

evaluate costs

evaluate costs

evaluate costs

"The cynic ... knows the price of everything and the value of nothing."

- Oscar Wilde's *Lady Windermere's Fan*

evaluate costs

re-conceptualizing costs

- “costs” as what is paid
 - ...to assemble the resources for a program
- “costs” as the value of program “ingredients”
types and amounts of resources, e.g.,
 - personnel time
 - physical plant
 - supplies

... but are we ...
cooking cookies or
baking bread?



Oatmeal Chocolate Chip



Using an Electric Mixer



Alternating Ingredients



Dropping Cookies





Mixing Bread Dough



Fermenting Bread



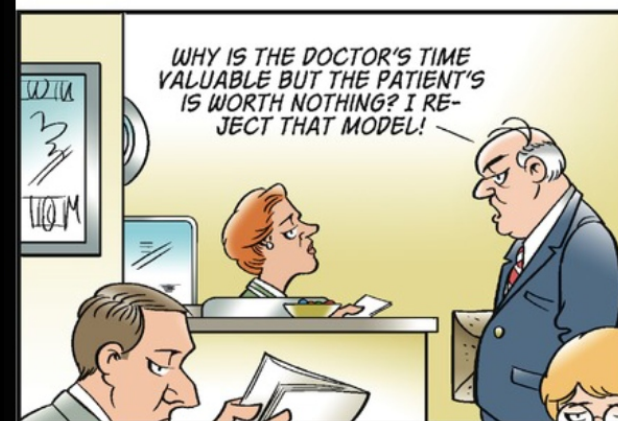
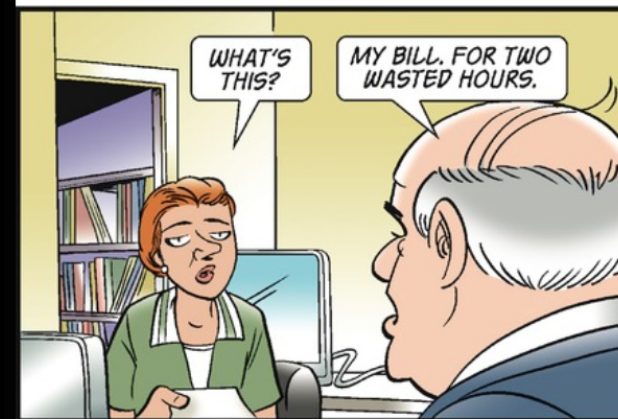
Rising the Dough



Leavening

evaluate costs

Client perspective on costs ... and how to “money-value” that!



Doonesbury by Garry Trudeau

April 27, 2014

evaluate costs

stakeholder perspectives on costs

- provider
- consumer
- family members
- taxpayer
- community
- policy makers
- funders
- evaluator!

evaluate costs

alternative definitions

- What was paid for them (price cost)
- What it took to get them (price, shipping...)
- What would need to be paid for them (replacement cost)
- What they are worth to the community, society (opportunity cost)
- What they are, and how much of them was used (complete description & quantification)

evaluate costs

costs as types & amounts of resources used

- ... to show contribution of volunteered services and donated facilities
 - fairer comparisons between programs
- translate costs to different countries and times
- replicate program
- understand of what the program is
- improve effectiveness or reduce costs or both

evaluate costs

common cost data sources

- methods
 - survey
 - self-report
 - observation
- instruments
 - computer (e.g., Drug Abuse Treatment Cost Analysis Program, DATCAP)
 - paper-and-pencil spreadsheets

evaluate costs

why cost is not easy to measure

- not just budgets, not just accounting records
- may not include essential resources:
 - volunteers' time
 - interns', externs' time
 - under-paid staff member's time
 - space rented below-market
 - donated food, transportation, equipment

compare reported income to...

- what people in similar occupations earn
 - <http://www.bls.gov/bls/blswage.htm>
 - <http://www.homefair.com/real-estate/salary-calculator.asp?cc=1>

evaluate costs

distortions to avoid when measuring cost

- changes in monetary value over geography
- changes in monetary value over time
 - inflation, deflation
 - cost of living adjustment, using CPI
 - present value
- hidden expense of investing taxes in public programs ("deadweight loss")

evaluate costs

calculators to help

- Excel, Numbers, most calculators, but ...
- data.bls.gov
- inflation: http://www.bls.gov/data/inflation_calculator.htm
- wages: <http://www.bls.gov/bls/blswage.htm>
- net present value, different amounts each year: <http://dailycalculators.com/npv-calculator>

QUARTERLY OPERATIONS COSTS FOR LEARNING HOUSE
BEFORE AND AFTER ADJUSTMENT FOR INFLATION

| <i>Cost Variable</i> | <i>Quarter</i> | <i>Before Inflation Adjustment</i> | <i>After Inflation Adjustment</i> |
|-----------------------|----------------|--|---------------------------------------|
| Personnel | 1 | \$ 6,092 | \$ 6,632 |
| | 2 | 7,529 | 7,988 |
| | 3 | 6,740 | 6,909 |
| | 4 | 6,755 | 6,809 |
| | 5 | 5,828 | 5,828 |
| | <i>average</i> | 6,589 | 6,833 |
| Facilities | 1 | \$ 1,144 | \$ 1,245 |
| | 2 | 1,157 | 1,228 |
| | 3 | 1,112 | 1,140 |
| | 4 | 2,766 | 2,788 |
| | 5 | 914 | 914 |
| | <i>average</i> | 1,419 | 1,463 |
| Equipment & Materials | 1 | \$ 1,963 | \$ 2,137 |
| | 2 | 2,446 | 2,595 |
| | 3 | 2,407 | 2,468 |
| | 4 | 2,450 | 2,470 |
| | 5 | 2,054 | 2,054 |
| | <i>average</i> | 2,264 | 2,344 |
| Total | | \$10,272 | \$10,641 |

evaluate costs

present-valuing

¹ The equation for the present value is

$$\$_t / (1 + i)^t$$

where $\$_t$ is the value of resources spend or to be spent during time period t , and i is the *discount rate* chosen for present-valuing.

