



Introduction

Why Do Head Start Programs Need Data and Analytic Capacity?

All Head Start programs need to collect and analyze data and other information to find ways to improve their operations. Bringing continuous improvement to the field means using data, evidence, and evaluation at all levels.

Why Do I Need This Toolkit?

Building capacity to use data to make better decisions is not a one-time, quick-fix project. It will require an organizational shift that will take time and require deliberate changes in process, capacity, and approach.

How Do I Use It?

NHSA has developed this toolkit to guide Head Start programs through thinking about the data skills they need, the skills they have or could develop on staff, and how to hire for or buy data skills. Remember, everyone will find different pieces of this toolkit useful, so feel free to focus only on the elements that meet your program's needs.

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Toolkit Content



Methods to Demonstrate & Improve Effectiveness



Data Quality

Assess the current quality of your data and identify inaccurate, untimely, or inaccessible data. Identify cost-effective ways to fix the problems identified.



Data Analysis

Analyze your data to identify trends, outliers, relationships, and anomalies, all of which signal potential opportunities to improve program effectiveness or areas for improvement.



Data Collection and Design

Identify and implement simpler ways to enter data that facilitates minimally burdensome collection and accurate and timely entry.



Data System Management

Make the most of each management information system to glean as much knowledge from it as possible.



Data Integration

Bring data from various sources (such as your data management, child assessment, HR, and finance systems) together to identify opportunities for improvement areas in need of attention.



Data-Driven Decision Making Training

Bring data and data analysis into your program's decision-making processes to guide improvement efforts.



Data Visualization

Visualize data, using graphs, charts, and other methods to make it understandable to teachers, managers, parents, and other stakeholders.

Developing Data Capacity

Assessing Data Needs Checklist

The following checklist is a starting point for you to consider how your program currently uses data. While each program's management team is structured differently, this exercise is best completed as a full team (if not too large) or with a smaller committee, with managers from at least three of the major departments (eg. ERSEA, health, disabilities, family engagement, etc.) Work through the following questions as a team.

Once you have finished this worksheet, you can begin prioritizing items based on how important they are for your program to address and what your current capacity for tackling them is. Consider any items for which your program currently does not use data or for which your program only scratches the surface of what is possible. The patterns you see in these questions and your answers should guide your prioritization and planning.

Do you use data to complete the following tasks?

☐ Inform parents about their child's developmental progress, strengths, and needs?

☐ Help parents set specific goals for contributing to their child's growth for the year?

☐ Identify a child's needs upon entry to Head Start?

☐ Track a child's developmental progress throughout the year?

☐ Identify patterns among subgroups of children?

☐ Evaluate the appropriateness of various programs and services for individual children?

☐ Assess whether children are safe in your program?

Assessing Data Needs Checklist

☐ Identify families' strengths and needs?

☐ Measure families' progress throughout the year?

☐ Track a child's developmental progress throughout the year?

☐ Identify strengths and professional development needs of staff?

☐ Track progress and growth in staff over multiple years?

☐ Gauge changes in the community year-to-year?

☐ Adapt your eligibility prioritization strategy?

☐ Measure how well your program is meeting the community's needs?

☐ Allocate your budget each year?

☐ Track compliance against local, state, and federal regulations?

☐ Identify patterns of non-compliance?

Developing Data Capacity

Data Tools



Identifying the Right Data Tools

Don't let all of the analytics and data jargon overwhelm you or convince you that implementing a quality improvement process requires a six-figure investment. Analytics can be as basic or as complex as you need them to be based on your available resources, patience for implementation, and program capacity. There are few types of tools, some of which you might already use, that can be easily deployed in your organization for data visualization and analysis. None of these tools are absolutely required to implement a quality improvement process, and the needs, priorities, and capacity of your program will dictate which of these will be applicable to you. Analytics can be as basic or as complex as you need them to be based on your available resources, patience for implementation, and program capacity.

Data Tools



Data
Integration



Data
Visualization
Software



Data
Distribution
Platform

Analytics can be as basic or as complex as you need them to be based on your available resources, patience for implementation, and program capacity.

