

Process Component #1. Purpose(s):

What Do We Do? & Why?

An effective data analysis process is based upon the nature and mission of the organization as well as upon the skills of the team that is charged with the task of collecting and using data for program purposes. Above all, an effective data analysis process is *functional* – i.e., it is useful and adds value to organizational services and individual practices. In some cases, the data analysis process can even be regarded as *fun*.

As you know, the Head Start Program Performance Standards (HSPPS) are the basic framework for program operations. In addition, Head Start program operations are guided by other federal and state regulations, local licensing requirements, community factors, and the goals/mission of the agency. Therefore, a preliminary step in the data analysis process is to select and train a team to carry out the process (refer to Section IV., for a discussion of “Who should be at the table?”).

Because the HSPPS present minimum standards for program services and provide guidance for the implementation of the various content areas, a process for data collection and analysis should be consistent with these and other regulations. More specifically, these standards are the basis for the first step in the data analysis process – forming one or more specific questions to be examined.

Process Component #2. Question(s):

What Do We Want To Know?

Before effective data collection or analytical procedures can proceed, one or more specific questions should be formulated. These questions serve as the basis for an organized approach to making decisions: first, about what data to collect; and second, about which types of analysis to use with the data.

Some questions are close-ended and therefore relatively straightforward, e.g., “Did our program meet the 10% mandate for serving children with disabilities last year”? Other questions are highly open-ended, such as: “How could we do a better job of parent involvement?” In the first case, there are only two possible answers to the question: “Yes” or “No.” In the second case, a possible answer to the question could include many relevant pieces of information. Many real-life questions that program staff face in the course of their work fall somewhere in between these two extremes.

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Different types of questions require different types of data – which makes a difference in collecting data. In any case, the selection of one or more specific questions allows the process of data collection and analysis to proceed. Based on the nature and scope of the questions (i.e., what is included in the question) programs can then create a plan to manage and organize the next step in the process – data collection. Finally, by formulating specific questions at the beginning of the process, programs are also in a position to develop skills in evaluating their data analysis process in the future.

Process Component #3. Data Collection:

What Information Can Help Us Answer Our Question(s)?

Data collection is a process in and of itself, in addition to being a part of the larger whole. Data come in many different types (see the discussion in Section III.), and can be collected from a variety of sources, including:

- Observations
- Questionnaires
- Interviews
- Documents
- Tests
- Others

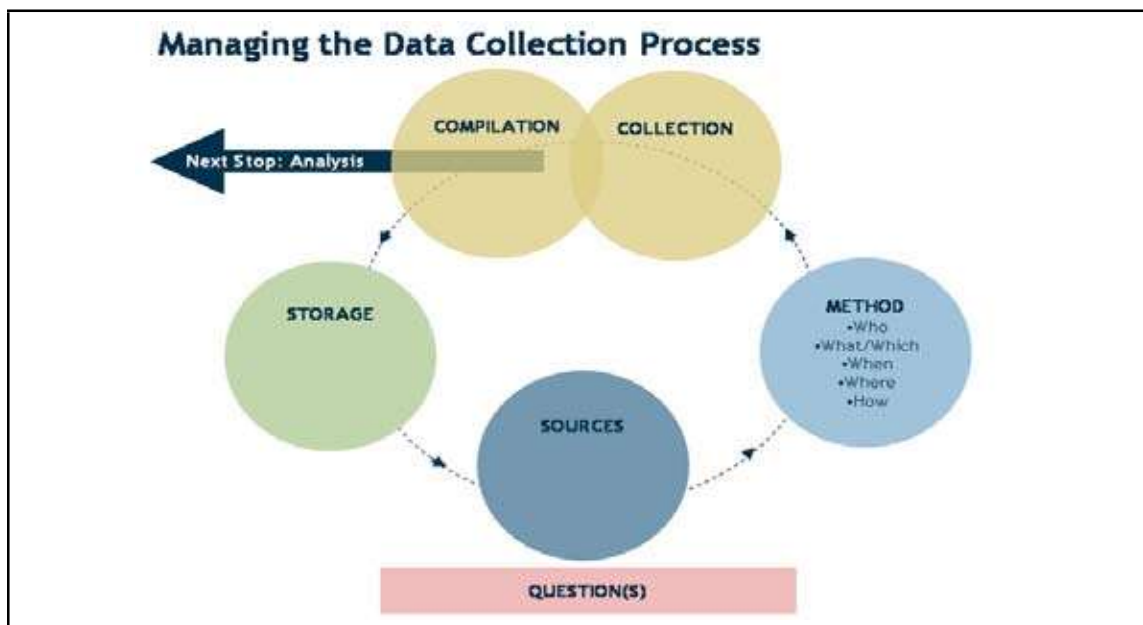
The value of carefully selecting the questions to be examined is therefore of major importance: the way that the question is worded is the foundation for an effective data collection plan. We urge programs to develop a specific planning process for data collection (no matter how brief) in order to avoid the common pitfalls of the collection process, which include having:

- Too little data to answer the question;
- More data than is necessary to answer the question; and/or
- Data that is not relevant to answering the question.

In order to successfully manage the data collection process, programs need a plan that addresses the following:

- What types of data are most appropriate to answer the questions?
- How much data are necessary?
- Who will do the collection?
- When and Where will the data be collected?
- How will the data be compiled and later stored?

