Step 2
Plan and Test
Measurement and Analysis

All Quality Improvement work involves both gathering and interpreting data.

Data isn't always just about numbers and qualitative data (eg. How stressed people are feeling) can be just as important as quantitative.

In QI work data has 2 defined, but different roles.

Firstly it can tell us what we need to improve, then, once we've started to make changes, it can tell us if our efforts are making a difference.

How to

Using Data to tell us what we need to improve:

Externally collected data that lets us benchmark our performance against others can be very useful for this:
- Are we doing as well as the practice down the road at controlling our patient's blood pressure?
- Is our hypertension prevalence in line with expected for our population, or are we missing opportunities to diagnose?

Much of the data collected about our practices and patients has been extracted from our practice software systems. This allows us to compare our practice performance with others in our area, or nationally.

For example you can find out your practice prevalence for long-term conditions to see how this compares with others to help you decide if you are possibly underdiagnosing and missing an opportunity to prevent progression to vascular disease. There is more detail on where data sources exist available on the RCGP website.

Analysing benchmarking data requires knowledge of contextual factors, such as list size, deprivation levels in your practice population and the relative age profile. Without this understanding, data about your practice can easily be misinterpreted as apparent poorer performance which is just be normal variation, or reflect the challenges of your practice demographic. When benchmarking data is presented in order to compare practices it is important that appropriate statistical tools are used to identify true outliers before conclusions are drawn.

Gathering data 'in house' to try to work out how best to tackle a problem such as workload can be very useful.
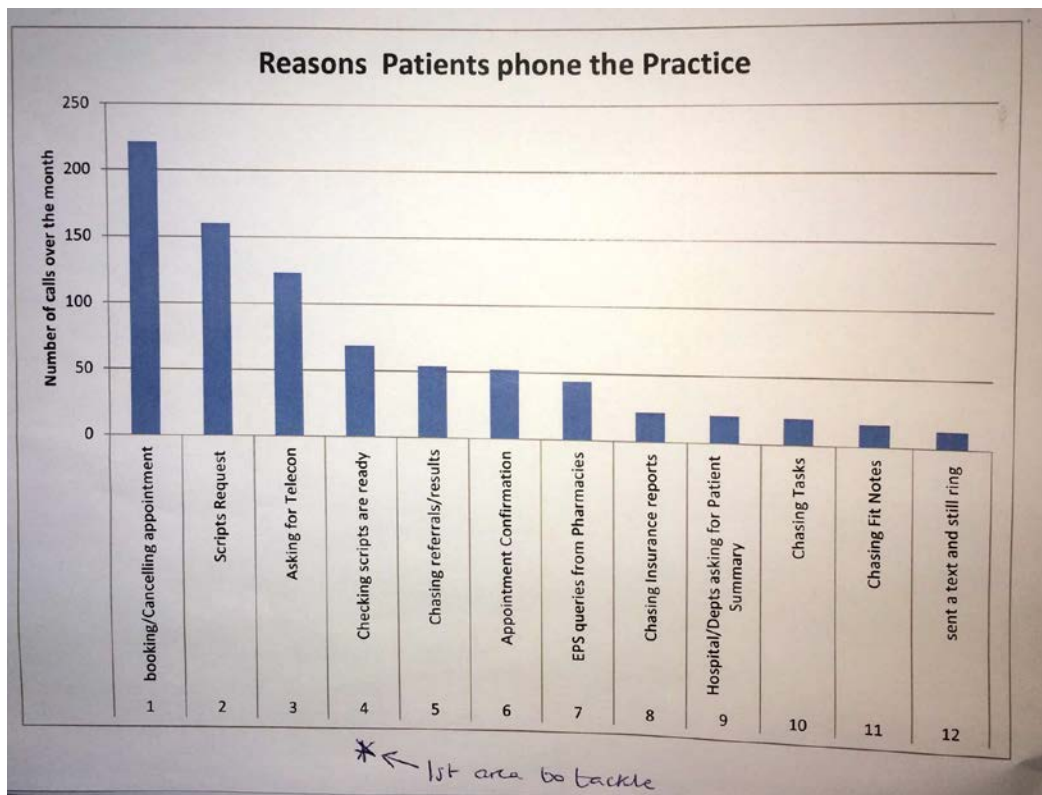
For example if the reception staff are feeling the pressure of constant phone calls to the practice, they could create a tally chart by each phone to gather data about the reasons for each phone call.

