

Cost-Inclusive Evaluation: Examples from Mental Health and Substance Abuse Services

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AMERICAN UNIVERSITY
WASHINGTON, DC

Session: 1103

Track: Costs, Effectiveness, Benefits, and Economics

Type: Expert Lecture

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First Author or Discussion Group Leader: Nadini Persaud, Ph.D. [University of the West Indies]

Time: Nov 13, 2015 (07:00 AM - 07:45 AM)

Room: Skyway 283

Audience Level: Beginner

Session Abstract:

... You will finish this workshop knowing what "cost studies" all too often are, and what cost-inclusive evaluation can and should be. You will see how evaluations that include resources used the program, plus resources generated by the program, can help programs flourish. In addition, you will understand the basic tools for conducting and using several forms of cost-inclusive evaluation in your program and in your decisions

what cost-inclusive
evaluation is
... and can be

why *cost-inclusive*?

"All human endeavors have three things in common:

- they consume *resources*
- they involve certain means or *processes*
- and they produce outcomes...

At the very least, what we do, say or think consumes time and yields an outcome of no change at all." Yates (1980), page 3

Evaluating the costs of programs is the missing link between

- doing a superficial evaluation
- doing an evaluation that gets changes made and funding delivered

Evaluating the monetary outcomes of programs can help, too.

evaluate *programs*,
not just their costs
and outcomes

program as black box?

modeling a program

RESOURCES

(examples)

- staff time, expertise
- consumer time, expertise
- space
- assessment instruments
- client time
- transportation
- medication
- iDevices
- & much more!

ACTIVITIES

(examples)

- intake
- assessment
- diagnosis
- assignment to team
- social skills
- ongoing assessment
- relapse prevention
- transition to self-management

PROCESSES

(examples)

- heightened client expectation of success
- acquisition of social skills
- acquire relapse prevention skills
- acquire self-management skills

OUTCOMES

(examples)

- improved functioning
- less drug use
- more income
- more productivity
- less use of health services
- less use of criminal justice services

definitions & some
examples

the “cost study”

- cost analysis (CA)
 - budgets versus expenditures
 - which is better?
 - why budgets are more popular
- cost feasibility analysis (CFA)
 - develop an itemized budget
 - compare to funds, other resources available
 - why it's not enough

"cost study" continued

- activity-based costing (ABC)
 - itemizing budgets by resources and activities
 - why that's nice
 - why it's not enough

		activities		
		activity 1	...	activity j
resources	resource 1			
	...			
	resource i			

cost-effectiveness analysis

CEA

“What does this program accomplish relative to its cost?”

examples:

- cost per drug-free day
- cost per child prevented from smoking
- cost per year of life saved
- cost per quality-adjusted life year gained (\$/QALYG)

example: UPSTART

- Utah Preparing Students Today for A Rewarding Tomorrow

multivariate effectiveness

- preschool reading and math skills
- achievement gap reduction
- not measured:
 - social & emotional skills
 - self-management skills

cost of delivery systems

- early-childhood education (pre-K)
 - better reading & math skills
- delivery systems:
 - traditional pre-K classroom: \$1,950 per student
 - web-based apps: \$800 per student
 - classroom + online: ? per student
- not measured:
 - social & emotional skills
 - self-management skills

only way to reach some...



so how would you...

- express effectiveness at county, state levels?
 - # children reached x % noticeable boost in reading, math skills
- \$ per child boosted in reading, math?
- development costs...

cost-benefit analysis

CBA

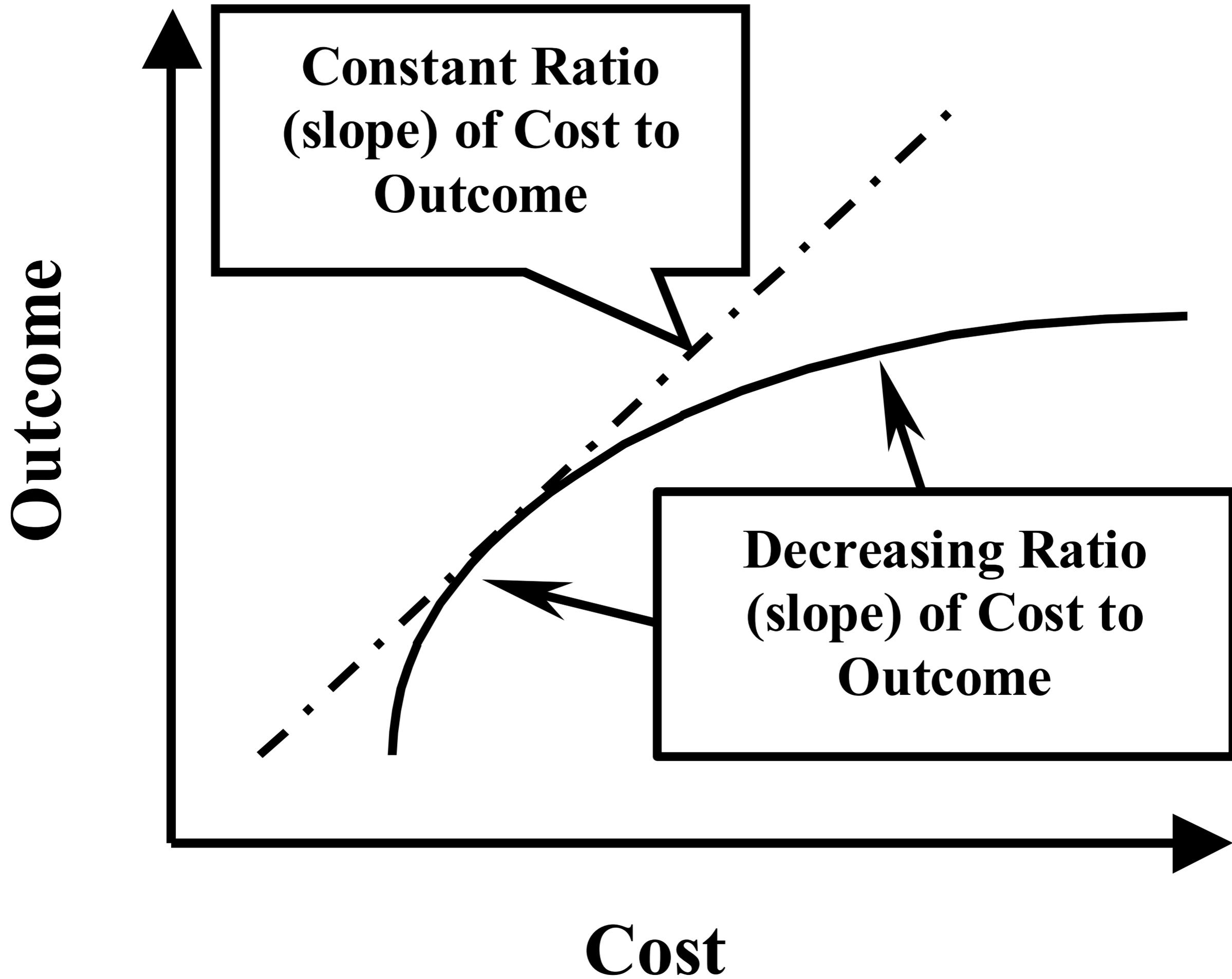
"Is the cost of this program justified relative to its outcome?" ... "Is this a good investment?"