evaluate costs

present valuing can make a difference
(discount rate of 5% per year)

| Year | Proposal A | | Proposal B | |
|-------|-------------|----------------|-------------|----------------|
| | plain | present-valued | plain | present-valued |
| 2014 | \$900,000 | \$857,143 | \$500,000 | \$476,190 |
| 2015 | \$500,000 | \$453,515 | \$500,000 | \$453,515 |
| 2016 | \$100,000 | \$86,384 | \$500,000 | \$431,919 |
| Total | \$1,500,000 | \$1,397,041 | \$1,500,000 | \$1,361,624 |

PRESENT-VALUE COSTING

Proposal A

| <i>Year</i> | <i>Calculations for Present Value</i> | <i>Cost</i> |
|--------------------------------------|--|--------------------|
| 1 | $\$500,000/(1 + .06)^1 = \$500,000/1.06 =$ | \$ 471,698 |
| 2 | $500,000/(1 + .06)^2 = 500,000/1.12 =$ | 444,998 |
| 3 | $500,000/(1 + .06)^3 = 500,000/1.19 =$ | 419,810 |
| 4 | $500,000/(1 + .06)^4 = 500,000/1.26 =$ | 396,047 |
| 5 | $900,000/(1 + .06)^5 = 900,000/1.34 =$ | <u>672,532</u> |
| <i>Total Present-Valued Cost</i> | | <i>\$2,405,085</i> |
| <i>Total Non-Present-Valued Cost</i> | | <i>\$2,900,000</i> |

Proposal B

| <i>Year</i> | <i>Calculations for Present Value</i> | <i>Cost</i> |
|--------------------------------------|--|--------------------|
| 1 | $\$900,000/(1 + .06)^1 = \$900,000/1.06 =$ | \$ 849,057 |
| 2 | $500,000/(1 + .06)^2 = 500,000/1.12 =$ | 444,998 |
| 3 | $500,000/(1 + .06)^3 = 500,000/1.19 =$ | 419,810 |
| 4 | $500,000/(1 + .06)^4 = 500,000/1.26 =$ | 396,047 |
| 5 | $500,000/(1 + .06)^5 = 500,000/1.34 =$ | <u>373,629</u> |
| <i>Total Present-Valued Cost</i> | | <i>\$2,483,541</i> |
| <i>Total Non-Present-Valued Cost</i> | | <i>\$2,900,000</i> |

Costs can vary over time for other reasons, too

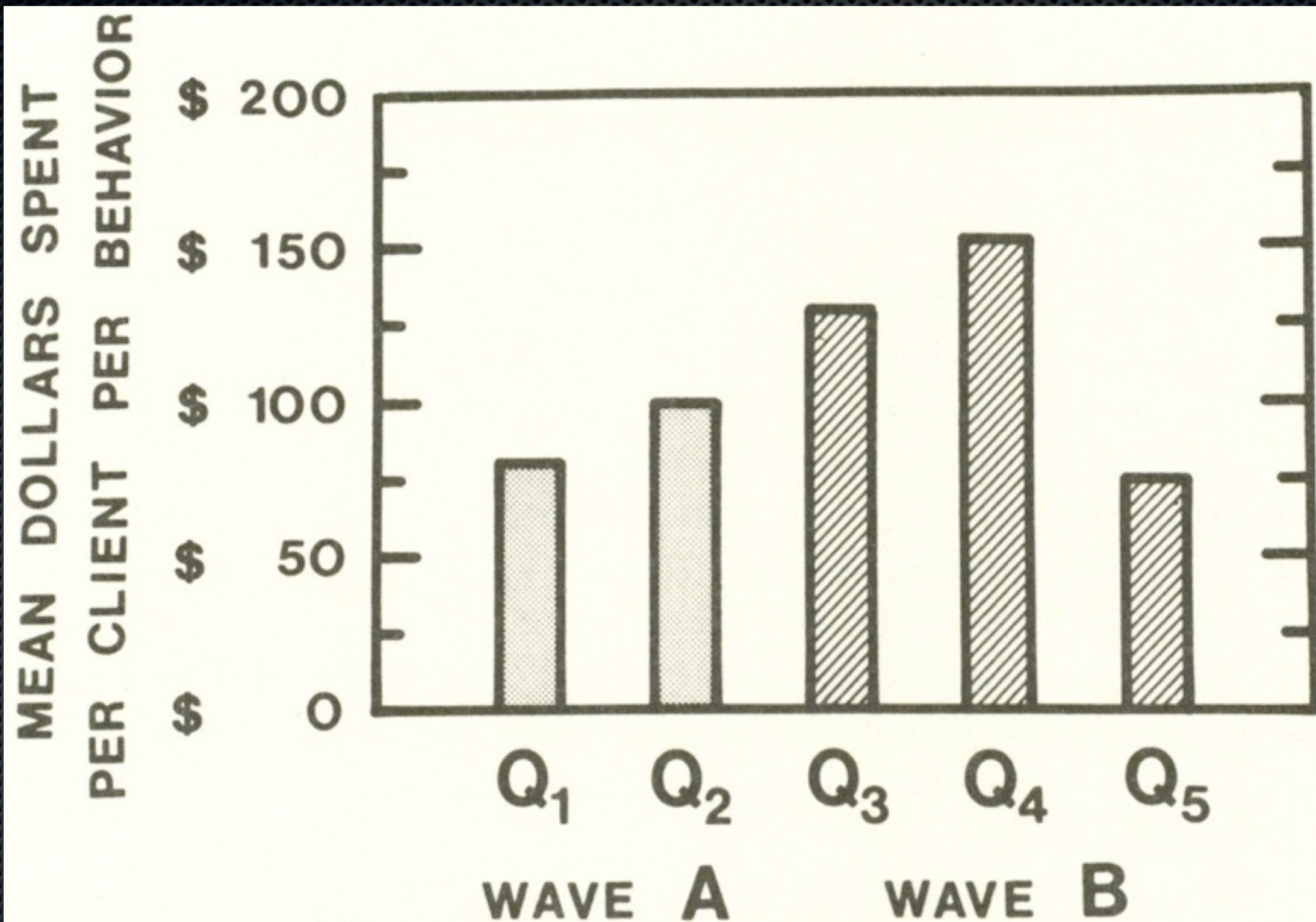


Figure 5. Average operations cost per Learning House client per behavioral effectiveness variable. From Yates, Haven, and Thoresen (1979).

evaluate costs

Assessing the value of volunteered and donated resources

for Providers, Consumers, & Family
Members

Importance

- Volunteered and donated resources may exceed the value of paid-for resources in some programs
- Potential unique contributions of volunteered time from:
 - mentors
 - former clients
 - current students
- Donated resources can include space, food, equipment...

