

# Prevention of Childhood Injuries

Presentation to the Federal Advisory  
Committee

September 15, 2003





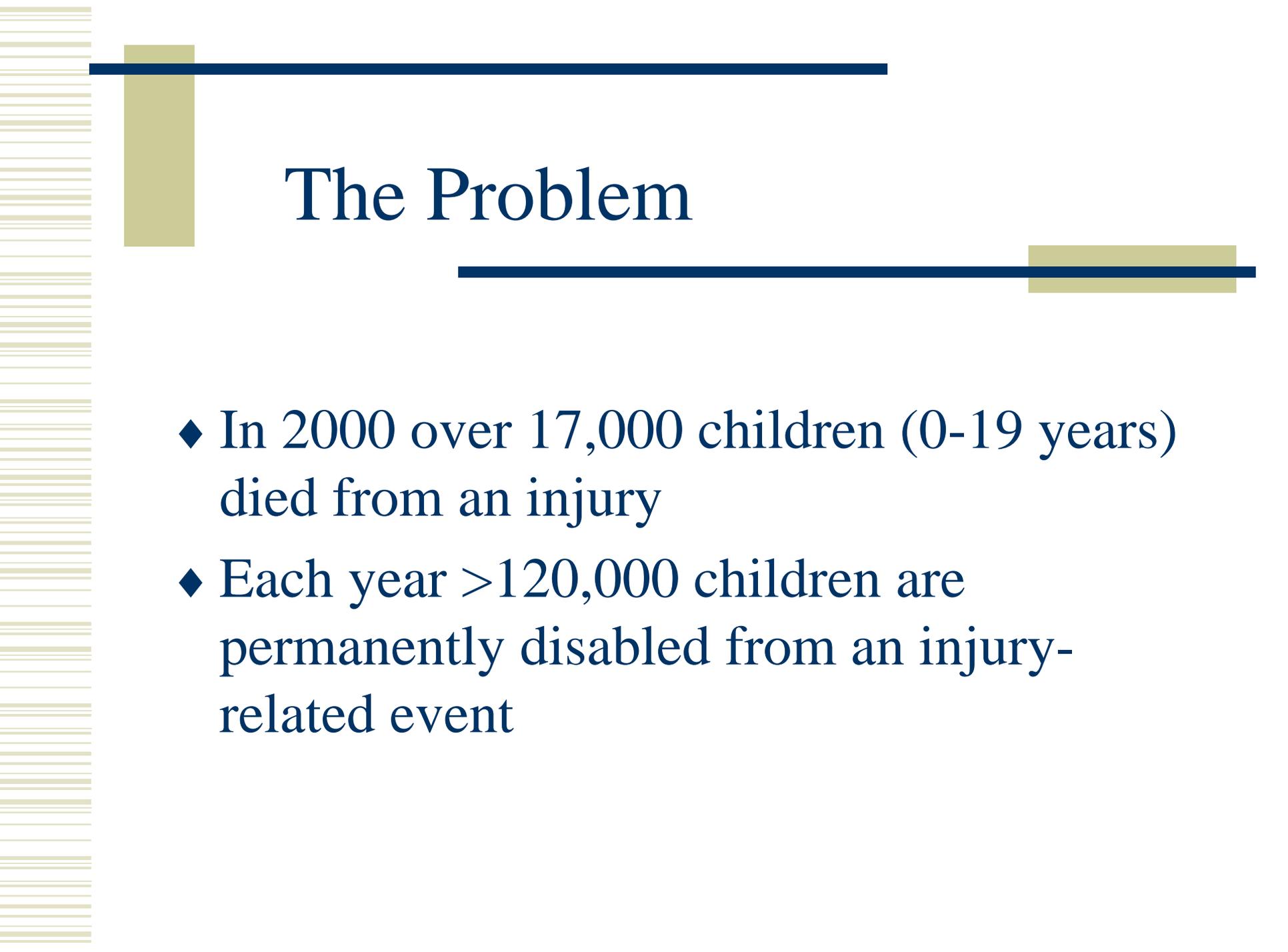
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# Outline

