

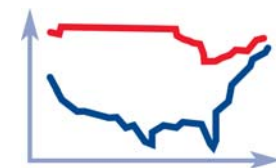
Investing in Children's Health



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JOHNS HOPKINS
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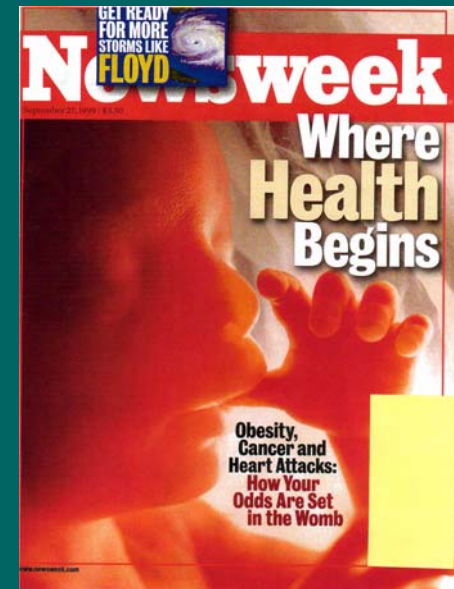
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Importance of Children's Health

- Unique features of children's health that justify societal attention
 - Vulnerability
 - Dependency
 - Development
 - Changing demography
- Health early in life has impact across life-span; “Barker hypothesis”



Multiple Determinants of Children's Health

- Genetic
- Social
- Environmental
- Disease conditions
- Medical care
- Health systems
- Politics/economics



Optimizing Children's Health

- Improve child health status and reduce disparities
- Create safer environments
- Shape lifestyle choices and promote positive health behaviors
- Better educate children and parents as consumers of healthcare
- Achieve developmental potential; optimize capacity, particularly special needs children

How Should Investments be Made?

- Investing early can reduce lifelong consequences and costs
- Focus on prevention to “turn the curve”
- Investments must address multiple determinants of health
- Link across infrastructures: educational, environmental, medical, and public health
- Case examples: tobacco, obesity, injury
 - Reviews of prevalence, cost implications, interventions and impact

Case I. Tobacco and Child Health

- Smoking impacts children through:
 - Prenatal exposure
 - Environmental tobacco smoke
 - Teen smoking
- Direct medical cost of all pediatric disease* attributable to parental smoking \$7.9 B (in 2006 dollars)
- \$13.76 billion in loss of life

Could save \$1 billion in direct medical costs with a 15% reduction in parental smoking

* Birth to 18
Low birth weight, SIDS, RSV, otitis media, asthma, burns

Lifespan: Tobacco Impact and Prevention

Level of Intervention	Lifespan Stage Intervention and Impact			Impact of early intervention
	Preconception/ Pregnancy	Infant/ childhood	Adolescence	Adulthood
Individual	Smoking cessation therapy ¹			
Family	Smoking cessation adults w children ^{2,3,4}			
Local/ School/ community	Increased sales tax ⁵			
	Media campaigns ⁶			
	Community-based ⁷			
	Bans/restrictions in workplace & public areas ⁸			
National				

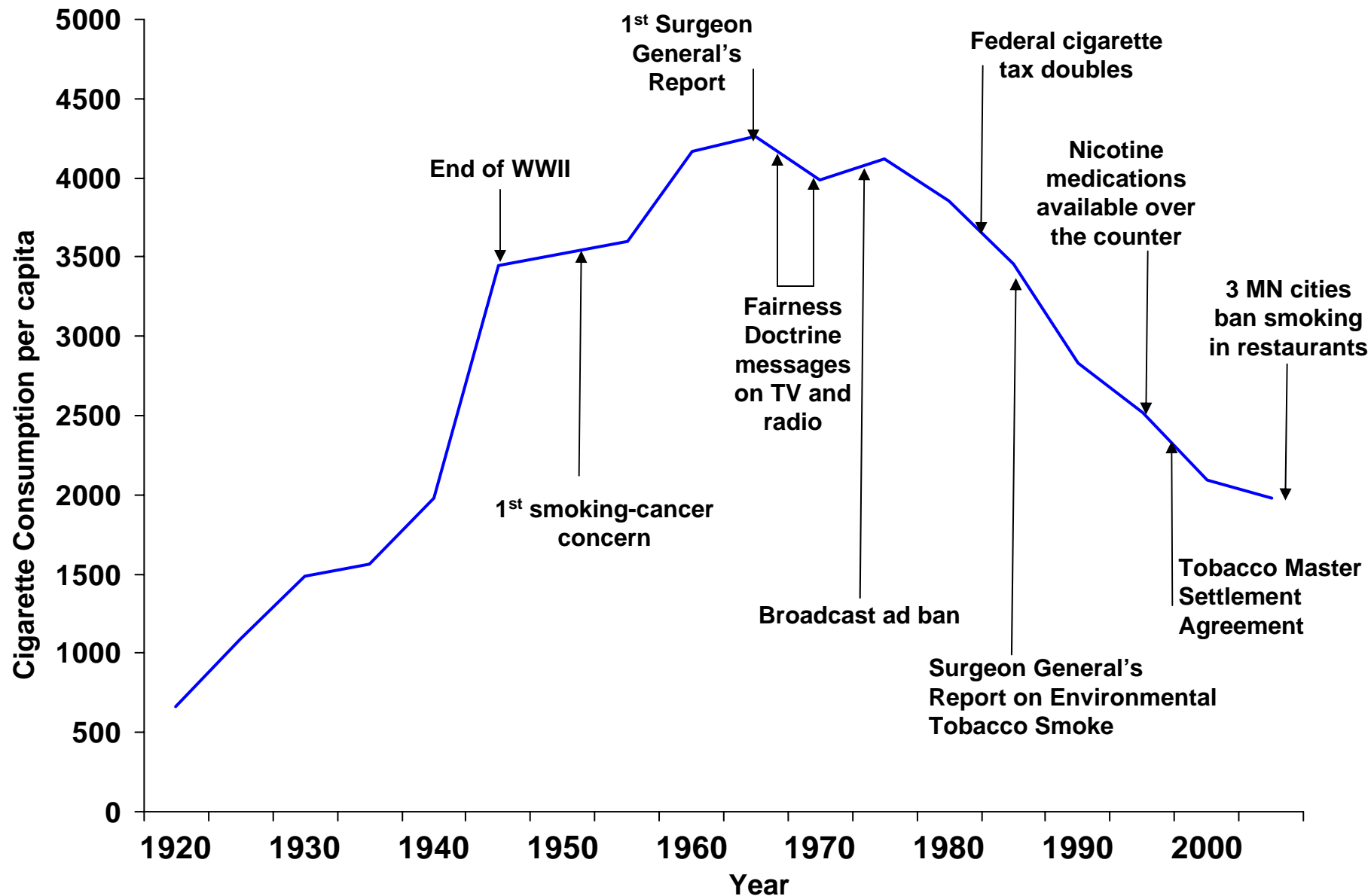
Benefits of Smoking Reduction in Pregnancy

