Cost Analysis of Adolescent Transition Program

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Overview of Adolescent Transition Program(ATP)

- Objective: to Reduce Problem Behavior in Adolescents through Intervention
- Three Portland Middle Schools
- 672 Participants:
  - 341 in Control Group
  - 331 in Treatment Group
- 4 waves(6th –9th grade)
- Family Resource Center(FRC)
- Family Check-up Program
- Family Intervention Program

Our Analysis Objectives

- Calculating Costs of Intervention
- Calculating Effectiveness
- Cost-Effectiveness Analysis
- Cost-Benefit Analysis

Calculating Costs of ATP

- Separate Implementation Costs from Research and Development
- Explicit Costs
  - Start-up Costs
  - Costs Per Year
- Implicit Costs

Table of Costs

- Explicit Costs
  - Start-up Costs:
    - Family Resource Center: $5,850
    - Teacher Incentives $8,150
  - Costs Per Year:
    - Services and Supplies: $8,949
    - Travel: $2,212
    - Salaries: $96,359
    - OPE/Benefits: $39,747
- Implicit Costs
    - Parent Time
    - Donated Family Resource Center

Total Costs

- Total Costs Per Year
  - First Year (Including Start-up Cost): $162,267
  - Cost for each additional year: $147,267
- Total Program Cost (Four Waves): $604,068
- Cost Per Student, Per Year
  - First Year (Including Start-up Cost): $495
  - Cost for each additional year: $452
  - Total Cost Per Student(Four Waves) $1,851