Data Tools



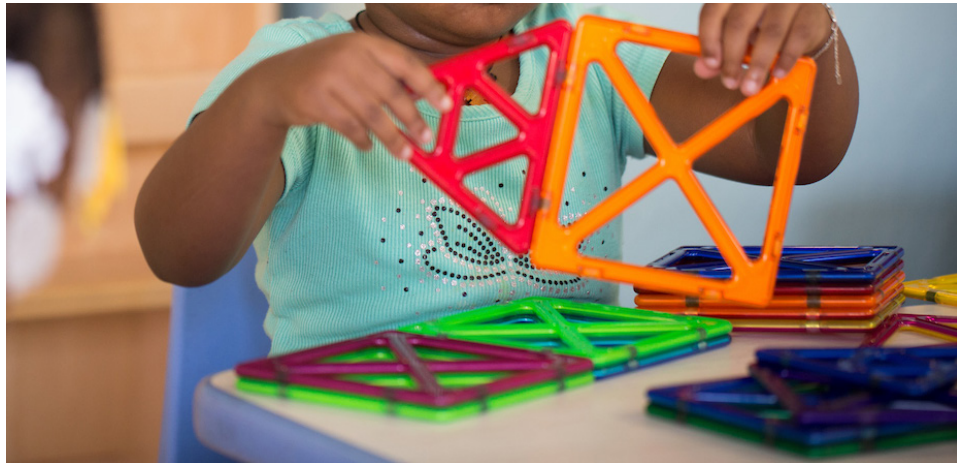
Data Integration

Many Head Start programs store data in a variety of different systems – one for demographic and management information, a different one for assessment data, another for finance, a fourth for human resources, and more and more. Data warehouses are one way that information can be collected from these disparate, siloed systems and integrated to allow for analysis.

Data warehouses store massive amounts of data that is readily available for analyzing and making management decisions. They have been used in the for-profit world for decades, but are only now starting to become more prevalent in the education space. While the process is complex, using a data warehouse is one way to integrate data while respecting privacy rules.

Designing and building a data warehouse, if you choose that route, may be the largest cost you will incur when implementing an analytics program, depending on how complex the warehouse will be, how many system integrations are needed, and whether the integration will be automated or manual. There are also standard, pre-built data warehouses that can be adapted to fit your organization instead of building a new one from the ground up.

Another option for integrating data across multiple systems is to use open APIs. APIs, or application program interfaces, are software interfaces that communicate with the various systems but do not require the data to be exported and stored together. Instead, it is possible to build a module (like a webpage) that can talk to each of the various systems, collecting the information it needs, and providing you with analytics or visualizations as needed.



Data Visualization Software

Once you have aggregated your data, the next step is to analyze it. There are a variety of tools that will allow you to slice and dice your data and create visualizations that provide actionable information to everyone from classroom teachers on up to executive directors.

There are a wide range of data modelling and visualization tools available that fall everywhere on the cost spectrum – from no-cost to thousands and thousands of dollars. For some organizations, an Excel-based (or similar) reporting tool may be sufficient. For other organizations, more complex data visualization tools can provide robust analysis and visualization capabilities for a relatively low monthly per user fee.

Two of the highest ranking tools that Head Start programs have been able to use are Microsoft Power BI and Tableau.



Data Distribution Platform

After producing your data models and visualizations, you need a vehicle for sharing the actionable information with staff, management, executives, board members, and any other stakeholders in your organization.

It is critical to ensure that the information is shared regularly, no matter which distribution method you choose. Options for sharing include everything from printed handouts, static reports via e-mail, or interactive online dashboards. You can tailor the distribution of information in the manner that most suits your audience.

Consider whether your organization is best-suited and prepared for static reports or dynamic reports. Static reports are just that, static. The information is a snapshot in time and does not change. These are most likely printed or electronic reports. Dynamic reports on the other hand act more like a window through which you can observe the changing environment. With dynamic reports, you can change the way you are looking at the information by applying filters and selecting different pieces of information to view. Dynamic reports are accessed electronically, usually through online or software-based dashboards.

Developing Data Capacity

Hiring Staff vs. Contracting Out

In-House or Outsourcing?