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- ◆ Overview
- ◆ Background
- ◆ Challenges for Future Research
- ◆ The National Children's Study

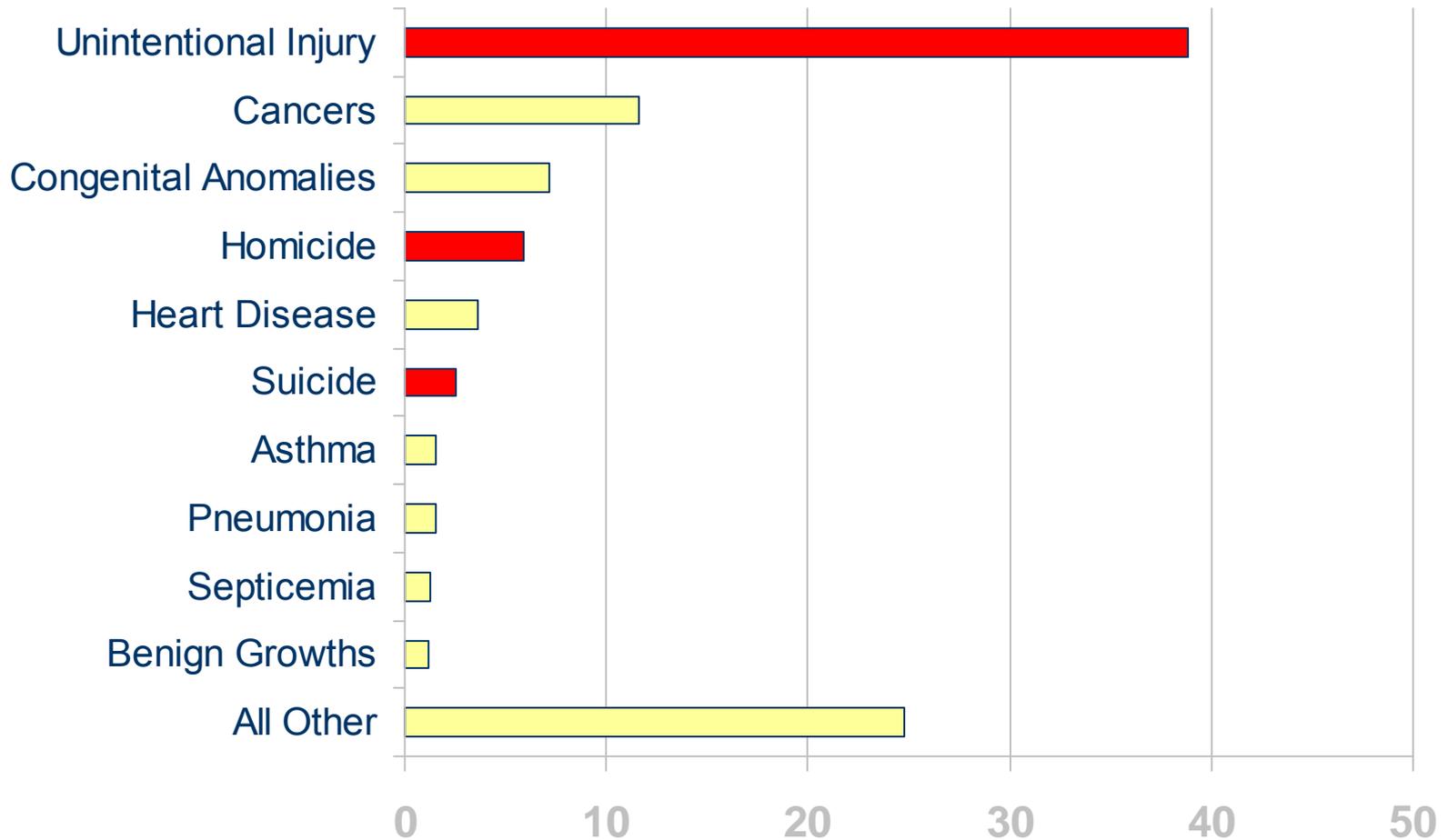


# The Problem

- ◆ In 2000 over 17,000 children (0-19 years) died from an injury
- ◆ Each year >120,000 children are permanently disabled from an injury-related event

