



Step 4 Sustain and Embed Statistical Process Control Chart (SPC)



An SPC chart is a method for displaying performance data to check if performance is continuing to be as expected. They are a better option than run charts for identifying 'freak' points above or below the majority of the data points as they use the mean for their centre line. This approach makes 'freak' points stand out, giving a clear signal that something unusual has happened. This is known as 'special cause variation'.

SPC charts include 'control lines' above and below the mean, which tell you when your process may be starting to perform in an unexpected way.

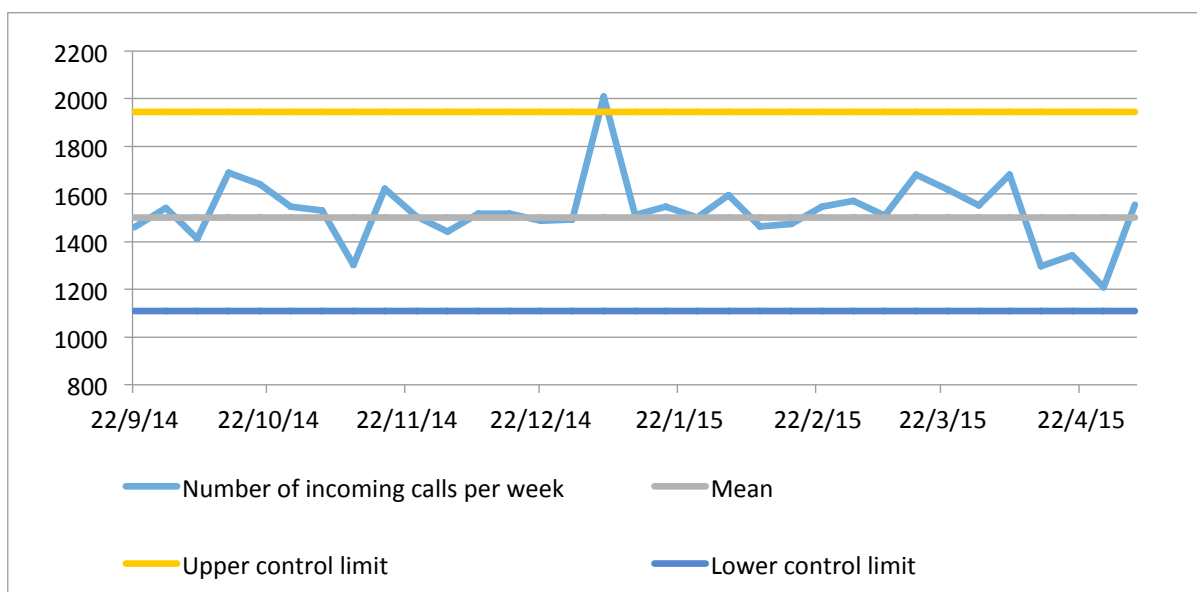
Control lines (or limits) are created by using the data you have gathered about your system and its performance so far.

The standard deviation (sigma) of the data is calculated and the lines are drawn at values that would represent 3 sigmas either side of the mean, one line above (the 'upper control limit'), and one line below (the 'lower control limit').

This means that at least 99% of all future data would be expected to fall between these two control lines.

If a data point is outside of the upper or lower control limits (<99 % likelihood that this has happened by chance), this is either a concern to be investigated, or a sign that your intervention is making a difference.

How to



Different types of data (e.g. continuous or discrete) require different mathematical techniques to create the SPC chart, and statistical packages can be bought to help with this.

Baseline© is an example of such software that is designed for use by novices and is recommended by NHS Improving Quality (NHS IQ). It allows you to cut and paste in time-series data that it then converts into a chart. This gives you an image of how things are changing.

In a GP practice there are few systems and processes that warrant using SPC charts. However as GPs work more 'at scale' data could be gathered and analysed to aid planning.

The control lines allow you to make predictions about the range of values you might expect if there are no changes to the system or process. For example, using them to predict the number of incoming phonecalls per week might be useful in your practice's workforce planning.