By creating a data collection plan, programs can proceed to the next step of the overall process. In addition, once a particular round of data analysis is completed, a program can then step back and reflect upon the contents of the data collection plan and identify “lessons learned” to inform the next round.



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Process Component #4. Data Analysis:

What Are Our Results?

Once data have been collected, the next step is to look at and to identify what is going on – in other words, to analyze the data. Here, we refer to “data analysis” in a more narrow sense: as a set of procedures or methods that can be applied to data that has been collected in order to obtain one or more sets of results. A list of specific analytical procedures and methods is provided below.

Because there are different types of data, the analysis of data can proceed on different levels. The wording of the questions, in combination with the actual data collected, have an influence on which procedure(s) can be used – and to what effects.

The task of matching one or more analytical procedures or methods with the collected data often involves considerable thought and reflection. As a GAO report puts it, “Balancing the analytic alternatives calls for the exercise of considerable judgment.” This is a rather elegant way of saying that there are no simple answers on many occasions.

Process Component #5. Interpretation:

What Do The Results Mean?

Once a set of results has been obtained from the data, we can then turn to the interpretation of the results.

In some cases, the results of the data analysis speak for themselves. For example, if a program’s teaching staff all have bachelor’s degrees, the program can report that 100% of their teachers are credentialed. In this case, the results and the interpretation of the data are (almost) identical.

However, there are many other cases in which the results of the data analysis and the interpretation of those results are **not** identical. For example, if a program reports that 30% of its teaching staff **has** an AA degree, the interpretation of this result is not so clear-cut.

In this case, interpretation of the data involves two parts: 1) presenting the result(s) of the analysis; and 2) providing additional information that will allow others to understand the meaning of the results. In other words, we are placing the results in a context of relevant information. Obviously, interpretation involves both decision making and the use of good judgments! We use the term results to refer to any information obtained from using analysis procedures. We use the term findings to refer to results which will be agreed

upon by the data analysis team as best representing their work. In other words, the team may generate a large number of results, but a smaller number of **findings** will be written up, reported, and disseminated.

On a final note, it is important to state that two observers may legitimately make different interpretations of the same set of data and its results. While there is no easy answer to this issue, the best approach seems to be to anticipate that disagreements can and do occur in the data analysis process. As programs develop their skills in data analysis, they are encouraged to create a process that can accomplish dual goals: 1) to obtain a variety of perspectives on how to interpret a given set of results; and 2) to develop procedures or methods to resolve disputes or disagreements over interpretation.

Process Component #6. Writing, Reporting & Dissemination:

What Do We Have To Say? How Do We Tell The Story of Our Data?

Once data have been analyzed and an interpretation has been developed, programs face the next tasks of deciding how to write, report, and/or disseminate the findings.

While it is not the purpose of this Handbook to provide guidance on writing and reporting, we can offer several basic suggestions. First, good writing is structured to provide information in a logical sequence. In turn, good writers are strategic – they use a variety of strategies to structure their writing. One strategy is to have the purpose for the written work to be clearly and explicitly laid out. This helps to frame the presentation and development of the structure of the writing. Second, good writing takes its audience into account. Therefore, good writers often specify who their audience is in order to shape their writing. A final thought is to look upon the writing/reporting tasks as opportunities to tell the story of the data you have collected, analyzed, and interpreted. From this perspective, the writing is intended to inform others of what you – the data analysis team – have just discovered.

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Process Component #7. Evaluation:

What Did We Learn About Our Data Analysis Process?

The final step of the data analysis process is evaluation. Here, we do not refer to conducting a program evaluation, but rather, an evaluation of the preceding steps of the data analysis process. Here, program staff can review and reflect upon:

- **Purpose:** was the data analysis process consistent with federal standards and other, relevant regulations?
- **Questions:** were the questions worded in a way that was consistent with federal standards, other regulations, and organizational purposes? Were the questions effective in guiding the collection and analysis of data?
- **Data Collection:** How well did the data collection plan work? Was there enough time allotted to obtain the necessary information? Were data sources used that were not effective? Do additional data sources exist that were not utilized? Did the team collect too little data or too much?
- **Data Analysis Procedures or Methods:** Which procedures or methods were chosen? Did these conform to the purposes and questions? Were there additional procedures or methods that could be used in the future?
- **Interpretation/Identification of Findings:** How well did the interpretation process work? What information was used to provide a context for the interpretation of the results? Was additional relevant information not utilized for interpretation? Did team members disagree over the interpretation of the data or was there consensus?
- **Writing, Reporting, and Dissemination.** How well did the writing tell the story of the data? Did the intended audience find the presentation of information effective?

See Appendix C for a checklist on how to evaluate your data analysis process. Section V walks you through several content examples using all of the process components identified above.

In sum, data analysis is a process: a series of connected activities designed to obtain *meaningful information* from data that have been collected. As the graphics demonstrate, the process can be conceptualized in different ways (linear or cyclical). However, we strongly believe that either approach can be effective if each of the individual components of the process are included. In turn, each part of the process is based on **decision making**. Each stage of the process includes decision making; *which* decisions are made will then influence the remaining stages of the process.