# Leading Causes of Death

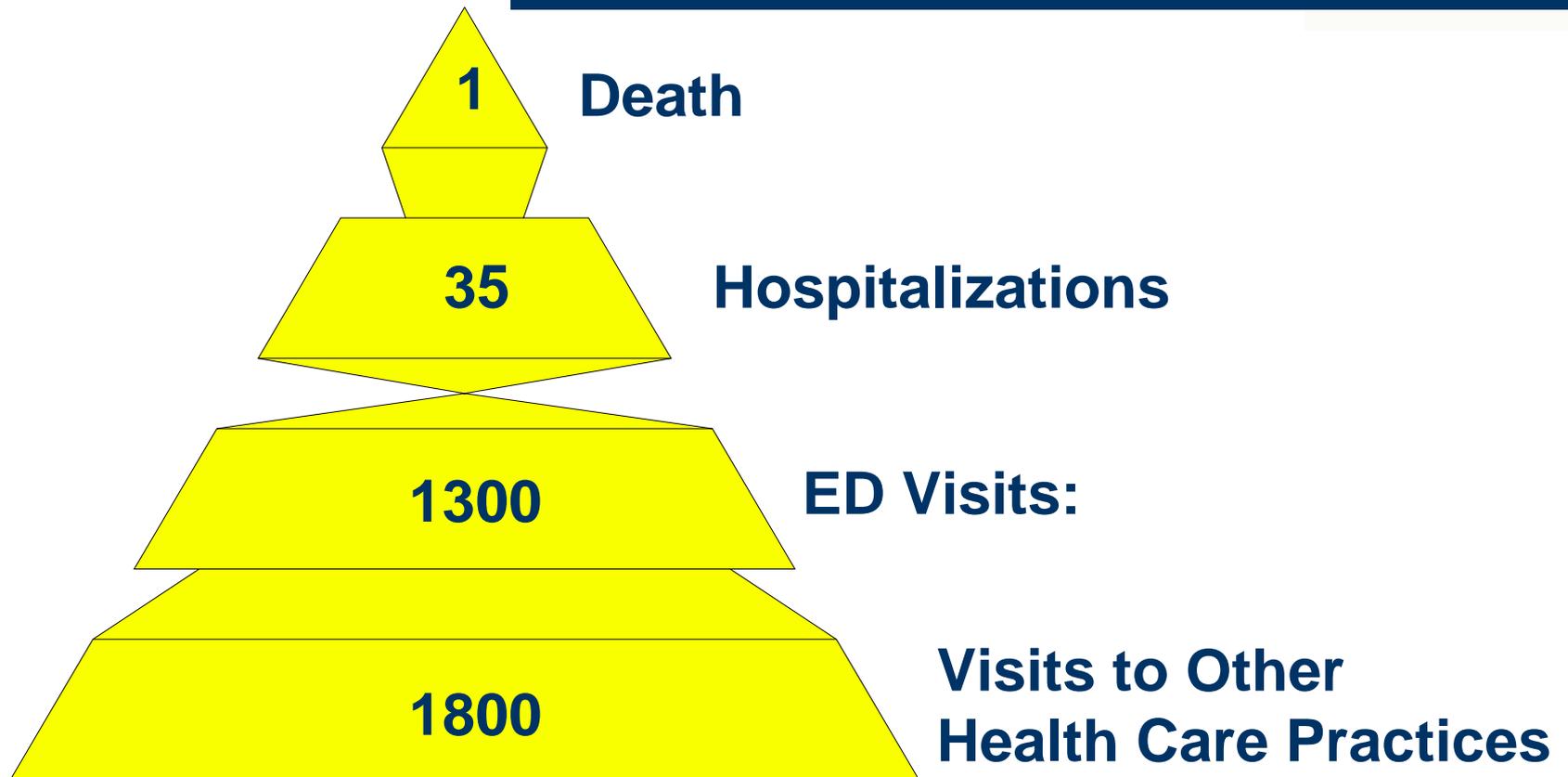
% of deaths in children 1-14 y.o., 2000



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# Unintentional Injury Pyramid

