



School Readiness *for* All Children:

Using Data to Support Child Outcomes

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Evidence-Based Leaders Support School
Readiness for All Children"

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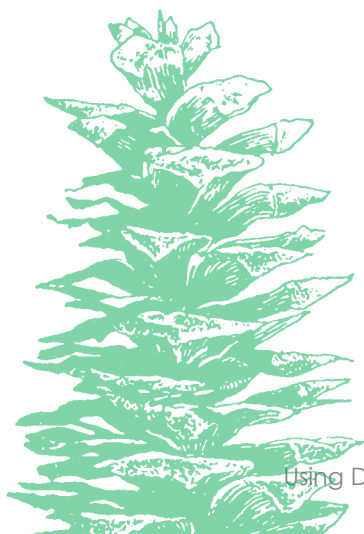
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I About this Resource ◀.....



Close to a million U.S. children prepare for school in Head Start programs, and each year, more than 470,000 children move from Head Start on to kindergarten. Ideally, all Head Start children, from birth to five, will engage in activities that will help them make the cognitive and social progress they need to perform well in kindergarten and succeed in school and life. In this guide, we explore the ways Head Start programs can support these goals by implementing effective data management systems.

Head Start programs collect quantities of data—about the social and economic characteristics of their children and families and children's progress on educational assessments. But this information is of little value until it is *mobilized* in ways that improve child and family outcomes. Far too often, Head Start programs experience a mismatch between the data they are required to collect and the information they need to meet this essential goal.

In this document, we contend that all successful data collection systems must deliver information on how the children are doing, how we know that, and what we can do about it.

We also believe that the core of successful data collection is leadership—specifically, what we call “evidence-based leaders.” These are the program directors, managers, and analysts who are committed to implementing effective data collection systems to evaluate not just child and family outcomes but also the professional growth and development of program staff. Evidence-based leaders know the appropriate information to collect, how to analyze it, how to apply it to make positive program changes, how to use it to galvanize staff, and how to communicate it to their boards and extended community.

For evidence-based leaders, all program activities are aligned: research-based curriculum and teaching strategies, ongoing assessment, professional development, and dissemination of information. They have achieved a significant cultural shift—from expressing program values and goals in terms of “I feel” to “the data show.”

In this document, we examine ways to organize data collection and analysis into four strategic steps that can support school readiness for all children.



II The Culture Shift



Decision makers ask for evidence that the educational and health-related services that Head Start programs provide will prepare children for school and in the long-term, benefit their communities and the nation as a whole.

To produce such evidence, Head Start programs collect and analyze information—data—about how their children are doing. But data collection and analysis serve a broader need for programs than simply meeting external demands to prove their value. A focused data collection system can also identify what practices are most effective in promoting school readiness, which children are thriving and which are struggling, whether programs are meeting the goals they set for their children and families, and whether and how to change professional practices to improve outcomes.

Data collection and assessment conducted in early childhood programs across the country have already revealed a pattern of widening disparity for children from low-income families. National research shows that children begin to reveal disparities in cognitive, social, behavioral, and health outcomes as early as 9 months, and the disparities grow larger by 24 months. At the beginning of kindergarten, low-income 4-5 year-old children—including children who attended Head Start programs—score 12-14 months below national norms in language development. At the end of kindergarten, 40% of Head Start children do not know all the letters of the alphabet.

Head Start program managers and teachers are on the front line of efforts to close such system-wide disparities and to prepare all children for school. To meet this challenge—to become evidence-based leaders—they must embrace a culture of continuous improvement that uses data to drive decisions.

Indicators of a culture of continuous improvement

When Head Start programs operate in this way, their leadership is disposed to welcome change. This involves—

- **Curiosity:** Always seek information about how your children and families are doing. Look for fresh approaches to help children learn and engage their families and communities in the process. Encourage staff to ask about the “why” and “how” of program policies.
- **Reflection:** Continually review program policies objectively, and avoid inertia. Welcome feedback and apply it wherever possible.
- **Tolerance of failure and vulnerability:** Recognize when approaches aren’t working, and change course if necessary.
- **Use of feedback:** Monitor the impact of program decisions and apply findings wherever possible. Use data to answer questions about whether the program makes a difference.
- **Systems thinking:** Understand that practices are only as good as the systems that support them. Recognize that Head Start programs are complex organizations and often make change in a series of small steps.

In programs that conduct continuous improvement, leaders and staff possess a range of knowledge and skills to use data in program planning, including—

- Awareness of Head Start Program Performance Standards and other applicable regulations
- Understanding of Office of Head Start priorities
- Ability to identify significant data from a variety of sources
- Ability to identify program strengths and weaknesses, and
- Expertise to use data to inform goal-setting and plan development.

When these indicators are in place, Head Start programs are positioned to use data to support school readiness. In the section that follows, we discuss the four strategic steps that ensure data collection systems work effectively to achieve this outcome.

III Four Strategic Steps to Support School Readiness



The Head Start Act of 2007 calls for each agency serving preschool children to establish school readiness goals for them. In this section, we present four strategic steps to support school readiness and positive child outcomes and discuss how to conduct them successfully in Head Start programs. These steps are consistent with a culture of continuous improvement.

Four Strategic Steps to Support School Readiness

- 1 Adopt and align established child goals from the *Child Development and Early Learning Framework*.
- 2 Create and implement a plan of action for achieving goals.
- 3 Assess child progress on an ongoing basis, and aggregate and analyze data 2-3 times per year.
- 4 Examine data for patterns of progress for groups of children to develop and implement a plan for program improvement.

1 Adopt and align established child goals from the *Child Development and Early Learning Framework*.

First, it is helpful to distinguish goals and outcomes. One useful metaphor is that of a football game. The goal of the game is to score points! The outcome of the game is the final score and whether the team won or lost. In short, goals are intended results, and outcomes are actual results.

School readiness goals describe the intended purposes and expected results from quality teaching and learning. Once they are established, school readiness goals don't change from year to year. But child, family, and program goals can and should change based on needs and ongoing data collection.

Head Start child outcomes are determined by whether the child has reached these goals. The starting point for establishing school readiness goals for preschool-age children is the Office of Head Start *Child Development and Early Learning Framework*, which outlines the essential areas of development and learning that Head Start programs should use to establish school readiness goals for their children and align data-gathering instruments for teaching and learning. (A link to the full framework, as well as links to other reports and papers mentioned in this document, are shown in section V: Resources, on page 24.)

The framework identifies 11 domains that represent the overarching areas of child development and early learning essential for school and long-term success, including **social and emotional development, cognitive and general knowledge, language and literacy, approaches to learning, and physical development and health**. To understand children's progress in the areas of child development and early learning outlined by the framework, Head Start programs must select and use child assessment instruments aligned with the framework. Data collection systems involving these assessments will provide essential information for understanding a program's progress on the established school readiness goals.

Writing goals

School readiness goals are broad statements that articulate the knowledge and skills for preschool children in **social and emotional development, cognitive and general knowledge, language and literacy, approaches to learning, and physical development and health** as they enter kindergarten. School readiness goals articulate high expectations for children's progress across the domains of the Head Start *Child Development and Early Learning Framework*, local school district expectations, and state early learning guidelines. They establish the foundation for assessment.

Good school readiness goals possess the following components:

- Describe change, not activities
- Are measurable, and
- Are broad enough to encompass the range of children served.

Following is an example of a school readiness goal:

"Focus on math."

Is it focused on change, or is this an activity? Is it measurable? Is it broad enough to encompass the range of children served? In fact, this goal is actually an activity. It is not easily measured, and it is too broad.

Consider the following revised school readiness goal:

"Children will understand that numbers represent quantities (counting up to 20 objects with accuracy) and have ordinal properties (telling what number comes before and after a given number to 20)."

Again, is the goal focused on change? Is it measurable? Is it broad enough to encompass the range of children served? The answer to each of these questions is "yes." This goal is developed from the Head Start *Child Development and Early Learning Framework* Cognition and General Knowledge-Mathematics Knowledge and Skills Domain.

Here is another example.

"Focus on social emotional development."

Again, is it observable? Is it measurable? Is it broad enough to encompass the range of children served? As with the previous goal, this one is too broad, is not focused on change, and it not easily measurable. Here it is again with some re-working:

"Children will demonstrate increasing numbers of healthy relationships and interactions with adults and peers."

This re-worked school readiness goal meets all of the criteria. It is developed from the Head Start *Child Development and Early Learning Framework* Social and Emotional Development Domain.

Measuring goals

Once goals are effectively written, the next challenge is to identify ways to measure children's progress toward them. To do this, we need to select assessment instruments that provide valid and reliable information about children's progress toward these goals and that are aligned with our school readiness goals. The National Center on Quality Teaching & Learning (NCQTL) alignment guide is a useful tool to do this.

For children ages birth to 3, the Early Head Start National Resource Center defines school readiness as "an increasing degree of self-regulation, the ability to pay attention, the development of memory, comfort and skills in maintaining relationships, curiosity, and confidence." Goals may fall under such domains as social emotional skills, acquiring and using language skills, and taking appropriate actions to meet needs. One resource to inform goal-setting for children in this age group is an Early Head Start National Resource Center paper, *The Foundation for School Readiness: Fostering Developmental Competence in the Earliest Years*. This paper explores ways to promote such characteristics as confidence, curiosity, intentionality, and self-control. For all children, but especially for infants and toddlers, goals are understood and addressed within the context of the family.

Family engagement is a historic attribute of Head Start and one that has always served children's ongoing learning and development. Family engagement goals are a vital part of any continuous improvement plan to achieve school readiness. For more about Family Engagement Outcomes, see the Family Engagement Outcome Framework on the Head Start Early Learning and Knowledge Center website.

