
Local Quality Assurance Resource Manual

Chapter 4

Compiling, Analyzing and Presenting Data



NOTE: This Resource Manual is a product of the Research and Evaluation contract between the University of Oregon's Educational and Community Supports unit within the College of Education and the Department of Human Services, Seniors and People with Disabilities, State of Oregon (Agreement # 108857, Amendment 1). This chapter presents some of the quality assurance program requirements, as well as items that are not specifically required but offered as suggestions or examples. All CDDPs must remember that their role is to implement a Quality Assurance program that supports the State's current Quality Assurance Plan. The Resource Manual includes requirements for Quality Assurance Programs that are current as of June 2005. Because Administrative Rules and Contract requirements change, CDDPs should always check for and apply more current rules and contracts developed after the publication of this workbook.

Compiling, Analyzing and Presenting Data

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DATA TO BE COLLECTED, COMPILED AND REPORTED

- Objectives:**
- Define requirements for quality assurance data collection and reporting.
 - Discuss the types of data and information that should be presented to Quality Assurance Committees.

Requirements: Evaluating the local service delivery program is required by the Oregon Administrative Rule for CDDPs.

This excerpt from the CDDP rule is current as of May 2005. Be sure to check the DHS website for any changes and updates. That website is:

<http://www.dhs.state.or.us/policy/spd/alpha.htm>

411-320-0040 Community Developmental Disability Program (08/03/04)

- (9) *Local quality assurance program. ...*
- (a) (A) (Sections deleted)
- (ii) *Generally improving the quality of services by evaluating service delivery and outcomes and adjusting local planning and performance where needed.*
- (B) *Include all Department-funded developmental disability services provided within the county,....*
- (C) *Include, at a minimum, the quality indicators and all activities that are to be carried out at the local level according to the most recent edition of the Department's Quality Assurance Plan for Developmental Disability Services (Department's QA Plan).*
- (b) (Sections deleted)
- (C) *Implement the activities defined in the local QA plan, including the timely delivery of data and information to the Department as required in the Department's QA plan.*
- (D) *Maintain data and information that has been gathered through implementation of the local QA plan.*
- (E) *Maintain a record of conclusions and recommendations that have been drawn from analysis of the information gathered.*

(Section deleted)

(G) *Maintain records that document:*

- (i) *The CDDP's performance of the activities described in the local QA plan*
- (ii) *The CDDP's performance measured against statewide performance requirements as specified in the Department's QA plan*
- (iii) *The CDDP's findings, corrective actions and the impact of the corrective actions that have been reviewed at a policy level within the CDDP's department structure within the County;*
- (iv) *The timely submission of information to the Department, as required in the Department's QA Plan.*

(c) *Performance Requirements....*

- (A) *The CDDP will collect and analyze information concerning performance of the activities represented in OAR 411-320-0040(9)(a)(A), in a manner specified in the Department's QA Plan.*
- (B) *Data concerning the CDDP's performance will be sent to the Department in the format and within the timelines established by the Department.*

(Section deleted)

(D) *Records that document the CDDP's performance will be maintained and be made available to the Department or its designee, for audit purposes, upon request.*

(Sections deleted)

(e) *Local quality assurance committee....*

(Section deleted)

(B) *Activities of the committee will include:*

(Section deleted)

- (ii) *Providing review and comment on data gathering instruments and methods; and*
- (iii) *Providing review and comment on the results of information gathered by the CDDP and the effectiveness of corrective actions.*

Guidelines and Suggestions

THE REQUIREMENTS: WHAT DO THEY MEAN?

Some of the principles that set “Quality” apart from many approaches to management are a fundamental reliance on using data to make decisions, taking action to improve performance, and using data once again to determine if the actions taken resulted in an improvement.

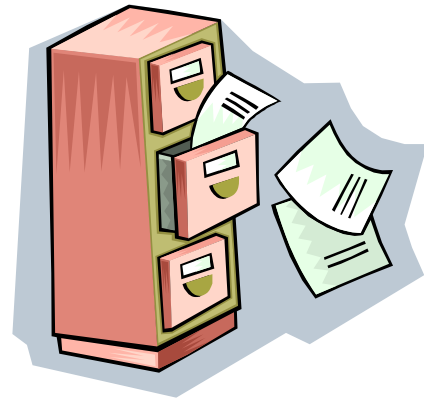


Quality Assurance, similar to Quality Control in industry settings, is a basic function of Quality which involves measuring performance against a standard and taking corrective actions to ensure that performance stays within the specified acceptable range. Thus, carrying out a local Quality Assurance Program for developmental disability services means having systems for measuring local performance, collecting and analyzing performance data, and

taking action on the results to ensure that performance meets or exceeds standards.

Given this understanding of Quality Assurance, Seniors and People with Disabilities expects that CDDPs will maintain:

- 1) A set of fundamental Quality Assurance systems or processes (also known as “**Quality Components**”),
- 2) **Data** that document both the presence of the Quality Assurance system and the performance in the area the system is measuring, and
- 3) Evidence of the results of **corrective actions** taken to improve performance.



The specific Quality Components which SPD expects CDDPs to maintain are defined in the State Quality Assurance Plan, OARs for CDDPs, and contracts. CDDPs are expected to carry out many of these components on an ongoing basis. For others, SPD expects CDDPs to participate in a periodic statewide activity by Rule, Contract or at Department request. The **Table of Minimum Requirements** that follows summarizes the minimum requirements for Quality Components. Of course, a CDDP may choose to implement additional Quality Components that are appropriate to their local area.



Each SPD QA Plan goal involves one or more Quality Components. In addition, several of the Quality Components provide data related to more than one goal. For example, the Quality Component “Licensing, Certification Reviews” provides performance information regarding assuring QA plan Goals #1. Health and Safety, #2. Developing, Monitoring, and Reviewing Plans of Care, #3. Services Provided by Qualified Providers, and #6. State Financial Accountability. The table “**Quality Components by SPD QA Plan Goals**” summarizes the SPD plan goals for which each Quality Component is expected to be used.

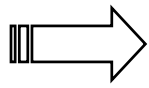
Table of Minimum Requirements. CDDP may choose to develop additional activities, goals, and objectives

Quality Assurance Components	Maintain local process for gathering, reviewing, responding to data	Participate in statewide activity by Rule, Contract, or at Department request	Establish local success indicators related to Department goals and desired outcomes	Establish local benchmarks unless otherwise specified by Department	Establish local timelines unless otherwise specified by Department
Licensing, certification reviews	X	X	X	X	X
SERT	X	X	X	X	X
Service coordinator monitoring, inc. annual plan reviews (24-hour res., foster home)	X	X	X	X	X
OIT and local investigator information re protective services investigations	X	X	X	X	X
PSI investigator training, technical assistance, mentoring		X			
Death reports	X	X	X	X	X
Records of individual complaints, inc. contested case as well as other types	X	X	X	X	X
Service coordinator and provider training surveys		X			
Individual file reviews (re rights, plans, etc.)	X	X	X	X	X
Annual sample file review using HCB Waiver Service Review checklist	X	X	X	X	X
Service coordinator plan implementation reviews (Family Support, In-Home Comp)	X	X	X	X	X
Employment Outcome reports		X			
CDDP Records (e.g. service coordinator qualifications, training; actions re QA)	X	X	X	X	X
Records of provider sanctions and contested case hearings	X	X	X	X	X
Direct Care staff turnover records		X			
Special training project records		X			
Records of foster provider training and testing	X	X	X	X	X
Individual/family satisfaction surveys	X	X	X	X	X
Audits, financial reports, special inquiries/investigations re state or local operations	X	X	X	X	X

Table of Quality Assurance Components by SPD QA Plan Goals

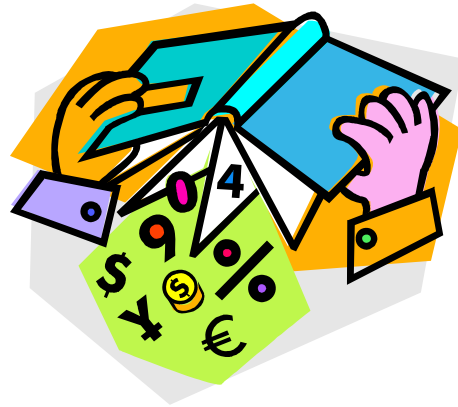
Quality Assurance Component	Goal	1. Health & Safety	2. Plans of Care	3. Qualified Providers	4. Level of Care Need	5. Admin. Authority	6. Financial Accountability
Licensing, certification reviews		X	X	X			X
SERT Records		X		X		X	
Service coordinator monitoring, inc. annual plan reviews (24-hour res., foster home)		X	X	X			
OIT and local investigator information re protective services investigations		X					
PSI investigator training, technical assistance, mentoring		X					
Death reports		X					
Records of individual complaints, inc. contested case as well as other types		X					X
Service coordinator and provider training surveys				X			
Individual file reviews (re rights, plans, etc.)			X				
Annual sample file review using HCB Waiver Service Review checklist			X		X	X	
Service coordinator plan implementation reviews (Family Support, In-Home Comp)							
Employment Outcome reports			X				
CDDP Records (e.g. service coordinator qualifications, training; actions re QA)			X	X	X	X	X
Records of provider sanctions and contested case hearings				X			
Direct Care staff turnover records				X			
Special training project records				X			
Records of foster provider training and testing				X			
Individual/family satisfaction results			X				
Audits, financial reports, special inquiries/investigations re state or local operations							X

WHAT IS AN INFORMATION SYSTEM?



Consider how your information management and response system is organized. The **Performance Measurement Model** provides a graphic to help you envision a system.

The Performance Measurement Model in the figure that follows, depicts the design of a system for measuring performance for improvement. Starting at the bottom of the page, in counter clockwise order, the following items describe each of the major components of the model.