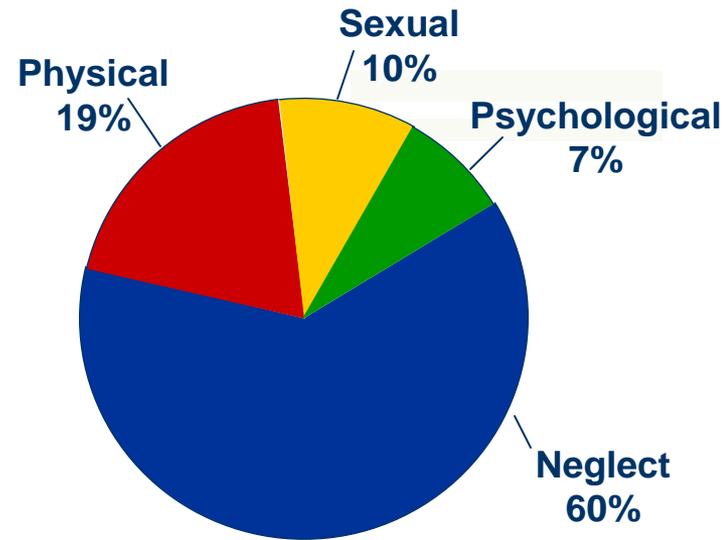
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# Child Maltreatment

In 2001, an estimated 903,000 children either experienced or were at risk for child maltreatment.<sup>+</sup>