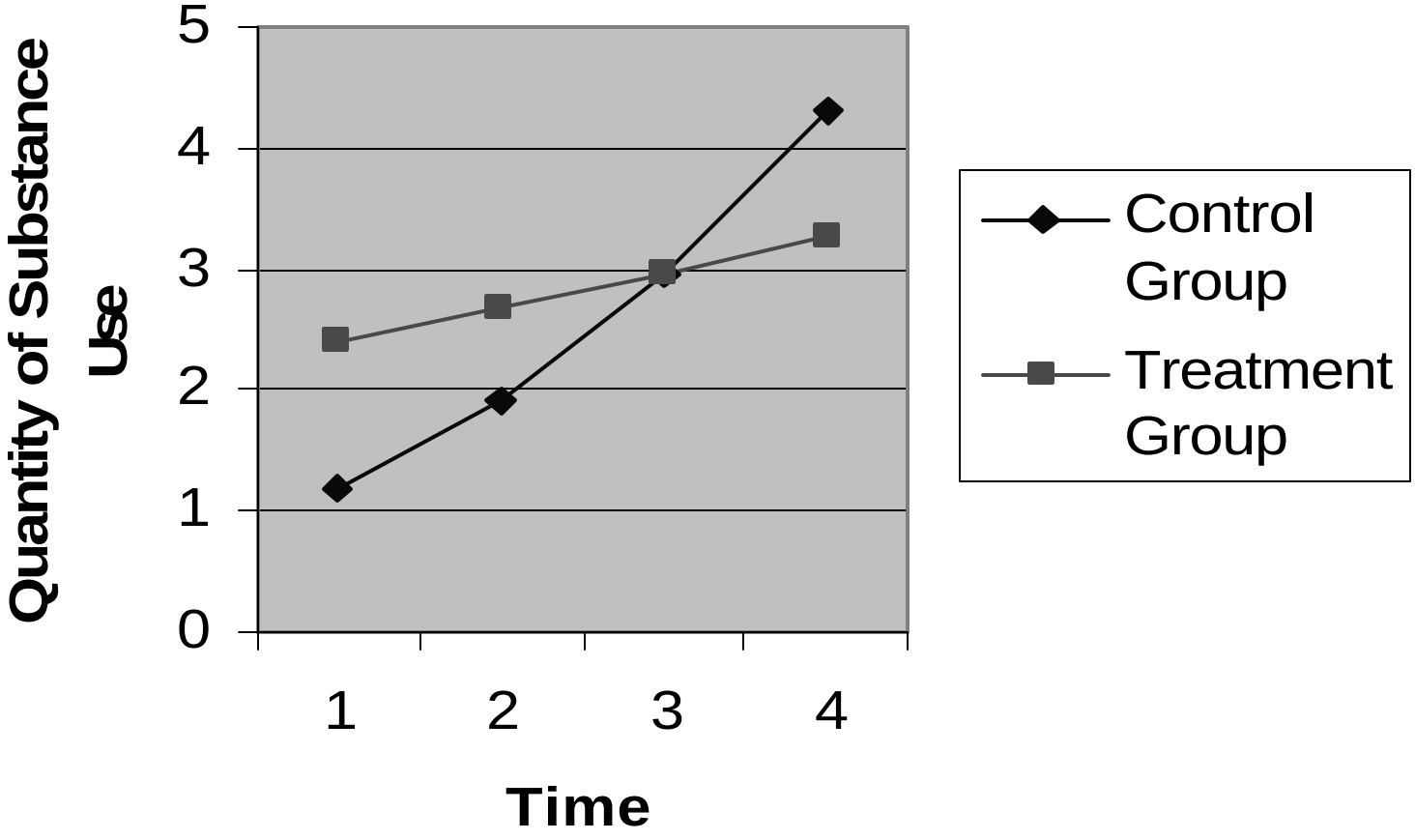
Regression and Expectations

- Dependent Variable
  - Drugl = Log of Substance Use Per Month(cigarettes, alcohol, and marijuana)
- Independent Variables
  - Wave = Time (Year/Program Wave)
    - » Expected Positive Correlation
  - Treatmnt = Binary Variable of Treatment/Control Group
    - » Expected Correlation of 0
  - Trewave = Interaction Variable of Treatment and Wave
    - » Expected Negative Correlation

Regression Results

Regression of drugl			
R-sq= .0099		Number of obs.=2373	
	Number of groups = 661		
drugl	Coef.	Std Err.	z
wave	0.1300***	0.0224	5.81
treatmnt	0.2927***	0.1029	2.85
trewave	(-)0.0969***	0.0322	-3.01
constant	0.2055***	0.072	2.85

Substance Use for Control and Treatment Group Over Time



Effectiveness Results

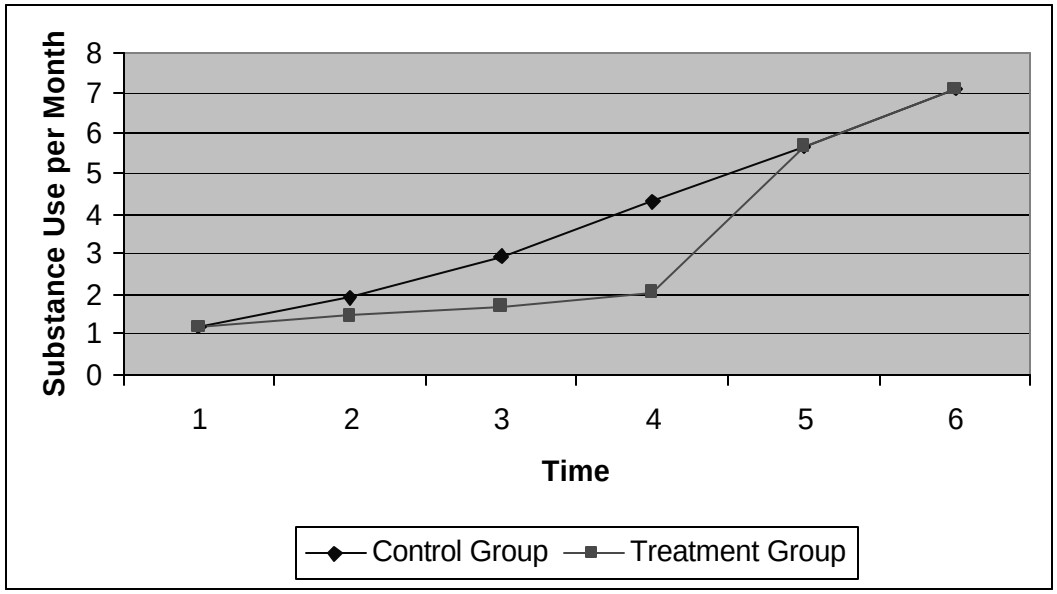
- 2.28 Units of Substance Use Reduction Per Student, Per Month (after wave four)
- 27.36 Units of Substance Use Reduction Per Student, Per Year (after wave four)
- 34.08 Units of Substance Use Reduction Per Student Over Entire Program (four waves)
- 53% Reduction in Substance Use Per Month

