Love is the best gift you can give a child.
Chapter 12.
Introduction to Analyzing and Reporting Data

You have done a lot of work to get to this point:

- Written evaluation questions (implementation, short-term, long-term).
- Completed your evaluation work plan to spell out the methods you would use to answer these questions, the respondents or data sources that would provide the information you need, the timing of when you would gather this information, and the specific items of information you would collect.
- Designed your documentation forms, your surveys, and other forms with your evaluation questions and specific items you wish to collect in mind.
- Collected some or all of your data.

What is data analysis?
Now you are ready to reduce and summarize all the information you have collected in a systematic way. That’s what we mean by analysis. From the analysis, you will be able to state your findings. Findings are statements of fact based on a careful and objective analysis of data. Here are a few examples of a collaborative’s findings:

- About three-quarters of parents interviewed (73%) found the services at the local community center accessible.
- Both parenting classes offered had very low attendance despite extensive promotion, free child care, and transportation.
- Seventy percent of families surveyed said they would use the library more if it was open at more convenient times.
- Although our collaborative was able to offer only one street cleanup event instead of the three we had planned, 73 volunteers came to help clean up the neighborhood.

For much of Part III of this guide we will be talking about how to analyze or work with data in order to come up with your findings. We will discuss how to analyze data that were collected by different methods. The methods we will be talking about are:

- Administrative data (Chapter 13)
- Surveys and interviews (Chapter 14)
- Tests and assessments (Chapter 15)
- Documentation methods such as sign-in sheets and registration cards (Chapter 16).

Focus groups and direct observation will not be addressed individually because they are less commonly used than the methods listed above. Analyzing focus group data is similar to analyzing open-ended interview questions, covered in Chapter 14. If you are using direct observation as part of a published assessment tool, look at Chapter 15 for tips on administering and scoring assessment data. In general, direct observation, although an excellent tool for measuring behavior, can be very labor intensive to use. If you are considering designing your own direct observation and/or using an existing direct observation tool, you may wish to consult some of the suggested resources under direct observation in Chapter 9 or identify a consultant to help you.

If you read Chapters 13 through 16 from beginning to end, you will notice there is some overlap between chapters. Just as the same methods can be used to collect data to answer different types of evaluation questions, the same way of analyzing or presenting data can be used with data collected in different ways. Calculating frequencies is discussed with regard to surveys and also with regard to registration cards and attendance records. We opted to tie our discussion of how to analyze data to the way it was collected, but don’t let the examples fool you. Remember that the methods for analysis discussed in the various chapters can apply to different data regardless of how they were collected. For example, we will discuss graphing data in the section on administrative data, but you can also graph data from surveys, tests, sign-in sheets, and other methods.

At the end of each of these chapters you will find exercises that allow you to practice the different analysis techniques. Before trying to apply these techniques yourself, make sure you’ve done the corresponding exercise and checked your answers in Appendix C so that you can be confident that you have mastered that approach. Keep in mind, findings are only as good as the data collection and analysis on which they are based.

What do we do with our findings?
Developing your findings is not the last step in the evaluation process. Findings simply describe the data. They do not by themselves point to a specific conclusion or action to take. You and the people working with you in the community need to think carefully about what the data mean and discuss the next steps to take.
A SQUIRREL TALE

By Shirley DiKard, Yuba Community Collaborative for Healthy Children

Once upon a time, in the community of Yuba, there were two squirrels who spent their days busily gathering seeds and nuts for the winter. The mountain squirrel searched the pine trees and oaks for their gifts, while the valley squirrel gathered the fruits of the walnuts and cedars.

One day, as they were harvesting their community’s assets, the Big Squirrels down by the Great River announced that they must stop their gathering and begin the process of counting. “We must what?” questioned the squirrels. “It’s not enough to gather your winter’s supply,” replied the animals at Squirrels Helping Families. “You must also know where each nut came from, how many you got from each tree, and the size of each seed and nut, and where the most productive trees are. Otherwise, how will you know whether you will have enough to last the winter, and where to go next year for the best harvest?”

“Oh my,” said the valley and mountain squirrels in unison. And they stopped their gathering and began the process of counting. But the two squirrels had no idea they had collected so many seeds and nuts. Months and months went by, and still there was counting left to do. “Let us ask our cousins at Squirrels Research Incessantly for assistance,” they replied. And so, the squirrels scratched out pages and pages of numbers, pictures, dimensions, colors and seed counts. Soon, there were twenty, forty, then fifty pages of paper flying across the land. They even gathered a council of squirrels to make sense of all this work. “If we had to do this all over again, would we have gathered all these seeds and nuts?” asked the two squirrels to their friends and neighbors. The discussion went long into the night, and at the light of dawn, the two squirrels knew that yes, it was all worthwhile.

And so, the valley, mountain, river, and researching squirrels all went back to their busy, fruitful lives and the two squirrels, amazed by how much they had learned, went back to gathering the forest’s gifts and lived happily ever after. The End...
The evaluation process should produce findings, meaning, and action (FMA), three critical and interrelated components:

- **Findings**
- **Meaning**
- **Action**

FMA is the process of outlining your findings, discussing their meaning, and taking action. As a learning community, you should try to uncover the meaning in your findings and act on those conclusions. Findings, meaning, and action as they relate to evaluation will be discussed in detail in Chapter 18.

Chapter 17 will talk about how to organize your findings before you sit down to write your evaluation report. Chapter 18 will discuss how to get input from your group to draw conclusions and recommendations from your findings, how to write up those findings, conclusions, and recommendations in your evaluation report, and how to use your report to refine your overall strategy for the coming year.

**Evaluation sure is a lot of work. Why are we doing this?**

Just in case you have forgotten.....

**Why Do an Evaluation Anyway?**

- To document what was done.
- To examine how well it was done.
- To learn what difference the strategies and activities made
  - in the short term
  - in the long term.
- To provide information to help the collaborative decide what should be done in the future.
- It is often a grant requirement.
Chapter 13.
Working with Administrative Data

Administrative data are data collected by an agency or organization other than your collaborative. Examples of administrative data include data already being collected by a public or nonprofit agency on:

- Babies born with low birth weights
- Domestic violence
- Child abuse
- School attendance
- Population (such as the U.S. Census).

In this chapter, we will assume that you have already written your long-term evaluation questions, identified the best available existing source of data to answer some or all of those questions, and received the data from your source. (Refer to Chapter 9, Tools for Data Collection, for tips on how to obtain the administrative data you need.)

Using Administrative Data to Answer Long-Term Evaluation Questions

Administrative data might be one of the primary methods you are using to answer long-term evaluation questions. Sometimes it can be useful in answering short-term and implementation questions as well.

Long-term evaluation questions correspond to the first work you did with regard to evaluation—defining your child and family outcomes. This was discussed in detail in Chapter 5 of the guide. To write long-term evaluation questions, you turned your child and family outcome statements into questions. For example:

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Long-Term Evaluation Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>Children will be safe.</td>
<td>Are children safer?</td>
</tr>
<tr>
<td>Families will be nurturing.</td>
<td>Are families more nurturing?</td>
</tr>
<tr>
<td>Children will be ready for school.</td>
<td>Are children more ready for school?</td>
</tr>
</tbody>
</table>

Long-term evaluation questions—as the name implies—will be answered over a period of several years. The concept of change over time is critical for long-term evaluation questions. You will want to watch how the long-term outcomes you have selected are changing in your community from year to year.

A second critical concept for the long-term questions is baseline data. As we discussed in Chapter 3, baseline data are the first data collected in a series. They tell you where you started.

Obviously, you can’t tell whether you have produced any changes in child or family outcomes (as measured by your child and family indicators) if you don’t know where you started. Hopefully, you have already collected your baseline data so you can begin to look at change.

Long-term evaluation questions are answered by looking at whether the baseline has changed or remained constant. When you compile information on your indicators for several time periods (for example, annually, twice per year, etc.), you are collecting trend data. This is how you will be able to show the collaborative, the community, and the funders that change has (or, perhaps, has not) occurred. Baseline data for a particular child and family indicator provide the first point in a series of data points that will show a trend over time. Baseline data represent the “before” picture.

Most likely, you are looking at one or more types of administrative data to measure your child and family outcomes. As we’ve said before, if good administrative data exist, then there is no reason for you to collect this information anew. When you are working with administrative data, however, it is important that you understand these data as well as if you had collected them yourself so that you can be sure exactly what it is you are measuring and reporting.

Understanding Your Data

Getting the numbers is an important first step in working with administrative data, but it is not the only step. Equally important is understanding what the numbers represent and figuring out how you want to communicate those numbers. It is very important when using data collected by another organization to have a crystal clear understanding of what the numbers represent. If the written data are not clearly labeled or you have some questions, go back to the organization that provided the data and ask your questions until you are very sure you understand what you have. You should be able to answer the following questions:

- If the data are counts, what are they counts of? Children? Incidences? Families? For example, if you have data on crime reports, you need to know whether these are numbers of crimes or number of people involved in crimes. This is important for discussing your numbers. Will you say, “fewer crimes were committed in our community this year than last” or “fewer people were involved in crimes against our community?” You can’t describe your...
findings if you don’t know what kind of data you have.

1. **If the data are in the form of a percentage, what is in the numerator and what is in the denominator?**

   For example, “the percentage of confirmed child abuse cases” can be:
   - number of children in confirmed cases
   - number of children in reported cases
   - number of children in confirmed cases
   - population of children 0-18

   If you understand what went into computing the percentage, you will know exactly what you are reporting.

2. **What is the time frame for the data?**

   Data can represent total counts for a day, a week, a month, or a total over a 12-month period. The number of children enrolled in school on September 30 is not equal to the total number of children enrolled during the 1996-1997 school year. This sounds obvious, but if you have a number labeled “Enrollment for 1996-97,” don’t assume you know what it means.

   Knowing what you are counting and the time frame will become especially important as you track your indicators in future years. You will want to make sure that the next year’s data represent the same units and the same time frame as the previous year’s data.

**Reporting Your Findings**

All of the things we mentioned above are very important to keep in mind when it comes time to write your findings. Not only do you want to understand exactly what your numbers represent, you also want to communicate this to your audience, that is, members of your collaborative, your community, and other interested people. To ensure that your data are accurately and clearly represented when you report your findings, review the points below:

1. **Include the year in which the baseline data were collected.**

   Also include the month or months if the time frame is different from a calendar year, that is, January through December.

   Be aware that the time frame in which data are collected is different from the date they are reported. For example, a report published in 1999 might include the number of reports of violent crimes per 1,000 population during the 1997 calendar year. These are data collected during 1997 that are published in a 1999 report. When using these data, you would label them as 1997 data.

2. **Include the specific unit the data represent.**

   If the data are counts, what are they counts of? Children? Families? Parents? Incidences? If you have data on child care, you need to know whether these are numbers of licensed facilities, numbers of available licensed slots, or numbers of children in licensed care. As was mentioned before, this is important to know when it comes time to discuss your findings. Will you say, “the number of licensed child care slots increased” or “the number of children in licensed care increased”? Also, keep in mind that number of families and number of parents are not the same thing.

3. **Check to see that the unit you are reporting matches the unit described in your child or family indicator.**

   Ideally, the unit you are reporting should be the unit identified in your indicator. However, sometimes data are not available in the unit you would prefer. For example, one of your indicators is “Decrease in the number of children living in homes with domestic violence,” but the best (or only) data on domestic violence for your community may track only the number of calls received to report domestic violence from homes with children. The difference between number of children and number of calls is important because a single call may have been made from a home with more than one child, and a particular home may place more than one call in a given time frame. A reasonable and easy solution to this problem would be to change the wording of your indicator to “Decrease in the number of reports of domestic violence in homes with children” to more precisely reflect what you are collecting.

4. **Consider reporting a percentage or ratio instead of a straight count.**

   The number of children, families, or incidences may be the easiest data to find and to report; however, there is a potential pitfall. Although your data may show, correctly, that a number is going up, the percentage may in fact be going down. For example, it is possible that the number of children in supervised care afterschool in your community has increased for a particular time frame, but because the overall number of school-age children has also increased sharply, the percentage of children being supervised actually has gone down. Overall, more children are
unsupervised than before. This problem is most likely to occur in areas where the population or the segment of the population you are following is growing or declining. Especially in these communities, it is prudent to report the percentage (and label your indicator accordingly) in order to avoid data that, though accurate, may be misleading.

To calculate a percentage, you would divide the number of children, families, or incidents by a base number and then multiply by 100. The base is the number that represents 100 percent of what you are studying: your sample or target population. If you are calculating the percentage of two-year-olds that were fully immunized in your community in 1998, the base would be the total number of two-year-olds in your community in 1998.

One thing that is very important to remember when calculating percentages is that the unit must be the same in the numerator and denominator of your equation. In the above example, the unit is children. You would also want to be sure that your denominator represents the same geographic base (county, town, zip code, school, etc.) and the same time frame. Occasionally, some compromises may need to be made. For example, you may want to report the percentage of students in grades K-5 receiving special education. The special education pupil count was done on December 1, 1996, but the student enrollment count, which you hope to use as your base, was done on October 1, 1996. Because they were both for a single day and occurred during the same school year, it is reasonable to use these two figures to calculate your percentage.

When the unit of the base against which you wish to report (your denominator) does not match the unit of the figure you are collecting, you can calculate a ratio instead of a percentage. If the only child abuse data available was the number of child abuse reports for your county for children ages 0-18 for March 1997, you could calculate ratio of the number of child abuse reports per 1,000 children ages 0-18 in March 1997. (You would need to know the 0-18 population of your county in March 1997 to do this.) You could not, however, calculate the percentage of children on whose behalf child abuse reports were made because a report may have been placed for the same child more than once during the year.

5. When reporting a percentage or ratio, identify the denominator on which the percentage or ratio is based.

What is the base on which the percentage is calculated? Is it the total adult population in the county? Total number of live births in one zip code? Total number of students in grades K-3 at Peabody Elementary School? As we discussed above, your percentage figure can have a completely different meaning, depending on the number on which it is based.


We recommend that you report data for every year after your base year. If you have 1995 baseline data, then you would also want to report data from 1996, 1997, 1998, etc. The more data points you have, the more accurately you will be able to draw a picture of the trend in your community.

