Chiropractic Research Council

RESEARCH JARGON – A GLOSSARY

One of the most daunting aspects of reading scientific papers is the weight of jargon. We have already acquired a substantial amount of jargon in our professional life, but having mastered this we are now faced with a large volume of other terms with which to familiarise ourselves. Tying to find the true meaning of research jargon by consulting various textbooks can be a very time consuming and frustrating process; one book never has all the terms we want or need. This article is designed to save time and give a basic introduction to terms commonly used in research papers.

ABSOLUTE RISK (AR): This is the risk of having a disease. If the incidence of a disease is 1 in 1000, the absolute risk is 1 in 1000 or 0.1%.

ABSOLUTE RISK REDUCTION (ARR): This is the absolute arithmetic difference in rates of bad outcomes between experimental and control participants in a clinical trial.

ABSTRACT: An abbreviated summary of a research report, generally found at the beginning of the report.

ADVERSE EVENT: An untoward occurrence in a patient or subject who is receiving any type of treatment. This may or may not have a causal relationship with the treatment.

AMED: The Allied and Complementary Medicine database, accessible using an Athens password.

ANONYMITY: The identity of the research participant remains unknown and is not linked with the information provided by the participant. (Doordan 1998)

ASSOCIATION: A relationship between objects and variables.

ATTRITION: The loss of sample members over time from a longitudinal study or experimental research with follow up tests.

AUTONOMY: The capacity to think, decide and act on the basis of such thought and decision freely and independently and without let or hindrance. (Gillon 1985/1986)

AVERAGE MEASURES: There are three main measures of the average of a set of numerical data. These are the mode, the median and the mean.

BANDOLIER: An independent journal about evidence-based healthcare written by Oxford scientists. Accessible via http://www.jr2.ox.ac.uk.

BASELINE: A phase in an intervention study when a participant is receiving no intervention.

BENEFICENCE: The duty to do good and to prevent harm. (Seedhouse 1998)

BIAS: This is an influence that distorts the result of a research study. In a questionnaire e.g., bias is introduced by inappropriately framed questions, such as leading questions. This has an effect on the research outcome and may reflect the impartiality of the researcher. A biased sample is one that is not representative of the true composition of a population being investigated. Bias is also the deviation in one direction of the observed value from the true value of a construct being measured. This is different to random error.

BLINDING: This is the method of concealing the allocation of a sample of people, for example, to an experimental group or a control group during the research process. This concealment can be from the individuals involved in the research process (single blind, or concealment from both researchers and research participants (double blind).

CARER: Anyone, irrespective of age, whose life is in some way restricted because of the need to take responsibility for the care of a person who has mental health problems, learning disabilities, is physically disabled or whose health is impaired by sickness or who is elderly and frail. (Carers National Association 1998)

CASE: A single unit in a study. This can include a patient, or a setting e.g. a teaching clinic, a hospital or a private practice.

CASE CONTROL STUDY: A study which involves a series of patients with an outcome of interest (e.g. OA of the knee joints) and control patients without the same outcome (i.e. no OA of the knee joints) and looking back to see if they had the exposure of interest (e.g. playing squash).

CASE SERIES: A report on a series of patients with an outcome of interest. No control group is involved.

CASE STUDY: A research method which focuses on the circumstances, dynamics and complexity of a single case, or a small number of cases.

CAUSAL EXPLANATION: An attempt to explain the occurrence of a particular phenomenon or event by identifying the cause.

CAUSAL HYPOTHESIS: A statement that it is predicted that one phenomenon will be the result of one or more other phenomena that precede it in time. (e.g. low back pain will be brought on by heavy lifting using inappropriate posture and technique).

CAUSAL RELATIONSHIP: observed changes, i.e. the effect, in one variable are due to earlier changes in another variable.

CENTRAL TENDENCY: The central tendency of a frequency distribution is the average, middle or most common score. Measures of central tendency include the mean, the median and the mode.

CHI-SQUARE ($\chi 2$): A statistical test frequently used with categorical data. It is often based on a comparison of the frequencies observed and the frequencies expected in various categories.

CINAHL: The Cumulative Index to Nursing and Allied Health Literature. Accessible using Athens password.

CITATION: The act of acknowledging or documenting a reference source used in preparing an assignment, report or project. It is also described as documentation. A full citation lists accurate information about author, title, publication date and related facts. There are a number of different citation styles.