More than 1,000 children die each year from child maltreatment.<sup>+</sup>



<sup>+</sup> Administration for Children and Families

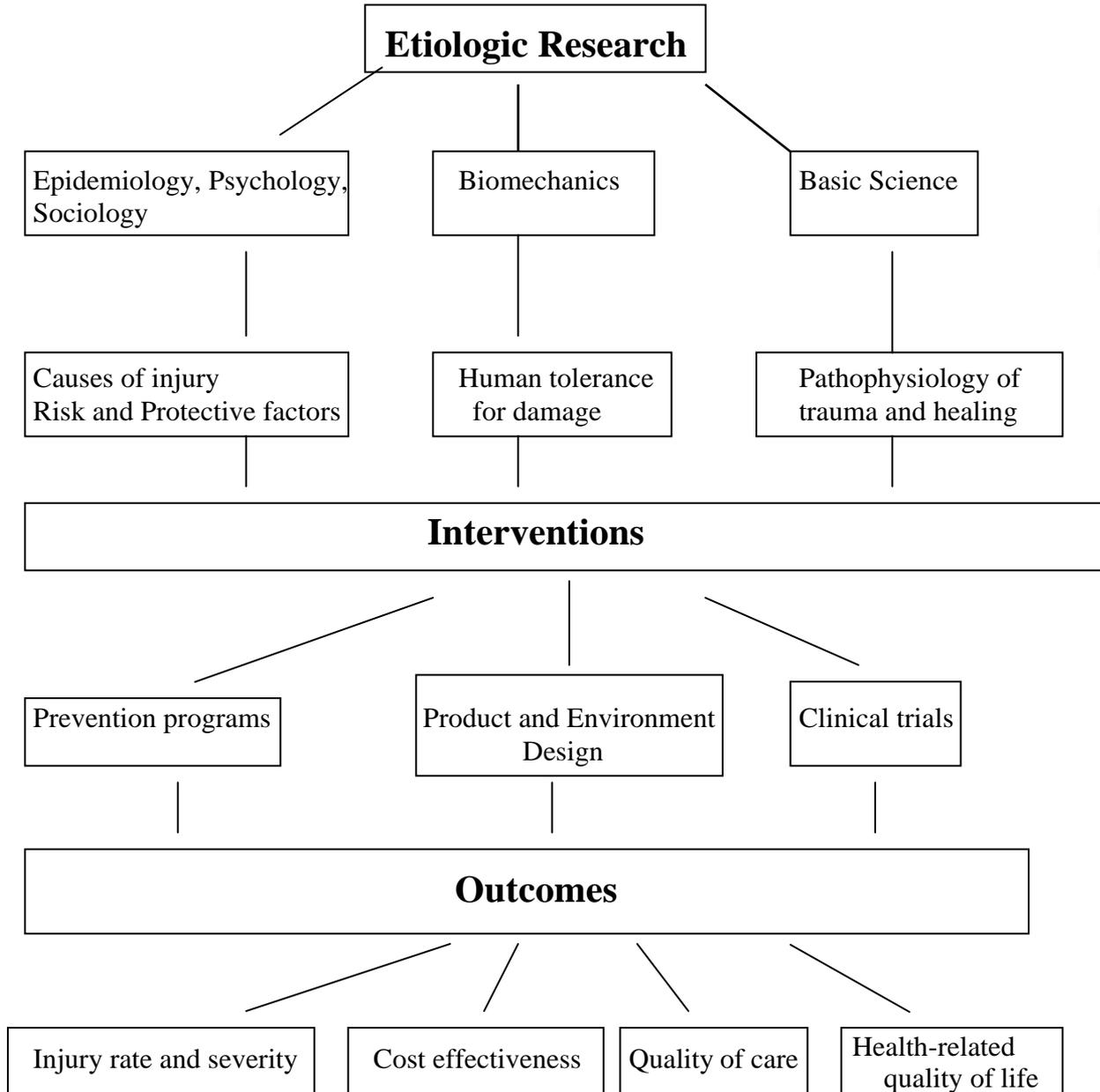


