



**Child Health Priorities
With Life Course Impact:
*Let's Get a Bang for Our
Buck!***

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Objectives:

- **Examine the social and economic burdens attributed to childhood obesity, asthma, and mental illness**
- **Assess feasible community-based early intervention and prevention strategies for these three conditions during childhood**
- **Analyze long term returns on health investments to treat and manage these conditions during childhood and adolescence**



Make connections

- **How do your public health vision and practice benefit children today - and tomorrow's future?**



Where we begin

- **Evidence-based practice**
- **Life course health development**
- **Public health essential services**
- **Predictive models for health care burdens**



***"Exploring the Evidence Base
for the Relationship between
Health and Learning"***

- **Chronic illness affects attendance and performance**
 - **Asthma... attendance. Performance effect is related to asthma severity. Management improves with education.**
 - **ADHD... attendance, performance, and persistent problems.**
 - **Chronic pain or illness... attendance, effects on performance when absenteeism is extreme; relationship between chronic pain, depression, and absenteeism.**
 - **Obesity... closely related to socioeconomic status and stress of poverty, low levels of physical activity, associated with poorer performance, gender differences (effects muted in gen'l population).**



***"Exploring the Evidence Base
for the Relationship between
Health and Learning"***

- **Health and Education outcomes in populations are closely linked.**
 - **Children with some chronic illnesses and mental illness experience lower educational attainment (ADHD, speech & language disorders, mental disorders)**
 - **Individuals who do not graduate from high school suffer more chronic health issues, disability, and health risks than those who do graduate**
 - **Health and educational outcomes are mediated by complex social, economic, interpersonal, and psychological factors**

“Exploring the Evidence Base for the Relationship between Health and Learning”

- **Conditions of childhood, including some health conditions, are significantly related to poor health outcomes in adult populations.**
 - Abuse and neglect in childhood, high stress
 - Mental illness in adolescence
 - ADHD
 - Educational attainment
 - Mediated by poverty, cognition
- **Most functional difficulties in children with special health care needs are respiratory or mental health in nature**

“Exploring the Evidence Base for the Relationship between Health and Learning”

- www.dhhs.ne.gov/schoolhealth
 - **Click on Data, Reports, and Other Resources**

How Risk Reduction and Health Promotion Strategies Influence Health Development

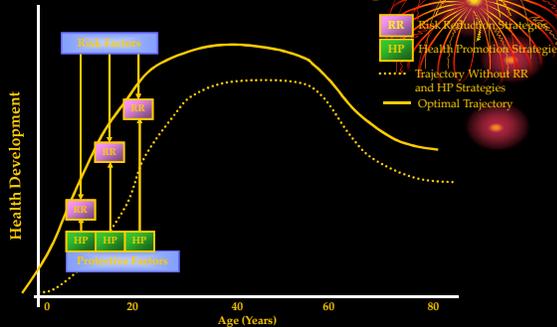


FIGURE 4. This figure illustrates how risk reduction strategies can mitigate the influence of risk factors on the developmental trajectory, and how health promotion strategies can simultaneously support and optimize the developmental trajectory. In the absence of effective risk reduction and health promotion, the developmental trajectory will be sub-optimal (dotted curve). From: Halton, N., M. Inkelas, and M. Hochstein. 2000. The Health Development Organization: An Organizational Approach to Achieving Child Health Development. *The Journal of Community Psychology* 7(3):447-627.

Life Course Health Development

- **Health is developmental and adaptive process that occurs throughout life**
- **Different health trajectories are the product of cumulative risk and protective factors and other influences that are programmed into biobehavioral regulatory systems during critical and sensitive periods**
- **The timing and sequence of biological, psychological, cultural, and historical events and experiences influence the health and development of individuals and populations. (Halfon and Hochstein, 2002)**

Are your public health services ESSENTIAL?

- **Monitor the health status of children**
- **Investigate health problems and hazards affecting children**
- **Inform, educate, and empower people to improve the lives of children**
- **Mobilize community partnerships to improve the HS drop out rate**
- **Develop policies and plans to support community efforts to improve fitness and nutrition**
- **Enforce laws and regulations to protect children**

Are your public health services ESSENTIAL?

- **Link children and families to needed health services**
- **Assure a competent public health workforce, prepared to promote the wellbeing and success of children and families**
- **Evaluate the effectiveness and quality of services for children and families**
- **Research for new insights and innovative solutions for lessening the current and future health burdens of children**

Asthma



- What current data show – 10% prevalence
- Implications for the life course – chronic uncontrolled inflammation leads to scarring
- The economic and social burdens of asthma in childhood – lost work and school days, lost participation, absenteeism
- Opportunities for prevention and early intervention – trigger safe environments and access to medicaid/EPSDT

Obesity



- What current data show – 16% prevalence and rising
- Implications for the life course – increase risk for CVD and cancer, poor outcomes of pregnancy
- The economic and social burdens of obesity in childhood – social and emotional, impact on attendance, gender differences
- Opportunities for prevention and early intervention – healthy food and activity environments for children, policy action