In addition to child goals and family engagement goals, Head Start programs participating in continuous improvement will also set programmatic goals. These are the goals that programs pursue to increase staff competence and expertise and to increase operational efficiency. One such goal might be for a program to improve the quality of teaching and learning in the classroom as measured by scores on the Classroom and Assessment Scoring System (CLASS) assessment. Another goal might stipulate the training and resources teachers will access to provide services to children with special needs. Other examples of program goals might be to increase enrollment, to create a more satisfactory kindergarten transition process, or to improve access to the natural environment during children's outdoor time.

Goals should inspire and set direction to achieving outcomes. And in data-driven programs, they should be written in ways that accommodate *reflection*—i.e., that show clearly through data when they are met and when they are missed.

CHECKLIST for goal-setting and measurement:

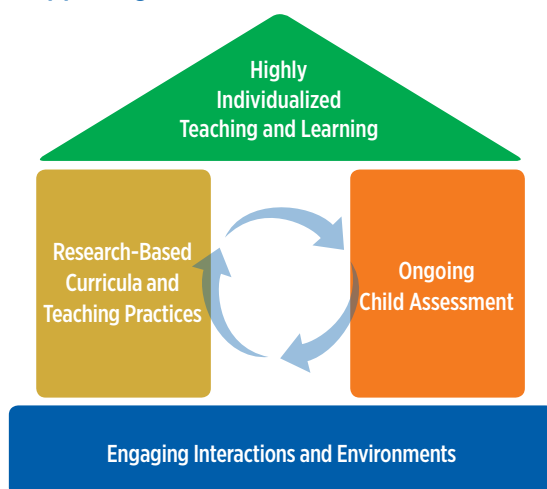
- Have we established school readiness goals for our children?
- Do we have goals for our families?
- Do we have goals for our program that support our school readiness and family engagement goals?
- Do we try to do better every year?

2 Create and implement a plan of action for achieving goals.

It is imperative that every Head Start program set a plan of action to meet desired outcomes of school readiness, family engagement, and professional development and support. An essential part of this plan is to make sure that teachers teach well and that home visitors and family service workers support families.

Framework for Effective Practice

Supporting School Readiness for All Children



NCQTL uses a HOUSE framework, shown to the left, to represent four integral elements of quality teaching and learning: engaging interactions with children; choosing and implementing a strong curriculum; using regular assessment of children's skills; and individualized teaching. In the framework, these elements correspond, respectively, to parts of a house—the foundation, two pillars, and a roof. When connected with one another, they form a single structure that fosters children's learning and development. More information about the HOUSE can be found on the Head Start Early Childhood Learning and Knowledge Center website.

Surrounding the HOUSE are supports and services to promote family engagement as well as the programmatic features that support healthy children and families and promote better child and family outcomes. These are addressed in program performance standards for Head Start and Early Head Start.

Once an action plan has identified the goals, purpose, and resources that support school readiness, the next step is to collect data and interpret it. This step also requires a plan—a data collection plan. Time and resources are always at a premium in Head Start programs, and no data collection effort serving school readiness will proceed successfully without a plan that addresses:

- **The purpose of intended data-gathering**—What we need to know to support program changes to improve teaching and learning and to engage families
- **The data that are needed**—What information we can collect within our program to answer our questions
- **Data collection methods**—which tools we can use to assess children and family outcomes, including standard instruments and those developed by individual programs
- **Who will lead the process and collect the data**—Which staff members have the data “comfort level,” training, and experience to ensure that data are collected, analyzed, and applied in a professional and timely way
- **How the data will be stored**—In which types of media, including electronic or paper, our data can be organized, made available to team members, and added to over time, and
- **How the data will be used**—Exactly how our data system will improve program and classroom quality, family engagement, health, and disability services and achieve defined outcomes for children and families.

The 2006 *Introduction to Data Analysis Handbook*, prepared by the Academy for Educational Development (AED) for the Migrant and Seasonal Head Start Technical Assistance Center, offers the following sample table that captures these plan elements:

Elements of a Data Collection Plan

Purpose	Questions	Data Collection Methods	Needed Resources	Lead Person	Timeframe
Purpose 1					
Purpose 2					
Purpose 3					

Elements of a Data Collection Plan (example)

Purpose	Questions	Data Collection Methods	Needed Resources	Lead Person	Timeframe
Purpose 1	What is the level of instructional quality in our preschool classrooms?	CLASS	Certified CLASS observers and protocols	Gail	To be completed by November 15
Purpose 2	How many of our family child care partner providers have AA and BA degrees?	Survey and transcript review	Revise the teacher degree survey form and collect transcripts	Susan	To be completed by November 30
Purpose 3	Has our mentor coaching improved classroom quality?	CLASS	Certified CLASS observers and protocols	Bob	To be completed by May 15
Purpose 4	How many of our children meet or exceed the kindergarten entrance standards?	Kindergarten entrance assessment results	MOU with school district to share information about our children in the aggregate	Gail	To be completed by October 31

The 2006 handbook also offers these key points to remember about data collection planning:

- Include strategies for keeping boards of directors, policy councils, and other key players updated regarding the progress of the data analysis process.
- Identify resources that will be needed to implement the process, including clerical support.
- Consult with the policy council regarding information derived from data collection systems and decisions being made as a result of the process.
- Ensure that all data analysis team members are oriented and trained to understand the data's potential impact on provision of Head Start services.

CHECKLIST for developing a plan of action:

- Do we have a plan of action to provide high quality teaching and learning **for all children**?
- Do we regularly check to make sure that we are implementing the plan?

3 Assess child progress on an ongoing basis and aggregate and analyze data 2-3 times per year.

The overarching purpose that should guide data collection in Head Start programs is to collect information that supports program improvements that strengthen family engagement and school readiness. The questions that serve this purpose ask how the children are doing, how programs know this information, and what programs can do about it.

The Office of Head Start supports a *Learning from Assessment* (LFA) toolkit that defines basic concepts about data and assessments. For Head Start programs, data refer to the information programs collect about children and families and any other information they can use to improve child learning, including:

- Information on children's progress
- Observational assessments
- Attendance records, and
- Information about families.

This information comes from a wide range of sources that includes standardized assessments, direct observations, interviews with families and partners, and documents such as birth records. As the LFA toolkit explains, data include any information that can help children in Head Start programs grow and thrive.

Data come in two basic forms:

- **Qualitative data** are captured in verbal and narrative formats and include information gathered from interviews, open-ended questionnaires, focus groups, and observations.
- **Quantitative data** are expressed as numbers and can be collected from direct observations, assessments, and documents.

The following table from the AED handbook shows different types of data across the two categories:

Examples of Different Types of Data

Qualitative data	<ul style="list-style-type: none"> Family partnership agreements Teacher anecdotal records Parent reports of children's skills at home Mental health consultant's observations Coach observations of teachers
Quantitative data	<ul style="list-style-type: none"> Head Start program information reports (PIRs) Child assessment data CLASS results

Whether collecting qualitative or quantitative data, it is important to word questions to avoid what the AED handbook calls "common pitfalls of the collection process," including:

- Collecting too little data to answer the question
- Collecting more data than necessary to answer the question, and
- Collecting data that are not relevant to answering the question.

Another important consideration in data collection is data quality. The LFA toolkit defines quality data as information that is:

- Correct—recorded accurately
- Complete—with no important characteristics left out, and
- Consistent—recorded in one place the same way it is recorded in another.

The toolkit identifies two important concepts related to data quality: validity and reliability. An assessment tool has **validity** when it actually measures the area it is supposed to measure. Problems with validity may occur because of the way assessments are set up. For example, if a shy child with high verbal skills performs poorly on a language assessment tool, this may reflect social development issues instead of language ability. Another problem could occur when questions in an assessment are inappropriate. For example, if a teacher wants to know what words a child has learned, he or she should not ask questions about story and print concepts.

It is also important to consider the validity of assessment information related to dual language learners. The *Program Preparedness Checklist: Serving Dual Language Learners and Their Families* produced by the National Center on Cultural and Linguistic Responsiveness provides a helpful list of points to consider related to assessment of dual language learners. These include:

- Use appropriate tools and protocols for screening in the home languages of children whenever possible.
- Perform authentic assessments based on ongoing observations of children in their center-based or home-based settings.
- Assess dual language learners' progress in all areas of development and across the child outcomes, regardless of their English language abilities, through various methods where possible.
- Assess children's progress in acquiring English.
- Assess children's progress in acquiring their home language.
- Work with interpreters, cultural mediators, and/or other community members to assist in assessing children's progress if program staff do not speak the children's home language.

Assessment methods used to gather data relative to family engagement goals should also demonstrate validity. For example, if a program set out to create a more satisfactory kindergarten transition process, collection of attendance data at transition events might not be a valid measure. A satisfaction survey or interview might do a better job of determining whether a family's participation in those transition experiences were satisfactory and met its needs.

Assessments are reliable when they provide consistent, dependable information. **Reliability** reflects the ability of an assessment tool to measure whatever it is measuring well. In particular, it refers to whether an assessment tool provides consistent, dependable information each time it is used.

There are many methods for measuring validity and reliability. For assessment systems that are purchased or come with curriculum, publishers usually provide information on validity and reliability in their materials. For ongoing, observational assessments, it is useful to take a step back from the assessment process and look for any odd patterns in the data being collected. Teachers benefit from training in methods of recording information and interpreting assessment results and from consulting with experts on child development or assessment.

See Appendix 2, *Some Basic Concepts in Data Analysis*, for a summary of basic terms, procedures, and methods from the AED handbook and the LFA toolkit. See Appendix 3, "Making Data Make Sense," from the Early Head Start National Research Center, for an explanation of how to use visuals—charts and graphs—to analyze and present data.