Before you go about writing job descriptions, finding room in your budget, or writing up an RFP, you need to identify whether your organization is best suited to conduct data work internally or if you should outsource to a consultant. The worksheet below can help you identify which is a better fit for your program.

With the help of your program's management team (either as a full team or with a smaller committee with a representative from each department) use this worksheet to guide your conversation and write concrete thoughts down about your program's current capacity. Hiring additional staff or working with an external contractor are both strong potential options; it just depends what is best for your program. Answering "yes" and "no" honestly will help guide you to the right answer.

Do we have the staff talent we need to do our data analysis in-house?	☐ Yes ☐ No	
Do we have the technology we need to do our data analysis in-house?	☐ Yes ☐ No	
Do we have the financial means to acquire additional staff talent or technology that might be necessary?	☐ Yes ☐ No	
Do we have management and staff with the time and expertise to commit to leading this initiative in-house?	☐ Yes ☐ No	

If your program does not have a lot of existing capacity in-house, meaning you answered "no" to most, if not all, of these questions, working with a consultant is likely the right fit for your program. Using a consultant will require a smaller and shorter-term financial commitment (as opposed to taking on an additional salary for a new staffer) and likely fits better

with the current knowledge and available time you have on staff (as opposed to assigning data responsibilities or additional management duties to an already overburdened employee.)

If your program has some or a significant amount of internal capacity, meaning you answered "yes" to most, if not all, of

these questions, you might be in a good position to hire additional staff to take responsibility of your data work in-house. You could also consider using the skills and expertise of an outside consultant to assist in the implementation and adoption of your project, while you work to hire new staffers and assign new responsibilities to existing staff.

Developing Data Capacity

Posting New Jobs



Posting a Job Description:

Below are just a few examples of places that you may consider posting a job description if you decide to hire staffers to be responsible for data analysis within your program.

- Your organization's website
- Your state or regional association's job posting page
- NHSA's online job posting page
- Career pages of local colleges or universities
- Popular job search engines, such as Indeed, LinkedIn, ZipRecruiter, or Monster

Details on the Sample

Job Descriptions:

On the following page, you will find a sample job descriptions. The description, responsibilities, and qualifications listed are merely examples of what might be appropriate. You are encouraged to adapt this information to meet your program's needs. You are welcome to copy or edit the language below without permission from NHSA.

The language or details that you should fill in with the relevant information about your program or for the job you are hiring are enclosed in <brackets> so you can identify them easily.

Sample Job Description 1

Position: Data Manager

Organization Description: <2-3 summary sentences about your organization, such as your mission statement, what you services you provide, and who you serve.>

Job Description: The Data Manager will be responsible for planning, developing, implementing, and overseeing a comprehensive data strategy for <program name>. The Data Manager will work across all content areas (including ERSEA, education, family engagement, disabilities services, and health & nutrition services) to push <program name>'s agenda to use data-informed decision-making throughout the program.

The Data Manager will be responsible for training and monitoring staff on data quality and integrity and for conducting regular data analysis, creating data visualizations, and communicating relevant information to staff.

Job Responsibilities:

- Review (and revise as necessary) <program name>'s data strategy, maintaining compliance with the Head Start Program Performance Standards
- Lead improvement or upgrade of existing data systems, processes, and procedures to align with data strategy, as necessary
- Provide (or arrange for) training and technical assistance for program staff
- Perform regular audits of and monitor data collection to maintain integrity and quality
- Produce regular progress reports, conduct data analysis, and provide relevant visualizations and reports to leadership team
- Collaborate with other departments to develop and provide additional data analysis, visualizations, and reportsIdentify additional opportunities for data-informed decision-making and develop relevant reports
- Supervise the Data Analyst
- Other duties as assigned

Required Qualifications:

- 3-5 years of professional experience in data systems or analytics, with at least one year of supervisory experience
- Bachelor's degree in mathematics, statistics, computer science, or related field
- Experience with Microsoft Office
- Familiarity with <databases/systems in use>
- Strong written and oral communication skills

Preferred Qualifications:

- Master's degree in mathematics, statistics, computer science, or related field
- Prior experience with <databases/systems in use>
- Knowledge of early childhood education

Salary: <Insert here: Specific salary range or "Commensurate with experience" are both applicable. Provide any relevant information on additional benefits, such as medical insurance, retirement plans, and holiday/vacation time.>