Processes and Systems: These are the means by which we get work accomplished. Any process or system includes a set of “inputs” (resources that come into the system) and “outputs” (the “yield” of the system, what it generates).

Outcomes/Results: The processes and systems yield something—outcomes or results for the customers. The distinction between “outputs” and “outcomes” is not important to this discussion.



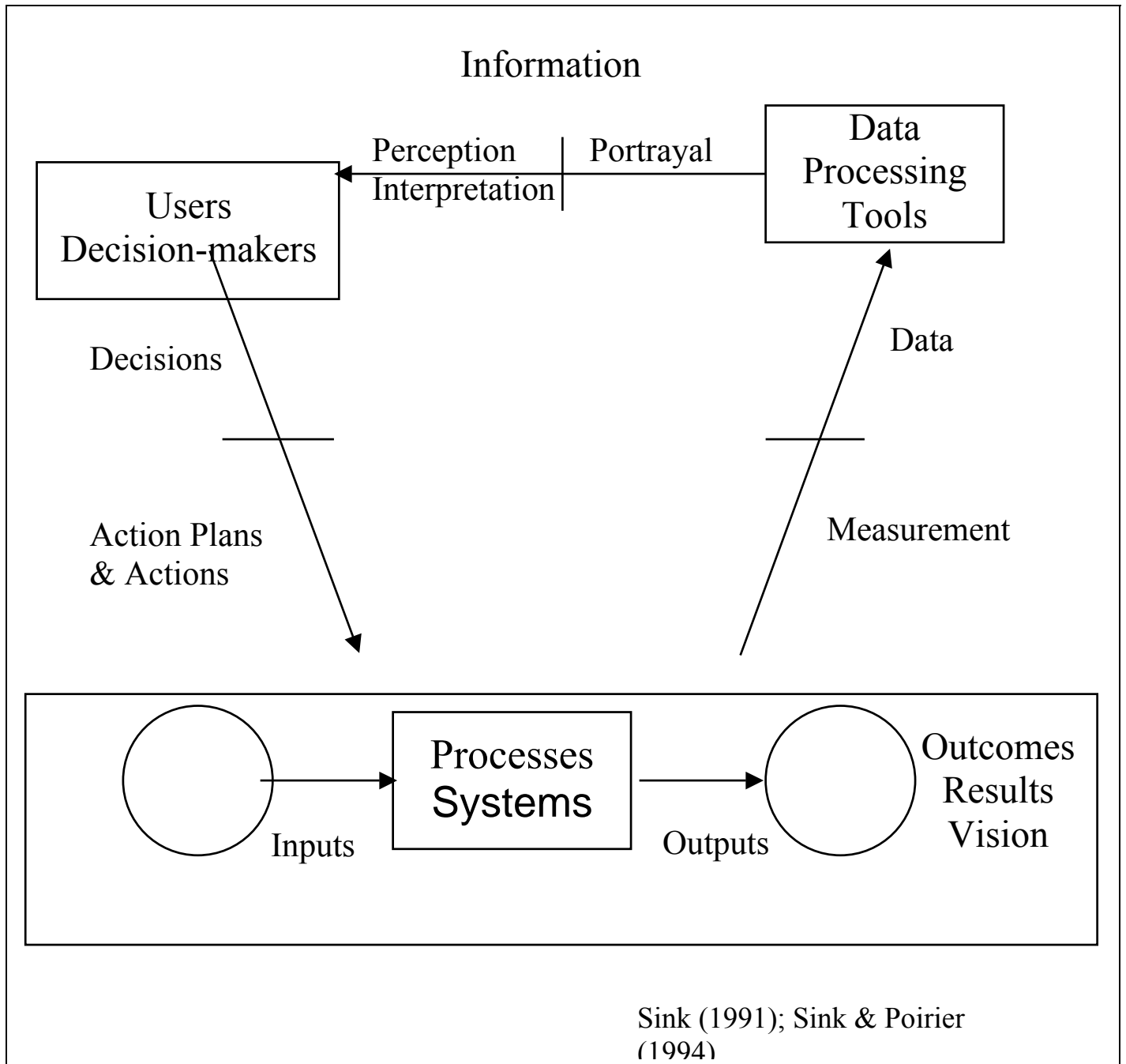
Measurement: Refers to measurement systems or tools, such as data collection forms, case file review checklists.

Data: The measurement devices yield data related to the performance of the system.

Data Processing Tools: These include methods used for compiling, organizing and presenting data for analysis. Tools may consist of a fancy database system,

a spreadsheet, a calculator, pencil and paper, or a combination of these.

The Performance Measurement Model



Portrayal: As a result of the data processing, the data on system performance is portrayed in a way that will be used for decision-making. Many different options are available—both good and bad. For example, the portrayal may



consist simply of the raw data themselves, a table of numbers, or graphs that depict patterns or trends, or even a verbal description of the results.

Perception/Interpretation: The people who receive the portrayal of the data use their perception of the data to interpret its meaning. At this point, data has been turned into *Information*.

Users/Decision-makers: These are the people who are to use the information—whether they be direct line staff, mid-managers, QA Coordinators, Program Directors or the QA Committee. The

Performance Measurement Model applies to any level of an individual organization, county, etc.

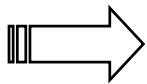
Decisions: Based on their interpretation of the information, the users/decision-makers make choice about what they will do. They may choose to do nothing, or to take action to change the performance of the system.

Action Plans & Actions: The decisions must be turned into plans for how to take action—the actual steps that will be carried out, by which person, when. The effects of these Actions on the system, then, will be measured on the next trip around the Performance Measurement Model.



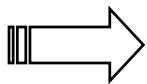
Thus, based on the logic of the Performance Measurement Model, we can draw several guidelines related to data for CDDPs.

1. Determine the kinds of data that need to be collected, and how that data should be portrayed based on the decisions that need to be made related to the system.



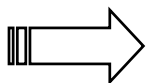
For CDDPs, this means that data needs to be collected and compiled to demonstrate the effectiveness of the Quality Program, and in particular related to the six Goals and their Desired Outcomes. The *Critical Questions Workbook* provides one way to think about what data to collect and how to organize it for decision-making.

2. Design measurement tools that will facilitate data collection and compilation.



For example, when doing the Title XIX Waiver file review, use a second form to tally the issues related to all files reviewed. Place the tally mark next to the part of the review checklist which was not met by a file. Tally the results from all files onto the same form. At the end of the review, you will have a visual picture of the biggest issues related to files. And, you will have that WITHOUT resorting to a fancy database or spreadsheet. A fancy database or spreadsheet can be great, but don't let it get in your way if you don't have that available. Start small, with something simple, to help you organize data. Over time, your data systems will get better and better, and easier to manage, as you develop skill in this area.

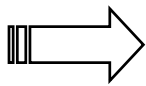
3. Organize data in a way that will make it easy for users to interpret the information for making decisions.



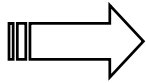
Use the principles suggested in the following section in designing how to portray data for decision-making.



-
-
4. Make decisions related to what actions need to be taken to improve the system performance.

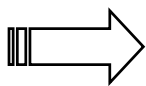


Discussing the data is not enough. What actions will result in a change? Action plans and actions may relate to inputs (resources), the processes, measurement devices, or data to be collected.



Be clear about the action to be taken and follow-up to be sure that the plan was implemented as planned. There have been many “unsuccessful” plans for improving performance that actually never had a chance to succeed, since they were not implemented in the way they were intended.

5. Repeat the cycle. One of the things that sets Quality apart, is its reiterative process—do something, study it, analyze how it worked, make a decision about how to improve, then do something, study it, analyze how it worked, and make a decision about how to improve it further. Rather than linear thinking, moving from one crisis to the next, a QA Coordinator should ensure that the Quality Program moves through a continuous upward spiral of improvement. (See Chapter 6 on Quality Improvement Projects).



When the QA Committee requests an improvement project, be sure to bring the results back to the committee, as soon as data are available. Then, they can review the impact of their actions, and make a decision if other actions are needed.

WHAT DATA?

In SPD’s QA Plan/Report to CMS, SPD has identified a set of “Success Indicators”—measures with targets. SPD selected these based on the promises made in the State QA Plan. SPD will report to CMS on performance on these Success Indicators, including the results

of action taken to improve performance. SPD has **not** required that CDDPs use the same success indicators. However, as described above, SPD does expect that the Quality Components will be in place, that the CDDPs will have appropriate data, and that CDDPs will have documentation of the results of corrective action taken. Given all that, CDDPs can select for themselves the specific data to be collected and reported to document performance related to the assurances.

<p>CDDPs Should Maintain Data That Document:</p>
<ul style="list-style-type: none">● That the QA Component is in place.● The results discovered by the QA Component.

The *Critical Questions Workbook* provides a tool for helping CDDPs and QA Coordinators to work through the process of identifying measures from Quality Components relevant to each Goal and Desired Outcome. The Workbook, organized by Desired Outcome within each Goal, suggests sample measures for each targeted Quality Component. The examples are only samples, and are not required.



When selecting a measure, keep in mind several considerations:

- Clearly define the measure. Write it so that other people will know what is to be measured.
- Review the measure to be sure that it actually will give information about what you want to know. What indicators will help you monitor the conditions that create accidents and injuries? What will help you monitor the causes of known, chronic problems? What indicators will tell you if you are routinely serving your customers' needs?
- Consider if this measure will be of interest to, and understandable by, the QA Committee.
- Think about how you will report the results. Will you be able to turn it into a graph? A table? Or will you need to use a narrative to describe what was found?
- Consider what resources and tools you have for compiling and organizing the data for the reports. Will you need to compile it by hand? Using an Excel spreadsheet? Using a database? Will there be someone to help with data entry? Be careful not to develop a measure that requires more time and "power" for data collection, compilation, and analysis than you have available.
- Identify the specific form and questions that will be used for collecting data. Make sure that those are written in a way that anyone using them would give the same answer when reviewing the same information.
- Is there a way to lay out the form so you can graph the results directly? See "Tips for Data Collection" later in this chapter for some ideas.
- Use a Protocol to define additional aspects of the measure, such as how often it is collected, how samples will be drawn, how data will be collected, and the person responsible. The sample form that follows has been reviewed by CMS.

