Why the social determinants of health matter to the practicing pharmacist

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Thomas Buckley has nothing to disclose for this presentation
Lecture Objectives

1. Describe why your address can predict your health outcomes
2. Explain the impact of social determinants on health inequality
3. Discuss the impact of social determinants on health literacy
4. Describe how community pharmacists have impacted community health

On average, which of the following conditions is the strongest predictor of your health?

A. Whether or not you smoke
B. What you eat
C. Whether or not you are wealthy
D. Whether or not you have health insurance
E. How often you exercise
Ireland, Sweden, France, Spain, Portugal and the other western European nations all mandate by law paid holidays and vacations of 4 to 6 weeks.

How many days of paid vacation are mandated by law in the U.S.?

A. None
B. 10
C. 12

Where does the U.S. rank in the percentage of the population that smokes cigarettes?

(of the 30 OECD countries)

A. #1 (highest smoking rates)
B. Top 5
C. Top 10
D. 11-20th place
E. Below 25 (lowest smoking rates)
On average, how many more supermarkets are there in predominantly white neighborhoods compared to predominantly Black and Latino neighborhoods?

A. About the same  
B. 2 times as many  
C. 4 times as many  
D. 6 times as many

Generally speaking, which group has the best overall health in the U.S.?

A. Recent Latino immigrants  
B. Native-born whites  
C. Native-born Latinos  
D. Native-born Asian Americans
“Place Matters”

The Mystery: Why are zip code and street address good predictors of population health?

“Click here to enter your address and get your life expectancy!”


(California address only – sponsored by The California Endowment)
What are the “social determinants of health”?

- WHO defines social determinants of health as “the conditions in which people are born, grow, work, live, and age, and the wider set of forces and systems shaping the conditions of daily life”

- Health inequities, “the unfair and avoidable differences in health between groups of people within countries and between countries” (WHO), stem from the social determinants of health and result in stark differences in health and health outcomes

What determines health?

![Pie chart showing the proportion of premature death contributions (Schroeder NEJM 2007)]
Health Care’s Blind Side

• Physicians believe unmet social needs are directly leading to worse health for Americans — and that patients’ social needs are as important to address as their medical conditions

• Physicians report that their patients frequently express health concerns caused by unmet social needs beyond their control

• This is health care’s blind side: Within the current health care system, physicians do not have the time or sufficient staff support to address patients’ social needs, even though these needs are as important to address as medical conditions.
Healthy People 2020:
5 major areas to address SDOH

- Economic Stability
  - Poverty
  - Employment
  - Food Security
  - Housing Stability

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

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

- Health and Health Care
  - Access to Health Care
  - Access to Primary Care
  - Health Literacy

- Neighborhood and Built Environment
  - Access to Healthy Foods
  - Quality of Housing
  - Crime and Violence
  - Environmental Conditions

Facts of Social Determinants

- **Income:**
  - Income inequality in U.S. increased between 1977-1999: income of richest 1% doubled; income of lowest 20% declined by 9%
  - Countries w/unequal income distribution have higher rates of infant mortality than countries w/more equitable income distribution
  - “Robin Hood Index” of 50 states: income inequality significantly related to level of homicide, assault, robbery

*Social and Environmental Determinants of Health*
Gini coefficient – measure of income inequality
0 = complete equality; 1 = complete inequality
Utah lowest, CT 49th, NY highest inequality

Wealth inequality by country

<table>
<thead>
<tr>
<th>% total global personal wealth</th>
<th>Wealth inequality</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. United States — 41.6%</td>
<td>1. U.S.A. — 80.56</td>
</tr>
<tr>
<td>2. China — 10.5%</td>
<td>2. Sweden — 79.90</td>
</tr>
<tr>
<td>4. U.K. — 5.6%</td>
<td>4. Indonesia — 73.61</td>
</tr>
<tr>
<td>5. Germany — 3.9%</td>
<td>5. Austria — 73.59</td>
</tr>
<tr>
<td>6. France — 3.5%</td>
<td>6. Germany — 73.34</td>
</tr>
<tr>
<td>7. Canada — 3.0%</td>
<td>7. Colombia — 73.18</td>
</tr>
<tr>
<td>8. Italy — 2.9%</td>
<td>8. Chile — 73.17</td>
</tr>
<tr>
<td>9. Australia — 2.0%</td>
<td>9. Brazil — 72.86</td>
</tr>
<tr>
<td>10. South Korea — 1.6%</td>
<td>10. Mexico — 70.00</td>
</tr>
</tbody>
</table>

