Picture the Change

Data analysis toolkit

1. Introduction

Homeless Link has been supporting front-line homelessness agencies to improve their collection, analysis and use of information about the people using their services. This toolkit shows how front-line agencies can simply analyse this data to help them understand more about how people use their services.

2. Why do analysis?

Many front-line homelessness agencies collect information about the people who use their services. This can range from basic demographic data like age, gender, nationality and ethnicity, to more in-depth information about people's needs, like health, employment history or housing status.

Some agencies also collect detailed data about the activities and outcomes that people achieve whilst using their services. Activities might include attending a training course, taking part in work experience, or participating in a keyworking session. Outcomes could include improvements in health or substance use, assessed using the Outcomes Star, or gaining a qualification or employment, or securing new accommodation.

Analysing this data is essential because it gives detailed insights into the homelessness service and the people who use it. Analysis turns the raw data about individuals' experiences into powerful evidence that can be used for:

- **Improving services.** You can use the results of your data analysis to improve the services offered to homeless people locally.

Example: Your data analysis showed that 75% of men but only 35% of women leaving your accommodation service were moving on to independent tenancies. You could use this information to speak to women about why it was more difficult for them to move into tenancies. You could also talk to local landlords about how they could help address, for example, security issues for women living alone.

- **Influencing local decision-makers.** Increasingly, public services are now being delivered at a local level, and are required to respond to local needs. You can use your data analysis to influence other local services to support your clients better.

Example: Your data analysis showed that 65% of people using your day centre have a mental health need and 45% have a physical health need, but only 15% of them are registered with a GP. You can take this information to your local Clinical Commissioning Group (CCG) and ask them to make better

provision for healthcare for homeless people in your area, such as relaxing registration requirements or providing a weekly GP or nurse session at your day centre.

- **Engaging with commissioners.** Both local authorities and trust funders are looking to see the impact of the work that they fund. You can use your data analysis to demonstrate to commissioners and funders the ways in which your work helps people move on from homelessness and the value for money your service offers.

Example: Your data analysis showed that your project helped 20 of the 25 people leaving to move into appropriate, secure accommodation, and 18 of them were still in that accommodation six months later. You can take this information to your commissioner or funder to demonstrate the positive outcomes achieved by people when they leave your service.

3. What you need to do analysis

Some of the most interesting analysis is the most simple, so you don't need to know a lot about maths or statistics to be able to use your data effectively. But there are a few things that you need to have in place first:

Good data: Before you start your analysis, you need to make sure that the data you use is as good as it can be. If you don't regularly record client data, you can do a one-off survey of service users over a week or a month. The data needs to be:
- *Accurate* – are the staff who collect the data accurately recording what clients tell them?
- *Complete* – have you got a lot of gaps in your data? A few gaps won't be a problem, but the more complete your data, the more robust your analysis will be.
- *Consistent* – have you collected the same information from each service user, or have each of them provided different types of information?

A basic understanding of analysis: You will need to know how to calculate percentages and understand what they mean – some tips are given later in this guidance (see Types of analysis).

A commitment to use your analysis: Sometimes we can do data analysis and it tells us what we expected or wanted to know. This can back-up our experience and can be very useful to show evidence to commissioners or local decision-makers. In other situations, data analysis can bring surprising findings or challenge our existing assumptions. If this happens, it is worth checking that your analysis is accurate and that your data is reliable (see 1. Good data). If you are still getting unexpected results, you should talk to service users, staff or stakeholders to try to understand what the analysis means.

4. Questions to ask of your data

It can be quite daunting to know where to start with data analysis. The best way to begin is to have your data in a spreadsheet, like Microsoft Excel, as this will make doing the analysis much easier. If you currently have a paper-based system, you might be able to get a volunteer or member of staff to help input the data into the spreadsheet, or you could consider running a short survey of your clients to get a snapshot of data.

Often, it's best to start by asking the simplest and most obvious questions about your data. A good first question is 'who is using my project?'. You can answer this question by looking at clients' demographics and clients' needs:

Client demographics

The ages, gender, nationality and ethnicity of service users can affect what services they need and how they should be delivered. So, getting a good understanding of who is using your project is very important. Some questions that you might want to use your data to answer are:

i.   *How old are the service users at my project?*

ii.   *Are there more men or women using my project?*

Tip: you can combine these two questions to look at whether the ages of women and men using your project differ.