SAMPLE MEASUREMENT PROTOCOL FROM SPD SUPPORT SERVICES PLAN

HOME AND COMMUNITY BASED SERVICES QUALITY ASSURANCE/QUALITY IMPROVEMENT PLAN DETAIL

- I. Area of Inquiry:** QA Plan Section 2. Developing, Monitoring, and Reviewing Plans of Care
- II. QA/QI Indicator:** QA Plan Section 2, Desired Outcome 3. Individuals receive services required to meet needs.
- 1. QA/QI activity:** Staley Team 5% Field Review Sample
 - 2. Frequency of QA/QI activity:** Annual
 - 3. Sampling methods:** SPD Central Office will pull at least 5% random sample of Support Service waiver service recipients enrolled in each Brokerage, with at least one individual from each county served by each Brokerage
 - 4. How data will be collected:** SPD Central Office staff on the Staley Team will conduct on-site reviews including examination of individual files (Medicaid TXIX Waiver Form, Customer Goal Survey, ISP, Basic Supplement Criteria Inventory, quarterly and annual reviews, progress notes, correspondence, incident reports) and discussion with Brokerage staff. Data will be recorded on paper checklists and returned to SPD Central Office to be aggregated and summarized.
 - 5. Person responsible for QA/QI data collection:** Manager, Medicaid In-Home Support Services
 - 6. Acceptable threshold of performance for 2.3.1:** Individuals receive services required to meet needs. Personal agents respond to requests and needs. These statements must be true for at least: 80% of records reviewed 2005; 85% of records reviewed 2006; 90% of records reviewed 2007.

Date adopted by QA Committee: 2/28/05 (Note: re-evaluate annual benchmarks when 2005 results are available).

Troubleshooting Logic

There is probably an infinite number of potential measures that could be used to give a picture of developmental disability services. One useful approach is to think about it in terms of “troubleshooting.” Troubleshooting is a technique often used by auto mechanics and others who service equipment. They try to find the cause by asking the fewest number of questions; i.e., by taking the fewest number of measures. Each measure is carefully selected to eliminate a large portion of the possible causes. Thus, the first few measures give a broad picture of the status, and then the troubleshooter follows the path of the measure which indicates a biggest issue or the most likely potential cause of the reported problem.



CDDPs and QA Committees may employ a similar logic—begin with a few “high level” measures, and then seek more detailed information only around the item that appears to be the issue. This approach will support effective use if the committee’s time, ensuring it is focused on the most important issues.

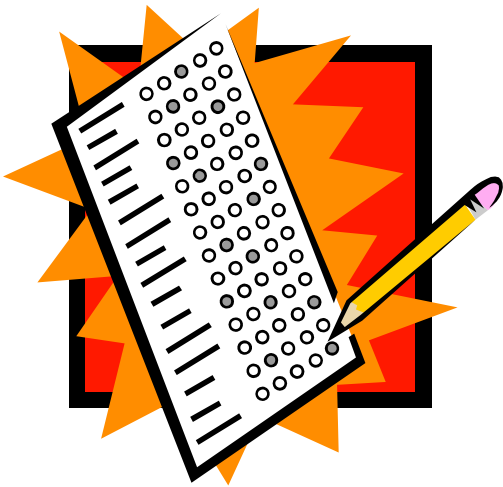
Types of Data

In general, data fall into two broad categories: “opinion” data and “observable” data. Data that records the perceptions and opinions of individuals or groups of individuals—also referred to as “qualitative data”—is useful in understanding meaning, and developing future evaluation questions. Usually “opinion” data cannot be generalized to be representative of a larger group of people, but instead represents the thoughts of the particular individual or group from which the data were collected. Focus groups, interviews, and open-ended questions on surveys are good sources for stakeholder opinion data.

Observable data, on the other hand, represents things that can be seen and measured more directly, for example by counting or by timing the duration of an event. The number of SERTS per reported month and the % of providers with criminal history checks are good examples of observable data.

Sometimes, a data source can provide both opinion and observable data. Incident report forms, for example, include observable data in the form of the date and time of the incident, or the incident category. However, they also include opinions, when asking questions such as “What could have been done to avoid the incident?”

SPD is interested in two focus areas for data: **Process** data and **Results** data. Process data answers the question, “*Are the PROCESSES for assuring quality in place and functioning well?*” For example, “What percentage of sites received a service monitoring visit in the past year?”



Results data tells us, “*What are the RESULTS that were discovered when we implemented those quality assurance processes?*” For example, “What percentage of ISPs reviewed that require protocols have all the protocols written and implemented?”

Thus, a CDDP should present to its QA Committee information on both the implementation of the process of the Quality Component, and the results discovered through that component. A sample of the questions that the committee may be asked to answer follows.

S A M P L E

Goal 1: Participant Health and Welfare

CRITICAL QUESTION: Are individuals in home and community-based services safe and secure in their homes and communities, taking into account their informed and expressed choices?

Desired Outcome 1: Individuals live in safe physical environments.

- **Quality Component: Licensing and certification**
 - Does our CDDP have a process that works well?
 - What did we find out about performance on this desired outcome?

- **Quality Component: SERT**
 - Does our CDDP have a process that works well?
 - What did we find out about performance on this desired outcome?

- **Quality Component: Service Monitoring Visits**
 - Does our CDDP have a process that works well?
 - What did we find out about performance on this desired outcome?

It may be possible, particularly in smaller counties, to answer questions such as these based on the opinion of Service Coordinators and the QA Coordinator. In some cases, opinion may be the only way to answer some of the questions about service quality. In general, however, when it is possible to use observable data, and when the data are collected following a good protocol, then it is better to use that. Our opinions are easily influenced—by the most recent information we have received, by our individual biases, or by what we hope is the result. So, while a QA Committee in some cases will need to rely on the opinion of CDDP staff, supporting that opinion with observable data will make a stronger presentation.

Table of Types of Data

	Opinion Data	Observable Data
Process Data	People’s opinion about when, how often or how well the QA Component was carried out	Actual records of the dates when the QA Component was carried out
Results Data	People’s opinion about what was found when the QA Component was carried out	Actual records of the result of the implementation of the QA Component—what was found.



TIPS FOR DATA COLLECTION

There are a variety of ways to collect data that may be useful and less labor intensive than setting up a fancy database. However, using some of these methods won't give you all of the power of the database system. But, these are a good way to get started, particularly when building a database feels like climbing the Matterhorn or building Taj Mahal.

Checksheet: A checksheet is one of the simplest ways to collect data.

- Develop a form that includes all of the variables that you will be checking.
- Then use that form to record a tally mark each time that variable is observed.
- At the end of the data collection effort, simply count the number of instances of each of the variables.
- This type of data is best presented as a Pareto Chart (See "Tips for Graphing").
- See the sample labeled "Basic Checksheet."

Sample "Basic Checksheet: Number of protocols in place"

Item	Tally of number of protocols
Aspiration	//// //
Constipation	//// // //
Dehydration	//// //
Seizures	///
Other	

Instructions: In the left column, record the items that you will be tracking. Then each time one is discovered, add a tally mark in the column to the right. Be sure to add identifying information about the set of data, such as the time period, sites, service coordinator, etc.

Checksheet –Yet another way.

- Another simple checksheet uses an existing form as the checksheet form.
- If you are checking several copies of a specific form, and may find errors in any of several places on the form, it may be easiest to use a copy of the form itself as the checksheet.
- Each time an error is found, record a tally at the spot on the form where the error occurred.
- At the end of the data collection effort, simply count the number of instances of each of the “fields” of the form.
- This type of data is best presented as a Pareto Chart (See “Tips for Graphing”).
- See the sample labeled “Checksheet—Using an Existing Form.”



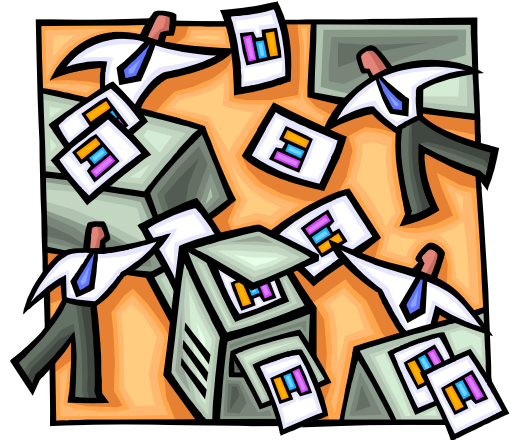
Sample “Checksheet—Using an Existing Form”

Title XIX Review: Other Review Information					
1. DD Eligibility Documentation: <input type="checkbox"/> MR <input type="checkbox"/> DD only		Yes	No	Notes	Date Corrected
FULL SCALE IQ	//// //	<input type="checkbox"/>	<input type="checkbox"/>		
Documentation of disability other than MR	//// //	<input type="checkbox"/>	<input type="checkbox"/>		
Adaptive Score	///	<input type="checkbox"/>	<input type="checkbox"/>		
Date of record	/	<input type="checkbox"/>	<input type="checkbox"/>		
Type of record	//// //	<input type="checkbox"/>	<input type="checkbox"/>		
Originator of record	//// //	<input type="checkbox"/>	<input type="checkbox"/>		

Instructions: To tally across a set of review forms, use a blank review form and make a mark in the appropriate box for each form reviewed. Make a mark each time the required information was missing (“No”) based on the original review sheets.

