The Case for Improving the Health of Vulnerable Populations

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The Fifth Annual Global Health Economics Colloquium:
The Economics of Vulnerable Populations, at Home and Abroad
Vulnerability results from a mismatch between the resources available to individuals and communities and the life challenges they face.
What is vulnerability?

“Vulnerability, the susceptibility to harm, results from an interaction between the resources available to individuals and communities and the life challenges they face. Vulnerability results from developmental problems, personal incapacities, disadvantaged social status, inadequacy of interpersonal networks and supports, degraded neighborhoods and environments, and the complex interactions of these factors over the life course.”

Mechanic and Tanner – Health Affairs 2007
Who are vulnerable individuals/communities?

- All of us may have periods of vulnerability, but some experience more and persistent vulnerabilities.

- Vulnerability is not an innate characteristic nor the sole characteristic that defines an individual or community.

- Vulnerabilities vary across conditions and context.
Life expectancy in the US 2012
Life expectancy by BART stops in the Bay Area

Legend
- Life expectancy at birth
- Median household income (each symbol = $25,000)
- Share of adults with a BA or higher (each symbol = 20%)
- Childhood asthma hospitalizations per 100,000 (each symbol = 100)
Socioeconomic status is a fundamental cause of health inequities (Link and Phelan 1995)

“Risk of Risks”

A ‘fundamental cause” of health inequity must meet 4 criteria:

1. influences multiple disease outcomes
2. affects these disease outcomes through multiple risk factors.
3. involves access to resources that can be used to avoid risks or to minimize the consequences of disease once it occurs.
4. association is reproduced over time via the replacement of intervening mechanisms (Link and Phelan 1995).
Theory of Fundamental Causes

- SES is a fundamental cause of poor health:
  - Regardless of disease or context, high SES individuals and groups can flexibly deploy resources to avoid risks and mitigate effects of poor health

- Resources include:
  - Money
  - Power
  - Knowledge
  - Prestige
  - Social connections
Theory of Fundamental Causes

Infectious diseases:
  • Avoid areas that carry risk of contamination
  • Limit entry of potential infectious individuals

Cardiovascular diseases:
  • Access healthy food
  • Live in communities that facilitate healthy choices

All contexts:
  • Access quality medical care
Race as a Fundamental Cause

- Initially, theory of fundamental causes focused only on SES
- Racial/ethnic disparities considered as collinear with SES
- Paper by Link and Phelan in 2015 argued for race/ethnicity as a fundamental cause:
  - Predictive of SES
  - Independently through racism
Although the choice to address health of vulnerable populations ultimately reflects the values of a society, there are several factors that make the need compelling.
Rise in Ebola cases in Liberia
A) New cases of Ebola
B) Social vulnerability clusters
C) Distance to medical care
Rising tide and cost of non-communicable diseases:
Data from 3,139 counties in the U.S. ranked by the percentage of people living with poverty.

A (%) Obesity

B

R = 0.74, P<0.001

C (%) Sedentariness

D (%) Diabetes

James A. Levine Diabetes 2011;60:2667-2668
Total discounted direct and indirect costs due to current increased adolescent overweight

Source: Lightwood, Bibbins-Domingo, Coxson et al AJPH 2009
Index of health and social problems in relation to income inequality in rich countries
Addressing the health of vulnerable populations may require approaches that are specific to these populations.
Change in smoking patterns over time by SES

FIGURE 6. Percent Current Smokers by Education 1954 through 1999

Nationwide Surveys 1954–1999
Change in lung cancer mortality over time

FIGURE 7. Age-Adjusted Lung Cancer Mortality (Men 25–64) 1950–1998 by SES of County of Residence
Socio-economic inequalities in childhood mortality in low- and middle-income countries
Risk-adjusted 30-day post-operative mortality rates among black and white Medicare patients who had inpatient surgery, 2005–14.