Example: Manchester Road Hostel analysed their client data and found that most of the women service users were under 25, whereas most of the men were in older age groups. They looked at the ways they were communicating with these young women, and decided to rethink the range of services they were offering to make them more appropriate to their life experiences.

iii.   *What countries do services users come from?*

Understanding nationality can help with knowing what entitlements people have who are using your project. Do you have a lot of people from Central and Eastern Europe? Why might this be?

iv.   *What are the ethnic groups of service users?*

If you look at service users' ethnicity, you can think about how appropriate your services might be to the different cultures represented. Are there more culturally relevant activities that you could offer?

Client needs

Homelessness organisations often record information about the types of needs that clients are experiencing, such as health, substance use, contact with the criminal justice system, employment and housing status. This data can give important insights to help drive service improvement, influencing decision-makers and engaging with commissioners.

You may find helpful this list of recommended questions about client demographics and needs which Homeless Link developed in collaboration with front-line services.

Some of the questions that you could ask of your client needs data are:

i.   *How many service users have reported a physical or mental health need?*

Understanding health needs is very important as health can influence service users' other outcomes and is a major driver of the services they need. What sorts of health needs do service users have? How common or severe are their health needs? Are you providing services that support them in managing their health? Is there good access to other relevant services locally?

ii.   *Where have service users lived before coming to your project?*

It can be useful to know where people have lived before as it can help you understand what sorts of resettlement or reconnection work might help your service users. For example, if many young people at your service previously lived with their family, you may want to explore their access to effective family mediation services in your area.

iii.   *How many service users have difficulties with literacy and numeracy?*

Knowing about the skills levels of the people using your project can help you determine whether you are offering access to appropriate training and educational opportunities. If you have low levels of basic skills, it may be helpful to run some entry-level courses to help people prepare for work.

iv.   *What other needs do service users have?*

Homeless people can often experience a number of needs and it is useful to understand the range and complexity. How many people have multiple needs? Are there appropriate services in your area that support people with complex needs?

Activities

As well as asking 'who is using my project?', it is also useful to ask yourself 'what are people doing whilst at my project?'.

Many homelessness agencies record information about the types of activities people do whilst using their project. These might include attending keyworking sessions, training, sports or arts activities, skills development like cooking or budgeting, accessing health care, or gaining work experience.

If your project records this information, you can use it to help you understand how people are using the services you offer, including whether there can access them or if there are any barriers for certain groups of people.

An important concept here is comparing groups. You can use the analysis you did of client demographics and needs and compare it with the activities that people carry out. For example, you could look at the list of people who attended an arts activity at your service and compare how many were men, women, young, old, etc. With this data analysis, you can then ask yourself whether your services are meeting the needs of all people using your project.

Example: Birmingham Street Hostel analysed its data, which showed that 40% of its service users were women and 60% were men. It then looked at the list of people who were involved in the football workshops the hostel ran every week – all of the people involved were men. The hostel manager spoke to service users, and found out that several of the women wanted to join in but felt that they weren't welcome in this men-only group. Following discussion with service users, the manager set up a separate women's team.

Example: Newcastle Avenue Day Centre runs a cookery class each fortnight. When the kitchen manager analysed the data, she found that none of the class participants were disabled, although she also found that 45% of people using the day centre had a physical disability. When she talked to service users, she found that the need to stand up in the kitchen for long periods had put off those people who were less mobile. She changed the set-up of the class so people could sit down, and opened up access to the class to more service users.

Outcomes

The final question to consider with your data analysis is 'what outcomes do service users achieve at my project?'

Client outcomes can include tangible changes like gaining paid employment or moving into independent accommodation. But they can also be measured in terms of improved health or greater self-esteem.

Data on your clients' outcomes can be very useful when looking at what is working in your service:

i.   Individual client's outcomes data

Individual client outcomes data can highlight each client's progress at your service. You can assess whether a client is getting enough support.