CLINICAL AUDIT: This is the systematic and critical analysis of quality of clinical care, including diagnosis and treatment, use of resources, outcome and quality of life for patients. Audits are carried out to ensure that the quality of clinical care meets acceptable standards.

CLINICAL PRACTICE GUIDELINE: A systematically developed statement designed to assist clinician and patient decisions about appropriate healthcare for specific clinical circumstances.

CLINICAL RESEARCH: The study of therapies, biological agents or devices in human subjects with the intent to discover potential beneficial effects and/or determine its safety and efficacy. Also known as clinical study or clinical investigation.

CLINICAL SIGNIFICANCE: The clinical significance of a research finding is the extent to which that finding is clinically meaningful. This should not be confused with statistical significance. A research finding can be statistically significant but have little or no clinical meaning.

CLINICAL TRIAL: An experimental investigation where the participants are patients.

CLOSED QUESTION: The question is followed by predetermined response choices into which the respondent's reply is placed.

CLUSTER: A sample unit that consists of a group of elements.

CLUSTER SAMPLING: Probability sampling involving the selection of groupings (clusters) and selecting the samples from the clusters.

COCHRANE: Cochrane reviews are a regularly updated and highly regarded source of evidence about the effects of healthcare interventions. One of the key components of the Cochrane Library is the Cochrane Database of Systematic Reviews. A Cochrane Controlled Trials Register (CCTR) also exists. The Cochrane Library can be found at: www.update-software.com/cochrane/cochrane-frame.html.

CODING: Assigning codes to each category of a variable e.g. different patients in an experimental group. This is usually numerical. This can also be a qualitative method of analysis of materials such as interviews where categories are formed and their interrelationships are examined.

COERCION: The use of threats or rewards beyond the scope of research to persuade people to participate in a research study. (Doordan 1998)

COHORT STUDY: The study of a population that has a common experience or characteristic which defines the sampling (e.g. they are all born in the same year or all have a scoliosis).

COLLABORATION: Research in which service users and carers are active partners and share some of the responsibilities and control. The opinions of service users and carers have equal weight with those of professionals and there is collaboration at every stage of the research process. (Royle et al 2001)

CONFIDENCE INTERVAL (CI): This quantifies the uncertainty in a measurement. It is usually reported as 95% CI, which is the range of values within which we can be 95% sure that the true value for the whole population lies. The CI gives a measure of the precision (or uncertainty) of study results for making inferences about the population of all such patients. The CI approach places a clear emphasis

on quantification, in direct contrast to the P values which arise from the significance testing approach.

CONFIDENTIALITY: Protection of the identity of human participants and their individual responses from disclosure. (Doordan 1998)

CONFOUNDING FACTOR: This is an extraneous factor i.e. a factor other than the variables under study, which are not controlled for and can distort the results. An extraneous factor only confounds the results when it is related to the dependent and independent variables under investigation. It makes them appear connected when, in fact, their association is spurious. E.g. smoking can be seen as a confounding factor in many studies on HRT and increased of blood clotting; it can be taken into account, but when examining the relationship between hormones and blood clotting (the dependent variables) it is not directly related to them.

CONSENT: The process whereby a patient freely agrees without coercion or pressure to be involved in a research project. Consent can only be given when a full explanation of the process, potential risks and rewards have been fully explained to the patient and presented to them as a formal document in a form in which they are able to understand (translated into another language, Braille or auditory version). Written consent is required from all participants in a research study. If this can not be given by the patient involved, it can be given by a legal representative, guardian or other responsible appointed adultat the participant's behest.

CONSULTATION: Service users and carers are asked for their opinions or views. These are then taken into account but are not necessarily used. Service users and carers are seen as consultants who may have some influence but no control over the research. Once consulted, the service users and carers are no longer involved and may not hear the research results. (Royle et al 2001)

CONSUMER: An individual who reviews and uses research findings in education, research or practice. (Editors' note: Consumers of occupational therapy research could be patients, carers, other users of services, organisations representing service users' interests, colleagues, students or others.) (Doordan 1998)

CONSUMER INVOLVEMENT: An active partnership between consumers and researchers in the research process: doing research with consumers rather than to, about or for consumers. (Hanley et al 2000)

CONTENT ANALYSIS: The systematic analysis of observations obtained from records, documents and filed notes.