Cost-Effectiveness Analysis

- Three Assumptions for Calculating Cost-Effectiveness of ATP
- Assumption One: Conservative
- Assumption Two: Moderate
- Assumption Three: Generous

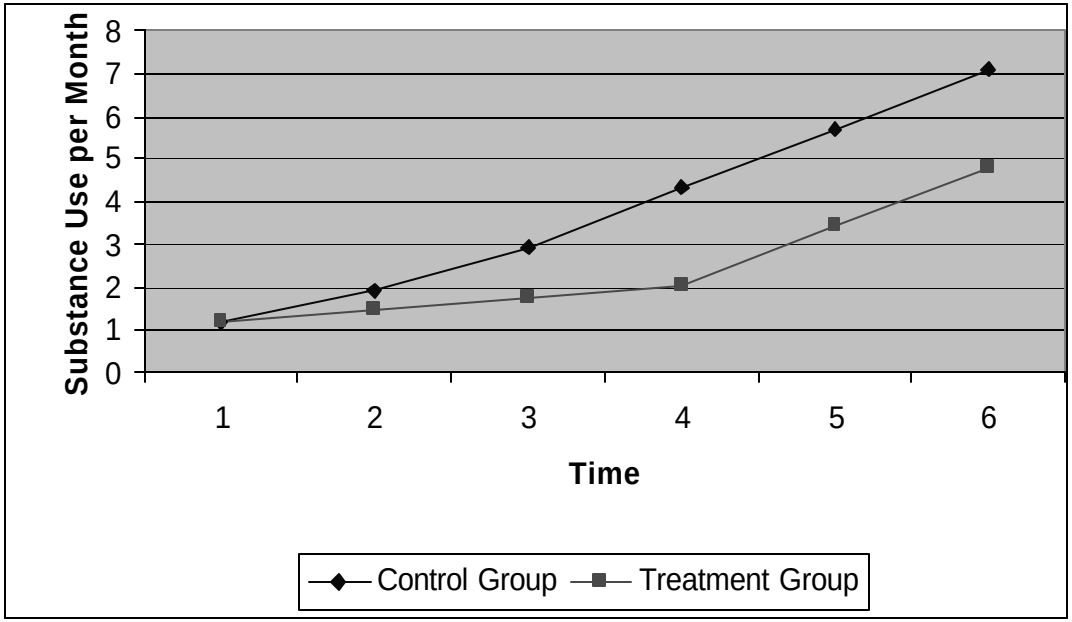
Assumption One: Conservative

- Assumes ATP Effectiveness is Transitory
  - Level and Rate of Change of Substance Use Revert Back to Non-Treatment Values.
- Total Reduction in Substance Use: 34.08 units.
- Cost per substance unit reduced: $54.28