Example: John has stayed at Dutch Road Hostel for the past year. John's support worker analysed outcomes data which showed John's physical health had improved over the year, but his self-esteem had fallen significantly in the past few months. After looking at these figures, the support worker spoke with John and his friends at the hostel about John's situation and found out that his childhood friend had passed away recently; John had not mentioned this at his regular sessions with the support worker. As a result, John's support worker organised additional time for John to meet with a support worker and counsellor.

ii.   Clients' progress as a result of your service

Outcomes data on all your clients can help you better understand the strengths and weaknesses of your service, particularly around the support you provide. These data can also demonstrate the value of your service to commissioners and funders.

Example: The manager at Sydney's Hostel analysed his clients' outcomes data and found 50% of clients moved into meaningful work-like activities, but only 5% then moved onto to paid work. After speaking to clients and staff, she learned that the hostel had good relationships with businesses and community organisations that appreciated clients' help. However, clients did not receive enough support around looking for jobs and writing resumes. The manager organised more employment sessions for her clients, making sure that her clients had sufficient time with the coordinator to ask questions and request help.

Example: Smith Road Project is located in North East Lincolnshire which is looking to reduce demand for A&E in the area. The Project's manager analysed data and found that clients reduced their A&E use by 50% after accessing the Project for 6 months. A large part of this appears to be because a GP and nurse visit the Project weekly. The project manager mentioned this as part of their regular report to their local authority commissioner. As a result, the local authority decided to provide additional funding for the Project to continue providing GP and nurse services.

5. Data analysis tools

In general, there are three main tools that you will use when analysing your data.

Percentages

Using percentages will allow you to better make sense of your service's data. Percentages highlight the prevalence of a particular issue, demographic, or trait. The table below showing a breakdown of service-users ages illustrates the information you can draw from using percentages: for example, '30% of clients are aged between 16-24' provides more insight about service-users than '12 clients are aged between 16-24'.

Table 1: Age of Service-users

A	B	C
Age bracket	**Service-users**	
	No.	% of total
		(=Col B/Total*100)

16-24	12	24%
25-34	20	40%
35-49	5	10%
50-64	7	14%
> 65	6	12%
Total	**50**	**100%**

Tables

Tables are useful for summarising your data in a concise, understandable way. Table 1 above summarises the ages of 50 service users at a project. Tables are particularly useful for comparing several indicators across a category. For example, Table 2 below builds on Table 1 by showing details of service users' support needs.

Table 2: Support Needs of Service-Users

Age bracket	Service-users		Support needs	
			Mental health	Substance misuse
	No.	% of total	% of total	% of total
16-24	12	24%	20%	18%
25-34	20	40%	24%	34%
35-49	5	10%	25%	50%
50-64	7	14%	33%	33%
> 65	6	12%	100%	0%
Total	**50**			

The information in Table 2 allows you to easily compare clients' support needs across different age brackets. For instance, the results show clients aged 35-49 are most likely to have a substance misuse issue. This information may help you develop more effective support service for you clients.

Pivot Tables in Microsoft Excel provide a useful way to quickly produce tables and analyse your data. You can access Homeless Link's guidance on using Pivot Tables here.

Graphs

Graphs are an important tool for analysing your data. Like tables they concisely present data. However, as they are visual, their results can be interpreted easily so they are particularly useful for including in reports or presenting your information to others.

You can simply create a graph in Microsoft Excel. (See Appendix A for a quick guide.) Graph 1 below illustrates the information on support needs presented in Table 2. The main findings are immediately evident in the graph: all clients aged 65 or over have a mental health issue, and clients aged 35-49 are most likely to have a substance misuse issue.