This is most feasible with readily available administrative data. Reporting the data in one-year intervals may not be an option when the cost of doing an annual community survey is prohibitive or an agency does not collect the data on an annual basis. (Census data are collected only every ten years.) At a minimum, you will want to have at least three or four data points that span the life of your strategic action plan.

7. Report the data in a consistent manner from year to year.

Consistency means reporting data that come from the same source, for the same time frame (e.g., from September until June or in the month of March), in the same form (number, percentage, or rate), and in the same unit (children, families, phone calls, etc.). If data are not consistently reported, they cannot be directly compared from year to year.

Sometimes things happen that will make such consistency impossible. A report is no longer available or the way the data are reported has changed. In this case, the best thing to do is to find another source of data for your baseline, if possible, even if it is not in exactly the same measure as before. One collaborative changed an indicator from “Decrease number of substance abuse-related injuries according to emergency room records” to “Decrease drug and alcohol infractions reported by Probation Department” when data for the original indicator were not available. Alternatively, you could report the new source for subsequent years, taking care to label how the data differ from previously reported baseline data (e.g., number of reported cases instead of number of substantiated cases).
8. Include the source of each item of data.
   Include the name of the report and/or organization from which the data were obtained. This enables you to more easily recreate the data if necessary and collect them for future years. It also helps other people who want to analyze the data themselves or are looking for ways to measure related indicators.

9. Finally, if you can’t find any data for a long-term evaluation question or child and family indicator, it isn’t necessary to drop the indicator.
   If the data that you had hoped to collect aren’t available and you are unable to find a reasonable substitute, it may be worthwhile to retain the indicator in the event that some relevant data become available in the future. The members of your collaborative put a great deal of thought into what was important for the children of your community, and it doesn’t mean your community has to forget or abandon an indicator of child well-being just because the data are lacking at this point in time. Your collaborative may also want to encourage an agency or organization to begin to collect the data.

Presenting and Interpreting Your Data
   Chapter 11, Exhibit 11-1 of this guide shows a few ways baseline data can be displayed, but you can be creative and display data in your own way, too. As you accumulate more data on the same indicator with each passing year, keep adding it to your display. Always note the year or time frame for your data. Don’t label data as “current” since current could be for any number of years. If the new data were collected through a different source or are slightly different measures, you should note that too. It is not ideal to change the way the indicator is measured, but sometimes it is beyond your control. The important thing is to make sure you have accurately labeled your data.

   One way to display data is in a table. Each year, you can add data for the next year to the table. See table below.

   Data can also be plotted on a graph. With administrative data, you may be able to get data for past years so you may be able to go back a decade or so to illustrate the trend before you implemented your strategies. Data from three or more time points provide trend data because they allow you to see how the indicator has changed over time. For example, has your community experienced an increase in the number of child abuse and neglect reports over the last 10 years? Trend data can answer this question. When you can get them, trend data are very powerful.

   Chapter 3 showed one way trend data can be graphed. Exhibit 13-1, “Number of Licensed Child Care Slots,” is an example of how trend data can look. This graph shows that the number of slots was increasing since 1980. But in 1995, when the collaborative began implementation, the number increased at a faster rate than before. The second graph, “Number of Slots in High-Quality Child Care,” illustrates only data collected from 1995 on. Without the pre-1995 data, it is not possible to appreciate that the number of high-quality child care slots grew at a faster rate after implementation than before.

<table>
<thead>
<tr>
<th>CHILD OUTCOME</th>
<th>INDICATOR</th>
<th>DATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Children will be born healthy.</td>
<td>Decrease in the % of low-birthweight babies in the county according to the Dept. of Health statistics.</td>
<td>1994 = 9.5%</td>
</tr>
<tr>
<td></td>
<td>Decrease in the % of babies born in the county to teenage mothers according to the Dept. of Health statistics.</td>
<td>1995 = 13%</td>
</tr>
<tr>
<td>Children will be ready for school.</td>
<td>Increase in county library circulation numbers.</td>
<td>1993 = 8,000</td>
</tr>
</tbody>
</table>
Exhibit 13-1
Indicator - Existing Data
Number of Licensed Child Care Slots

Exhibit 13-1
Indicator - New Data
Number of Slots in High-Quality Child Care
If feasible for you, it is a good idea to store your organizational data in a spreadsheet program like Excel, Lotus 1-2-3, or Quattro Pro. We strongly recommend graphing administrative data as you get data for three or more time points. Graphing makes the trend of the data obvious to everyone. Most spreadsheet programs allow you to easily produce simple graphs. If you have data for only two time points, a table or a description in the text will suffice.

With or without an electronic spreadsheet, appoint someone in your collaborative to be responsible for maintaining and updating the administrative data. That person should come up with a system that is easiest for him or her and then continue to add data points as they become available over time.

### Tips for Graphing Data

1. Graphs communicate visually, so keep them simple.
2. Don’t put more than two lines on a graph if you can avoid it.
3. Be aware that the scale used can make a change appear more or less substantial.

For example:

#### # of Parent Volunteers at Sierra Elementary School Events

<table>
<thead>
<tr>
<th>School Year</th>
<th># of Volunteers</th>
</tr>
</thead>
<tbody>
<tr>
<td>94-95</td>
<td>15</td>
</tr>
<tr>
<td>95-96</td>
<td>20</td>
</tr>
<tr>
<td>96-97</td>
<td>40</td>
</tr>
<tr>
<td>97-98</td>
<td>45</td>
</tr>
</tbody>
</table>

#### # of Volunteers at Sierra Elementary School Events

<table>
<thead>
<tr>
<th>School Year</th>
<th># of Volunteers</th>
</tr>
</thead>
<tbody>
<tr>
<td>94-95</td>
<td>15</td>
</tr>
<tr>
<td>95-96</td>
<td>20</td>
</tr>
<tr>
<td>96-97</td>
<td>40</td>
</tr>
<tr>
<td>97-98</td>
<td>45</td>
</tr>
</tbody>
</table>
4. Space data on a graph to reflect the time intervals accurately. Contrast the spacing on the top graph with the spacing on the bottom one. Which is a more accurate representation?

5. Be sure the data from different years represent the same thing. For example, don’t graph the number of reported cases of child abuse for 1995 with confirmed cases for 1996.

6. Label all parts of the graph clearly, including the axes and the lines or bars. Include the unit in the label if possible (for example, cases/1000 population).

7. Give the graph a title that conveys clearly what is in the graph.
   Don’t write: Child Care in Tuolumne County.
   Do write: Number of Licensed Child Care Slots for Children under 6 in Tuolumne County.

8. Indicate the source of the data either on the graph itself or in the accompanying text.
   For example: Source: Stanislaus County Health Department.
Recognizing Change in Your Indicators

The underlying issue with a collaborative’s long-term evaluation question is change over time. What you are trying to do is improve the health and well-being of children and families, which everyone recognizes will not happen overnight. But how will you know when you have made a meaningful change in the indicators you are tracking? For example, if the child abuse rates go from 3.2% to 2.9%, can you conclude that child abuse is decreasing? There is a wealth of statistical tests that can be applied to determine whether the amount of change exceeds what would have been expected by chance. We want you to know that these exist so that if you have the time, inclination, and resources, you can apply these tests to your data. These tests require a thorough understanding of statistics. You may need to contact a professional researcher or statistician to assist you.

If you don’t have a statistician at your disposal, we encourage you to apply the **reasonable person test**: What evidence would a reasonable person in your community accept as evidence of real change in this indicator? Remember, too, the reasonable person is a bit of a skeptic and takes the general position that she or he will believe only what you can prove.

We are going to educate the reasonable person to avoid some pitfalls in interpreting data. One of the most common pitfalls is making too much of a change from one year to the next. Numbers, especially those based on smaller populations (a neighborhood rather than an entire county) will jump around from year to year. The long-term trend over time is more important than year-to-year fluctuations. It is very difficult to conclude anything based on only two points of data. If you have only two years worth of data, be very cautious in your interpretation. An appropriate way to word such a finding would be as follows:

> The confirmed cases of child abuse in our community have decreased from 3.2% in 1995 to 2.9% in 1996, which is hopeful. We need data from future years to see if child abuse will continue to decrease and will stay at lower levels over several years.

A graph of your data over several years will show whether you are producing a change. If you see a change in the direction you want over several years worth of data, then the questions your collaborative will need to address are:

- Is this enough of a change to be meaningful?
- Can we make the change happen faster?

Those involved in analyzing the data need to present the numbers to the collaborative in a form that is readily understandable. These data can then serve as the basis for a discussion of whether there has been a change and whether the amount of the change is enough to be meaningful. Everyone involved in the discussion needs to apply the reasonable person test. Would these data convince a reasonable person that the status of children in your community as measured by this indicator has improved? If the answer is yes, celebrate your success. You have achieved what your collaborative set out to do, and you deserve to be congratulated because your hard work has paid off with the best reward of all.

What if the data don’t show a difference? If you have collected enough years of data to have a good sense of the trend and it is clear that the numbers are not moving in the direction you had hoped, at least three alternative explanations are possible.

One explanation is that you really did make a difference but you were measuring the wrong things or measuring them in the wrong ways or for the wrong group, so the numbers you have don’t reflect the positive changes that actually occurred. Remember, we are talking about changes for children and families. You will probably accumulate lots of evidence in several years that your collaborative put lots of good things in place in the community, but the overriding question is, “did outcomes for children and families change?”

One of the reasons we recommended tracking several indicators for a single outcome is that one indicator might not show a difference while others might. If none of your indicators show any difference and you now believe they are all the wrong indicators, hopefully you can find better indicators sooner rather than later, before you invest many years in following the wrong ones. You will be hard pressed to convince a reasonable person that your efforts made a difference if all the data you have collected show no change.

A second explanation for no change is that you really did make a difference but other events in your community worked in the opposite direction. For example, while your collaborative was working to prevent child abuse, your local economy took a nosedive, placing many families under stress. Although the data show that child abuse rates have not gone down, you may be able to make a good case that they would have gone up without the efforts of the collaborative.

A third explanation is that what your collaborative did, although good for the
community in many regards, was not effective in reducing child abuse. If by this indicator, as well as other indicators, children appear to be no better off than they were when you started, it is time to re-think your attack on the problem and revise your strategic action plan. (Hopefully, the answers to your short-term evaluation questions pointed to some possible problems in your strategies so that you could modify your approach before waiting years to learn that it was not producing the desired outcome.) Falling short of your desired outcome for children and families does not mean that you have failed. You will have failed only if you neglect to learn from your evaluation and change your game plan to increase the chances for future success. Revising your strategic action plan on the basis of what you have learned is a critical and expected part of the evaluation process.
Exercise #1: Understanding Graphs

1a. What can you say about this graph?

![Graph of Children in Out-of-Home Placement](image)

1b. What else do you need to know to understand these numbers?

2a. What can you say about this graph?

![Graph of % of Babies Born with Adequate Prenatal Care](image)
Exercise #1: Understanding Graphs (continued)

2b. What can you say about this graph?

2c. What can you say about this graph?
Chapter 14.
Working with Survey and Interview Data

Surveys and interviews are two common evaluation methods to answer long-term and short-term evaluation questions. Since the methods used to prepare them for analysis and to analyze their data are similar, we will discuss them together.

These are the steps we will assume that you have completed so far:
- Designed your surveys to be able to answer your evaluation questions.
- Pilot tested your surveys and interviews.
- Reviewed the completed pilot surveys and interviews for respondents’ answers (especially answers to “Other, specify” questions) to be certain that you have included the correct responses in your response categories, if applicable.

For interviews:
- Trained and supervised the people conducting the interviews.
- Reviewed at least the first 5 to 10 interviews (and then several sporadically after that) to be certain that the interviews are being conducted and written up correctly.
- Checked whether written answers are legible and complete, whether response categories are clearly circled, and whether all questions are completed.

For surveys:
- Mailed or handed out your questionnaires.
- Received your returned surveys.

This chapter will focus on what you should do with these completed interviews and surveys in order to be able to answer your evaluation questions.

Data Preparation
Coding Your Survey and Interview Data
First, you will need to review the completed surveys/interviews to get them ready to be analyzed. This is often referred to by researchers as coding or editing the surveys/interviews. Coding or editing involves several steps, including assigning identification numbers, cleaning up mistakes made by persons completing the survey, and assigning code numbers to some types of responses. The person doing the coding is often called the coder.

Any coding (writing on a survey/interview after it has been completed) should always be done with a red pencil—a pencil because it can be erased, and in red, because you want to distinguish what the respondent answered from any coding that was done later.

If you are planning to enter any of the information from the survey/interview into a computer and for some kinds of hand tallying, you need to write a unique identification number (ID) on each survey/interview. An ID can be numbers (e.g., 001), or it can be a combination of numbers and letters (e.g., first three letters from last name and last three numbers from phone number - SMI368). What you use is not important, as long as each ID is unique and the number of characters in the ID number is always the same.

Review the survey/interview to be certain that the answers are clearly written. This will be especially important if the answers are to be entered into the computer, since this will save a great deal of time for the person entering the information, but it is also helpful if the information is going to be hand tallied. If some of the answers are unclear, try to figure out what the writer was saying and use the red pencil to print this clearly above the illegible word or phrase.

If you are entering data into a computer, it is easier if responses (answers to the questions) have a numerical code. When designing surveys and interviews, you should have included a number next to each answer or response. For example, “Yes” is typically assigned a “1” and “No” is typically given a “2.” A question on your survey would look like the following:

Is your child currently in child care?  
(Circle one number)  
1. Yes  
2. No

Sometimes people completing surveys do not follow all the directions. It is the coder’s job to clean as much of the data as possible. When surveys/interviews are completed, check that the numerical codes were circled correctly. If a respondent circles the word but not the number, circle the number. For example, if the word “No” is circled, then circle the number “2” next to the word “No.” Respondents frequently forget to circle the number next to the “Other, specify” answer choice.

What is your relationship to this child?  
(Circle one number)  
1. Mother  
2. Father  
3. Other (Specify grandmother)
This respondent answered the question but forgot to circle the “3,” so the coder needs to circle it for her.

