

## GLOSSARY of common Evidence Based Health and Research Terms

**Abstract:** a summary of a research paper.

**Action research:** occurs when researchers design a field experiment, collect the data, and feed it back to the activists (i.e. participants) both as feedback and as a way of modeling the next stage of the experiment.

**Bias:** the deviation of results from the truth due to the way(s) in which the study is conducted. The bias is often introduced through the design of the study and random controlled trials are less likely to be biased when **double blinding** is used.

**Blinding:** where the subjects of the research do not know whether they are receiving the treatment or the **placebo**. If the clinicians do not know either, then this is called **double blinding**.

**Case study:** in depth analysis and systematic description of one patient or group of similar patients to promote a detailed understanding of their circumstances.

**Case control studies:** Studies used to investigate causes of diseases, or to identify adverse or side-effects of treatments. They include people with an outcome of interest and a suitable control group of people unaffected by the outcome. The occurrence of the possible cause is compared between cases and controls.

**CASP (Critical Appraisal Skills Programme):** A project working in health and social services, aiming to enable decision makers and those who seek to influence them acquire skills to make sense of, and act on, the evidence.

**Clinical Audit:** a service or care which someone receives is evaluated against a set of standards/criteria by the people who provide the care, with the intention of improving the service.

**Clinical effectiveness** is a term used in health care to describe an intervention that does more good than harm.

**Cochrane Collaboration:** an international endeavor in which people from many different countries systematically find, appraise and review available evidence from **RCTs**. The Collaboration aims to develop and maintain systematic, up-to-date reviews of **RCTs** of all forms of health care and to make this information readily available to clinicians and other decision-makers at all levels of health care. The UK Cochrane Centre is based in Summertown in Oxford. Tel: 01865 516300

**Cohort studies (or follow-up studies):** Studies which begin with a group of people (the cohort) free from disease but who have been exposed to a potential cause of disease or outcome. The cohort is followed up to see the subsequent development of new cases of the outcome of interest. Cohort studies provide the best information about the causation of disease and the most direct measurement of the risk of developing disease. They can also be used to measure the outcome of treatments or exposure when, for ethical reasons, it is not possible to perform an RCT or to investigate the effects of a rare exposure.

**Confidence interval (CI):** the range within which the true size of effect (never exactly known) lies with a given degree of certainty. People often speak of a "95% confidence interval" (or "95% confidence limits"). This is the interval, which includes the true value in 95% of cases.

**Controls:** is the comparison group in a **Random Controlled Trial**. They receive the usual treatment (or a **placebo**) while the experimental group receives the treatment being tested.

**Content analysis** is a form of data analysis in which the data is searched for the meanings or themes held within it. The researcher develops brief descriptions of the themes or meanings, called codes. Similar codes may, at a later stage in the analysis, be grouped together to form categories.

**Credibility** is a criterion for evaluating the 'quality' or 'trustworthiness' of a piece of qualitative research. It refers specifically to the extent to which the researcher's findings are compatible with the participant's perceptions.

**Critical Appraisal:** the process of assessing and interpreting research evidence, by systematically considering the results of the research, and establishing how valid the evidence is and how relevant it is to your own work.

**Data analysis** is a systematic process of working with the data to provide an understanding of the research participant's experiences. While there are several methods of qualitative analysis that can be used, the aim is always to provide an understanding through the interpretation of the data.

**Dependability** refers to the consistency and accuracy of the research findings.

**Direct Observation:** the process of watching participants directly in the natural setting. Observation can be participative (i.e. taking part in the activity or non-participative).

**Dissemination:** the communication of research findings to a wider audience through, for example, publication in medical journals, the media, and voluntary organisations' newsletters.

**Ethnography** is a qualitative research methodology that enables a detailed description of a culture or subculture to be generated. Data collection usually takes place through observation, interviews or the study of existing text. The importance of gathering data in context is stressed, as only in this way can an understanding of social processes and the behaviour that comes from them be developed.

**Focus groups** are used to elicit the views of a group (usually around six to ten individuals) who have common experiences or interests. They are brought together with the purpose of discussing a particular subject, under the guidance of a facilitator.

**Grounded theory** is an approach to the collection and analysis of qualitative data. The overall aim of grounded theory is to generate a theory that is 'grounded in' or formed from the data. This contrasts with other approaches that stop at the point of describing the participants' experiences.

**Hawthorne effect:** psychological response in which subjects change their behaviour simply because they are subjects in a study, not because of the research treatment.

**Homogeneity:** meaning 'similarity'. Studies are said to be homogeneous if their results vary no more than might be expected by the play of chance. The opposite of homogeneity is **heterogeneity**.

**Induction:** a logical thought process in which generalisations are developed from specific observations: reasoning moves from the particular to the general.

**Interviewing** is a data collection strategy. Participants are asked to talk about the area under consideration. Interviews can be:

**Focused interview:** a loosely structured interview in which the interviewer guides the respondent through a set of questions using a topic guide.

- **Unstructured:** the researcher asks the respondent a general question regarding the area of interest and allows them to tell their own story.
- **Semi-structured:** the interviewer has a more focused agenda than in an unstructured approach. Questions are phrased to allow the participants to tell the story in their own way and an interview guide is used to ensure information is gathered on areas of interest to the researcher.
- **Structured interview:** an interview in which the questions are pre-determined and asked to all subjects

**Iteration (an iterative process)** refers to the process of repeatedly returning to the source of the emerging meanings. This is to ensure that the ideas and understandings being generated are truly coming from the data.

**Mean:** the average value. The mean age of a group of people would be calculated by adding up all the ages and dividing the result by the number of people in the group.

**Median:** The middle result or mid point when all the data values are put in sequential order.

**MEDLINE:** an electronic database which summarises thousands of pieces of biomedical research literature, in selected journals. It is available through most health service libraries. It can be accessed on CD-ROM., with a modem and by other means.