- Meta-analysis of disseminating smoking cessation materials among pregnant women in 4 countries.
 - 4% cessation rate
- Projecting to the United States
 - 800,000 expectant women who smoke
 - 4% cessation rate (from meta-analysis) would yield \$77 million of savings for direct medical costs in 1st year of life (adjusted to 2006 dollars)
- Cost benefit ratio of 1:12

Other Benefits of Smoking Reduction

- Counseling smoking mothers reduces young child exposure to 2nd hand smoke
 - At 12 months, counseled group's exposure was 41% of the control group
- Increasing tobacco tax reduces teen smoking
 - 10% increase in price reduces established teen smokers by 4%
- Smoking bans could save \$44-\$81 billion (2006 dollars)
- Evidence of “turning the curve”

Annual Adult per Capita Cigarette Consumption and Major Smoking and Health Events—United States, 1990-2002



Sources: Office on Smoking and Health. (1999). Achievements in Public Health, 1900-1999: Tobacco Use -- United States, 1900-1999. *MMWR*, 48(43): 986-93; Borio, G. (2007). The Tobacco Timeline. www.tobacco.org/resources/history/Tobacco_History.html.

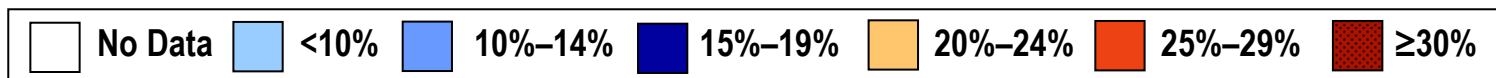
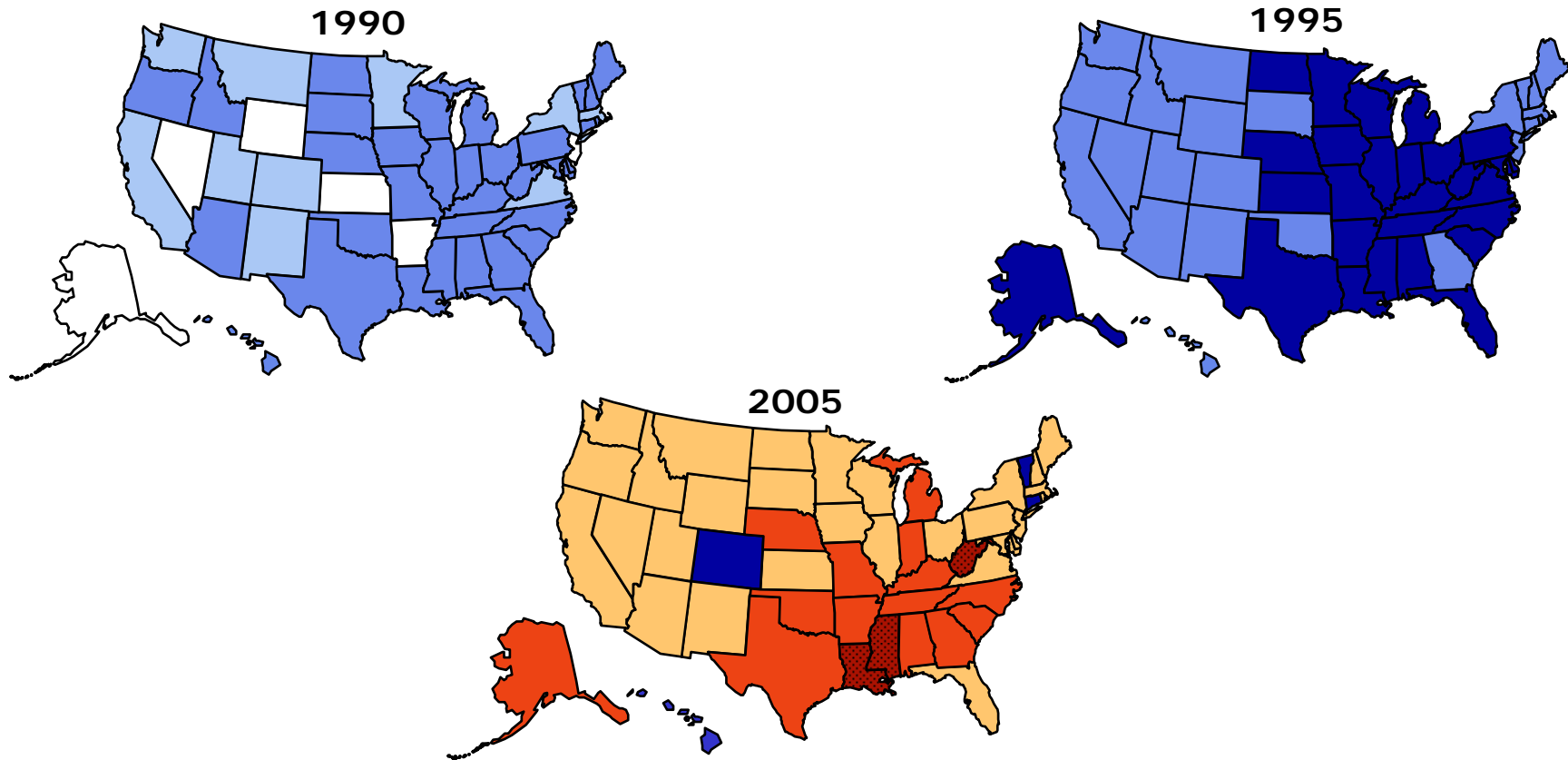
Case II. Obesity and Child Health

- Emerging major public health problem
 - Obesity tripled in 20 years
- Patterns of obesity begin in childhood
 - 17-18% of children and youth overweight (2006)
- Implications for lifetime of health problems
 - Links to type 2 diabetes, cardiovascular diseases, pregnancy complications

Obesity Trends* Among U.S. Adults

BRFSS, 1990, 1995, 2005

(*BMI ≥ 30 , or about 30 lbs overweight for 5'4" person)



Source: Behavioral Risk Factor Surveillance System, CDC.

Costs of Overweight Children

- Early stage to assess cost of obesity “epidemic”
 - Cost estimate: Direct \$109B; Indirect \$75B (2006 dollars)
 - Medicare and Medicaid cover 50% obesity-related costs
- Four-fold increase in obesity-related hospital costs for children age 6-17 from 1979-1999