Check that only one response is circled if only one is permitted. If two or more are selected where only one is permitted, draw a line through both responses, since neither of the answers should be counted.

If a response is not circled but the respondent’s answer is written near the question, see if the answer clearly fits one of the response categories, and circle the appropriate response. If it doesn’t fit any of the responses, then leave that question unanswered.

Survey designers are sometimes interested in answers that are numbers. For example, the question “How many years have you lived in this community?” will be answered with a number. There are two ways to deal with these types of questions when designing a survey/interview. You can provide categories such as:

1. Less than one year
2. One year to less than two years
3. Two years to less than five years

or you can just provide a blank space (______) for the respondent to write in the number.

When respondents are asked to fill in the blank space with a number, you will need to review the answer to be certain it is a whole number (no fractions, decimals, or range of numbers). If it is not a whole number, the coder should round the number to the nearest whole number. If a range of numbers is entered, either code the midpoint or the nearest even whole number (e.g., 16-18 should be written as 17; 3-4 should be written as 4).

Coding Open-Ended Responses

Surveys/interviews can be designed to include both closed-ended and open-ended questions. Closed-ended questions are questions with the answer choices already provided, such as “Yes/No” or “Agree/Disagree.” Open-ended questions allow respondents to express their answers and opinions in their own words (see Chapter 9 for a discussion of open- and closed-ended questions). Sometimes a closed-ended question might have an open-ended portion that allows the respondent to provide an answer that doesn’t fit into one of the existing categories; these would usually be the “Other, specify” responses as shown above.

Remember: Investing time in a thoughtful design and pilot test will save you time during coding and analysis. Use the pilot test to try to develop a comprehensive set of responses to each question. Pilot tests can also be useful in deciding on response categories to open-ended questions. When surveys are designed, keep in mind that the more closed-ended questions and the fewer open-ended questions, the easier and less resource intensive the coding process will be.

Coding “Other, specify” responses. To code “Other, specify” responses, first read the respondent’s answer to see whether the answer fits into one of the existing closed-ended responses. Let’s look at an example. A question on a community survey was:

What activities/groups do you/your family participate in?
1. Church
2. Clubs
3. Community events
4. PTA
5. School events
6. Other, please specify__________,

and the respondent circled the number “6” and wrote “I haven’t gone, but my son and daughter have gone to the community fair.”

For this question, the respondent should have circled code number “3” (Community events), since the question asks about anyone in the family and her children have attended a community event. To code the correct answer, the coder should circle the code number “3” and draw a line through the code number “6.”

When reviewing “Other-specify” responses, if the respondent’s answer fits another already existing response category, circle that response and draw a line through the code next to the “Other, specify” response. If the answer does not clearly fit into one of these responses, be certain that the code next to “Other, specify” is circled (in the above example, be certain that the number “6” is circled). You will also want to mark these answers in some way, such as a paper clip in the margin or with a yellow Post-it, and set them aside for review later. When you have 5 to 10 responses to “Other, specify” for that question, read the answers to see whether there is another category that you should add to the ones you already have. For example, in the question above, maybe most of the respondents indicated next to “Other, specify” that they had attended sports-related activities. The coder might want to consider adding another code for sporting events, “7. Sports events,” and write in and circle the number for that new response category “7,” instead of the “6” for “Other, specify.” To the extent possible, you will want to assign codes to the “Other, specify” answers because it is not very informative if a large
percentages of your answers end up being “other.” For example, a finding that “Half of the respondents answered ‘other’” doesn’t tell you very much.

Note: It is important to keep track of any of the new codes that are created because the coder will be assigning these to all the other questionnaires. If new codes are created after some of the questionnaires have been reviewed, those questionnaires should be re-reviewed to see whether any of the new codes apply.

If most of the responses to an “Other, specify” items are different, without a consistent theme, then you can leave the answers as “other,” and they don’t need to be recoded.

**Coding Open-Ended Questions.** Some questions are completely open-ended in that no response categories are provided. An example of an open-ended question from a collaborative’s community survey is:

> How do you think the center benefits the community?

__________________________________
__________________________________
__________________________________

The respondent is expected to provide the answer in his/her own words, as opposed to selecting appropriate categories. Coding open-ended questions is very time-consuming, especially when you have a large number of respondents. When designing surveys, keep the number of open-ended questions to a minimum. Whenever possible, use the survey/interview pilot test to help develop appropriate response categories to these types of questions, so that they can be closed-ended questions when the survey/interview is administered to a larger group of respondents.

When preparing to code open-ended questions, follow these steps:

- As surveys/interviews are being reviewed and coded, questions that are open ended should be paper clipped or flagged for later review.
- When you have 20 to 30 surveys/interviews flagged for review, read each response and begin to create a list of themes that appear in respondents’ answers. As you create this list, you should hand tally the number of times each theme appears across the 20 to 0 answers you’ve read.
- After you’ve identified the most frequently appearing themes, create a new list of these themes and assign a numeric code to each theme.
- Reread the 20 to 30 you have already read, this time writing in the appropriate numeric code from your list of frequently occurring themes next to the respondent’s answer.
- After the coding list has been developed, use these codes to code the rest of surveys/interviews.

The example below illustrates the process of coding open-ended responses. In this example, Question 13 is open ended and is completed only by those who answered Question 12.

12. Has your family used the center?
   1. Yes
   2. No

13. For those who have used the center:
   How has the family center affected your family?

__________________________________
__________________________________

The following responses were obtained for Question 13:

Respondent 1. We feel so fortunate to have the center in our community. I’ve attended several Moms’ Night Outs and my son is in the playgroup.

Respondent 2: My kids have a place to go after school.

Respondent 3: I’ve gotten referrals to a doctor for my husband, and my daughter and I have gone to see the dentist there.

Respondent 4: Parenting class taught me a lot about things I can do with my children.

Respondent 5: Having the center here made us proud to live in this community. We’ve used it lots of ways. My children have had their teeth checked for the first time at the center.

Reading these five responses, several themes begin to become apparent. Possible themes would be:

1. A “medical” theme, with families seeing the dentist, and receiving referrals for doctors.
2. A “recreation” theme, with children in playgroups and after-school programs.
3. A “parent education” theme, with Mom’s Night Out programs and parenting and nutrition classes.
In reality, you would wait until you had read 20 to 30 responses before developing your codes, but for this example we will create the codes based on these 5 examples. If these are the three themes that your collaborative decides are appropriate for this answer, then you would have three codes for this answer (1 for medical, 2 for recreation, and 3 for parent education). The coder would then go back to each respondent’s answer and write the appropriate number(s) next to that respondent’s answer. For example:

- For respondent 1, the coder would write a “2” (for recreation) and a “3” (for parent education) next to respondent 1’s answer.
- For respondent 2, the coder would write a “2” (for recreation).
- For respondent 3, the coder would write a “1” (for medical). Please note that you would code the number “1” (for medical) only one time, even though it is mentioned more than once in respondent 3’s answer.
- For respondent 4, the coder would write a “3” (for parent education).
- For respondent 5, the coder would write a “1” (for medical answer). Respondent 5 also mentions other issues, such as feeling proud. If after reviewing 20 to 30 responses it was clear that this was not a frequently mentioned issue, the coder might not want to code it at all, or the coder might code it as a new number that would represent “other” responses.

Deciding on themes in open-ended responses is an extremely subjective process. There are actually many ways this information could have been coded. If your collaborative wanted to focus on events that affect children separately from those affecting adults, you would want to develop separate codes for medical issues related to parents and medical issues related to children. Other collaboratives might want to differentiate between dental and other medical services and not want to create a code that collapses both into one code. Since this is such a subjective activity, it is helpful to have a second person review the responses used to develop the codes and develop his or her own code list, and then for the two coders to compare their lists.

It is important when developing codes to keep your evaluation questions in mind so that you know which issues are important to your collaborative (e.g., differentiating medical from dental health issues). If possible, once codes have been developed, it is better to have one person code all the responses for one open-ended question. Since coding involves a number of judgment calls, having one person code helps ensure consistency in coding across all of the answers to a given question.

You can also use this approach when you are analyzing information from completely open-ended interviews, such as focus groups. When reviewing very long answers, it also might be helpful to use several different colors of marker pens. You can highlight each theme by using a different color of pen as you read responses. This will allow you to keep track of the different themes and to find helpful quotes to include in reports.

Options for Processing Data

Now that you have completed coding the surveys/interviews, you are ready to begin processing the data. **Surveys/interviews can be processed either by hand or by computer.** When making the decision to process surveys/interviews by hand, as opposed to by computer, there are several issues you should consider, including:

- **Number of surveys/interviews.** Processing 100 surveys/interviews by hand is probably doable; processing 200 to 300 is more difficult.
- **Number and complexity of survey/interview questions.** Some surveys/interviews are very short; others are much longer and would take much more time to tally by hand.
- **Your evaluation questions.** Some evaluation questions can be answered by a straightforward analysis, for example, by counting how frequently an answer occurred. This type of analysis can be done by hand. For example, the question “To what extent have parents volunteered at school?” can be analyzed by a count of the number of parents answering “yes” to a survey item on whether they have volunteered at the school. On the other hand, the question “To what extent have parents from various ethnic backgrounds volunteered at the elementary, middle, and high schools?” requires more complex analysis, such as crosstabs by ethnic background (see Chapter 16 for discussion of crosstabs). This type of analysis is better done by computer. In general, if you are interested in anything other than straight counts, a computer will make the analysis easier.
- **Data entry.** If you want to analyze data by computer you will first need to get the data entered into the computer. Is there
someone who is willing to sit and do all of the data entry into the computer? You will have to either find a collaborative member to enter the data or pay someone to enter the data. For a fee, there are companies that will enter the data into the computer for you.

**Having someone able to use the computer to analyze data.** Is someone able to use a software package to structure a database or spreadsheet into which data can be entered? Is there someone on your collaborative or in your community who is fairly “computer literate” and is comfortable with statistical software, or is willing to learn how to use new software? If there isn’t, you might want to consider hiring someone locally (possibly a professor or graduate student from a local college) who would be willing to do this for you. Statistical software or even spreadsheet software can make data analysis very easy, but you have to have someone who knows how to or has the time to learn how to use the software.

**Analyzing Survey/Interview Data**

Now that you have made the decision to process your surveys/interviews by hand or by computer, you are ready to begin analyzing your data. When analyzing data, it is always important to keep your evaluation questions in mind. Your questions are your guides to how to analyze your surveys/interviews.

**Number of Respondents**

The number of respondents largely determines the value of your survey data. Survey results based on the responses of five people would not be considered very useful. When reporting survey data, it is important to report the number of people who provided information. This is referred to as N and is usually written with an equal sign, for example, “N = 152”). For a survey, there are typically several different N’s reported:

- One is the N for the total number of respondents, the number of people who completed all or part of a survey.
- The N for individual survey items. Each item in the survey may have a different N from the total because:
  - Some respondents didn’t answer a question that pertained to them.
  - Some questions were relevant for only some of the respondents; for example, only those who said they used child care would answer the question “If you use child care, which type do you use?”

The overall N for the survey and the N for each item should be reported when writing up your survey findings.

**Types of Data**

How you analyze your survey or interview data depends on what kind of data you have. All of your responses should be represented by numbers, but you need to look at each survey question to determine what those numbers mean. There are generally three types of data that are obtained from asking survey questions in which the answer is a number. Each is analyzed differently.

**Categories.** Some survey questions are answered by selecting one category from a set of categories. The numbers are codes used to represent each of the categories, but the assignment of a number to the category is completely arbitrary, and the numbers have no real meaning or value. They are used as codes to simplify the analysis of the data. Two examples of survey questions with categories for responses are shown below.

What is your ethnic background? (Circle one number)
1. White
2. African-American
3. Hispanic
4. Other (specify: ________________)

Do you have health insurance? (Circle one number)
1. Yes
2. No

**Ordered data.** Sometimes the numbers assigned to the categories have an inherent order to them. Two examples of survey questions that have responses with an order that is reflected in the number codes are:

How much education have you completed? (Circle the highest level)
1. Never finished high school
2. High school graduate, no college
3. Some college
4. College graduate
Free Software for Beginning Data Analysts:  
**CDC’s Epi Info**

If you or someone on your collaborative is interested in learning how to enter and analyze data by using a computer but has not had a lot of previous experience with statistical or spreadsheet software, one option you can consider is a software program called *Epi Info*. *Epi Info* is a free software program that is made available by the World Health Organization and the U.S. Centers for Disease Control (CDC). It is not copyrighted and can be freely copied. With *Epi Info*, you can create a questionnaire or data collection instrument, enter data using the same questionnaire format, and analyze the data to produce counts, percentages, averages, tables, and graphs.

**Why Epi Info?** *Epi Info* is by no means the only method available to analyze data. There are many other snazzy software packages available to manage and analyze data that run on Windows, including statistical packages such as SPSS and spreadsheet programs such as Excel, Quattro Pro, or Lotus 1-2-3. We mention *Epi Info* here because it has two major advantages: it is readily available at no cost, and it is reasonably easy to learn and straightforward to use.

Remember it is not always necessary to use a computer to analyze data. Hand tallying can also be a valid option, especially if you do not have a very large number of responses and have a small number of questions.

**Is this approach right for you?** People who are fairly computer literate should be able to master enough about *Epi Info* to be able to design a data entry format, enter data, and write a program to produce counts and percentages in a couple of days.

To decide whether investing the time to learn how to use this software is worthwhile for you, there are some key factors you will want to consider:

- Are you doing more than one survey in a given year? Would you have the occasion to use these skills more than once? The time you invest in learning *Epi Info* would really pay off if you had subsequent opportunities to apply these skills.
- Will you have more than 100 responses to a given survey?
- Does your survey have more than 20 items?
- Are you interested in analyzing your data in several different ways (e.g., examining the differences between ethnic groups or age groups)?

If you answered “yes” to any of these questions, *Epi Info* may be right for you.