examples:

- ratio of dollars spent for therapy versus dollars saved in reduced unnecessary use of health services
- net benefit (after subtracting costs) of diversion program for homeless adults (reduced Emergency Department visits, days of incarceration)

ratio: benefits/costs

- advantages: simple, memorable, “understandable”
- problems:
 - ratios are, essentially, slopes
 - assumes a linear cost → outcome relationship
 - discards info on:
 - diminishing returns
 - economies of scale
 - step functions



example: needle exchange

- in Washington DC (blocked by US Congress from using local \$ for needle exchange)
- 12 years of data, 70% drop:
 - new HIV cases decreased from 19 to 6 / month
- 60 prevented HIV infections per year
- savings: \$380,000 lifetime/HIV case (CDC, 2010): \$22,800,000
- cost of needle exchange: \$650,000 / year



A needle obtained from a needle-exchange program in Seattle. (David Ryder/Reuters)

- \$22,800,000 saved ... for 1 year of needle exchange operation - \$ cost of program = \$22,150,000 net benefit

units for benefits and costs
need to be the same ...

- but do not have to be monetary ...
- NNT (Number Needed to Treat ... for one person to benefit): David Newman
- "benefit > harm"? "harm" \equiv ?
- antibiotics?
 - 1 in 4 infections prevented
 - 1 in 22 lives saved
- <http://www.thennt.com>

SUBJECTIVE COSTS AND BENEFITS OF
SELECTED OBESITY REDUCTION STRATEGIES

<i>Obesity Reduction Strategy</i>	<i>Perceived "Difficulty"</i>		<i>Perceived "Usefulness"</i>	
	<i>Mean</i>	<i>s.d.</i>	<i>Mean</i>	<i>s.d.</i>
Eating Only in Designated Eating Place	4.6	(3.1)	7.3	(3.0)
Reducing Number of Eating Episodes	5.1	(3.3)	8.5	(2.4)
Reducing Number of Snacks	6.4	(3.1)	8.9	(2.0)
Eating at Regular Times	4.8	(3.5)	7.5	(3.1)
Graphing Weight	1.8	(1.5)	5.8	(3.3)
Leaving Some Food on Plate	7.3	(3.4)	6.9	(3.2)
Shopping for Food from a List	3.0	(2.8)	7.8	(2.9)
Keeping a Food Diary	4.2	(2.9)	8.5	(2.5)
Counting Calories and Choosing Foods Lowest in Calories	5.4	(3.2)	8.4	(2.6)
Imposing a Delay Between an "Urge" to Eat and Eating	7.1	(3.2)	8.0	(2.6)
Keeping Foods in Kitchen and in "See-Proof" Containers	2.9	(2.6)	6.1	(3.4)

NOTE. "s.d." = standard deviation. Adapted from Yates (1978).

return on investment

ROI

- "how much will we make back on our (societal) investment?"
- whether? or when?

time to return on investment TROI

- like CBA but emphasizing time
- need to adjust benefits & costs for...
 - present value
 - inflation

social return on investment SROI

“The concept is simple: pay providers after they have demonstrated success, not based on the promise of success, as is done now.”

evaluating more than
costs and outcomes

effects on cost study

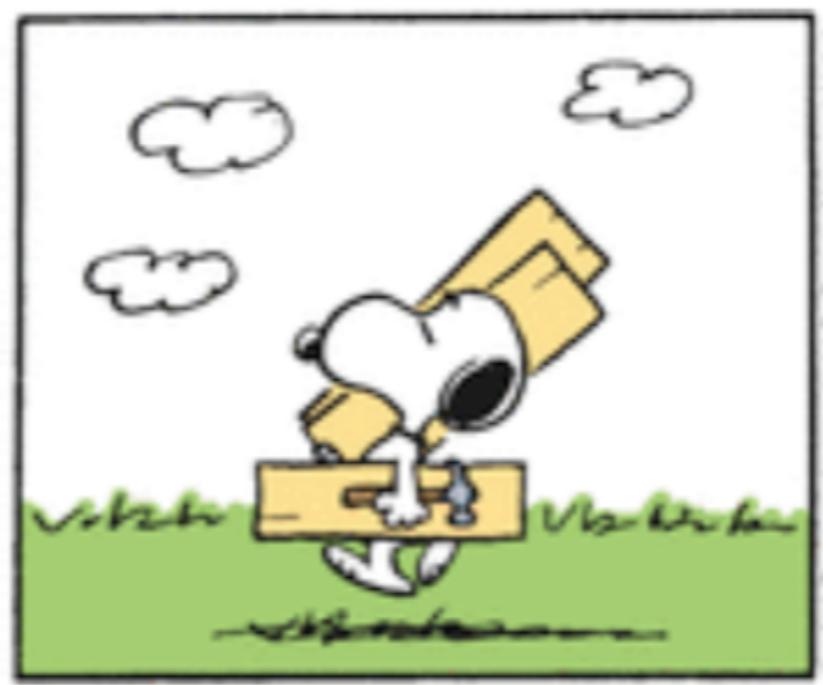
findings of:

- resource constraints
- outcome criteria
- delivery systems

delivery systems can be primary cost determinants

Peanuts

BY CHARLES M. SCHULZ



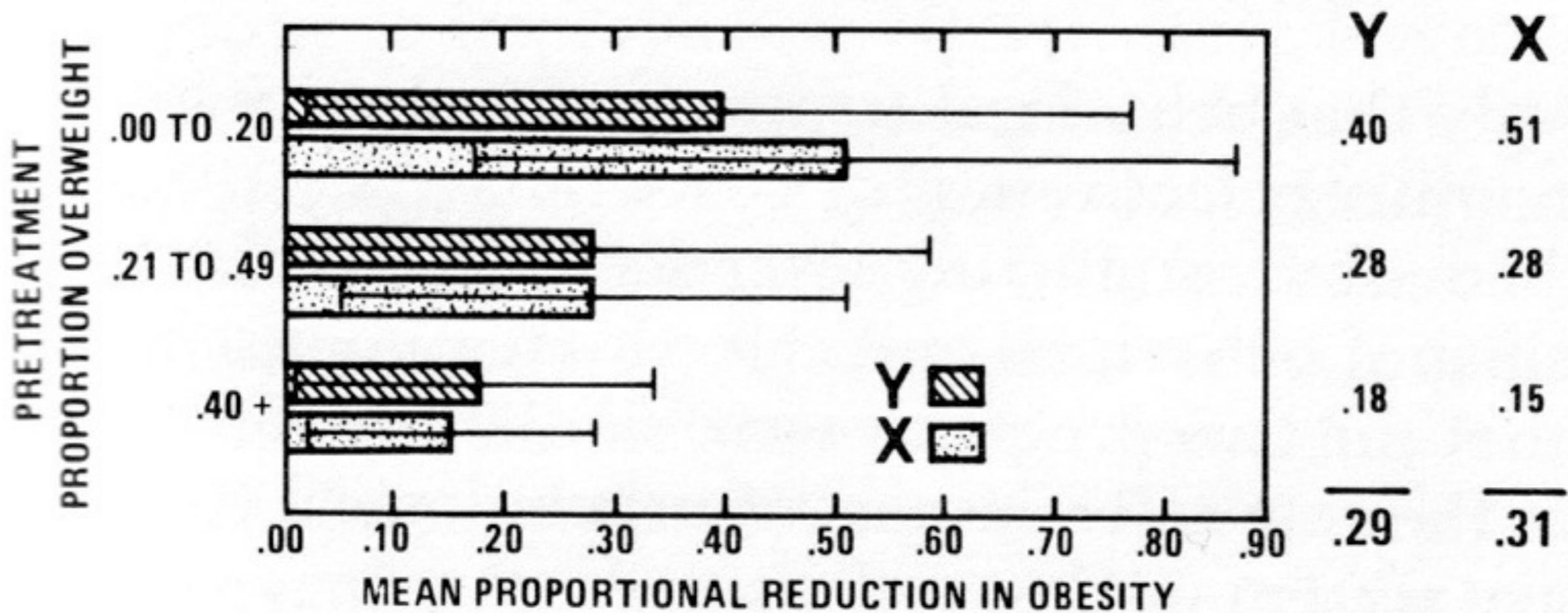
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weight loss treatments

