Changing Paradigms in Maternal and Child Health: Innovative Lessons from the Life Course

Satellite Conference and Live Webcast
Wednesday, July 18, 2012
12:00 – 1:30 p.m. Central Time

Produced by the Alabama Department of Public Health
Video Communications and Distance Learning Division

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Acknowledgments
• Drs. Michael Lu and Neal Halfon, UCLA
• Dr. Paula Braveman, UCSF
• Padmini Parthasarathy
• Amy Fine
• Milt Kotelchuck
• Berkeley Media Studies Group
• Policylink
• Doak Bloss, Ingham County Health Department
• Staff of Alameda County Public Health Department
• Building Blocks Collaborative Partners

Context: A Snapshot of Alameda County, CA

While Rates of Care Have Increased...

Percentage of Pregnant Women Receiving First Trimester Prenatal Care
Alameda County Trend

...And Disparities Between Groups Have Decreased...

Percentage of Pregnant Women Receiving First Trimester Prenatal Care by Race/Ethnicity
Alameda County Trend
Pregnancy Outcomes Have Not Changed...
Percentage of Low Birth Weight Babies
Alameda County Trend

And, Although Infant Mortality Is Decreasing Overall...
Infant Mortality, Alameda County Trend

...And They Remain Much Higher for African Americans
Percentage of Low Birth Weight Babies by Race/Ethnicity, Alameda County 2008-2010

...It's Far From A Success Story.
Infant Mortality Rate by Race/Ethnicity
Alameda County 2008-2010

Paradigm Shift

Where You Live Affects Your Health

- Disinvested communities: poor health status
  - Limited/unsafe parks
  - Crime
  - Fast food restaurants
  - Liquor stores
  - Poor performing schools
Where You Live Affects Your Health
- Pollution and toxic exposures
- Limited public transportation
- Absence of high quality financial institutions
- Predatory lenders

Where You Live Affects Your Health
- Communities of opportunity: good health status
  - Parks
  - Safe/walkable streets
  - Grocery stores
  - Good schools
  - Clean air

Where You Live Affects Your Health
- Public transportation
- Good jobs
- Strong local businesses
- Financial institutions

Health Inequities in Alameda County
Place Matters: Differences in Health Based on Where You Live

Income Matters: Differences in Health Based on Neighborhood Poverty Levels
Life Expectancy at Birth by Neighborhood Poverty

Race Matters: Differences in Health Based on Race/Racism
Life Expectancy at Birth by Race

Source: ACPHD CAPE Unit, with data from Alameda County vital statistics files, 2007-2009
Race, Income, and Place Impact Health

- Compared to a white child in the affluent Oakland Hills, an African-American born in high-poverty west Oakland is:
  - As an infant:
    - 1.5 times more likely to be born premature or low birth weight
    - 7 times more likely to be born into poverty
  - As a child:
    - 2.5 times more likely to be behind in vaccinations
    - 4 times less likely to read at grade level
  - As an adult:
    - 5 times more likely to be hospitalized for diabetes
    - 2 times more likely to die of heart disease
  - Cumulative impact
    - 15 year difference in life expectancy

What is the Life Course Perspective?

- Life Course is a theory or perspective that seeks to understand, explain, and improve health and disease patterns across population groups
- It is a theory, perspective, framework
- There is no single, definitive text
- It reflects a convergence of ideas, informed by multiple sources
<table>
<thead>
<tr>
<th>Is Life Course Old or New?</th>
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<tbody>
<tr>
<td>• We know that the same science is also informing other fields:</td>
<td>– Neurons to Neighborhoods – early environments, nurturing relationships, parents are the “active ingredients” in healthy brain development – from the earliest ages forward</td>
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<td>– Barker Hypothesis – links LBW to increased risk of heart disease, diabetes</td>
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<td>– Felitti’s ACE Study – links early childhood adverse events to increased risk of obesity, heart disease, diabetes, depression</td>
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<td>Is Life Course Old or New?</td>
<td>Key Questions</td>
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<td>– Lu/Halfon – link disparities in birth outcomes to differential developmental trajectories of the mother, based on early life experiences (programming) and cumulative stress</td>
<td>• MCH Life Course literature focuses on two key questions:</td>
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<td>– Epi-genetics – links environmental triggers to gene expression</td>
<td>1. Why do health disparities exist and persist across population groups?</td>
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<th>Key Questions</th>
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<td>2. What are the factors that influence the capacity of individuals or populations to reach their full potential for health and well-being?</td>
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<th>Life Course Perspective</th>
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<td>• It is a way of looking at life not as disconnected stages, but as an integrated continuum</td>
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<td>• Suggests that a complex interplay of biological, behavioral, psychological, and social protective and risk factors contributes to health outcomes across the span of a person’s life</td>
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**Life Course Perspective**