Because they receive public funding and perform a role so important to the well-being of their communities, Head Start programs are accountable for their performance. They are both required and obliged to **share information** about how well they are serving program goals and whether children and families benefit in the short and long-term for their participation.

Internally, Head Start programs benefit from sharing data with teachers and their management, technical, and fiscal staffs. Also within their immediate community, they must inform members of their governing boards and policy councils about insights that have emerged from data analysis that might inform program policies. Every program should have a plan in place to share data with teachers, parents, staff, policy councils, and all community stakeholders. Once data are shared in a timely and reasonable way, programs are positioned for the next step in supporting school readiness.

CHECKLIST for data collection and analysis:

- Have we prepared a data collection plan that is appropriate to our school readiness goals?
- Do we provide training and support for data collectors – especially new teachers?
- Do we collect child outcome data that can help us understand how our children are doing in relation to a normative group?
- Do we collect enough information to be able to examine how sub-groups of children are doing such as dual language learners, boys, and those with variable attendance?
- Is data collection embedded within ongoing activities as appropriate?
- Are data collection efforts distributed across the year at appropriate times?
- Do we have a data analysis plan?
- Do we meet our data collection and analysis timelines for Office of Head Start reporting and to meet local program requirements?
- Do we have a plan in place to share data with stakeholders?
- Do we assess dual language learners' progress in all areas of development and across the child outcomes, regardless of their English language abilities, through various methods where possible?

4 Examine data for patterns of progress for groups of children to develop and implement a plan for program improvement.

Continuous improvement is about helping programs function as effectively as they can. Evidence-based leaders of Head Start programs are continuously engaged in a process of collecting, analyzing, and sharing information that can improve practice.

Following are a few of the ways they do it:

- By identifying children who are struggling in classrooms as well as those who are learning so quickly that they need further challenges
- By providing guidance to programs on ways to meet the special needs of certain populations of children such as dual language learners, children with disabilities, boys (whose learning disparities are becoming evident in the research literature), and children who are frequently absent from the classroom
- By showing which curriculum and other instruments are most successful at preparing children for school

- By informing hiring criteria and employment practices that identify individuals who can use evidence-based practices and can work collaboratively with diverse families and professionals
- By determining and delivering to program staff the information and support they need to help children and families meet the highest outcomes possible
- By stewarding a vision of high-quality teaching and learning that is shared and supported by teachers, parents, and the community
- By making their programs the best of their kind!

CHECKLIST for using data to develop and implement program improvements:

- Do we regularly, or at least yearly, examine our data in relation to goals?
- Are our children making good enough progress?
- Are all children doing well, or are certain subgroups doing better or worse than others? What can we do to improve progress for these groups?
- Are our families receiving honest, accurate and easy-to-understand information about how their children are doing in relation to school readiness?
- Is our program implementing practices that support child and family engagement?
- Should we revise goals and practices based on data?

IV Case Study



Blue Moon Head Start Conducts Program Improvements

The Blue Moon Head Start and Early Head Start Program provides services for 720 Head Start children and families and 88 Early Head Start children and families in a Midwestern state. The program serves a five-county area including Blue County, which accounts for 80% of the region's population.

Blue Moon has embarked on an ambitious program improvement effort to set school readiness goals and improve teacher-child interactions in its classrooms. This is how the agency is going about it.

Setting school readiness goals

Blue Moon's leadership understands that these goals will be broad statements that articulate knowledge and skills for preschool children entering kindergarten. The goals will address social and emotional development, language and literacy, physical development and health, approaches to learning, and cognitive development including mathematics and science.

The leadership team starts out by studying the Head Start *Child Development and Early Learning Framework* for preschool children and becoming familiar with the state early learning guidelines used by every school district.

The next step is to transform the framework's domain statements into goal statements, each beginning with "children will." Here is how the process works for one of the goals in the domain element of social relationships:

School readiness goal—Children will demonstrate positive social-emotional skills (including social relationships).

- This goal is aligned with the 60 months/age 5 state early learning guidelines. One example of this alignment/matching is:
 - *State goal: Children develop friendships and cooperate with peers.*

The team conducts this process for each school readiness goal and produces the following list:

Domain	Goals
Social and Emotional Development	Children will demonstrate positive social-emotional skills (including social relationships). Children will recognize and regulate emotions, attention, impulses, and behavior.
Language Development	Children will comprehend increasingly complex and varied vocabulary. Children will use language to communicate needs and express ideas with adults and peers. Children who are dual language learners will demonstrate competency in their home language while acquiring beginning proficiency in English.

Literacy Knowledge and Skills	<p>Children will demonstrate an awareness that language can be broken down into words, syllables, and smaller pieces of sound.</p> <p>Children will associate letter names with correct sounds.</p> <p>Children will demonstrate print concepts and early decoding.</p> <p>Children will demonstrate familiarity with writing implements, conventions, and emerging skills to communicate through written representations, symbols, and letters.</p>
Approaches to Learning	<p>Children will demonstrate an interest in varied topics and activities, desire to learn, creativeness, and independence in learning.</p> <p>Children will begin and finish activities with persistence and attention.</p> <p>Children will demonstrate interest and engage in group experiences.</p>
Cognitive and General Knowledge	<p>Children will use math in every day routines to count, compare, relate, pattern, and problem-solve.</p> <p>Children will engage in exploring their environment through observation, manipulation, asking questions, making predictions, and developing hypotheses.</p> <p>Children will find multiple solutions to questions, tasks, problems, and challenges.</p>
Physical Development and Health	<p>Children will demonstrate control of large muscles for movement, navigation, and balance.</p> <p>Children will control small muscles for such purposes as using utensils, self-care, building, writing, and exploring.</p> <p>Children will practice healthy and safe habits.</p>

With the goals established, Blue Moon meets with the early childhood department of the local elementary school to review and discuss the list. The final step is to use the National Center on Quality Teaching & Learning (NCQTL) curriculum and assessment alignment tool to determine if the agency's ongoing assessment instruments are adequate to measure children's progress to school readiness.

Returning to the first example of a school readiness goal:

School readiness goal—Children will demonstrate positive social-emotional skills (including social relationships).

- This goal is aligned with the 60 months/age 5 state early learning guidelines. One example of this alignment/matching is:
 - *State goal: Children develop friendships and cooperate with peers.*
- The Blue Moon team determines this aligns with assessment items from the agency's primary tool used for ongoing assessment of children's progress in English and Spanish:
 - Interacts cooperatively in groups of three to five children
 - Makes and maintains reciprocal friendships for several months or more

After aligning the target knowledge and skills of their chosen curriculum with their school readiness goals, the team is convinced that the curriculum will help children reach these high expectations.

Blue Moon teachers collect data, on an ongoing basis, to determine how well children are doing. The teachers make sure to assess dual language learners in the child's home language across all domains and to assess the children's increasing proficiency in learning English. These data are aggregated up to the program level three times per year in October, February, and May. At each point, the leadership team studies averages across domains to identify any school readiness areas where children are not doing well. Next, the team looks at the distribution of scores to examine the variability of children's progress. This helps the agency determine if a certain classroom may need more support for individualizing teaching and learning. The team also looks at certain subgroups of children by program option (center-based v. home-based), attendance rates, gender, and language.

The team concludes that children are making progress across all areas. It presents this information to staff, parents, and the Blue Moon Policy Council and Board of Directors. One board member asks how well Blue Moon children are doing compared with other children in Head Start and with preschool children in the nation as a whole. The team determines that it is not able to answer this question solely with the type of assessment the agency has been using, so it seeks advice from a training and technical assistance (T/TA) provider.

Together the team and the T/TA provider devise a plan to collect additional information on children's progress by forming a partnership with a local college in which trained assessors collect data on standardized, norm-referenced tests from a random sample of 250 children. They use the PPVT-4 to assess receptive language and the Woodcock Johnson Applied Problem Solving to assess math. With this information, they can report on how children are doing in relation to children in the Head Start Family and Child Experiences Surveys (FACES) as well as to the normative group in two areas.

These data demonstrate that children in Blue Moon programs make progress beyond what they would expect from maturation only on receptive language skills, and the children are still performing below the national norm. Based on this information, the team decides to focus on improving the quality of language modeling and instructional support in Blue Moon classrooms.

Improving teacher-child interactions in the classroom

Blue Moon leaders are familiar with research demonstrating the importance of foundational teacher-child interactions in helping promote positive outcomes for children. So the leadership team decides, for the second key part of its program improvement effort, to focus on teacher-child interactions in its classrooms. The team identifies two goals for this project:

- Ensure that all classrooms provide effective social, organizational, and instructional teacher-child interactions.
- Systematically use professional development (PD) resources to target areas of practice across classrooms in need of support as well as provide more intensive support to teachers most in need.

The assessment. To address the first goal, program leaders decide to conduct a needs assessment related to the quality of teacher-child interactions in their programs. After a review of possible instruments, they select the Classroom Assessment Scoring System (CLASS) for this purpose—both because it is aligned with the types of interactions they consider to be important and because it is the measure the Office of Head Start will use during its upcoming monitoring visit. Leadership refers to the NCQTL resource, *CLASS Implementation Guide for Head Start*, for guidance on how to conduct this needs assessment.

The leadership team concludes that Blue Moon does not have sufficient resources to conduct observations in every classroom, so the team decides to follow guidelines in the CLASS implementation guide for conducting program planning and evaluation. The team consults with a local evaluator who helps design a plan to sample programs. Because Blue Moon wants to be able to assess teacher-child interactions in each of its nine centers, the team randomly samples two classrooms from each center to be assessed with CLASS. It asks its T/TA provider to conduct CLASS training for the early childhood manager and specialists who are assigned to complete the observations.

The data. After passing the certification test, these staff members complete two-hour CLASS observations in each of the 18 selected classrooms over two months. Data are aggregated to create summary scores for each center and for the overall program. These data are summarized below. The team decides not to provide teachers with their individual scores at this time, since not all teachers were assessed with CLASS.