How to Apply: <Depending on your hiring system: "Submit a resume and cover letter to <appropriate e-mail address>" or details on submitting through the job posting site or your organization's job portal.>

Sample Job Description 2

Position: Data & Information Analyst

Organization Description: <2-3 summary sentences about your organization, such as your mission statement, what you services you provide, and who you serve.>

Basic Job Function: Under the direction of a Coordinator, Supervisor, or senior level administrator, conduct a variety of analytical activities; analyze data, information, proposed legislation, policies and procedures for assigned program; and, prepare and present reports.

Class Distinguishing Characteristics: Familiarity with resources for retrieving data and information to support reporting, decision-making, program development, and report writing. Develop periodic reports of program activity; provide advice and assistance in program development; monitor programs and review data to assure consistency with program requirements.

Representative Duties:

- Provide on-site training and technical assistance to program personnel and others regarding program requirements and other matters.
- Coordinate the collection and preparation of data and information required by federal and state compliance agencies, dictated by program needs and necessary for leadership knowledge and decision-making.
- Conduct and analyze the results of data and information gathers and surveys pertaining to assigned programs and community needs; prepare reports and formulate recommendations as appropriate.
- Review and process data and information requests.
- Assist in preparing written responses regarding state and federal regulations affecting assigned programs.
- Respond to inquiries regarding program data requirements; interpret program regulations, policies, and procedures; and advise clients.
- Perform a variety of special projects involving analysis of research, surveys, and other data; analyze and evaluation data and information; and prepare recommendations as appropriate.
- Compose correspondence and maintain records and files.
- Plan and implement meetings and seminars regarding assigned program and provide leadership to various committees as assigned.
- Research state and federal regulations and applicable provisions related to program-specific matters and assist in the development and publication of analyses of new regulations.
- Assist in the development and updating of program policies, procedures, and related forms and notices for the office and for outside agencies, community partners, and districts.
- Perform related duties as assigned.

Qualifications

Knowledge of:

- Data and information gathering and analysis processes.
- Data and information control and preparation.
- Applicable sections of the applicable state and federal regulations and other applicable laws.
- Operation of a computer terminal, data entry techniques, and statistical analysis procedures.

Sample Job Description 2 (Continued)

Ability to:

- Plan, develop, Plan, develop, implement and continually assess integrated, comprehensive programs.
- Make independent judgments with minimal supervision.
- Demonstrate the use of effective organizational skills.
- Establish and maintain cooperative and effective working relationships with others.
- Communicate effectively both orally and in writing.
- Perform comprehensive and complex mathematical calculations using calculator or computer.
- Collect and analyze data objectively and prepare appropriate recommendations and reports.
- Effectively conduct surveys and organizational studies.
- Develop and implement specific training programs.
- Develop goals, objectives and practical solutions to technical and administrative problems

Education & Experience:

Any combination equivalent to: bachelor's degree in a related field and three years of successful experience in data and information analysis, development of program and written reports, and use of independent judgment.

License & Other Requirements:

- None

Environment:

- Office environment

Hazards:

- None

Physical Demands:

- Sitting for extended periods of time.
- Seeing to read a variety of materials.
- Hearing and speaking to exchange information.
- Dexterity of hands and fingers to operate a computer keyboard.

Salary: <Insert here: Specific salary range or "Commensurate with experience" are both applicable. Provide any relevant information on additional benefits, such as medical insurance, retirement plans, and holiday/vacation time.>

How to Apply:

<Depending on your hiring system: "Submit a resume and cover letter to <appropriate e-mail address>" or details on submitting through the job posting site or your organization's job portal.>

Developing Data Capacity

How to Integrate Data Literacy into your Normal Hiring Process



Before you post an open position or recruit a new staff member consider what level of data literacy someone in that position should have and what role you want them to play in using data in your organization. Ask yourself the following questions before you finalize any job posting details and prepare in advance how you will screen for them during the hiring process.