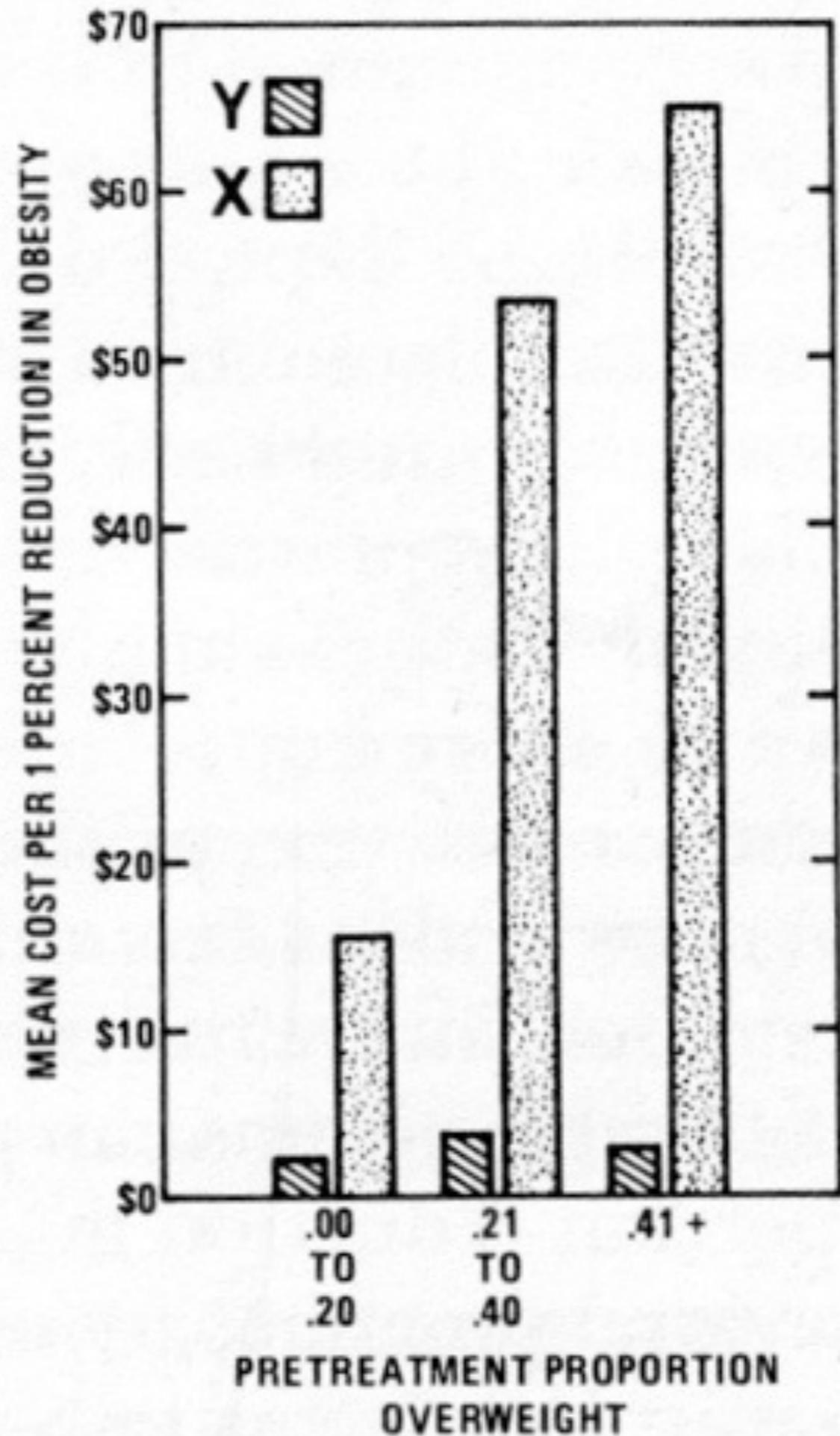
Yates, B. T. (1977). Improving the cost-effectiveness of obesity programs: three basic strategies for reducing the cost per pound. *International Journal of Obesity*, 2, 249-266.