- Key Terms
  - Pathways and Trajectories
  - Early Programming
  - Risk and Protective Factors
  - Cumulative Impact
  - Critical or Sensitive Periods

**Early Programming**

- Early experiences can program an individual's future health and development

**Barker Hypothesis: Birth Weight and Coronary Heart Disease**

- Age Adjusted Relative Risk

**Barker Hypothesis: Birth Weight and Insulin Resistance Syndrome**

- Odds Ratio Adjusted for BMI
Cumulative Impact

- While individual episodes of stress may have minimal impact in an otherwise positive trajectory, the cumulative impact of multiple stresses over time may have a profound direct impact on health and development.


Allostasis: Maintain Stability Through Change

- Allostasis: Maintain Stability Through Change


Allostatic Load: Wear and Tear from Chronic Stress

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Stressed vs. Stressed Out

- Stressed = protective
  - Increased cardiac output
  - Increased available glucose
  - Enhanced immune functions
  - Growth of neurons in hippocampus and prefrontal cortex

- Stressed out = toxic
  - Hypertension and cardiovascular diseases
  - Glucose intolerance and insulin resistance
  - Infection and inflammation
  - Atrophy and death of neurons in hippocampus and prefrontal cortex

Stress Stress Stress Stress Stress

Your Neighborhood or Job Shouldn’t Be Hazardous to Your Health Physical and Mental Health Impacts

- No fresh food nearby
- YMCA summer program full – nothing to do
- Drug dealers live next door
- Poor air quality – gets asthma
- Not enough textbooks this year
- Mold found in house
- Bus doesn’t come; late to school
- Discrimination
- No stress

What We Have Learned from the Life Course Perspective

- Interventions that reduce risks and increase protective factors can change the health trajectory of individuals and populations

Life Course Perspective in Practice:
Alameda County Public Health Department’s Building Blocks for Health Equity Initiative

1 in 3 Newborns Start Life in Poverty

Source: CAPE, with data from vital statistics files, 2011

Health Equity

- Everyone in Alameda County, no matter where you live, how much money you make, or the color of your skin, should have opportunities to lead a healthy, fulfilling and productive life

Alameda County Life Course Initiative: Building Blocks for Health Equity

- Building Blocks for Health Equity (BB4HE) increases community and health department capacity to advance health and social equity by mobilizing partnerships, incubating projects, and redesigning services — all toward our vision that ALL children in Alameda County have the best start in life

Building Blocks Collaborative: Launched in September 2009

- Key Objectives
  - Build a strong, engaged, multi-sector collaborative
  - Learn, share, and orient for a paradigm shift
  - Share resources and strengthen work of BBC partners
Building Blocks Collaborative: Launched in September 2009

– Innovate! Plant seeds for and incubate new projects, redesign the way we currently work

Building Blocks Collaborative: Diverse and Committed Organizations

– First 5 Alameda County
– East Bay Regional Parks District
– Mandela Marketplace
– Berkeley Food and Housing Project

Building Blocks Collaborative: Diverse and Committed Organizations

– Urban Strategies Council, Alameda County Community Assets Network
– Brighter Beginnings
– Lotus Bloom Family Resource Center

Building Blocks Collaborative: Diverse and Committed Organizations

– Girls, Inc. of Alameda County
– Kaiser Permanente
– Alameda Health Consortium
– Youth Uprising
– Lifelong Medical Care

