that are linked to a history of social, economic or environmental disadvantage;**

• **These differences in health outcomes are at the population level; and**

• **These differences are regarded as avoidable**
II.1. How Did We Get Here?

- Poor health
- Unmet health care needs
- Chronic conditions
- High unemployment
- High poverty
IIa. Redefining the Unacceptable

The landmarks of political, economic and social history are the moment when some condition passed from the category of the given into the category of the intolerable. I believe that the history of public health might well be written as a record of successive re-defining of the unacceptable.

(Sir Charles Geoffrey Vickers, 1958)
Brief Timeline of Disability in the U.S.

- **1820s**: Deaf schools
- **1918**: Rehab Act for vets
- **1935**: Social Security Act
- **1968-1975**: ABA, CIL, Rehab Act, IDEA, DD Act
- **1986**: ADA
- **1990**: ADAA

Institutionalization
"INJUSTICE ANYWHERE IS A THREAT TO JUSTICE EVERYWHERE."

Martin Luther King Jr.
Legal Cases in Timeline of Disability

Institutionalization

1820s
Deaf schools

1918
Rehab Act for vets

1935
Social Security Act

1968-1975
ABA, CIL, Rehab Act, IDEA, DD Act

1986
ADA, ADAA

1990
Disability and Public Health-2

1999
Olmstead v L.C

1927
Buck v Bell
II.1. History of Disadvantage

Prevention and Institutionalization

→ to Paternalism and Charity

→ to Rights and Inclusion
II.2. Disability-Related Health Disparities

Disparity Requirements:

• Health differences that are linked to a history of social, economic or environmental disadvantage;

• These differences in health outcomes are at the population level;

• These differences are regarded as avoidable
II.2. Disability-Related Health Disparities—Data Sources

• National population data

• Multiple definitions of Disability

• Data Warehouse for HP2020
Percentage Adults Indicating Fair/Poor Health By Disability Status
BRFSS 2010

Fair/Poor Health

<table>
<thead>
<tr>
<th>Disabilities</th>
<th>39.5%</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Disabilities</td>
<td>8.7%</td>
</tr>
</tbody>
</table>
Percent with Unmet Medical Need due to Cost by Disability Status, BRFSS 2010

- Disabilities: 27.0%
- No Disabilities: 12.1%
Percent Women 40+ Mammography in Past 2 Years by Disability Status, BRFSS 2010

Disabilities: 70.7%
No Disabilities: 76.6%
Percent Women 40+ Mammography Past 2 Years by Disability Status
BRFSS 2006, 2010

- Disabilities
  - 2006: 73.0%
  - 2010: 70.7%

- Non-Disabilities
  - 2006: 77.5%
  - 2010: 76.6%
Percent Dental Visit by Disability Status, BRFSS 2010

- Disabilities: 59.2%
- No Disabilities: 70.4%
Percentage Dental Visit by Disability Status
BRFSS 2006, 2010

Disabilities

2006: 61.3%
2010: 59.2%

Non-Disabilities

2006: 69.9%
2010: 70.4%
Percent with No Physical Activity, NHIS 2008

- Disabilities: 54.2%
- No Disabilities: 32.2%

College of Public Health and Human Sciences
Percentage Obesity by Disability Status
NHANES 1999-2010;2009-10

<table>
<thead>
<tr>
<th>Group</th>
<th>Children/Youth</th>
<th>Adults</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disabilities</td>
<td>21.1%</td>
<td>44.6%</td>
</tr>
<tr>
<td>No Disability</td>
<td>15.2%</td>
<td>34.2%</td>
</tr>
</tbody>
</table>
Percent Smoking* by Disability Status, NHIS 2010

*100 cigarettes in lifetime and currently smoke

College of Public Health and Human Sciences
Percent Cardiovascular Disease Ages 18-44 years by Disability Status, NHIS 2009-11

Disabilities: 12.4%
No Disabilities: 3.4%
Percent Cardiovascular Disease Ages 45-64 years by Disability Status, NHIS 2009-11

Disabilities: 27.7%
No Disabilities: 9.7%
Annual # New Cases of Diabetes per 1,000 by Disability Status, NHIS 2010

Disabilities: 19.1 cases
No Disabilities: 6.8 cases
Victim of Violent Crime per 1,000 by Disability Status, NCVS, 2007

<table>
<thead>
<tr>
<th>Disability Status</th>
<th>Rate per 1,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disabilities</td>
<td>32.4</td>
</tr>
<tr>
<td>No Disabilities</td>
<td>21.3</td>
</tr>
</tbody>
</table>
II.2. Population Differences