treatments Y and X ...
 effectiveness: $Y = X$

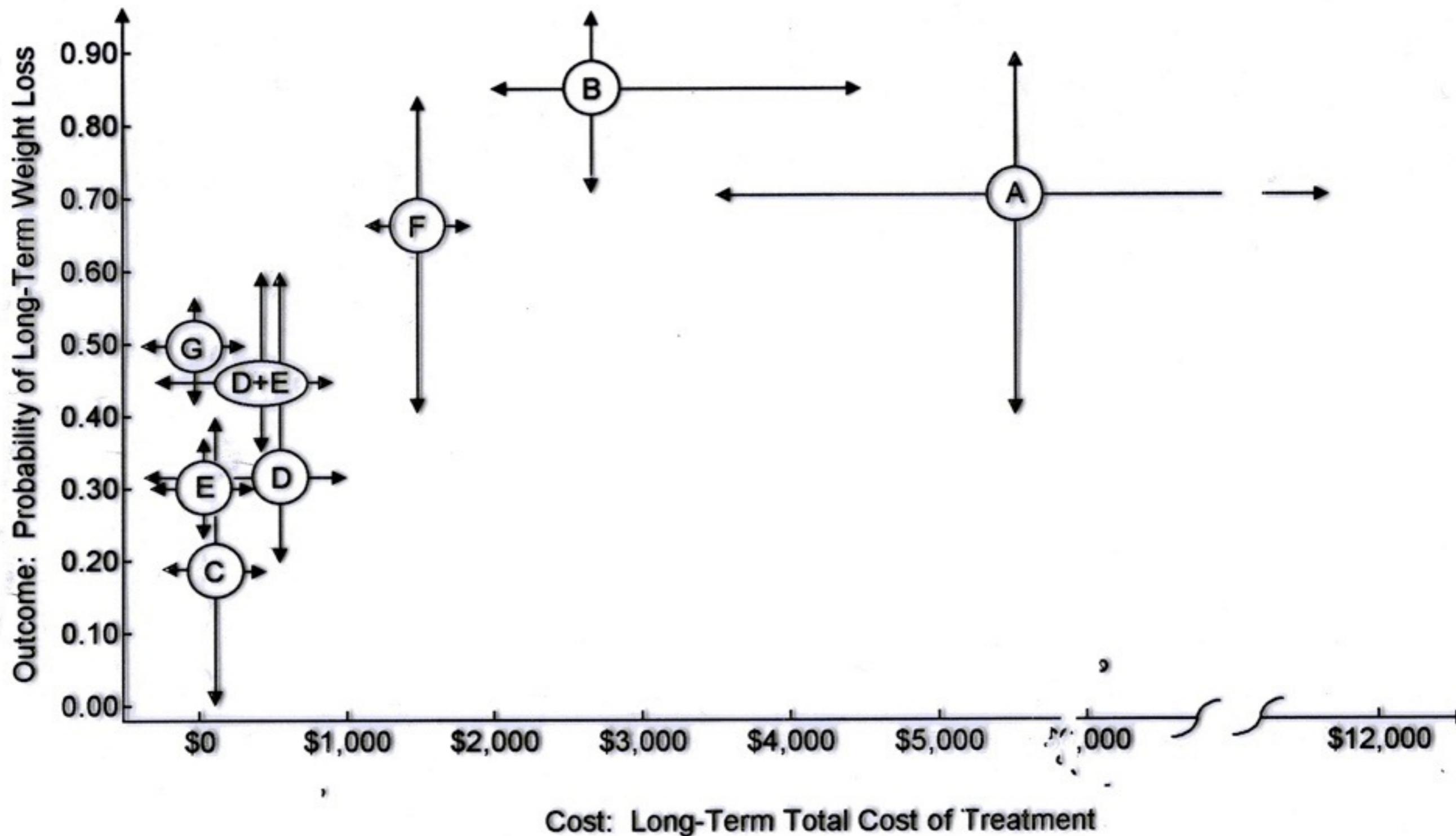


costs:

$X > Y$



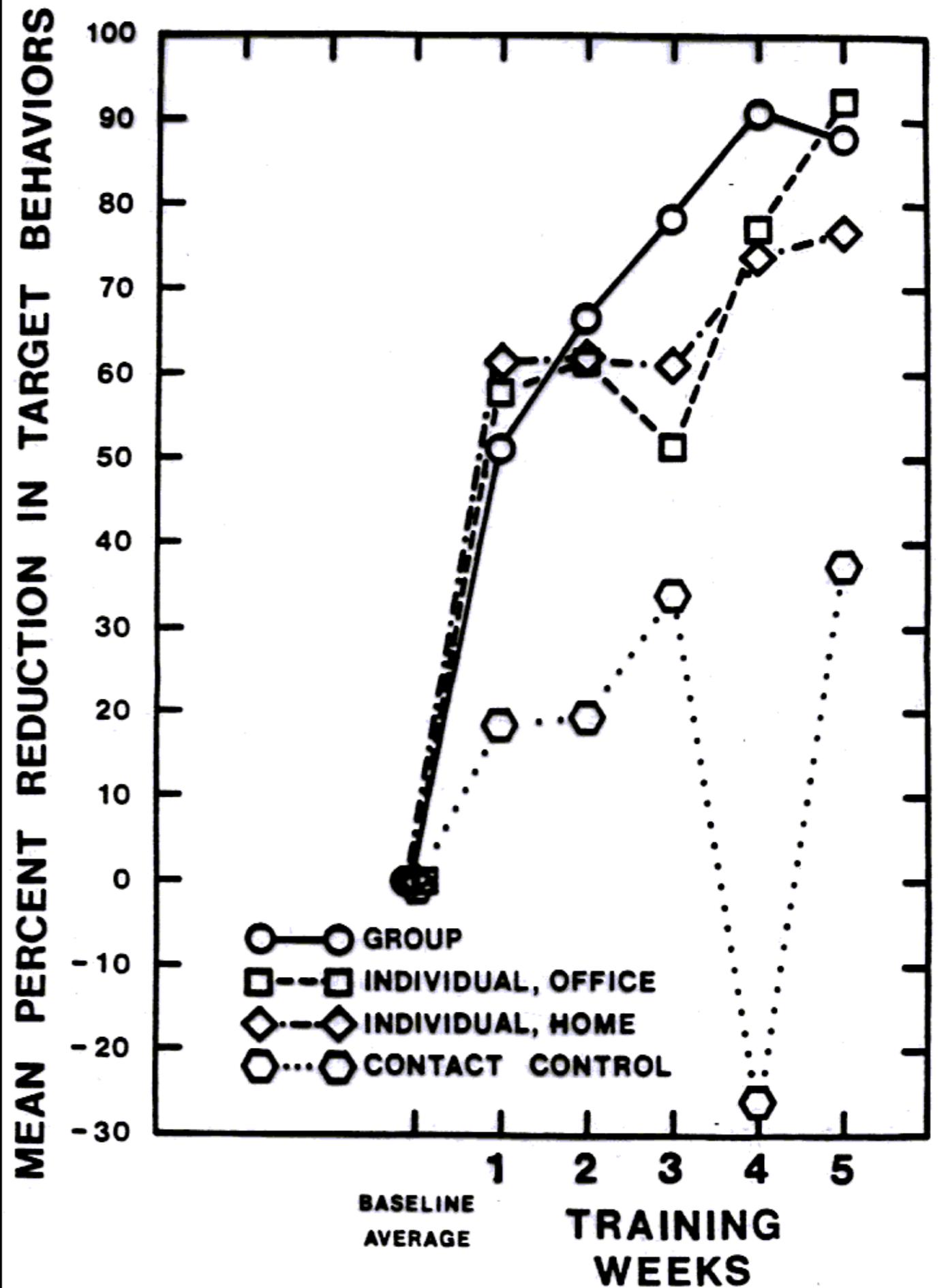
cost → effectiveness areas (a 2-hour CEA!)