Mental Health



- What current data show – 20% of youth population affected; rising ADHD
- Implications for the life course – association with never completing high school
- The economic and social burdens of mental illness in childhood – the costs of high school drop out and higher risks of disability and disease
- Opportunities for prevention and early intervention – evidence-based screening, community efforts, suicide prevention

Predictive models to examine future health burdens



- Conventional Models
 - Employer-oriented; estimate health costs of a workforce; expanded to medical costs and costs of absenteeism and presenteeism.
 - Based on vital statistics data drawn from the ages of people and the period in which their health is observed.
 - Newer - disease clustering, disease progression, propensity score, behavioral elasticity; clinical intervention appropriateness score (Lord/Humana)
 - Identify specific individuals who will benefit from case management

Predictive models to examine future health burdens



- Limitations:
 - apply retrospective death rates to current day populations
 - make assumptions about pre-adult life experiences – which are rapidly changing for each birth cohort
 - Fail to take into account different risk factors accumulated by people who are still alive – earlier onset
- Example – obesity (Reither)

Predictive models to examine future health burdens – by birth cohort



- Born 1926 – 1935
 - 20% obesity threshold age 50-59
- Born 1936 – 1945
 - 20% obesity threshold age 40 – 49
- Born 1946 – 1965
 - 20% obesity threshold age 30 – 39
- Born after 1965
 - 20% obesity threshold age 20 - 29

Predictive Models – the message



- The degree and duration of obesity has earlier onset and as a result subsequent negative health outcomes are accelerated
- Population models need to take into account age, period, and birth cohort-specific exposures and experiences
- Estimates of future health burdens of a future workforce population are compelling
- Such models strengthens the sound economic rationale for supporting health producing trends in children today (Reither)

Possible interventions – reconsidering “costs” and “benefits”



- Cost... or Investment?
- Health is an important determinant of economic productivity across the lifespan.
- Invest in cure after the onset of disease, early detection of disease; or reduce the burden of disease?
- Strategic planning: paying for end of life care, or paying for living well?
- Our children are the message we send to the future we will not see.

The Bang and the Buck



- The bang: Let's measure longitudinal data
- The buck: Invest for the greatest returns
- Calculate the costs of early life course interventions, longitudinal research, and the promise of better societal outcomes and savings against the potential costs of doing nothing.
- The trajectory: Aim for the highest levels of functional development and longevity – with intergenerational effects.
- Face the brutal truths: the deterioration of our social capital

Making Connections to Practice



- These are health issues that go well beyond the medical model of an individual doctor treating an individual child.
- Public health has a role in altering our course: from medical care to health development.
- Apply the essential services to benefit child, community, and future.

Making Connections to Practice



- Shift more focus to the early part of the lifespan
 - when long-term health programming is most intense and higher levels of developmental plasticity enable interventions to exact greater returns on resources invested. (Halfon and Hochstein)
- Promote the well-being of the young
 - both because of its intrinsic value and because doing so will improve the health of the entire population as people age into adulthood. (Forrest and Riley)

Making Connections to Practice



- Recognize the intensity and significance of risk in early life
 - as many as half of children are exposed to unhealthy environments – physical and social – and experience aspects of poor health that have the potential to evolve into full pathology over the life course (Forrest and Riley)
- Improve community infrastructure and social conditions
 - With the goal of reducing the allostatic load (accumulated stress) over the life course of women (Lu and Halfon)

Local Public Health Department Activities



- Data collection and analysis on school and child health topics
- Reframe local public health with life course health development
- Outreach for CHIP and Medicaid
- Asthma management education
- Promote the family helpline
- Support or lead community-based suicide prevention activities
- Join or lead community development for fitness and healthy nutrition
- Address high school drop out as a public health issue

Resources



- Breslau J. Health in childhood and adolescence and high school drop out. California Dropout Research Project #17. 2010. Available: http://cdrp.ucsb.edu/dropouts/pubs_reports.htm
- Forrest C and A Riley. Childhood origins of adult health: a basis for life-course health policy. Health Affairs 2004; 23 (5): 155 - 164.
- Freudenberg N, Ruglis J. Reframing school dropout as a public health issue. Prev Chronic Dis. 2007; 4(4):A107.
- Guyer, B. et al. Early childhood health promotion and its life course health consequences. 2009. Academic Pediatrics 9(3): 142 - 149.

Resources



- Halfon, N and M. Hochstein. Life course health development: an integrated framework for developing health, policy, and research. The Milbank Quarterly 2002; 80(3):433 - 479.
- Lu M and N Halfon. Racial and ethnic disparities in birth outcomes: a life-course perspective. Maternal and Child Health Journal 2003; 7 (1): 13 - 30.
- Metcalfe, L. Bayesian predictive models in determining health burdens in employed populations. 2008. Doctoral thesis. Accessed 10/6/2011.
- Reither, E. et al. New forecasting methodology indicates more disease and earlier mortality ahead for today's younger Americans. Health Affairs 2011; 30(8). Downloaded from content.healthaffairs.org

Thank You!



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Handout:
www.dhhs.ne.gov/schoolhealth/TESH.htm