Measuring Volunteered & Donated Resources can:

- facilitate understanding of why programs do (or don't) work
- guide replication of successful programs in new communities
- suggest where programs utilizing high amounts of volunteered and donated resources might not be replicable

$$\text{Time} \times \text{Cost per unit time} = \text{Total Value of Resource}$$

- Example
 - 10 hours \times \$50/hour = \$500 of services
- Alternatives for estimate cost per unit time:
 - Opportunity cost using current payrate
 - Replacement cost

Collecting Data on Volunteered Resources in a Human Service (Yates, Haven, & Thoresen, 1979)

PERSONNEL TIME DATA SHEET

Time-Study For All Learning House Participants, Cost-Effectiveness Analysis

Participant Name: _____

Monitoring Week: ____/____/____ through ____/____/____

| | | Monday | | Sunday | | Total | |
|--|--------------------------|--------|----|--------|----|-------|----|
| | | am | pm | am | pm | am | pm |
| Program-Related Activities (Record as mutually exclusive and in minutes, please.) | w/LH children | | | | | | |
| | w/LH parents | | | | | | |
| | w/LH staff | | | | | | |
| | community relations | | | | | | |
| | household & shopping | | | | | | |
| | phone contacts | | | | | | |
| | reading | | | | | | |
| | writing | | | | | | |
| | preparing for counseling | | | | | | |
| | preparing for other | | | | | | |
| | other: | | | | | | |
| | Totals | | | | | | |

Findings for a Residential Program for Youth

OPERATIONS AND COMMUNITY COSTS FOR LEARNING HOUSE PERSONNEL

| <i>Personnel Category (Degree)</i> | <i>Operations Cost</i> | <i>Hourly Payrate</i> | <i>Time (Hours)</i> | <i>Community Cost</i> |
|--|----------------------------|---------------------------|-------------------------|---------------------------|
| MD, JD, CPA | \$1,462 | \$45.00 | 32.5 | \$ 1,462 |
| PhD | 849 | 15.67 | 50.9 | 798 |
| MA | 2,706 | 7.78 | 829.3 | 6,452 |
| BA | 2,972 | 7.66 | 1785.2 | 13,675 |
| Paraprofessional | 0 | 5.53 | 532.3 | 2,943 |
| Undergraduate | 0 | 1.70 | 699.4 | 1,189 |
| Other (Includes Clients' Parents) | 0 | 2.00 | 297.0 | 594 |
| Total Personnel Cost | \$7,988 | | | \$27,112 |

NOTE. These data were compiled for a single two-month period. From Yates, Haven and Thoresen (1979).

Collecting data in multi-site evaluations of COSs

(COS = Consumer Operated Services)

- Develop sample spreadsheet
- Encourage adaptation and improvement by sympathetic sites
- Send to other sites with endorsement by and examples from sympathetic site, and with a brief manual
- Allow sites to add their own volunteered and donated resources, and costs per unit that they establish
- Get data quarterly on volunteered and donated resources

Volunteer and Donated Resources Worksheet

COSP

Note: Refer to the narrative document for a description of each of the categories below. Please feel free to add rows for sub-categories if you collect this level of detail. Contact Danyelle or Brian if you have questions about this worksheet or need technical assistance.

| Donated Resources: | Estimated Value: (for representative month) | How Value was Calculated: |
|--------------------|---|---------------------------|
|--------------------|---|---------------------------|

TIME AND SERVICES:

Cleaning
Reception
Secretarial
Transportation
Other (please list):

SPACE:

DONATIONS:

Food
Furnishings
Appliances
Personal
Clothing
Equipment
Transportation
Entertainment

TOTAL:

\$0.00

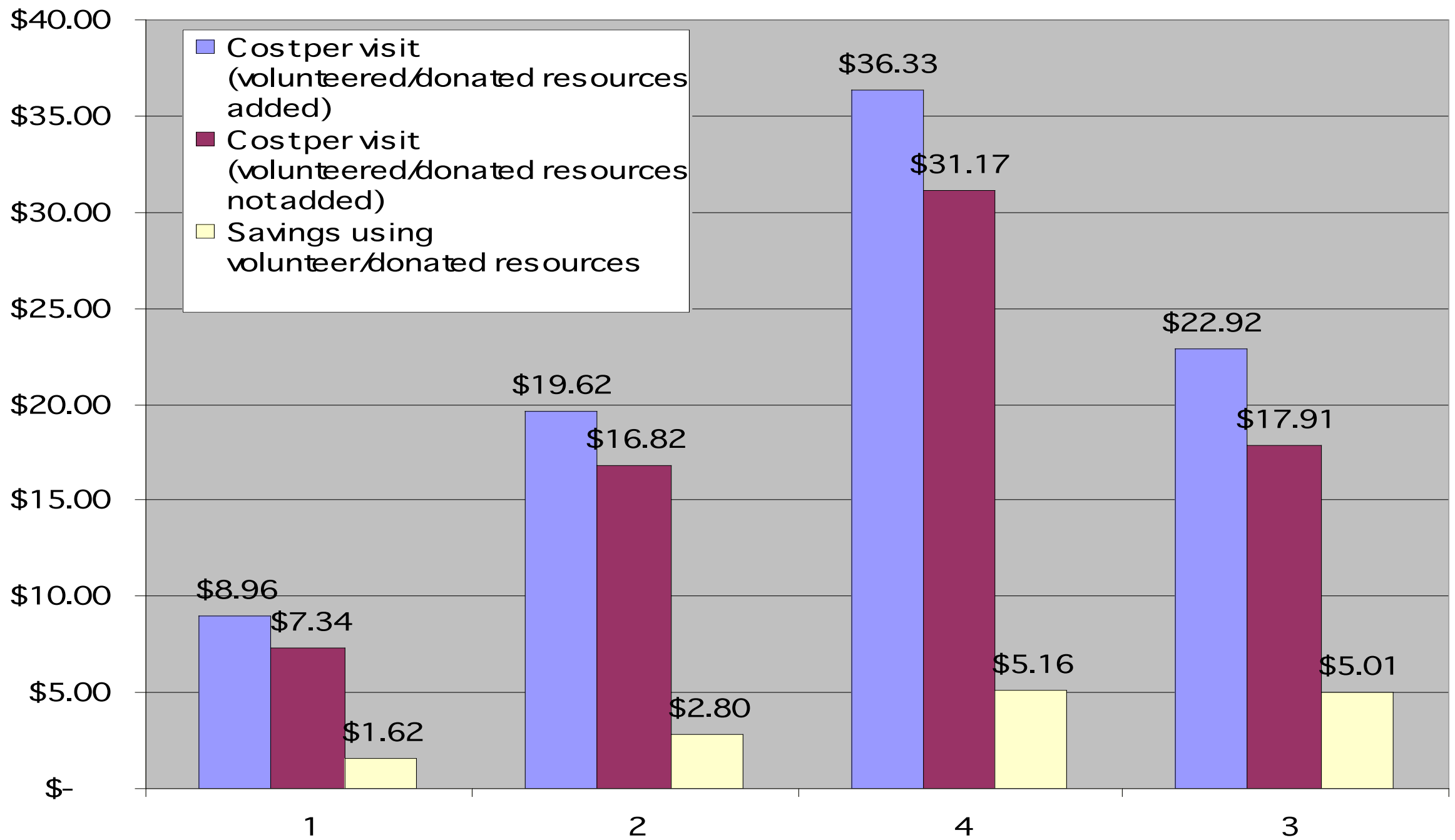
transform feared data into beneficial findings

