

THE PRACTITIONER'S GUIDE TO COST ANALYSIS

PART 2: CONDUCTING YOUR FIRST COST ANALYSIS Using the Readiness Assessment Decision Tree



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Introduction

You have decided (or have been directed!) to conduct a cost analysis (CA) for your program. You know that CA results can demonstrate the value of the services you provide. And you recognize the importance of the CA process for helping your organization make decisions about where to focus effort. But where do you begin to tackle this complex process? And how do you know if you have the information at hand and have taken the right steps to produce a CA that accurately depicts program costs?

This document, Part 2 of the Practitioner’s Guide to Cost Analysis, will help you get started with CA. In combination with the Readiness Assessment Decision Tree, you’ll identify the information you currently collect or can calculate, and then learn immediate next steps to take for capturing the monetary value of resources used to deliver services.

In this guide, you’ll find ideas for how to approach CA depending on the data you have available, and considerations for collecting information that will produce the most accurate and comprehensive assessment of a program’s efficiency. As you work through the Readiness Assessment Decision Tree (located on page 22), you’ll better understand the steps that need to be taken to embark on a CA initiative, from being able to identify your program’s core services; to attaching your budget to service delivery, outputs, and outcomes; to knowing how to contextualize your costs. As a companion document, we provide a template to help you conduct a simple CA: calculating the cost per family to deliver services.

<https://friendsnrc.org/activities-that-support-collaboration/cost-analysis>

If you haven't yet reviewed Part 1, *First Steps*, of the "The Practitioner's Guide to Cost Analysis," visit the FRIENDS website to download the pdf:

<http://friendsnrc.org/activities-that-support-collaboration/cost-analysis>

This document discusses the importance of engaging stakeholders in the CA process, describes how to collect and process data, and offers best practices for communicating CA results.

How to Use this Guide

This guide was created to provide practical advice for how to conduct a CA based on your organization's needs and the data you have available. Depending on your comfort with and interest in CA, you may choose to read this document from beginning to end. However, the document has also been designed to be informative for those who want to skip around and read the sections most interesting or relevant to their work. Refer to the Readiness Assessment Decision Tree on page 22 for ideas about which sections to read first.

This guide is also intended to act as a companion to the costing template, available at <https://friendsnrc.org/activities-that-support-collaboration/cost-analysis>. Sections on "Budget Data" (page 5), "Outputs and Intensity" (page 8), and "Calculating Cost per Family" (page 9) will help you use the template to calculate costs for your program.

Identifying Your Program's Core Services

The first step in being able to conduct a CA is identifying your program's core services. You will need to attach costs to particular services, and it may be confusing or misleading if you include costs of providing services that are not truly central to your program. For example, if your program held a one-time community event, but there are no plans to hold similar events in the future, including those costs would yield a misleading estimate of your true costs. Generally speaking, focusing on the cost of core services will yield the most informative CA.

The question of what you should consider your program's core services is outside of the scope of this guide, because it largely comes down to what your organization values and prioritizes. You might try some of the following strategies to determine your program's core services:

Check with the program developer. If you are using an evidence-based program, the developer of the program will have feedback on what should be considered the core service or services.

Engage with stakeholders. This will also be useful for strategic planning, decisions regarding allocation of resources and service delivery, and securing new funding. Stakeholders are anyone affected by a program, including participants, employees, managers, board members, and community members.

Reflect on your own experiences and inclinations as a professional. What would you fight hardest to keep? The answer will tell you what you think your core services are.

For a more detailed discussion of this topic, visit the links below to the FRIENDS Evaluation Toolkit. The section on building a logic model may be particularly relevant.

<https://friendsnrc.org/evaluation-toolkit/evaluation-planning>

<https://friendsnrc.org/evaluation-toolkit/evaluation-planning/logic-models>

Budget Data

DIRECT AND INDIRECT COSTS

A thorough CA incorporates all costs associated with delivering a service. Often, obvious costs, such as program employee salaries, are accounted for, while other, less obvious costs, such as volunteer time, training-related expenses, or language translation services, are unintentionally left out. The most complete CA takes into consideration both direct costs and indirect costs.

Direct costs. Costs that can be traced directly to a program, service, or product.

Indirect costs. Costs that are not directly traced to a program, service, or product, but are necessary for the organization to function and support service delivery.

An organization offering multiple services will need to determine an appropriate method of allocating indirect costs across projects.

