Use the checklist to learn how to organize the data and conduct your data analysis to ensure you have covered these four key steps. Before beginning data collection, it is important to think about how you will organize and analyze your data and set up systems and keep track of what you are learning.

Organize & clean data

Interpret & draw conclusions

(1) **(2)** **(3)** **(4)**

Analyze data

Identify limitations

Step 1: Did you organize and clean the data?

You should have a system in place to organize the information you collect. Tracking and managing as you go will make it much easier when you begin to analyze all of the data you have gathered. The size or complexity of your data organization depends on how much data you will be collecting.

It's important to put the data into a standard format or template that can be used for you analysis method. Often this is an Excel spreadsheet or basic Word table. The key to recording data is making sure that you're consistent. If multiple people are entering data, make sure to have clear written instructions about how to enter the data, and keep track of any decisions you make about the data (e.g., how you are coding various responses).

If you've collected paper documents (questionnaires, attendance forms, etc.), keep the original documents organized (numbered) in case you need to refer back to them later. If you have electronic data, make sure it is backed up and consistently named and filed.

✔ **Ethical.** Consider the sensitivity of your data and who will have access to it. It may be necessary to mask personal information and use identification numbers on your data (e.g., each completed survey, or interview transcript). It also may be important to store your original data sources and any identifying information separately and securely.

Cleaning the data involves reviewing each item and decided in if anything is incomplete, not understandable, or out of line in any way. For example, are there instances in which respondents selected two answers when only one should be selected? Such problematic responses should be deleted from the data set you will analyze. For qualitative data, you should ensure that your notes or transcripts are complete and understandable.

Step 2: Did you analyze the data with a method that answers your evaluation question?

Analysis can be very complicated or very simple, depending on the type of data you have and what you want to be able to say about the data. The analysis method that you will use depends on the type of data you collected and the indicators you are using. Your initial data analysis will help you compile lists of patterns, themes and unanticipated results such as high or low numbers, unique perspectives.

More detailed information on how to do each of these analysis methods can be found at the end of this tool.

- **Qualitative analysis** involves carefully reviewing responses to survey questions where people wrote in answers, interview or focus group transcripts, and observation notes. The goal is to identify the key points as well as patterns or themes that emerge.

  You can use simple analysis methods, like creating tables in Word or highlighting themes on paper copies of responses. See page 3.

- **Quantitative analysis** involves tallying responses or doing familiar calculations like averages and percentages, or sometimes doing new calculations like weighted averages or comparisons.

  An Excel spreadsheet can be used for these types of calculations, which are usually adequate for beginning to understand your results. See page 5.

Key finding	Conclusion
60% of kids who participated in after-school nutrition classes reported eating at least 5 servings of vegetables per day (compared to 25% who had not participated in the nutrition classes).	Over the past six months, the after-school nutrition program contributed to an increase in vegetable consumption.

Step 3: Did you interpret the data and develop conclusions to answer your evaluation questions?

The next step is to interpret the data—to ask what the data are telling you about your program. These are your key findings. What story do your data tell? What key findings would be of most interest to your stakeholders? What do the data say about your organization or program that might need attention? Often you will find that your initial analysis raises more questions than it provides answers.

To help make sense of the data, review your data for patterns, trends or themes that help you to tell a clear and compelling story about your program/organization. For example:

- Compare the results against targets set for the program
- Describe trends in the program data over time by comparing the data you collected at one point in time against data that was collected in the same way at another point in time— for example at the beginning and end of the program.
- Compare with other similar programs that have shared their findings, or compare the results against standards established by others, such as funders or government agencies.
- Look for outliers (e.g., high numbers, low numbers, or unique perspectives) and note expected/unexpected results; consider what insights these provide.

✔ **Accurate.** Involve your team and other stakeholders as you interpret the data. Getting different opinions on meaning and importance will lead you to the most accurate conclusions. It's also helpful to consider different explanations for the results.

Now it is time to pull the results together into an overall picture of your program by drawing conclusions. Conclusions answer the evaluation questions and describe what you learned. Depending on your reason for evaluating, you may highlight conclusions that relate to the program's strengths and best practices, the impact it is having, or areas where it is not performing well. What do the patterns in the data or the comparisons tell you?

✔ **Accurate.** Involve your team and other stakeholders as you interpret the data. Getting different opinions on meaning and importance will lead you to the most accurate conclusions. It's also helpful to consider different explanations for the results.

