

## APHL Workshop on Improvement

### Worksheet on Defining Priorities

List up to ten significant needs that you believe your public health laboratory system and/or your organization need. Using the key at the bottom of the sheet, score the criteria 1-8 assigning up to 3 points for each. For example, if no data is available, score column 1 with a "0". If significant, reliable, recent data is available to establish need, give up to 3 points. When done, total up the points in the right column.

Need Description	1	2	3	4	5	6	7	8	Total

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li>1. Data is available demonstrating need</li> <li>3. Must be addressed before others can be</li> <li>5. Addresses an organizational need</li> <li>7. Resources are available</li> </ul> | <ul style="list-style-type: none"> <li>2. Already identified as a system/organization priority</li> <li>4. Addresses a laboratory system need</li> <li>6. System impact of improvement could be large</li> <li>8. There is Interest in making improvement in this area</li> </ul> |
|---|---|

## Worksheet on Defining Priorities

Now, write in the table below the three needs with the highest point totals from page one of the worksheet. Using the key below, rank each of the 8 variables with up to 5 points. Total the score in the right column.

Need Description	1	2	3	4	5	6	7	8	Total

1. Would improvement result in significant cost savings to your organization?
2. Would improvement result in significant cost savings to the laboratory system?
3. Would improvement result in higher quality services in the organization?
4. Would improvement result in higher quality services in the system?
5. Energy and commitment is high for work on this need?
6. The opportunity exists to work collaboratively with partners on this need?
7. A success on this would strengthen interest in and support of the laboratory system?
8. Leadership of key organizations support work on this issue?

Does the need receiving the highest number of points seem to you to be the highest priority?

## Charter Worksheet

Identify and list your initial ideas for your system improvement project's beginning Charter components.

1. MISSION

2. VISION

3. VALUES

4. Identify additional Charter components (from the handout) needed or supportive of your system improvement project.

## Charter Options

The following components are common to Charters, you may use all or a selection. For improvement work the ones with stars are recommended.

- PURPOSE OF CHARTER
- PREAMBLE
- BACKGROUND \*
- STORIES
- AREA OF FOCUS & RATIONALE \*
- MISSION \*
- VISION \*
- VALUES \*
- OPERATING PRINCIPLES \*
- PROJECT DELIVERABLES \*
- APPROACH
- FRAMEWORK
- AIM \*
- MEASURABLE OBJECTIVES \*
- MEASURES \*
- CHANGES TO CONSIDER \*
- WHO TO BE INVOLVED \*
- PLAN FOR MONITORING & SHARING RESULTS \*
- GETTING COMMITMENT \*

## Aim Worksheet

In reviewing your priorities from the 1<sup>st</sup> work group exercise consider a collaborative (system) project you'd like to start. Draft your system improvement Project's "Aim". What would ideal look like? What results would you be working towards? Imagine the end results of many successful efforts.

Initial Project Aim:

## Team Worksheet

Given your Project Aim, which system partners will be important to include?

Circle those individuals or organizations you've not yet worked with and identify how/who will involve them.

	SYSTEM PARTNERS		INTERNAL PARTNERS
1		1	
2		2	
3		3	
4		4	
5		5	
6		6	
7		7	
8		8	
9		9	
10		10	
11		11	
12		12	
13		13	
14		14	
15		15	

PLAN FOR INCLUDING (include, who, how and when):



## Full Review Worksheet

Review all previous worksheets and determine the following (as a draft):

When will you start? (Recommend you set a date for your first action)

Date: \_\_\_\_\_

Action: \_\_\_\_\_

- Identify a date for each of the following (that apply):
- Bring together system partners
- Sharing results of system assessment
- Identifying & drafting Charter components (include who will draft)

Drafting:

- AIM
- Objectives
- Measures
- Changes
- Begin PDSA with identified timelines for tracking
- Determine frequency of system partner meetings
- Determine frequency of sharing progress
- Identify method(s) of communication



# One Page Monthly Report

**AIM:** \_\_\_\_\_

Measurable Objectives	Measures
1 _____	1 _____
2 _____	2 _____
3 _____	3 _____
4 _____	4 _____
5 _____	5 _____

Changes Tested	
1	
2	
3	
4	
5	

**Results:**(put graph here)

**Observations & Lessons Learned:**

1 \_\_\_\_\_

2 \_\_\_\_\_

3 \_\_\_\_\_

4 \_\_\_\_\_

**Next Steps:**

1 \_\_\_\_\_

2 \_\_\_\_\_

3 \_\_\_\_\_

4 \_\_\_\_\_

## Collaboration Checklist

Consider using this checklist to see what's working and what might need fixing up your project.

