THE RELATIONSHIP BETWEEN EDUCATION AND HEALTH

Roundtable on Population Health Improvement
School Success: An Opportunity for Population Health Action
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Social and Economic Factors

Health Systems
- Medical Care
- Public Health

Physical and Social Environment

Individual Behaviors

Public Policies and Spending

Health Outcomes
- Mortality and Morbidity

Why the differences?

- **Education and income** are directly linked to health: Communities with weak tax bases cannot support high-quality schools and jobs are often scare in neighborhoods with struggling economies.
- **Unsafe or unhealthy housing** exposes residents to allergens and other hazards like overcrowding.
- **Stores and restaurants selling unhealthy food** may outnumber markets with fresh produce or restaurants with nutritious food.
- **Opportunities for residents to exercise, walk, or cycle** may be limited and some neighborhoods are unsafe for children to play outside.
- **Proximity to highways, factories, or other sources of toxic agents** expose residents to pollutants.
- **Access to primary care doctors and good hospitals** may be limited.
- **Unreliable or expensive public transit** can isolate residents from good jobs, health and child care, and social services.
- **Residential segregation and features that isolate communities** (e.g., highways) can limit social cohesion, stifle economic growth, and perpetuate cycles of poverty.

Center on Society and Health
All-cause mortality risk for men and women by years of education

Self-report of fair or poor health, by education

Percent of adults age 18 and older

- No high school diploma: 27%
- High school diploma or GED: 18%
- Some college: 13%
- Bachelor's degree or higher: 6%

The same health care doesn’t mean the same health
# Prevalence of diseases among US adults, by education

<table>
<thead>
<tr>
<th>Disease</th>
<th>Less than a high school diploma</th>
<th>High school diploma or GED</th>
<th>Some college</th>
<th>Bachelor’s degree or higher</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coronary heart disease</td>
<td>10.2%</td>
<td>7.5%</td>
<td>7.4%</td>
<td>5.4%</td>
</tr>
<tr>
<td>Stroke</td>
<td>4.7%</td>
<td>3.4%</td>
<td>2.7%</td>
<td>1.7%</td>
</tr>
<tr>
<td>Emphysema</td>
<td>3.3%</td>
<td>2.5%</td>
<td>1.9%</td>
<td>0.7%</td>
</tr>
<tr>
<td>Asthma (current)</td>
<td>8.1%</td>
<td>8.3%</td>
<td>8.6%</td>
<td>7.1%</td>
</tr>
<tr>
<td>Chronic bronchitis</td>
<td>5.1%</td>
<td>5.2%</td>
<td>5.0%</td>
<td>2.3%</td>
</tr>
<tr>
<td>Diabetes</td>
<td>15.1%</td>
<td>10.5%</td>
<td>9.6%</td>
<td>6.5%</td>
</tr>
<tr>
<td>Ulcers</td>
<td>9.8%</td>
<td>7.4%</td>
<td>8.0%</td>
<td>5.0%</td>
</tr>
<tr>
<td>Kidney disease</td>
<td>3.8%</td>
<td>2.2%</td>
<td>2.1%</td>
<td>0.7%</td>
</tr>
<tr>
<td>Liver disease</td>
<td>2.4%</td>
<td>1.4%</td>
<td>1.5%</td>
<td>0.8%</td>
</tr>
<tr>
<td>Chronic joint symptoms</td>
<td>35.0%</td>
<td>33.3%</td>
<td>34.6%</td>
<td>25.2%</td>
</tr>
<tr>
<td>Hearing trouble</td>
<td>18.8%</td>
<td>19.3%</td>
<td>18.1%</td>
<td>13.5%</td>
</tr>
<tr>
<td>Vision trouble</td>
<td>14.0%</td>
<td>10.4%</td>
<td>9.5%</td>
<td>6.3%</td>
</tr>
<tr>
<td>No teeth</td>
<td>16.2%</td>
<td>9.6%</td>
<td>7.1%</td>
<td>3.6%</td>
</tr>
</tbody>
</table>

An employer perspective

- Educated and skilled workforce
- Health care costs
- Absenteeism
- Presenteeism
- Decreased workforce productivity

Table 2. Percentage of U.S. adults aged 18 and older with difficulties in physical functioning, 2011