Now it is time to pull the results together into an overall picture of your program by drawing conclusions. Conclusions answer the evaluation questions and describe what you learned. Depending on your reason for evaluating, you may highlight conclusions that relate to the program's strengths and best practices, the impact it is having, or areas where it is not performing well. What do the patterns in the data or the comparisons tell you?

Extracting meaningful conclusions from data can be straightforward if the data provide clear, direct answers to your evaluation questions. However, it can be challenging if the answers are less apparent or if different data sources yield results that lead to different conclusions. If the conclusions aren't clear, it's a good idea to talk with your stakeholders and see if you need different data to answer your question.

Step 4: Did you examine and document the limitations of the evaluation?

An important part of the process is identifying the limitations of the evaluation—that is, any factors that may have affected the results. These may be things directly related to the evaluation, like how the data were collected, poor response rates, or biases that could have been introduced. They could also be things beyond your control, like political or economic changes.

✔ **Accurate.** When you report the results and conclusions, acknowledging the limitations will strengthen people's confidence in your results because you are being transparent about what you can and cannot claim.

Qualitative data analysis

Qualitative analysis involves looking for themes and patterns across the stories and descriptions (narrative data) that respondents have shared as part of your data collection. Narrative data often comes from:

- People writing in their answers to open-ended survey questions
- Interviews transcripts
- Focus groups transcripts
- Observation notes

Start by deciding how you are going to analyze your narrative data and making sure you have all of it in one place for your analysis. Simple analysis can be done using basic Word tables. Or you can print the transcripts or open ended responses and highlight themes or patterns by hand. (For more complex analysis, there are software programs to assist you (e.g., Atlas.ti, NVivo) but most of these require additional training.)

What are the steps for analyzing qualitative data?

- Carefully read through and get to know your data.
- Identify themes that you will focus on in your analysis, which you will categorize as "codes." They can emerge as you begin reading through your data, or you can identify them in advance.
- Read through transcripts and open ended responses and highlight key quotes using highlight functions in Word or hand-written brackets. Add the corresponding code by each highlighted section.

  NOTE: If more than one person is coding, it is a good idea to check that everyone is using the codes in the same way (inter-rater reliability). To do this, select one interview and compare your codes to ensure that you are coding consistently.
- Sort quotes into groups based on the codes (themes) so you can look at all the quotes that were coded the same way at the same time. You can cut and paste similar responses (either in Word or by hand) or use Word table to sort and group responses.

- Interpret patterns. As you look at the data for each theme, note the specific patterns you see and what new insights should be highlighted.

- Determine if there are themes for which additional analysis would be beneficial. For example, are there ways to sort your data that might provide you with additional insight? Are there themes that you would like to break down further into sub-themes?

- Pull relevant quotes from the data to help tell the story when reporting.

When analyzing qualitative data, here are some general guidelines to keep in mind:

- Make the analysis fit the purpose for the evaluation. How will this information be used? What do stakeholders really want to learn?

- It is tempting to include too much in your analysis because qualitative data can have a lot of interesting, rich detail. To conduct analysis effectively, focus on the needed information.

- Interpretation is more than description—think about the significance of the findings.

- Allow adequate time for analysis.

Quantitative analysis

Quantitative analysis involves counting or performing summary calculations. The table below provides a description of common techniques and calculations you could use. For these simple calculations you can use a spreadsheet program like Excel to organize and analyze your data. After completing the initial calculations, you may identify areas where more detailed analysis could provide you additional insight?

✔ **Accurate.** Do you know who your respondents are for each question? Respondents are the people who responded to each particular question in your data collection method (e.g., your survey or interview). Sometimes people skip a question and would not be counted as respondents for that question in your analysis!

Response rates. Often you will want to calculate and track the response rate for a given method. For example, how many of surveys that you sent out were returned? And of those, how many were usable?

To do this calculation, you need to know how many questionnaires fall into each step of the process. The response rate of completed surveys or interviews divided by the number of surveys distributed or people contacted (sample size). E.g., if 120 surveys were distributed and 76 responded, the response rate is 76/120, or 63%.