(100=perfect inequality, i.e. one person owns all the wealth)
Facts of Social Determinants

• **Education & employment:**
  – Ages 25-64: death rate for those w/less than 12 yrs education more than twice for those w/13 or more yrs of education
  – Infant mortality double for mothers w/less than high school education
  – Unemployment associated w/poorer outcomes:
    • Depression, suicide, alcoholism, sleep disturbances, GI distress, headache, CVD, musculoskeletal disorders

*Social and Environmental Determinants of Health*

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Connection between education & health

• An additional 4 years education:
  – Lowers 5-yr mortality by 1.8 percentage points
  – Reduces heart disease risk by 2.2 percentage pts
  – Reduces risk of diabetes by 1.3 percentage pts
  – Reduces self-report of poor health by 6 pts
  – Reduces lost work days due to sickness by 2.3/yr

• Why???
  – Increased education improves health behaviors
  – Some behaviors reflect *differential access to care*

*National Bureau of Economic Research; Education and Health: Evaluating Theories and Evidence* . 2010
Facts of Social Determinants

• **Environment:**
  – Worldwide, ¼ preventable disease attributable to poor environmental quality
  – U.S.: air pollution associated w/50,000 premature deaths & up to $50 billion health costs

• **Social Capital:**
  – Individuals lacking social ties: 2-3x risk of dying of all causes compared to those well-connected
    • Socially isolated: 4x greater rate of heart attack

  – *Social connectedness stronger predictor of perceived quality of life than income or education level*

*Social and Environmental Determinants of Health*

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Determinants of Health

• Conditions or factors associated with health
  – Characteristics of individual, community, state, national, or global
  – Person-environment interaction
    • Positive interactions = health or maintenance of health
    • Negative interactions = illness or decrement of health

• **Blaming individuals for poor health or crediting for good health inappropriate**
  – May not be able to control determinants of health
Vicious Cycle of Health Care (Developing Countries)

Curative services futile if not coupled with public health measures

Seek treatment

Health Services

Disease returns

Return to Environment

Polluted water
Inadequate food
Polluted environment
Overcrowding
Insecurity
Extreme heat or cold

Vicious Cycle of Health Care: U.S.

Seek treatment

Health Services

Disease returns

Return to Environment

Poor housing
Poor education
Food insecurity
Unsafe environment
Wealth inequality
Racism
Job insecurity
Poor transportation
Lack of language services
Lack of health insurance
Social Determinants 10 Tips for Better Health
(in addition to stop smoking, eat more fruits/veggies, etc.)

An “alternative” way to counsel patients about health determinants

| 1. Don’t be poor. If you can, stop. If you can’t, try not to be poor for long. |
| 2. Don’t have poor parents. |
| 3. Own a car. |
| 4. Don’t work in a stressful, low-paying manual job. |
| 5. Don’t live in damp, low quality housing. |
| 6. Be able to afford to go on vacation. |
| 7. Practice not losing your job, and don’t become unemployed. |
| 8. Make sure you have benefits, especially if unemployed, sick or disabled. |
| 9. Don’t live next to a busy major road, or polluting factory. |
| 10. Learn how to fill in complex housing forms before becoming homeless and destitute. |

Source: Centre for Social Justice, Social Determinants Across the Lifespan; www.socialjustice.org/subsites/conference/resources

How social determinants relate to health disparities

1. **Context** for health or illness
   – where we live, learn, work and play influences our health

2. **Disparities** in health based on race, ethnicity, or class that raises questions about the fairness of those disparities
Health Equity vs Health Disparities

• Health equity: right of everyone to have “a fair and just opportunity to be as healthy as possible”
  – Requires moving obstacles, i.e. poverty, discrimination, fair pay, quality housing & education, safe environment

• Health disparities: the metric for assessing health equity, defined as “differences in health outcomes that are linked with social, economic and environmental disadvantage”

Office of Minority Health (2011)

CT Health Disparities Report - 2009

• Leading health indicators
  – Mortality
  – Birth outcomes
  – Chronic diseases
  – Infectious diseases
  – Injuries
  – Behavioral risks
  – Environmental and occupational health
  – Oral health
  – Access to care and the health care work force

• Social and economic indicators
• Most recent data at: www.ct.gov/dph/healthdisparitiesdata
Modifiable Risk Factors among Adults (18+y) by Annual Household Income, Connecticut, 2011-2013

Source: CT DPH, BRFSS, 2011-2013 data.