CONTENT VALIDITY: The extent to which a test or assessment matches the real requirements of the situation.

CONTINUING MEDICAL EDUCATION (CME) and CONTINUING PROFESSIONAL DEVELOPMENT (CPD): A mandatory requirement of all healthcare professions to promote personal and professional growth relevant to the individual concerned.

CONTINGENCY TABLE: A method of presenting the relationship between two categorical variables in the form of a table.

CONTINUOUS DATA: Data with values that do not fall into discrete categories e.g. measures of temperature, height and mass.

CONTRAINDICATION: a specific situation that will cause the administration of a treatment to be harmful to a person.

CONTROL EVENT RATE: The proportion of patients in a group in whom the event is observed. It I called a control event rate if it is done in a control group of patients.

CONTROL GROUP: The group in an experimental process that is not exposed to an intervention/treatment. This group can then be compared to the experimental group receiving treatment to study the effects of the intervention.

CONTROL VARIABLE: A variable used to test the possibility that an empirically observed relationship between an independent and dependent variable is spurious.

COREC: Central Office for Research Ethics Committees, the body to whom all research projects are submitted for their approval and comments before beginning a research project. They can be found at www.corec.org.uk

CORRELATION: A standardised measure of linear association between two variables.

CORRELATION COEFFICIENT: A statistic designed to measure the size and direction of the association between two variables. The values may vary between 0 and ± 1.

CORRELATIONAL STUDIES: Studies that are concerned with investigating the association between variables.

COST-BENEFIT ANALYSIS: Assesses whether the cost of an intervention is worth the benefit by measuring both in the same units: monetary units are also used. This can also be used as an assessment of efficiency.

COST-EFFECTIVENESS ANALYSIS: Measures the net cost of providing a service as well as the outcomes obtained. Outcomes are reported in a single unit of measurement. Comparisons can be made with other services for an assessment of efficiency.

COST-MINIMISATION ANALYSIS: If health effects are known to be equal, only costs are analysed and the least costly alternative is chosen.

COST-UTILITY ANALYSIS: Converts the effects into personal preferences, or utilities, and describes how much it costs for some additional quality gain.

CRITICAL APPRAISAL: The process of assessing and interpreting medical research results systematically paying particular attention to their validity and relevance.

CRITICAL THEORY: In qualitative research, critical theory explains how personal meanings and actions are influenced by a person's social environment.

CRITICAL VALUE OF A STATISTIC: The value of a statistic (obtained from appropriate statistical tables) that the calculated value for a given result must exceed in order to attain statistical significance.

CROSSOVER STUDY DESIGN: The administration of two or more experimental therapies one after another in a specified or random order to the same group of patients.

CROSS-SECTIONAL STUDY: The observation of a defined population at a single point in time or time interval. Exposure and outcome are determined simultaneously.

DARE: Database of Abstracts of Reviews of Effectiveness

DATA MONITORING COMMITTEE: Most trials have a data monitoring committee that follows the progress of the trial and ensures it is being run properly. If the committee thinks that subjects are experiencing unexpected side effects it can advise that the trial should be stopped.

DATA ANALYSIS: Subjecting data to a systematic analysis which can range from statistical to textual analysis, either manually or electronically.

DECEPTION: Intentionally misleading or withholding information about the nature of a research study.

DECISION ANALYSIS: The application of explicit, quantitative methods that quantify prognosis, treatment effects and patient values in order to analyse a decision under conditions of uncertainty.

DECLARATION OF HELSINKI: A series of guidelines adopted by the 18th World Medical Assembly in Helsinki, Finland in 1964. The Declaration addresses ethical issues for physicians conducting biomedical research involving human subjects. Recommendations include the procedures required to ensure subject safety in clinical trials, including informed consent and Ethics Committee reviews.

DEPENDENT VARIABLE: This is the variable the investigator wishes to explain.

DETERMINISM: This assumes that everything is caused by a particular factor in a predictable manner.

DISSEMINATION: The mechanisms by which the results of research are communicated to stakeholders and other interested parties involved in a research study.

DOUBLE-BLIND: Clinical trials in which participants are unaware which treatment they are receiving. The professionals treating them are similarly unaware. Researchers keep this information secret until each patient's health status is known after a defined period of treatment.

ECOLOGICAL SURVEY: A survey based on aggregated data for a particular population as it exists at some point or points in time; to investigate the relationship of an exposure to a known or presumed risk factor for a specified outcome.