 - \$44 M in 1979 to \$160 M in 1999 (in 2006 dollars)
- Difficult to ascertain indirect costs

Cost of Obesity

- Compared with healthy weight children aged 5-18 presenting at a primary care clinic at an urban academic medical center
 - Overweight (17.8%) spend \$28 per year more
 - Undiagnosed obesity (12.6%) spend \$36 per year more
 - Diagnosed obesity (9.4%) spend \$172 per year more
- For every 1,000 children aged 5-18, excess spending is \$25,688 per year due to unhealthy weight

Lifespan: Obesity Impact and Prevention

Level of Intervention	Lifespan Stage Intervention and Impact			Impact of early intervention
	Preconception/ Pregnancy	Infant/ childhood	Adolescence	Adulthood
Individual	Observational studies ^{1,2}			
		Observational studies ³		
Family		Preschool education ⁴		
		Parent education ⁵		
Local/ School/ community		Teacher curriculum ⁶		
National				

Case III. Injuries and Child Health

- Magnitude of the problem
 - Leading causes of child death- 15,755 in 2004
 - Leading causes of hospitalization- 240,000 (<15yo)
 - Leading causes of ER visits- 9 million
 - Leading cause of disability- 150,000 permanent
- Cost of child injury:
 - Unintentional injury (1996): \$21 billion in lifetime medical costs, \$99 billion in work loss (in 2006 dollars)
- Trends in injury reduction:
 - 52% decrease between 1979 and 1998
 - Current approaches: public health education, safety behavior, environmental engineering, EMS

Need for New Paradigm

- Long term investment is a new language for societal investments in child health
 - Doesn't diminish focus on meeting medical needs
- Investments in existing preventive child health interventions have potential for cost savings
- Must consider early antecedents and lifespan consequences in cost impact research
- Build the argument for investing in more aspects of early childhood preventive health
 - Need longitudinal data sets to maximize argument

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