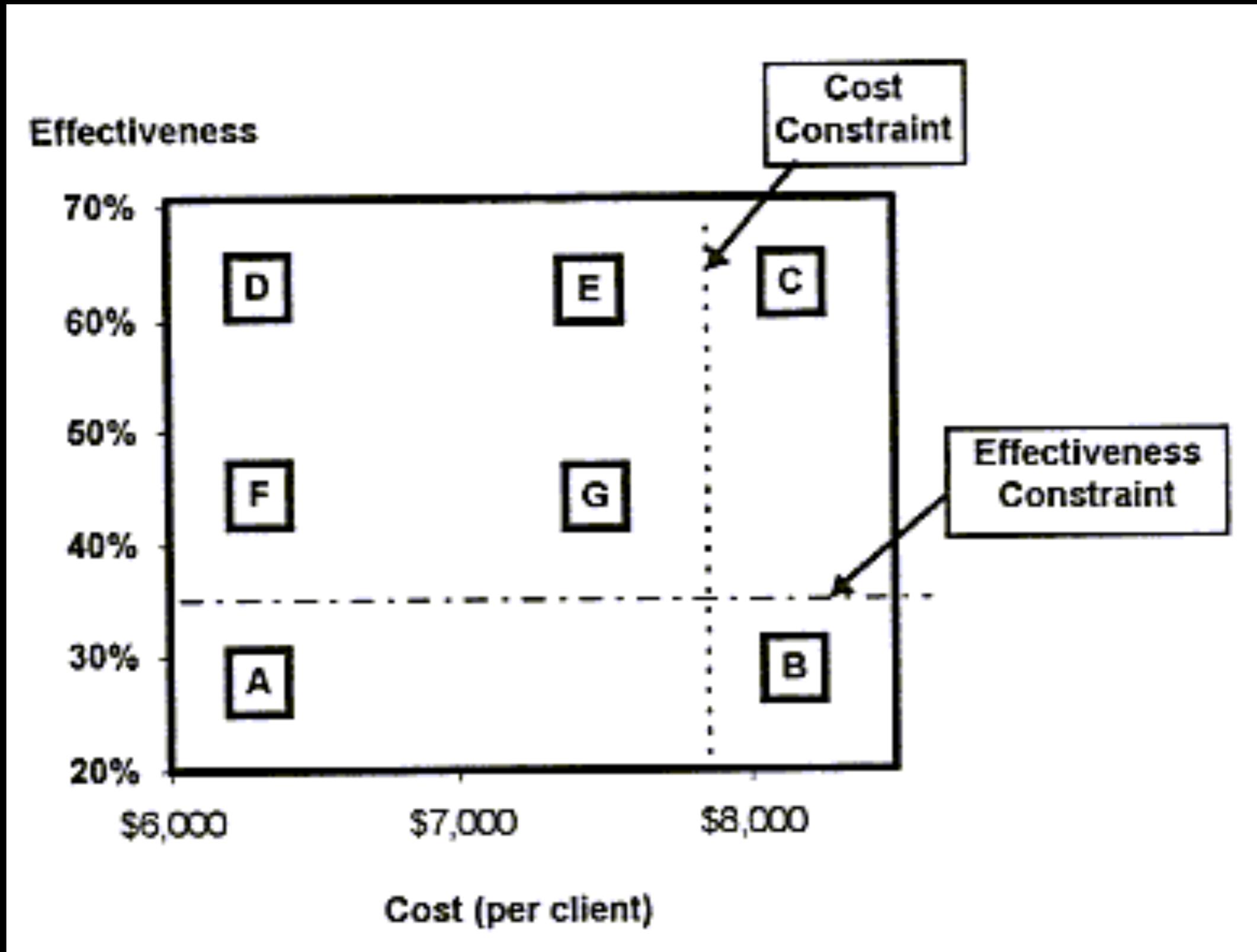
child-management training

Siegert, F. A., & Yates, B. T. (1980). Cost-effectiveness of individual in-office, individual in-home, and group delivery systems for behavioral child-management. *Evaluation and the Health Professions, 3*, 123-152.