EFFECT SIZE: This is the magnitude of an observed association described as a numerical index.

EFFECTIVENESS: Effectiveness describes how well a particular treatment or other intervention works to the benefit of the patient/research subject.

EFFICACY: The ability of an intervention to produce beneficial effects on the duration or course of a disease. Efficacy is measured by evaluating the clinical and statistical results of clinical tests.

EMPIRICAL: This describes any value based on the observation of a subject.

ENDPOINT: Overall outcome that the protocol is designed to evaluate. Common endpoints are severe toxicity, disease progression, or death.

EPIDEMIOLOGY: The branch of medical science that deals with the study of incidence and distribution and control of a disease in a population.

EQUITABLE: Fair or just; used in the context of selection of subjects to indicate that the benefits and burdens of research are fairly distributed

ETHICS: The philosophical study of morality.

EVIDENCE-BASED MEDICINE (EBM): The conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients. The practice of evidence-based medicine requires the integration of individual clinical expertise with the best available external clinical evidence from systematic research and our patients' unique values and circumstances.

EVENT RATE: The proportion of patients in a group in whom an event is observed. If out of 100 patients, the event is observed in 27, the event rate is 0.27.

EXCLUSION CRITERIA: The conditions or circumstances that disqualify a patient from participating in a clinical trial are called exclusion criteria.

EXPERIMENTAL GROUP: this is the group in an experimental study that is exposed to the intervention/treatment that is defined as the independent variable.

FOCUS GROUP: A research method used frequently in qualitative research that involves interviewing people during interactions in small groups.

FREQUENCY DISTRIBUTION: This is the number of observations of values within a variable in a research study.

HIERARCHICAL DATA: This is data on different levels or layers (e.g. sports team, individual player in a sportsteam etc).

HUMAN RESEACH COMMITTEE (HRC): The CSU name for the federally mandated Institutional Review Board in the USA. The HRC consists of 12 members, meeting the IRB requirements as set forth in federal policy.

HYPOTHESIS. A statement which research sets out to prove or disprove. There are two types of hypothesis: 'experimental' where the hypothesis is a positive statement, such as 'carers who attend a support group have better coping skills' or 'null' where the

statement contains a negative statement, for example, 'carers who attend a support group do not have better coping skills.'

INCIDENCE: The proportion of new cases of a target disorder being investigated in a Population at risk during a specified time interval.

INCEPTION COHORT: A group of patients who are assembled near the onset of disorder targeted for investigation.

INCLUSION CRITERIA: The set of requirements (e.g., age, health status, sex) that a patient must meet tobe included in a clinical trial.

INFORMED CONSENT. An agreement to take part in research which is based on a full explanation and understanding of why the research is being undertaken and any potential impact/effects it might have on participants.

INSTRUMENT: A means of measuring the response to a proposed research question. For example, an instrument can be a questionnaire for qualitative work or a goniometer for quantitative evaluation of joint range of movement.

INTENTION TO TREAT: A method of analysis for randomized trials in which all patients randomly assigned to one of the treatments are analyzed together, regardless of whether or not they completed or received that particular treatment. This is carried out in order to preserve randomization.

INTERACTIVE THEORY: A theory that requires maximum conceptualization and maximum factual evidence.

INTERACTION: The direction and/or the magnitude of the association between two variables depends on the value of one or more of the variables.

INTERVENING VARIABLE: A variable that is not observed, but its presence is deduced from the relationship between the dependent variable and the independent variable (e.g. learning, motivation, intelligence). This is also called indirect causation.

INVESTIGATOR: A researcher conducting the project. Investigators can be Principal Investigators or Co-Principal Investigators. Students are always Co- Principal Investigators

LEADING QUESTION: This is a question that is phrased in such a manner that leads the interviewee to believe that a particular response should be given.

LEGALLY AUTHORIZED REPRESENTATIVE: A person authorised either by statute or by court appointment to make decisions on behalf of another vulnerable person. In human subjects' research, it is an individual, judicial or other body authorised under applicable law to give consent on behalf of a prospective subject to their participation in the procedure(s) involved in a research study.

LIKELIHOOD RATIO: The likelihood that a given test result would be expected in a patient with a target disorder compared with the likelihood that that same result would be expected ina patient without the same target disorder.