Characteristics	Comments
Mission, Vision, Values and Principles are defined and agreed to by all partners	
Commitment is evidenced from all partners	
Leadership is strong, well-defined, and appropriately shared	
The appropriate range of perspectives, opinions, and cultural experience is at the table and is encouraged to speak up	
A written plan for the collaboration is agreed upon and defines roles, objectives, resources and timelines	
The partners to the collaboration are open to learning and growing	
The environment is safe for learning, trying new things, making mistakes	
Creativity is valued and encouraged	
There is a willingness among the partners to take risks	
Contributions of the partners are acknowledged publicly	
Results of the work are evaluated against the project objectives	
Successes are celebrated	

# **Quality Improvement Tools**

# Ishikawa (Fishbone) diagram

From Wikipedia, the free encyclopedia

**Ishikawa diagrams** (also called **fishbone diagrams** or **cause-and-effect diagrams**) are **diagrams** that show the **causes** of a certain **event**. Common uses of the Ishikawa diagram are **product design** and quality defect prevention, to identify potential factors causing an overall effect. Each cause or reason for imperfection is a source of variation. Causes are usually grouped into major categories to identify these sources of variation. The categories typically include:

People: Anyone involved with the process

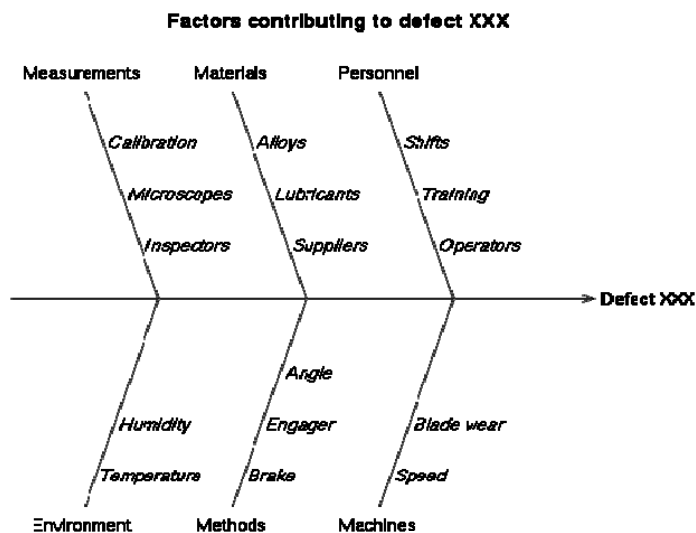
Methods: How the process is performed and the specific requirements for doing it, such as policies, procedures, rules, regulations and laws

Machines: Any equipment, computers, tools etc. required to accomplish the job

Materials: Raw materials, parts, pens, paper, etc. used to produce the final product

Measurements: Data generated from the process that are used to evaluate its quality

Environment: The conditions, such as location, time, temperature, and culture in which the process operates

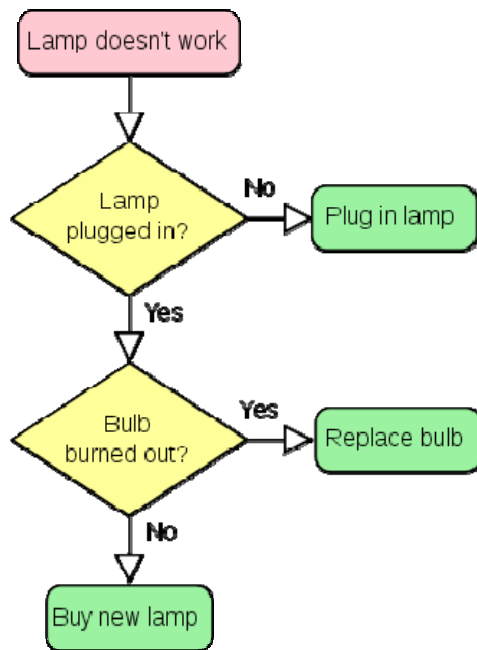


# Flowchart

From Wikipedia, the free encyclopedia

A simple flowchart representing a process for dealing with a non-functioning lamp.