**Where do I get a copy of Epi Info?** You can download the program files from the CDC’s Web site at [www.cdc.gov/epo/epi/epiinfo.htm](http://www.cdc.gov/epo/epi/epiinfo.htm). Be sure to check hardware requirements. To download the files, you will need a minimum of four 1.44 MB floppy disks. A concise tutorial is available through the *Epi Info* program’s main menu. If you do not have access to the World Wide Web, you can write to the Centers for Disease Control and Prevention, 1600 Clifton Road, NE, Atlanta, GA 30333.
Frequencies are most often used for data that are categorical. Frequencies may also be used when analyzing ordered data to learn how often respondents selected a particular response choice. (Ordered data can also be analyzed by using a mean or average, as described later in the chapter.) Frequencies for data with “real” numbers are occasionally used when the number of unique responses is low, say, less than five. For example, if you ask the question “How many children do you have?” and the responses range from 0 to 4, it would be reasonable to calculate the frequency for each of these numerical responses.

All of the methods for analyzing data in this section can be carried out by hand or by a computer. If you are analyzing data by computer, then you will need to follow the software’s instructions. Our discussion will explain how to do the analysis by hand—which you should understand how to do even if a computer does it for you.

Follow the steps listed below to tabulate frequencies from your survey data for items that have either categories or ordered numbers for responses:

1. For each item or question on the survey, create a table with as many columns as there are possible response choices plus three. For example, for a question with a yes/no response choice, your table would have five columns: one for the name of the item, one for yes, one for no, one for missing responses to that item, and one for the number of responses (N) for that item. An example of such a table is shown below.

<table>
<thead>
<tr>
<th>Item #</th>
<th>1. Yes</th>
<th>2. No</th>
<th>3. Don’t Know</th>
<th>Missing</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Responses with an inherent order are typically seen in questions that call for ratings of quality (for example, excellent, very good, good, fair, poor, very poor) and agreement (for example, strongly agree, agree, disagree, strongly disagree). The numbers you use in the scale will be in order from 1 to 4 or 5 or 6, depending on the number of choices in your scale. Note that the numbers themselves have no real meaning. For example, in the question about neighborhoods, “Very unsafe” could be 1, “A little unsafe” could be 2, and so forth. The meaning is in the order of the numbers.

**Numbers with meaning.** Some numbers given as responses to a survey do have meaning. If a survey asks for the respondent’s age, the answer is a number with inherent meaning. Similarly, the number of months since a child’s last dental checkup is a number with real meaning.

**Summarizing your Data with Statistics**

The type of data you have collected for a survey or interview item is important because it will determine what technique or techniques are appropriate for analyzing that particular item of data.

**Calculating Frequencies**

**Frequency** is a term that refers to how often an event occurred, for example, how many times respondents answered “strongly agree” to an item on a survey, how many of the respondents had health insurance, or how many had children under the age of 9. Another term for frequency is **count.** If 52 respondents selected “yes,” then the frequency for “yes” is 52.
2. Write the item or question number in the first column. Label a column for each response choice.

3. Tally the responses: Put a tally mark in the appropriate column for each response, one tally mark in the “yes” column if the response was yes, leaving the “no” and “don’t know” columns blank. Or put one mark in the “no” column and leave the “yes” and “don’t know” columns blank. If the respondent did not answer the question, put a tally mark in the “missing” column. If the respondent answered the question, put a tally mark in the column labeled “N”. Do this for all the questions on the survey.

   Note that if the instructions for the survey item were “circle one,” then only one tally mark should be placed for that item on each survey. For example, the mark has to go in “yes,” “no,” “don’t know,” or “missing.” If the instructions were to “circle all that apply,” then a single respondent can have more than one tally mark, but for each respondent there has to be at least one response. If a respondent circles nothing for an item with “circle all that apply,” then a tally mark should be placed in the “missing” column.

4. Total the number of tally marks in each column for each item and write the number in the box next to the tally marks. For each item where only one response could be selected, the total of the columns should equal the total number of people who completed the survey. If it doesn’t you did something wrong in your tallying, since every such item should have had at least one and only one tally mark for each item.

   The total number of tally marks for items where respondents could select more than one response will not equal the number of respondents.

   Collapsing categories. For items that have several response choices, you may want to collapse the categories into a smaller number, for a variety of reasons. Collapsing categories simplifies the results but loses the detail. You need to decide which is more important. If the number of responses in one or more categories is small, or if you have a lot of categories, you may want to collapse the categories into a more manageable number. In the question below, you might want to combine the responses into “in home” and “out of home” childcare.

   What is your primary type of childcare for your youngest child? (Circle one.)
   1. Childcare center
   2. Preschool
   3. Family day care home
   4. Care by a non-relative in your home
   5. Care by a relative in your home
   6. Care by a relative in their home
   7. Care by a non-relative in their home

   Once you have the frequencies (the count of tally marks in each box) for each response choice, you can add two or more together to collapse choices when you report the results.

   Reporting frequencies. Frequencies can be reported as a number or a percentage. When a number is reported, the finding should be reported along with the total number of responses for that question. For example, the statement “24 families used after-school childcare” gives the reader no sense of whether 24 are a majority or a minority. It is also important to tell the reader what the N is for the question. A better way to report the finding would be “Of the 80 families surveyed, 24 used after-school care.” If the N for each of your survey questions is about the same, you can tell the reader what the N was once and then report the frequencies for each question. If your N varies for different questions from the total N by more than a few, you should also report the N for each question. For example, “Of the 24 families who used after-school care, 10 used center-based programs and 14 used family day care homes.”

   If the item has several responses that are important to report, the data can be presented in a frequency table such as the following:

   **Principal Source of Medical Care (N = 144)**

<table>
<thead>
<tr>
<th>Source</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private physician</td>
<td>35</td>
</tr>
<tr>
<td>Kaiser</td>
<td>48</td>
</tr>
<tr>
<td>Non-Profit/Public Clinic</td>
<td>17</td>
</tr>
<tr>
<td>Hospital Emergency Room</td>
<td>29</td>
</tr>
<tr>
<td>Other</td>
<td>15</td>
</tr>
</tbody>
</table>

   Calculating Percentages

   Percentages are often a useful way to summarize data for which you have calculated frequencies. Percentages can be quickly interpreted because they are always based on a 100-point scale. To
calculate a \textit{percentage}, divide the number of responses (or frequency for that response choice) by the total number of respondents for that item or question, and then multiply by 100. Those that do not respond (including missing responses) are not included in the N for that question. For example, if there were 24 yeses and 56 noes (with 80 total respondents out of 86 possible respondents) to a question about whether the family used after-school child care, the percentage of yeses would be 24 divided by the total number of respondents for the item (80), multiplied by 100, to get 30%.

\textit{Reporting percentages.} It is advisable to report percentages only when your total N for the item or question is 30 or more. If you do not have an N of 30, report your results as frequencies.

Percentages are typically reported in two ways, in tables and in text. In text, the percentage for each item is usually stated with a percent sign, as in the example above, 30%. In a table, the column would be labeled Percent and then the % mark does not need to be used next to each number.

When reporting percentages, the decimal point value can be rounded up or down and the percentage reported as a whole number. For a number with less than 5 after a decimal point, round down, and for 5 or more, round up. When a number begins a sentence, it is spelled out.

When a number is contained within the sentence, it is expressed in numbers and the percent sign (\%) is used. \textit{“The results of the survey showed that 30\% of the families used after-school care.”}

\textbf{Calculating Means for Ordered Data and Ratings}

If your responses have an order (such as a rating from one to five), after calculating their frequencies, you can also calculate an overall \textit{mean} or \textit{average} rating of all the respondents’ ratings.

To do this, follow these three steps:

1. Multiply the rating number corresponding to each response by the number of respondents who selected the response.
2. Total these numbers.
3. Divide the sum by the number of responses.

\textbf{Example:}

The frequencies for an item on neighborhood safety were as follows:

\begin{tabular}{|c|c|}
\hline
\textbf{Rating of Neighborhood Safety (N=40)} & \textbf{Number} \\
\hline
1. Very unsafe & 4 \\
2. A little unsafe & 6 \\
3. Pretty safe & 20 \\
4. Very safe & 10 \\
\hline
\end{tabular}

1. Multiply the number corresponding to each response by the number of respondents who selected the response.
   \[ 1 \times 4 = 4 \]
   \[ 2 \times 6 = 12 \]
   \[ 3 \times 20 = 60 \]
   \[ 4 \times 10 = 40 \]
2. Total these numbers.
   \[ 4 + 12 + 60 + 40 = 116 \]
3. Divide by the number of responses.
   \[ 116 / 40 = 2.9 \]

The average safety rating was 2.9 out of a possible 4.

\textit{Reporting ratings.} \textbf{Ratings} can be reported in several ways. They can be reported as averages or as the frequency or percentage of respondents that rated the item a certain way.

With rating scales, you may decide that it would be easier to analyze or report the results if some of the ratings were collapsed into fewer values—two values representing, for example, just agree and disagree—rather than strongly agree, agree, disagree, strongly disagree. With the neighborhood safety example above, there were 30 respondents who felt safe or very safe and 10 who did not feel safe in their neighborhood.

You could report the findings from the neighborhood safety item in three different ways:

\textit{The average rating of safety expressed by the respondents was 2.9 on a 4-point scale, with 1 representing a feeling of being very unsafe and 4 representing a feeling of being very safe in their neighborhood.}

\textit{Thirty of the 40 respondents felt safe or very safe in their neighborhood.}

\textit{Twenty-five percent of the respondents did not feel safe in their neighborhood.}

You could also supplement the second or third form of reporting by including the frequency table as part of your report. You generally would not report in all three ways. Instead, select the one reporting style that you feel best met communicates the significance of your finding.
Summarizing “Real Numbers” with Statistics

As noted earlier in this section, some numbers are meaningful in and of themselves. Age, weight, height, and number of years in the community are examples of numbers that are meaningful. To help understand what we mean by “meaningful,” if you circle 1 for Yes or 2 for No, the numbers 1 and 2 are not meaningful. Useful, yes—but not meaningful. Numbers that have meaning are analyzed differently from numbers that are associated with categories or an ordered scale.

If you have 120 surveys on which respondents provided their age, the challenge is how to summarize and communicate those 120 numbers. Two useful ways are the range and the mean.

Range. A simple technique to help you work with the different numerical values is to physically arrange the surveys in numerical order (based on the numerical response for the question). If you have more than one survey item with a number for an answer and a lot of respondents, it might be easier to make a table based on their responses.

<table>
<thead>
<tr>
<th>ID</th>
<th>Age</th>
<th>Years Employed</th>
<th>Years in Community</th>
<th>Years in Community</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>32</td>
<td>0</td>
<td>32</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>45</td>
<td>15</td>
<td>10</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>39</td>
<td>5</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>51</td>
<td>31</td>
<td>44</td>
<td>5</td>
</tr>
</tbody>
</table>

The range is the spread of the data, that is, the difference between the largest and the smallest number. For example, if the question asked for the ages of the respondent’s children and the oldest age reported was 5 and the youngest age reported was 2, then you could report the range as "the ages ranged from 2 to 5," or "the range of the ages was 3 years." For the table above, you could report that “the respondents had lived in the community from 2 to 44 years.”

Calculating a mean or average. Mean is another term for average. The average is computed by adding all the values and dividing by the total number of values. The mean of the ages of respondents in the table above is 32+45+39+51 = 167; 167/4 = 41.8, rounded to 42 years.

Reporting ranges and means. When reporting your “real number” data, it is a good idea to report both the range and the mean, and of course, the N. Using the example above, you would write: “The four respondents ranged in age from 32 to 51, with an average age of 42.”

Looking at Subgroups: Crosstabs

You may be interested in the survey results for a certain group of respondents, such as parents with young children or Hispanic families. You probably will want to look at how these groups answered, compared with one or more other groups. How do parents of young children compare with residents with no children? How do Hispanic families compare with African-American or Asian families? Comparing subgroups on items in your surveys or interviews requires a crosstabulation, which will be explained in Chapter 16.

Be aware that one of the best uses of survey data is looking at differences across different segments of your community. Questions such as “Do minorities in our community feel as safe as majority members?” or “Do parents of young children attend as many community events as parents of older children?” cannot be answered with simple frequencies. Typical characteristics to use in crosstabs are gender, ethnic background, age, age of children, neighborhood, or geographic area of the respondents.

Change over Time

Another useful way to use survey data is to look at how the respondents’ answers to a particular question change over time. For example, you may be doing a survey of community members to answer your long-term evaluation question “Are community members becoming less tolerant of drunk driving?” To assess whether attitudes toward alcohol drinking and driving are changing, you would need to survey members of your community with the same survey question and the same survey methodology at roughly equal intervals (say, annually) over several years. You would also need to analyze the survey data the same way from year to year, so that you could compare your data points across time. For a discussion on how to tell whether any changes you find are significant, see “Recognizing Change in Your Indicators” in Chapter 13.