LONGITUDINAL: At more than one point in time.

LREC: Local Research Ethics Committee. A body of people to whom all research proposals must be submitted for approval before research can begin

MATURE MINOR: Someone who has not reached adulthood (as defined by state law) but who may be treated as an adult for certain purposes (e.g., consenting to medical care).

MEAN: The mean is commonly called the 'average' and requires calculation by adding all values and then dividing by the number of values present. In statistics, if the data consists of the whole population, the mean is usually denoted by μ.

MEDIAN: The median is the central value when the data are arranged in order of magnitude.

MEDLINE: The most comprehensive source of life sciences and biomedical bibliographic information online; it contains nearly eleven million records.

MEDICAL SUBJECT HEADINGS (MESH): Terms used by the United States National Library of Medicine to index articles in Index Medicus and MEDLINE. It was designed to reduce problems that arise from, for example, differences in British and American spelling. The MeSH system has a tree structure in which broad subject terms branch into a series of progressively narrower subject terms.

META ANALYSIS: A systematic review that uses quantitative methods to synthesize and summarize the results.

MHRA: Medicines and Health-Care Products Regulatory Agency. This body was formerly known as the Medicines Control Agency (MCA).

MINIMAL DETECTABLE DIFFERENCE: The smallest difference between interventions that you wish to be able to detect. In clinical trials this is the smallest difference that you would regard to be clinically important and biologically plausible. In a study of association it is the smallest change in the dependent (outcome variable, response), per unit change in the independent (input variable, covariate) that is plausible. [Source:http://Hedwig.mgh.harvard.edu].

MODE: This is the most frequently occurring value (most popular) in a set of data and is the easiest to obtain.

MONITOR: A person employed by a research sponsor who reviews study records to determine that a study is being conducted in accordance with the protocol. A monitor's duties may include, but are not limited to, helping to plan and initiate a study, and assessing the conduct of studies. Monitors work with a clinical research co- ordinator to check all data and documentation from the study.

MREC: Multi Centre Research Ethics Committee.

MULTIVARIATE ANALYSIS: This allows for the measurement of the effects of one variable in an outcome to be measured, while controlling for the effects of other variables.

N-of-1 TRIALS: In such trials, the patient undergoes pairs of treatment periods organized so that one period involves the use of the experimental treatment and the

other involves the use of an alternate placebo therapy. The patient and physician are blinded, if possible, and outcomes are monitored. Treatment periods are replicated until the clinician and patient are convinced that the treatments are definitely different or definitely not different.

NARRATIVE INQUIRY: A qualitative research approach based on a researcher's narrative account of the investigation, not to be confused with narrative examined by the researcher as data.

NEGATIVE PREDICTIVE VALUE: Proportion of people with a negative test who are free of a target disorder.

NOMINAL DATA: There is no intrinsic order or value in nominal data; all classes involved are mutually exclusive e.g. classification of countries England, Ireland, Wales and Scotland.

NON-EU DIRECTIVE STUDIES: All studies that are not clinical trials of investigational medicinal products.

NORMAL DISTRIBUTION: This is a symmetrical, bell shaped curve which is mathematically defined and represents an ideal or a theoretical distribution that occurs frequently in real life, especially in sampling. Small numbers in the sample are represented at both extremes and large numbers in the middle. The average (mean) corresponds to the peak of the distribution.

NUMBER NEEDED TO TREAT(NTT): The inverse of the absolute risk reduction and the number of patients that need to be treated to prevent one bad outcome.

NUMBER NEEDED TO HARM (NNH): The number of patients who, if they received the experimental treatment, would result in one additional patient being harmed, compared with patients who received the control treatment.

NULL HYPOTHESIS: A statement that there is no relationship between the independent and dependent variables and that any relationship observed is due to chance or fluctuations in sampling.

ODDS: A ratio of the number of people incurring an event to the number of people who have non-events.

ODDS RATIO(OR): The ratio of odds of having the target disorder in an experimental group relative to the odds in favour of having the target disorder in a control group (in cohort studies or systematic reviews).

ORDINAL DATA: This describes the manner in which classes of data can be arranged according to ranking order e.g. bigger than, preferred to. The amount by which one class is bigger than or preferred to is not specified.

OUTCOME MEASURES: Outcome measures assess the effectiveness of an intervention. Common outcome measures used in musculoskeletal research are the Roland-Morris disability scale and SF-36.