<table>
<thead>
<tr>
<th>Activities that are very difficult or cannot be done at all</th>
<th>Less than a high school diploma</th>
<th>High school diploma or GED</th>
<th>Some college</th>
<th>Bachelor’s degree or higher</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any physical difficulty</td>
<td>28.0%</td>
<td>20.5%</td>
<td>17.7%</td>
<td>9.0%</td>
</tr>
<tr>
<td>Difficulty walking quarter of a mile</td>
<td>15.4%</td>
<td>9.9%</td>
<td>7.5%</td>
<td>3.6%</td>
</tr>
<tr>
<td>Difficulty climbing 10 steps</td>
<td>12.0%</td>
<td>6.8%</td>
<td>5.5%</td>
<td>2.3%</td>
</tr>
<tr>
<td>Difficulty standing for 2 hours</td>
<td>18.1%</td>
<td>12.4%</td>
<td>9.9%</td>
<td>5.5%</td>
</tr>
<tr>
<td>Difficulty sitting for 2 hours</td>
<td>7.0%</td>
<td>4.4%</td>
<td>3.5%</td>
<td>1.1%</td>
</tr>
<tr>
<td>Difficulty stooping, bending, or kneeling</td>
<td>16.8%</td>
<td>12.1%</td>
<td>10.1%</td>
<td>4.8%</td>
</tr>
<tr>
<td>Difficulty grasping or handling small objects</td>
<td>3.3%</td>
<td>2.4%</td>
<td>1.9%</td>
<td>0.9%</td>
</tr>
<tr>
<td>Difficulty lifting or carrying 10 pounds</td>
<td>10.2%</td>
<td>5.9%</td>
<td>4.3%</td>
<td>1.9%</td>
</tr>
<tr>
<td>Difficulty pushing or pulling large objects</td>
<td>14.1%</td>
<td>8.9%</td>
<td>6.9%</td>
<td>2.9%</td>
</tr>
</tbody>
</table>


Center on Society and Health
Deaths (per year) potentially averted in the United States

Year | Deaths potentially averted by medical advances (see footnotes) | Deaths potentially averted by eliminating education-associated excess mortality (see footnotes)
--- | --- | ---
1996 | 50,000 | 250,000
1997 | 50,000 | 250,000
1998 | 50,000 | 250,000
1999 | 50,000 | 250,000
2000 | 50,000 | 250,000
2001 | 50,000 | 250,000
2002 | 50,000 | 250,000

Income and psychological wellbeing

Decreasing life expectancy among US females without a high school education

“Deaths of despair” and education

Case A, Deaton A. Brookings Institution, 2017
Why education matters to health: exploring the causes

1. Education can create opportunities for better health
   - Income/resources
   - Social/psychological benefits
   - Healthy behaviors
   - Healthier neighborhoods

2. Poor health can put education at risk (reverse causality)
   - Attendance
   - Concentration
   - Learning disabilities

3. Conditions throughout people’s lives can affect both education and health

Contextual Factors
   - Social policies
   - Individual/family characteristics

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Chronic stress and trauma

Center on Society and Health
Adverse childhood experiences

How Adverse Childhood Experiences Can Influence Health Throughout Life

Adapted from Felitti et al., 1998 and Whitfield CL at http://www.cbwhit.com/ACEstudy.htm.
“The body doesn’t forget” (Hayward)

Increased Odds of Adult Diseases After Experiencing Adverse Events* in Childhood

- Severe obesity: 1.6
- Diabetes: 1.6
- Heart disease: 2.2
- Cancer: 1.9
- Stroke: 2.4
- Chronic lung disease: 3.9
- Depression: 4.6

* Odds ratios after exposure to four or more adverse childhood events (see text for description). All odds ratios were statically significant. Data from Adverse Childhood Experiences (ACE) Study. Felitti et al. Am J Prev Med 1998;14:245-58.
Life expectancy by census tract, Chicago
Life expectancy and educational attainment by census tract, Chicago

Life expectancy
Source: VCU Center on Society and Health

High school diploma and no college
Source: VCU Center on Society and Health
Whole School, Whole Community, Whole Child (WSCC)

• Comprehensive health and education framework
• Developed by CDC and ASCD
• Combines Coordinated School Health and Whole Child
• Requires integration and coordination among and between school and community partners
Together for Healthy and Successful Schools Initiative (RWJF)

- Grantees along with America’s Promise and Child Trends
- Applied Research and Translation
  - Using social network analysis, communication science, system dynamics, and dissemination and implementation science to advance WSCC implementation
  - Will produce implementation toolkit focused on key human and systems level factors
Contact Information

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