# The Good News

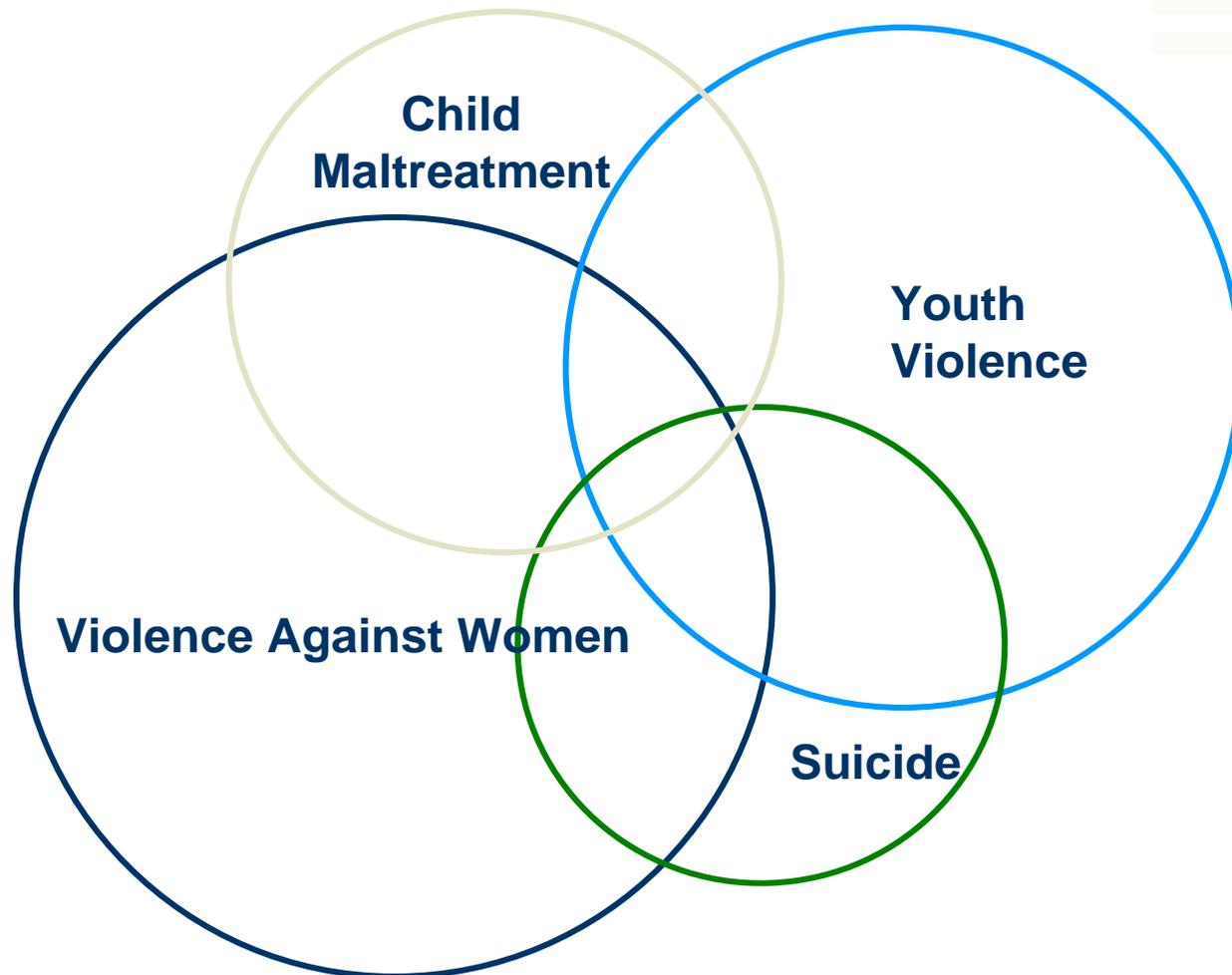


- ◆ Injuries  $\neq$  Accidents
- ◆ Injuries are predictable and preventable
- ◆ A number of conceptual models have been developed

