CLINICAL RESEARCH PRIMER

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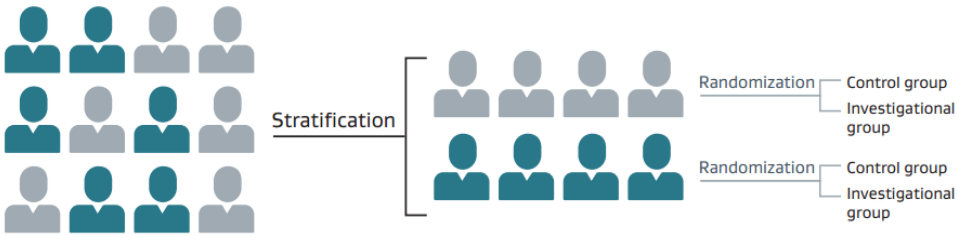
Clinical trial design terms *(continued)*

Stratification/stratified randomization

In some trials, patients may have important differences that researchers know will affect the outcome, such as different stages of disease. In these cases, patients may first be divided (stratified) into two or more groups according to key common characteristics, followed by randomizing those groups into sub-groups. Sometimes you will find that authors stratify in the analysis of data stage (i.e., it is a statistical stratification rather than a patient grouping stratification). An example of this is to stratify by age group: 20-29, 30-39, 40-49, etc.



Bias

Bias can be introduced into a trial in a number of ways and can impact the results of a study.

Type of bias	Definition	Example
Confounding bias	When one or more variables is not taken into consideration.	Age, gender, co-existing medical conditions and/or prior use of healthcare facilities are a few of the variables which, if not explicitly accounted for, can alter the results of a study.
Detection bias	A biased assessment of outcome, possibly caused using a particular diagnostic technique or type of equipment.	Rates of breast cancer, for example, may vary in different geographic regions, not because of an actual difference in the incidence of the disease but because of the differences in access to diagnostics.
Investigator bias	The impact an investigator can have on the results.	An investigator who is convinced in a particular treatment might influence positive outcomes from the treatment (either intentional or unintentional).
Patient bias	**The impact patients themselves can have on the results.**	If study patients know they are in the control group, they may use other forms of care.
Selection bias	When patients are non-randomly allocated to comparison groups.	When individuals from the study group are drawn from one population (e.g., patients seen at the emergency room/department), and the control patients are drawn from another (e.g., clinic patients).

Clinical trial design terms *(continued)*

Minimizing bias

One way researchers can avoid bias is through "blinding."

Blinding

Similar to randomization, blinding helps limit or eliminate factors that could unconsciously influence results. As illustrated in the image below, there are several approaches to minimizing bias through blinding.

Single blind – Trial patients have no knowledge of which treatment they are receiving – Either interventional treatment or standard of care treatment.

Example: A study patient does not know if they are getting the study drug or placebo, but the investigator does.

Double blind – Trial patients and investigators have no knowledge of the trial group assignment.

Example: Neither the study patient nor investigator know if the patient is receiving the study drug or the placebo.

Triple blind – Trial patients, investigators and anyone else involved in evaluation of trial outcomes have no knowledge of the trial group assignment.

Example: Patients, investigators and sponsor are unaware if study patients are receiving the study drug or placebo. A third party randomizes this activity. This is made known only upon analysis of the results.

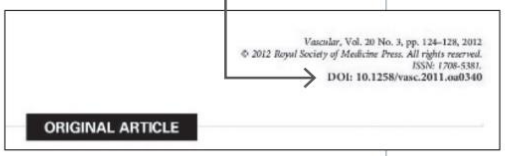
Anatomy of a clinical publication *(continued)*

FAST FACT

On a related note of credibility — Peer-reviewed journal articles carry more weight than a supplemental in a magazine or periodical (e.g., articles in *Endovascular Today*). Supplements tend to be manufacturer-sponsored articles. While they do reflect clinical trial activity and outcomes, then tend to be viewed by physicians as more similar to promotional/marketing materials than to peer-reviewed clinical trial publications.

FAST FACT

Most journals now electronically publish (ePub), ahead of the paper version of the journal. Therefore, citations now include a Digital Object Identifier (DOI), a string of numbers/letters/symbols used to permanently identify an article, and/or a link to the electronic version of the journal article.



Citation

The full citation includes (in order) authors, title of the article, journal name, year, volume number, issue number, page numbers. This applies to journal articles only, and other published formats will be different.

The title itself can provide a quick snapshot to the study's relevance to your interest. Familiarizing yourself with the authors is something you will want to make a habit of. It is helpful to know the leading researchers who work and publish within our therapeutic area. Authors of the publication can also lend credibility to the findings. It is also important as you would not want to find yourself inadvertently presenting data to someone who was involved in the trial or contributed to writing the publication.

Typically, the first author listed is the one who did the bulk of work in writing up the manuscript for publication in the journal, while the last author listed is typically the most senior.

The credibility of a publication can also often be immediately assessed simply by knowing within which journal it was published (e.g., *The New England Journal of Medicine* has far more credibility than someone's online blog).

Endografts with suprarenal fixation do not perform better than those with infrarenal fixation in the treatment of patients with short straight proximal aortic necks

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