• Major differences in:
  • Health care access
  • Health behaviors
  • Chronic diseases
  • Victimization

  - Health cares costs associated with disability estimated at about $400 billion/year
    - >¼ quarter of all health expenditures
    - Medicaid and Medicare programs incur about 70% of these costs
II.3. Disability-Related Health Disparities

Disparity Requirements:

• Health differences that are linked to a history of social, economic or environmental disadvantage;
• These differences in health outcomes are at the population level;
• These differences are regarded as avoidable
II.3. Arguments around preventable disparity

• “Of course their health is poor, they’re disabled.”

• “How do you know what came first—the disability or the poor health outcome?”
II.3. Approaches to document preventable disparities

1. Demonstrate differences prior to when poor health outcomes might be expected

   E.g., obesity in childhood
   E.g., smoking in early adulthood*
   E.g., cancer rates**

*Courtney-Long, Stevens, Caraballo, Ramon, Armour, 2014;
**Lapidus, Austin, Bersani, Small, 2001.
II.3. Approaches to document preventable disparities

2. Select an outcome where you would expect equivalence
   E.g., clinical preventive services
   E.g., chronic disease
II.3. The Example of Chronic Disease and Disability

- Mortality, Morbidity and Quality of Life are all threatened by chronic diseases
- 6 of top 10 causes of death in general population
- Primary Driver of health care costs in U.S.
- Generally considered preventable and manageable.
Percentage of Medicare FFS Beneficiaries with the 15 Selected Chronic Conditions: 2010

- High blood pressure: 58%
- High cholesterol: 45%
- Ischemic heart disease: 31%
- Arthritis: 29%
- Diabetes: 28%
- Heart failure: 16%
- Chronic kidney disease: 15%
- Depression: 14%
- COPD: 12%
- Alzheimer’s disease: 11%
- Atrial fibrillation: 8%
- Cancer: 8%
- Osteoporosis: 7%
- Asthma: 5%
- Stroke: 4%

Per Capita Medicare Spending for Medicare FFS Beneficiaries by Number of Chronic Conditions: 2010

Average spending for Medicare FFS Beneficiaries: $9,738

- 0 to 1: $2,025
- 2 to 3: $5,698
- 4 to 5: $12,174
- 6+: $32,658

Source: Centers for Medicare and Medicaid Services.
Percentage of Medicare FFS Beneficiaries with the 15 Selected Chronic Conditions by Age: 2010

- **High blood pressure**: 41% (Less than 65 years) vs. 61% (65 years and older)
- **High cholesterol**: 31% vs. 48%
- **Ischemic heart disease**: 19% vs. 34%
- **Arthritis**: 22% vs. 31%
- **Diabetes**: 26% vs. 28%
- **Heart failure**: 11% vs. 17%
- **Chronic kidney disease**: 12% vs. 15%
- **Depression**: 12% vs. 27%
- **COPD**: 11% vs. 12%
- **Alzheimer's disease**: 3% vs. 13%
- **Atrial fibrillation**: 2% vs. 9%
- **Cancer**: 3% vs. 9%
- **Osteoporosis**: 3% vs. 8%
- **Asthma**: 4% vs. 7%
- **Stroke**: 3% vs. 5%

Age Adjusted Prevalence Rates for Chronic Health Conditions and Cognitive Limitations, MEPS, 2006

Reichard, Stolzle, Fox, 2011

College of Public Health and Human Sciences
Adjusted Odds Ratios for Chronic Health Conditions for People with Lifelong Intellectual/Developmental Disabilities

Ibarra-Dixon & Horner-Johnson, 2014
Are People with Disabilities an Unrecognized Health Disparity Population?

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Met</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health differences that are linked to a history of social, economic or environmental disadvantage</td>
<td>✓</td>
</tr>
<tr>
<td>These differences in health outcomes are at the population level</td>
<td>✓</td>
</tr>
<tr>
<td>These differences are regarded as avoidable</td>
<td>✓</td>
</tr>
</tbody>
</table>
III. Disparities and Determinants

Health Disparities:
- Framework for Healthy People 2010
- Doorway to program eligibility
- “Easy” to demonstrate and understand

Health Determinants:
- Framework for Healthy People 2020
- Attention to broader influences on health
- Implications of determinants model
Healthy People 2020

A society in which all people live long, healthy lives
Three Views of Disability in Public Health