# Model of Injury Research

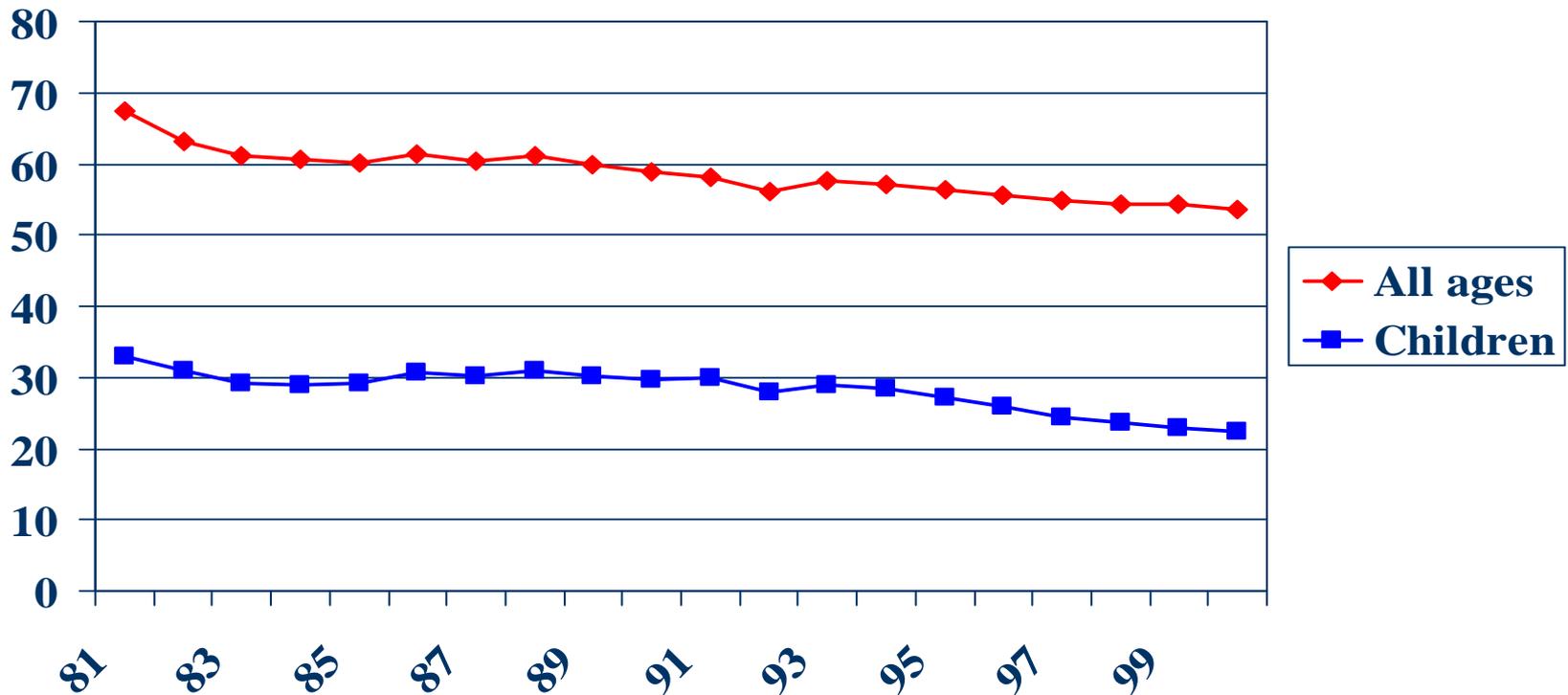


# Pathways to Violence



# Injury Rates

(Age-Adjusted: 1980-2000)



# Reasons for Trends

- ◆ Better trauma systems and trauma care and lower case fatality rates
- ◆ Decreased exposure to hazards (e.g. less walking)
- ◆ Improvements in vehicle designs, environmental changes
- ◆ Legislation (e.g. seat belt)
- ◆ Some change in behavior (e.g., bike helmets)



# Challenges

- ◆ Racial, ethnic and SES disparities in injury rates
- ◆ Continued high rates of intentional injuries
- ◆ Very large continued burden on the health care system
- ◆ Large burden on the educational and social service system from injury related disability
- ◆ Difficulty in getting some groups to adopt behavior change

# Challenging Questions

- ◆ The easy questions have been answered
- ◆ A number of challenging questions remain:
  - Why do 2-5% of males have conduct disorder, leading to aggressive and violent behavior?  
What are the genetic and environmental factors that are associated with development of these behaviors?

# Challenging Questions (Continued)

- ◆ How much of risk taking behavior is learned versus genetically determined?
- ◆ How do chaotic family lifestyles lead to increased rate of injury?
- ◆ What are the necessary and sufficient factors (or interaction of factors) for child maltreatment to occur?



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# Future Research Needs

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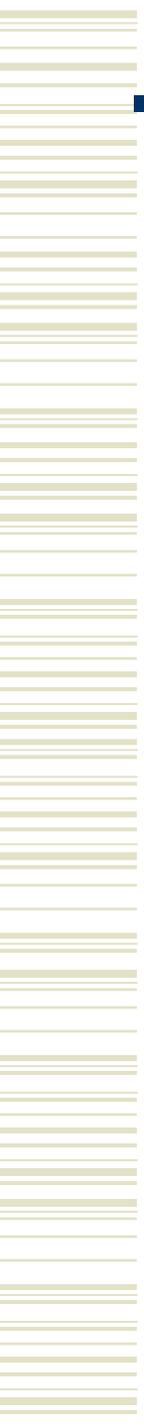
- ◆ Future research must examine interactions
- ◆ Understand how the genetic makeup of the individual, the physical, parental, and cultural environment to which the child is exposed, and particular hazards interact to result in increased or decreased risk of injury

# Research Needs (Continued)

- ◆ Within this interactive network, understand the points of intervention and how they can alter this risk
- ◆ Understand how these factors alter the functional outcome from injury

# Examples

- ◆ The effect of apolipoprotein E alleles on response to brain injury
  - *Lancet* 1997;350:1069-71
- ◆ Study on the effect of neighborhood cohesion and self-efficacy on rates of adolescent violence
  - *Science* 1997; 227:918-924



# Example



- ◆ Maltreatment and later development of antisocial behavior – the role of genotype
  - *Science*. 2002;297:851-854

# Why the NCS?

- ◆ Longitudinal data: causality of risk factors
- ◆ Large sample size: examination of injury sub-types
- ◆ Broad database: interaction of genetic and environmental risk factors
- ◆ Long term follow-up: functional outcomes of injuries