Direct Costs	Indirect Costs
Staff salaries & fringe benefits	Executive and administrative staff
Equipment needed to deliver a particular service (program materials, project-specific laptop)	Equipment needed to support the organization as a whole (copy machine, printer, computers for general office use)
Consultant services	Facilities (rent, maintenance, janitorial)
Travel	Insurance
Participant incentives	Office supplies

Direct and indirect costs can be either fixed or variable. Fixed costs do not change (e.g., staff salaries, rent, or equipment lease rates), whereas variable costs change with level of output. Variable costs include any cost that would vary depending on the number of people served. For example, if you provide food as part of delivering a program, employ a part-time instructor, facilitator, or translator, or rent a meeting space for specific events, those costs will vary with changing numbers of participants and events. The primary consideration with variable costs is how you will time limit your analysis so that costs are appropriate to the service. For example, costs associated with public awareness might be more meaningfully limited to the length of a particular campaign, rather than calculated annually or quarterly.

There will be some situations in which direct costs are associated with multiple services. For example, a staff person might work on more than one service, or you might use a set of materials to provide more than one service. In these situations, assign costs proportionally in a way that reflects how much of the cost goes to each service. This will depend at least in part on the unit of cost.

The costs associated with a staff person will usually be by a unit of time – an annual salary or an hourly wage. Therefore, if you have a staff person who works on providing more than one service, it will often make sense to estimate how much of her time is spent on each service, and assign the cost of her pay and fringe benefits accordingly. If the annual cost of employing a staff person (including salary and fringe benefits) is \$50,000, and she spends 20% of her time working on parent education, then \$10,000 of her time should be figured into the annual cost of providing parent education.

On the other hand, the cost of a material you produce might be per item. Maybe your program prints out and distributes a brochure with information about available services in the community, and you distribute it as part of a parent café every time you hold one, but you also make sure case managers have them to distribute as needed with clients. In that case, because the cost is per brochure, you'd want to estimate what proportion of the brochures you produce to support the parent café, and what proportion support case management. If you spend \$1,000 a year producing the brochures, and 90% of them are distributed in parent cafes, then \$900 in brochures might go into your annual cost of providing parent cafes.

Less obvious is how to assign indirect costs across multiple services. Three possible bases for determining proportionality are:

1. Funding
2. Direct costs
3. Time

In theory, funding, costs, and time spent should be all roughly proportional, as your organization's funding is likely based on how much it costs to deliver a service, and how much

time it requires (which, of course, should also be reflected in the cost of the service.) In reality, these three things probably don't line up so neatly. This is a good thing when it comes to figuring out how to assign indirect costs, because you have a few options at your disposal, and one may be easier to figure out and explain than the others.

To be clear, proportionally assigning indirect costs should not affect your total indirect costs, because that figure should be based on your actual costs to support the organization through indirect costs such as rent, administrative staff salaries, and office equipment. Rather, the assumptions you make assigning indirect costs will only affect the costs per service.

Furthermore, although these three bases are not going to be perfectly proportional to one another, they should be quite close – particularly funding and direct costs. So, if they seem far off, check your math (or your organization's approach!). As you will see in the example below, the estimates are different based on different assumptions, but not dramatically so.

Example: Assigning Indirect Costs

Your organization's total annual funding is \$1,000,000. Of this, \$600,000 (60%) is federal funding for case management, \$300,000 (30%) is state funding for parent education, and \$100,000 (10%) is private funding for public awareness activities. Of your total funding, \$800,000 goes to direct costs. \$400,000 (50%) of your direct costs are for case management (consisting largely of staff time), \$250,000 (25%) support parent education (to cover staff time and materials), and \$250,000 (25%) goes to public awareness through a combination of staff time, materials, event costs, and contract employee time. The remaining \$200,000 go to indirect costs, which include rent, office equipment, and support staff. 75% of your staff's time is devoted to case management, 15% is spent preparing for and delivering parent education, and the remaining 10% goes to public awareness activities.

The table below lays out how changing the basis for how indirect costs are assigned affects total cost to deliver the service.

		Indirect costs by		
		Funding	Direct costs	Staff time
Case management	Direct costs \$400,000	\$200,000		
		X 60% =	X 50% =	X 75% =
		\$120,000	\$100,000	\$150,000
		+ \$400,000 =		
Total cost to deliver service		\$520,000	\$500,000	\$550,000
Parent education	Direct costs \$250,000	\$200,000		
		X 30% =	X 25% =	X 15% =
		\$60,000	\$50,000	\$30,000
		+ \$250,000 =		
Total cost to deliver service		\$310,000	\$300,000	\$280,000
Public awareness	Direct costs \$250,000	\$200,000		
		X 10% =	X 25% =	X 10% =
		\$20,000	\$50,000	\$20,000
		+ \$250,000		
Total cost to deliver service		\$270,000	\$300,000	\$270,000

Option 1: assign indirect costs proportional to funding

Since indirect costs are generally associated with supporting an organization, it makes sense to make indirect costs proportional to the funding your organization gets to provide each service. Consider this the default option: if it will work for your organization (and in most cases it will), there is no need to consider Options 2 and 3.

