Transforming Care to Reduce Health Disparities

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San Antonio, TX, 10/28/11

Stress: Adverse Childhood Events and Adult CV Disease

Dong et al, 2004

Impact of Early Life Experience

Life Course Problems Related to Early Life Experiences

Life Course Trajectory

Optimal
Average
Impaired
Epigenetics: Hardships get ‘under the skin’

Early experiences are biologically embedded in development of brain and other organs

Positive
- Nurturing and stimulation

Adverse
- Stress/harmful interactions
- Neurotoxic exposure
- Inadequate nutrition

Brain Development

At Birth 6 Years Old 14 Years Old

Positive and Tolerable Stress

Repeated “hits”

Physiologic Response

Physiologic Response

Normal response repeated over time

Prolonged response

No recovery

Time
**Pediatrics Grand Rounds**

28 October 2011

The University of Texas Health Science Center at San Antonio

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**Pathways: Social Environments to Biology to Health**

- **Poverty**
  - Unmet needs
  - 1. Material
    - Food
    - Money
    - Access
    - Housing
  - 2. Caregiving
    - Emotional
    - Learning

- **Stress**
  - HPA
  - Gene experience
  - ANS
  - Brain
  - Immune
  - CV
  - CV

- Poor Health in Childhood and Adulthood

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**Clinical Innovations to Disrupt the Link Between Poverty and Poor Health**

- **Poverty**
  - Reach Out and Read
  - Healthy Steps
  - Medical-Legal Partnership
  - HealthLeads

- **Poor Health**

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**The Problem**

35% of American children enter kindergarten unprepared to learn, most lacking the language skills that are the prerequisites of literacy acquisition.

National Academy of Education, 1985

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**Parental Language Addressed to Child by SES**

- **Hart & Risley, (1995)**
  - Public Assistance
  - Working Class
  - Professional

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**Direct Effects of Stress**

Right Hippocampal Grey Matter Volume vs. Chronic Perceived Stress

- **R² = 0.29**
- **Average Perceived Stress Score (years 1966-2006)**

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**NATIONAL SCIENTIFIC COUNCIL ON THE DEVELOPING CHILD**

Persistent Stress Changes Brain Architecture

- Prefrontal Cortex and Hippocampus

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Inadequate Language Development at Age 3

Professional: 1100 words
Working class: 700 words
Welfare: 500 words

"The single most important activity for building the knowledge required for eventual success in reading"
Echoed in IRA, NAEYC joint statement, 1998
Evidence that ROR Works

13 Published Studies:
- Parent attitudes and reported behaviors
- Parent-child observed behaviors
- Child language (vocabulary) testing

Children’s Expressive and Receptive Language Competencies

Reach Out and Read Impact: 2010

- Founded in 1989 at Boston City Hospital
- Over 4,500 sites
- Over 3.9 million children
- Over 6.4 million books distributed

Unmet Basic Needs as a Source of Health Disparity

- Inadequate food
- Inadequate housing and utilities
- Safety
- Money
- Barriers to health care and appropriate education
Indirect Effects of Unmet Basic Needs

1. Worry budget, threats of eviction, utility shut-offs, not enough food
2. Interference with adherence/wellness
   - Medications
   - Prescribed home learning and behavior strategies
   - Communicating with schools, EI personnel, etc.

Making Ends Meet?

Low income families paying >50% of income for rent spend 30% less on food & 70% less on health care

Unaffordable Housing $\rightarrow$ Household Budget Trade-offs $\rightarrow$ Food insecurity $\rightarrow$ Housing instability $\rightarrow$ Health care spending $\rightarrow$ Child Health Impact

Competition priorities drain parent’s worry budgets

Percent of parents worrying about the following issues “all”, “most” or “some of the time”

<table>
<thead>
<tr>
<th>Issue</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housing</td>
<td>0%</td>
</tr>
<tr>
<td>Safety</td>
<td>10%</td>
</tr>
<tr>
<td>Relationships</td>
<td>30%</td>
</tr>
<tr>
<td>Income</td>
<td>40%</td>
</tr>
<tr>
<td>Overburden’s health</td>
<td>50%</td>
</tr>
<tr>
<td>Child’s asthma</td>
<td>60%</td>
</tr>
</tbody>
</table>

Indirect Impact of Stress on Health: The Hegemony of Low Expectations

If your child had asthma symptoms 2 days/wk, how would you rate his/her control?