Consider the position's relationship to data in the organization:

- What, if any, data will this staffer be responsible for collecting?
- What, if any, data will this staffer receive from others?
- What data will the staffer be responsible for using on a regular basis to inform their practice or someone else's?
- Who will this staff need to communicate with using data? (eg. Management, assistants, board members)
- Are there any specific data skills that this staffer must possess in order to adequately perform the job?

Consider the applicant pool:

- Will there be people with the experience and skills you need in your usual applicant pool?
- If not, where else might you post the job or recruit applicants from?
- If not, are there any likely applicants who could be trained quickly on this front? Are you willing to train them?
- Can you rely on credentials (eg. degrees or certifications) to screen for data literacy and specific data skills?

Consider each applicant:

- What is their past experience with data?
- What specific skills or strengths do they have with data?
- Ask them to complete a sample exercise as part of the interview process that tests their data literacy.

Developing Data Capacity

Request for Proposals (RFP)



The RFP: Request for Proposals

A Request for Proposals (very commonly spoken of using only its acronym, RFP) is exactly that: a document outlining what you are looking for that you send to companies or individuals that could potentially fulfill your request. The ‘suppliers’ send you back a proposal responding to the questions and requirements you listed and outlining their ability to fulfill your request either within the budget you provided, or with an estimated cost. Based on the proposals you receive, your organization will need to evaluate your options, identify who you intend to contract, and work with them to establish a final contract.

Step 1: Preparing to Write an RFP

The RFP only requires you to provide an initial proposal of the work you are hoping to contract out, but the more specific you are able to be, the more the respondents will be able to provide you with detailed and useful information about what they can offer. Within your organization, you will need to identify what the proposed scope of work is, which may require conversations with several different stakeholders to understand what your needs are, what role you want the contractor to fulfill, and what resources (time and money) you are willing and able to dedicate.

Step 2: Writing an RFP

Your RFP should contain several components. On the following page, you will find an outline that will help you complete each section.

Requests for Proposals

RFP Section	Details
1. Project Overview	To the extent possible, be clear and specific about what kinds of data help you are seeking.
2. Background on Head Start	Include links to online supporting resources, such as the Head Start Program Performance Standards and the new monitoring protocol.
3. Background on Your Organization	Include links to your website or information from your annual report (if applicable).
4. Scope of Work	Details of the work you want done and the deliverables you expect at the end.
5. Response Guide	Deadline for proposals to be submitted, details on how proposals should be submitted, and contact information of who to contact with questions.
6. Technical Requirements	To the extent possible, be clear and specific about what kinds of data help you are seeking and which systems you want the contractor to be familiar with. If you need a contractor who can integrate data from your management system and your assessment system, indicate that you need this kind of integration. Any contractor working with your raw data should also have experience with HIPAA, FERPA, and any state privacy protection protocols.
7. Budget or Hourly Rate	Depending on the kind of help you need, you may prefer to set a total budget rather than an hourly rate. Hourly rates for some kinds of data help (such as data integration) can be very high. A total budget can limit the potential for costs to go beyond what you expected.
8. Criteria for Selection	What are the various categories you will use to score applicants?
9. Professional Background	Data contractors will have a wide range of possible backgrounds depending on the specifics of what you are looking for. If you are unsure of the specific qualifications that you should list, focus on the work you need them to do. As an example, you might request, "A demonstrated history of successful data integration projects."
10. Examples of Similar Work	If you have not done similar projects in the past to what you are describing in the RFP, you might not have anything to include here. If you've have something similar done in the past that can serve as a reference, it might help potential applicants.
11. References	
12. Contacts	Identify who in your organization will be the principle point of contact for the contractor once hired, as well as a description of any staff assigned to the project that they might be working with.
13. Subcontractors (if applicable)	List any subcontractors who provide key services related to the project. If subcontractors will have access to raw data, please ensure that all subcontractors will comply with HIPPA, FERPA, and any state requirements for data protection.

Requests for Proposals

Step 3: Posting an RFP

You can post your RFP on databases specifically designed for such work, such as RFPdb and BidSync.

Local colleges and universities often offer job boards where you can post your RFP.

You should always post your RFP on your organization's website.