Graph 1: Share of service-users with mental health and substance misuse issues
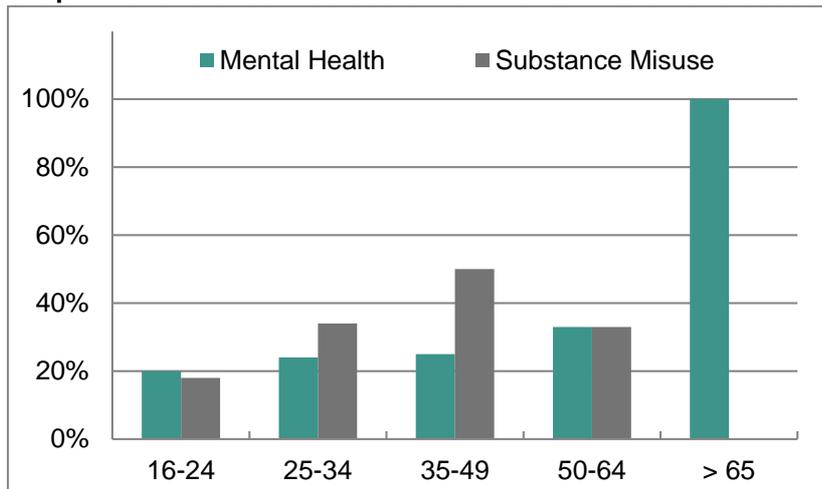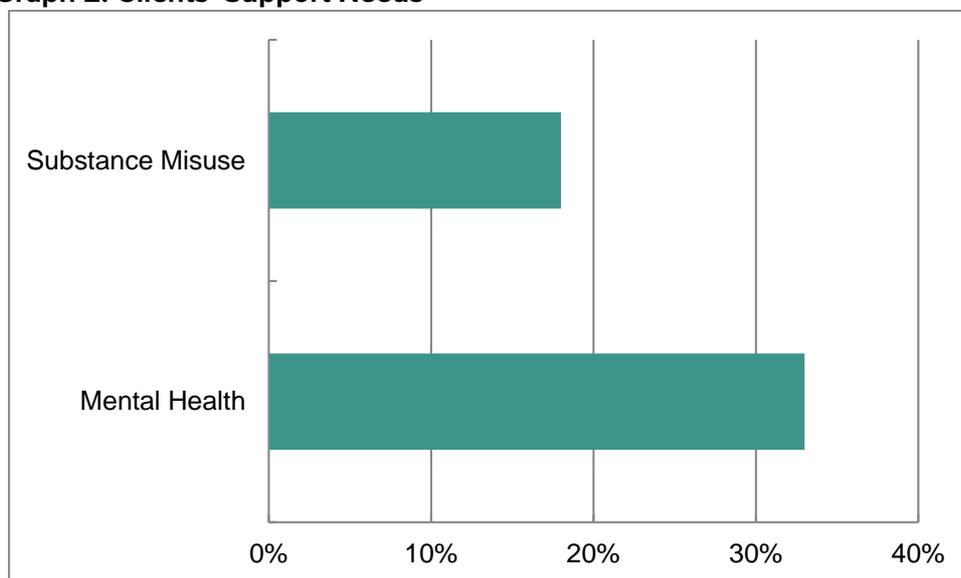

Source: Hostel's internal data

6. Types of analysis

Now that you are familiar with basic data analysis tools, you can think about the types of analysis that you want to conduct.

Basic analysis

This involves simply breaking down the data into its different constituent types. An example would be a table showing the ages of clients using your service (as in Table 1 above) or a breakdown of clients' support needs. The information in the Graph 2 gives a basic idea about the support needs of clients using a service, which can help with service delivery.