PATIENT EXPECTED EVENT RATE (PEER*):* It refers to the rate of events we would expect in a patient who received no treatment or conventional treatment

PEER REVIEW: A process by which research studies are examined by an independent panel of researchers for review. The purpose of such is to open the study to examination, criticism, review and replication by peer investigators and ultimately incorporate the new knowledge into the field.

PILOT-STUDY: A trial, both to examine the effectiveness of various aspects of the proposed research, such as procedures for data gathering, and to aid the completion of detailed project plans.

PLACEBO: A placebo is an inactive substance which may look like medicine but contains no medicine - a "sugar pill" with no treatment value. In some studies, the participants in a control group may be given a placebo.

POPULATION: A well-defined group or set that has certain specified properties (e.g. all registered midwives working full-time in Scotland).

POSITIVE PREDICTIVE VALUE: Proportion of people with a positive test who have the target disorder being investigated in a study.

POST TEST ODDS: The odds that the patient has the target disorder after the test is carried out (pre-test odds*likelihood ratio)

POST TEST PROBABILITY: The proportion of patients with the particular test result who have the target disorder (post-test odds/1+post-test odds)

PRAGMATIC TRIAL: Pragmatic research asks whether an intervention works under real-life conditions and whether it works in terms that matter to a patient. It is simply concerned with whether the intervention works, not how or why. Pragmatic studies are most useful when deciding what services should be provided but give only a limited insight into why interventions do or do not work.

PRE-TEST ODDS: The odds that the patient has he target disorder under investigation before the test is carried out (pre-test probability/ [1-pre-test probability])

PRE-TEST PROBABILITY/PREVALENCE: The proportion of people with the target disorder in the population at risk at a specific time (point prevalence) or time interval (period prevalence)

POWER: This is the probability that a clinical trial will have a significant (positive) result, that is have a p-value of less than the specified significance level (usually 5%). This probability is computed under the assumption that the treatment difference or strength of association equals the minimal detectable difference. Assistance with power calculations can be found at: http://hedwig.mgh.harvard.edu/sample_size/size.html

PREVALENCE: The proportion of a population having a particular condition or characteristic: e.g., the percentage of people in a city with a particular disease, or who smoke.

PROBABILITY: A description of the likely occurrence of a particular event. Probability is conventionally expressed on a scale from 0 to 1; a rare event has a probability close to 0, a very common event has a probability close to 1.

PROSPECTIVE STUDY: Studies designed to observe outcomes or events that occur subsequent to the identification of the group of subjects to be studied. Prospective studies need not involve manipulation or intervention but may be purely observational or involve only the collection of data.

PROTOCOL: The specific set(s) of goals and procedures that define what will happen in a clinical trial. Protocols are developed before a trial begins so that participants know what will happen and other researchers can follow the same protocol. A protocol describes eligibility; the schedule of tests, procedures, medications, and treatment dosages; and the length of the study.

PUBMED: Pubmed is the U.S national library of Medicine's premiere search system for national information. Pub med can be found at: www.ncbi.nlm.nih.gov

PRINCIPAL INVESTIGATOR The principal investigator is the chief QUESTIONNAIRE: A set of questions designed to gather information on a specific topic from a research subject.

QUALITATIVE RESEARCH: Collection of non-numerical data using interviews, observations, and open-ended questions to gather meaning from non-quantified narrative information.

QUANTITATIVE: Collection of numerical data in order to describe, explain, predict, and/or control phenomena of interest.

QUARTILES: The lower quartile is the median of the lower half of a set of data. The upper quartile is the median of the upper half of the data i.e. it is the value which is exceeded by the largest quarter of the observations.

RANDOMIZED TRIAL: A study where participants are randomly (by chance) assigned to one of two or more treatment arms of a clinical trial. Occasionally placebos are utilized

RANDOMISED CONTROLLED TRIAL (RCT): In an RCT, participants are randomly assigned either to an intervention group (e.g. a drug treatment) or to a control group (e.g. a placebo treatment). Both groups are followed up over a specified period of time and the effects of the intervention on specific outcomes (dependent variables) defined at the outset are analysed (e.g. serum cholesterol levels, death rates, remission rates).

RANDOMISATION: Assigning individuals in a sample to either an experimental group or a control group at random

RANDOM SAMPLE: A process of selecting a sample whereby each member of the population has an equal chance of being included.