- Volunteered and donated resources can be conceived of as:
 - something you don't have to pay for with funds
 - a monetary demonstration of a program's ability to mobilize the community to action
 - a return on monetary resources

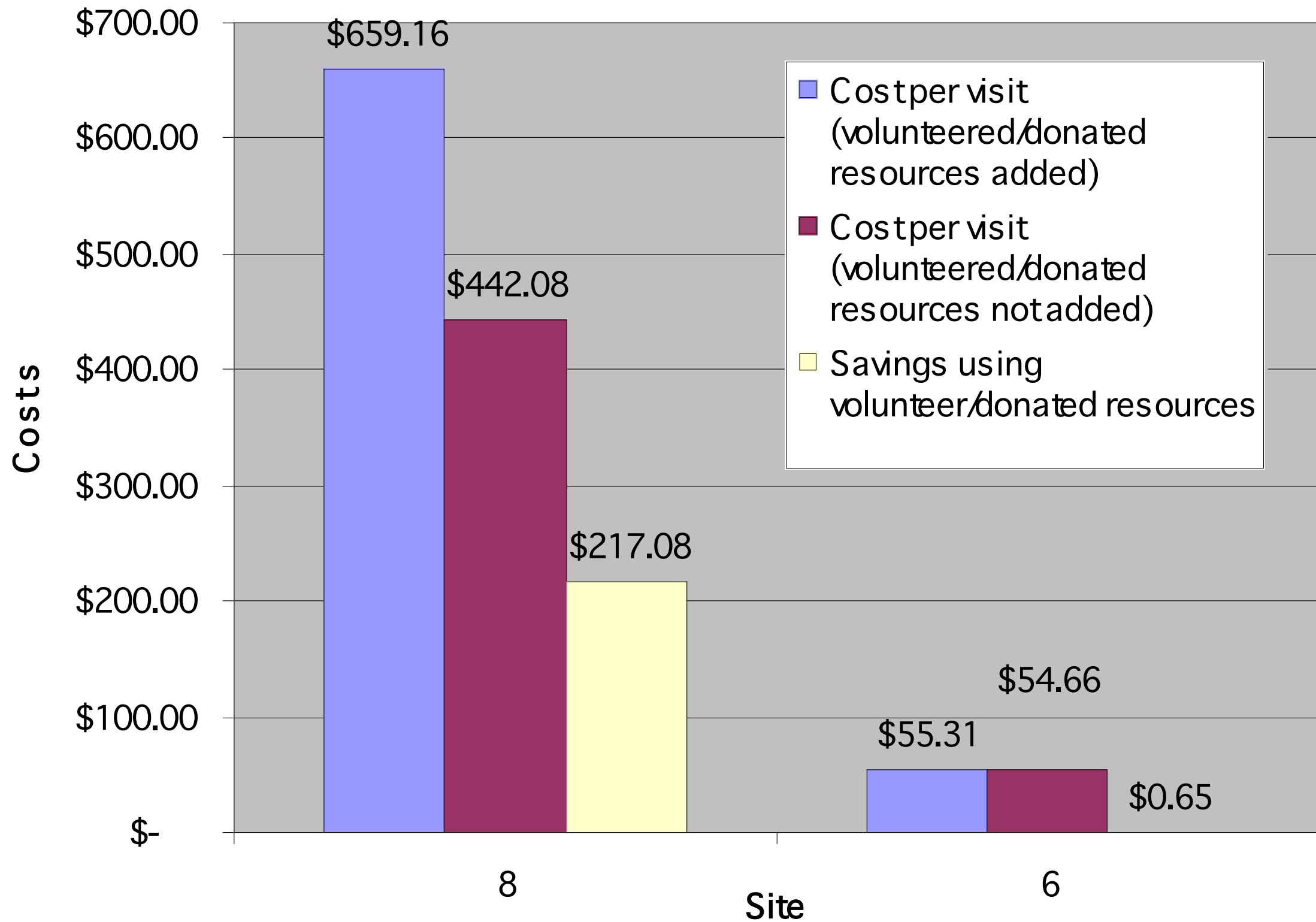
Incorporating Volunteered & Donated Resources into Total Costs