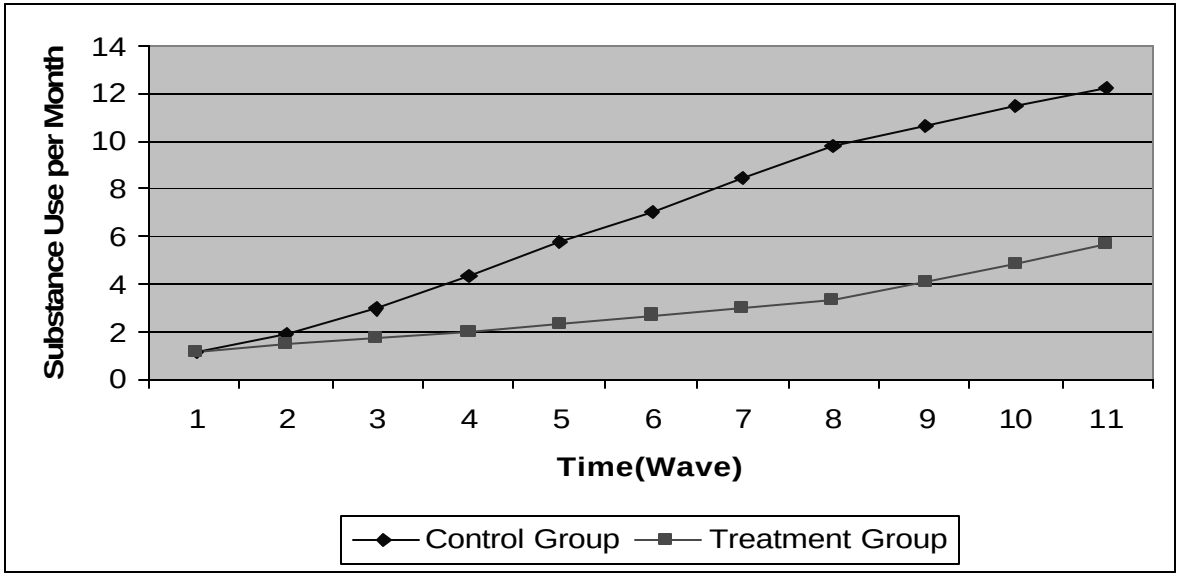
Assumption Two: Moderate

- Assumes the Level of Substance Use Remains at a Constant Difference and Rate of Change of Substance Use is Transitory.
- Total Reduction in Substance Use: 1,676 units.
- Cost per substance unit reduced: $1.10



Assumption Three: Generous

- Assumes the Rate of Change of Substance Use in the Control and Treatment Group Remains Different for a Four Year Period Followed by a Constant Difference for a 56 Year Period in the Level of Substance Use.
- Total Reduction in Substance Use: 7,090 units.
- Cost per substance unit reduced: $0.26



Cost-Benefit Methodology

- According to Gruber and Koszegi's study, one pack of cigarettes costs $30.44 in terms of lost life expectancy.
- Assuming 50% of the Substance Use Reduction is Cigarette Use.
- Examining Benefits Over 60 Years Period
- Three Assumptions for Calculating Benefits
  - Conservative, Moderate, and Generous

Cost-Benefit Analysis

- Assumption One: Conservative
  - Total Reduction in Substance Use: 34.08 units.
  - Total Benefit per student: $26
- Assumption Two: Moderate
  - Total Reduction in Substance Use: 1,676 units.
  - Total Benefit per student: $1,275
- Assumption Three: Generous
  - Total Reduction in Substance Use: 7,090 units.
  - Total Benefit per student: $5,395

Cost-Benefit Analysis

- We used the Moderate Assumption with Benefit of $1,275.44
- Compared to Total Cost of Student for Four Waves: $1,851
- Benefits < Costs
- Benefits do not include other 50% of Substance Use Reduction.

Reduction of Costs

- Therapy Time Per Treatment Student, Per Year:
  - 24.76 Minutes
- Ample Therapy Time for More Students Per Therapist
- Lowers the Program Costs Per Student
- Cost-Effectiveness Improves: Reduction Results Would Cost Less Per Student

Program Implementation and Conclusions

- Clear Understanding of Costs and Benefits Involved in the Intervention Program.
- Implementation Based on Risk Level of Students
- Importance of Preventing Substance Use at an Early Age

Further Research

- Further Understanding of Future Benefits
- Risk Level: Cost and Implementation Decisions Based on Demographics of Schools
- Full Data for Parent Income and Education Variables
- Survey Questions on Willingness to Pay for Program Benefits