A **flowchart** is a common type of [diagram](#), that represents an [algorithm](#) or [process](#), showing the steps as boxes of various kinds, and their order by connecting these with arrows. This diagrammatic [representation](#) can give a step-by-step solution to a given [problem](#). [Data](#) is represented in these boxes, and arrows connecting them represent flow / direction of flow of [data](#). Flowcharts are used in analyzing, designing, documenting or managing a process or program in various fields.[\[1\]](#)



# Lean

From Wikipedia, the free encyclopedia

**Lean manufacturing** or **lean productions**, which is often known simply as "**Lean**", is a production practice that considers the expenditure of resources for any goal other than the creation of value for the end customer to be wasteful, and thus a target for elimination. Working from the perspective of the customer who consumes a product or service, "value" is defined as any action or process that a customer would be willing to pay for. Basically, lean is centered on *preserving value with less work*. Lean manufacturing is a generic process management philosophy derived mostly from the [Toyota Production System](#) (TPS) (hence the term Toyotism is also prevalent) and identified as "Lean" only in the 1990s.<sup>[1] [2]</sup> It is renowned for its focus on reduction of the original Toyota *seven wastes* to improve overall customer value, but there are varying perspectives on how this is best achieved. The steady growth of [Toyota](#), from a small company to the world's largest automaker,<sup>[3]</sup> has focused attention on how it has achieved this.

Lean manufacturing is a variation on the theme of [efficiency](#) based on optimizing flow; it is a present-day instance of the recurring theme in human history toward increasing efficiency, decreasing waste, and using empirical methods to decide what matters, rather than uncritically accepting pre-existing ideas. As such, it is a chapter in the larger narrative that also includes such ideas as the [folk wisdom of thrift](#), [time and motion study](#), [Taylorism](#), the [Efficiency Movement](#), and [Fordism](#). Lean manufacturing is often seen as a more refined version of earlier efficiency efforts, building upon the work of earlier leaders such as [Taylor](#) or [Ford](#), and learning from their mistakes.

# Check sheet

From Wikipedia, the free encyclopedia

The **check sheet** is a simple document that is used for collecting data in real-time and at the location where the data is generated. The document is typically a blank form that is designed for the quick, easy, and efficient recording of the desired information, which can be either quantitative or qualitative. When the information is quantitative, the check sheet is sometimes called a **tally sheet**.

A defining characteristic of a check sheet is that data is recorded by making marks ("checks") on it. A typical check sheet is divided into regions, and marks made in different regions have different significance. Data is read by observing the location and number of marks on the sheet. 5 Basic types of Check Sheets:

**Classification:** A trait such as a defect or failure mode must be classified into a category.

**Location:** The physical location of a trait is indicated on a picture of a part or item being evaluated.

**Frequency:** The presence or absence of a trait or combination of traits is indicated. Also number of occurrences of a trait on a part can be indicated.

**Measurement Scale:** A measurement scale is divided into intervals, and measurements are indicated by checking an appropriate interval.

**Check List:** The items to be performed for a task are listed so that, as each is accomplished, it can be indicated as having been completed.

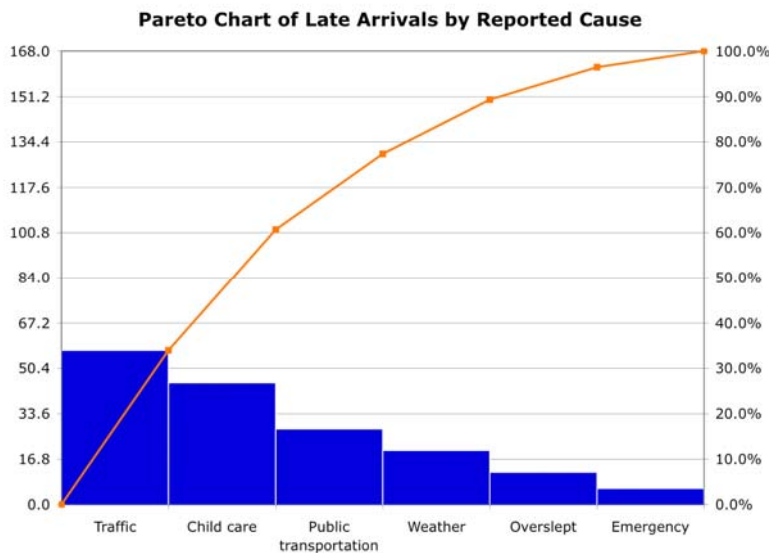
## Cash Application Issues

<u>Reason</u>	<u>Day</u>					<u>Total</u>
	<u>Mon.</u>	<u>Tue.</u>	<u>Wed.</u>	<u>Thu.</u>	<u>Fri.</u>	
Customer double pay						3
No remittance advice enclosed						13
Pays with multiple checks						2
Unauthorized deductions taken						25
Total	6	14	7	9	7	43