| Cost Study: Resource -> Program Activities table | | | | | |
|--|---|-----------------------------------|----------------------------------|------------------------------------|----------------------|
| | | Program Activities | | | |
| | | | | Peer Counseling | Singing |
| Paid for | | | | | |
| Volunteered | | Tutorial (3/4 hr 2x/week | | | 1 hr / week teaching |
| Paid for | | 6 ft. x 10 ft. @ \$0.65 / sq. ft. | 4 ft. x 6 ft. @ \$0.65 / sq. ft. | 12 ft. x 23 ft. @ \$0.65 / sq. ft. | |
| Volunteered | | | | | |
| Paid for | | __ hours on a \$1,000 computer | Van for __ miles @ \$ __ /mile | | 1 guitar @ \$120 |
| Volunteered | | | | | |
| Paid for | Time: receptionist @ \$7.00 / hour x 20 hours / week. | | | | |
| | Time: Executive Director @ \$10.50 / hour. | | | | |
| | Time: Janitor @ \$6.00 / hour x 8 hours / week. | | | | |
| | Time: 2 staff 3-5 hours / day, 1 @ \$7.00 / hour, 1 @ \$5.75 / hour. | | | | |
| | Space: Main room 20 ft x 40 ft @ \$0.65 / sq. ft., Kitchen (10 x 20 ft). | | | | |
| | Space: Restroom (3 x 5 ft.) | | | | |
| | Other: Coffee, sugar, creamer | | | | |
| | Other: Salad @ \$0.35 / day / consumer | | | | |
| | Other: Phones for consumers (\$108/month) | | | | |
| | Other: Newspapers for classified ads @ \$76 / 6 months. | | | | |
| | Other: Toilet paper and paper towels. | | | | |
| Volunteered | Time: Volunteers cleaning kitchen, socializing with consumers, Time: @ __ hours per week, at an estimated \$ __ per hour. Other: Books, Tables, 2 outside, for smokers' conversations,. Other: Bakery items (no cost, but pickup required). | | | | |

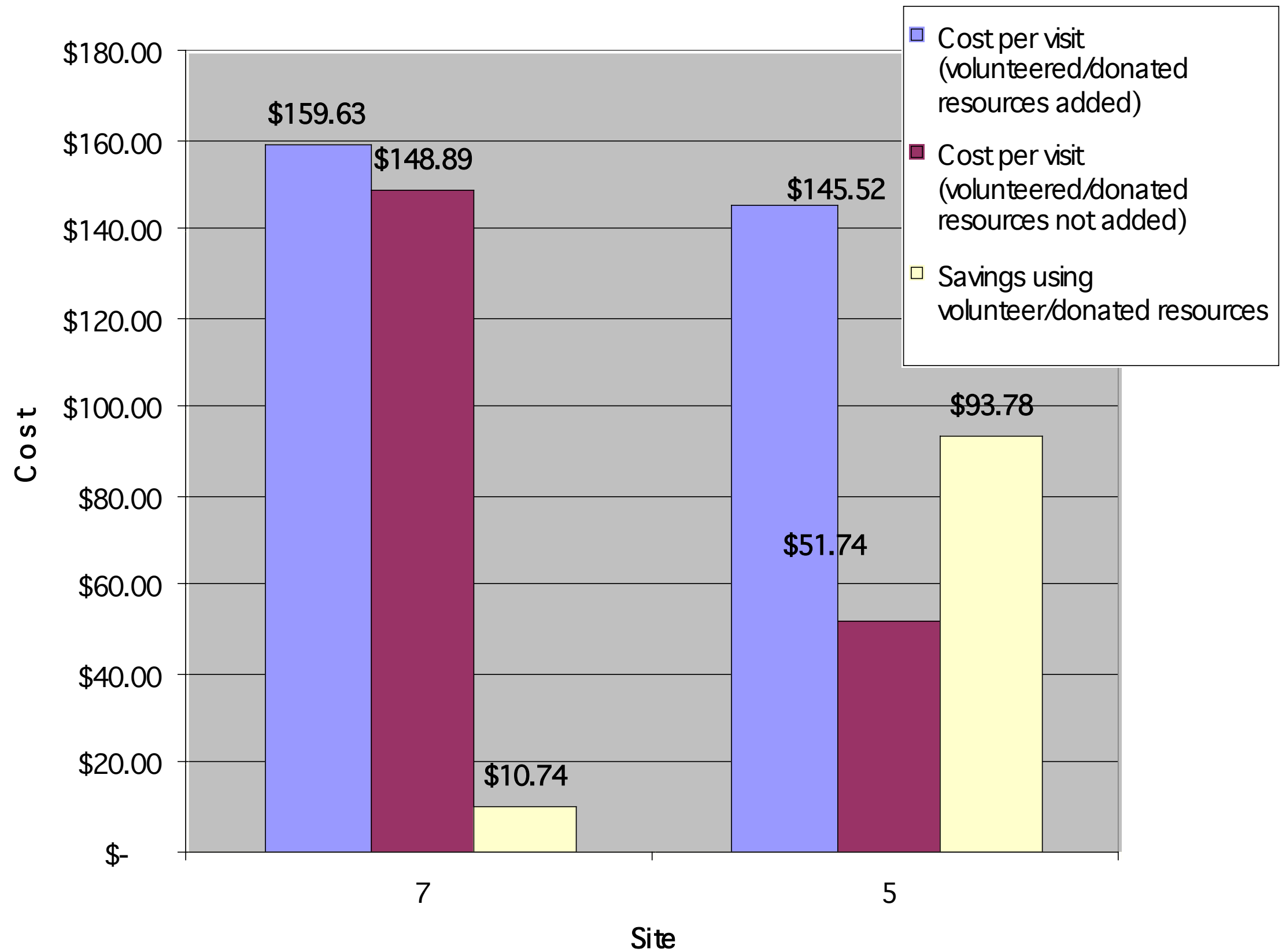
Average Cost Per Visit Drop-Ins



Average Cost per Visit Education/Advocacy



Average Costper Vist Peer Support



Summary: Volunteered and Donated Resources ...

- *Can be measured ...*
 - inexpensively
 - with little resistance from program staff or sites
- *Can be important to measure to provide ...*
 - more accurate description of resources used
 - better replication of program operations in new communities
 - reveal how resources are really being used
 - contrast “cash” and replacement value of resources

evaluate costs

measuring costs to understand programs better: examples

- ✦ Bowie Involvement Program for Parents and Youth (BIPPY)

Costs per client need not be the same

TIME PROPORTIONS AND CORRESPONDING PER CLIENT COSTS

| <i>Client</i> | <i>Time Proportion</i> | <i>Operations Cost For Client</i> |
|---------------|------------------------|---------------------------------------|
| A | .17 | \$1545 |
| B | .11 | 1335 |
| C | .21 | 1685 |
| D | .15 | 1475 |
| E | .23 | 1755 |
| F | .13 | 1405 |
| | <u>1.00</u> | |

NOTE. These data were compiled for one quarter at Learning House. From Yates, Haven, and Thoresen (1979).