	CLASS Scores		
	Emotional Support	Classroom Organization	Instructional Support
Program Average	4.5	4.7	2.7
Blue County Average	4.8	5.0	2.9
Surrounding County Average	4.2	4.4	2.4
Blue County Center 1	5.0	4.5	3.2
Blue County Center 2	5.5	5.5	3.5
Blue County Center 3	4.0	4.2	2.1
Blue County Center 4	3.5	3.0	1.5
Blue County Center 5	6.0	5.8	4.2
Saturn County	4.2	3.5	1.9
Neptune County	4.3	4.5	2.4
Pluto County	4.5	4.6	3.0
Jupiter County	3.6	4.2	2.3

Blue Moon's Board of Directors and the Policy Council hold a joint meeting to review the data. At the meeting, one of their certified CLASS trainers provides a brief overview of the CLASS measures to help people interpret the results. They discuss the results and note that the Blue County centers are, on average, providing more effective interactions than are centers in surrounding counties. The leadership decides to wait to share results with center managers until plans are in place for supports that could be offered to help centers and teachers invest in improvements.

Professional development. Program leadership takes a three-pronged approach to applying the results. First, it decides to invest in program-wide training on instructional supports. The team consults with the T/TA provider and decides to use NCQTL resources to offer a series of workshops to all Head Start teachers and teacher assistants.

Second, the team targets two centers, Blue County Center 4 and Jupiter County, to receive additional professional development supports—targeting all areas assessed by CLASS but starting with emotional support. An early childhood specialist is assigned to each center and asked to complete additional CLASS observations in classrooms that were not assessed the first time around. Then the team develops targeted PD plans for each classroom in those centers, including providing feedback about the observations and coaching on practices to help improve the quality of interactions with children. Teachers and teacher assistants are included in this process. Based on guidance from the CLASS implementation guide, the program purchases cameras for each center for the early childhood specialists to provide very targeted and specific feedback to teachers and assistant teachers regarding their classroom interactions.

Third, the team decides to conduct further review of differences between the Blue County and other centers to identify ways to learn from practices in the Blue County centers, especially those with the highest CLASS scores, and apply them in other centers.

These new PD investments continue through the end of the school year and into the next. Because the review of centers also reveals the positive impact on interactions of the commercially available curriculum, leadership decides to start implementing this curriculum in all the Blue Moon centers. The review shows that at the highest-performing centers, directors make regular classroom visits and provided support to their teachers. Leadership also decides to start a professional learning community of center directors to help them learn from one another about effective ways to give feedback to teachers. The T/TA provider trains all of the center directors on CLASS so that they can use the tool to support their teachers.

Program leadership invests in a second round of observations to assess the extent to which Blue Moon programs respond to the new PD. These observations, conducted just as during the year before, reveal a slight increase in instructional support scores, which now average 3.2 across centers. Blue County Center 4 shows impressive improvements, particularly in emotional support, where its classrooms move from a 3.5 to a 4.9 score. One site (Jupiter) continued to struggle.

Consistent with best practice in continuous program monitoring, program leadership uses these data to reallocate PD resources for the upcoming year. The team also decides to engage in a similar process in Blue Moon's Early Head Start classrooms for the following year.

V Resources



Following are links to the resources and reports mentioned in this paper:

Head Start Child Development and Learning Framework

http://eclkc.ohs.acf.hhs.gov/hslc/tta-system/teaching/eecd/Assessment/Child%20Outcomes/HS_Revised_Child_Outcomes_Framework.pdf

The Foundation for School Readiness:

Fostering Developmental Competence in the Earliest Years

[http://eclkc.ohs.acf.hhs.gov/hslc/resources/ECLKC_Bookstore/The%20Foundation%20for%20School%20Readiness_%20Fostering%20Developmental%20Competence%20in%20the%20Earliest%20Years.%20\(Technical%20Assistance%20paper%20No.%206\).htm](http://eclkc.ohs.acf.hhs.gov/hslc/resources/ECLKC_Bookstore/The%20Foundation%20for%20School%20Readiness_%20Fostering%20Developmental%20Competence%20in%20the%20Earliest%20Years.%20(Technical%20Assistance%20paper%20No.%206).htm)

Academy for Educational Development 2006 Introduction Data Analysis Handbook

<http://ece.aed.org/publications/mshs/dataanalysis/WebDataAnalysis.pdf>

U.S. Office of Head Start Learning from Assessment Toolkit

<http://eclkc.ohs.acf.hhs.gov/hslc/tta-system/teaching/eecd/Assessment/Ongoing%20Assessment/lfa.html>

Early Childhood Learning & Knowledge Center

<http://eclkc.ohs.acf.hhs.gov/hslc/tta-system/teaching>

Program Preparedness Checklist:

Serving Dual Language Learners and Their Families

<http://eclkc.ohs.acf.hhs.gov/hslc/tta-system/cultural-linguistic/Dual%20Language%20Learners/pdm/management/ProgPreparednessChecklistv4.pdf>



VI Appendices



1. Four Strategic Steps to Support School Readiness: Summary Checklist

Adopt and align child goals from the *Child Development and Early Learning Framework*.

- Have we established school readiness goals for our children?
- Do we have goals for our families?
- Do we have goals for our program that support our school readiness and family engagement goals?
- Do we try to do better every year?

Create and implement a plan of action for achieving goals.

- Do we have a plan of action to provide high quality teaching and learning for all children?
- Do we regularly check to make sure that we are implementing the plan?

Assess child progress on an ongoing basis, and aggregate and analyze data 2-3 times per year.

- Have we prepared a data collection plan that is appropriate to our school readiness goals?
- Do we provide training and support for data collectors—especially new teachers?
- Do we collect child outcome data that can help us understand how our children are doing in relation to a normative group?
- Do we collect enough information to be able to examine how sub-groups of children are doing such as dual language learners, boys, and those with variable attendance?
- Is data collection embedded within ongoing activities as appropriate?
- Are data collection efforts distributed across the year at appropriate times?
- Do we have a data analysis plan?
- Do we meet our data collection and analysis timelines for Office of Head Start reporting and to meet local program requirements?
- Do we have a plan in place to share data with stakeholders?
- Do we assess dual language learners' progress in all areas of development and across the child outcomes, regardless of their English language abilities, through various methods where possible?

Examine data for patterns of progress for groups of children to develop and implement a plan for program improvement.

- Do we regularly, or at least yearly, examine our data in relation to goals?
- Are our children making good enough progress?
- Are all children doing well, or are certain subgroups doing better or worse than others? What can we do to improve progress for these groups?
- Are our families receiving honest, accurate, and easy-to-understand information about how their children are doing in relation to school readiness?
- Is our program implementing practices that support child and family engagement?
- Should we revise goals and practices based on data?

2. Some Basic Concepts in Data Analysis

It is through data analysis that programs determine what results mean and how to use findings to improve program performance. In this section, adapted from the Academy for Educational Development's 2006 *Introduction to Data Analysis Handbook* and the *Learning From Assessment (LFA) Toolkit*, we discuss basic concepts to guide readers through some of the common data analysis procedures.

First, it is important to understand terms and concepts. Researchers use a large vocabulary to describe the process of data analysis and the ways information from data collection systems can be visualized and presented. The following table offers a short glossary of terms that are essential to developing an understanding of basic analysis procedures.

Analysis	n. an investigation of the component parts of a whole and their relations in making up the whole
Average	n. sum of scores divided by the number of scores you have also called the "mean"
Code	n. a category deemed important by an individual conducting the analysis a method used to label important pieces of information that are contained in the narrative
Correlation	n. a statistical relation between two or more variables such that systematic changes in the value of one variable are accompanied by systematic changes in the other
Data	n. a collection of facts from which conclusions may be drawn
Denominator	n. the divisor of a fraction
Difference	n. the number that remains after subtraction n. a variation that deviates from the standard or the norm
Estimation	n. a judgment of the qualities of something or somebody n. an approximate calculation of quantity or degree or worth
Interpretation	n. an explanation of something that is not immediately obvious
Interview	n. the questioning of a person v. discuss formally with somebody for the purpose of an evaluation
Norm-referenced tests	n. tests that compare an individual's scores with those of a group of people who have taken the same test
Numerator	n. the dividend of a fraction
Mean	n. the average or the sum of all scores divided by the number of scores
Median	n. the value below which 50% of the cases fall
Mode	n. the most frequent value
Qualitative	adj. involving distinctions based on qualities
Quantitative	adj. expressible as a quantity of relating to or susceptible measurement
Reliability	n. the trait of being dependable or consistent
Standard deviation	n. the square root of the variance; how far away from the average the standard score sits
Statistics	n. any of many techniques used to summarize a set of data
Sum	n. the whole amount
Trend	v. a general direction in which something tends to move
Validity	n. representing the content accurately
Variance	n. describes how spread out items (or scores) are from the mean (or average score)

In addition to terms and concepts, it is important to understand some of the different procedures and methods available for data analysis that help us make sense of our data for program improvement purposes. Two commonly used procedures for quantitative data analysis are **descriptive measures** and **variance measures**.

Questions associated with **descriptive measures** include:

- What is the average value?
- Where is the middle of the group?
- What is the most frequent response?

The mean, medium, and the mode are types of descriptive measures. The mean is the average of scores or the sum of scores divided by the number of scores. Following are two examples of how to calculate the mean.

