

Benefit-Cost Analysis of a Comprehensive Sex Education Curriculum on Teen Pregnancy Outcomes in Athens-Clarke County Schools

Karen Schlanger, MPH
University of Georgia

Introduction



- **Goals of Presentation:**
 - ▣ Provide a specific example of an economic evaluation that suggests that implementing a comprehensive sexual education curriculum is likely to save society money
 - ▣ Help you think about how economic evaluation might be useful in supporting your work

- The ultimate rationale for wanting to reduce unwanted teen pregnancies is not economic.

What is Economic Evaluation?



- ▣ Tool to inform decision making:
 - In terms of economic and public health consequences of various possible actions
 - How to distribute scarce resources
 - How much you get for what you are paying for
- ▣ Not designed to tell you the correct choice, but rather provides information on the consequences of different options
- ▣ It's only one aspect of decision making: Issues of equity, social justice, legal responsibilities, politics and public opinion also influence decisions

Economic Evaluation Methods



- Cost of Illness Analysis
- Program Cost Analysis
- Benefit-Cost Analysis (costs and outcomes in \$)
- Cost-Utility Analysis (costs as \$, utility as # of life years saved adjusted for loss of quality of life)
- Cost-Effectiveness Analysis (costs as \$, outcomes as natural unit: eg. \$/case prevented)

Background: Teen Pregnancy



- Despite reductions in teen pregnancy rates over the past 15 years, teen pregnancy continues to be a major public health concern in the US.
- Over 430,000 teen girls get pregnant each year
- Georgia: 8th highest rate of teen pregnancy in the U.S.
- Athens-Clarke County: consistently one of the highest teen pregnancy rates in GA

Background: Teen Pregnancy



- Teen parenting is closely linked to:
 - Lower birth weight children
 - Dropping out of school
 - Sustained poverty
 - Repeat teen pregnancies
 - Un/under employment for parents & children of teen parents
 - Increased rates of child abuse and neglect
 - Increased rates of involvement in criminal justice system among children of teen parents

Background: Teen Pregnancy



- To improve the quality of life for adolescents and any of their potential offspring, it is important to:
 - ▣ Help adolescents make informed reproductive choices
 - ▣ Develop more effective ways to prevent unwanted teen pregnancies
 - ▣ Create effective supports for teens who become pregnant

Background: OneAthens



- Community Coalition
- Formed in 2006 to address persistent poverty in ACC
- Teen pregnancy prevention selected as priority initiative
- The Teen Pregnancy Prevention Task Force recommended to the Clarke County School Board change their policy so that children receive accurate, up-to-date, comprehensive sex education.
- New policy ratified by school board (comprehensive sex education grades 4th-12th [not abstinence-only])
- School board is currently selecting a new comprehensive curriculum

Study Objectives



- Estimate potential public sector cost savings (savings to federal, state and local governments) associated with reduced teen birth outcomes expected from implementing a comprehensive sex education curriculum in Athens-Clarke County public schools grades 4th through 12th over the next 5 years

Methods: Study Steps



The study design includes four steps:

- 1) Estimate intervention costs (start-up and program implementation costs)
- 2) Estimate number of teen births potentially delayed due to a successful program
- 3) Estimate public sector costs associated with teen childbearing
- 4) Describe net benefits (benefits minus costs) & benefit-cost ratio (benefits/costs) if curriculum reduces teen births as anticipated

Methods: Time frame



- Time frame for model
 - Planning Costs: 2006-2008
 - Intervention Costs: 2008-2012
 - Anticipated delayed teen births: 2009-2013
 - Public sector costs associated with delayed births (15 years from time of delayed births): 2009-2028
- All costs converted to their present value in 2007\$

Methods: Where Estimates Come From

- Intervention costs identified by Task Force and School Staff
- Estimates of potential drop in births: Literature on curriculum effectiveness and trends predicted from past figures reported on GA Dept. of Human Resources OASIS database
- Public sector costs related to delayed teen births come from report by the National Campaign to Prevent Teen Pregnancy entitled, *By the Numbers: The Public Costs of Teen Childbearing*
- This report estimates:
 - marginal public sector costs:
 - Costs related to teen mothers, fathers, and the children of teen mothers that could be averted if these births were delayed until the teen mother was 20 years of age
 - Calculates costs in terms of:
 - lost tax revenue from teen mothers, fathers, and children of teen mothers due to lower earnings
 - public assistance received by teen mothers (eg. TANF, food stamps, housing assistance)
 - publicly provided health care, foster care, and other child welfare services
 - costs associated with incarceration of sons of teen mothers as adults.
- Report provides very conservative estimates (likely underestimate true costs)