Example of a tally chart:

Week beginning 28/11/16	
Reason for call	No. of calls
Book an appointment	LHT LHT LHT HTT LHT LHT II
Request a repeat prescription	LHT LHT LHT HHT III
For blood results	LHT LHT LHT IHTT I
Cancel an appointment	HHT HHT I
To chase up a hospital appointment	LHT HHT III
Request Fit note	LHT IHTT I
To chase up an insurance report	IHTT I
To chase up a Fit note	IHTT II
To see if a prescription is ready	LH HTT HTT HTT II LHT
Electronic prescription query from pharmacy	IHTT IHT LHT HTT LHT
Phone call from hospital requesting a patient summary	HTT LHT II

The data gathered can then be organised according to how frequently the issue occurs and arranged in a bar chart from 'most frequent' to 'least frequent'. This is called a Pareto chart.

Example of a Pareto chart:

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Tel 020 3188 7400 Fax 020 3188 7401 Email info@rcgp.org.uk Web www.rcgp.org.uk
Patron: His Royal Highness the Duke of Edinburgh Registered charity number 223106

This chart helps the practice team to focus their efforts on the issues that seem to be the most important or wasteful. In the example shown the practice decided to focus on the number of patients who were phoning to check their prescription is ready.

Using Data to see if we're making a difference:

QI projects need to include some kind of measurement to see if your improvements are resulting in better care for patients.

This kind of data needs to be 'real time' and is best gathered at the practice level, rather than waiting for externally collected data to be published, as there is usually a significant time delay.

If your project is to improve diabetes control then you might do a monthly measure of how many patients are to 'target'.
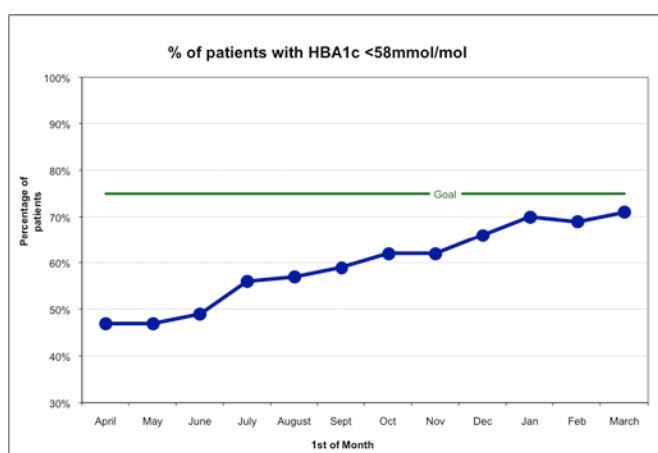
If your project is to improve detection of a long term conditions then you may want to create a graph of the practice prevalence of the condition against time to see if your interventions are helping this to increase.

Analysing variable data:

Some data you might collect could be subject to a pattern of variation that makes it difficult to tell if you have made improvements.
If your project is to reduce the length of time patients spend waiting to be seen, then it would be normal for this to vary from day to day due to circumstances.
If your data is likely to be variable, then you will need to develop an understanding of the normal variation so that you can see if your QI project has generated improvements.
Run charts are one way of presenting data to help differentiate between a changes produced by chance (random variation) and special cause (non-random).
SPC charts are similar to run charts but include control lines so you can tell if your performance has varied significantly from the normal range.

Displaying your Data:

Visual displays of data can be very powerful when trying to engage colleagues with your improvements.
When presenting data to colleagues to bring about change it needs to be presented in a format that allows easy analysis. A table filled with many results may not achieve this aim, but large colourful line graphs displayed in a prominent place can remind everyone of the project and keep people working towards the improvements.