Graph 2: Clients' Support Needs
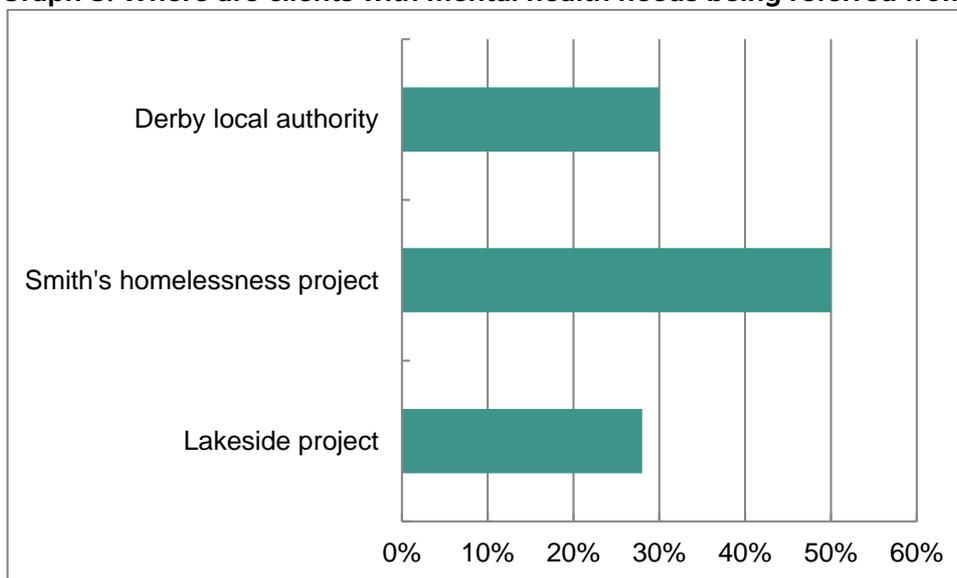

Source: Hostel's internal data

Example: Analysis of client data at St Christopher's Hostel shows 33% of clients have mental health issues compared with 18% have substance misuse issues (Graph 2). After seeing these results, the Day Centre manager allocated more funding for the Centre's mental health support services.

Analysis across different variables

You can draw some useful insights by breaking down your data across different variables. This will allow you to answer interesting question such as 'what are the support needs of young people using my service?' or 'Are people from a particular referring service more likely to have mental health issues?'. Basic analysis described above does not answer these questions, as only one indicator is analysed at a time. Analysis across different variables allows you to draw useful insights about your service.

Example: St Christopher's Hostel found that 33% of its clients had mental health needs (see above). The project manager wanted to investigate whether clients from a particular referral agency were more likely to have mental health needs. Graph 3 shows the results of her analysis: 50% of clients that are referred from Smith's Homelessness Agency have mental health issues. The manager spoke to Smith's Homelessness Agency and worked with them to arrange mental health support for their clients.

Graph 3: Where are clients with mental health needs being referred from?

Source: Hostel's internal data

Analysis across different variables is simple to do. The above analysis looks at clients' referring agency only when they had a mental health issue. Microsoft Excel's filter function can do this. Pivot Tables are also useful for this kind of analysis (see here for a guide).

Time series analysis

Time series analysis looks at how an indicator changes over time. This can be particularly useful for assessing clients' progress while using your service, and can alert you of any gaps in your services. Time-series analysis is also useful for demonstrating the value of your service.

To carry out time series analysis, you will need to have collected data for at at-least two different points in time, so you can compare the indicators. You can collect these data at support staff's regular meeting with clients, along with a client's entry and exit interviews.

Once you have data across time, you can simply apply the 'basic analysis' and 'analysis across different variables' techniques described above to draw findings from your data.

Example: Manchester Road Hostel records the number of A&E visits that clients make every quarter. Analysis of these data showed that clients reduce their A&E use by 50%, on average, in the six months after using the hostel. The hostel sent this information to its local authority commissioner as part of its regular funding report. As a result, the commissioner decided to allocate specific funding for the Hostel's health work.

Comparisons to national and regional trends

You can draw further insights from your analysis by comparing it to national and regional trends. There are three main points you can show with these comparisons:

   i.   *The difference between your clients and those of a typical service*
You may work with homeless people with particularly complex needs. To illustrate this, you can compare your clients' support needs with those of a typical service. These comparisons can help you secure additional funding for services to support your clients.

Example: The manager at Steven's Hostel found 45% of his clients have mental health issues. However, Homeless Link's 2013 SNAP survey found 30% of homeless people using homelessness services in England have mental health issues. The manager used this information to campaign for additional funding for mental health services.

There are several sources for national level statistics on homelessness that you can make comparisons to. The table below has details of a few.

Survey of Needs and Provision An annual survey conducted by Homeless Link of single homelessness providers.
Critical Mass A report conducted by Homeless Link looking at demographic and support needs information compiled using data from several large homelessness providers.
Supporting People data St Andrew's University collates data from homelessness organisations
DCLG's homelessness statistics The Department for Communities and Local Government publishes statistics on statutory homelessness and rough sleeping.

   ii.   *Difference between your clients and the general public*
Comparing your clients' situation to the general population can provide context around the issues homeless people face, such as their health problems. This can be particularly useful for explaining homelessness issues to someone with little sector experience, such as a funder, councillor or a member of the public.