RANGE: The range of a set of data is the difference between the highest value and the lowest value.

RELATIVE RISK (RR): Event rate in treatment group divided by the event rate in the control group. Also known as risk ratio. RR is used in randomized trials and cohort studies):

RELATIVE RISK REDUCTION (RRR): The proportional reduction in rates of bad outcomes between experimental and control participants in a trial.

RELIABILITY: The degree to which the test consistently measures what it is supposed to measure.

RELEVANCE is about the closeness with which the data being gathered feeds into the aims of the study.

REMUNERATION: Payment for participation in research. Remuneration should be appropriate for the amount of effort involved, and not excessive and thereby coercive. Remunerations are not considered a benefit.

RESEARCH METHODS: Specific procedures used to gather and analyse research data.

RESEARCH GOVERNANCE: This concerns the setting of standards to improve research quality and thereby to safeguard the public. It involves enhancing ethical and scientific quality, reducing adverse events, promoting good practice, preventing poor performance and misconduct, and ensuring lessons are learned. A number of frameworks exist to give advice on research governance and clinical governance.

RETROSPECTIVE STUDY: Research conducted by reviewing records from the past (e.g., birth and death certificates, medical records, school records, or employment records) or by obtaining.

SAMPLE: The number of patients required for a clinical trial or other research study.
Sample size calculations: http://hedwig.mgh.harvard.edu/sample_size/size.html

SENSITIVITY: Proportion of people with the target disorder who have a positive test. It is used to assist in assessing and selecting a diagnostic test/sign/symptom.

SITE VISIT: A visit by agency officials, representatives, or consultants to the location of a research activity to assess the adequacy of IRB protection of human subjects or the capability of personnel to conduct the research.

SnNOUT: When a sign/test/symptom has a high Sensitivity, a Negative results rule out the diagnosis.

SPECIFICITY: Proportion of people without the target disorder who have a negative test. It is used to assist in assessing and selecting a diagnostic test/sign/symptom.

SpPIN: When a sign/test/symptom has a high Specificity, a Positive result rules in the diagnosis.

SPONSOR: The pharmaceutical company, research institution, or other health organization that funds a clinical trial and designs its protocol.

SPREAD: There are three common measures of spread; the range, the interquartile Range and the standard deviation.

SPSS: One of a number of commercially available statistical packages.

STANDARD VARIABLES: In social science research, especially in survey analysis, there are a range of variables which are usually considered 'standard' or 'key', in the sense that some analysis is undertaken in relation to each of them. The list will change according to the specific research project, but may well include such items as age, gender, socio-economic group, ethnicity employment, family background, housing.

STANDARDISATION: A scale transformation procedure that involves manipulating data from different types of scales so that they can then be compared. It consists of subtracting the sample mean from each score and dividing by the standard deviation.

STATISTICS: Statistics are involved with events that have more than one possible outcome. In practical terms they are concerned with all aspects of dealing with data i.e. the collection of data, how to summarise it, how to present it and then how to draw conclusions from that data. A glossary of more statistical terms can be found at: www.cas.lancs.ac.uk/glossary_v1.1/main.html. Further statistic resources are available from: http://hedwig.mgh.harvard.edu/biostatistics/resources.html#software.

SURVIVAL STUDY: Statistical procedures for estimating survival (prognosis) in a population under study.

SYSTEMATIC REVIEW: A summary of the medical literature that uses explicit methods to perform a comprehensive literature search and critical appraisal of individual studies and that uses appropriate statistical techniques to combine these valid studies

T TEST: A statistical test that is used to compare the means of two samples or the mean of one sample with some fixed value. The test is appropriate for small sample sizes (less than 30).

TEST-RETEST RELIABILITY: The degree to which a measure produces consistent results over several administrations.

TOXICITY : An adverse effect of an intervention. If toxicity prevents people from taking more of an experimental drug, the toxicity is called dose limiting.

VALIDITY: concerns the extent to which your research findings can be said to be accurate and reliable, and the extent to which the conclusions are warranted.

VARIABLE: An attribute or characteristics of a person or an object that takes on different values (i.e. that varies) within the population under investigation (e.g. age, weight, pulse rate).

VOLUNTARY: Free of coercion, duress, or undue inducement or influence. Used in the research context to refer to a subject's decision to participate (or to continue to participate) in a research activity