# Pareto chart

From Wikipedia, the free encyclopedia

A **Pareto chart**, named after [Vilfredo Pareto](#), is a type of chart that contains both [bars](#) and a [line graph](#), where individual values are represented in descending order by bars, and the cumulative total is represented by the line.



Simple example of a Pareto chart using hypothetical data showing the relative frequency of reasons for arriving late at work

The left vertical axis is the [frequency of occurrence](#), but it can alternatively represent cost or another important [unit of measure](#). The right vertical axis is the cumulative percentage of the total number of occurrences, total cost, or total of the particular unit of

measure. Because the reasons are in decreasing order, the cumulative function is a [concave function](#).

The purpose of the Pareto chart is to highlight the most important among a (typically large) set of factors. In [quality control](#), it often represents the most common sources of defects, the highest occurring type of defect, or the most frequent reasons for customer complaints, and so on.

These charts can be generated by simple spreadsheet programs, such as [OpenOffice.org Calc](#) and [Microsoft Excel](#) and specialized statistical software tools as well as online quality charts generators.

The Pareto chart is one of the seven basic tools of quality control.<sup>[1]</sup>



# Dot plot (statistics)

From Wikipedia, the free encyclopedia

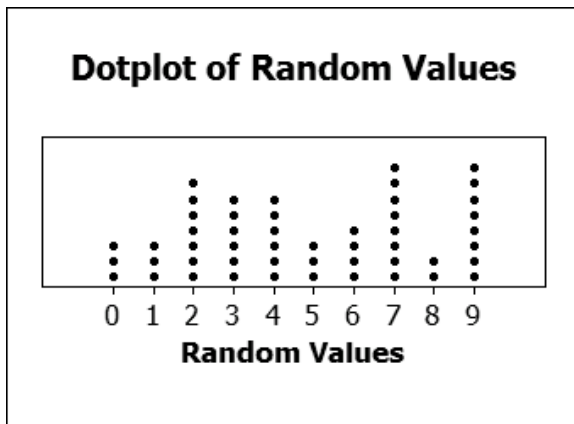
A dot plot of 50 random values from 0 to 9.

A **dot chart** or **dot plot**<sup>[1]</sup> is a [statistical](#) chart consisting of group of data points plotted on a simple scale. Dot plots are used for [continuous](#), [quantitative](#), [univariate](#) data. Data points may be labelled if there are few of them.

Dot plots are one of the simplest statistical plots, and are suitable for small to moderate sized data sets. They are useful for highlighting clusters and gaps, as well as [outliers](#). Their other advantage is the conservation of numerical information. When dealing with larger data sets (around 20-30 or more data points) the related [stemplot](#), [box plot](#) or [histogram](#) may be more efficient, as dot plots may become too cluttered after this point.

Although the plot appears to be simple, its computation and the statistical theory underlying it are not simple.<sup>[2]</sup> The algorithm for computing a dot plot is closely related to [kernel density estimation](#). The size chosen for the dots affects the appearance of the plot. Choice of dot size is equivalent to choosing the bandwidth for a kernel density estimate.

"Dot plot" is also used to denote plots of points that each belong to one of several categories.<sup>[3]</sup> In the *R* programming language this type of plot is also referred to as a [stripchart](#)<sup>[4]</sup> or [stripplot](#).<sup>[5]</sup>