In the example above, 60% of the organization’s funding is to support case management. To assign indirect costs to case management, you would multiply your total direct costs (\$200,000) times 60%, which equals \$120,000. You would add this \$120,000 to the direct costs associated with providing case management (\$400,000) for a total cost of \$520,000 to deliver the service.

		Indirect costs by		
		Funding	Direct costs	Staff time
Case management	Direct costs \$400,000		\$200,000	
		X 60% =	X 50% =	X 75% =
		\$120,000	\$100,000	\$150,000
			+ \$400,000 =	
Total cost to deliver service		\$520,000	\$500,000	\$550,000

Option 2: assign indirect costs proportional to direct costs

There are situations in which assigning indirect costs in proportion to funding might not work – for example, if you have one funding source, multiple services, and no clear way to determine what proportion of funding should go to each. One way to approach this is to assign all direct costs to services, determine what proportion of your total direct costs go to each service, and then assign indirect costs according to the same proportion.

To return to our previous example, although 60% of the organization’s funding is to support case management, it makes up 50% of direct costs. To assign indirect costs to case management, you would multiply your total direct costs (\$200,000) times 50%, which equals \$100,000. You would add this \$100,000 to the direct costs associated with providing case management (\$400,000) for a total cost of \$500,000 to deliver the service.

		Indirect costs by		
		Funding	Direct costs	Staff time
Case management	Direct costs \$400,000		\$200,000	
		X 60% =	X 50% =	X 75% =
		\$120,000	\$100,000	\$150,000
			+ \$400,000 =	
Total cost to deliver service		\$520,000	\$500,000	\$550,000

Option 3: assign indirect costs proportional to staff time

Alternatively, you could assign indirect costs according to how much time your staff collectively spends on each service. In the example above, 75% of staff time is devoted to case management. To assign indirect costs to case management, you would multiply your total direct costs (\$200,000) times 75%, which equals \$150,000. You would add this \$150,000 to the direct costs associated with providing case management (\$400,000) for a total cost of \$550,000 to deliver the service.

		Indirect costs by		
		Funding	Direct costs	Staff time
Case management	Direct costs		\$200,000	
		X 60% =	X 50% =	X 75% =
		\$120,000	\$100,000	\$150,000
			+ \$400,000 =	
Total cost to deliver service		\$520,000	\$500,000	\$550,000

Ultimately, because indirect costs can be assigned in a number of different ways, you should make a decision based on what you know about your organization and the services you provide. In any such areas that require your discretion, your decision simply has to make sense and be easily explained to others. Be sure to document your decision, including alternative approaches, the implications of each, and your reasoning behind your choice, so you can address any questions that may arise.

VOLUNTEER/IN-KIND COSTS

The final cost you'll want to consider are those which don't actually cost you anything – in-kind donations, including volunteer time. Some examples of this might be use of a building or meeting space, donations of food or supplies, use of volunteer time to staff an event, or professional services offered pro bono.

Incorporating in-kind donations in your cost estimates is in some instances necessary because these donations have real value, and are part of the true cost of delivering services. Therefore, if you are using CA to assess the feasibility of reproducing a program at another location, or expanding it, considering in-kind donations will be essential to understand costs. After all, you might not be able to count on getting similar donations elsewhere.

However, there will be situations in which incorporating in-kind donations into your costs might be easily misinterpreted. If you expect your audience to be looking mostly at the bottom line cost per family, with the presumption that "less is more," you should be wary of including in-

kind donations into cost estimates, as they will make your program look more costly than it actually is. Even in this situation, it's still a good idea to somehow reference how you are making use of in-kind donations, as doing so is helping your program contain costs.

Your CA doesn't have to include an exhaustive accounting of in-kind donations. Do a quick scan – check with management, service providers, anyone who might know of in-kind donations being used to deliver services. Once you know how your organization makes use of in-kind donations to deliver services, you have to figure out how to monetize them. Usually, the best practice will be to find out the fair market rate for the donation. If volunteers staff an event, how much would it cost to pay people to do the same work? If you have use of a building for free, how much would it cost to rent it? Incorporate these costs into your estimates of delivering services. These will often be directly attached to delivering services, and therefore grouped with direct costs, but you might have some in-kind donations that would fall into indirect cost territory. For example, if you have a volunteer who comes in once a week to do data entry or help with administrative work, that person's time would be grouped with indirect costs.

Outputs and Intensity

Outputs refer to activities, services, and the recipients of services. Examples of outputs include numbers of children or families served, numbers of workshops, classes, or events offered, and materials created or distributed. Outputs will often be a key way of understanding and contextualizing your costs as a denominator or unit of cost – for example, cost per family served, or cost per workshop or event.