Tally and Graph

- This format is based on how we used to score task performance on a task analysis form during training. It was helpful then, as a quick way to summarize how the person did we were training, and then build a graph on the same form.
- It would, therefore, be useful when you will be scoring the same thing (related to the same system or file or person) across time. It would not work well, as described here, for instances where you are collecting data for example on multiple files at the same review. A checksheet is better in that instance.
- Use a special form that is filled with numbers in columns, starting with 1 at the bottom and going as high as you need (and can fit between the bottom and top of the form). We usually had our forms numbered 1-25. Put as many columns of 1 to whatever (with a couple of spaces between each column) as will fit across the form. Leave space at the left of the form to record the variables on which you are collecting data. And, at the bottom, add identifying information for each column. It is hard to describe, so be sure to look at the sample provided for this one.
- So let's say you are reviewing your County Quality Assurance System and there are 19 things to be reviewed—each of the Quality Components, plus an up to date Annual Plan, and active QA Committee. For each of these, the question might be, “Is this system in place and functional at this time?” Answer the question for each item. Then, if an item is in place (meaning “it was last carried out according to schedule and standards, and is planned for the next scheduled occurrence”), circle the number that corresponds to that item. Leave uncircled those that do not meet standards. After reviewing all items, count the number of items scored as “in place and functional.” Then put an X on that number in that column. Use the same form, with data, the next time you record data on Quality Assurance System Requirements. Connect the X's from one recording date to the next to display a graph of the number of items in place across time.
- See the Sample “Tally and Graph” form



Sample “Tally and Graph” Form

Quality Assurance System: Minimum Requirements											
	20	20	20	20	20	20	20	20	20	20	20
	19	19	19	19	19	19	19	19	19	19	19
	18	18	18	18	18	18	18	18	18	18	18
Quality Assurance Coordinator	17	17	17	17	17	17	17	17	17	17	17
Quality Assurance Plan	16	16	16	16	16	16	16	16	16	16	16
Quality Assurance Committee	15	15	15	15	15	15	15	15	15	15	15
Licensing, certification reviews	14	14	14	14	14	14	14	14	14	14	14
SERT	13	13	13	13	13	13	13	13	13	13	13
Service coordinator monitoring	12	12	12	12	12	12	12	12	12	12	12
Local investigator information re PSI	11	11	11	11	11	11	11	11	11	11	11
Death reports	10	10	10	10	10	10	10	10	10	10	10
Records of individual complaints	9	9	9	9	9	9	9	9	9	9	9
Individual file reviews	8	8	8	8	8	8	8	8	8	8	8
HCB Waiver Review checklist	7	7	7	7	7	7	7	7	7	7	7
Serv Coord plan implem reviews (Family Support, In-Home Comp)	6	6	6	6	6	6	6	6	6	6	6
CDDP Records (e.g. service coordinator qualifications, training; actions re QA)	5	5	5	5	5	5	5	5	5	5	5
Records of provider sanctions and contested case hearings	4	4	4	4	4	4	4	4	4	4	4
Records of foster provider training and testing	3	3	3	3	3	3	3	3	3	3	3
Individual/family satisfaction results	2	2	2	2	2	2	2	2	2	2	2
Audits, financial reports, special inquiries/ investigations re state or local operations	1	1	1	1	1	1	1	1	1	1	1

Instructions: “Is this system in place and functional at this time?” Record the date at the bottom of the column you are scoring. Answer the question for each item. Then, if an item is in place (meaning “it was last carried out according to schedule and standards, and is planned for the next scheduled occurrence”), circle the number that corresponds to that item. Leave uncircled those that do not meet standards. After reviewing all items, count the number of items scored as “in place and functional.” Then put an X on that number in that column. Use the same form, with data, the next time you record data on Quality Assurance System Requirements. Connect the X’s from one recording date to the next to display a graph of the number of items in place.

Sample COMPLETED “Tally and Graph” Form

Quality Assurance System: Minimum Requirements											
	20	20	20	20	20	20	20	20	20	20	20
	19	19	19	19	19	19	19	19	19	19	19
	18	18	18	18	18	18	18	18	18	18	18
Quality Assurance Coordinator	17	17	17	17	17	17	17	17	17	17	17
Quality Assurance Plan	16	16	16	16	16	16	16	16	16	16	16
Quality Assurance Committee	15	15	15	15	15	15	15	15	15	15	15
Licensing, certification reviews	14	14	14	14	14	14	14	14	14	14	14
SERT	13	13	13	13	13	13	13	13	13	13	13
Service coordinator monitoring	12	12	12	12	12	12	12	12	12	12	12
Local investigator information re PSI	11	11	11	11	11	11	11	11	11	11	11
Death reports	10	10	10	10	10	10	10	10	10	10	10
Records of individual complaints	9	9	9	9	9	9	9	9	9	9	9
Individual file reviews	8	8	8	8	8	8	8	8	8	8	8
HCB Waiver Review checklist	7	7	7	7	7	7	7	7	7	7	7
Serv Coord plan implem reviews (Family Support, In-Home Comp)	6	6	6	6	6	6	6	6	6	6	6
CDDP Records (e.g. service coordinator qualifications, training; actions re QA)	5	5	5	5	5	5	5	5	5	5	5
Records of provider sanctions and contested case hearings	4	4	4	4	4	4	4	4	4	4	4
Records of foster provider training and testing	3	3	3	3	3	3	3	3	3	3	3
Individual/family satisfaction results	2	2	2	2	2	2	2	2	2	2	2
Audits, financial reports, special inquiries/ investigations re state or local operations	1	1	1	1	1	1	1	1	1	1	1
	7/03	10/03	1/04	4/04	7/04	10/04	1/05	4/05	7/05	10/05	1/06

Instructions: “Is this system in place and functional at this time?” Record the date at the bottom of the column you are scoring. Answer the question for each item. Then, if an item is in place (meaning “it was last carried out according to schedule and standards, and is planned for the next scheduled occurrence”), circle the number that corresponds to that item. Leave uncircled those that do not meet standards. After reviewing all items, count the number of items scored as “in place and functional.” Then put an X on that number in that column. Use the same form, with data, the next time you record data on Quality Assurance System Requirements. Connect the X’s from one recording date to the next to display a graph of the number of items in place across time.

Specific Data Collection Form

- Ok, we admit, we don't know what to call this type of form.
- But the HCB Waiver Review checklist is an example of such a form.
- Or Service Monitoring Checklists.
- These forms are designed to collect all of the information from one instance on one form. Review 20 files, you end up with 20 forms, and with the data entry and analysis that results. But, they give you the most information, and in a database, they yield it in a very flexible way. (Assuming it is a well-designed database!!)
- We don't think you need us to put in an example.

Whatever format you use for collecting data, think about:

- Will it be easy to record onto?
- Will it be easy to compile?
- What do you need to add to make the data set identifiable? (e.g., dates reviewed, sites.)

Is it time to be asking yourself:

- What data are we collecting?
- Do we have data on how well we are implementing the Quality Components?
- Do we have data on the results we discovered from implementing those Quality Components?
- Do we have data on the results of corrective actions taken?
- What do we know from all that data?



The following pages present a sample format for evaluating the status of your data system.

Checklist: Status of QA Data Reporting Systems

Complete this checklist to document the status of each component of each system as of a certain date. Use the resulting data to prioritize the next component to target for development or improvement. Information re: the SERT data reporting system is included as an example.

Status as of: _____(Date)

- Code: + In place (it will yield what we need for the system)
 * It may need improvements to yield what we need for the system
0 **NOT IN PLACE**

Sample:

Quality Component	Data Collection System (Collect raw data on QA Component & results)	Data Summary System (Compile data on QA Component & results)	Data Reporting System (Manipulate data to yield reports on QA Comp. & results)	Data Analysis System (Who Interprets the data on the QA Component & results)	System and Reports are Current
SERT	+ • Incident reports	+ • Enter into state database	+ • SERT Graphs & summaries (on state db)	+ • SERT Committee • QA Committee	+ • Monthly
Service Monitoring	+ • State Service Monitoring checklists	+* • Enter visit into local database, but not results	+* • Database reports on #/% visits made	+ • QA Coordinator • QA Committee	+ • Quarterly

Data System Status:

Total # of +:10; Total System Components= 10; % designed and current: = **100%**

Checklist: Status of QA Data Reporting Systems:

Status as of: _____(Date)

- Code: + In place (it will yield what we need for the system)
 * It may need improvements to yield what we need for the system
 0 NOT IN PLACE

Sample:

System	Data Collection System (Collect raw data on QA Comp. & results)	Data Summary System (Compile data on QA Comp. & results)	Data Reporting System (Generate reports on QA Comp. & results)	Data Analysis System (Who interprets reports of QA Comp & results)	System and Reports are Current
Licensing, certification reviews	●	●	●	●	●
SERT	●	●	●	●	●
Service coordinator monitoring	●	●	●	●	●
Local investigator information re PSI	●	●	●	●	●
Death reports	●	●	●	●	●
Records of individual complaints	●	●	●	●	●
Individual file reviews	●	●	●	●	●
HCB Waiver Review checklist	●	●	●	●	●
Serv Coord plan implem reviews (Family Support, In-Home Comp)	●	●	●	●	●
CDDP Records (e.g. service coordinator qualifications, training; actions re QA)	●	●	●	●	●
Records of provider sanctions and contested case hearings	●	●	●	●	●
Records of foster provider training and testing	●	●	●	●	●
Individual/family satisfaction results	●	●	●	●	●
Audits, financial reports, special inquiries/ investigations re state or local operations	●	●	●	●	●

Data System Status: Total # of +: _____;
 Total System Components= 56; % designed and current: = _____%

TURNING DATA INTO USEFUL INFORMATION: GUIDELINES FOR PRESENTING DATA

Objective: Provide suggestions for how to format, report, and present quality assurance data.