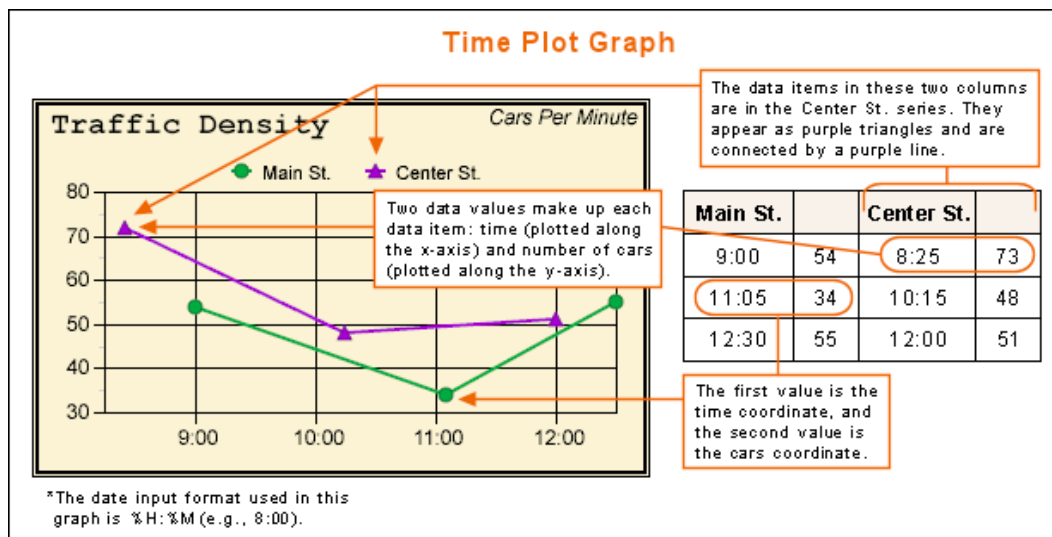


# TIME PLOT GRAPHS

Time Plot graphs are similar to X-Y graphs, and are used to display time-value data pairs. A Time Plot data item consists of two data values—the time and the value—which translate into the x and y coordinates, respectively. Each data item is displayed as a symbol, but you can add a lines, bubbles, or fill areas to better delineate the data. Because of the nature of the coordinate system, Time Plot graphs do not have categories.

Time graphs are good for graphing the values at irregular intervals, such as sampling data at random times.

The example below shows how a Time Plot graph works.



Time Plot graphs can be used for:

- Trends or cyclical variations
- Money distribution over time
- Production over time
- Price variation over time
- Environmental changes over time

# Scatter plot

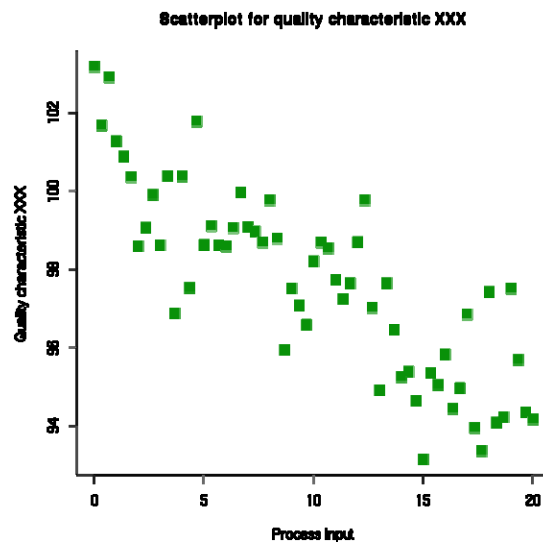
From Wikipedia, the free encyclopedia

Waiting time between eruptions and the duration of the eruption for the [Old Faithful Geyser](#) in [Yellowstone National Park, Wyoming](#), USA. This chart suggests there are generally two "types" of eruptions: short-wait-short-duration, and long-wait-long-duration.

A 3D scatter plot allows for the visualization of multivariate data of up to four dimensions. The Scatter plot takes multiple scalar variables and uses them for different axes in phase space. The different variables are combined to form coordinates in the phase space and they are displayed using glyphs and colored using another scalar variable.[1]

A **scatter plot** or **scattergraph** is a type of [mathematical diagram](#) using [Cartesian coordinates](#) to display values for two [variables](#) for a set of data.

The data is displayed as a collection of points, each having the value of one variable determining the position on the horizontal axis and the value of the other variable determining the position on the vertical axis.[2] This kind of [plot](#) is also called a *scatter chart*, *scatter diagram* and *scatter graph*.



# Annotated Run Charts

A run chart helps a QI team track such improvements over time. It is simply a graph where quality is on the vertical axis and time is on the horizontal axis. Data points representing a measurement of quality at a particular point in time are plotted and connected with a line.

An annotated run chart has comments with arrows pointing to the moments in time when different ideas for improvement were tested. This helps explain any sudden changes in quality that may have occurred.

*Run charts should be set up at the start of a QI project and be constantly updated with new data as the project unfolds.*