Time spent on different clients

¹ The equation that performed this transformation was

$$W_{c,q} = \left(\sum_{t=1}^m r_{t,c,q} \right) / \left(\sum_{c=1}^p \sum_{t=1}^m r_{t,c,q} \right)$$

where $r_{t,c,q}$ is the rating supplied by therapist t for child c during quarter q , m is the number of therapists, and p is the number of children being treated during quarter q .

CLINIC COMPONENT COST DISTRIBUTION SHEET

| SERVICE ACTIVITIES | <i>Formal Counseling</i> | <i>Informal Counseling</i> | <i>Tutoring</i> | <i>Alternative Leisure Time Activities</i> | <i>Crisis Intervention</i> |
|----------------------------------|------------------------------|--------------------------------|-----------------|--|--------------------------------|
| 1. Case Notes | \$ 5,532.08 | | | | |
| 2. Telephone Follow-up | \$ 5,448.69 | | | | |
| 3. Individual Counseling | \$12,455.99 | | | | |
| 4. Family Counseling | \$ 4,030.92 | | | | |
| 5. Group Counseling | \$ 2,589.98 | | | | |
| 6. Vocational Counseling | \$ 120.46 | | | | |
| 7. Crisis Intervention I | | | | | \$ 657.92 |
| 8. Interagency Coordination | \$ 1,645.26 | | | | |
| 9. Intake | \$ 1,501.17 | | | | |
| 10. Supervisory Conference | | | | | |
| 11. Case Conference | \$ 2,594.61 | | | | |
| 12. Staff Meeting | | | | | |
| 13. Training | | | | | |
| 14. Supervision | | | | | |
| 15. Weekly Activity Evaluation | | | | | |
| 16. Client Evaluation | \$ 1,121.24 | | | | |
| 17. Informal Counseling | | \$ 6,606.99 | | | |
| 18. Telephone/Info. & Referral | | | | | |
| 19. Crisis Intervention II | | | | | \$ 194.60 |
| 20. Voc. Counsel./Job Placement | | \$ 64.87 | | | |
| 21. Mobilizing Commun. Resources | | | | | |
| 22. Community Development | | | | | |
| 23. Runaway Asst. Counseling | | \$ 55.60 | | | \$ 55.60 |

DISTRIBUTION OF SERVICE PERSONNEL ACTIVITIES AMONG SERVICE COMPONENTS

| <i>Service Component</i> | <i>Activities Assigned to Component^a</i> |
|--|---|
| 1. Formal Counseling | 1, 2, 3 (94%), 4, 5 (86%), 6, 8 (67%), 9, 11, 16 |
| 2. Informal Counseling | 17, 20, 23 (50%), 24 (50%), 28 |
| 3. Tutoring | 25, 26 (50%) |
| 4. Alternative Leisure Time Activities | 26 (50%), 27 |
| 5. Crisis Intervention | 7, 19, 23 (50%), 24 (50%) |
| 6. General Information and Referral | 18 |
| 7. Community Development and Mobilizing Community Resources | 21, 22 |
| 8. Parent Education Groups | 5 (14%) |
| 9. School and Court Liaison | 3 (6%), 8 (33%) |

NOTE. Activities to which the above numbers correspond are listed in Table XVII.

^a Activities 29, 30, and 31 were administered or unspecified and were distributed equally across the nine components.

