Optimizing Mental Health Development for Children & Youth: A Life Course Approach

Neal Halfon MD MPH
Professor of Pediatrics, Health Services, Public Policy
UCLA Center for Healthier Children Families and Communities

September 16, 2019
Life Course Approach to Children's Mental Health Webinar Series
Welcome

Introduction to the webinar Series
Life Course Approach to the Mental Health of Kids

- 8 Webinars Co-developed & sponsored
  - MCH Life Course Intervention Research Network (LCIRN)
  - National Academy of Science’s Forum for Child Well-Being
- How mental health and mental health disorders develop over the lifespan
- Identify gaps in knowledge, explore new strategies, consider new approaches to prevention and optimization
- Catalyze transdisciplinary and transformational approaches
- LCIRN research nodes (families, schools, early childhood mental health)
- Summary “workshop” publication created by NAS
Mental Health in the US

- Mental health disorders are the leading cause of disability in individuals 15-44;
- They are a fundamental component of the recent unprecedented decline in US life expectancy, as the deaths of despair continue to increase;
- 75% of mental health disorders begin by age 24, making the first two decades of the life course an important strategic target for prevention and mental health promotion activities;
- Yet, mental health in general, and the mental health of young people has not been a big priority of the US health system
  - Coverage, parity, services, training, data systems
Mental Health Disorder Across the Life Span

Cumulative Percentage vs. Age at Onset (years)
Mental Health of Kids

• There appears to be a significant increase in number of children and adolescents with mental health disorders
  – YRBS, NHIS, NSCH, NVS
  – Suicide, self harm rates, mental disabilities
  – Reported rates of depression, anxiety disorders
• MH data and monitoring systems are spotty at best
• This relative rapid change in epidemiology of mental health problems in children suggests rapid shift in the ecosystem of risks
  – Distribution & organization of risk and protective factors
  – Developmental scaffolding of positive health development
Deep Drivers of Human Ecosystem Change

• Change of age (economies/production ecosystems)
  – agriculture > industrial > digital

• Major disruptions in our social ecosystems
  – cultural forms, value streams, production models, relationship to environment/planet

• Accelerators of change – require rapid adaptation
  – Globalization X Technology X Climate Change

• Speed of change is increasing (faster than we can adapt to; disease and disability due to adaptive failures)
The Adaptive Challenge of our Age

Tom Friedman: Thank You For Being Late
3 Alternative Analytic Frameworks for making sense of complex systems/problems

- Life Course Health Development
  - Building on relational developmental systems theory
- 3.0 Health System Transformation Framework
  - Evolution from 1.0 medical care system to a 2.0 health care system and now a 3.0 health system
- Three Horizon Transformative Innovation Framework
  - A fore sighting method to create alternative futures
The Three Horizons Required for Innovation’s Management

Seeing beyond
Applying A 3.0 Transformation Framework To Guide Large-Scale Health System Reform

ABSTRACT Implementation of the Affordable Care Act is unleashing historic new efforts aimed at reforming the US health system. Many important incremental improvements are under way, yet there is a growing recognition that more transformative changes are necessary if the health care system is to do a better job of optimizing population health. While the concept of the Triple Aim—dedicated to improving the experience of care, the health of populations, and lowering per capita costs of care—has been used to help health care providers and health care systems focus their efforts on costs, quality, and outcomes, it does not provide a roadmap for a new system. In this article we describe the 3.0 Transformation Framework we developed to stimulate thinking and support the planning and development of the new roadmap for the next generation of the US health care system. With a focus on optimizing population health over the life span, the framework suggests how a system designed to better manage chronic disease care could evolve into a system designed to enhance population health. We describe how the 3.0 Transformation Framework has been used and applied in national, state, and local settings, and we suggest potential next steps for its wider application and use.

The US health system is both expensive and inefficient, producing less value at a higher cost than the health systems of most other developed countries while yielding strikingly large health disparities across population subgroups. These shortcomings ripple across society, affecting not only the health of the population but also the productivity of the workforce; the competitiveness of products in the global marketplace; and the ability to invest in education, economic infrastructure, and the future vitality of the nation.