Conclusion

Surveys and interview data, when collected, coded, and analyzed thoughtfully, can provide a wealth of insights as to what extent and how successfully a strategy is being implemented and why. Chapters 17 and 18 will discuss in depth how to use these findings to develop a meaningful evaluation report and use what you have learned from your evaluation to work more effectively in the future.
Exercise #2
Community Survey

Instructions: Recode surveys as needed.
(This survey was sent home with children in the three elementary schools in the community)

Name: _____________________________

1. What school does your youngest school-aged child attend?
   (Please circle one)
   1. Lakeview
   2. Hillcrest
   3. Claremont

2. What kinds of recreation activities does this child participate in?
   (Please circle all that apply)
   1. Scouts
   2. After-school program
   3. Music activities
   4. Dance activities
   5. Other, please specify _____________________________

3a. Is there a particular clinic, health center, hospital, doctor’s office, or other place that this child usually goes for routine health care?
   (Please circle one)
   1. Yes
   2. No
   3. Don’t know

3b. If yes, is that place:
   (Please circle one)
   1. A clinic, health center, or a doctor’s office
   2. A hospital emergency room
   3. Other, please specify _____________________________

4. How old is your child? ________ years old

5. “Our community is a great place to live.” Do you
   (Please circle one)
   1. Strongly agree
   2. Agree
   3. Disagree
   4. Strongly disagree
Name:  ____________________________________  

Maria Gutierrez

1. What school does your youngest school-aged child attend?  
(Please circle one)  
1. Lakeview  
2. Hillcrest  
3. Claremont

2. What kinds of recreation activities does this child participate in?  
(Please circle all that apply)  
1. Scouts  
2. After-school program  
3. Music activities  
4. Dance activities  
5. Other, please specify  ______________________________________

3a. Is there a particular clinic, health center, hospital, doctor’s office, or other place that this child usually goes for routine health care?  
(Please circle one)  
1. Yes  
2. No  
3. Don’t know

3b. If yes, is that place:  
(Please circle one)  
1. A clinic, health center, or a doctor’s office  
2. A hospital emergency room  
3. Other, please specify  ______________________________________

4. How old is your child?   ________ years old

5. “Our community is a great place to live.” Do you  
(Please circle one)  
1. Strongly agree  
2. Agree  
3. Disagree  
4. Strongly disagree
Name:  ____________

1. What school does your youngest school-aged child attend?
   (Please circle one)
   1. Lakeview
   2. Hillcrest
   3. Claremont

2. What kinds of recreation activities does this child participate in?
   (Please circle all that apply)
   1. Scouts
   2. After-school program
   3. Music activities
   4. Dance activities
   5. Other, please specify  _________________

   soccer games

3a. Is there a particular clinic, health center, hospital, doctor’s office, or other place
    that this child usually goes for routine health care?
   (Please circle one)
   1. Yes
   2. No
   3. Don’t know

3b. If yes, is that place:
   (Please circle one)
   1. A clinic, health center, or a doctor’s office
   2. A hospital emergency room
   3. Other, please specify _________________________________

4. How old is your child?   ____________ years old

5. “Our community is a great place to live.” Do you
   (Please circle one)
   1. Strongly agree
   2. Agree
   3. Disagree
   4. Strongly disagree
Name:  ____________________________  

1. What school does your youngest school-aged child attend?  
   (Please circle one)  
   1. Lakeview  
   2. Hillcrest  
   3. Claremont  

2. What kinds of recreation activities does this child participate in?  
   (Please circle all that apply)  
   1. Scouts  
   2. After-school program  
   3. Music activities  
   4. Dance activities  
   5. Other, please specify  ___________ 

3a. Is there a particular clinic, health center, hospital, doctor’s office, or other place that this child usually goes for routine health care?  
   (Please circle one)  
   1. Yes  
   2. No  
   3. Don’t know  

3b. If yes, is that place:  
   (Please circle one)  
   1. A clinic, health center, or a doctor’s office  
   2. A hospital emergency room  
   3. Other, please specify  ___________  

4. How old is your child?  ________ years old  

5. “Our community is a great place to live.” Do you  
   (Please circle one)  
   1. Strongly agree  
   2. Agree  
   3. Disagree  
   4. Strongly disagree
Exercise #2
Community Survey (continued)

Name: John Chu

1. What school does your youngest school-aged child attend?
(Please circle one)
   1. Lakeview
   2. Hillcrest
   3. Claremont

2. What kinds of recreation activities does this child participate in?
(Please circle all that apply)
   1. Scouts
   2. After-school program
   3. Music activities
   4. Dance activities
   5. Other, please specify clay class

3a. Is there a particular clinic, health center, hospital, doctor’s office, or other place that this child usually goes for routine health care?
(Please circle one)
   1. Yes
   2. No
   3. Don’t know

3b. If yes, is that place:
(Please circle one)
   1. A clinic, health center, or a doctor’s office
   2. A hospital emergency room
   3. Other, please specify

4. How old is your child? 10 years old

5. “Our community is a great place to live.” Do you
(Please circle one)
   1. Strongly agree
   2. Agree
   3. Disagree
   4. Strongly disagree
Exercise #2
Community Survey (concluded)

Name: Terry McArthur

1. What school does your youngest school-aged child attend?
   (Please circle one)
   1. Lakeview
   2. Hillcrest
   ☐ 3. Claremont

2. What kinds of recreation activities does this child participate in?
   (Please circle all that apply)
   ☐ 1. Scouts
   ☐ 2. After-school program
   ☐ 3. Music activities
   ☐ 4. Dance activities
   5. Other, please specify ____________________________________

3a. Is there a particular clinic, health center, hospital, doctor’s office, or other place
    that this child usually goes for routine health care?
   (Please circle one)
   1. Yes
   ☐ 2. No
   3. Don’t know

3b. If yes, is that place:
   (Please circle one)
   1. A clinic, health center, or a doctor’s office
   2. A hospital emergency room
   3. Other, please specify ________________________________

4. How old is your child? _______ years old

5. “Our community is a great place to live.” Do you
   (Please circle one)
   1. Strongly agree
   ☐ 2. Agree
   ☐ 3. Disagree
   4. Strongly disagree

T erry McArtho r

my son takes trumpet lessons
Exercise #3:
Worksheet Table

**Instructions:** For the preceding surveys, calculate frequencies and percentages for each item using the table below.

<table>
<thead>
<tr>
<th>Survey Item #</th>
<th>Response Choices</th>
<th>Missing</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</table>
Chapter 15.
Working with Test and Assessment Data

Tests and assessments can be excellent ways to answer long-term and short-term outcome questions about knowledge as well as attitudes, perceptions and norms, and even behavior. Most often, your test or assessment will be a published instrument developed, tested, and published by someone else, but occasionally it may be necessary to develop your own test.

These are the steps we will assume that you have completed so far:

- Selected the instrument that best measures the outcome you are trying to achieve for your target population.
- Reviewed carefully the instructions on how to administer the instrument.
- Administered the instrument to your target population (or a sample of your target population; see Chapter 10 for a discussion of sampling).

You are now ready to begin analyzing your data.

If you are using published instruments, such as an assessment of kindergarten readiness, a test of parenting knowledge, or a measure of self-esteem, you will be analyzing and reporting scores. We will be using the term “assessment” to refer to any instrument that is scored. Some of these may be tests of knowledge; others may be measures of attitude or personality traits. For our purposes, they are all assessments because they produce scores.

**Scoring the Assessment**

The first step in analyzing score data is to calculate the score for each person’s assessment. The assessment should come with instructions for how to calculate the score. Sometimes, calculating the score is as straightforward as counting the number of correct answers. Other times, different items or different responses have different values—for example, to score the assessment, you might add 2 points for every item marked “c,” add 1 point for every “b,” and 0 points for every “a.” It is extremely important that the instructions be followed exactly in scoring any assessment and that the scoring be done carefully and correctly for each one.

Some tests give different types of scores, such as raw scores, percentile scores, or standard scores. The raw score is the score computed directly from the assessment. Other types of scores (such as percentile and standard scores) you have to look up in a table that comes with the assessment. Most of the time, collaboratives will be using the raw score. If you are not familiar with scoring assessments, you might need to contact a consultant to help you.

Assessments can be scored by anyone who understands the scoring instructions thoroughly and is very careful. Level of education is not nearly as important as attention to detail. Scoring an assessment sounds very simple, but it is easy to make mistakes. The person doing the scoring must be as careful with the last assessment as with the first. Generally, the score can be recorded right on the test booklet, although you should put it on a separate sheet of paper if you will be double scoring any assessments, as explained below.

If the scoring is complicated, it is a good idea to have each assessment rescored by someone who did not score it the first time. This is called double scoring. If you don’t have the resources to rescore all the assessments, rescore at least 10%. Ideally, do this before the first scorer scores the remaining 90%. If there are disagreements between the two scorers on any of the assessments that were double scored, the two scorers should look at where and why they disagreed. The official score (the first scorer’s score) on the test should be corrected, if necessary. If there were disagreements on the first 10%, the scorers should double score another 10% and continue this process until they score a set where they agree on all of the scores.

If it is not possible to rescore a set after only 10% have been scored because all of the assessments were scored at one time, pull a sample of 10% of the assessments at random from the entire set and have another person score them a second time. If there is not 100% agreement on the scoring, examine the discrepancies and correct any errors. If discrepancies between the two scorers are found, determine who scored the form correctly and who scored it incorrectly. If the original scorer made the errors, pull another 10% at random and rescore them. If there are also errors in that set, the entire set should be rescored. And next time, be sure the first scorer better understands the scoring criteria.

Some assessments produce one overall score. Other assessments give several scores, which may or may not be added for a total score. If the assessment your collaborative is using produces more than one score, you will need to decide which of these scores best answers your evaluation questions. If they are relevant, you might want to report all of them; otherwise, you might not. To decide, think about how a particular score relates to the evaluation question you are trying to answer.
Analyzing Score Data

Entering the Data

After you have scored all of the assessments, the data can be entered on a separate score sheet (graph paper works well) or into a spreadsheet program, such as Excel, Quattro Pro, or Lotus 1-2-3. If the collaborative has access to spreadsheet software and someone who knows how to use it or is willing to learn, you may save lots of time. If the collaborative has no access to a spreadsheet, you can analyze your scores by hand.

The following discussion applies to either a spreadsheet or hand calculations.

1. Set up a table with one more column than the number of different scores for the assessment. In the first column, you will put something that can serve as an identification or ID number (a unique number that ties the score or scores in that row back to the score sheet). You will need this in case you record any of the scores incorrectly and need to go back and check a score.

2. Copy the ID number for the first person tested in column 1 and copy the person’s scores in each of the other corresponding columns in the first row. Put the second person’s ID number in the first column in row 2 and that person’s scores in the rest of row 2, and continue until all the scores have been entered into the table.

Let’s look at the example below. The table shows two scores for four different individuals. After copying all the scores, the person preparing this table notices that the total for ID number 2 is not the sum of Score A and Score B. This person needs to go back to Person 2’s assessment sheet and find the problem.

<table>
<thead>
<tr>
<th>ID #</th>
<th>Score A</th>
<th>Score B</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>13</td>
<td>7</td>
<td>20</td>
</tr>
<tr>
<td>2</td>
<td>15</td>
<td>9</td>
<td>21</td>
</tr>
<tr>
<td>3</td>
<td>9</td>
<td>4</td>
<td>13</td>
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<tr>
<td>4</td>
<td>11</td>
<td>7</td>
<td>18</td>
</tr>
<tr>
<td>Total</td>
<td>48</td>
<td>27</td>
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</tbody>
</table>

By looking back at Person # 2’s test booklet, the scorer discovers that Score B was recorded incorrectly. The score is easily corrected and now the data are ready for analysis.

A blank worksheet is included on the next page for you to use in recording assessment scores. You will probably not need all of the columns.

Computing an Average Score

There are a variety of different statistics that can be calculated from scores, but most likely you will want to compute the mean or average score or the number or percentage of scores above or below a certain point. You will need to review your evaluation questions to decide which is the best measure for you.

The average score is computed by calculating the sum of the scores on a particular assessment or subscale and then dividing by the number of scores for that assessment or subscale. Spreadsheet programs can be used to compute averages. Looking at the set of scores shown above, we can see that the average score for Test A was 12 (48 ÷ 4), for Test B was 6 (24 ÷ 4), and for the Total was 18 (72 ÷ 4). If any scores are missing, be sure to divide only by the number of people with scores.

Can you conclude from these results that respondents scored better on Test A than on Test B? No. To do that, you need to know whether Test A and Test B had the same maximum score. (To know for sure, you may need to run additional statistical tests to verify that the differences between the two results were greater than would be expected by chance.) For this reason, it is probably more meaningful to report the percentage correct. For example, if the maximum score was 15 for Test A and 10 for Test B, Person # 2 scored 100% on Test A [(15+15) x 100 = 100%] and 60% on Test B [(6+10) x 100 = 60%]. Overall, the average percentage correct for Test A would be 80% [(48+60) x 100 = 80%] and for Test B would be 60% [(24+40) x 100] = 60%). At the very least, you will want to report the maximum possible score.
Worksheet for Recording Scores

Directions: ID numbers go down Column 1. Test names go across Row 1.

Scores for: ____________________________ Administered on: ________________________________

(Name of Assessment) (Date)

<table>
<thead>
<tr>
<th>ID</th>
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These results would be reported as follows:

On the Everson Test of Parenting Knowledge, the four people who participated in the parenting classes scored an average of 12 correct out of 15 on the Discipline portion of the test and 6 out of 10 on the Play portion at the completion of the course.

In reality, you would never report findings based on only four participants. In reporting scores, just as in reporting survey results, it is important to include the number of persons who took the assessment.

Averages are simple to do. Some special types of scores, such as percentiles (not to be confused with percentages), however, should not be averaged. Raw scores, the scores you get right from the test, can be averaged. If you have any doubts as to whether you can average the scores you have, contact a consultant.

Scores above or below a Certain Score

Depending on your evaluation question, it may be more useful for your collaborative to know the number or percentage of test-takers who scored above or below a certain score. If your collaborative is interested in school readiness, the number of children who come to school not ready is more important than the average readiness level. For example, a developmental assessment may indicate that a child is in need of further assessment or at risk for school failure because he or she scores below a certain score. Your collaborative would probably be more interested in knowing and reporting the number or percentage of such children rather than an average score.

The score to use as the dividing point in this kind of analysis should be included with the test instructions (although under some circumstances you might want to set your own). After you have identified this score, go to your score sheet and count how many children scored below it. Spreadsheets can also be used to count the number of children below a certain score.

Here is an example of how this type of data would be reported:

In Happytown, each child entering kindergarten was administered the Developmental Readiness Test. The test manual indicates that children who score below 45 should be referred for further assessment. Of the 200 incoming kindergarten children in Happytown, 80%, or 160, needed no further testing. However, 20% or 40 children scored below 45 and were referred for additional assessment.

Hopefully, as the collaborative focuses its energies on school readiness, the 80% figure will increase in future years.

Pre- and Posttest Scores

Pre- and posttest scores are scores from the same assessment administered before and after program participation. For example, you could have pre- and posttest scores for a measure of self-esteem administered to children before and after their participation in a recreation program. You could also have pre- and posttest scores from a test of parenting knowledge administered before and after taking part in parenting classes.

