Growing Epidemics of Chronic Conditions in Childhood

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Children and Adolescents with Limitation of Activity

Newacheck, NHIS Analyses
Typical Chronic Conditions

- Cystic fibrosis
- Spina bifida
- Sickle cell anemia
- Hemophilia

- 22,500
- 60,000
- 37,500
- 7,500
New Epidemics: Mainly among school-age children and youth

- Obesity: 11,250,000*
- Asthma: 5,250,000
- ADHD: 4,000,000
- Depression: 3,200,000
- Autism Spectrum Disorder: 500,000

*population estimates, early 2000s
Growth in Rates of Chronic Conditions

1960-1980: Improvements in survival led to increases in rate of a number of chronic conditions (>80% survival in 1980; >95% survival currently)

Marginal impact of newer conditions (eg, VLBW, *in utero* toxins, AIDS)

1980-now: New epidemics of common chronic conditions

- Obese (>95%ile)
- Extreme Obesity (>99%ile)
- Asthma
- ADHD

Early 1980s vs Early 2000s
Long-term Implications

- Major (public) health burdens from
  - Rising cardiovascular disease (overweight and diabetes)
  - Increased pulmonary disability
  - Higher rates of mental health conditions

- Decreased workforce participation and quality of life

- Increased reliance on disability programs
Childhood Chronic Conditions
Increasing Prevalence

Parallel developments have led to dramatic increases in childhood chronic conditions:

- Amazing biomedical advances
  - Children with chronic conditions live longer (eg, CF, leukemia)
  - More children survive (eg, NICU, surgical)
- Regressive social changes
Changes in Children’s Lives

Genetics
- Many conditions have clear genetic disposition, requiring environmental triggers for recognition or manifestation
- But, hard to postulate genetic drift

Changing physical (and toxic) environments and the cleanliness hypothesis

Children’s social environments (and opportunities for pediatric counseling)
Changing Children’s Environments

- Parenting and parent stress
- TV and other media
- Physical activity
- Diet
Trajectories of Chronic Conditions

- Three cohorts of children ages 2-8 years followed for six years
- 1988, 1994, and 2000 comparisons
- 40-50% of children with chronic conditions in 1988 do not have them in 1994 (same in 2000)
- >60% of those with chronic conditions in 1994 (or 2000) did not have them six years earlier
- Increased rates over 12 years

VanCleave, Gortmaker, Perrin, JAMA, in press
Autism Prevalence

- National Survey of Children’s Health 2007
- Parent report of physician diagnosis of autism spectrum disorder, PDD, Asperger’s
- If ever diagnosed, does child have it now
Autism Rates

- 110/10,000 children
- Male rates 4X those for female
- Lower rates among Black and multiracial children
- 40% of those who had ever had diagnosis no longer had it
  - Much higher rates of “loss” among Black children
Public Health Implications

Much of increase in autism rates may reflect increased ascertainment and awareness, but does autism fit into other increasing epidemics?

Dynamic nature of these conditions (esp., mental health) indicates

- Need for longitudinal surveillance
- Importance of prevention
- Importance of early intervention
Contact Information

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