Here is **example #1** of calculating the mean:

Scores = 64, 70, 80, 80, 90, 98, 100

Sum of scores divided by the number of scores:

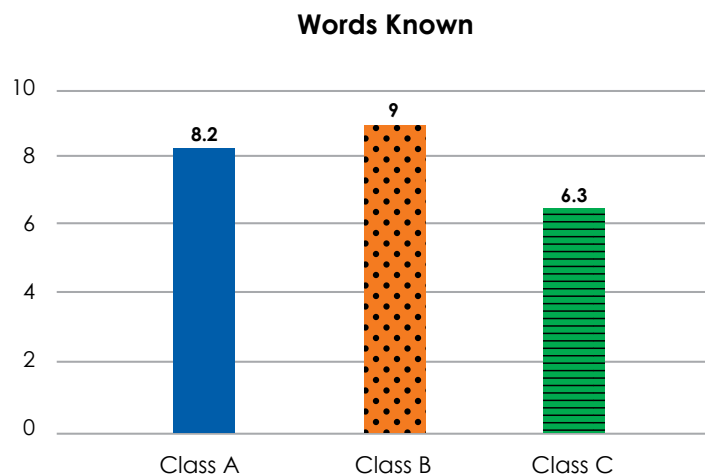
$$64+70+80+80+90+98+100 = 582$$

$$582/7 = 83.14$$

Here is example #2, which calculates the mean number of words from 1 to 10, that children in one classroom know:

Child	Abby	Ryan	Jose	Julia	Mike	Sui	Cali	Kyle	Anna	Kim
Score	8	9	10	10	7	6	8	5	9	10
Sum of scores = 8 + 9 + 10 + 10 + 7 + 6 + 8 + 5 + 9 + 10 = 82										
Average = sum of scores divided by number of children = 82 / 10 = 8.2										

Averages are useful for comparing whole classrooms, programs, or centers and thinking about the different kinds of supports each may need. In the following figure, we show the average scores for three different classes. The numbers on the left side of the graph (on what is called the vertical axis) show how the classes scored. Each class has its own bar, with the height of the bar indicating what score that class reached.



We see that children in Class C know fewer number words than children in classes A or B on average; Class C has the shortest bar (it reaches up to only the 6-point level). A manager might want to make sure that the teacher in Class C has the resources and the ideas necessary for teaching children a number of words. Perhaps many of the children in classes A and B are ready to work toward counting up to 20.

The **median** refers to the score in the middle or at the 50th percentile. Following are two examples of how to calculate the median. Here is **example #1**:

Organize scores from smallest to largest.

Scores = 64, 70, 80, 80, 90, 98, 100

If the number of scores is odd, find the score in the middle.

64, 70, 80, [80], 90, 98, 100

Median = 80

Here is **example #2**, which has an even number of scores:

Scores = 64, 70, 80, 80, 90, 98, 100, 100

If there is an even number of scores, average the two in the middle.

64, 70, 80, [80, 90], 98, 100, 100

$80 + 90 = 170$

$170/2 = 85$

Median = 85

The **mode** is the most frequent response or score. Here are two examples of calculating the mode:

Example #1 scores = 6, 70, 80, 80, 90, 98, 100
Mode = 80

Example #2 scores = 64, 70, 80, 80, 98, 100, 100, 100
Mode = 100

Variance measures address:

- How scores differ
- The differences between individuals in a group, and
- The range of outcomes.

Following is an example of a variance measure of 50 participants who are rating three trainings on the basis of acquired new knowledge and/or skills. The participants in the first training respond to the question, "I acquired new knowledge and/or skills" this way:

45 Strongly Disagree **3** Disagree **1** Agree **1** Strongly Agree

In this example, the variance is small. Staff strongly disagreed and felt that the training did not lead them to acquire new knowledge and/or skills.

In the second training, participants responded to the same question this way:

0 Strongly Disagree **5** Disagree **5** Agree **40** Strongly Agree

As in the previous example, the variance is small. But unlike the previous example, staff strongly agreed and felt that the training helped them acquire new knowledge and skills.

In the third training, participants responded to the question this way:

15 Strongly Disagree **13** Disagree **14** Agree **8** Strongly Agree

Unlike the previous two examples, the variance in this example is large. In this example, the staff was of divided opinions as to whether they acquired new knowledge and/or skills.

Variance can be expressed in the **distribution** of scores. While averages are extremely useful and important, especially for comparing whole groups of children or an individual child with a group of children, averages cannot tell the whole story. To get the full story, researchers look at the distribution of scores around the average—in other words, how individual scores are spread out around the average. Who scores above the average? Who scores below the average? And how many points separate those scores?

To get a better sense of what this concept means, let's look at an example of how children perform on our number-naming task in two different classes. Once again, the top possible score is 10. The scores for each class are shown in this table. The bottom row shows that, in both classes, the average score is 5. So at the average level, the two classes look very similar.

Class A	Scores	Class B	Scores
Alyssa	4	Maria	1
Derek	5	John	2
Roberto	6	Angela	9
Juliana	5	Seth	8
Kevin	5	Jacob	5
AVERAGE	5	AVERAGE	5

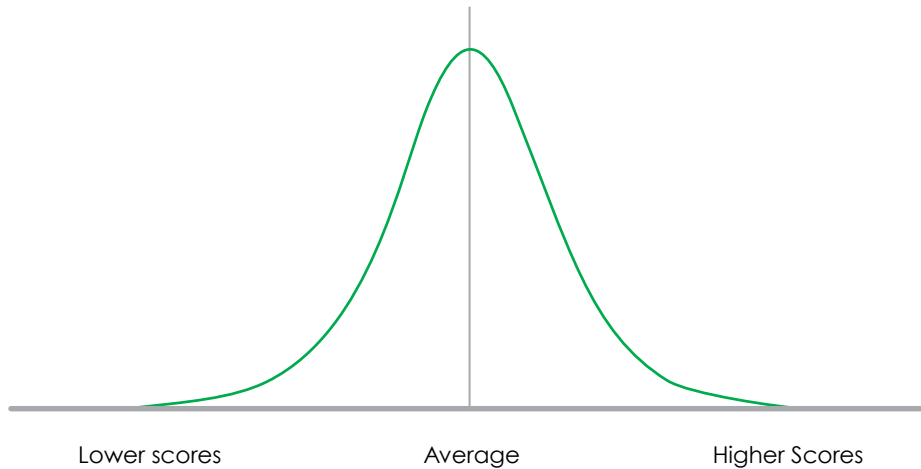
But in the distribution of scores across all the students, the classes look quite different.

Let's begin with Class A. In this class, the scores are not very spread out. In other words, they are not widely distributed. The children score at the average of 5 points—as in the case of Derek, Juliana, and Kevin—or within one point of the average—as in the case of Alyssa and Roberto. When the teacher plans the next part of this unit, he or she may think that all of the children need similar amounts of help.

What about Class B? In this case, the scores are far more spread out or distributed around the average. Maria and John score many points below the average. Seth and Angela score many points above the average. Jacob scores at the average. When Class B's teacher is planning instruction, he or she may have to adjust activities to respond to how each child is performing in this activity. Perhaps Seth and Angela, who scored near the top of the distribution, will need to be challenged with tasks that allow them to learn and use number words up to 20. Being at the average, Jacob may benefit from playing number games with Seth and Angela. Perhaps Maria and John need a little extra help from the teacher. On the other hand, they may simply need more help understanding of what they are supposed to do in the number-naming activity. If we had looked only at the average, we would not have gotten a sense of the different learning needs in these two classes.

Another way to study variance is to examine how children compare to the **norm**, which refers to the average score on a normal distribution curve. The normal curve in the following graph represents how people's scores in a particular domain—such as language, literacy, or mathematics—are distributed around an average.

The Normal Curve



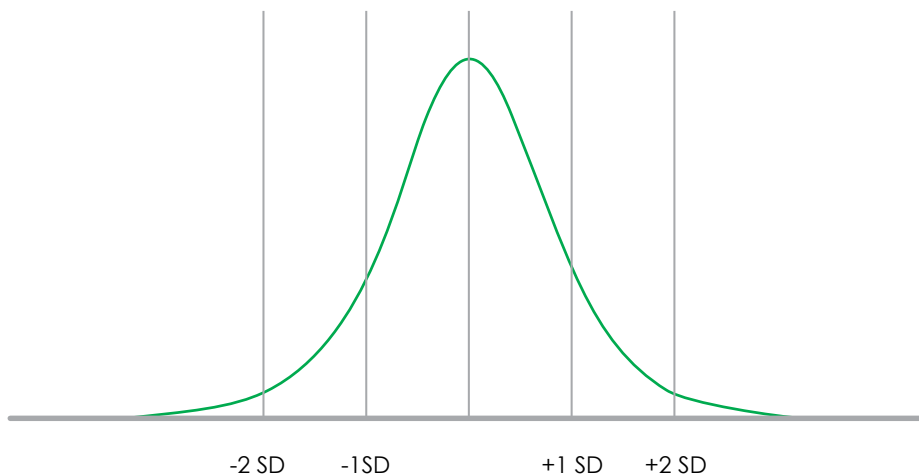
Imagine that you collected scores from a very large group of people in a particular area, such as vocabulary or mathematics. As it turns out, whenever you have a very large group of people, the majority of the people will have a similar skill level—they will score close to the average. In this picture of the normal curve, the line down the middle represents the average score. The hump in the curve around that line shows us that most people's scores fall near the average. It is as if a piece of sand were placed on a pile for each person who scores near the average, eventually creating a hill.

When very large groups of children—more children than are contained in a single program or center—take assessments, they will show the same pattern. Most children will score near the average, with fewer children receiving very high or very low scores.

We've already spent some time discussing distributions of scores. For the normal curve, the shape gives us a sense of how scores are distributed in very large groups. The ends of the curve sit below the middle, for example, because fewer people score further from the average—either higher or lower—than at the average.

The distribution—the distance from the average—is typically measured using a metric called the **standard deviation**. "Standard" indicates that this is a metric that works for many different kind of assessments. For almost any assessment, the distribution can be described using this standard metric. "Deviate" simply means to be apart from something or to move away from. The "standard deviation," then, is concerned with how far away from the average certain scores sit. The following chart shows standard deviations against a normal curve.