To analyze pre- and posttest data, you would enter the two scores for each person in a table, as shown above. Next, compute the average of the pretest scores and the average of the posttest scores. If you are more interested in the percentage who scored above a certain cutoff score, calculate the percentages for both the pretest and the posttest. If the averages or percentages are no different or in the wrong direction, you cannot conclude that your program had an effect on what was assessed—at least as measured by this assessment. If the averages or the percentages suggest that your program is working in the direction you expected—for example, if the average score on the parenting test is higher after parents take the course, then you need to do additional analysis. Say the average score on the pretest was 16 and the average score on the posttest was 23. Before you can conclude that your program had an effect, you will need to run more sophisticated statistical tests that are used with pre- and posttest scores. These tests will allow you to determine whether the differences you have found are greater than what would be expected by chance. If you need to run such tests, consult an evaluator, a statistics textbook, or both.

Differences across Groups and over Time

The same approach used with pre- and posttest scores applies to comparing scores from two different groups, for instance, those who participated in a program and those who did not. Eventually, the findings from your assessment data will be compared with another group of findings from assessment data. You may be comparing data from the same group at a later time or from another group who take the same assessment at the same time or later. Assessment data can be difficult to interpret unless you have something to compare them with. What is the point of saying a group got an average score of 38? You can’t tell
whether this is good or bad without a comparison of some sort.

Let’s return to the school readiness example. If you are collecting information on how many children are scoring below a certain point on a kindergarten readiness test, you will want to collect data on each entering kindergarten class for several years in a row to determine whether kindergarten readiness is improving in your community. See “Recognizing Change in Your Indicators” in Chapter 13 for a discussion of how to tell whether any differences you find are significant. For more information on looking at differences between groups, see the discussion of crosstabs in Chapters 14 and 16.

Thinking about Your Findings

When you have data on three or more points that you are tracking over time (for example, the kindergarten classes entering in 1998, 1999, and 2000), you can graph the assessment data, as explained in the chapter on administrative data. Examine the graph of your score data and ask:

- Is there a clear-cut positive trend over three or more time points?
- Is the change between the first time and the last time large enough to be meaningful?
- Can your community make the change happen faster?

These questions should be asked to determine whether the status of children or families is improving. In the absence of statistical proof, you can employ the “reasonable person test” to assess whether any change you see is meaningful. The reasonable person tests asks the question “Would a reasonable person be persuaded that children were better off?” If the answer is no, it is probably time to go back and rethink the strategies you have developed to address the issue. If the answer is yes, celebrate. And then take some time to think about the question “What can we do to make this change happen faster?” In either case, using the information to better serve the children and families in your community is what makes yours a learning community.
Exercise #4: Working with Scores

The data on this table are from a home observation instrument. The data have already been entered in the table for you.

<table>
<thead>
<tr>
<th>ID#</th>
<th>Provision of Appropriate Play Materials (0 to 9)</th>
<th>Maternal Involvement with Child (0 to 6)</th>
<th>Opportunities for Variety in Daily Stimulation (0 to 5)</th>
<th>Total Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>6</td>
<td>4</td>
<td>3</td>
<td>13</td>
</tr>
<tr>
<td>2</td>
<td>8</td>
<td>5</td>
<td>2</td>
<td>15</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>1</td>
<td>5</td>
<td>9</td>
</tr>
<tr>
<td>4</td>
<td>9</td>
<td>6</td>
<td>1</td>
<td>16</td>
</tr>
<tr>
<td>5</td>
<td>0</td>
<td>6</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>6</td>
<td>2</td>
<td>3</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>7</td>
<td>5</td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>9</td>
<td>4</td>
<td>2</td>
<td>15</td>
</tr>
<tr>
<td>11</td>
<td>7</td>
<td>2</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>12</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>13</td>
<td>1</td>
<td>3</td>
<td>5</td>
<td>9</td>
</tr>
<tr>
<td>14</td>
<td>8</td>
<td>6</td>
<td>1</td>
<td>15</td>
</tr>
<tr>
<td>15</td>
<td>8</td>
<td>5</td>
<td>3</td>
<td>16</td>
</tr>
<tr>
<td>16</td>
<td>4</td>
<td></td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>6</td>
<td>2</td>
<td>3</td>
<td>11</td>
</tr>
<tr>
<td>18</td>
<td>7</td>
<td>3</td>
<td>4</td>
<td>14</td>
</tr>
<tr>
<td>19</td>
<td>3</td>
<td>6</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>20</td>
<td>7</td>
<td>2</td>
<td>4</td>
<td>13</td>
</tr>
<tr>
<td>Total</td>
<td>96</td>
<td>59</td>
<td>55</td>
<td>189</td>
</tr>
</tbody>
</table>

1. Find the average score for each of the subtests and the average total score and write them in the table below.

<table>
<thead>
<tr>
<th></th>
<th>Play Materials</th>
<th>Maternal Involvement</th>
<th>Stimulation</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Score</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N=</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. What are the number and percentage of scores below 3 on the Maternal Involvement scale?
Chapter 16.
Working with Basic Documentation, Registration Forms, Attendance Sheets, and Logs

You have been diligently documenting your activities and events with photos, newspaper clippings, scrapbooks, videos, registration forms, sign-in sheets, logs, etc. (How to document your strategies is the topic of Chapter 8.) It is these information sources that will enable you to answer your implementation questions. The implementation questions in your evaluation work plan ask about the extent to which the strategies in your strategic action plan have been implemented. (See Chapter 5 for a discussion of implementation questions.) Here are some general forms of implementation questions:

- Did we do the event or activity?
- When did we do it? For how long?
- How did we do it?
- What resources did we mobilize to do it?
- Who participated?

Analyzing Basic Documentation Data

One of the primary ways to answer questions like those listed above is through basic documentation. To analyze your basic documentation materials, gather together your evaluation work plan and basic documentation materials (photos, newspaper clippings, scrapbook, registration forms, attendance sheets, logs, etc.). (Answering the question “Who participated?” and analyzing registration forms, sign-in sheets, and logs are discussed in depth below.) Open your evaluation work plan to Table A (see Chapter 11) and identify all the questions for which you have listed documentation in the Method(s) column. Next, question by question, develop an answer to those evaluation questions using your documentation materials as your information sources.

For example, to answer the question “Did we conduct a child abuse awareness campaign?” you would look to your basic documentation forms that gave the dates, times, message, and estimated number of listeners for your collaborative-sponsored radio public service announcements, clippings of newspaper feature articles written by a collaborative member on child abuse, and photographs and documentation forms of billboards. You would count the number of public service announcements, note the number of seconds each aired, and the time they were broadcast. You would count the number of newspaper articles and note the dates the articles appeared. For the billboards, you would sum the number of billboards and record the number of days each was displayed and where.

Your goal is to answer your evaluation questions as fully and accurately as you can on the basis of the information you have assembled. If you are unable to answer a question, you should say so and explain why. The goal is to describe what you did comprehensively yet succinctly.

Reporting Your Findings from Basic Documentation

A complete and informative summary of your activity might look something like this:

The South City Collaborative conducted a public awareness campaign on child abuse. Two 30-second public service announcements were developed on child abuse. One focused on stress reduction for parents and the other on the community’s obligation to report. Each announcement aired 12 times on KKID between July and November 1998. Air times were 6:20 am, 1:40 pm, 5:50 pm, and 11:25 pm. An estimated number of listeners could not be obtained from the radio station. The announcements were developed by the collaborative and produced at no charge by KKID.

Between April and June 1998, the South City Post ran a series of four feature articles on child abuse. Each contained the telephone number for reporting suspected abuse. Fifty thousand households subscribe to the South City Post. The reporter for the series had been a participating member of the collaborative since 1996.

Billboards with the telephone number for reporting suspected abuse were placed in three locations (Highway 67 and Main Street; the H Street Exit off I-40; Broadway at the entrance to Reed Park). The Chamber of Commerce donated billboard space, and the South City High School Graphics Class designed the billboards. Each billboard message was in place for two months.

Analyzing Registration Forms

Registration forms are used to learn something about the people who are planning to attend or participate in a program or class, such as a mentoring program or a conflict mediation training class.
Common implementation questions that one could answer by using a registration form include the following:

- How many people are interested in participating in the program?
- Who is interested in participating?
- Why are they interested in participating?
- What do they hope to learn or gain by participating?
- How did they hear about the event?

There also may be administrative questions that you can answer through the registration form that are not directly related to evaluation, such as the following:

- What services do people need to participate?
- How can you contact them if you need to?

In many ways, a registration form is a one-time questionnaire. Think of it as a good opportunity to collect information in one place and at one time. Asking for the information you need upfront will avoid having to ask for information at different times or, worse, for the same information repeatedly. Because it is filled out before the event, a registration form can also be used to collect data about things the program is trying to change. For instance, a program designed to get parents to read to their children could ask “How often do you read to your child each week?” on the registration card.

Although it is important to get all the information you need, you don’t want to ask for information you are not planning to actually analyze and use in some way. Collecting and analyzing information always take a lot of something none of us have enough of: time. Never waste the respondent’s time by asking for information you don’t know you are going to use.

Be aware that there are implementation questions for which a registration form is not particularly well suited. For example, because it usually is completed before the activity takes place, it is not a good way to get information about who actually participates or attends.

**Importance of Form Design**

If you have taken the time to carefully design your form with your evaluation questions in mind, you have made your job a lot easier when it comes time to analyze the data. The same guidelines given for designing the format of a written survey apply here. Because a registration form is self-administered, it is important that the instructions be clear. Provide enough space for written answers to open-ended questions. For closed-ended questions, instruct your respondents on how many choices to make and how to mark them; asking them to circle their chosen response is generally clearest. Make sure categories are easy to understand, distinct, and comprehensive (i.e., all possible answers are covered).

An example of a registration form is shown in Exhibit 16-1.

**Strategies for Analyzing Data from Registration Forms**

First of all, don’t wait until the program is over to analyze the information on your registration forms. There may be a lot you can learn about your audience and clues as to how you can tailor a program to best meet the participants’ needs.

Again, the place to start is with your implementation questions. Let’s go back to some of the evaluation questions above. The first question was, “How many people are interested in participating in the event?” If only one person has registered per form, this question is simple to answer. Just count your forms.

The next question was, “Who is interested in participating?” Hopefully, you had spelled out what you meant by “Who” in the “Item” column of your evaluation work plan. Looking at the sample registration form, we see we can answer this question many ways. You can count the number of men and women registering for the parenting class, the number of people who were single parents living alone, single parents living with other adults, and parents living with a partner. Notice, however, you wouldn’t be able to answer any questions about whether the children were living with a birth parent, adopted parent, or step-parent. (If this were an important thing you wanted to know, you would need to add this question to the registration form.) You can also count the number of white, African-American, Latino, etc., registrants and the number of Spanish speakers. You can learn how many people had children under two or how many had school-age children. You can learn how many children people had by counting the number of ages circled. You might also want to look at the addresses provided to see the neighborhoods or towns where the registrants resided.
Exhibit 16-1
Parenting Class Registration

Name: ________________________________________________________________________________
(first) (last)

Address: ________________________________________________________________________________
(street) ________________________________________________________________________________
(town) (state) (zip code)

Phone: (__________) __________ – __________________________

Class: Mon/Wed Tues/Thurs Sat
(circle one)

Gender: Male Female
(circle one)

Does another adult live in your household?  □ Yes □ No
If yes, who are the adults who live in your household?
(Circle all that apply)
Partner/Spouse Other relative(s) Unrelated adult(s)

Children’s ages: (Circle ages of your children, choosing the number closest to their actual age. Indicate if twins)
Under 1 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

Ethnicity: White, not Hispanic Hispanic/Latino
African-American Native American
Asian/Pacific Islander Multiracial
(circle one)

Language: English Spanish
Other (specify) ___________________________
(circle primary spoken language)

Will you be using the on-site child care provided? □ Yes □ No
0 1 2 3 4 5 6 7 8 9 10 11 12 13

Do you need help with transportation to be able to attend? □ Yes □ No

How did you find out about this class? (Circle all that apply)
Newspaper Radio Flyer Referral
Friend Other (specify) ___________________________

For office use only

Number of classes attended:
Calculating Frequencies

The simple counts described in the paragraph above are known as frequencies. We have already talked about frequencies in Chapter 14, and the same concept applies here. For example, the statement “There are 30 people registered for the parenting class, 9 men and 21 women” reports the gender frequencies for the class.

As explained in Chapter 14, one way to count frequencies is by developing a simple table. Across the top, label each column with one of the response choices. Add another column at the right and label that “Missing” and a column at the far right labeled “Total or N.” For the children’s ages, your columns might look something like this:

<table>
<thead>
<tr>
<th>Children’s Ages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 1 year</td>
</tr>
<tr>
<td>8</td>
</tr>
</tbody>
</table>

To calculate the frequencies for children’s ages, starting with the first registration form, place a tick mark for each child’s age the person indicates on the form. Notice here that the unit we are counting is children instead of parents. This will become important when you are summarizing the data. Do the same for all of the other registration forms. Count the tick marks you have placed in each box and write down the total in each box.

Your table will look something like this:

Here we combined the single ages listed on the registration form into a smaller number of groups that we thought would be meaningful categories for planning a parenting curriculum. The exact grouping of the ages is not what is important here. It is important only that the categories be meaningful to you and your audience. One reason to ask for each child’s specific age to begin with is so that you can change your categories to suit your needs. Often, evaluators will request birth dates to be able to calculate a person’s precise age. For the purposes of the registration form, however, that level of precision is probably not necessary, and it means more work because you would have to calculate the ages yourself.
Now you are able to report that the frequencies for the ages of participants’ children are: 8 children under the age of 1, 9 between 1 and 2 years of age, 12 between 3 and 5 years of age, 10 between 6 and 9 years of age, 7 between 10 and 12 years of age, and 4 between 13 and 18 years of age. The total number of children of registrants is 50.

### Calculating Percentages

The next step in analyzing this information is to calculate the percentages of children in each category. To do this, you would divide the number of children per category by the total number of children, e.g., 8 children under the age of one divided by a total of 50 children equals 16% of children of registrants are under the age of one. (If there were missing values, you would exclude those from the denominator in calculating your percentages.) You would use this method to calculate the percentage for each of the other categories.