*Participated in no physical activities in past month

Prevalence of High Blood Pressure by Annual Household Income (18+y), CT, 2011-2013

Source: CT DPH, BRFSS, 2011-2013 data.
Prevalence of High Blood Pressure by Race & Ethnicity, Adults (18+y), CT, 2011-2013

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>Weighted Percent (age-adjusted)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All CT</td>
<td>28.1</td>
</tr>
<tr>
<td>White</td>
<td>26.8</td>
</tr>
<tr>
<td>Black or African American</td>
<td>37.7</td>
</tr>
<tr>
<td>Hispanic or Latino</td>
<td>30.5</td>
</tr>
<tr>
<td>Other</td>
<td>22.7</td>
</tr>
</tbody>
</table>

Source: CT DPH, BRFSS, 2011-2013 data.

Age-adjusted Premature Mortality Rates (<75 years of age) per 100,000 population, CT Residents, 2008-2012

Source: Connecticut Department of Public Health, Vital Records Mortality Files, 2008-2012
**Prediabetes among Connecticut Adults without Diagnosed Diabetes, 2012-2014**

According to the CDC, more than 1 out of 3 adults have prediabetes.

However, only 7.2% of Connecticut adults have ever been told by a health professional that they have prediabetes.

*Source: Connecticut Department of Public Health, Behavioral Risk Factor Surveillance Survey, 2012-2014*

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**Age-Adjusted Hospitalization Rates – Diabetes and Diabetes-Related LE Amputation CT Residents by Race & Ethnicity, 2009**

<table>
<thead>
<tr>
<th>Race &amp; Ethnicity</th>
<th>Diabetes Rate per 100,000</th>
<th>DRNLEA Rate per 100,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>133.6</td>
<td>20.8</td>
</tr>
<tr>
<td>White</td>
<td>94.5</td>
<td>16.0</td>
</tr>
<tr>
<td>Black</td>
<td>408.5</td>
<td>55.5</td>
</tr>
<tr>
<td>Hispanic</td>
<td>242.1</td>
<td>47.9</td>
</tr>
</tbody>
</table>

*Source: CT Department of Public Health. Acute Care Hospital Inpatient Discharge Database, 2012.*
Asthma ED Visit Rates by Year and Race/Ethnicity, Connecticut, 2000 – 2009

Source: Connecticut Hospital Information Management Exchange (CHIME)

Disparities – local or national?

- CT has highest per capita income in U.S.  
  – Does this affect health disparities?
- What local determinants of health could lead to these health disparities?
- CT’s Health Equity Index: maps social determinants to health outcomes
Town Scores

Social Determinants of Health in Connecticut Towns

<table>
<thead>
<tr>
<th>Towns</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hartford</td>
<td>5</td>
</tr>
<tr>
<td>Waterbury</td>
<td>7</td>
</tr>
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</table>

Compare Towns
Side by side mapping

Potential Solutions

• “Bringing Care to People Rather Than People to Care”  (Richard Niederman, Editor, AJPH, September 2015)
  – Placed-based care
    • Home, place of worship, barbershop, etc.
  – Use of community health workers
  – Use of telehealth/videoconferencing
  – Community-focused programs – “Community-based Participatory Approach”
    • Community-based participatory research (CBPR)
DPH-UCONN SOP Collaboration

- Expanding MTM-certified Pharmacists throughout the state to provide MTM services

- Developing a network of innovative community pharmacists focused on provision of services for underserved and vulnerable populations.