Requirements: See Data to be Collected, Compiled and Reported

Guidelines and Suggestions

Whatever the data and information you need to present, here are some guidelines and suggestions for how to organize data to present to QA Committee members or others.

HIGH V. LOW TECH PRESENTATIONS

A presentation may involve “high tech” or “low tech” systems and be equally successful. Fancy animated PowerPoint presentations may hold audience attention, or put them to sleep. Low tech, perhaps drawing a graph onto newsprint offer great possibilities for involving committee members. For example, for a measure that committee members are tracking particularly closely, they can help to build a graph by adding dots for a bar graph or the next data point on a line graph when it is drawn on newsprint. Involve participants when you can (e.g., help to “build” a graph, discuss information in pairs to identify questions, be part of presentation.) Being active, actually DOING something, is the best way to keep your QA Committee members committed to your work.



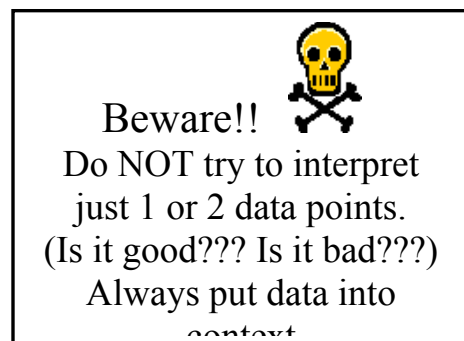
TIPS ON PRESENTING DATA

- Keep it simple. Do not overload your audience with many complex charts and graphs.
- When a simple statement will do, do that. You don't need a graph or chart for every measure you are presenting.
- Be familiar with your data. Understand how it is formatted. Consider the types of questions that people may ask so that you are prepared with answers. Know how the data or report was produced, and any flaws in how it was gathered. Get someone to review your report before the meeting.
- Be clear about what you're asking the group to do with the information. For example, provide an opportunity for advice, or discuss issues that the data suggest.
- Summarize the data you are presenting, and offer your interpretation of the data.



TIPS ON PRESENTING DATA THROUGH GRAPHS

- Generally, a graph is easier to interpret than a table full of numbers.
- A good guideline to use in designing a graph is to minimize the amount of ink that is used. Get rid of extraneous lines and shading, or 3-D components, as they make the graph harder to read.
- Match the type of graph to the type of data you are presenting. Use the best graph for the purpose.

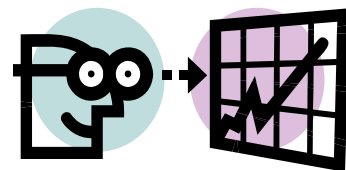


- Always present data in context. For example, reporting the number of sites visited is meaningless for determining how well your QA process is working without also knowing the total number of sites. Or, knowing that there were 25 SERTs this month only tells you that there were 25 SERTs this month. From that number, you can't tell whether that is unusually high, unusually low, or the typical number. Whenever you can, present data in the context of time—a Run Chart will allow you to see the pattern of data across time.
- Always label your graph well. Title the graph (it is good to put both what the graph is and the time period that it covers), and label the 2 axes. For a Bar Graph, Pareto Chart, or Pie Chart, label each of the categories. Label each line on a Run Chart. Be sure to put a date on the graph, and the time period that it covers.

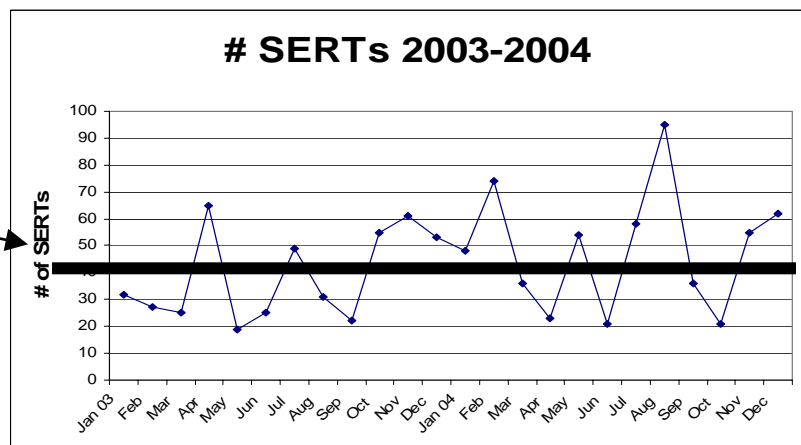
GUIDELINES FOR TYPES OF GRAPHS

Run chart or Line

- If you are presenting **data across time**:
Use a **Run Chart** (also called a “Line Graph”).
It gives the data context...comparing this time period to previous time periods. Use it, for example, to present the number of SERTs (or of a particular type of SERT) across time. Keep it simple, however. Use no more than 3 or 4 lines (variables) on a single graph.



You can make the graph easier to interpret by adding a solid line to represent the average of the data.

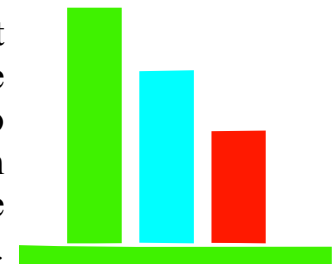




Bar Graph

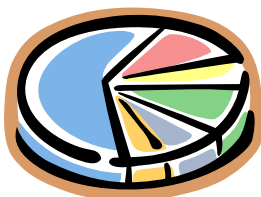
- For **data in categories**, a **Bar Graph** will work best. It helps you to compare one category against another. Use it, for example, when presenting the number of each of the major types of SERTs that occurred during a specific period of time. It also would be useful for presenting the frequency of different types of issues discovered during Service Monitoring visits during a certain period of time. If you are wanting to present survey results, a bar graph could show the number of people who scored a specific customer satisfaction question as “Poor,” “Good,” and “Great!” or even the number of questions with average scores across all respondents that fall into the range of “Poor,” “Good,” and “Great!” Whatever the source of the data, all the “bars” must be drawn from data from the same time period.

- A **Pareto Chart** is a special type of bar graph that places the bars in descending order left to right, with the highest bar on the left. This format helps the reader to quickly see which category is most common, and which is least common. For many instances when you can use a Bar Graph, a Pareto Chart will be even more useful. By convention, if there is an “Other” category, even if it isn’t the shortest bar, it is placed on the far right. As with bar graphs, all the data must be drawn from the same time period. Do not try to represent data across time (e.g., several months) using a Pareto or bar graph.



*Pareto Chart:
a special
type of bar*

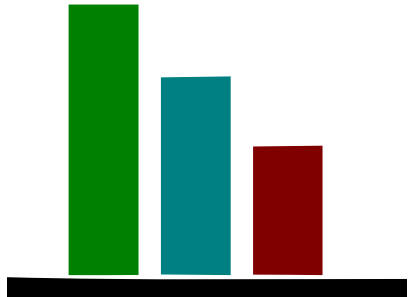
- Another special “bar” graph – a **Histogram** – is described in Chapter 6: Improving Quality.



- Use a **Pie Chart** only when you want to compare the relative size of parts of a whole. Pie Charts are often used to present the relative size of different revenue sources for the budget, or the relative size of expenditure categories. Like Bar Graphs, it is difficult to compare Pie Charts across time to put the data presented into a larger context. Also, they are hard to interpret if they include more than a few categories. However, most people are familiar with Pie Charts, as they are commonly used in newspaper articles.

TIPS FOR PRESENTING QUALITATIVE OR “OPINION” DATA

Some methods for collecting information—particularly related to measuring customer satisfaction—may yield data that is more like “opinion” data than observable data. Focus groups and comments written into open-ended questions on surveys are two examples when you may want to have a way to organize and present opinion data. While Qualitative researchers have sophisticated methods for collecting and analyzing these data, those are beyond the scope of this resource manual. Instead, here are two methods that are both simple and useful. Try them and see!!

- Pareto Chart. Because they present data in categories, Pareto Charts are especially useful for analyzing data from surveys. Review the responses to each open-ended question on the survey to determine if there are common “themes” that emerge from what people have written. Organize the comments into groupings or categories, and count the number of people represented by comments in each category. This is especially useful if you have a large number of surveys (e.g., 100 or more). With fewer surveys, and open-ended questions, your results can be affected simply because some of the respondents didn’t think to include something that others did.
- 
- Customer Window. We have found this tool to be especially useful for analyzing data from interviews or focus groups, although it also may work for analyzing survey data. If you record the interview or focus group results, do this after you are finished talking with the individual or group. However, you may also fill it out during the interaction. The Customer Window has four squares, much like a window with four panes of glass. See the sample, below, for how it is drawn. You can draw it onto regular paper, or newsprint. Then, sort the comments from customers into the appropriate square.