The Affordable Care Act (ACA) provides an unprecedented opportunity to transform the current health care system into a multisectional health system focused on producing population health. Population health is the health outcomes of a group of individuals, including the distribution of such outcomes within the group. It is understood that population health outcomes are the product of multiple determinants of health, including medical care, public health, genetics, behaviors, social factors, and environmental factors. Already many disruptive innovations are emerging in the form of novel payment strategies, new delivery mechanisms such as accountable care organizations (ACOs), and the rapid expansion of health information technology that have a transformative influence on the health care system. This new environment is transforming the current volume-driven payment model to one that rewards value, improves the experience of care, and promotes population health.
The Evolving Health Care System

The First Era (Yesterday)
- Focused on acute and infectious disease
- Biomedical Model
- Short time frames
- Medical Care
- Insurance-based financing
- Industrial Model
- Reducing Deaths

Medical Care System 1.0

The Second Era (Today)
- Increasing focus on chronic disease
- BPS Model
- Longer time frames
- Chronic Disease Mgmt & Prevention
- Pre-paid benefits
- Corporate Model
- Prolonging Disability free Life

Health Care System 2.0

The Third Era (Tomorrow)
- Increasing focus on achieving optimal health
- Life Course Health Development
- Lifespan/ generational
- Investing in population-based prevention
- Network Model
- Producing Optimal Health for All

Health System 3.0
## Health Transformation Framework

### 1.0

- **System Design**: Health service providers, operating separately
- **Care Model**: Little coordination between in/out patient care, episodic treatment
- **Dominant Payment Approach**: Fee-for-service
- **Approach to Quality**: Variable, low transparency
- **Beneficiary Lens**: Individual

### 2.0

- **System Design**: Team-based care within health
- **Care Model**: Chronic condition management, patient-centered care coordination
- **Dominant Payment Approach**: Value-based health payments
- **Approach to Quality**: Consistent, standardize processes and outcomes
- **Beneficiary Lens**: Patient and family

### 3.0

- **System Design**: Community integrated services, health care as one component
- **Care Model**: Health, psychosocial, and wellness care integrated across the life course
- **Dominant Payment Approach**: Population-based global budgets, linked to multi-sector financial impact
- **Approach to Quality**: Continuous learning and quality improvement
- **Beneficiary Lens**: Subpopulations and communities, equity-oriented

---

Halfon et al., 2014. Adapted from Figure 2.
LCHD as a catalyst for transformation

- Life Course Health Development – LCHD – is an analytic framework or model, used to make sense of the world,
- LCHD provides a new way thinking about the origins and development of children’s mental health, development and wellbeing
- LCHD illuminates how health and disease develop across the life course and across generations
- LCHD focuses on the multiple ways risks and protective factors “get under our skin” during sensitive periods of development and condition our behaviors and biology
Evolving Conceptual Models of Health

- Mendelian Genetics
- Germ Theory
- Medical Anatomic/Pathologic Framework

BioMedical Models

- Behavioral Influences: Smoking, Eating, Exercise, Stress
- Social Epidemiology/Epidemiology
- Framingham Alameda

Biopsychosocial Models

- Epigenetics DOAD
- Life Span Human Developmental Psychology
- Life Course Sociology
- Neurodevelopment
- Life Course Chronic Disease Epidemiology
- National Birth Cohort Studies

Lifecourse Health Development (LCHD) Synthesis

• Simple
• Mechanistic, Linear
• Complex
• Relational
• Dynamic
• Developmental

• Hierarchical
• Dynamic Systems
• Multiple determinants
Changing Contexts of Health Development:
Multiple Factors, Dimensions, & Levels Dynamically Transacting

Dynamic Relational Environment

Time Specific
Biological, Behavioral Conditioning

Emergent
Influences

Time Dependent, Cumulative Effects
Variable Adaptive Responses:
Plasticity & Optimization of Regulatory Processes

Behavioral Adaptation
- Responsiveness
- Temperament
- Aggression
- Attachment
- Self Regulation

Physiological Adaptation
- Hypothalamic-Pituitary Adrenal Axis
- Autonomic Nervous System
- Metabolic Processes
- Inflammatory & Immune Responses
- Allostatic Load
- More

Developmental Adaptation
- Adaptive Plasticity through Developmental Switches
- Selective Optimization Strategies
- More
Dynamics of Health Development: Phases, Trajectories and Outcomes

**Health Development Trajectories**

Patterns of changes in health assets over time, affected by environmental and intrinsic factors.