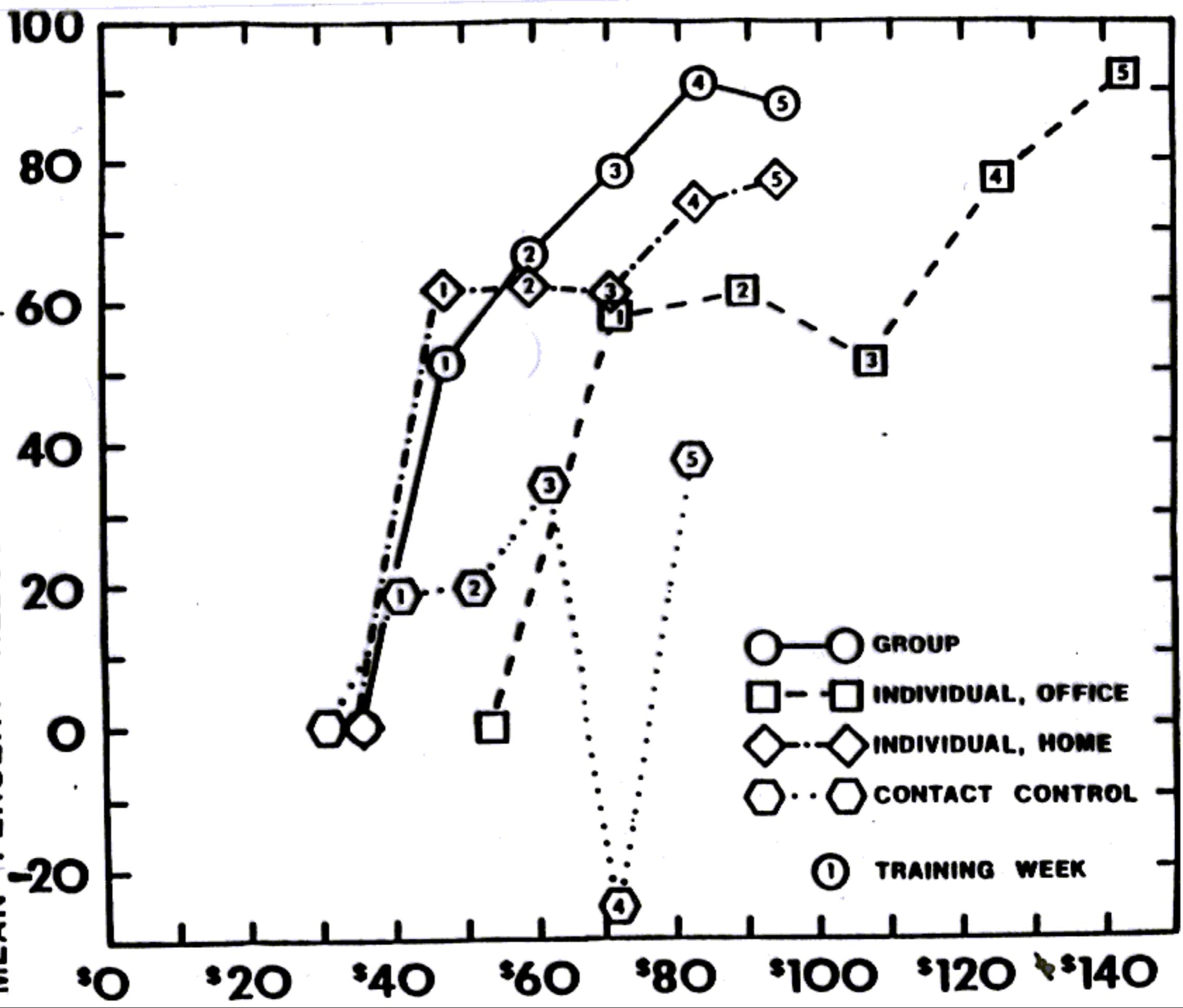
Outcomes =
 $f(\text{Procedures})$



Decision-Making in Cost → Outcome Graphs



MEAN PERCENT REDUCTION IN TARGET BEHAVIORS

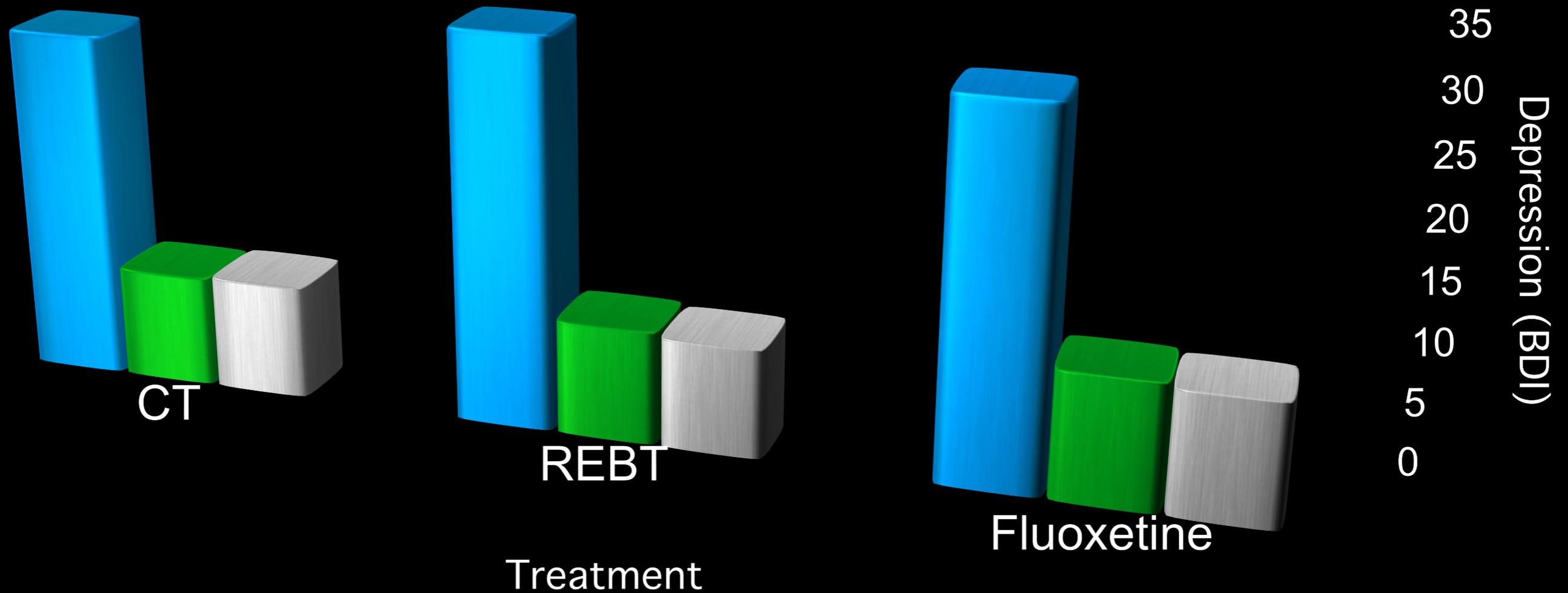


context & CEA & CUA

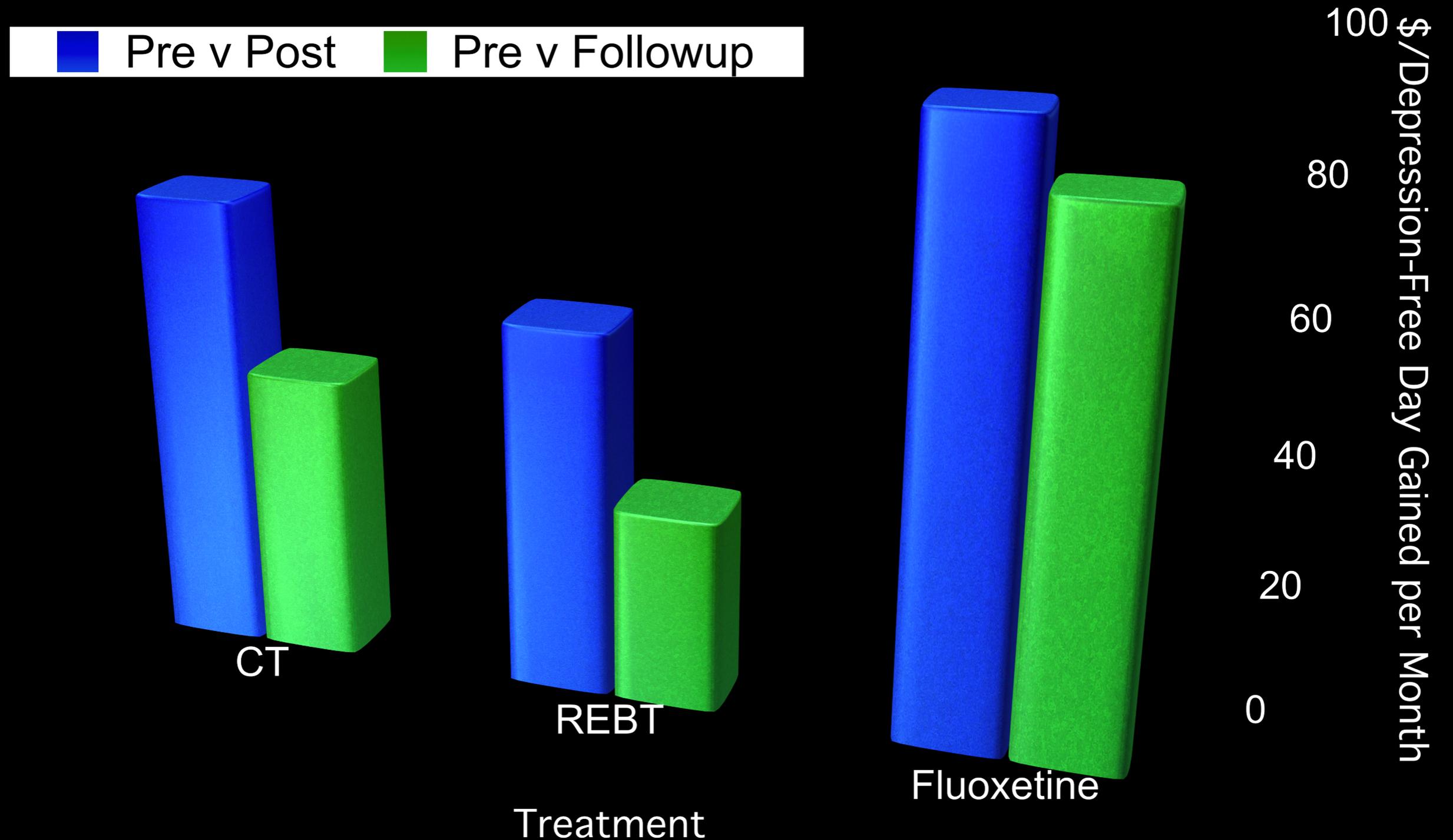
of cognitive-behavioral and pharmacologic treatments for depression

Sava, F. A., Yates, B. T., Lupu, V., Hatieganu, I., Szentagotai, A., & David, D. (2009). Cost-effectiveness and cost-utility of cognitive therapy, rational emotive behavioral therapy, and fluoxetine (Prozac[®]) in treating depression: A randomized clinical trial. *Journal of Clinical Psychology, 65*, 36-52.

