Childhood Chronic Conditions, Child Development and Poverty

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Presentation Overview

- Childhood chronic conditions
  - Huge growth in rates
- Early Brain and Child Development
  - Toxic stress
  - Epigenetics
- Childhood poverty
  - Effect on health and wellbeing
  - Components of poverty programs
- What pediatricians can do
Epidemics Of Childhood Chronic Health Conditions
Activity-Limiting Chronic Conditions

Newacheck, NHIS Analyses; IOM analyses

↑ >400%
Cohorts of 2-8 year olds followed for six years; initial and end chronic condition prevalence; Van Cleave, Gortmaker, Perrin, JAMA, 2010
Disability from Childhood Chronic Health Conditions

Per 1,000 population; NHIS, 2002-2003; reported in IOM Future of Disability in America, 2007
Changing Patterns of Childhood Chronic Conditions

- **1960-1980:** Improvements in survival led to increased rates of several chronic conditions
  - >80% survival in 1980; >95% survival today
  - Marginal impact of newer conditions
    - VLBW, *in utero* toxins, AIDS
- **1980-now:** New epidemics of common chronic conditions

Perrin, Bloom, Gortmaker, JAMA, 2007
Less Common Chronic Conditions

- Cystic fibrosis  22,500 (3:10,000)
- Spina bifida   60,000 (7.5:10,000)
- Sickle cell anemia  37,500 (5:10,000)
- Hemophilia  7,500 (1:10,000)

80,000,000 children/youth in US
New Epidemics: Mainly Among School-age Children and Youth

- Obesity 13,440,000 (16.4:100)*
- Asthma 7,200,000 (9:100)
- ADHD 4,800,000 (6.4:100)
- Depression/Anxiety 3,200,000 (4:100)
- Autism Spectrum Disorder 900,000 (1:100)

*Population estimates, late 2000s
80 million children/youth in US
Grouping Childhood Chronic Health Conditions

- Low prevalence, (usually) high severity
  - Substantial involvement of pediatric subspecialists in care
  - CF, spina bifida, leukemia, arthritis, diabetes …

- Common, high prevalence, wide spectrum of severity
  - Asthma
  - Obesity
  - Mental health conditions (anxiety, depression, ADHD)
  - Developmental conditions (incl. autism spectrum disorders)
Long-term Implications/Prevention Critical

- Rapid rise in young adult disability from:
  - Cardiovascular disease (overweight and diabetes)
  - Pulmonary disease
  - Mental and developmental conditions

- Major increases in:
  - Health care costs
  - Unemployment
  - Reliance on disability programs
Why Are Childhood Chronic Conditions More Prevalent?

- Biomedical/surgical advances, coupled with
- Regressive social changes
Genes and Environment

- Genetics
  - Many conditions have clear genetic disposition, usually requiring environmental triggers for manifestation
  - *But*, genetic drift alone cannot explain these rates

- Changing physical and toxic environments and the cleanliness hypothesis
  - Growth of autoimmune disorders in all age groups
  - Increasing evidence of toxins affecting fetus

- Children’s social environments
Low Birthweight and Poverty Do Not Explain Growth

- Increasing rates of very low birth weight and survival
- Poverty
  - Increases rates of most conditions
  - Increases severity of many conditions
  - Affects response to treatment
- Little evidence for changes in poverty rates
Children’s Social Environment has Changed

- Parenting
- Media
  - including phones
- Physical activity and indoor time
- Diet
Television and Media Affect Child Health

- 75% of children have TV in room
  - 35% of children < 2 years old
- Advertising fast, high-calorie food
- Children indoor, sedentary
- Fast-paced, rapid-cycling visual, auditory stimulation
- Replaces tasks requiring more attention
  - Reading, model-building
- Violence presented as harmless; gratification immediate
- Tracks from preschool to adolescence
Children are Less Physically Active

- Limited recreation, parks, playgrounds, sports programs
- Dangerous neighborhoods
  - Effects on social interactions
- Decreased school physical education
- Lower rates of walking, bicycling
Without prevention, our nations can expect massive new expenditures for disability among young adults for pulmonary, cardiovascular, mental health conditions.
During first 1,000 days of life, strong, stable nurturing relationships critical to healthy brain development.
Early Environmental Experiences

- Influence brain anatomy
  - Effect neuronal trimming and especially synapse formation
  - Impact neuroendocrine functioning and DNA methylation

- Lasting effects – from both positive and negative experiences
EBCD Principles

- Child development – foundation for community, economic development
- Brains built over time, better on solid foundation
- Brain development integrated – social, emotional, learning skills closely connected
- Toxic stress disrupts brain development
- Positive parenting can buffer toxic stress
- Creating right conditions in early childhood has critical long-term benefits
Adverse Childhood Experiences (ACE) Study

- Main categories:
  - Recurrent physical abuse
  - Recurrent emotional abuse
  - Contact sexual abuse
  - An alcohol/drug abuser in the household
  - An incarcerated household member
  - Someone who is chronically depressed, mentally ill, institutionalized or suicidal
  - Mother is treated violently
  - One or no parents
  - Emotional or physical neglect

- ACE Score: Sum of number of categories of adverse childhood experiences
Adverse Child Experiences Score

Prevalence

American Academy of Pediatrics
DEDICATED TO THE HEALTH OF ALL CHILDREN®
Health Consequences of ACEs

- Smoking, drug and alcohol abuse
- Chronic obstructive pulmonary disease
- Depression, suicide
- Ischemic heart disease
- Liver disease
- Risk of intimate partner abuse
- Multiple sexual partners
- Unintended pregnancies
- Fetal death