Standard Deviations

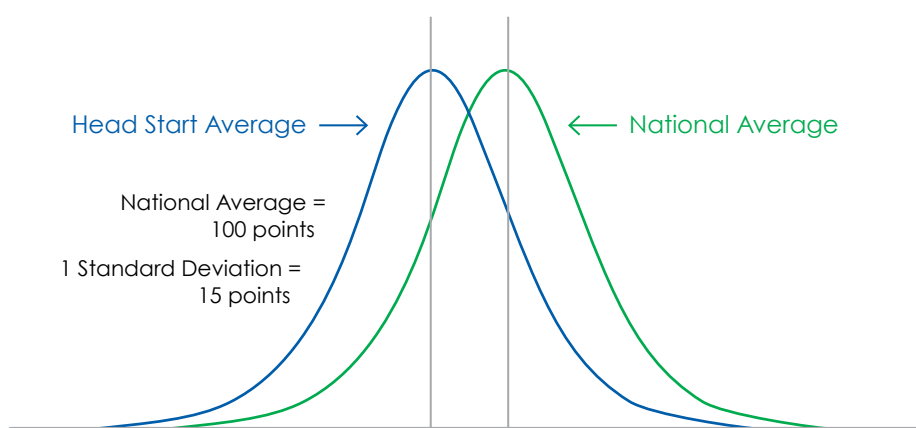


A large group of people make up the hill in the curve—they score between the -1 and the 1 shown across the top of the curve, or between one standard deviation below the mean (-1) and one standard deviation above the mean (1). In fact, in a normal distribution, exactly 68% of people score between these numbers. This is a kind of law of nature. Though it is not exactly clear why, this is the case for many, though not all, characteristics.

As educators, we are always aiming to help children learn and develop. It's important to keep in mind that there will always be a distribution of children's scores around a mean, with some children above and some children below.

The following graph shows how children in Head Start tend to perform compared to national norms. We've drawn two separate normal curves, one to represent a national sample of children (the green curve) and one to represent children in Head Start (the blue curve).

Head Start Children Compared with National Averages



National norming samples include children with backgrounds similar to children in Head Start, but they also include children from families with higher incomes and more advantages. In assessments of vocabulary, literacy, and mathematics ability, children in Head Start, on average, tend to score between a half of a standard deviation and one full standard deviation below the national average, or between 85 and 92 points (note: results are drawn from the Head Start Family and Child Experiences Survey 2003 cohort, ACF 2006).

It is important to notice where the purple curve crosses the line representing the national average. This shows us that the top 25% of children in Head Start score at or above the national average. Thus, while the majority of Head Start children score below the average performance of children across all income levels, nationally, some Head Start children perform at higher levels than average.

3. “Making Data Make Sense” on Using Visuals for Data Analysis

Making Data Make Sense

Creating and Using Visuals to Analyze Data

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Goal

- Provide an overview of purposes and usefulness of different types of charts and graphs.
- Provide an introduction to creating charts and graphs in Excel (2010) from PIR data.



What Do You Want to Show?

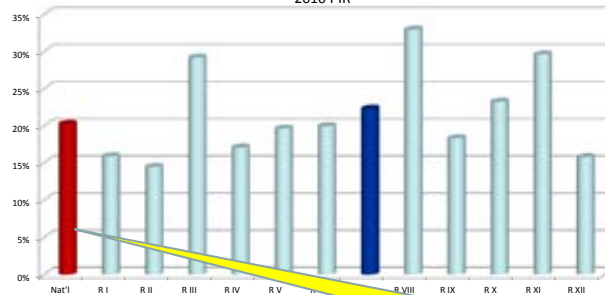
- Different charts or graphs have advantages, depending on the data.
 - Columns or cylinders
 - Clustered
 - Stacked
 - 100% Stacked
 - Pie Charts
 - Bar Charts
 - Line Graphs



Column or Cylinder Chart

Useful for single point comparisons.

Prenatal Enrollment - Medically High Risk
2010 PIR

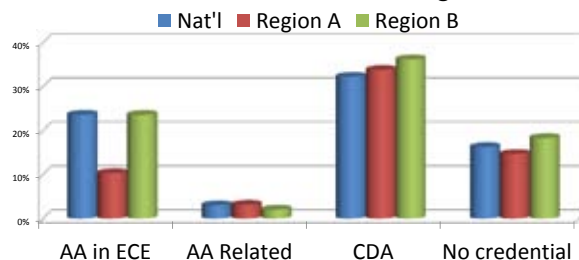


Can highlight points of interest.

Clustered Columns

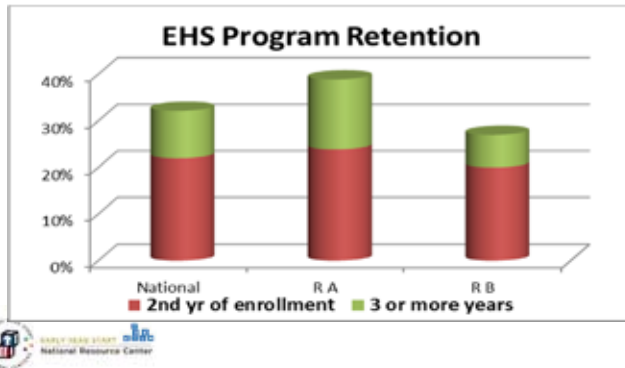
Useful for comparing multiple data points across multiple sites.

Credentials Less than BS Degree



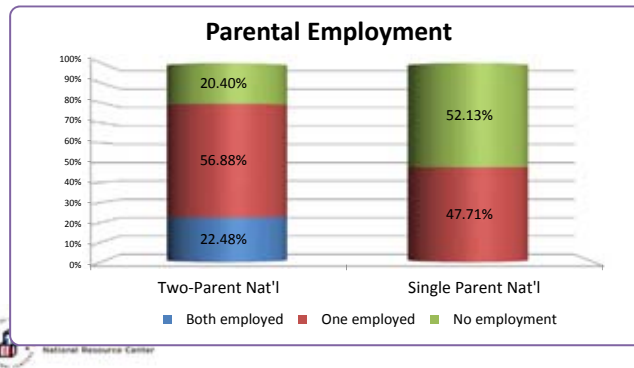
Stacked Columns

Useful for comparing multiple factors when total does not reach 100%.



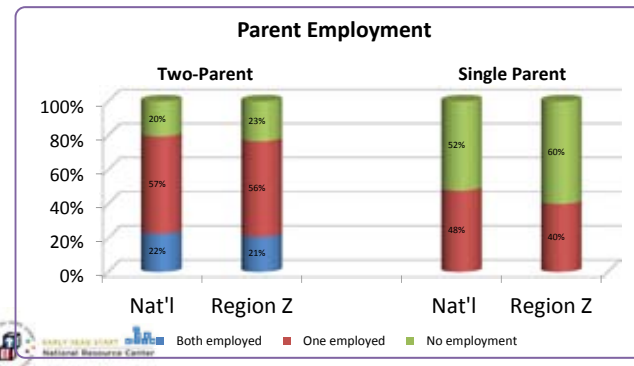
100% Stacked Columns

Useful for looking at the distribution of factors that total 100%.



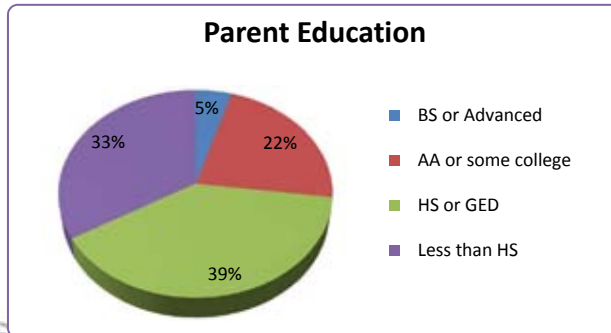
100% Stacked Columns

Can also be used to depict comparisons.



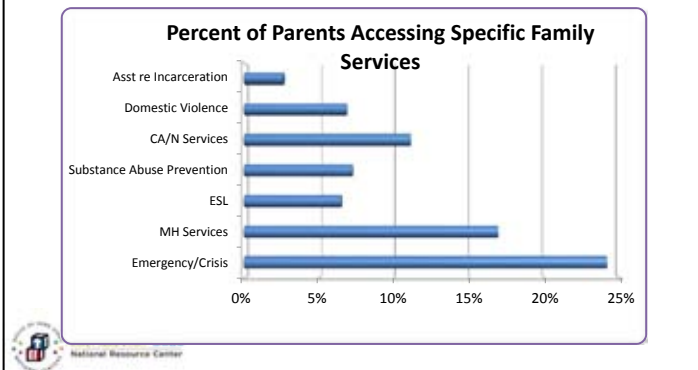
Pie Chart

Another useful visual when looking at distribution of factors within a total of 100%.



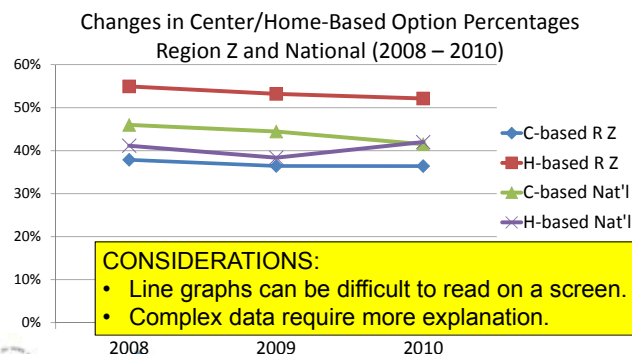
Bar Chart

Useful when looking at multiple factors (especially those with long labels).