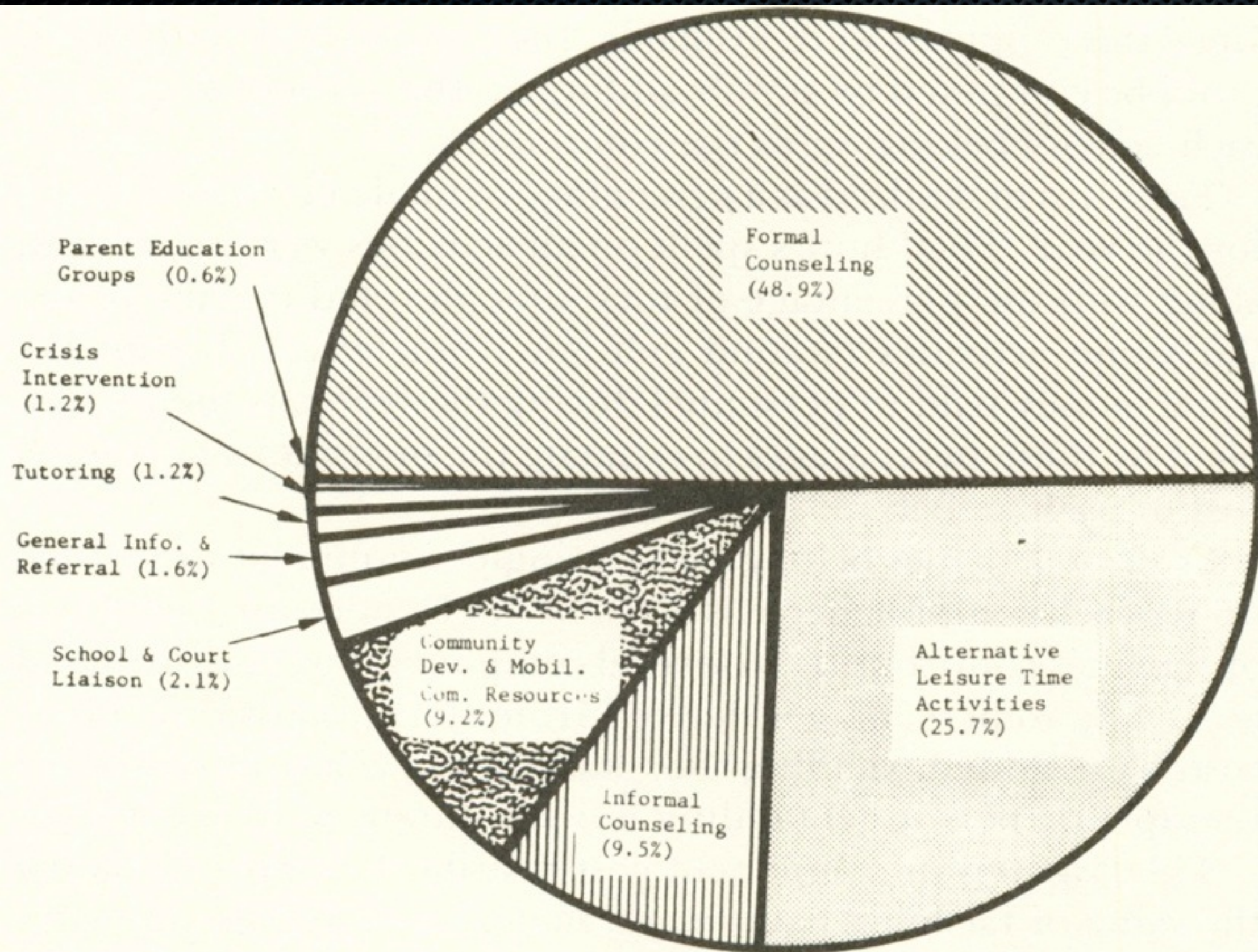


Figure 6. Pie chart showing distribution of personnel, facilities, equipment, and materials resources combined among service components of a community clinic.

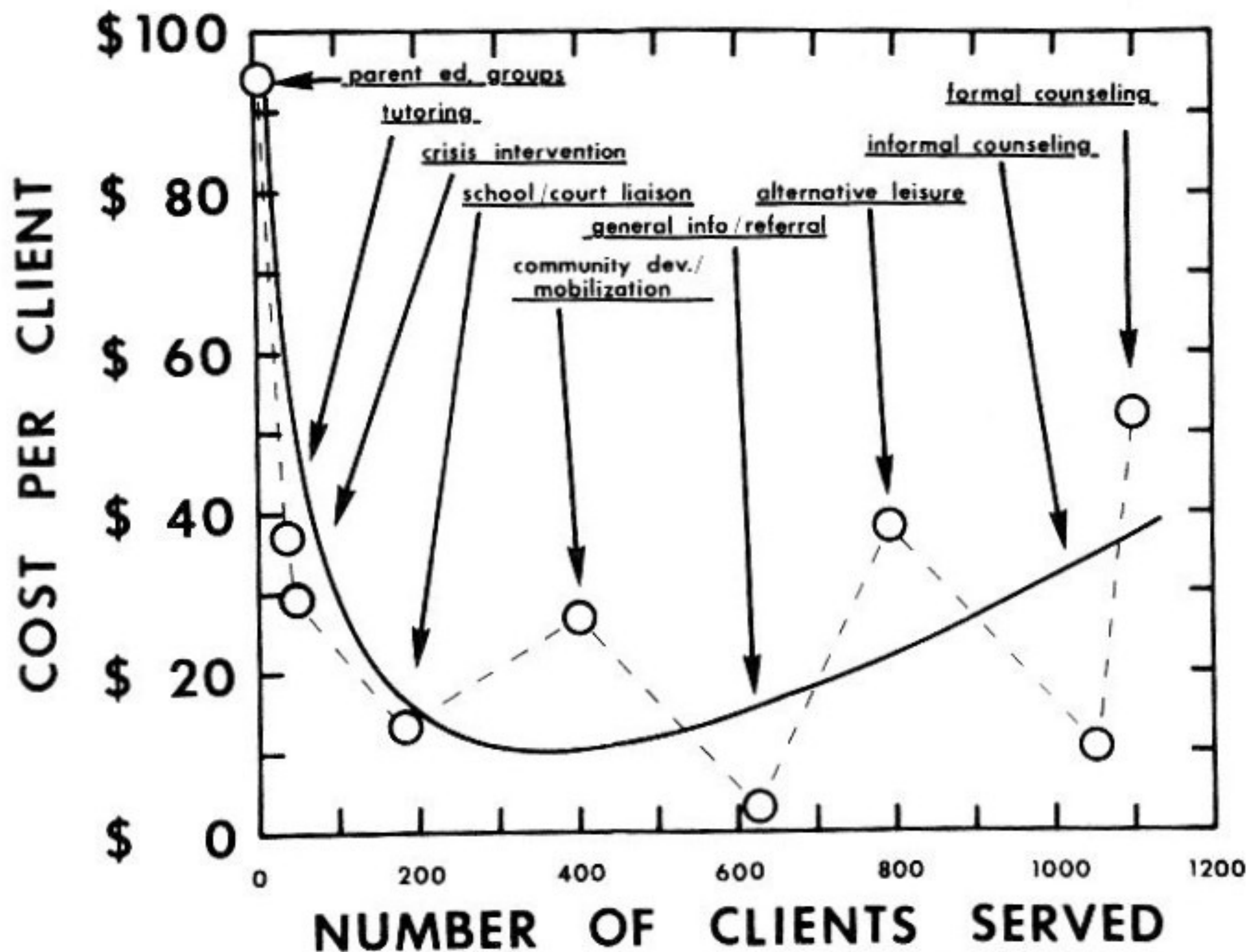


Figure 7. Examining the relationship between number of clients served in different clinic components and cost per client.

evaluate costs

my advice for measuring costs:

- ask representative of each interest group to:
- list the activities of the program--what it does
- for each activity, list the resources invested in the Activity by each interest group
- In the resulting resource → activity matrix, estimate, the amount of each resource used for each activity
- verify estimates with actual measurements

evaluate costs

activities (examples)

- Individual Counseling
- Group Counseling
- Acupuncture
- Pharmacotherapy
- Education about HIV and STDs
- Vocational Counseling
- Case Management

evaluate costs

resources (examples)