Building Blocks Collaborative: Diverse and Committed Organizations

– Centering Pregnancy
– Alameda County Sheriff Department
– City of Oakland
– Attitudinal Healing Connection

Building Blocks Collaborative: Diverse and Committed Organizations

– East Bay Asian Local Development Corporation
– Tiburcio Vasquez Health Center
– West Oakland Health Center
– Alameda County Public Health Commission
Building Blocks Collaborative: Diverse and Committed Organizations

- Alameda County Community Food Bank
- City of Berkeley Black Infant Health Community Advisory Board
- Food Transportation Resource Connection

Building Blocks Collaborative: Bill of Rights

- All children in Alameda County have a right to be born healthy and to:
  - Be believed in
  - Live, play, and grow in a clean, safe place
  - Receive a quality education
  - Be loved by a caring adult

Building Blocks Collaborative: Project Planning Guiding Principles and Framework

- BBC Projects will:
  - Have a clear link(s) to the Bill of Rights
  - Be sustainable and build capacity
  - Work toward systems change

Building Blocks Collaborative: Bill of Rights

- Eat healthy food
- Explore nature
- Enjoy economic opportunity and financial security
- Access health care that promotes well-being

Building Blocks Collaborative: Bill of Rights

- Be free from discrimination and violence
- Be included and valued by a supportive community
Building Blocks Collaborative:  
**Project Planning Guiding Principles and Framework**

- Provide opportunity for broad buy-in and involvement for community and BBC
  - Driven by community need; building on BBC partner strengths

- Be achievable, with greatest likelihood of demonstrating success

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**Planning Framework**

- Community Need
- BBC Projects
- Community Momentum
- BBC Expertise

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**Problem: Lack of Healthy Food Stores**

![Map showing limited supermarket access scores](image)

**Project: Food to Families**

- Provide “prescriptions” for fresh food to families receiving health services
- Families fill prescriptions at local food businesses where local youth are employed

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Problem: Lack of Healthy Food Stores

Figure 47: Number of Food Stores, West Oakland

<table>
<thead>
<tr>
<th>Year</th>
<th># Stores</th>
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<tbody>
<tr>
<td>2010</td>
<td>160</td>
</tr>
<tr>
<td>2009</td>
<td>120</td>
</tr>
<tr>
<td>2008</td>
<td>80</td>
</tr>
<tr>
<td>2007</td>
<td>40</td>
</tr>
<tr>
<td>2006</td>
<td>20</td>
</tr>
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Problem: Lack of Healthy Financial Services
- $3.89 million is stripped from Oakland each year from payday lenders

Project: Alameda County Prosperity Project
- Financial awareness and education
- Policies that expand access to non-predatory financial products

- Home visits provide an opportunity to enhance protective factors and reduce risks
  - Child health and development
  - Strong families
  - Parent health

- Kindergarten readiness → third grade test scores → high school graduation → employment, poverty status, health, incarceration, marital, and parenting status


What BBC Seeds Have Taken Root?
“Observing deep and amazing connections and collaborations within a multitude of agencies.”

“Rich dialogue that bridges individual/family needs with changing/broader community conditions.”
What BBC Seeds Have Taken Root?

“Growing relationships. The BBC has given me the opportunity to meet and come to know so many people representing so many opportunities to enrich and set the right course for our children, their families, and the community.”

Framing the Problem

• What questions are we asking?
• How do these questions define the problem?
• How does the definition of the problem define the solution?

Flipping the Question

• How can we teach people how to eat more healthful meals?
• What policies and practices will increase the availability of food stores in west Oakland?

Flipping the Question

• How can we get more women’s health services to ensure healthy births?
• How can current systems be realigned and transformed to create conditions for families and children to be healthy?

Take Home Messages

• Today’s experiences and exposures determine tomorrow’s health
• Health trajectories are particularly affected during critical or sensitive periods
• The broader environment – biologic, physical, and social – strongly affects the capacity to be healthy
Take Home Messages

- Inequality in health reflects more than genetics and personal choice
  Fine, Kotelchuck, Adess, Pies 2009

Thank You!
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