Depending on the nature of the service you provide, you may need to incorporate intensity, or dosage. Intensity or dosage refers to the amount of the service delivered. Examples include number of hours in a parenting class and number of home visits per month. It may be important to distinguish between the intended amount, the amount offered, and the amount participants received. For example, a parenting class may be designed to be offered for one hour a week for five weeks, but perhaps due to weather you had to skip a week, and while some participants attended every session offered, some attended only one or two.

You might be dealing with a fairly broad range of intensities depending on the needs of the individual families you serve -- for example, a home visiting program in which particularly high-need families get more visits and stay in the program longer than other, lower-risk families. In cases such as these, using an average may actually obscure typical service delivery, because averages are very sensitive to extreme values.

One possibility is looking at the modal value (see inset) – what is the service intensity for most families you serve? The other possibility is estimating costs for two or more typical groups. For example, if a third of the families you serve are considered to be very high-need, and get visits once a month for a year or more, but the other two-thirds get a visit once a month for about six months, you could calculate a cost per family for each group. In that situation, you would have to first divide your costs between the groups. Since costs for home visiting programs are going to be largely tied to home visitor time, you might use that as the basis for dividing the two groups – how much time do home visitors spend on serving high-need families, and how much on lower-need families? As you select a method, it’s important to consider what will be most meaningful given the nature of the service you provide, as well as your goals for conducting a CA.

Modal value, or mode

The number that occurs most frequently in a particular data set.

Family	Number of weeks
Jones	5
Lee	6
Garcia	8
Williams	8
Johnson	9

In the example above, the modal value would be 8, because it occurs more frequently than any other number.

Calculating Cost to Deliver Services

Broadly, calculating the cost per family to deliver services is as simple as:

$$\frac{\text{Costs of delivering services}}{\text{Number of families served}}$$

But, as discussed in the previous section, this gets complicated:

$$\text{Cost of delivering services} = \text{direct costs} + \text{indirect costs} + \text{value of donated resources}$$

And, as explained above, if your organization provides multiple services, you will likely have costs that are spread across one or more services. In that situation, you will have to determine a relative amount of a cost that goes to providing this particular service.

Likewise, number of families served is not always straightforward:

- Some families need more time in the program than others
- Sometimes you serve more families than at other times
- You will have to somehow account for attrition

Averages are often the best way to deal with variation in the number of families served. Depending on the nature of the service, you can find average numbers served by unit of service delivery (such as a class or support group) or by a unit of time – a year will often align well with the majority of your costs.

Dealing with attrition is a bit more complex and will require some judgment on your part. On one hand, there is an assumption that some of the families receiving services will not finish or drop out of your program, and there is a real cost of the services that have been provided to that family. On the other hand, treating families that dropped out as equivalent to those that remained in the program inaccurately deflates the cost per family. Doing so would also obscure the true cost of serving a family as intended by the model, and just generally belies our understanding of what “families served” actually means.

You have a few options when accounting for attrition. The most conservative is to only count the families who completed the program as intended in your count of families served. This approach essentially treats the families that drop out as being part of the cost of serving the families that remain, which can be a reasonable assumption, particularly if your program is trying

Why cost per family?

Throughout this guide, we refer to calculating cost per family – rather than, for example, participant or child served. This is because the family is the most meaningful unit of analysis for most CBCAP programs. Regardless of who directly receives services, the goal of all CBCAP programs is to improve the functioning of, and outcomes for, the entire family. Furthermore, most CBCAP program staff would consider one family as important as another – regardless of, say, how many children or adults were a part of that family – while a per child or per participant calculation would imply that serving larger families would be more efficient, or a better value. However, there are certainly reasons a program would want to calculate by another unit. As always, make the choice based on what best fits your program’s service delivery model, goals, and needs.

to cast a wide net in order to destigmatize services, and/or reach the families that need your services the most.

Another approach would be to count families in proportion to how much of the service they received. For example, if you have 10 families that start a 5-week parenting class, their attendance might look like this:

	Number of families	Dosage		Families served
	2 families	1 week	2*20%	0.4
	1 family	2 weeks	1*40%	0.4
	2 family	4 weeks	2*80%	1.6
	5 families	5 weeks	5*100%	5
Total	10 families	5 weeks		7.4

In this example, two families dropped out after the first week of the program (receiving 20% of services) and another family dropped out after week 2 (40% of services). Two additional families attended all but the last week (80% of services), and five of the families completed the program as intended (100% of services). If you took this approach, you would count your number of families served as 7.4. This is, of course, not a unit that is natural to the real world, because there is no such thing as 2/5 of a family. However, you can use the number to calculate cost per family, without necessarily reporting serving 7.4 families.

We have provided some simple costing templates to help you calculate cost per family. They can be found at <https://friendsnrc.org/activities-that-support-collaboration/cost-analysis>.