depression (Beck Depression Inventory)



cost per depression-free day gained per month

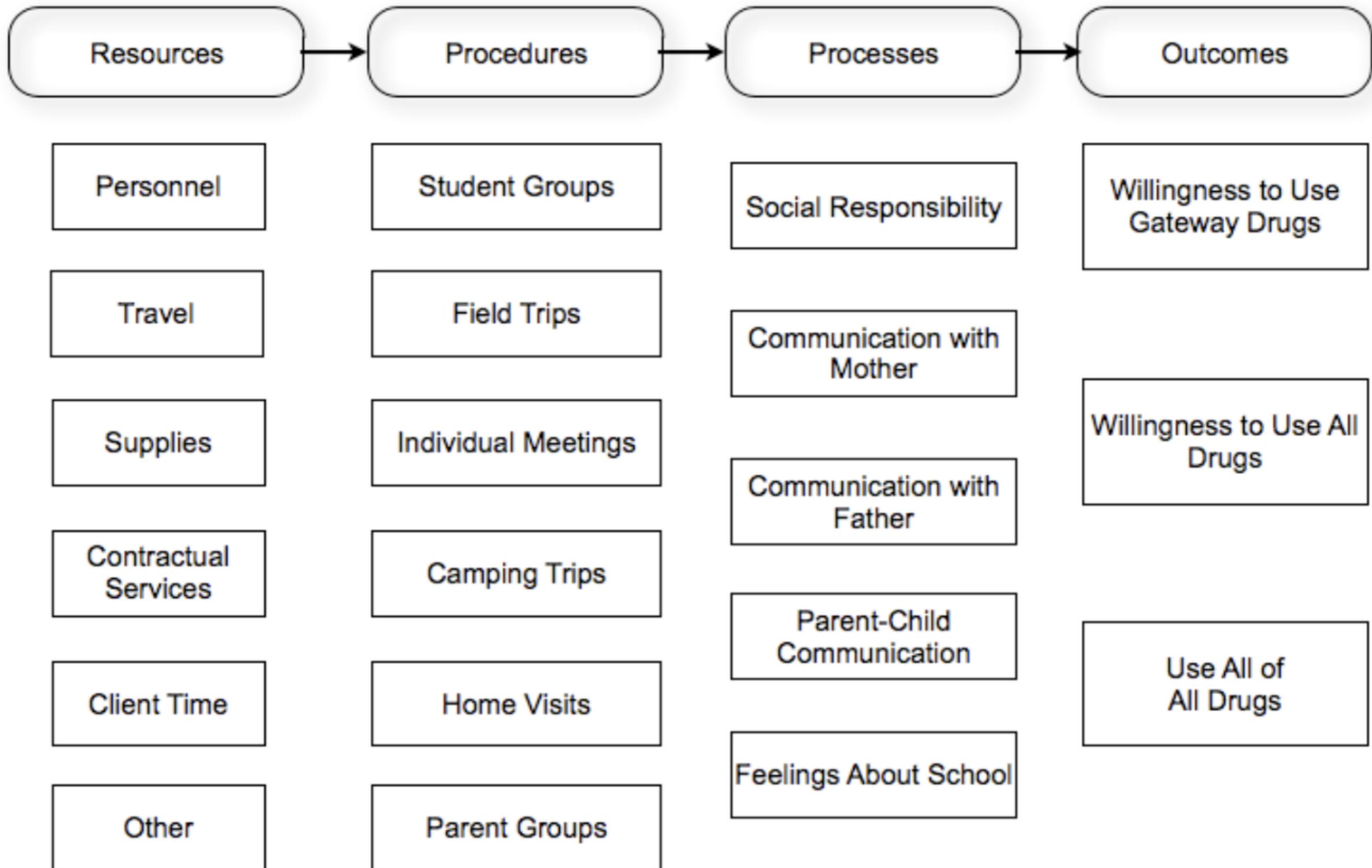


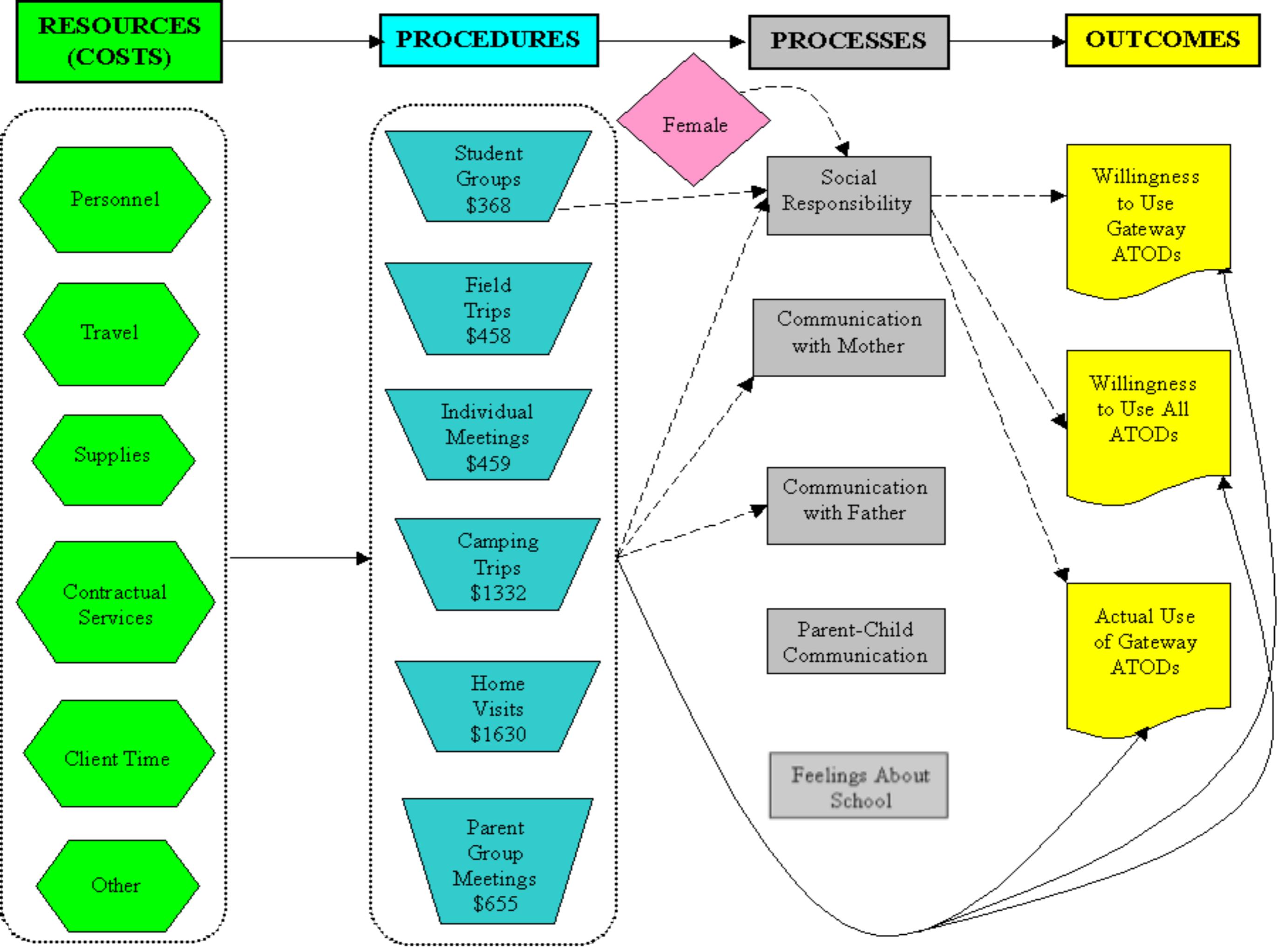
when a program
becomes iatrogenic,
cost-inclusive evaluation
that models the
program can fix it