Example: In a funding bid to provide a mental health service, it may be useful to establish context around the issues amongst homeless people. One way to do this is to compare the number of your clients with mental health issues to the rate seen in the general public.

Generally, data on England's population are available on the Office for National Statistics website: http://www.ons.gov.uk/ons/index.html. Other Government departments, such as the Department for Health, also collect statistics.

     iii.   Show the benefits of your service

Comparisons to regional data can also show clients' progress while at your service as it offers a baseline to compare with. For example, data shows that your clients' use of A&E fell in the first six months of 2013. This fall could be because the health services you provide are beneficial. This is a strong fact that can show the benefit of your service to funders. However, the fall could also be because access to GPs in your area, more generally, has improved and A&E use by the general population has also fallen. To show that the fall in A&E use is because of your service, you will need to compare your clients' A&E use to the broader populations' use of A&E using statistics published for your area. This is an example of the comparison you can make using this information:

'In the six months after the introduction of the specialist health service at St Joseph's Hostel, A&E use by clients has fallen by 20%. This compares to a 3% increase in A&E use in the Worcester area.'

Financial Savings analysis

You can use your data to illustrate the cost savings that your service makes for public services such as health and criminal justice. This can be a strong argument to funders and commissioners about the worth of your service.

For example, with adequate data you can make the following statement about the benefit of your service to the health system:

"In the six months after the introduction of the specialist health service at St Joseph's Hostel, A&E use by clients was down by 100 visits. This has likely reduced Worcester NHS's expenses: each A&E visit with no admission costs the NHS £112.'

Homeless Link and Pro Bono Economics put together 'What's it Worth' which goes through the steps of conducting financial savings analysis. In-depth financial savings analysis can be complicated, and often requires the help of someone with experience with cost-benefit analysis. However, more basic statements like that made above can be easily made with little data and can help you illustrate the value of your service to funders. The 'What's it Worth' guidance goes through the steps to conduct this analysis.

Appendix A: Creating a Graph in Microsoft Excel

Creating a graph in Microsoft Excel is easy. To do this, follow these steps:

1.   Organise the data that you want to graph in a table as below. For most of the graphs you produce, the table should be organised such that the categories that will be labelled on the horizontal axis of your graph are in the leftmost column of the table, and the data that you want to plot are in columns to the right. It is also good practice to label each column.

Column labels

Data to graph

X-axis categories. In this case, they are the months of the year.

2.   To graph the data, select the data that you want to plot along with the X-axis categories and column labels.

Selected data

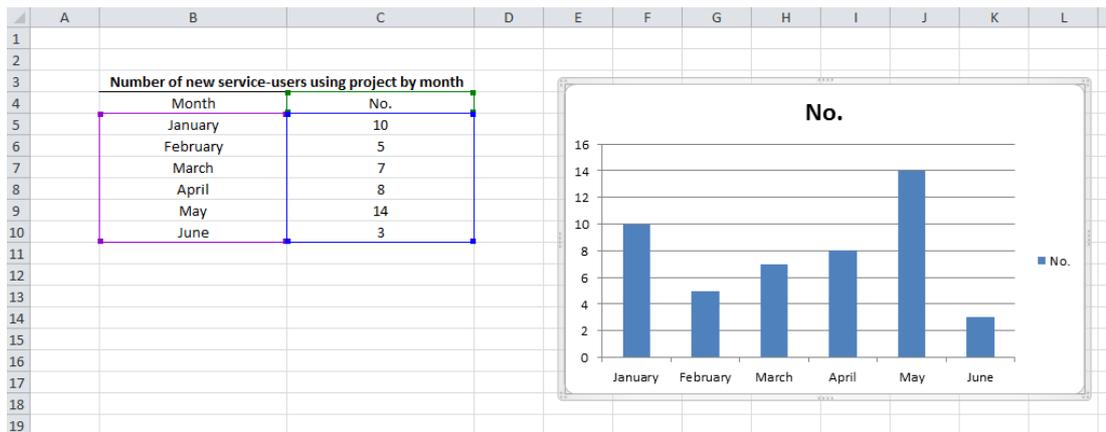3.   In the 'Insert' tab in the ribbon, select the type of chart that you wish to use from the 'Charts' group.