**Meta-analysis:** a statistical technique, which summarises the results of several studies into a single estimate. More importance is given to studies, which have been done with larger groups of people.

**n:** number of people in a group.

**Natural setting** is the normal environment for the research participants for the issues that are being researched.

**Number Needed to Treat (NNT):** one measure of a treatment's clinical effectiveness. It is the number of people you would need to treat with a specific intervention (e.g. aspirin for people having a heart attack) to see one occurrence of a specific outcome (e.g. prevention of death).

**Observation** is a strategy for data collection involving the watching of participants in a natural setting. Observation can be participative (the researcher takes part in the activity) or non-participative (the researcher watches from the outside).

**Odds:** a term little used outside gambling and statistics. It is defined as the ratio of the probability of an event happening, to that of its not happening. Think of it as meaning 'risk'.

**Odds ratio (OR):** one measure of a treatment's clinical effectiveness. If it is equal to 1, then the effects of the treatment are no different from those of the control treatment. If the OR is greater (or less) than 1, then the effects of the treatment are more (or less) than those of the control treatment. Note that the effects being measured may be adverse (e.g. death, disability) or desirable (e.g. stopping smoking).

**Outcome:** The result being looked for in a **trial** e.g. stopping smoking.

**Placebo Therapy:** an inactive treatment often given to controls in trials. The **placebo** is delivered in a form, which is apparently identical to the active treatment being tested in the trial, in order to eliminate psychological effects on the outcome.

**Publication Bias:** results from the fact that studies with 'positive' results are more likely to be published.

**p-value:** the probability that the result has happened by chance. If the p-value is less than 0.05 it means that the probability of the result happening by chance is less than 5% or 1 in 20 chance. Results with p-values of less than 0.05 are often considered to be **significant** and unlikely to have occurred by chance.

**Qualitative research:** studies things in their natural setting and cannot always be expressed in numbers. Often the term "holistic" is used, meaning that the complexities of human behaviour are preserved in the study. An example would be a research study into how children develop with or without attending pre-school nursery. A hint for remembering – a quality is being measured.

**Quantitative research:** collects data that can be expressed in numbers. An example of a quantitative research study would be one that compares the use of an antibiotic or placebo for the treatment of acute cough. A hint for remembering – quantity is measured, counting numbers.

**Quasi-randomisation:** allocating patients into two groups, one which will receive no treatment or the conventional treatment and the other, which will receive the experimental treatment. The way that patients are allocated to each group should be entirely at random; if there is some selection of patients for each group this could bias the results. Quasi-randomisation will involve some form of selection.

**R & D:** Research and Development or Research and Dissemination.

**Randomised controlled trial (RCT):** a research trial in which subjects are randomly assigned to two groups: one (the experimental group) receiving the intervention that is being tested, and the other (the comparison group or controls) receiving no treatment or a conventional treatment. The two groups are then

followed up to see if any differences between them result. This helps people assess the effectiveness of the intervention.

**Reflexivity** is the open acknowledgement by the researcher of the central role they play in the research process. A reflexive approach considers and makes explicit the effect the researcher may have had on the research findings.

**Relative risk:** comparison of the **risk** in an experimental group and control group. **Odds ratio** and **risk ratio** are measures of relative risk.

**Research question** defines the reason for the research; it describes the area of the study and what the researchers want to learn about it.

**Review:** a summary of the literature.

**Risk:** The chances of a particular **outcome** happening to an individual. This can be something helpful (e.g. stopping smoking) or harmful (e.g. death).

**Risk ratio:** The ratio of the **risk** in one group and the **risk** in another.

**Sampling** is the process of selecting participants to take part in the research on the basis that they can provide detailed information that is relevant to the enquiry.

- **purposive sampling** is the selection of participants who have knowledge or experience of the area being investigated.
- **theoretical sampling** is a sampling strategy in which the selection of participants is guided by the ideas that are emerging from the data analysis.

**Saturation** of data refers to the point at which no further themes are generated when data from more participants are included in the analysis. The sampling process can be considered to be complete at this point.

**Significance:** the difference seen between the control group and the treatment group will only be significant if it is unlikely to have occurred by chance. This is agreed to be the case if the likelihood of it having happened by chance are less than 5%.

**SMR:** Standardised Mortality Ratio. This is the ratio of the death rate from a particular condition in a sample compared with the rate in the whole population. If the SMR is less than 1 then the sample has a lower rate than the national incidence, if the SMR is greater than 1, the sample has a higher rate than the national incidence.

**Systematic review:** a **review** in which evidence on a topic has been systematically identified, appraised and summarised according to predetermined criteria. (Some people call this an 'overview').

**Transferability** means that the research findings can be transferred from one context to similar situations or participants.

**Trial:** a study of the effects of an intervention.

**Triangulation** is a process by which the area under investigation is investigated from different (two or more) perspectives. These can include two or more methods, sample groups or investigators. Triangulation can be used i) to ensure that the understanding of an area is as complete as possible by the use of data from one or more different sources or ii) to confirm interpretations through the comparison of different data sources.

**Trustworthiness** refers to the truth-value of a piece of qualitative research. It is a measure of how much the research reflects the reality and the ideas of the participants. It involves consideration of the credibility, dependability and transferability of the work.

**Validity:** refers to the soundness or rigour of a study. A study is valid if the way it is designed and carried out means that the results are unbiased - that is, it gives you a 'true' estimate of clinical effectiveness of a treatment.

Adapted from the CASP glossaries June 2006.

Critical Appraisal Skills Programme (CASP) and Evidence-based Practice  
[www.phru.nhs.uk/casp/casp.htm](http://www.phru.nhs.uk/casp/casp.htm)