<table>
<thead>
<tr>
<th>Control Level</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ex Very Good</td>
<td>5%</td>
</tr>
<tr>
<td>Very Good</td>
<td>10%</td>
</tr>
<tr>
<td>Good</td>
<td>15%</td>
</tr>
<tr>
<td>Fair</td>
<td>20%</td>
</tr>
<tr>
<td>Poor</td>
<td>25%</td>
</tr>
<tr>
<td>Very Poor</td>
<td>30%</td>
</tr>
</tbody>
</table>

Medical-Legal Partnership for Disparity Reduction

Biological $\rightarrow$ Doctors $\rightarrow$ Childhood Illness

Social $\rightarrow$ Lawyers $\rightarrow$ Childhood Illness

Legal Needs That Affect Health (I-HELP)

<table>
<thead>
<tr>
<th>Legal need</th>
<th>Examples of legal needs that affect health</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income/Insurance</td>
<td>Insurance access and benefits</td>
</tr>
<tr>
<td></td>
<td>Food stamps</td>
</tr>
<tr>
<td></td>
<td>Disability benefits</td>
</tr>
<tr>
<td></td>
<td>Social Security benefits</td>
</tr>
<tr>
<td>Housing</td>
<td>Shelter access</td>
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<tr>
<td></td>
<td>Access to housing subsidies (such as Section 8 program)</td>
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<tr>
<td></td>
<td>Sanitary housing conditions (such as mold or lead)</td>
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<tr>
<td></td>
<td>Foreclosure prevention</td>
</tr>
<tr>
<td></td>
<td>Americans with Disabilities Act compliance</td>
</tr>
<tr>
<td></td>
<td>Utility access</td>
</tr>
</tbody>
</table>
Specialist saves the day

- A 11 yr old boy arrives for an urgent care visit. In the past 2 months, he has needed several courses of oral steroids despite an appropriate medication regimen and an asthma action plan which his mother follows. However, the landlord has refused to do the needed pest control measures you suggested.
- The patient has missed school repeatedly and is at risk of failing.
- A new specialist was consulted and within 6 weeks, the teen was weaned off steroids and was back in school.

NICU Babies Have Legal Needs

Baby Isabel, born 28 wks. Parents are legal immigrants from the Dominican Republic.

As a NICU patient, Isabel is eligible for many benefits and services that will protect her health and prevent re-hospitalization: SSI, early intervention, etc.

Parents don’t understand if and how Isabel’s access to benefits impact their immigration status. Front-line and hospital staff – nurses, case managers, pediatricians – don’t know how to advise them.

Parents decide not to pursue benefits. Isabel is seen in the ED 3 months later with fever, secondary infection of diaper rash due to diarrhea and FTT.

MLP Multi-Level Strategy

- Legal Advice & Assistance for Patients/Families
- Internal System Improvement in Health Care & Law
- External System Change

Social History in Med Chart
Providers Are Increasingly Using Smartphone Applications to Assist in Decision Making at the Point of Care

So Why Not an Application to Help Providers Be Advocates?

Empowering Social Screening

- Social screening question: Do you have enough food to eat?
- Hunger and malnutrition is associated with many poor outcomes in children
- Using iUHAT, providers can identify resources for patients with food insecurity

![iUHAT screenshot](image)

Once a resource is identified, the provider can e-mail or text it anonymously.

![Resource screenshot](image)

Utility Shut-Off Protection: System Improvement

Sandel M, et al, Health Affairs, Sept 2010

![Utility Shut-Off Protection graph](image)
Impact

- 220 sites
- Beyond pediatrics
- Endorsed by ABA, AMA, AAP
- National media attention
- Medical-Legal Partnership for Health Act of 2010

Future Opportunities to Create Value (and reimbursement)

- Reduce 30 day rehospitalization for low-income vulnerable patients;
- Reduce health disparities for patients with chronic disease;
- Significant value added by pro-bono lawyers;
- Lawyers (firms) partnering with doctors and community for legislative action;
- Increase job satisfaction of health care workforce.

Sometimes, good legal help is the best medicine, March 12, 2010

Los Angeles Times

When Doctor Visits Lead to Legal Help, March 23, 2010

The New York Times