Outcomes

DISTINGUISHING BETWEEN OUTPUTS AND OUTCOMES

Moving beyond cost per service, or per family served, will require some kind of outcomes data. Outcomes refer to the *impact* of a service, frequently tapping into changes of:

1. skills or knowledge
2. attitude or opinion
3. behavior
4. circumstance

Outcomes are demonstrations of the difference targeted activities and participations have made. For example, depending on the nature of your program, outcome measures could track changes in knowledge or attitudes (as a result of a training or educational intervention), or physical environment (as a result of a home visiting program, or teacher professional development).

If the program is successful in providing services, what changes will program participants experience? Generally, outcomes describe 'who... will do... what' as a result of program services. Outcomes can be:

- short-term (for example, changes in attitude, beliefs, and knowledge)
- intermediate (perhaps around developing and practicing new skills)
- long-term (including permanent changes at an individual level or changes that create an impact on larger social structures)

For a more detailed discussion of outcomes, including a menu of outcomes and indicators commonly used by prevention programs, see the FRIENDS evaluation toolkit:

<https://friendsnrc.org/evaluation-toolkit/evaluation-planning/logic-models/outcomes>

<http://friendsnrc.org/evaluation-toolkit/menu-of-outcomes-and-indicators>

CONSIDERATIONS FOR CHOOSING AN OUTCOME TO MEASURE

If you are considering collecting new data on an outcome, there are a few points to consider to ensure that you will get meaningful and useful information:

Central to the goal of the service

An outcome should be closely tied to the goal of the service. For instance, if your program aims to improve family protective factors, a tool such as the Protective Factors Survey is going to be more persuasive evidence that your program works than would be, say, evidence that the parents you serve are more likely to obtain a GED.

Feasibility

When selecting an outcome, it is important to consider the feasibility of measuring and analyzing the costs associated with that outcome. When and how will data be collected? Will the people collecting data need training to do so? How will data be entered and merged with accuracy and efficiency?

Reliability & validity

A measurement tool should be valid, meaning that it actually measures what it intends to. For example, you would want a tool that measures capacity to engage in child abuse to be

accurately capturing that capacity, rather than some other concept that is sometimes but not always related to child abuse, such as depression or poverty. Measurement tools should also be reliable, meaning that they produce a consistent measure. This means that you could expect the same respondent to get the same score on two different occasions (provided nothing about her situation had changed), and that two people with similar characteristics of interest – for example, feelings of postpartum depression – should get similar scores. Validated measurement tools have undergone extensive testing to determine that they both measure what they intend to, and that they produce a consistent measure.

Why you shouldn't design your own survey

Many program staff are tempted to write a survey themselves rather than undergo the process of finding an appropriate existing survey. Unfortunately, this approach rarely yields good data. A well-written survey looks simple, but its design process is long, involved, and complex. It is extremely difficult to create survey questions that are understood by all respondents in exactly the same way, and yield clearly interpretable information. Just getting respondents to complete the survey in its entirety with appropriate responses is a matter of much art and science. For an annotated list of over 60 commonly used tools for evaluating prevention-related outcomes, see the FRIENDS evaluation toolkit:

<http://friendsnrc.org/evaluation-toolkit/compendium-of-annotated-tools>

Measurement Tools and Indicators

Reliability and validity are important if you are selecting a measurement tool. However, it should be noted that not all outcomes data are collected using tools that require validation. It may be useful to discuss the distinction between measurement tools and indicators. Indicators are measures of outcomes that are directly observable -- usually behaviors or conditions. Measurement tools generally attempt to measure outcomes too complex to be captured with one or a few indicators -- usually knowledge, attitudes, capacities, or abilities. Programs often collect data using measurement tools in part because such changes can be captured prior to the eventual intended outcome. For example, an assessment of kindergarten readiness is early predictive evidence of how a child will perform in school, while grades, disciplinary actions, and referrals to special education are retrospective evidence of performance.

The table below offers a few examples that may illuminate this distinction:

Measurement tools	Indicators
Assessments of attitudes toward and/or knowledge of breastfeeding	Breastfeeding rates and duration
Assessments of kindergarten readiness	Grades, disciplinary actions, referral to special education
Job skills assessment	Employment status, income

Because indicators are directly observable, they do not require validation.

Calculating Cost per Outcome

In an ideal world, you would know exactly how many families avoided child abuse as a result of your service, and calculating the cost to avoid child abuse would be easy: you could take the cost of serving all families and divide it by the number of families who avoided abuse as a result of your program, and you would have a decent estimate of the cost of getting to the desired outcome. Of course, most prevention programs are not able to collect such decisive outcomes data. More commonly, a child abuse prevention program will collect data on changes in knowledge, attitudes, and behavior, which are thought to indicate a change in the propensity to abuse or maltreat a child.