**Latent Effects**
Resulting from experiences, particularly during sensitive periods, that influence health later in life.

**Cumulative Effects**
Resulting from experiences that accumulate over time & manifest in health.

**Pathway Effects**
Resulting from multiple, converging environmental and genetic influences, regulated by an array of specific developmental switches that set people on certain health development trajectories. (Combination of latent & cumulative effects)

**Phases of Health Development**

- Generativity
- Acquisition
- Maintenance
- Decline

**Life Stages**
- Preconception
- Childhood
- Adolescence
- Adulthood
- Older Adulthood

**Health Development Dynamics**
- Supportive domestic relationship
- Poor nutrition
- High social status, positive parenting
- Low social status
- Positive school environment
- Food Desert
- Access to high quality care
- Health Development
- Work-life balance
- Job insecurity

**Combination of Latent & Cumulative Effects**
**Life Course Health Development**

**Changing Context:** Multiple Factors, Dimensions, & Levels Dynamically Transacting

**Variable Adaptive Responses:** Plasticity & Optimization of Regulatory Processes

**Dynamics of Health Development:** Phases, Trajectories and Outcomes

---

**Health Development Trajectories**

Patterns of changes in health assets over time, affected by environmental and intrinsic factors.

**Phases of Health Development**

- Generativity
- Acquisition
- Maintenance
- Decline

---

**Life Course Health Development Core Principles**

1. Health Development integrates health & development into a unified whole
2. Unfolding HD unfolds continuously over the lifespan, shaped by experiences & environments
3. Complexity HD results from adaptive, multilevel, and reciprocal interactions between individuals and environments.
4. Timing HD is sensitive to the timing and social structuring of experiences & exposures.
5. Plasticity HD phenotypes are systematically malleable & constrained by evolution.
6. Thriving HD promotes survival, enhances thriving and protects against disease.
7. Harmony HD results from balanced interactions of molecular, physiological, behavioral, cultural and evolutionary processes.
Birth

Early Infancy

Late Infancy

Early Toddler

Late Toddler

Early Preschool

Late Preschool

6 mo

12 mo

18 mo

24 mo

3 yrs

5 yrs

Healthy Development

Reducing Risk & Optimizing Protective Factors

"At Risk" Trajectory

"Healthy" Trajectory

"Delayed/Disordered " Trajectory

Parent education

Emotional Health

Literacy

Reading to child

Appropriate Discipline

Health Services

Toxic Stress

Lack of health services

Poverty

Pre-school

Health Services

Age

Healthy Development

Pre-school
Strategies to Improve Developmental Trajectories

- "Healthy" Trajectory
- "At Risk" Trajectory
- "High risk" Trajectory

Developmental Progress

<table>
<thead>
<tr>
<th>Age</th>
<th>Early Infancy</th>
<th>Early Toddler</th>
<th>Early Preschool</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 mo</td>
<td>Late Infancy</td>
<td>Late Toddler</td>
<td>Late Preschool</td>
</tr>
<tr>
<td>12 mo</td>
<td>18 mo</td>
<td>24 mo</td>
<td>3 yrs</td>
</tr>
<tr>
<td>18 mo</td>
<td>24 mo</td>
<td>3 yrs</td>
<td>5 yrs</td>
</tr>
<tr>
<td>24 mo</td>
<td>3 yrs</td>
<td>5 yrs</td>
<td></td>
</tr>
</tbody>
</table>

- Pre-school
- Home visiting
- Specialized services
- High quality ECE
- Mindfulness Training
- Reading to child
- Health Services
- Parent Responsiveness Training
- Family Foundations
- Language Stimulation
- "Healthy" Trajectory
- "At Risk" Trajectory
- "High risk" Trajectory