Results: Intervention Costs

Step	Marginal Costs
Modifying Sex Ed Policy	\$14,712
Selecting New Curriculum	\$3,647
Purchasing Curriculum and Training Teachers & Site Coordinators	\$62,087
Implementing Education (4 years)	\$145,389
TOTAL MARGINAL IMPLEMENTATION COSTS	\$225,835

Delayed Teen Birth Estimates

Table 1: Estimated Teen Births 2008-2013 in Clarke County GA, and 5% & 20% reductions in those figures

(population of females 10-19 yrs held constant at 11,639)

Year	Estimated teen births (CI)*	5% reduction in estimated teen births (CI)**	20% reduction in estimated teen births (CI)**	Range of projected change due to curriculum
2008	225			
2009	216	209 (168-249)	188 (147-228)	7-28
2010	208	200 (158-242)	177 (135-219)	8-30
2011	198	190 (147-234)	167 (123-210)	8-32
2012	190	182 (136-227)	156 (111-202)	8-33
2013	181	172 (123-221)	146 (99-193)	9-35
Projected Change 2009-2013				40-158

*Estimated from teen births reported between 1994-2006

**Beta coefficient from primary regression equation increased by 5% & 20% and re-ran to estimate reductions in teen births as a result of new curriculum.

Estimated public sector cost savings from preventing/delaying a teen birth in GA

- From the report *By the Numbers: The Public Costs of Teen Childbearing*
 - ▣ Costs for teen mothers in GA age ≤ 17 : \$3,536 per year for 15 years (2004\$)
 - ▣ Costs for teen mothers age 18-19: \$254 per year for 15 years (2004\$)
 - ▣ 48% in federal costs vs. 52% in state and local costs
- For this analysis I used the weighted average cost for all teen births: \$1,391/year (\$2004)
- **\$20,013 = Present Value (2007\$) for delaying a teen birth in 2007**
 - ▣ Adjusted for inflation and taking the net present value of these figures using a 2% discount rate calculated over a 15 year horizon.

Marginal Public Sector Savings for Teen Births Delayed Due to an Effective Curriculum, in 2007 Dollars

Year	2007 Value of Each Birth Delayed to Age 20	Range of Births Delayed (if births reduced by 5-20%)	Lower & Upper Bounds of Public Sector Savings from Delayed Births
2009	\$19,236	7-28	\$134,652-\$538,608
2010	\$18,859	8-30	\$150,871-\$565,768
2011	\$18,489	8-32	\$147,913-\$591,653
2012	\$18,148	8-33	\$145,181-\$598,870
2013	\$17,834	9-35	\$160,503-\$624,178
			\$739,121-\$2,919,079

- A curriculum that reduces teen births by 5% between 2009-2013 is estimated to save \$739,121 in public sector costs

Summary of Findings

Net benefits in 2007\$:

$$\underline{\$513,286}_{\text{(if births } \downarrow \text{ by 5\%)}} = \$739,121_{\text{Benefits}} - \$225,835_{\text{Costs}}$$

$$\underline{\$2,693,244}_{\text{(if births } \downarrow \text{ by 20\%)}} = \$2,919,079_{\text{Benefits}} - \$225,835_{\text{Costs}}$$

Summary of Findings

Benefit-Cost Ratio: between 3.3 and 12.9

□ **B/C Ratio** if births ↓ by 5% = $\$739,121 / \$225,835 = 3.3$

□ **B/C Ratio** if births ↓ by 20% = $\$2,919,079 / \$225,835 = 12.9$

□ For every marginal \$ spent on this program, society saves \$3.30-\$12.90

Study Limitations



- This was a model and some data was estimated
- Other potential costs and benefits of a comprehensive curriculum are not included
- The analytic horizon used for this study was somewhat arbitrary

Conclusions



- Preliminary results suggest that implementing a comprehensive sexual education curriculum in ACC schools is likely to be cost saving if the curriculum is even minimally effective.
- If these findings hold true, then this data can provide policy makers and school administrator with further rational for implementing comprehensive rather than abstinence-only sex education in the public schools.



THANK YOU!