Traditional:
Prevention

Contemporary:
Minority/Disparity

Emerging:
Social Determinants

Population

General Population

People with Disabilities vs. People without Disabilities

People with Disabilities within General Population

Determinants of Health

Disease or Injury

Disease process or health intervention

Disability & Other contextual and physical factors

Health Outcomes

Disability as morbidity

Health and HRQOL

Health, HRQOL, and participation

*Drum, Krahn, Peterson, Horner-Johnson & Newton, 2009*
*Krahn & Campbell, 2011*
III. From Disparities to Determinants Model for Disabilities

Analytic Models:
• From “adjusting for” to considering simultaneously
• From main effects to interactions

Attitude
• Segregation to Inclusion
• Categorical classification to demographic characteristic
• Brings focus to influences of “place”
## Social Determinants Data

<table>
<thead>
<tr>
<th>Determinant</th>
<th>Disability</th>
<th>No Disability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unemployment (&gt;16 years)(^1)</td>
<td>15.0%</td>
<td>8.7%</td>
</tr>
<tr>
<td>Employment (&gt;16 years)(^1)</td>
<td>17.8%</td>
<td>63.6%</td>
</tr>
<tr>
<td>Less than High School education(^2)</td>
<td>13%</td>
<td>9.5%</td>
</tr>
<tr>
<td>Internet Access(^3)</td>
<td>54%</td>
<td>85%</td>
</tr>
<tr>
<td>Household Income &lt; $15,000(^3)</td>
<td>34%</td>
<td>15%</td>
</tr>
<tr>
<td>Inadequate Transportation(^3)</td>
<td>34%</td>
<td>16%</td>
</tr>
</tbody>
</table>

\(^1\) CPS, 2011; \(^2\) BRFSS 2010; \(^3\) NOD, 2010

*Krahn, Walker, Correa-de-Araujo, AJPH in press*
IV. What Public Health Actions Can We Take?

National: Disparity status for disability

National, State and Local Actions:
1. Access to health care and human services
2. Strengthened health and human services workforce
3. Explicit inclusion of people with disabilities in public health programs and services
4. Data to drive policy and practice
5. Emergency preparedness
Action 1: Access to Health Care and Human Services

• Health care insurance
• Public health services
• Accessible facilities and equipment
• Community-based services
• Cultural and linguistically appropriate services
• Coordination and navigator services
Action 2: Strengthened Health and Human Services Workforce

- Policies that support the workforce to provide quality services

- Training for current and future workforce on disabilities, and disability inclusion
Action 3: Explicit Inclusion of People with Disabilities in Public Health Programs and Services

“Inclusion of people with disabilities wherever possible;
Cross-Disability approach wherever necessary;
Condition-specific where essential”
Planning for Inclusion:

• Recruitment
• Accessibility
• Accommodation
  • Equipment
  • Supports
• Resources:
  • Oregon Office on Disability and Health:
  • CDC: http://www.cdc.gov/ncbddd/disabilityandhealth/accessibility.html
Importance of Inclusion in Interventions

Smokers

- Non-disability: 70%
- Disability: 30%
Inclusion: The Guide to Community Preventive Services

- Evidence-based community interventions
  - [www.thecommunityguide.org](http://www.thecommunityguide.org)
- Reviewed 90 interventions for applicability for people with disabilities

**Community Guide Interventions**

- 38 Applicable
- 35 Access/Accommodation
- 18 Training
Action 4: Data to Drive Policy and Practice

- Routine inclusion of disability identifiers
  - Use of HHS disability standards
- Routine analysis by disability status
- Routine monitoring of effectiveness by disability status
Action 5: Emergency Preparedness and Disabilities
Action 5: Emergency Preparedness

- Including people with disabilities in planning for all disasters
- Preparation by communities, first responders
- Preparation and resources for people with disabilities and families

Resources:
- Oregon Office on Disability and Health
- CDC, FEMA
IV. International Public Health Frameworks for Action

- World Report on Disability—1 Billion people globally (WHO/World Bank, 2011)
- Convention on the Rights of People with Disabilities (UN, 2006)
- Opportunities for Global Health and Disability
In Summary,

- There are many faces of disability
- Disability meets all criteria as a disparity population
- People with disability are disadvantaged on key determinants of health
- Public health can take actions in key areas
- The moment has come when the poor health of people with disabilities passes from the category of a Given to the category of the Intolerable.
Time for Action
Take the Plunge!
Thank you!

Gloria.Krahn@oregonstate.edu