### Ages of Children of Registrants for Parenting Education Class

<table>
<thead>
<tr>
<th>Age of Child</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 1 year</td>
<td>8</td>
<td>16</td>
</tr>
<tr>
<td>1–2 years</td>
<td>9</td>
<td>18</td>
</tr>
<tr>
<td>3–5 years</td>
<td>12</td>
<td>24</td>
</tr>
<tr>
<td>6–9 years</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>10–12 years</td>
<td>7</td>
<td>14</td>
</tr>
<tr>
<td>13–18 years</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>50</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

The exact same tallying and tabling procedure can be used to calculate the frequencies for the other information collected on your registration form, e.g., gender, primary language, ethnicity, etc.

### Calculating Differences across Groups: Crosstabs

Sometimes it is useful to examine your data by using two pieces of information. For example, say that you were interested in knowing whether people who spoke different languages learned about the parenting class in different ways. One of your evaluation questions is, “Do people who speak different languages find out about the class in different ways?” When you look to see how two characteristics are related to each other in this way, it is called a **crosstabulation** or **crosstab**.

From calculating the frequencies for the items “Language” and “How did you find out about the class?” you already know that 15 registrants were primarily English speaking, 8 primarily Spanish speaking, and 2 primarily Vietnamese speaking. You also know that 10 registrants learned of the class through flyers, 7 through the newspaper, 5 through radio, and 3 through friends, but you don’t know whether any one form of publicity was more effective with a specific language group than any other.
To illustrate how to do a crosstab, data from a set of registration forms are summarized in the table below (this step is for illustration only; you don’t need to do this step):

<table>
<thead>
<tr>
<th>Registrant #</th>
<th>Language</th>
<th>How found out about class</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Spanish</td>
<td>Newspaper</td>
</tr>
<tr>
<td>2</td>
<td>English</td>
<td>Flyer</td>
</tr>
<tr>
<td>3</td>
<td>English</td>
<td>Flyer</td>
</tr>
<tr>
<td>4</td>
<td>Spanish</td>
<td>Radio</td>
</tr>
<tr>
<td>5</td>
<td>Vietnamese</td>
<td>Friends</td>
</tr>
<tr>
<td>6</td>
<td>English</td>
<td>Friends</td>
</tr>
<tr>
<td>7</td>
<td>Spanish</td>
<td>Radio</td>
</tr>
<tr>
<td>8</td>
<td>Spanish</td>
<td>Flyer</td>
</tr>
<tr>
<td>9</td>
<td>English</td>
<td>Newspaper</td>
</tr>
<tr>
<td>10</td>
<td>English</td>
<td>Newspaper</td>
</tr>
<tr>
<td>11</td>
<td>Vietnamese</td>
<td>Flyer</td>
</tr>
<tr>
<td>12</td>
<td>English</td>
<td>Newspaper</td>
</tr>
<tr>
<td>13</td>
<td>English</td>
<td>Friends</td>
</tr>
<tr>
<td>14</td>
<td>Spanish</td>
<td>Radio</td>
</tr>
<tr>
<td>15</td>
<td>English</td>
<td>Flyer</td>
</tr>
<tr>
<td>16</td>
<td>English</td>
<td>Flyer</td>
</tr>
<tr>
<td>17</td>
<td>English</td>
<td>Flyer</td>
</tr>
<tr>
<td>18</td>
<td>English</td>
<td>Flyer</td>
</tr>
<tr>
<td>19</td>
<td>English</td>
<td>Newspaper</td>
</tr>
<tr>
<td>20</td>
<td>English</td>
<td>Newspaper</td>
</tr>
<tr>
<td>21</td>
<td>Spanish</td>
<td>Flyer</td>
</tr>
<tr>
<td>22</td>
<td>Spanish</td>
<td>Radio</td>
</tr>
<tr>
<td>23</td>
<td>English</td>
<td>Flyer</td>
</tr>
<tr>
<td>24</td>
<td>Spanish</td>
<td>Radio</td>
</tr>
<tr>
<td>25</td>
<td>English</td>
<td>Newspaper</td>
</tr>
</tbody>
</table>

Even looking at the data in this format, it is very difficult to summarize. To make more sense of this information, you need to make a table that looks at these two pieces of information (publicity method and primary spoken language) at the same time. This table is called a crosstab.

The most difficult part of constructing a crosstab table is deciding which piece of information you want to place across the columns at the top and which piece of information you want to place down the rows on the left side. The question you are trying to answer is, “Do people who speak different languages find out about the class in different ways?” You are interested in learning what percentage of English speakers learned about your class through a particular publicity method, compared with Spanish speakers or Vietnamese speakers. In other words, you are analyzing publicity method by primary spoken language. You would place the publicity method on the left side (listing each method in rows) and the primary spoken language across the top (listing each method in columns).
Once you have constructed your table, place a tick mark in the appropriate box for each of the 25 registrants. For example, for registrant #1, you would place a mark in the box under Spanish and across from Newspaper; for registrant #2, you would place a mark in the box under English and across from Flyer, etc. Next, you would sum the totals across the columns and down the rows. When you were done, your table would look something like this:

<table>
<thead>
<tr>
<th></th>
<th>English</th>
<th>Spanish</th>
<th>Vietnamese</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flyer</td>
<td>IIIIIII</td>
<td>II</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>Newspaper</td>
<td>IIIII</td>
<td>I</td>
<td></td>
<td>7</td>
</tr>
<tr>
<td>Radio</td>
<td></td>
<td>IIIII</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Friend</td>
<td>II</td>
<td></td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
<td>8</td>
<td>2</td>
<td>25</td>
</tr>
</tbody>
</table>

Next, recreate the table and place the frequencies in each of the corresponding boxes:

<table>
<thead>
<tr>
<th></th>
<th>English</th>
<th>Spanish</th>
<th>Vietnamese</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flyer</td>
<td>7</td>
<td>2</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>Newspaper</td>
<td>6</td>
<td>1</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>Radio</td>
<td>0</td>
<td>5</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Friend</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
<td>8</td>
<td>2</td>
<td>25</td>
</tr>
</tbody>
</table>

You have just calculated the crosstab of how people found out about the class by primary spoken language. (Make sure that the totals match the frequencies you have already calculated for these items.)

Before you are ready to report your results, you will want to take these numbers a step farther by calculating percentages. To do this, take the frequency for each box, divide by the total number in that column, and multiply by 100. For example, take the number of English speakers who learned about the class from flyers (7), divide by the total number of English speakers (15), and multiply by 100 = 47%. Calculate the percentage for each box. Be sure to add a title to your table and label the names for the columns and rows:
How People Found Out about the Parenting Class, by Primary Spoken Language

<table>
<thead>
<tr>
<th>How did you find out about this class?</th>
<th>Primary Spoken Language</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>English</td>
</tr>
<tr>
<td>Flyer</td>
<td>47%</td>
</tr>
<tr>
<td>Newspaper</td>
<td>40%</td>
</tr>
<tr>
<td>Radio</td>
<td>0%</td>
</tr>
<tr>
<td>Friend</td>
<td>13%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
</tr>
</tbody>
</table>

The rule of thumb when constructing and reading tables is to percentage down and read across. By percentaging down, we mean that the percentages in each column total 100. To read the table, you would compare the percentages across the row. (Take care when reading other people’s tables because this convention is not universally followed.) From the analysis you have completed and summarized in the table above, you could report:

Forty-seven percent of English-speaking registrants learned about the parenting class through flyers, compared with 25% of Spanish-speaking and 50% of Vietnamese-speaking registrants. The majority of Spanish speakers (63%) learned about the class from the radio, while none of the English or Vietnamese registrants did.

An incorrect way to read the table would be to say that “63% of the registrants in the parenting class who learned about the class through the radio were Spanish speaking.” (The correct way to read the table would be, “All of the registrants who learned about the parenting class through the radio were Spanish speaking.”)

Please note: When the frequencies in some of your boxes are small (less than 5) or a column total is less than 30, caution should be used when drawing conclusions based on the percentages derived from those frequencies.

Reporting Your Findings from Registration Forms

After calculating the frequencies and percentages for all the items included on your registration form, you are ready to write up your results. Your write-up might look something like this:

Twenty-five parents registered for the Parenting Education class offered in the Spring of 1998 and sponsored by the Community Partnerships for Healthy Children at the Ivydale Community College. Most (68%) lived in the Ivydale neighborhood of town. The remainder lived in Westside (18%) and South Central (14%). Fifteen of the parents (60%) who registered for the class were women, and 10 (40%) were men. Twenty (80%) lived with another adult, and of these 20, 15 (75%) lived with a partner or spouse only, 2 (10%) with a partner or spouse and other relatives, 2 (10%) with other relatives, and 1 (5%) with an unrelated adult. Ten (40%) had only one child, 12 (48%) had two children, and 3 (12%) had more than two. The majority of registrants’ children (58%) were under age 6, and 34% were under age 3. Thirteen (52%) reported that they were Hispanic; 5 (20%) reported they were White, not Hispanic; 5 (20%) reported they were Asian or Pacific Islander; and 2 (8%) reported they were African-American. Sixty percent were primarily English speaking, 32% were primarily Spanish speaking, and 8% primarily spoke a language other than English or Spanish (Vietnamese). Seven parents reported needing child care for a total of 10 children, ranging in age from under 1 to 10 years. Three people reported needing assistance with transportation. Most registrants (40%) learned of the class through flyers that
had been posted at the local community center, local child care centers, and stores; others learned of the program through the newspaper (28%), radio (20%), and friends (8%). Registrants whose primary language was English learned about the program primarily through flyers and the newspaper while Spanish-speaking registrants learned about the class primarily through radio announcements.

This is a lot of information! Perhaps it is more than you really need to know. Your own summary may not be as detailed. However, if you are not going to analyze and consider some piece of information, why collect it at all?

After you have written up your results, go back to your implementation questions. Have you answered them all? If not, go back and fill in the blanks with the information you have. If there are questions you have not been able to answer, note those questions in your write-up and state why you don’t have the information to answer the question. You might have hoped to answer the question “What do participants want to get out of this course?” but forgot to include it on your registration form. If there is important background information that someone not familiar with your project should know, you may wish to include this, as well. Also, if you find some of the results of your analysis especially interesting, say so and explain why. For example, you might make note that although the majority of parents had young children, parents of school-age children were also interested, and that their parenting information needs might be very different from those of parents of younger children.

Analyzing Attendance Sheets

An attendance or sign-in sheet is used to record the number of people attending or participating in an event or events and, if the gathering takes place more than once, how often an individual attended. This is often what distinguishes an attendance record from a log. When you are tracking attendance, you usually want to find out the unique or unduplicated count of people who came to your activity or class.

Attendance sheets can be used to answer a number of implementation questions. The most obvious question is, “How many people attended the class or activity?” Other questions might include:

- Did the event or activity take place? Where? When?
- Who attended the event, class, or activity?
- For how many sessions? For how long?
- How many people completed the course or training?
- How many agencies or businesses were represented or participated in the event?

Attendance sheets are not useful for answering evaluation questions such as “Did participants learn something from the event or activity?” or “Were participants satisfied with the event or activity?”

Importance of Form Design

A well-designed sign-in sheet will make the job of answering your implementation questions easier. The design of the sign-in sheet will depend on the nature of the event itself:

- Whether you are documenting attendance for a one-time event, a specified number of gatherings, or an ongoing activity.
- Whether participants register for the activity beforehand.
- Whether attendance sheets will be filled out by participants.
- The number of people you expect to attend.
- Whether you expect the same set of people to attend if the event/activity is taking place more than once.

Here are some alternatives you may wish to consider when designing your attendance records:

- By including the name of the activity and date, time, place, and facilitator of the activity, your sign-in sheet documents the fact that your event took place and answers important implementation questions for you.
- If you plan to use attendance records to gather additional information about the people attending (such as socio-demographic or contact information) you would want to design your form so that the information can be completed quickly and easily. Don’t use sign-in sheets for this kind of information if you already are collecting it from registration cards. You want to avoid asking participants for the same information more than once. The information you collect via attendance records should be minimal.

For large, one-time events, the simplest and most expedient way to record attendance may be to have participants sign their names in rows on a piece of paper. The more people who attend, the less information you will want to collect from them. It may be feasible, however, to have
a few items for people to fill out, such as
type of participant (community member,
agency representative, local
businessperson) or contact information if
you would like to include them on your
mailing list.

If you know who is participating in an event
beforehand and the number of participants
is relatively small, you can write or type the
names ahead of time. This way, you can be
sure that recording attendance will divert
less attention from the event itself. As
newcomers join, you can add their names
to the bottom of the list. If it is necessary
to have multiple attendance sheets for this
activity, by typing in the names yourself you
can standardize the order of the names to
make attendance easier to tally.

If the activity includes multiple sessions and
you are interested in whether the same
people attend and for how many sessions,
include a column for attendees’ names and
columns with the session dates listed across
a single page. (See Exhibit 16-2.) Having
to tally how many times a person has
attended will be easier if all the attendance
information is condensed onto fewer pieces
of paper.

Exhibit 16-2

Name of Training
Attendance Sheet

Facilitator: _____________________________
Location: ______________________________
Meeting time: __________________________

<table>
<thead>
<tr>
<th>Name</th>
<th>4/7/98</th>
<th>4/9/98</th>
<th>4/14/98</th>
<th>4/16/98</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Strategies for Analyzing Attendance Data

Start by going over the implementation
questions for which the attendance records are the
source of your data. Most likely, one of your
questions is, “How many people attended the class
or activity?” If your form has been designed so
that each name appears only once, you would
count the number of names listed on your form or
forms. If not, you may wish to construct a separate
master list to tally the number of unique names
that appear on your attendance sheets.

If your activity involved the same people
attending multiple sessions, the next question that
you are likely to want to answer is some version of
“How much did people participate?” There are a
number of measures to answer this question. First,
you can calculate the average number of times a
person attended. The first step would be to tally
the total number of times each individual
attended. Your attendance sheet might look
something like this:
Conflict Resolution Training  
Attendance Spring 1998  
Facilitator: Melissa Martin  
Location: County Community Center  
7 p.m. – 9 p.m.

