

Run chart



quality
improvement

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Introduction

This guide will help you create and understand run charts

Measuring whether you are meeting your aim is a vital part of a Qi project

Run charts show data over time rather than in a RAG (red, amber, green) format

Data over time is important because it shows trends and changes. Change is what quality improvement is all about!

Before you create a run chart

- You need at least 10 points of data
- You must update your run chart on a routine basis
- Your measure (the data you are collecting) must be clear.

The Qi Team can help you with this.

Example run chart

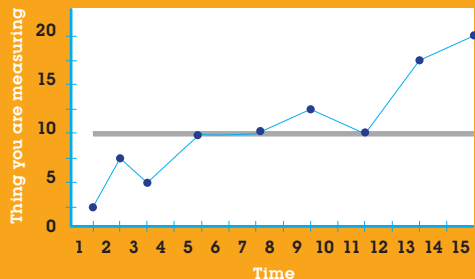
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Vertical side (Y-axis) is the thing you are measuring e.g. waiting time etc

Horizontal side (X-axis) is the time: days, weeks, months etc

The grey line is the Median (add this when you have at least 8 points). It is important in helping identify change

The light blue line is the measurement



Calculating a median

Take your numbers (e.g. number of incidents of violence per month):

5, 7, 3, 2, 2, 5, 1, 1, 0, 12, 11

Now order the list from smallest to largest:

0, 1, 1, 2, 2, 3, 5, 5, 7, 11, 12

The middle number is the median

If there are 2 middle numbers take the average of those: this is your median.

1 Interpreting run charts

There are two data patterns to look out for in Qi. These are known as common causes and special causes.

Common cause: Regular, predictable, day to day fluctuations in the data. Nothing really changes beyond what could be expected

Special cause: Something that has happened that has caused a fundamental change in the system. This could be a positive or a negative change and could be attributed to a change you have implemented from your Qi project.

When you identify special cause you have to ask yourself 'what happened here?'. Learn from your findings and annotate your graph accordingly.

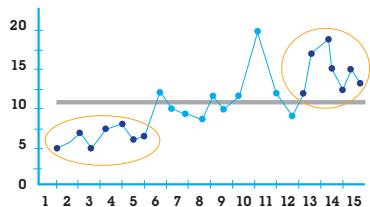
2 Run chart rules

Annotate your graph:

Consider adding a goal line and notes about when you tested certain change ideas to help your data tell a story.

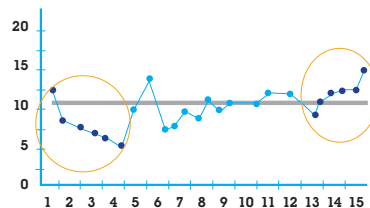
Special causes can be identified in data using one or more of the following three main rules:

Rule 1: A shift 6 or more points above or below the median (not including points that fall exactly on the median). It can help to remember - a shift is six points!

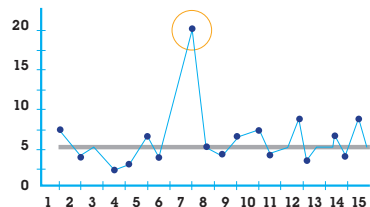


3 Run chart rules

Rule 2: A trend 5 or more consecutive ascending, or descending points



Rule 3: Astronomical point A point of data that sits unusually outside the other data points. Can be above or below the median line.



4 Run chart tips

- Collect just enough data to be confident your tests of change are working or not working.
- Make your data public! Data is sad when it sits on a hard drive and isn't shared. Display it and share it with your team.
- Choose the right tool. You can use a pen and paper or Excel etc. The IHI and Life Qi also have tools to create run charts.

Further Run Chart Resources:

- bit.do/ELFTRunChartsGuide
- bit.do/IHIRunChartCreationTool
- uk.lifeqisystem.com/login/sign-up/

Training 1/2 day Qi Data specific workshops are available. Contact oxl-tr.oxleasqi@nhs.net to book.