Similar findings in Marmot et al., Whitehall studies
The Heckman Equation

Investing in early childhood development builds the human capital needed for economic success.
Poverty and Child Health
Poverty Rates of Elderly Dropped While Rates Among Children Rose

Federal Poverty Level, 2013: $23,550 for family of four
Almost Half of Children Live in Households with Income <2x FPL
Accounting for Anti-Poverty Measures other than Income Lowers Childhood Poverty Rate: Official vs Supplemental Poverty Measure, Children <18yo
Members’ Experience With Poverty

- Pediatricians routinely make referrals to community services
  - 70% food assistance
  - 60% housing/transportation
  - 40% heat
  - 26% employment

- 73% want AAP to provide advocacy opportunities to address public policy issues related to child poverty
Health Consequences of Poverty

- Increased infant mortality
- Low birth weight, subsequent problems
- Chronic diseases: asthma, obesity, MH, development
- Food insecurity, poorer nutrition and growth
- Less access to quality health care
- Increased accidental injury, mortality
- Higher exposure to toxic stress

Poverty and Well-Being

- Poorer educational outcomes
  - Low academic achievement, higher HS dropouts
- Less positive social and emotional development
- More problem behaviors
  - Early unprotected sex with increased teen pregnancy
  - Drug and alcohol abuse
  - Increased criminal behavior as adolescents and adults
- More likely to be poor adults
Improving School Readiness Trajectories

- Birth
- Late Infancy
- Late Toddler
- Late Preschool

- Ready to learn
- Parent education
- Emotional literacy
- Reading to child
- Appropriate Discipline
- Family Discord
- Lack of health services
- Poverty

Social-emotional, Physical Cognitive, Language function

Lower trajectory: With diminished function

Age

<table>
<thead>
<tr>
<th>Early Infancy</th>
<th>Early Toddler</th>
<th>Early Preschool</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 mos</td>
<td>12 mos</td>
<td>18 mos</td>
</tr>
<tr>
<td>18 mos</td>
<td>24 mos</td>
<td>3 yrs</td>
</tr>
<tr>
<td>24 mos</td>
<td>3 yrs</td>
<td>5 yrs</td>
</tr>
</tbody>
</table>
Family Interventions that Work

• Improving pregnancy outcomes:
  – Rubella vaccine
  – Folic acid
  – No alcohol, tobacco
  – Other prematurity prevention

• Decrease lead exposure

• Reach Out and Read
  – Books Build Better Brains

• Parenting education

• Anticipatory guidance

• Coordinated home visiting
Perry Preschool and Abecedarian Projects

- Two decades-long, followups after intensive parent training, preschool interventions in high-risk, low income communities, both with control groups
- Higher adult earnings, graduation rates
- Higher math, achievement scores
- Mothers older when first child born
- Mothers had higher educational and employment status
- Men had lower arrest, incarceration rates
Components of Poverty Programs

- Human Capital Development
  - Health care/medical home
  - Early education
  - Jobs that pay – and job training
  - Child care
  - Home visiting
  - Nutrition

- Antipoverty Programs
  - Tax Credits (EITC, CTC)
  - Minimum family income

- Others (e.g., immigration)
Why Address Poverty?

- Poverty affects all aspects of health and development
  - Mortality in many chronic conditions
  - Prevalence and severity of most conditions
- Poverty **persists** – *but* we can do something about it
- Strong foundation of community pediatrics offers platform to address poverty
  - Thousands of practice innovations
  - Pediatricians around country/world working for change
What Can Pediatricians Do?

- Practices
  - Identify family needs
    - Health leads, medical-legal partnership, nutrition assistance
  - Connect to community resources
  - Strengthen parenting

- Advocacy at State, Federal levels
  - Minimum wage
  - Welfare reform
  - Preschool education investment
  - Affordable Care Act implementation, including Medicaid changes

- All children deserve to grow to their fullest potential
Family Centered Medical Home

Putting it all together
Connecting Poverty and Practice Transformation

Process of Care

Social Determinants
Disease States

Up-to-date best science
Team-based care
Population perspective
Community Connections

Financing

Optimal Child Health
Team Care in the Pediatric Medical Home

Practice Leader

- Early Brain and Child Development
- Mental Health Treatment and Support
- Linking Families and Community Services
- Chronic Care Coordination
Family-Centered, Community-Based System of Services
New Robert Wood Johnson Foundation Report

- Invest in foundations of lifelong physical/mental wellbeing in early childhood
- Create communities that foster health-promoting behaviors
- Broaden health care to promote health outside of medical system
Developing Healthy Communities

- Major investments by Federal Reserve Banks across the nation
- Promise Zones and Thrive Neighborhoods supported by Federal Government
- Many governors including community development and early childhood programs in state budgets
- Too Small to Fail and other groups
What AAP is Doing about Poverty and Child Health

- Policy
- Advocacy
- Research
- Programs and Education
- New Working Group
Recent AAP Poverty Efforts

- Two statements close to review
  - The Impact of Poverty on Children and Families in the 21st Century
  - Mediators of Adverse Health Outcomes for Childhood Poverty

- Proposed screening tool for basic needs

- State poverty assessment and advocacy

- Healthy People 2020 RFP for chapters re child poverty and health
Summary

- Alarming rates of chronic health conditions among children/youth

- Poverty persists among American children
  - Major impact on child health and development

- Much evidence supports importance of early childhood
  - Negative experiences have lasting effects

- Family-centered community health care linked with other community services can meet common elements in these priorities
Questions