Line Graph

Useful when looking at data over time.



It all looks pretty, but...

How do you make it happen???



Begin with a PIR Report (or other data)

- Pull up the report with the data you need.
- What area are you interested in?
 - Health?
 - Staff Qualifications?
 - Family?
 - Enrollment?
- (The following examples focus on prenatal enrollment.)



2009 - 2010 Head Start Program Information Report (PIR)
Health Services Report - Region Level
Interim Grants | Early Head Start
Jun 13, 2011

Interim Grants has 10 Programs

GENERAL INFORMATION		# Programs
Enrollment Year Starts	08/01/2009 (Mid)	
Enrollment Year Ends	08/31/2010 (Mid)	
Program Type	Early Head Start	10
Agency Types	Private/Public Non-Profit (Non-CAA) (e.g., church or non-profit hospital)	10
Agency Descriptions	Grantee that directly operates program(s) and has no delegates	10

Funded Enrollment
Funded Enrollment by Funding Source

Which Data Point(s)?

Pregnant Women - Services (EHS Programs)			
	Amount	Percentage	
Prenatal and Postpartum Health Care	1,434	93.8%	
Mental Health Interventions	20	23.1%	
Substance Abuse Prevention and Treatment	624	44.2%	
Prenatal Education and Development	1,430	93.6%	
Information on Benefits of Breastfeeding	1,403	91.2%	
Pregnant Women - Prenatal Health (EHS Programs)			
	Amount	Percentage	
Enrolled During 1st Trimester	376	24.9%	
Enrolled During 2nd Trimester	627	40.7%	
Enrolled During 3rd Trimester	162	10.7%	
Medically High Risk Pregnancies	223	14.7%	
Dental Home - Children			
	Amount	Percentage	Percentage of Total Children (ages 0-18) = 45,491
Children Continuous Accessible Dental Care (at End of Enrollment)	2,942	73.5%	75.8%
Preventive Dental Services - Children (EHS And Migrant Programs)			
	Amount	Percentage	
EHS and Migrant Dental Exams	1,474	75.9%	

Moving Data from PIR into Excel

- **NOTE:** These slides were created in Excel 2010.
- Previous versions of Excel ALL have capability to make charts and graphs.
- Specific steps may vary by version.



Create a Data Table in Excel

Prenatal Enrollment	Col 1	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7	Col 8	Col 9	Col 10	Col 11	Col 12
1st Trimester												
2nd Trimester												
3rd Trimester												
Medically High-Risk												

Step 1: Set up a data table in Excel.

- Label data points in Column A
- Label units of comparison across the top.
 - Could be centers, classrooms, etc. depending on the data you are using.

Input Data into Excel

	Net1	R1	R2	R3	R4	R5	R6	R7	R8
Prenatal Enrollment									
1st Trimester	0.2308	0.25	0.2459	0.2288	0.2193	0.2386	0.2717	0.1647	0.288
2nd Trimester	0.3878	0.4353	0.4079	0.374	0.4126	0.3735	0.367	0.3771	0.403
3rd Trimester	0.3814	0.3147	0.3461	0.3972	0.3681	0.3878	0.3613	0.4581	0.399
Medically High Risk	0.203	0.1595	0.1451	0.2921	0.1713	0.1966	0.2	0.2232	0.325

Step 2: Enter the data from your data source.

Step 3: Format cells

- Highlight the data
- RIGHT click
- LEFT Click on "Format Cells..."

Step 3 (cont.): Format cells

- LEFT click on "Percentage"
- Set the # of decimal places you want.

From a Table, Make a Chart

	Nat1	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12
Prenatal Enrollment	23.08%	25.00%	24.50%	22.86%	21.90%	23.80%	27.37%	34.47%	28.84%	26.75%	22.01%	28.19%	25.84%
1st Trimester	38.78%	43.52%	40.79%	37.40%	41.28%	37.35%	36.70%	37.71%	40.25%	38.70%	38.72%	35.90%	42.58%
2nd Trimester	38.14%	31.42%	34.61%	39.72%	36.82%	38.28%	36.13%	45.81%	35.91%	41.54%	39.21%	35.90%	42.57%
3rd Trimester	20.30%	15.95%	14.51%	29.21%	17.13%	19.66%	20.00%	22.52%	32.99%	18.35%	23.27%	29.64%	15.84%

STEP 4: Create the Chart

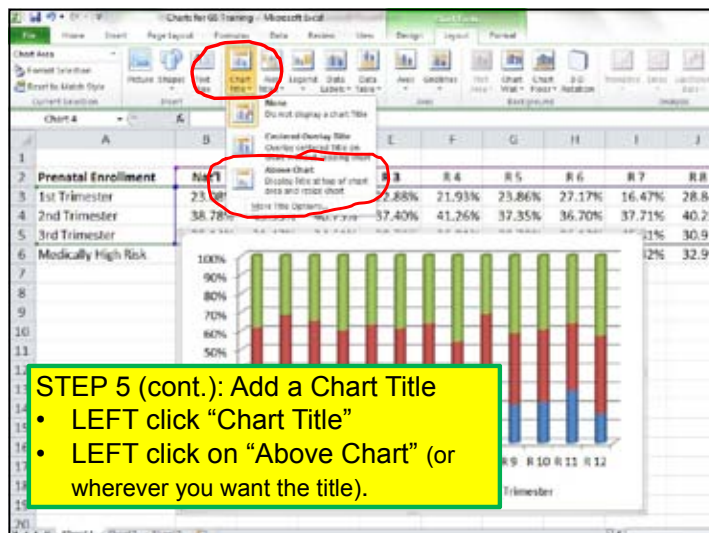
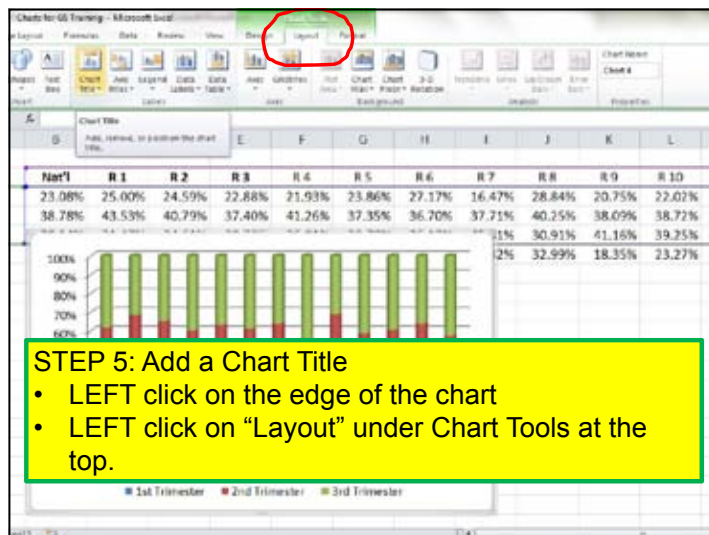
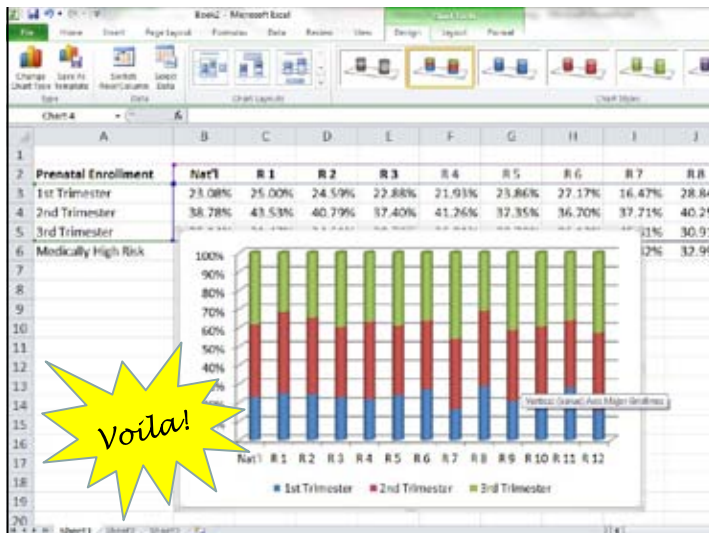
- Start at the top left cell, hold down the left mouse button, and drag the mouse to the bottom right cell of your data.
- Grab the ROW and COLUMN labels also.
- Release the mouse (both hands). The cells should remain highlighted.