Customer Window

		Gets	
		+	-
Wants	+		
	-		

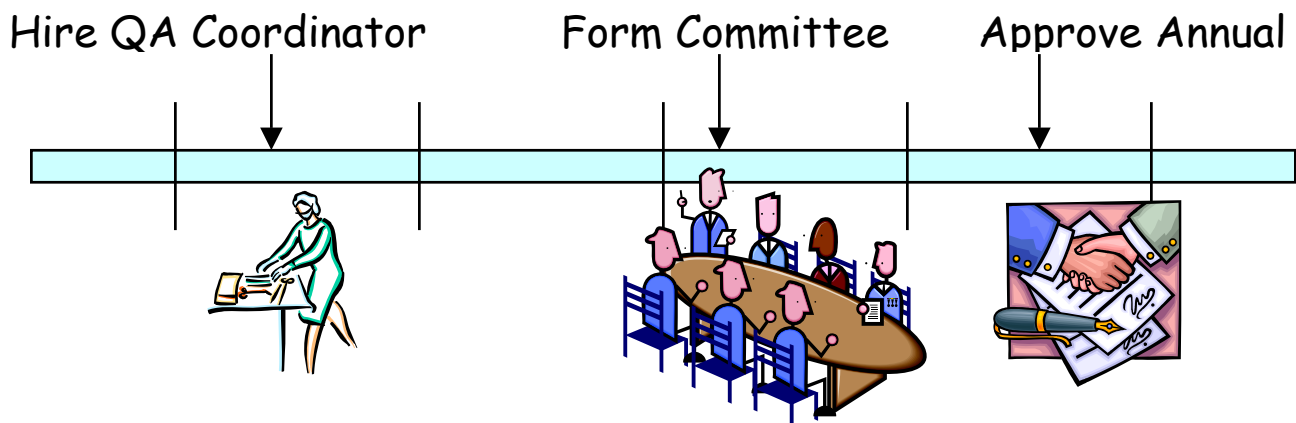
Customer Window

		Gets	
		+	-
Wants	+	<p>++</p> <p><i>Things that the customer wants and gets (not yourself on</i></p>	<p>+-</p> <p><i>Things that the customer wants but does NOT get. These are improvement</i></p>
	-	<p>-+</p> <p><i>Things that the customer gets but does NOT want. Consider whether</i></p>	<p>--</p> <p><i>Things that the customer does not want and does not get. These are things you don't</i></p>

TIPS FOR USING OTHER TYPES OF VISUAL LANGUAGE

Presenting information to the QA Committee doesn't mean only graphs and charts. Using a "visual language" for presenting information will help members with disabilities participate, and help all members maintain interest. Using colorful flipchart posters, you can have more success involving committee members. Here are a few examples.

- **Timelines.** Using a roll of newsprint, draw a horizontal line representing a timeline. You could use this for reviewing the history of services in your area, the sequence of activities for the QA Committee for the upcoming year, or any other information that is related to the passage of time. Timelines are great for involving people—invite members to add their own milestones to the timeline, in addition to those for the Committee as a whole. Simple drawings and graphics will add more meaning to the timeline.



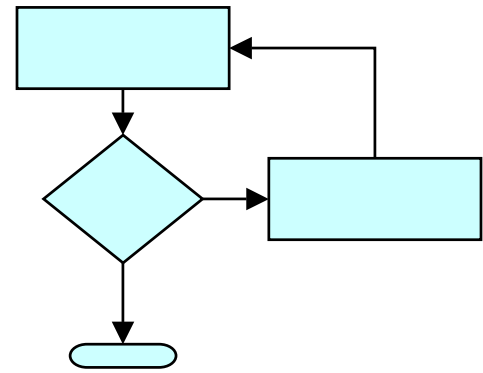
- **Gantt Charts.** Gantt charts are useful for planning when a set of tasks will occur. You could use it to lay out tasks for your work plan for implementing your Annual Quality Plan, or for tasks related to a large project.

		Timeline for Completion			
System or Process	Goal	Q1	Q2	Q3	Q4
Assess and enroll individuals into Waivers					
Assess level of care needs	Establish tracking system	-----	-----	----	
Probe case files for compliance with eligibility criteria	Establish a system for compiling data	----			
	Compile case file probe data and report quarterly	---X	---X	---X	-X
Quality Indicator: % of eligibility determinations made within state mandated timelines	Monitor data monthly	-----	-----	-----	---
Probe case files for Title XIX waiver compliance	Establish a system for compiling data	----			
	Compile case file probe data	-----	-----	-----	---
	Report quarterly to LCDDS & annually to Quality Committee	X	X	X	X

You may want to use the following codes for Gantt charts, but you are free to develop your own:

- An extended line usually means an activity that extends across time periods.
- |----- The vertical bar signifies the planned start of the activity ---or---
- | The planned completion or end of an ongoing activity.
- X An X usually denotes an event or something that occurs at a specific point in time.

- Flowcharts. Flowcharts offer another way to make the work of the QA Committee visual. Use flowcharts to represent systems or processes, and the sequence and relationship among the various steps. Flowcharts may be as simple as organizing several post-it stickers or signs with arrows to show the sequence of activities. Or, they can be drawn using special software and particular shapes that identify the type of information inside the shape. (For example, a diamond shape is used for a decision point, such as yes-no, or if-then.)



- Pictorial Statistics. “Pictorial statistics” is simply using graphics or cartoon images to represent variables in graphs. For example, the follow depicts the growth in the number of individuals served in a county across several years.

People Served in Our County



This way of building graphs is more interesting and includes conceptual images that assist participants who are not accustomed to graphs to interpret the meaning of the graphs.

- Concept Diagrams. For those of you who like to doodle, concept diagrams offer yet another tool for “getting the message across.”



TIPS FOR GRAPHING IN EXCEL

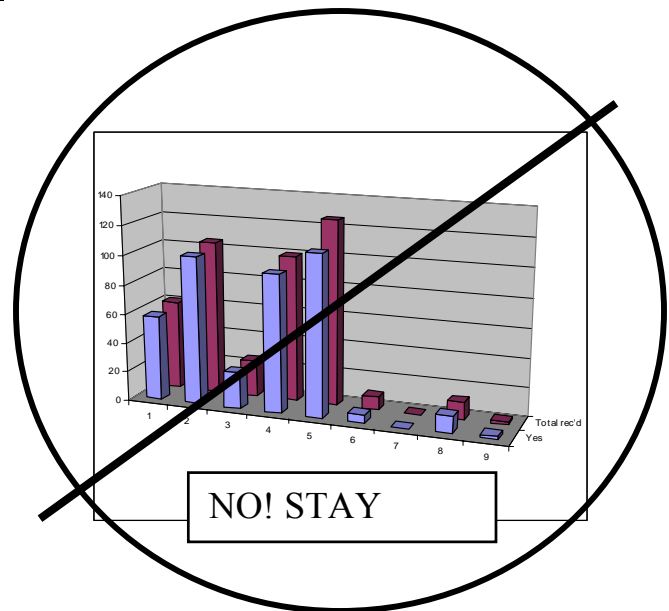
Objective: Present basic information about developing graphs in Microsoft Excel.

Requirements: See Data to be Collected, Compiled and Reported.

GUIDELINES AND SUGGESTIONS

AVOID GRAPHICAL PURGATORY

While computer software has made the task of graphing complex data sets much easier, it also has brought on a tendency to “fancify” graphs. Even the most down-to-earth person can get trapped by the wonders of “Stacked columns with 3-D effects” and “3-D columns comparing values across categories and series.” JUST SAY NO!! 3-D graphs add unnecessary ink and confusion to a graph. They are much harder to read than a simple 2-dimensional line or bar graph.



So, follow these basic guidelines, whatever the graphing software you are using:

- Keep graphs simple.
- Avoid 3-D graphs. —3-dimensional space detracts from the basic message you are trying to present.
- Before using multicolored lines or bars, consider if you will be making copies of the graph. If so, make sure they are still readable if copied in black and white.
- Know what you are graphing. Understand the data and how it is represented.
- Check the graph—does it make sense? Does it look like what you expected. It is easy to mix up the variables when doing a computer-


generated graph. So take the time to look at the graph and data critically, before sharing it with others.

Ok, here we go....

BASICS OF GRAPHING IN EXCEL

Note: these instructions were developed using Microsoft Excel XP. Other versions of Excel will be similar, but there will be differences. The instructions also assume that you already know how to open and close Excel, open and save a file, select a group of cells, and type.

Before we get started:

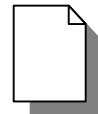
1. Undo. Number 1. Numero Uno. Remember this above all else: the UNDO button--it looks like a backward arrow, something like this. 



You will find it near the top of the Excel screen. It is your friend. Get to know it. If you do something to your graph and everything suddenly is a mess, or if you hit delete and didn't mean to, before you do anything else, hit the UNDO button. The graph or document will magically revert to its previous look. UNDO will let you go back more than one keystroke, but the sooner you go to UNDO, the safer you will be.

2. Back-up your data. Just as important as the Undo button is to always have a 'pristine' back-up of your data. It is an absolute must when you first start doing graphing, but even experienced spreadsheet users will maintain a copy of the data that is "untouched" and do their "playing" with a graph in another copy. Data entry is time consuming, so it is worth spending a few seconds to back up your data before you use it.

So, open up Excel. You will see a blank screen. To start a new file, click the "New" button—it looks something like this. Or, you can open an existing file.



For this set of tips, we will use the following data sets.

“TYPE”

Type	# SERTs
Emerg. room	122
Ambulance	51
Hospital	119
Police	86
Neglect	39

“MONTH”

Month	Total SERTs
Jan-04	5
Feb-04	18
Mar-04	13
Apr-04	16
May-04	9
Jun-04	19
Jul-04	6
Aug-04	18
Sep-04	12
Oct-04	13
Nov-04	9
Dec-04	20

The table on the left will be called “TYPE” as it displays the type of SERTs that occurred in a county over a one year period. The other table, called “MONTH” presents the number of SERTs overall, each month in the year 2004. To practice along with the examples, you may want to go ahead and enter these data into a blank spreadsheet.



Now we are ready to go.

MAKING A BAR GRAPH

Because “TYPE” table gives data in categories, we will use it for making a sample Bar graph.

1. Make sure the cells say what you want them to say, as Excel will automatically use the category (X-axis) and value (Y-axis) labels.
 - Are they spelled correctly?
 - Keep the labels short so they will fit better on the graph.

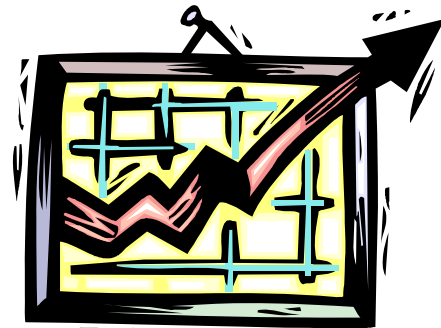
-
-
2. Use your mouse to select the data for the graph. Include the column headings, the labels, and all the data that you want to graph.