Calculating the cost associated with an outcome like this will require your judgment as a prevention professional, because you may have to make the call as to what outcome is a good result. In part, this is because it will probably be helpful to set a desired outcome that is discrete, rather than relative. For example, if you administer a pre- and post-knowledge test as part of delivering a parent education program, you will want to look at how many participants ended up with a desired level of knowledge (say, scored a 95% on the post-test), rather than looking at mean change in scores from pre- to post-test. It will be more meaningful to say “it cost \$500 to get 20 parents to understand three crucial aspects of child rearing,” than “it cost \$500 to see a 20% change in parents’ understanding of three crucial aspects of child rearing.” Is a 20% increase good enough? Your audience might not know. However, most would agree that 20 parents reaching an understanding of parenting that will make them less likely to abuse or maltreat their children is a meaningful outcome.

The calculation of this kind of cost per outcome can be fairly straightforward if you have already calculated the cost of delivering services, and you know how many families reached a desired outcome.

$$\text{Cost per outcome} = \frac{\text{Cost to deliver services}}{\text{Number of families that reached desired outcome}}$$

Following this formula, if it cost \$500 to deliver a parenting class, and 15 of the participants were proficient in the subject matter by the end of the class, then it cost \$33 per participant to get them proficient – which we have reason to believe will make them less likely to engage in child maltreatment.

$$\$33 \text{ (Cost per outcome)} = \frac{\$500 \text{ (Cost to deliver a parenting class)}}{15 \text{ (Number of families that were proficient)}}$$

Note that in this example, \$500 is the total cost to deliver the class, not just to the families that became proficient, but to all families that attended the course. Therefore, the \$33 cost per outcome incorporates the costs of delivering services to people who did not reach the intended outcome in addition to those who did. This is necessary for calculating cost per outcome, as opposed to cost per family served. As discussed in “Calculating Cost to Deliver Services” (p. 11), depending on the goals of your CA, you may wish to calculate the cost of delivering services per all families served, rather than or in addition to cost per families that reached the desired outcome.

Cost Avoidance

CALCULATING COST AVOIDANCE

Cost avoidance refers to costs that will be avoided by providing a given service and achieving a desired outcome. The key to calculating cost avoidance is being able to estimate something that *would have happened* had the family not received services.

As is so often the case in CA, it is crucial to apply some nuance here. Child maltreatment is too common, but it is, in the universe of events, relatively rare. Although many of the families your program serves are more likely to engage in some form of child maltreatment than some theoretical “average” family, the majority of them will not, even if they never receive services. Likewise, there are some families that will maltreat their children even after having received services. Estimating child maltreatment avoidance, then, can never be as simple as assuming all families who are referred for services would otherwise have a negative outcome, or that all families who received services will not maltreat their children. Rather, the task is much more abstract: it is assuming a subset of families for whom services would be a determining factor in preventing maltreatment, and estimating the effectiveness of your particular service on their outcomes.

One way to calculate cost avoidance would be to follow the people you serve for a long period of time and compare their outcomes to those of a control group that did not receive services. If you have access to this kind of data, you can make a strong case that any difference in outcomes between the two groups is due to services, and assume that the group that received services would have otherwise had a similar rate of negative outcomes as the control group. For example, you could follow families who receive services for 10 years, and recruit similar families

who did not receive services to participate in a study, and compare outcomes of the two groups – and then assign costs to the differences.

That’s obviously a high-quality approach that is also expensive and highly labor intensive. Alternatively, depending on the data you collect, you might be able to reproduce an analysis similar to Missouri’s. In 2011, the Children’s Trust Fund of Missouri (CTF) put out a short report estimating cost savings associated with child abuse prevention in the state. Dr. Kenneth D. Bopp, a professor in the University of Missouri School of Medicine Department of Health Management and Informatics, used Missouri CBCAP data to estimate the number of children served that would have otherwise suffered abuse or neglect, along with existing research estimates for the outcomes of abuse, to calculate cost savings associated with abuse prevention. In the CTF Social Cost Savings Report, Dr. Bopp begins by estimating the number of children in Missouri who would have been abused had their families not received intervention services. To do this, he takes advantage of Missouri CBCAP data on the Child Abuse Potential Inventory (CAPI), which had been administered to 1200 families at intake over the course of 12 years. Previous research has found the CAPI to be predictive of actual abuse (Milner 1984), and subsequent research has suggested that initial studies underestimated abuse and neglect due to undetected abuse and attrition (Chaffin and Valle 2003). Based on this research, Dr. Bopp estimates that 55% of children in families scoring a 200 on the CAPI, and an additional 15% of children in families who were referred for services but not assessed high-risk by the CAPI, would experience abuse or neglect.