- time and skills of treatment personnel
- administrators and office personnel
- space, furniture, equipment
- transportation
- communication services
- liability insurance
- financing

evaluate costs

construct Resource → Activity Matrices

- provider perspective
- consumer perspective
- consumer family perspective
- taxpayer perspective
- community perspective
- funder perspective
- evaluator perspective

evaluate costs

Resource → Activity Matrix

| Program Resources ↓ | ← Program Activities → | | | |
|------------------------|------------------------|------------------|-----|------------|
| | Individual Counseling | Group Counseling | ... | Evaluation |
| Personnel | | | | |
| Space | | | | |
| ... | | | | |
| Administration | | | | |

evaluate costs

Resource Use: Resource → Activity Matrix I

| Program Resources ↓ | ← Program Activities → | | | |
|------------------------|------------------------|------------------|-----|----------------|
| | Individual Counseling | Group Counseling | ... | Evaluation |
| Personnel | 200 hours | 300 hours | ... | 40 hours |
| Space | 300 square feet | 600 square feet | ... | 60 square feet |
| ... | | | ... | |
| Administration | | | ... | |

handout page 5

overview of cost-inclusive evaluation

Resource Use

| Resources ↓ | ← Activities → | | | | Total of Resources |
|-------------------------------|-----------------------|------------------|-----|------------|--------------------|
| | Individual Counseling | Group Counseling | ... | Evaluation | |
| Personnel | | | ... | | |
| Space | | | ... | | |
| ... | | | ... | | |
| Total Cost of Direct Services | | | ... | | |
| Administration | | | ... | | |
| Total of Resources | | | | | |

evaluate costs

Unit Cost: Resource → Activity Matrix 2

| Resources ↓ | ← Activities → | | | |
|----------------|--------------------------|---------------------|-----|---------------------|
| | Individual Counseling | Group Counseling | ... | Evaluation |
| Personnel | \$60/hour | \$40/hour | ... | \$30/hour |
| Space | \$40/square foot | \$20/square foot | ... | \$20/square foot |
| ... | | | ... | |
| Administration | | | ... | |

handout page 6

overview of cost-inclusive evaluation

Unit Costs

| Resources ↓ | ← Activities → | | | | Total of Resources |
|-------------------------------|-----------------------|------------------|-----|------------|--------------------|
| | Individual Counseling | Group Counseling | ... | Evaluation | |
| Personnel | | | ... | | |
| Space | | | ... | | |
| ... | | | ... | | |
| Total Cost of Direct Services | | | ... | | |
| Administration | | | ... | | |
| Total of Resources | | | | | |

evaluate costs

Use x Cost: Resource → Activity Matrix 3:

| Resources ↓ | ← Activities → | | | |
|----------------|--|--|-----|--|
| | Individual Counseling | Group Counseling | ... | Evaluation |
| Personnel | 200 hours x \$60/hour | 300 hours x \$40/hour | ... | 40 hours x \$30/hour |
| Space | 300 square feet x \$40/square foot | 600 square feet x \$20/square foot | ... | 60 square feet x \$20/ square foot |
| ... | | | ... | |
| Administration | | | ... | |

handout page 7

overview of cost-inclusive evaluation

Resource Use x Unit Cost = Resource Cost

| Resources ↓ | ← Activities → | | | | Total of Resources |
|-------------------------------|-----------------------|------------------|-----|------------|--------------------|
| | Individual Counseling | Group Counseling | ... | Evaluation | |
| Personnel | | | ... | | |
| Space | | | ... | | |
| ... | | | ... | | |
| Total Cost of Direct Services | | | ... | | |
| Administration | | | ... | | |
| Total of Resources | | | | | |

evaluate costs

Resource → Activity Matrix 3 after calc's

| Resources ↓ | ← Activities → | | | |
|----------------|--------------------------|---------------------|-----|------------|
| | Individual Counseling | Group Counseling | ... | Evaluation |
| Personnel | \$12,000 | \$12,000 | ... | \$1,200 |
| Space | \$12,000 | \$12,000 | ... | \$1,200 |
| ... | | | ... | |
| Administration | | | ... | |

evaluate costs

total, add overhead: Resource → Activity Matrix 4

| Resources ↓ | ← Activities → | | | | Total of Resources |
|----------------|--------------------------|---------------------|-----|------------|-----------------------|
| | Individual Counseling | Group Counseling | ... | Evaluation | |
| Personnel | \$12,000 | \$12,000 | ... | \$1,200 | \$50,000 |
| Space | \$12,000 | \$12,000 | ... | \$1,200 | \$30,000 |
| ... | ... | ... | ... | ... | ... |
| Administration | | | ... | | \$100,000 |

evaluate costs

apportion overhead 1 of 2: Resource → Activity Matrix 5

| Resources ↓ | ← Activities → | | | | Total of Resources |
|-------------------------------------|--------------------------|---------------------|-----|------------|-----------------------|
| | Individual Counseling | Group Counseling | ... | Evaluation | |
| Personnel | \$12,000 | \$12,000 | ... | \$1,200 | \$50,000 |
| Space | \$12,000 | \$12,000 | ... | \$1,200 | \$30,000 |
| ... | | | ... | | |
| Total Cost of Direct Services | \$35,000 | \$30,000 | ... | \$7,000 | \$100,000 |
| Administration | | | ... | | \$100,000 |

evaluate costs

apportion overhead 2 of 2: Resource → Activity Matrix 6

| Resources ↓ | ← Activities → | | | | Total of Resources |
|----------------------------------|--------------------------|---------------------|-----|------------|-----------------------|
| | Individual Counseling | Group Counseling | ... | Evaluation | |
| Personnel | \$12,000 | \$12,000 | ... | \$1,200 | \$50,000 |
| Space | \$12,000 | \$12,000 | ... | \$1,200 | \$30,000 |
| ... | | | ... | | |
| Total Cost of Direct Services | \$35,000 | \$30,000 | ... | \$7,000 | \$100,000 |
| Administration | \$35,000 | \$30,000 | ... | \$7,000 | \$100,000 |

evaluate costs

Resource Cost TOTALS

| Resources ↓ | ← Activities → | | | | Total of Resources |
|----------------------------------|--------------------------|---------------------|-----|------------|-----------------------|
| | Individual Counseling | Group Counseling | ... | Evaluation | |
| Personnel | \$12,000 | \$12,000 | ... | \$1,200 | \$50,000 |
| Space | \$12,000 | \$12,000 | ... | \$1,200 | \$30,000 |
| ... | | | ... | | |
| Total Cost of Direct Services | \$35,000 | \$30,000 | ... | \$7,000 | \$100,000 |
| Administration | \$35,000 | \$30,000 | ... | \$7,000 | \$100,000 |
| Total Cost of All Services | \$70,000 | \$60,000 | ... | \$14,000 | \$200,000 |

evaluate costs

questions, answers