



SAMPLING

WHAT IS A SAMPLE?

A sample is the group of people within a population selected to take part in a consultation.

WHY SAMPLE?


Choosing the correct sample will help to ensure the validity and robustness of the consultation process.

When you carry out a survey, it is not feasible to question everyone in the population of the area you are interested in, or every single user of a service being investigated. It is very expensive and logistically very complex

It is more realistic and practical to ask a limited number of people from within the study population, on the basis that those who are included in the survey are likely to share the same characteristics as those who are not included.

Your starting point should be to draw up a set of characteristics of the population that you are looking to consult with. These characteristics could include:

- age
- gender
- ethnicity
- location
- service usage
- socio-economic groups.



Once identified, you then have to determine the most effective way of selecting the individual consultees. This can be done in a variety of ways, including:

- Service user list
- Electoral register
- Phone book
- PAF (Postal Address File).
- Citizen's Panel
- Members Lists of existing groups (e.g. key partners, forums, local community groups etc...)

TYPES OF SAMPLING

PROBABILITY SAMPLING (Random)


This type of sample is achieved by drawing up a list of all the names of everyone in your population (the area you are consulting with) and then picking out a percentage of them by random.


So, if you had a list of 1,000 people who had used your service in the last year – you could number the list and pick as certain number (e.g. 100) at random to represent all the service users.

SYSTEMATIC SAMPLING

This is the same as random sampling, but sample is stratified across a particular characteristic, e.g. ward. This can ensure that your sample reflects all the wards and their size.

E.g. To draw a systematic sample the researcher needs to know the number of people (or households) in the sampling frame, e.g. using the previous example - 100,000. Then they need to determine the number of people (or households) to be selected (i.e. 2,000). Dividing the desired number in the sample by the number in the sampling frame will produce a fraction ($2,000/100,000=2/100=1/50$) meaning that 1 person (or





household) out of each 50 is to be selected for the sample. In other words, the researcher takes every 50th person on the list. In order to commence the systematic sampling a random start from 1 to 50 is selected. Therefore, if the first random person was 31, the next will be 81, then 131 and so on.

NON-PROBABILITY SAMPLING

This type of sampling is used to remove the element of chance. The most common form of this type of sampling is quota sampling.

Quota sampling is sampling where the selection of participants in the consultation is controlled to ensure that you end up with responses from certain groups (i.e. young people, Women, disabled people, white males of a particular age). The types or groups are identified using Census data.

This type of sampling can then be used to show that your sample was representative of the wider community (i.e. that the percentage of women in your sample is the same percentage as women who live in the area).


One advantage of non-probability sampling is that it is relatively cheap and quick however it is far more likely that your sample could be unrepresentative or biased.


There are a number of different types of non-probability sampling:

- **A quota** e.g. 1,000 out of 15,000 population
- **Convenience** sampling where we choose those most conveniently accessible from the population
- **Self-selection** where respondents volunteer
- Purposive sampling where particular areas or groups are targeted because we know they have a high density of our target population
- **Snowballing** (interviews by referral) . Where one person meeting the profile of the target group is identified and interviewed. They then identify another person with a similar profile who can then be interviewed, and so on. Used where target groups are low in number or concentration.

SAMPLE SIZE

The size of your sample does not have to depend on the size of the population you are consulting with. Sample size should be determined by the following:



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- The level of confidence required that the results obtained were not pure chance but a fair and proper reflection of the sample (see below)
 - The accuracy required of figures
 - The 'sub-populations' you want to say something about with a fair degree of robustness. (see below for more information).
 - The likely percentage of useless contacts
 - The likely response rate
 - The variability of the characteristic you are seeking to measure i.e. is it a straight yes/no (50:50) response or one with a scale of 5 possible responses?
 - Statistical reliability being at the 95% confidence level. (see table below).


It is also worth remembering that you can get just equally good information from a focus groups of 15 as from 300 people answering a poorly designed questionnaire!

Your aim is to try and get a sample that is as representative as possible of the population as a whole. If you just want an overall population - and don't want to analyse what old people or BME groups have to say, then (and your sampling is random and your response rates good) then a sample of 500 should suffice. The higher the number of respondents the chances are that you will be increasing the representativeness of the sample but sheer numbers isn't a guarantee - you could still end up with 1,000 white middle aged men.

But if you want to analyse the responses of sub-groups in depth then the same rule applies - i.e. you will need almost 400 older people to give, with 95% confidence a range of +/- 5% of the true population score (see below for more information).

With population sub-groups with small populations the 'valid' sample will reduce - but not by much. For this reason random postal surveys are not the best way to assess information/opinions relating to small population groups.

But if you just want 'X% of the population of Charnwood thinks recycling facilities are good' then you can use a smaller sample such as 500. If you want to say 'y% of people who travel to work by public transport think the bus service is good' - then you will not have a valid sample, even with 1,000 general household respondents.



Levels of Confidence (Reliability of Responses)

Looking at the table below - If 600 residents are asked about their level of satisfaction with a particular service, and the split between their positive and negative responses is 30/70, we can be confident that the results are accurate 95 times out of 100, by a margin of plus or minus 4%.

A sample of 500 will put you within +/-4.4%, whilst a sample of 2,000 to +/-2%.

Sampling tolerances applicable to results at or near these percentages

(based on 95% confidence level)

Response Ratios	10/90%	30/70%	50%
	+ or - %	+ or - %	+ or - %
Sample Size			
100	6	9	10
300	3	5	6
600	2	4	4
1,000	2	3	3
1,500	2	3	3
2,000	1	2	2



THE SCOPE OF THE CONSULTATION

Borough Wide

For a Borough Wide Survey you should aim for around 500 respondents which is the number used as standard by most research companies and local authorities.

If you wanted to analyse a sub-group it is recommended that 100 responses from each group will give you a certain level of accuracy. So, you then decide on your sample size by knowing that you need these responses (see also comments on page 4).

e.g.) if you wanted to compare the responses of men and women you would need at least 100 men and 100 women in your sample and a sample of 500 overall would be adequate. However if you wanted your sample to include Minority Ethnic Groups you would probably need a larger sample size to give you the required 100 respondents. (*refer back to confidence level the information provided above*).

Smaller Areas

If your consultation is within a certain part of Charnwood or with a particular group of people you need to make a decision on what appears to be a reasonable sized sample. The minimum (as noted above) should really be 100 – 200 where possible.

If you know the size of the population or the number of people who use the service you could decide to consult with a percentage of them. However, if, for example 20,000 lived in a particular area and you had decided to consult with only 5%, that would still be 1,000 people. You would then need to decide if that was feasible to achieve.

Response to Postal surveys is generally low so you need to ensure you send out enough to get enough responses to make up your sample size. It is realistic to expect that only 10% of the surveys you send out will be responded to.

Therefore – as an example – if you want a sample size of 1000, you would need to send out at least 10,000 to have a reasonable chance of achieving your response rate.

For more information on responses to particular techniques go to the methodology section of this Toolkit.