- Implemented a Community-system of care for hypertension which integrates pharmacists and CHWs into care team
  - CHWs performed BP outreach – car washes, barber shops, laundromats, churches
  - Linked identified HBP to immediate appt w/clinic PCP
  - Pharmacist identify clients in the community with uncontrolled HTN through database screening of nonadherence
  - Clinic & community pharmacists performed MTM w/CDTM HTN protocols with clinic MDs

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**C. Pneumococcal vaccination age ≥ 65 years (MMWR):**

<table>
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<tr>
<th>Race/Ethnicity</th>
<th>White</th>
<th>Black</th>
<th>Asian or Pacific Islander</th>
<th>Hispanic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>623</td>
<td>144</td>
<td>38</td>
<td>836</td>
</tr>
<tr>
<td>NH Ame</td>
<td>54</td>
<td>55</td>
<td>4</td>
<td>103</td>
</tr>
<tr>
<td>Hispanic</td>
<td>572</td>
<td>137</td>
<td>3</td>
<td>101</td>
</tr>
</tbody>
</table>

**CT Pneumonia Disease Rate/100,000 (2009):**

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**PROJECT OBJECTIVE:**

- To demonstrate that a public-private partnership between the state university school of pharmacy, state department of public health and an urban community pharmacy can reduce racial and ethnic disparities in adult immunizations.

**METHODS:**

1. **Identification of project:**
   - Define the scope of the intervention
   - Identify key stakeholders
   - Develop a plan for implementation

2. **Project implementation:**
   - Establish partnerships with local organizations
   - Conduct outreach and education campaigns
   - Monitor progress and make necessary adjustments

3. **Evaluation:**
   - Collect data on vaccination rates
   - Analyze results to identify areas for improvement
   - Report findings to relevant authorities

**RESULTS:**

- 5750 patients identified by age and race within past 6 months
- Disease exacerbation reduced in 120 eligible patients
- 400 patients randomized to mailing, phone, or point-of-service engagement strategies

**IMPLICATIONS:**

- Engaging patients at point of care and in community messaging with culturally and linguistically appropriate information increases vaccination administration & adherence to other therapies.
- Patient engagement strategies enhance physician collaborations.
- Partnering with senior centers, local pharmacies can optimize pharmacist accessibility, public trust, and engagement strategies to reduce immunization health disparities.
Creating the Connecticut community pharmacy practice network through public-private partnerships

Background
- New models of value-based care are needed to meet evolving health reform initiatives at state and federal levels.
- Programs addressing chronic diseases use state health departments and community pharmacies to build team relationships through public-private partnerships.

Project overview
- This project demonstrates how a public-private partnership between the state health department, state university school of pharmacy, and community pharmacy created a state-wide network of community pharmacists providing comprehensive medication management to underserved populations.
- Tailoring project to public policy and identifying opportunities for the successful launch of pharmacists through cooperation with partners involved in health reform implementation.

Performance measures
- Proportion of community pharmacies that provide medication self-management of adults with diabetes and hypertension.
- Proportion of patients with hypertension or diabetes in receipt of medication management improvements.
- Decreased proportion of diabetes patients with A1C > 9%.
- Proportion of hypertension adult achieving blood pressure control.

Methods
- Following the success of an urban immunization project with a community pharmacy, the state health department and school of pharmacy partnered on the state chronic disease plan.
- This partnership added community pharmacy as "health extenders" for the provision of medication self-management for adults with high blood pressure and diabetes.
- The state health department and the state health department received reviews that approved the project proposal.
- The school of pharmacy provided medication therapy management (MTM) certification to diabetes and hypertension community pharmacists. "Practice guidelines and documentation tools for the provision of MTM services, and provides continuous quality improvement and evaluation of the service.

Results
- High-risk, uncontrolled patients with hypertension and/or diabetes were identified through pharmacy, pharmaceutical, and clinical records.
- High-risk, uncontrolled patients at pharmacies from whom pharmacist prescribing approval was approved.
- Clear guidelines for the management of hypertension and diabetes were created.
- Each year of the 3-year project, a cohort of 750 officially certified community pharmacists were added to project, creating a community pharmacy practice network that shares practical information such as clinical guidelines, workflow efficiencies, engagement techniques, and local school of pharmacy faculty as a key resource.

Conclusions
- Public-private partnerships are vital in developing a comprehensive pharmacy network that can provide innovative and inclusive services to underserved communities.
- These partnerships are critical to the dissemination of innovative methodologies and care more for patients involved in pharmacists trained in health care services to optimally identify medication risks.

Editing and graphic design
- The project has major components supporting the model given in the flowchart. The flowchart describes the relationship between various components.
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Project configuration
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Methodology and design
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Conflict of interest
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4/31/2017
"To achieve greatness, start with where you are at, use what you have, and do what you can"

--- Arthur Ashe, legendary tennis champion and founder of the Arthur Ashe Institute for Urban Health

Thank you!

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