You can also distribute your RFP directly to organizations you believe might be interested. You can source these interested parties from LinkedIn, from NHTSA's online list of consultants and partners, from your state association website (if applicable), or through organizations like the American Evaluation Association. You can also do a simple online search for potential vendors or consultants who work in the industry. If you are distributing your RFP directly to potential contractors, you are most likely reaching out to them via e-mail.

Step 4: Evaluating Proposals

As part of writing your RFP, you should have established a list of criteria on which you will score each received proposal. Providing a clear list of applicants is important for maintaining a transparent selection process. Based on the criteria for selection, you can develop an evaluation rubric. Stakeholders who review proposals should be asked to rate each one on a given scale for each criteria, allowing you to compare the strength of each proposal against the others before making your final selection.



Mandatory Required Skills

- Examine current systems and workflows, identify areas for improvement, and create steps and processes defined by a clear and achievable timeline.
- Align those solutions with expectations and compliance components of the Head Start Program Performance Standards and Focus Area 1 or 2 Monitoring Protocols.
- Provide advanced, methodologically sound, and easy to understand analyses of existing program data from a variety of data sources and systems.
- Describe a data communication plan that ranges from aggregated big-picture evidence to local stakeholders to humanized data delivered through the lens of children and families for practitioners in the field.

Developing Data Capacity

Questions to Ask a Contractor

If you are preparing to hire an outside company or contractor to support your data analysis efforts, below are a few recommended questions to ask regarding the use of data. The way the contractor or company answers these questions should help you identify whether they are the right fit to work with your program.

How do they get the data they will use?

- Do they expect you to enter the data into their system manually?
- Is an electronic transfer possible? Who is responsible for managing the transfer?
- Who is responsible for the export and import of the raw data?

What data systems do they work with?

- Do they work only with ChildPlus? MyHeadStart.com? COPA?
- Do they have the ability to integrate data across multiple systems?

Do they have a HIPAA- and FERPA-compliant process for exchanging and storing data?

- Do they meet any other relevant data protection standards (eg. state requirements)?

What is their policy on data ownership?

- Does your organization always own its data?
- How can they ensure your organization always have access to the data it owns?



Developing Data Capacity

Glossary

Business Intelligence (BI):

A term used to describe the combination of technologies and practices for data collection, integration, analysis, and visualization in order to support data-informed decision-making.

Continuous Improvement:

The use of data and evidence to improve practice.

Culture of Data:

An environment in which data is consistently used to help guide key decisions in an organization. Example: Teachers have ready access to school readiness data about their students and plan curriculum to incorporate overall goals of their program with individual student needs. At the end of the year, teachers use their student records to see if their curriculum affected student outcomes. The grantee as a whole can examine patterns across all student records to see if program outcome goals were met.

Data Analysis:

The process by which raw data is evaluated in order to provide usable information. This can take many different forms in different contexts.

Data Architecture:

A set of rules, policies, procedures, and standards for the collection, storage, management, and integration of data within an organization. Example: Personally identifiable information (PII) is collected and stored and accessed only in one system and is never shared with anyone via email or any other platform.

Data Collection:

The process by which information is acquired, input, and stored. This includes any and all information used by an organization.

Data Integration:

The process by which data from different sources is brought together to be used in combination. Example: Attendance records from one system being aligned to demographic and assessment data.

Data Literacy:

The ability to find useful information in data. It is the knowledge and application of data as appropriate for a person's role in an organization.

Data Quality:

The perception that the data collected is "fit for purpose." The data accurately tells you the information you need to know and is available in a timely and usable way.

Data Transparency:

The ability to easily access the data necessary to perform one's duties no matter where it is located. The knowledge of how the data that is collected is being used by the organization. Example: A classroom teacher takes attendance daily and can look up student attendance records. The same teacher knows that attendance data is used to generate daily call lists and to look for longer-term patterns like chronic absence.

Data Visualization:

The process by which data is displayed so that it is understandable to the viewer. Data visualization allows people to see patterns, trends, and other relationships that are not be easily seen in text displays (or raw spreadsheets) of data.

Data Warehouse:

A means of storing data, often having pulled it from a variety of different, isolated systems into one comprehensive location.

Garbage In – Garbage Out (GIGO):

The principle that the quality of the output is dependent on the quality of the input. If the data entered is low quality, you cannot make high-quality decisions from it.