The 'Insert' tab

'Charts' group

Select the type of chart that you wish to plot
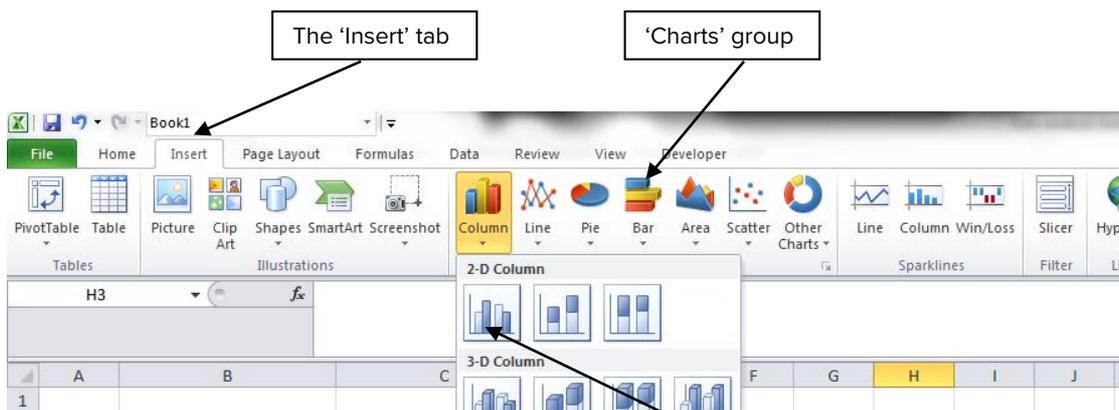
4.   A chart should appear to the right of your table as below.

5.   You will likely have to edit the graph to make it more presentable. You can type directly into some of the aspects of the graph, such as the title. There are options in the 'Design', 'Layout' and 'Format' tabs in the ribbon that allow you to make changes to the graph. (These tabs only appear when you click on the graph.) You will also find options to edit the graph when you right click on different parts of the graph.

The 'Design', 'Layout' and 'Format' tabs are available when you click on the graph.