How to replicate this analysis:

1. Estimate the number of children who would have been abused using intake assessment such as CAPI – your ability to do this is highly dependent on the data you collect
2. Use estimates from existing research for outcomes of abuse – many of the estimates Missouri used could be appropriate for your analysis as well
3. Use national, state, or local data for cost per child
4. Calculate cost avoidance using this basic formula:

savings associated with prevention

$$= X \text{ children who would be maltreated} \times Y\% \text{ likelihood of associated outcome} \\ \times Z \text{ cost per child of associated outcome}$$

For more information about Missouri’s CA, see “The Practitioner’s Guide to CA: First Steps” on the FRIENDS website:

<http://friendsnrc.org/activities-that-support-collaboration/cost-analysis>

If you do not collect data on a measure that has been demonstrated to predict child maltreatment, there is a third option to demonstrate cost avoidance. This is to make a less formal comparison between two services – particularly if you are making a comparison between

a service that is geared toward prevention and a service that remediates after a negative outcome has already occurred. For example, you might compare the cost of family preservation services, or some other targeted intensive case management designed to promote positive family functioning, with the cost of putting children into foster care. Particularly in the case of a service that can demonstrate excellent outcomes, this is a very defensible approach, and can be quite compelling.

You have a few options for making this kind of comparison. You could compare your costs to other services with similar goals, or the same service in other states. Or, as a prevention program, you can compare the cost of prevention to the cost of remediation. Because this is a more casual demonstration of cost avoidance, you have to be careful about making claims that are too strong or ambitious. But, it can be a useful way to understand what costs you may be avoiding, if you don't have all the resources to make a more precise estimate.

CALCULATING RETURN ON INVESTMENT

If you can produce a fairly rigorous estimate of cost avoidance, you can also calculate the return on investment. A return on investment (ROI) indicates the dollar amount that will be returned for every dollar invested. The basic calculation is this:

$$ROI = \frac{(gain\ from\ investment - cost\ of\ investment)}{cost\ of\ investment}$$

Applied to social services, return on investment would be

$$ROI = \frac{(costs\ avoided\ as\ a\ result\ of\ your\ program - cost\ to\ deliver\ your\ program)}{cost\ to\ deliver\ your\ program}$$

Only do this if you have a solid estimate of cost avoidance, rather than a more casual comparison. To be able to make a claim about ROI, you need to have fairly specific dollar amounts attached to the costs you are avoiding.

For a detailed discussion of calculating return on investment for social service programs, check out:

Baum, Herbert M.; Gluck, Andrew H.; Smoot, Bernice S.; and Wubbenhorst, William H. (2010) "Demonstrating the Value of Social Service Programs: A Simplified Approach to Calculating Return on Investment," *The Foundation Review*: Vol. 2: Iss. 1, Article 4.

Available at:

<http://scholarworks.gvsu.edu/tfr/vol2/iss1/4>

When to Get Help from an Evaluator

While some large organizations already employ evaluators or data managers, there are many smaller programs for which service providers working directly with clients are also expected to handle record-keeping and other administrative tasks — a job made even more complicated by variations in reporting requirements from agency to agency. Consider the assets, expertise, and needs of your organization to determine if it would be better to implement the CA process internally or to partner with an outside evaluator that can bring research expertise to the process.

There are several situations in which you might want to turn to a professional evaluator to help you conduct a CA:

Collecting a new outcome. An evaluator can help you identify the right outcome to collect for your program: a measure that is valid, reliable, fits the goals of your program, and is reasonable and appropriate to collect, given your resources and constraints.

Designing an evaluation. If getting started on a CA will mean starting to evaluate your program or expanding your evaluation activities, it's a good idea to have a professional design the evaluation for you. This will ensure that you're targeting your efforts in ways that will yield good information that you can use, for both CA and other programmatic decisions.

Estimating cost avoidance. Cost avoidance is where most programs want to go when they start CA, but it also requires careful analysis of the data, making defensible assumptions, being meticulous and detailed, and many, many steps. A professional researcher can keep this process well-defined and on-track.

Making comparisons. Appropriate comparisons are difficult to make and to defend. They can also be highly political. A professional evaluator can be sure you are employing comparisons that are legitimate, defensible -- and not picking on another program for the wrong reasons.

When it's high stakes. If your CA is going to be high-profile, and/or people are going to make funding decisions based on it, you want to make sure it's done right.

Conclusion

In this guide, we've discussed the importance of identifying core services and offered detailed advice on how to think through assigning direct and indirect costs, and when you might want to include in-kind donations as part of your costs. We've discussed outputs, intensity, and outcomes, and given you some pointers on where to find more information on these important concepts in evaluation. We've laid out how to calculate cost per family to deliver services, and offered some strategies for approaching cost per outcome, cost avoidance, and return on investment. Finally, we provided some suggestions for when you might consider getting help from a professional evaluator. At the end of this guide, you can find the Readiness Assessment Decision Tree (page 22), which you can use to plan your next steps to conducting CA.

