Economic Costs of Fetal Alcohol Syndrome

by

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Thanks to Chuck Lupton of NGIT

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Overview

- FAS costs US $5.4 billion in 2003
- An FAS birth carries lifetime health costs of $860,000 ($300,000 today!) although can be as high as $4.2 million
- Plausible to assume that FAS reduces "discounted" lifetime productivity $200,000; lost wages & subsidies
- Even "expensive" FAS prevention may be "cost effective": up to $850,000 per child

Methods

- Project prior estimates by Lewin Group (1998)
  - Cost to the US of FAS in a year
- Review of literature by C. Lupton of NGIT
- Update and extend analyses published in 1986
  - Cost of a "child born with FAS"
- Address cost effectiveness, quality adjusted life years, and willingness to pay

Different Types of Economic Studies

- Cost of illness
- Cost effectiveness
- Cost benefits

Concepts Behind Cost of Illness

- Assess overall burden on the economy in use and loss of resources per year

- Consequences (epidemiology)
  - Primary and comorbid health, social/justice system
- Causality (epidemiology)
  - Attribution factors
- Costs (economics)
  - Approach to valuation

Components of Economic Costs

- Direct Costs (actual use of goods and services)
  - Health system
  - Social system (not transfers)
  - Justice System
- Indirect Costs (foregone potential productivity)
  - Mortality
  - Morbidity
  - Disability
  - Incarceration/crime career

Valuation of Indirect Disease Burden

- Deaths
- Morbidity: sickness; lost days; impaired days
- Human capital
  - Current market value of productivity
  - Present discounted value lost future productivity
- Willingness to pay (up to $6 million/life)
- Quality adjusted life years QALY ($50-100,000)
- Disability adjusted life years DALY
- Years of potential life lost YPLL

Major Direct Cost Components

- Estimate # needing care, cost of care, ages
- 2 per 1000 overall; different for services

- Neonatal intensive care
- Audiological defects
- Cleft palate
- Neurotube
- Special education services
- Residential care

Economic Cost of FAS 1998 and 2003

- In 1998
  - Direct : $2.9 billion
  - Indirect: $1.25 billion
  - Total: $4.15 billion
- In 2003
  - Direct: $3.9 billion (6.1% annual increase)
  - Indirect: 1.50 billion (4% annual increase)
  - Total: $5.4 billion

Lifetime Costs

- Direct costs
  - Average $860,000
  - Maximum $4.2 million
  - Discounted Lifetime (3 percent)
    - Average: $300,000
    - Maximum: $1,500,000

Indirect Costs

- Value of lost potential productivity
- Human capital approach (PHS Guidelines)
- Age/gender adjusted valuation: up to $60,000/yr
- in 2003 expected > $2.5 million at birth
  - Discounted $986,000
- Mental disability/retardation due to FAS related to 20.5% reduction
- $202,000 lifetime discounted loss per child

New Areas for Study

- Prevalence
  - ARBD Alcohol-Related Birth Defects
  - ARND Alcohol-Related Neurodevelopmental Disorder
  - Mental health: attention deficits; depression; autism
  - Criminal justice involvement

Are FAS Interventions Worth Supporting?

- IOM and NIAAA: very little strong research
- Can't rigorously evaluate particular preventions

- However, can look at potential benefit from successful prevention (Harwood and Napolitano, 1986)

- What will benefits/savings be if save 1 child?

Cost Effectiveness

- Standard allows comparison across all of health (PHS Taskforce; Gold et al., 1996)
- Compares medical interventions on the basis of cost to save a quality adjusted life year (QALY)
- Medical interventions costing < $50,000/QALY are "generally" considered "cost effective"

Quality of Life Preference Scores

- Perfect health: 1.0
- Moderate disability: .50
- Death/vegetative state: 0.0
- Gen. pop. 35-39: .86
- Gen. pop. > 75 years: .71

- Congest. heart failure: .20
- Legal blindness: .48
- Profound deafness: .59

- Depression : .31
- Schizophrenia .31-.61
- Children with developmental disability
  - Severe: .40
  - Moderate: .60
  - Mild .80

- Reading disability: .77

Impact of FAS on Quality of Life

- Conservative estimate: FAS reduces QALY by 17% or 11 years
- Potential savings from preventing 1 case of FAS:
  - $550,000 in value of QALY
  - $300,000 in medical costs
- If an intervention cost less than $850,000 per FAS case prevented it would be considered "generally cost effective"

Summary

- FAS costs US $5.4 billion in 2003
- An FAS birth carries lifetime health costs of $860,000 ($300,000 today) although can be as high as $4.2 million
- Costs may be low: ARBD, ARND, criminal justice
- Plausible to assume that FAS reduces "discounted" lifetime productivity $200,000
- Even "expensive" FAS prevention may be "cost effective": up to $850,000 per child

COI Often Called "Gee Whiz" Numbers

- More readily grasped than a large variety of diverse impact estimates: a single number
- These numbers can be "large"
  - Attention commanding
  - Can be compared to other budgets & problems
- Suggest something SHOULD be done
- Do not tell us WHAT should be done
  - Prevention versus treatment or other strategies