Winta Tsegay Mehtsun et al. Health Aff 2017;36:1057-1064

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Vulnerabilities cluster - and this fact limits the effectiveness of interventions with a focus on a specific risk factor or disease
Challenge of vertical health programs

Vertical Health Programs

- Program Supervision
- Maternal Health
- Program Supervision
- Child Health
- Program Supervision
- Tuberculosis
- Program Supervision
- HIV/AIDS

Local Health Center
The growing need and inherent challenges in current approaches to addressing health of vulnerable populations has led to more consideration of upstream factors and assuring scalability and reach of these interventions.
Academic Medical Centers Responding to Homelessness

Boston Medical Center has a new prescription for its most vulnerable patients: housing

ER Use Goes Down As Hospital Program Pays Homeless People’s Rent

Why Hospitals Are Subsidizing Apartments For The Homeless

Bronx Project Sees Health in Affordable Housing

Complex is designed to address many of the hurdles facing low-income residents

Orange County Mayor Teresa Jacobs, Wayne Densch Charities, Florida Hospital, Ability Housing make major announcement to address homelessness in Central Florida

6 Portland health providers give $21.5M for homeless housing
Hospitals as Anchor Institutions

- **REAL ESTATE DEVELOPER**: Use real estate development for local economic growth
- **PURCHASER**: Direct institutional purchasing toward local businesses
- **CORE PRODUCT / SERVICE PROVIDER**: Tailor core products/services to serve the community
- **COMMUNITY DEVELOPER**: Build local community capacity
- **COMMUNITY & ECONOMIC VITALITY**:
  - **EMPLOYER**: Offer employment opportunities to local residents
  - **WORKFORCE DEVELOPER**: Address local workforce needs
  - **CLUSTER ANCHOR**: Simulate growth of related businesses and institutions

- **ACTOR**: Anchor’s own business activities
- **LEADER**: Lead a joint effort with other organizations
- **COLLABORATOR**: Use resources and influence in collaboration with a broad range of stakeholders to identify and serve anchor and community needs
The Full Report is now available for free download at: iom.edu/ehrdomains2

## Core Domains & Measures
### With Suggested Frequency of Assessment

<table>
<thead>
<tr>
<th>Domain/Measure</th>
<th>Measure</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol Use</td>
<td>3 questions</td>
<td>Screen and follow up</td>
</tr>
<tr>
<td>Race and Ethnicity</td>
<td>2 questions</td>
<td>At entry</td>
</tr>
<tr>
<td>Residential Address</td>
<td>1 question</td>
<td>Verify every visit</td>
</tr>
<tr>
<td>Tobacco Use</td>
<td>(geocoded) 2 questions</td>
<td>Screen and follow up</td>
</tr>
<tr>
<td>Census Tract-Median Income</td>
<td>1 question</td>
<td>Update on address change</td>
</tr>
<tr>
<td>Depression</td>
<td>(geocoded) 2 questions</td>
<td>Screen and follow up</td>
</tr>
<tr>
<td>Education</td>
<td>2 questions</td>
<td>At entry</td>
</tr>
<tr>
<td>Financial Resource Strain</td>
<td>2 questions</td>
<td>Screen and follow up</td>
</tr>
<tr>
<td>Intimate Partner Violence</td>
<td>1 question</td>
<td>Screen and follow up</td>
</tr>
<tr>
<td>Physical Activity</td>
<td>4 questions</td>
<td>Screen and follow up</td>
</tr>
<tr>
<td>Social Connections &amp; Social Isolation</td>
<td>2 questions</td>
<td>Screen and follow up</td>
</tr>
<tr>
<td>Stress</td>
<td>4 questions</td>
<td>Screen and follow up</td>
</tr>
<tr>
<td></td>
<td>1 question</td>
<td>Screen and follow up</td>
</tr>
</tbody>
</table>

**Note:** Domains/Measures are listed in alphabetical order; domains/measures in the shaded area are currently frequently collected in clinical settings; domains/measures not in the shaded area are additional items not routinely collected in clinical settings.
Reducing asthma readmissions in Cincinnati children

Andrew F. Beck et al. Pediatrics 2012;130:831-838

©2012 by American Academy of Pediatrics
Response to rising tide of non-communicable diseases

Fiscal Policies for Diet and Prevention of Noncommunicable Diseases
Soda tax in Mexico

M Arantxa Colchero et al. BMJ 2016;352:bmj.h6704

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Summary

- Vulnerability framework offers an approach to understanding health needs. Although adapted to specific conditions and context, vulnerability in health matters must consider poverty and racism/discrimination.

- Decision to focus on vulnerable populations reflect societal values, but compelling cases can be made for the need to focus if our goal is to improve health.

- Challenges in addressing the needs of vulnerable groups is leading to increasing focus on upstream factors and interventions that scale and reach intended populations.