If you have read through this entire guide, you've probably noticed that there is no single, straightforward formula that everyone can use to conduct a CA. How you approach CA will be highly dependent on your organization: what data you have available, what your needs are in terms of cost analysis, and the nature of your services. It requires a fair amount of judgment on your part as a professional and as someone who knows your program backward and forward.

Still, regardless of your situation, there are a few rules that should always be applicable:

Cost Analysis Rules

Denominators must match: any calculations incorporating multiple pieces of data must share a common metric. Most frequently, this will be time. If you are calculating cost per family served for a year, all direct and indirect costs must be for a full year, and the number of families served should be over a year as well.

When you have to make an assumption or decision (and you will), you just have to make sure **it's logical, appropriate to the nature of your service, and easily explained.**

When in doubt, choose the conservative option. It is always better to overestimate the cost of your service and underestimate cost avoidance and let your audience know that your analysis does not take into account other potential savings to the state or society – it makes your case stronger, and demonstrates that your analysis can be trusted.

Document, document, document! Keep notes on the sources of all data you use, all calculations you perform, and all decisions you made and the reasoning behind them. The path to a cost estimate can be quite complex, and people are

Good luck on your CA journey – and don't forget to contact your FRIENDS TTA Coordinator with any questions, or for help and ideas about how your organization might approach CA.

The Readiness Assessment Decision Tree

On the following page, you'll find a decision tree that's designed to help you assess your organization's readiness to conduct different types of CA. You will need to consider multiple factors in deciding how you will approach your CA, including the purpose of the analysis, your organization's goals, the data available to you, and staff capacity. This tree creates a linear decision-making path based on your situation, and provides suggestions for next steps.

The left-hand blocks represent broad categories of considerations when approaching CA, in the order that it makes the most sense to consider them. Each is followed by a set of yes-or-no questions, the answers to which should give you a good idea of your next steps. When the decision tree says "Yes, move on," it is an indication that you can move on to the next category immediately below.

Use the decision tree to assess your current situation:

- *What kind of data do you currently have available to you?*
- *What should be your next steps?*
- *What do you want to know more about?*

You can also use it as a roadmap to explore the rest of guide. Page numbers of where you can find more information are listed throughout. You might want to go through it until you find a term or concept you are not familiar with, and start reading that section, or use it to find the sections that are most interesting to you or relevant to your work.

COST ANALYSIS | DECISION TREE

Produced by: University of Kansas Center for Public Partnerships & Research for the FRIENDS National Center for Community- Based Child Abuse Prevention



Identify program's primary services?

NO, identify core services
[See p. 4](#)

YES, move on

BUDGET DATA Connect budget to primary services?

Do you know direct and indirect costs associated with core service(s)?

NO, identify direct & indirect costs associated with delivering core services
[See p. 5](#)

YES, move on

Do you know the value of volunteer and/or in-kind resources used to deliver service(s)?

NO, monetize volunteer and/or in-kind resources
[See p. 7](#)

YES, move on

OUTPUTS & INTENSITY Do you collect outputs and intensity, including number of families served?

NO, what would it take to do so? Can you limit data collection to one core service for now? Can you estimate based on a representative couple of months, or weeks?
[See p. 8](#)

YES, can it be attached to core services?

NO, what would it take to do so? Can you refine collection processes to get information more specific to the service?
[See p. 8](#)

YES, you can calculate cost to deliver core services. (stop here, or move on)
[See p. 9](#)

OUTCOMES Do you collect outcomes data?

NO, can you start collecting outcomes?

NO, focus on cost per service. Consider contextualizing this information with an appropriate comparison.
[See p. 18](#)

YES, choose and develop a protocol for collecting an outcome
[See p. 12](#)

YES, can it be attached to specific services?

NO, what would it take to do so? Can you find a way to identify outcomes of particular services, at least partially?
[See p. 12](#)

YES, you can calculate cost per outcome (stop here, or move on)
[See p. 15](#)

COST AVOIDANCE Can you identify potential cost avoidance down the road?

NO, can you compare to other services?

NO, consider using social math to offer context for your results
[See CA vol. 1](#)

YES, are the services remediation rather than prevention?

NO, you can use to contextualize the cost of your services
[See p. 16](#)

YES, can you attach it to an outcome measure?

NO, contextualize cost per service or outcome with additional information

YES, calculate cost avoidance and return on investment
[See p. 17](#)

YES, you may be able to calculate cost avoidance and return on investment. If not, you can still use this to make a case for cost effectiveness.
[See p. 17](#)