“TYPE”

Type	# SERTs
Emerg. room	122
Ambulance	51
Hospital	119
Police	86
Neglect	39

Labels for Categories

3. With your data and labels selected, find the button that looks like a Bar graph.
- If you can't find it, go to the drop down menu <Insert> and then to <Chart>.
 - Click on it once.
 - The Chart **Wizard** will appear.
4. Review the list of types of graphs. Excel calls a bar graph that is vertical a “Column” graph, and one that is horizontal is a “Bar graph.” Don't let this confuse you. Look at the little pictures to the right to see what they are talking about.
- Select “Column.” (It may already be highlighted.)
 - Then select the version of Column that you want...from the little pictures on the right. Click on the picture in the upper left corner. (It will give you the most simple, least amount of ink, type graph.)
 - To get a quick glimpse of what your graph will look like, press the bar that is titled “Press and Hold to View Sample.” (This is a quick way to check out different types of graphs, and to see if you have your data set up in the right way for Excel to use it correctly.)
 - When you are satisfied you have selected the right form of graph, and it looks about like what you expected, click <Next>.



-
-
5. This page of the Chart Wizard gives you a chance to change data included in the graph how the data are used by Excel. Since our spreadsheet is set up well, you don't need to do anything here...but for future reference, this is what is here:
- The tab "Data Range" allows you to select a different range of cells on the spreadsheet (if you click the little arrow.)
 - You also can reverse your data, from columns to rows. That is necessary only if your data is set up incorrectly.
 - The "Series" tab allows you to add or remove columns of data (in your spreadsheet) from your graph.
6. Click <Next> to get to the next page, Chart Wizard Step 3 of 4, "Chart Options."
- This page allows you to customize your graph.
 - The tab "Titles" allows you to add or change an overall title for the graph, and titles for the Category (X) axis, and the Value (Y) axis. Leave the Category axis title blank, in this case. Type in "# of SERTs" in the box for the Value axis. In a few seconds, you will see the title appear in the sample graph in the Wizard. Check your spelling.
 - Skip the tab "Axes."
 - The tab "Gridlines" allows you to control if vertical or horizontal lines will appear on your graph. The default is set with a checkmark under Value axis for "Major gridlines." No other box is checked. Leave it like that, as more gridlines make the graph messy and more difficult to read.

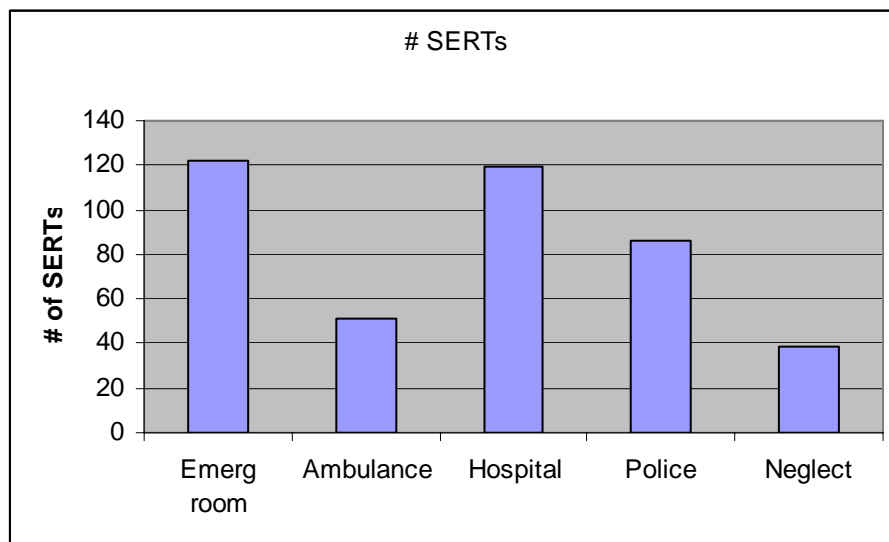


- The "Legend" tab gives you control over whether or not there will be a legend on the graph. (The legend is the little box that shows the color of the bar and the label that was at the top of the data column on the spreadsheet.) You have a choice to show it or not, and if you show it, to place it in different locations. If our graph had more than one color bar, a legend would be needed. However, since we have only one color, it is only extra ink. So, uncheck the box that says "Show legend." The sample graph will immediately get larger.

- The tab “Data Labels” allows you to put information at the top of each bar, including the value represented by the bar. Because our graph is simple to read, this is not necessary. But, you can experiment by clicking on a box, and see how it changes the sample graph in the Wizard window.
- The tab “Data Table” will place a table of the values for each bar (column) immediately under the graph. We don’t really need it, but it is a useful thing to know how to do. Just click on the box to show the table. Unclick to remove it.

7. Click <Next> to get to the next page, Chart Wizard Step 4 of 4, “Chart Location.”

- This page of the Wizard gives you control over where the chart is placed.
- You may click “As new sheet” if you want it to be a full page on its own sheet.
- Click “As object in”... if you want it to appear on the same page with your data. That is the option I usually select, as it allows me to resize the graph if I want to.



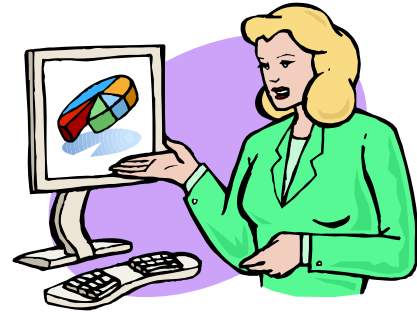
CONGRATULATIONS!!!

HOORAY!!!!
You have just
made a bar graph!!

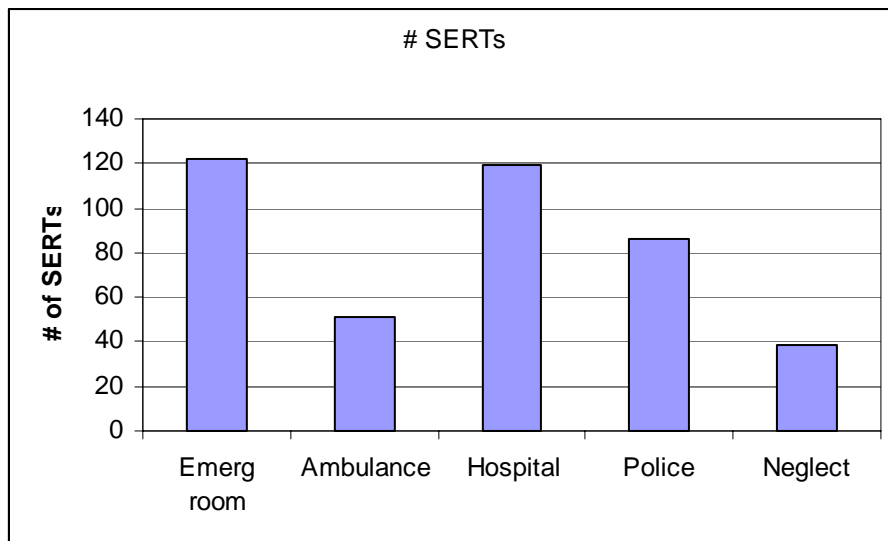


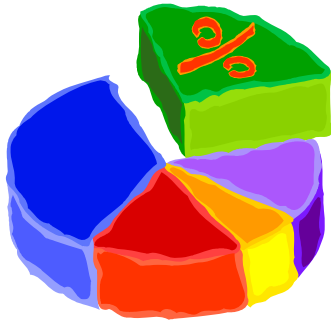
A Few Other Tips to Improve Your Graph

1. Remove the gray background—it makes it harder to read if you must copy the graph, and basically just adds unnecessary ink.
 - Place your cursor into the gray area, not touching any line or bar. Double click.
 - A dialog box should appear that is called “Format plot area.” It has just one tab, “Patterns.”
 - The left side gives you control over the appearance of the border around the graph. Leave that one alone.
 - The right side, labeled “Area” gives you control over the appearance of the background of the graph. Select “None.” (If you haven’t accepted the “less ink” principle, I suppose you COULD select a different color, or even a new pattern for that background...but you are on your own!!)



And here is the improved graph.





Excel also gives you control over the color of the bars, the length of the Value axis (and the size of the gaps between numbers on it), the location of the tick marks, and other aspects of the graph. Generally, you get access to those by double-clicking precisely on the part of the graph you wish to modify. Try a few, and see how it works.

Now that you have a graph completed, you can copy it into a Word or PowerPoint document for presentation.

If you had wanted this to be formatted as a Pareto Chart (with the bars presented with the highest on the left, descending to the lowest on the right), you would need to order your data table in that way—so that the category with the largest number is at the top of the list, descending to the category with the smallest number.



MAKING A LINE GRAPH (a.k.a. Run Chart)

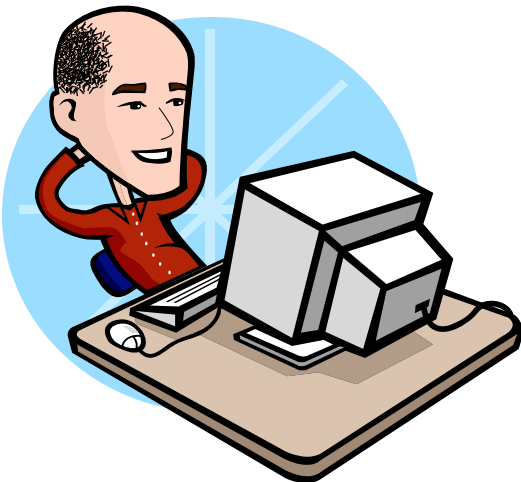
“MONTH”

Month	Total SERTs
Jan-04	5
Feb-04	18
Mar-04	13
Apr-04	16
May-04	9
Jun-04	19
Jul-04	6
Aug-04	18
Sep-04	12
Oct-04	13
Nov-04	9

Labels for Months

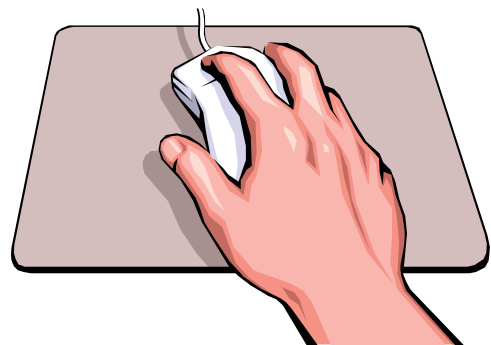
Because the “Month” table includes data across time, the appropriate graph would be a Line Graph. The process is very much the same as for building a Bar Graph.