Right-clicking on different parts of the graph provides options to adjust the graph
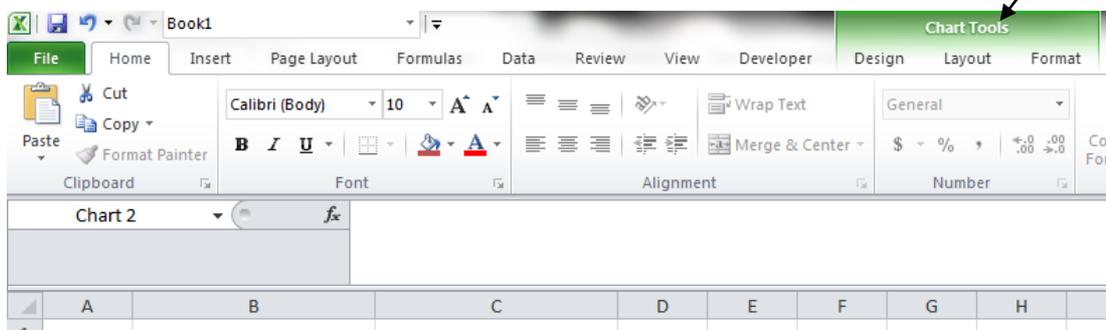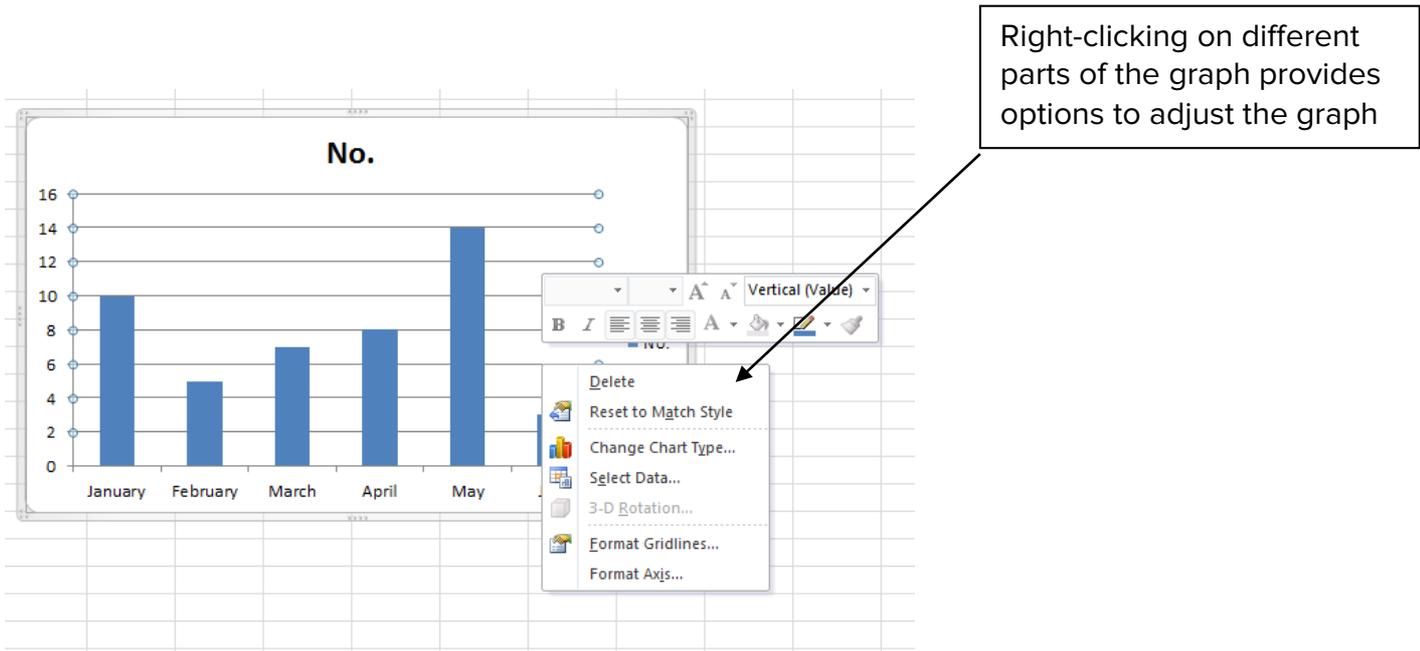
6.   After a few edits, you will produce your final graph:
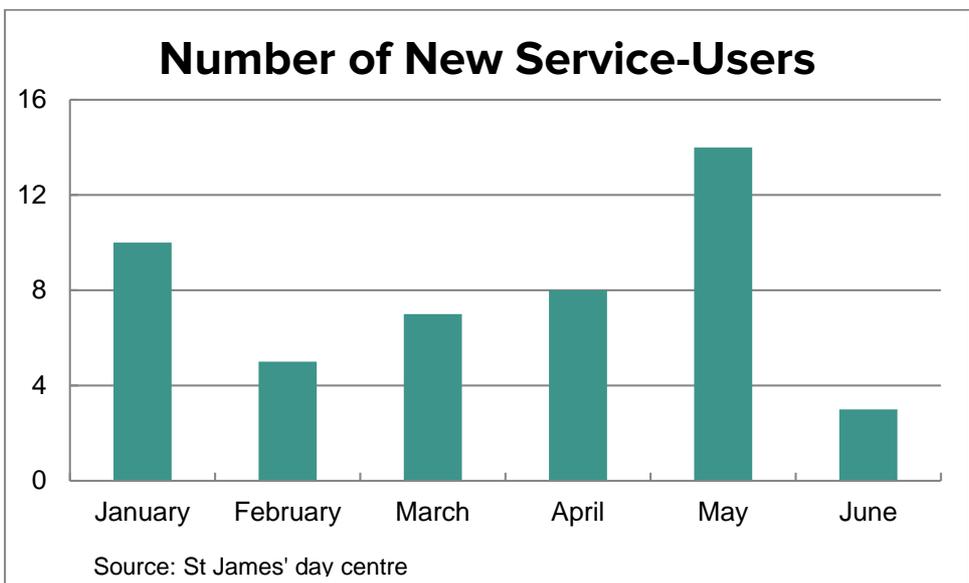
It is good practice to include a source for your graph