How to analyze and interpret data

Purpose	Analysis technique	How to do the calculation	Sample question and answer
Do you want to know the number of respondents that selected a response?	Frequency	Count the number of responses for each response option	**How many respondents indicated that they had participated in the class?** 14 students participated in the class
Do you want to know what percentage of respondents answering the question selected each response?	Percentage	Calculation: the # of respondents selecting option 'A' ÷ total number of responses = PERCENT	**What percentage of respondents indicated they attended the class monthly?** 10 students selected option A (attending monthly) ÷ 20 students that responded = 50% of students attended the class monthly.
Do you want to know the full range of scores/values to a question?	Range	Identify the highest and lowest value. Describe this as "low # - high #"	**What is the range of number of people in a household?** Household size ranged from 1-6 people
Do you want to know the average of all items in a numerical set of data?	Mean (average)	Add up (sum) all the responses ÷ total number of responses = MEAN (average)	**What is the average number of people in a household?** You have 21 responses, as follows: 1, 1, 2, 2, 2, 2, 3, 3, 3, 4, 4, 4, 4, 4, 4, 4, 5, 5, 6, 6 The total of all responses is 73, divided by the number of responses (21), means the average household size is 3.5.
Do you want to know the mid-point in a range of scores/values when you have some significant outliers (i.e., very high or very low numbers)?	Median	Sort all responses values in ascending (or descending order). The median will be the value at the mid-point of the list (e.g., if you have a list of 21 responses, the median would be the value listed 11th). If you have an even number of responses, the median is the average of the two values at mid-point (i.e., with a list of 20 responses, average the 10th & 11th responses).	**What is the median number of people in a household?** You have a list of 21 responses, as follows: 1, 1, 2, 2, 2, 2, 3, 3, 3, 4, 4, 4, 4, 4, 4, 4, 5, 5, 6, 6 The median is 4, which is the 11th number.
Do you want to understand the average when you are using a rating scale like satisfaction with the program?	Weighted average	Assign a numeric value or "weight" to each response option in the rating scale Multiply the option's assigned value (weight) by the number of times the option was selected. Calculate the subtotal (weight X # responses) for each response option. Divide that total by the # of responses.	**What is the weighted average of satisfaction with the program? The weights range from 1 (not at all satisfied) to 5 (very satisfied)** For example: 177 ÷ 50 respondents = 3.5 weighted average. Based on the weighting scale, this shows the average response was between "neutral" and "satisfied."
Do you want to compare the responses of two different groups?	Cross tabulation	Identify "groups" that you are interested in and calculate frequencies and percentages for each group's responses; compare and look for similarities and differences. (Requires statistical analysis to determine if the difference between groups is significant.)	**Which participants were more satisfied with the classes?** For example, your crosstabs table might look like this.

Weighted average example table:

Response Option	Weight	# Responses	Weight x # Responses
1 (not at all)	1	4	4
2	2	8	16
3 (neutral)	3	9	27
4	4	15	60
5 (very)	5	14	70
TOTAL		50	177

Cross tabulation example table:

	Satisfied	Not satisfied
Sex		
Male	46%	54%
Female	45%	55%
Has primary care physician?		
yes	65%	35%
no	26%	74%
Has been diagnosed with chronic condition?		
yes	47%	53%
no	44%	56%

Cottage Population Health

Quantitative analysis guidelines

When analyzing quantitative data, here are some general guidelines to keep in mind:

- When you are looking at your findings, provide both the number and percentage for each response. Percentages alone can be misleading because people don't have a sense of the number of people that responded to that question. This is particularly a problem when you have a small number of respondents.

- It's important to figure out correct base (denominator) for each item you analyze. Use the actual number of responses to that particular item/question, not the overall number of responses to the entire survey. For example, sometimes people will skip answering a particular question and they shouldn't be included in the base (denominator) for analysis that particular question.

- Do not average percentages – this won't give you an accurate calculation. Use the original numbers when calculating overall percentages.

- Be careful when collapsing response options into bigger categories for your analysis. You can lose a lot of detail in your data by doing this.

- Do not automatically use averages instead of using more complete information. Averages are useful, but don't take into account people who responded very positively or very negatively (i.e., outliers), which can provide useful information.

- If you are interested in more sophisticated analysis of quantitative data you will need access to an analysis program (e.g., SPSS, SAS, STATA) and training on how to use it.

Once you are satisfied with your analysis, you need to determine the best way to share the data and report on the results. This typically entails creating tables, charts and/or other data displays to show the data. Please see the Resources page for links to Excel tutorials and other resources for visually displaying data.

For more information about analyzing evaluation data, please see the toolkit Resources page.

Sources:

- University of Wisconsin–Extension: Program Development and Evaluation
http://fyi.uwex.edu/programdevelopment/