Resource → Activity →

Process → Outcome model
of a Drug Abuse Prevention
program

Audrey Kissel's MA thesis at AU





resources for
learning more

cost-inclusive evaluation at the
American Evaluation
Association (AEA)

Cost, Effectiveness, Benefits, and
Economics TIG

CEBE TIG

websites for cost-inclusive evaluation



- Tufts University at their Center for the Evaluation of Value & Risk in Health
- <https://research.tufts-nemc.org/cear4/default.aspx>

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Updated Inventory of Evidence- and Research-Based Practices: Washington's Learning Assistance Program

[Annie Pennucci, Matt Lemon](#)

September 2014

Washington State provides funding to school districts to help underachieving students through the Learning Assistance Program (LAP). The 2013 Washington State Legislature directed the Washington State Institute for Public Policy to prepare an inventory of evidence-based and research-based effective practices, activities, and programs for use by school districts in LAP and to update the inventory each two years thereafter.

This report describes the updated inventory of evidence-based and research-based practices for use in LAP.

Download: [Report Inventory Benefit-Cost Results](#)

Report ID: 14-09-2201

Related: [Legislation](#)

Preventing Youth Substance Use: A Review of Thirteen Programs

[Sean Hanley, Steve Aos](#)

September 2014

Initiative 502, passed by Washington voters in November 2012, legalized recreational marijuana use for adults in the state. The initiative directed WSIPP to evaluate the policy by considering benefits and costs across a number of key areas including public health, public safety, and criminal justice.

As part of this assignment, we reviewed the evaluation literature on 13 youth prevention programs. These programs are on the state

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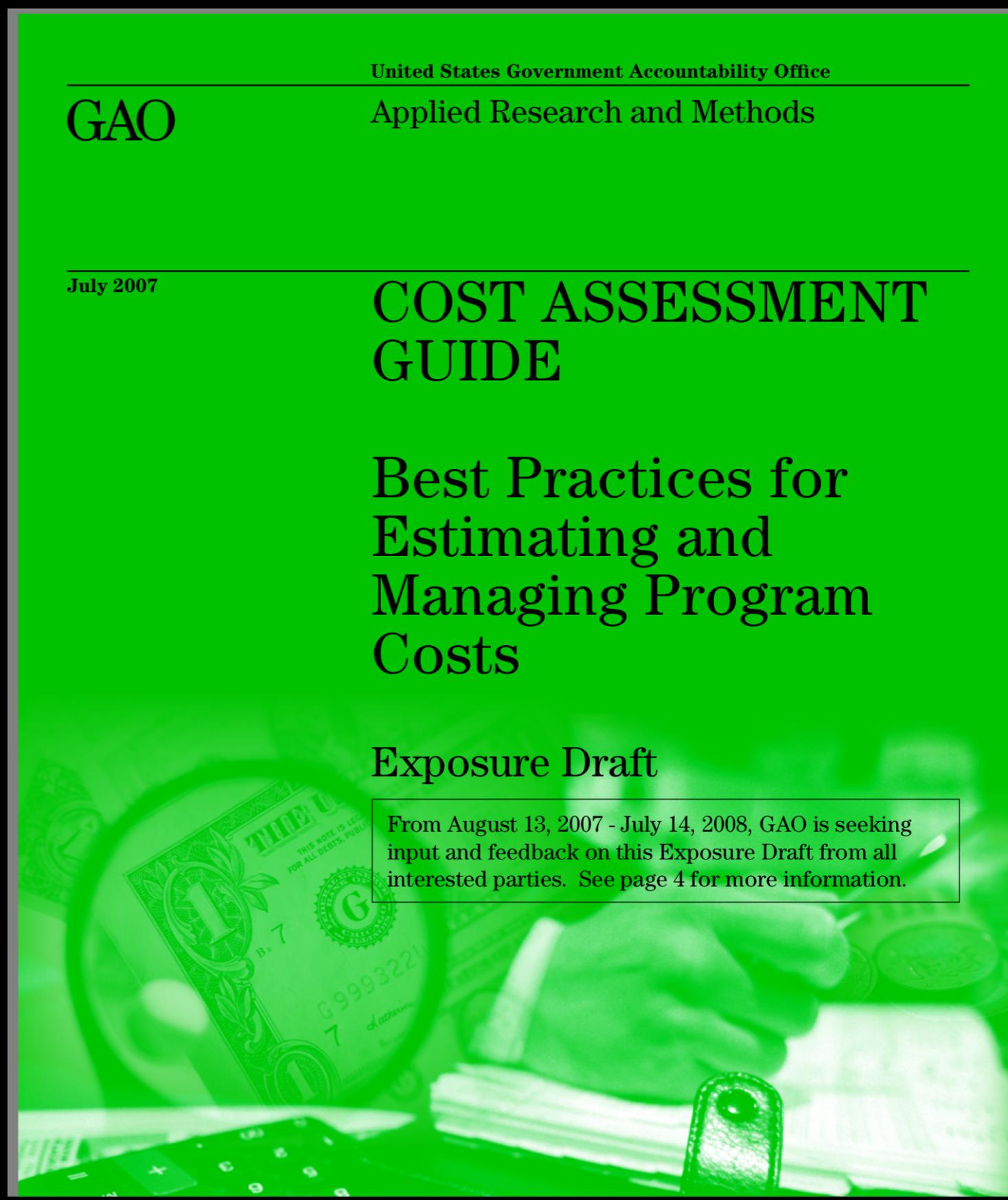
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US GAO Cost Assessment Guide

- <http://www.gao.gov/new.items/d071134sp.pdf>
- (2007)



<http://archives.drugabuse.gov/IMPCOST/IMPCOSTIndex.html>

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<http://www.acf.hhs.gov/programs/cb/resource/cost-workgroup>



COST ANALYSIS IN PROGRAM EVALUATION

A GUIDE FOR CHILD WELFARE RESEARCHERS AND SERVICE PROVIDERS

• Create an estimate of total costs

• Estimate program component costs

a (1 of 28)



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Cost Analysis in Program Evaluation: A Guide for Child Welfare Researchers and Service Providers

Published: February 18, 2014

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This guide is relevant for multiple audiences, including program directors and evaluators, child welfare agency administrators, funders of research studies and evaluation projects, and other important stakeholders who rely on child welfare evaluation.

<http://aspe.hhs.gov/pdf-report/guide-analyzing-cost-effectiveness-community-public-health-prevention-approaches>

Guide to Analyzing the Cost-Effectiveness of Community Public Health Prevention Approaches

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