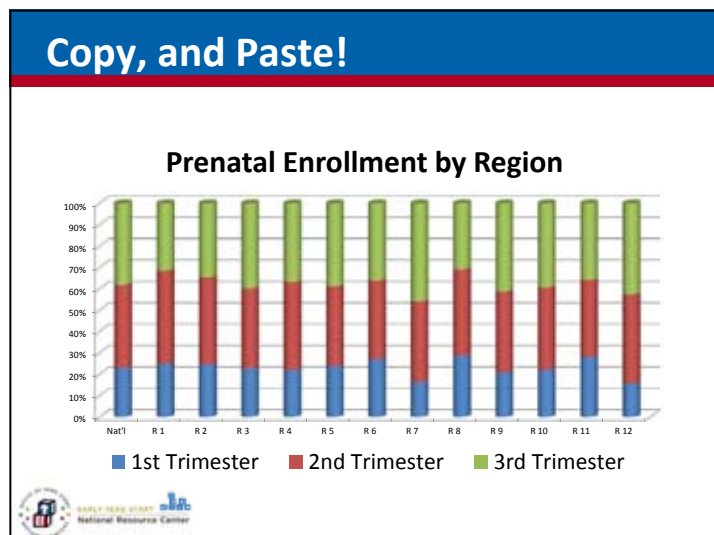
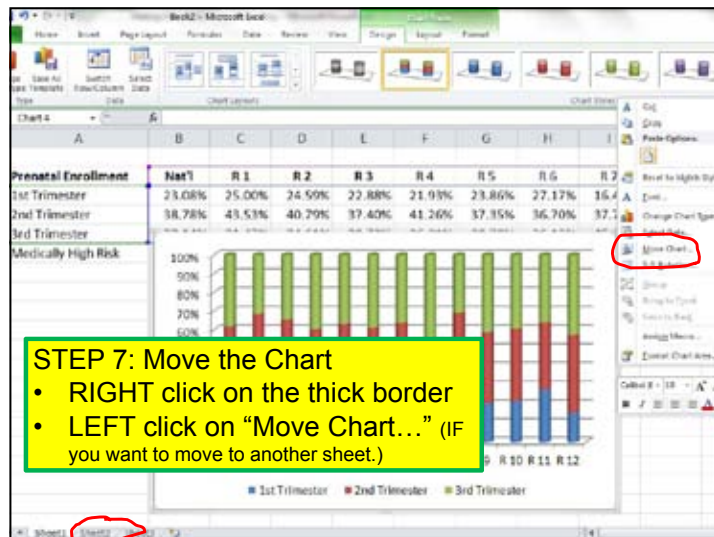
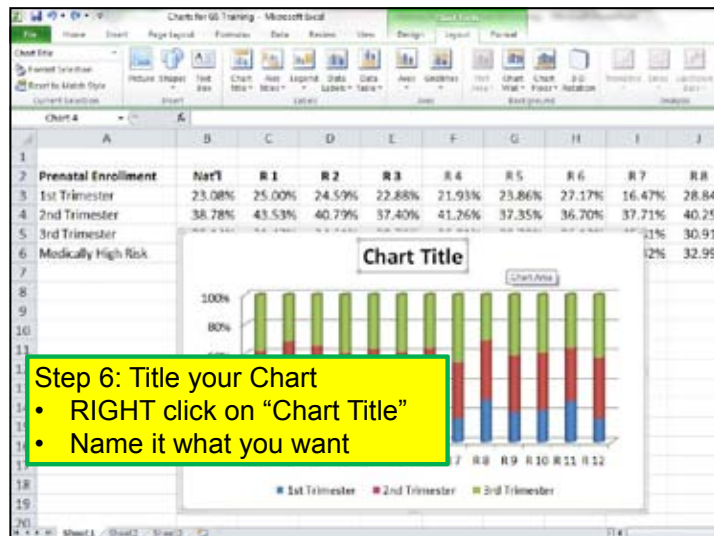
STEP 4 (cont.): Create the Chart

- Left click on the "Insert" tab.
- Left click on chart type that best suits the data (selecting "Column" here).

STEP 4 (cont.): Create the Chart

- LEFT click on the specific chart subtype ("100% Stacked Cylinder").





Pragmatics: Making the Skill Useful

- This same process can be used with any data table, and any type of chart or graph.
 - Consider what you want to show;
 - Select a type of chart
 - Create!
- If the visual you select does not tell the story, try another type.



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Matching Data to Effective Visuals

2010 Health Services by Region.pdf - Adobe Acrobat

	Answer	Percentage	Percentage of Total Children minus children <65 days
Children Certified as Eligible Health Care (at End of Enrollment Year)	1,263	95.8%	100.0%
Children with Health Service (at End of Enrollment Year)	59	4.3%	4.7%
Children Missed Health Care (at End of Enrollment Year)	3	0%	0%

Medical Services - Children

	Answer	Percentage	Percentage of Total Children minus children <65 days
Completed All Medical Screenings	124	78.7%	74.1%
Diagnosed as Requiring Medical Treatment	21	3.7%	
Referred to Another Facility for Medical Treatment	20	6.3%	
Arthritis	35	2.7%	2.8%
Asthma	40	3.0%	3.2%
Hearing Difficulties	4	0.3%	0.5%
Overweight	11	0.8%	0.8%
Vision Problems	5	0.4%	0.4%
High Lead Levels	7	0.5%	0.5%

Matching Data to Effective Visuals

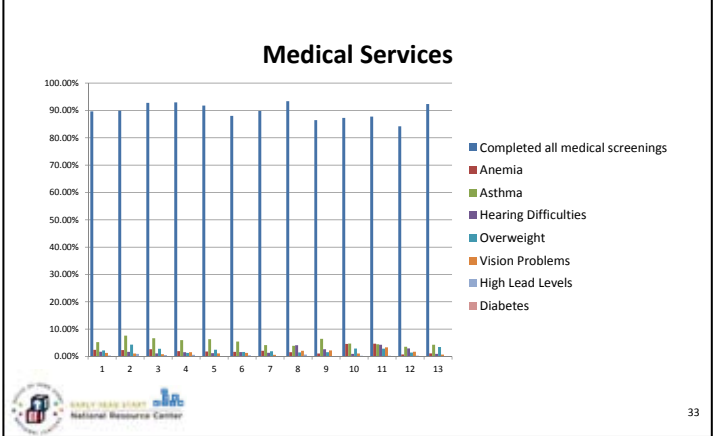
Health analysis for Children - Microsoft Excel

	Region I	Region II	Region III	Region IV	Region V	Region VI	Region VII	Region VIII	Region IX
31. Medical Services									
32. Completed all medical screenings	89.47%	89.33%	92.79%	92.97%	92.78%	88.02%	89.84%	91.46%	86.84%
33. Arthritis	2.14%	2.34%	2.02%	1.98%	1.83%	1.09%	2.08%	1.55%	1.89%
34. Asthma	5.23%	7.82%	6.96%	5.98%	4.32%	5.46%	4.14%	3.52%	6.44%
35. Hearing Difficulties	1.24%	1.71%	1.12%	1.36%	1.22%	1.03%	1.10%	1.40%	2.45%
36. Overweight	2.22%	4.54%	2.82%	1.30%	2.89%	1.64%	3.89%	1.46%	3.57%
37. Vision Problems	1.32%	1.80%	0.83%	1.56%	1.11%	1.29%	0.83%	2.09%	2.21%
38. High Lead Levels	0.53%	0.54%	0.53%	0.59%	0.32%	0.43%	0.09%	0.88%	0.11%
				0.96%	0.02%	0.05%	0.02%	0.12%	0.00%

It's a data table, right?
Should be easy enough to make into a nice visual...

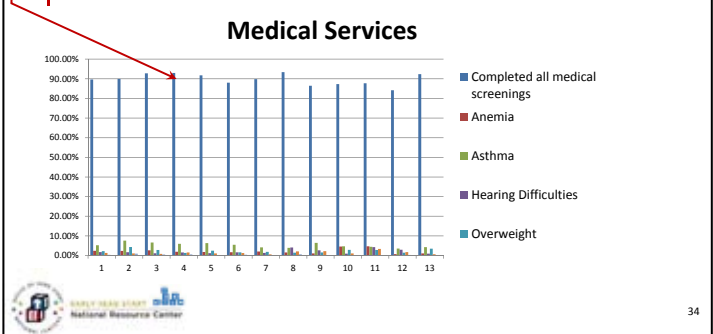
Mind the Scale: Dealing with Outliers

(Example of a Very Bad Data/Chart Match)



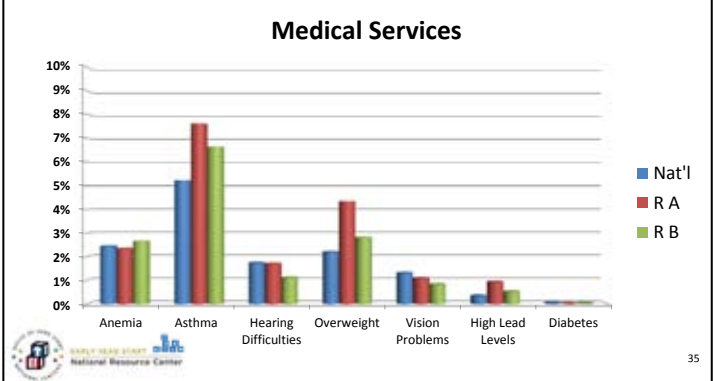
Mind the Scale: Dealing with Outliers

“Completed all medical screenings” is off the scale, and makes the other data unreadable.



Mind the Scale: Dealing with Outliers

Remove the outlier and the data tell a story.



What Should You Show?

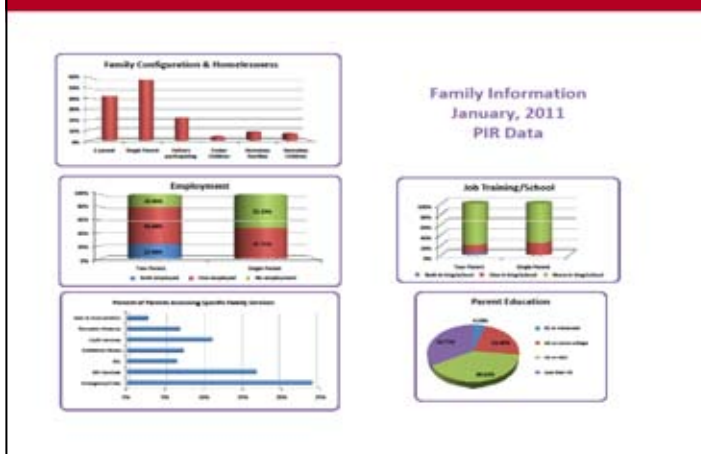
What do you want to know?

- Visuals are much more accessible than data tables – they have power to tell a story.
- Converting PIR or other data into charts and graphs will help your audience “get the picture.”
 - Governing Board
 - Policy Council
 - Staff



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Combine Charts to Create a Dashboard



Questions?

Ready?
Set?

Go!!!



Photo courtesy Valent Lane



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For more Information
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