<table>
<thead>
<tr>
<th>Name</th>
<th>4/7/98</th>
<th>4/9/98</th>
<th>4/14/98</th>
<th>4/16/98</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mary Smith</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>4</td>
</tr>
<tr>
<td>Laura Jones</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
<td>3</td>
</tr>
<tr>
<td>Bob Young</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>4</td>
</tr>
<tr>
<td>Tom Johnson</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Karen Collins</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>4</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>5</td>
<td>5</td>
<td>3</td>
<td>4</td>
<td>17</td>
</tr>
</tbody>
</table>

To calculate the average number of times participants attended the class, you would add the total number of times each person attended \((4 + 3 + 4 + 2 + 4 = 17)\) and divide that number by the total number of people who ever attended \((5)\); 17 divided by 5 = 3.4. To calculate the average number of people attending each class, you would divide the total number of times each person attended \((17)\) by the number of classes offered \((4)\) = 4.25.

Another version of the question “How much or how often did people attend?” would be the percentage of sessions attended, or attendance rate. This is probably a better measure overall because it takes into account the number of times the session was offered. To calculate the overall attendance rate or the percentage of times each person attended the class, divide the total number of times all persons attended \((17)\) by the product of the number of people who ever attended and the number of sessions offered \((5 \times 4 = 20)\), the maximum attendance—everyone at every session), and then multiply by 100. The answer would be \((17 \div 20) \times 100 = 85\%\).

Other questions that you might wish to answer related to attendance are “How many people completed the course?” and “What percentage of people completed the course?” The answer to both of these questions would depend on how “completed” was defined. Let’s say that the participants had to attend at least three of the four sessions in order to complete the training and receive a certificate. Four out of five people (Mary, Laura, Bob, and Karen) attended at least three sessions and so received a certificate of training completion. The percentage of people completing the course would be the total number of people completing the activity \((4)\) divided by the total number of participants \((5)\) = 80%.

Reporting Your Findings from Attendance Data  
The implementation questions that relate to your attendance sheet provide the outline for the results of your analysis. From the above example, your write-up might look something like this:

The Community Partnership for Healthy Children collaborative sponsored a Conflict Resolution Training in April 1998. The course met for four sessions for two hours each at the County Community Center from 7 pm until 9 pm and was facilitated by Melissa Martin. Five participants were enrolled and attended an average of 3.4 of the 4 sessions, for an overall attendance rate of 85%. Four of the five people enrolled in the course (80%) received a certificate of completion.
Exercise #5: Analyzing Attendance Sheets

Conflict Resolution Training
Attendance Spring 1998
Facilitator: Melissa Martin
Location: County Community Center
7 p.m. – 9 p.m.

<table>
<thead>
<tr>
<th>Name</th>
<th>1/7/98</th>
<th>1/9/98</th>
<th>1/14/98</th>
<th>1/16/98</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laura Jones</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Bob Young</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Karen Collins</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Matt Reynolds</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Jaimie Meehan</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maria Diaz</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Chris Ellison</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Jose Martinez</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Ken Collins</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>David Tse</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

TOTAL

Answer the following implementation questions, using the above attendance form as your source:

- When was the Conflict Resolution Training held?
  
- Where?

- How many hours was each class? What was the total number of hours of instruction?
Who conducted the training?

How many people participated?

What was the average number of people who attended a class?

What was the average number of classes attended by each person?

What was the attendance rate for the class?

How many people completed the course (i.e., attended at least three of the four sessions)?

What percentage of participants completed the class?
Analyzing Logs

A log is a record of an ongoing activity. A log can record many different things, such as visits to a community garden, telephone calls to an information and referral line, activities undertaken as part of a neighborhood beautification project, or the number of volunteer hours donated to a neighborhood watch program.

Logs are generally used to keep count of a type of activity and its characteristics. Often, the main question you are trying to answer is, “How many?” or “How much?” Other questions you could answer by using a well-designed log include:

- What activity or activities took place?
- Where? When?
- How many contacts/visits/phone calls/volunteer hours were received?
- Who participated in the activity?
- For how much time?
- For how long?
- What was the outcome of the contact/visit/phone call/etc.?

Importance of Form Design

As with registration forms and attendance sheets, you need to design your log so that if it is completed correctly, you will have the information you need to answer your evaluation questions and, hopefully, in a format that makes the information easy to analyze. For an example of a log, see Exhibit 16-3 (on the next page).

The most basic question you will want to answer is what you are counting (your unit of analysis), and you need to make sure that your information is being tracked at that level, whether it is phone contacts, people visits, or hours spent by each individual on an activity. Another basic consideration when designing your format is whether you are interested in maintaining a unique or unduplicated count of whatever it is that you are counting. If you are recording calls to your Child Care Resource and Referral Line, you will probably record, at a minimum, the date, caller’s name, and caller’s phone number. A total count of entries would give you a count of all the calls received but could well be a duplicated count of callers because the same people may have called more than once.
### LATCHKEY PROGRAM VOLUNTEER'S DAILY LOG

Volunteer Name _______________________________
Date ___________________ Total Calls __________

<table>
<thead>
<tr>
<th>NAME OF CHILD</th>
<th>AGE</th>
<th>NATURE OF CALL</th>
<th>HOW IT OR OTHER ISSUE WAS SOLVED</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>(Circle all that apply)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>CHECK-IN</td>
<td>PROBLEM</td>
</tr>
<tr>
<td>PHONE # CALLING FROM?</td>
<td></td>
<td>CHECK-IN</td>
<td>PROBLEM</td>
</tr>
<tr>
<td>PHONE # CALLING FROM?</td>
<td></td>
<td>CHECK-IN</td>
<td>PROBLEM</td>
</tr>
<tr>
<td>PHONE # CALLING FROM?</td>
<td></td>
<td>CHECK-IN</td>
<td>PROBLEM</td>
</tr>
<tr>
<td>PHONE # CALLING FROM?</td>
<td></td>
<td>CHECK-IN</td>
<td>PROBLEM</td>
</tr>
<tr>
<td>PHONE # CALLING FROM?</td>
<td></td>
<td>CHECK-IN</td>
<td>PROBLEM</td>
</tr>
</tbody>
</table>
Strategies for Analyzing Data from Logs

To answer your “How many?” question, generally all that is required is for you to count the number of entries in your log or total the number of hours or other units recorded. If you want to create an unduplicated count of whatever it is you are summing, then you need to have a method of counting the people or other unique entries (such as phone number from which you received a call) only once. One way to do this is to start a list of each phone number to check against as you go down your log entries and only count those phone numbers appearing for the first time. This is doable if the number of log entries you are analyzing is relatively small, say, less than 100.

If you have collected other information that you want to analyze (and hopefully you have not collected more information than you are going to analyze), you can use the techniques discussed in the preceding sections of this chapter: frequencies, percentages, and crosstabs.

When calculating descriptive statistics from logs, one thing that is crucial to keep in mind is the unit of analysis you are summarizing. With registration forms and sign-in sheets, the unit of analysis is usually a person. With logs, this is not always the case, especially if the numbers that you are tracking are large (over 100 or so). A statistic that can be useful in such cases is a ratio. You can report the number of health and safety complaints per 100 calls for a child care information and referral line, but you could not calculate the percentage of people calling in with problems per your population if you weren’t keeping an unduplicated count of people calling the referral line. (Some people may have called in more than once.)

Reporting Your Findings from Logs

Here is an example of a writeup from a log:

Between January and June 1998, the Latchkey Program was staffed by 12 volunteers and received a total of 476 phone calls. The youngest child who called in was 6 years of age, and the oldest was 16. One hundred and forty-three calls (30%) came from children between the ages of 6 and 9, 214 calls (45%) came from children between the ages of 10 and 12, and 119 calls (25%) came from children between the ages of 13 and 16. Seventy-three percent of the calls were routine check-ins, 19% were to report a problem, and 8% were for other reasons. The most common problem reported was being locked out of their home (27% of problem calls), followed by minor injuries (18%) and fighting or teasing between siblings (13%).

Thinking about Your Findings

Summarizing the information from your documentation sources will provide you with an excellent record of what your collaborative has accomplished to date and what activities or events fell by the wayside. Often, this exercise provides collaboratives with a tremendous sense of accomplishment and, at the same time, a chance to think about why some activities or events went according to plan while others never got off the ground or met a lukewarm response. Your answers to these questions will help your collaborative to decide what changes you will want to make to your strategic action plan for the coming year. This process is outlined in Chapter 18.

Although the results of examining your documentation data generally won’t directly answer whether you are achieving your chosen child and family outcomes, they can often provide some important clues as to why or why not. You may learn from your attendance and registration data that the after-school program you put in place is not being used by the children you think would benefit the most. Or you might learn that you reached more people at this year’s Health and Safety Fair than last year’s or at any other event you have sponsored and attribute this accomplishment to a new publicity strategy, which advertised free food. The important thing is to take time as a learning community to learn what your data and your findings have to teach you.
Exercise #6: Analyzing Logs

Answer the following implementation questions by using the Latchkey Program logs that follow as your data source:

- When did the program begin?
- How many calls has the program received to date?
- How many households (unique phone numbers) have called?
- How old was the youngest caller? The oldest?
- How many calls were “problems”? What percentage of calls were “problems”?
- How many households that called reported “problems”? What percentage of households called to report “problems”?
- Do the types of calls the Latchkey Program receives differ by the age of the child (for age groups 6 – 9 years, 10 – 12 years, 13 – 16 years)?

Use the crosstab table below to help you. Step 1, place hatch marks in the correct box for each log entry. Step 2, total the columns and the rows. Step 3, calculate the percentage in each box by dividing the number in that box by the total of the corresponding column. Step 4, compare the percentages across the top row (problem calls).

San Joaquin County Latchkey Program
Type of Call by Age of Child

<table>
<thead>
<tr>
<th>Type of Call</th>
<th>Age of Child</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6 – 9 years</td>
<td>10 – 12 years</td>
</tr>
<tr>
<td>Problem</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Check-in</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# Latchkey Program Volunteer's Daily Log

**Volunteer Name:** Kathy Hebbeler  
**Date:** 1/19/98  
**Total Calls:** 4

<table>
<thead>
<tr>
<th>NAME OF CHILD</th>
<th>AGE</th>
<th>NATURE OF CALL</th>
<th>DESCRIBE PROBLEM AND HOW IT OR OTHER ISSUE WAS SOLVED</th>
</tr>
</thead>
</table>
| Anna          | 10  | (Circle all that apply)  
PHONE # CALLING FROM?: 595-1273 | CHECK-IN  
PROBLEM  
OTHER | Fighting with brother - discussed how to take turns with toy. |
| Sam           | 10  | (Circle all that apply)  
PHONE # CALLING FROM?: 246-8510 | CHECK-IN  
PROBLEM  
OTHER | |
| Jackson       | 7   | (Circle all that apply)  
PHONE # CALLING FROM?: 596-8324 | CHECK-IN  
OTHER  
PROBLEM | Called for referral to counselor. |
| Cammie        | 16  | (Circle all that apply)  
PHONE # CALLING FROM?: 269-5712 | CHECK-IN  
OTHER  
PROBLEM | |
**LATCHKEY PROGRAM VOLUNTEER’S DAILY LOG**

Volunteer Name: Lynn Newman  
Date: 1/20/98  
Total Calls: 5

<table>
<thead>
<tr>
<th>NAME OF CHILD</th>
<th>AGE</th>
<th>NATURE OF CALL</th>
<th>HOW IT OR OTHER ISSUE WAS SOLVED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tom</td>
<td>8</td>
<td>CHECK-IN</td>
<td>Fell off swing. Appraised injury.</td>
</tr>
<tr>
<td>296-1001</td>
<td></td>
<td>PROBLEM OTHER</td>
<td>Called father to advise.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Erica</td>
<td>12</td>
<td>CHECK-IN</td>
<td></td>
</tr>
<tr>
<td>595-4324</td>
<td></td>
<td>PROBLEM OTHER</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jackson</td>
<td>7</td>
<td>CHECK-IN</td>
<td>Locked out of house. Contacted parent.</td>
</tr>
<tr>
<td>596-8324</td>
<td></td>
<td>PROBLEM OTHER</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maria</td>
<td>9</td>
<td>CHECK-IN</td>
<td></td>
</tr>
<tr>
<td>296-2379</td>
<td></td>
<td>PROBLEM OTHER</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jesse</td>
<td>10</td>
<td>CHECK-IN</td>
<td>Locked out of house. Contacted parent.</td>
</tr>
<tr>
<td>297-6627</td>
<td></td>
<td>PROBLEM OTHER</td>
<td></td>
</tr>
</tbody>
</table>
### Latchkey Program Volunteer's Daily Log

**Volunteer Name:** Stacie Chernier  
**Date:** 2/2/98  
**Total Calls:** 3

<table>
<thead>
<tr>
<th>Name of Child</th>
<th>Age</th>
<th>Nature of Call</th>
<th>Describe Problem and How It or Other Issue Was Solved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antonio</td>
<td>14</td>
<td>(Circle all that apply): CHECK-IN, PROBLEM</td>
<td>Younger brother has fever, vomiting. Contacted parent.</td>
</tr>
<tr>
<td>296-4227</td>
<td></td>
<td>OTHER</td>
<td></td>
</tr>
<tr>
<td>Matthew</td>
<td>11</td>
<td>(Circle all that apply): CHECK-IN, PROBLEM</td>
<td></td>
</tr>
<tr>
<td>595-9175</td>
<td></td>
<td>OTHER</td>
<td></td>
</tr>
<tr>
<td>Aaron</td>
<td>13</td>
<td>(Circle all that apply): CHECK-IN, PROBLEM</td>
<td></td>
</tr>
<tr>
<td>296-8510</td>
<td></td>
<td>OTHER</td>
<td></td>
</tr>
</tbody>
</table>

**Phone # Calling From:**

<table>
<thead>
<tr>
<th>NAME OF CHILD</th>
<th>PHONE # CALLING FROM?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antonio</td>
<td>296-4227</td>
</tr>
<tr>
<td>Matthew</td>
<td>595-9175</td>
</tr>
<tr>
<td>Aaron</td>
<td>296-8510</td>
</tr>
</tbody>
</table>