1. Make sure the cells say what you want them to say, as Excel will automatically use the category (X-axis) and value (Y-axis) labels.
 - Are they spelled correctly?
 - Keep the labels short so they will fit better on the graph.
2. Use your mouse to select the data for the graph. Include the column headings, the labels, and all the data that you want to graph.
2. With your data and labels selected, find the button that looks like a Bar Graph. (Yes, a Bar graph...it is a generic button to get you to the Chart Wizard.)
3.
 - If you can't find it, go to the drop down menu <Insert> and then to <Chart>.
 - Click on it once.
 - The **Chart Wizard** will appear.
4. Review the list of types of graphs. Find the graph in the list labeled “Line.” Look at the little pictures to the right to see what they are talking about.



- Select “Line.”
- Then select the version of Line Graph that you want...from the little pictures on the right. I usually select the one in the middle on the left, that has both lines and dots for the data points. Click on that picture, or the one you prefer.

-
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- To get a quick glimpse of what your graph will look like, press the bar that is titled “Press and Hold to View Sample.” (This is a quick way to check out different types of graphs, and to see if you have your data set up in the right way for Excel to use it correctly.)
 - When you are satisfied you have selected the right form of graph, and it looks about like what you expected, click <Next>.
5. This page of the Chart Wizard gives you a chance to change data included in the graph how the data are used by Excel. Since our spreadsheet is set up well, you don’t need to do anything here...but for future reference, this is what is here:
- The tab “Data Range” allows you to select a different range of cells on the spreadsheet (if you click the little arrow).
 - You also can reverse your data, from columns to rows. That is necessary only if your data are set up incorrectly.
 - The “Series” tab allows you to add or remove columns of data from your graph. So, if you wanted to add another line to the graph, e.g., “the number of SERTs closed after review”, you could add it with this series tab (if you had already entered the data into the spreadsheet).
6. Click <Next> to get to the next page, Chart Wizard Step 3 of 4, “Chart Options.”
- This page allows you to customize your graph.
 - The tab “Titles” allows you to add or change an overall title for the graph, and titles for the Category (X) axis, and the Value (Y) axis. Add “2004” to the title so it will read “Total SERTs 2004”. Leave the Category axis title blank, in this case. Type in “# of SERTs” in the box for the Value axis. In a few seconds, you will see the title appear in the sample graph in the Wizard. Check your spelling.
 - Skip the tab “Axes.”



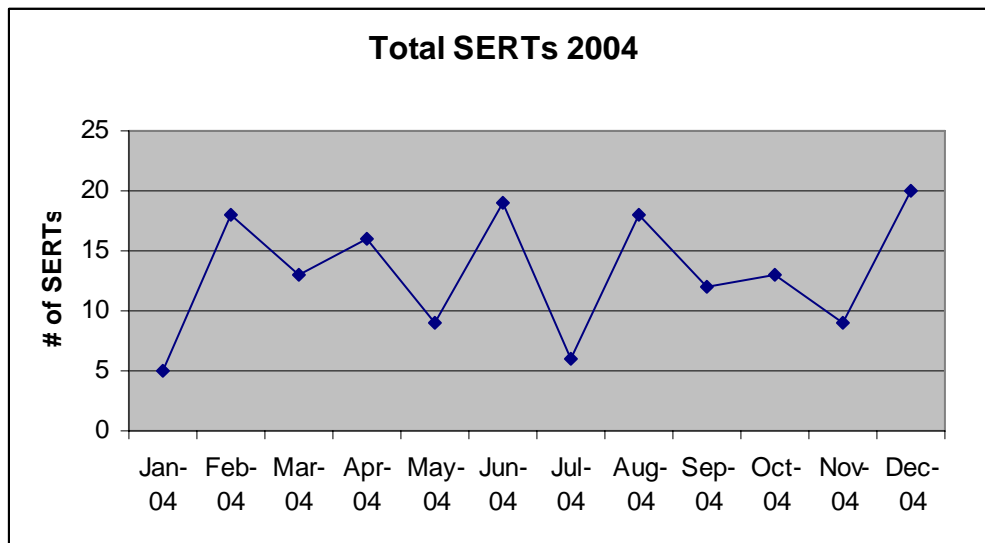
-
-
- The tab “Gridlines” allows you to control if vertical or horizontal lines will appear on your graph. The default is set with a checkmark under Value axis for “Major gridlines.” No other box is checked. Leave it like that, as more gridlines make the graph messy and more difficult to read.
 - The “Legend” tab gives you control over whether or not there will be a legend on the graph. (The legend is the little box that shows the color and style of the line and the label that was at the top of the data column on the spreadsheet.) You have a choice to show it or not, and if you show it, to place it in different locations. If our graph had more than one line, a legend would be needed. However, since we have only one, it is only extra ink. So, uncheck the box that says “Show legend.” The sample graph will immediately get larger.
 - The tab “Data Labels” allows you to put information at the top of each data point, including the value represented by the data point. Because our graph is simple to read, this is not necessary. But, you can experiment by clicking on a box, and see how it changes the sample graph in the Wizard window.
 - The tab “Data Table” will place a table of the values for each data point immediately under the graph. We don’t really need it, but it is a useful thing to know how to do. Just click on the box to show the table. Unclick to remove it.


7. Click <Next> to get to the next page, Chart Wizard Step 4 of 4, “Chart Location”

- This page of the Wizard gives you control over where the chart is placed.



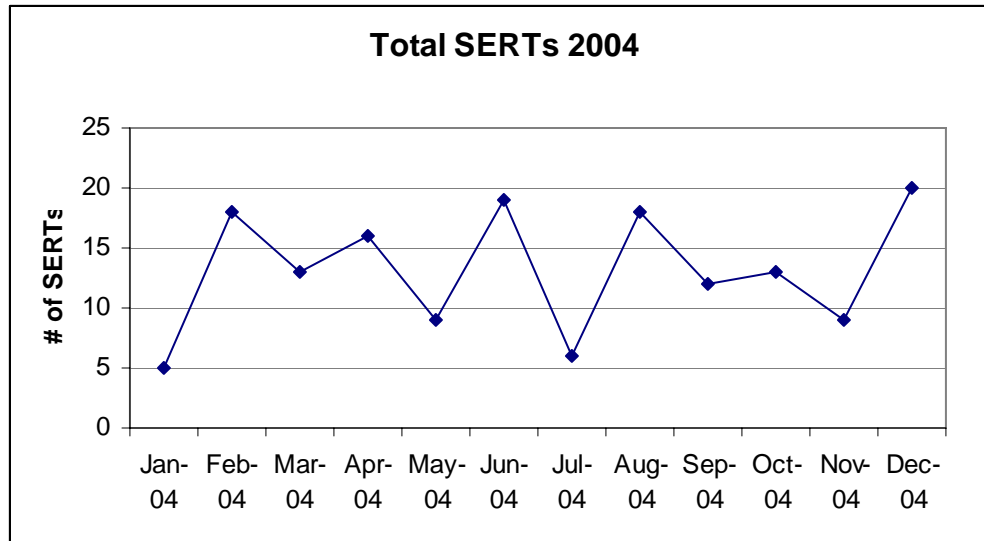
- You may click “As new sheet” if you want it to be a full page on its own sheet.
- Click “As object in”... if you want it to appear on the same page with your data. That is the option I usually select, as it allows me to resize the graph if I want to.



Your finished graph should look something like this. If the month labels aren't well spaced, and wrap, then stretch the graph out by "grabbing" one of the handles and moving it out to make the graph a bit wider. Click on the graph once to make the handles appear. Then move your cursor over a handle until a double-headed arrow appears, something like this. 

Use the same process for removing the gray background as you did on the bar graph. Simply double click on the grey area, then click "None" on the side under "Area."





Also like Bar Graphs, Excel gives you control over other aspects of the appearance of the graph. You can move the position of the Titles. You can change the color and style of the line or data points. Double-click precisely on what you want to change to get the appropriate dialog box to appear.

SOME FINAL TIPS

- Excel is a very friendly piece of software. As long as you have a separate back up of your data, then go ahead and play with Excel, to see what you can get it to do.
- Check around to see who in your office already has some skill with Excel. They will probably be very happy to show you a few tricks or help you if you get “stuck.”
- Take an introductory workshop in Excel. They will get you going.
- Practice, Practice, Practice. Like many skills, if you don’t use it, you are likely to lose it. So find ways to get to practice. Graph your miles running, or weight loss, or number of movies viewed each month, or pounds of trash put out each week. Try different Quality Assurance measures. The more you practice using Excel, the better you will become.
- Read. There are several excellent how-to books on Excel that should help you get farther with it.



Handy Excel Resources

Walkenbach, J. *Excel charts*. 2003). Indianapolis, IN: Wiley Publishing.

Nelson, S. L. (2002). *Excel data analysis for dummies*. New York: Wiley Publishing.

Berk, K. N., & Carey, P. (2000). *Data analysis with Microsoft Excel*. Pacific Grove, CA. Duxbury.

Jon Peltier's Web Site: <http://www.geocities.com/jonpeltier/> This website include a much more detailed tutorial on graphing with Excel. Try it out!!

