

## EDITORIAL

# How to plan research in achieving best clinical effectiveness

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Clinical effectiveness is about doing the right thing at the right time for the right patient. It is concerned with improvements in quality and performance and patient outcomes. Clinical research begins with a research question or an educated idea that arises from an issue in your clinical practice. You will not be motivated to plan and complete the research unless the research topic is embedded in a clinical problem relevant to you and the results effect a change or improvement in your medical practice. The originality of the research topic is less important than its clinical applicability.

The next step is to become more informed about the area of interest through a systematic literature review. A comprehensive literature review informs the researcher of the existing clinical evidence on a research topic and prevents duplication of already existing research. In addition, reviewing the literature will clarify the conceptual framework and help to define the research question or questions. This is the time to enhance the relevance, feasibility and efficiency of your research topic and define it into an answerable research question. In addition, the literature can help you to decide on the case definitions, recruitment methods, variables, outcome measures, data collection tools including validated questionnaires, interventions, and statistical analysis – useful information to increase the study's relevance, value, and power. This is also the time to run your research idea past clinical experts, experienced researchers, and relevant stakeholders of the research topic.

Once the research question is well defined you need to design a study to answer the question. Study design involves three major areas, theoretical design, data collection design and statistical analysis design. Usually, a research question will have a hypothesis of the possible relationship between the exploratory variable/exposure and an outcome. Once the research question is perfected the nature of the study design will be obvious i.e., is it qualitative or quantitative, primary, or secondary research, non-causal or causal research. A good match between the research question and the choice of theoretical design will provide a strong foundation and the right direction for the research process and path. However, you will need help from experts in study design, data collection design and statistical analysis.

Make sure to set up effective collaborations with the right experts and clinicians. Planning your study design, data collection design and statistical analysis is the most important part of your research, and it is worth spending time to keep rewriting and improving each of these three components by submitting them for peer review by colleagues, research committees and ethics committees.

Then write your research report!!! No, I am not joking. The most useful way to improve your study design is to write the final report without, of course, the data. This will help you to fine tune your whole methodology including data collection tools and statistical analysis. Create the database and the statistical analysis package. In this way you can start populating the database as soon as you start collecting the data. Do regular interim analyses to fine tune data analysis and do trouble shooting. Improve your tools and analysis based on experience and advice. Do this early so that it does not affect the final data set. Make sure you have adequate free time and personnel to implement your study. Collect the data meticulously and record it carefully and enter it into the prepared database as soon as possible, correcting for any missing data.

Finally, present your results in a timely manner. Concise, explicit, and complete reporting are the guiding principles in reporting clinical studies. Researchers need to acquire reporting skills right from the beginning and hone these skills with persistent use. Regular reading and participating in review of published journal articles will help to improve your own writing skills.

If you have already written your draft report it is only a matter of adding the actual data and analysis. List out the important findings. First the primary findings then any secondary findings. Get someone else to go through the results and list them also, so that you can identify any that you have missed. The discussion should be limited to discussing each of these primary and secondary results in terms of previous knowledge and future applications. A good knowledge of the literature will help you to summarise and report concisely.

Once you have polished up your article to your satisfaction take some time to select your journal based on the scope of the journal. Once you have identified a suitable journal take a couple of hours to study and list out the author guidelines. Then make sure to follow the guidelines. I think a lot of research articles are rejected due to not following author guidelines. Get help with the spelling and grammar. Get friends, colleagues and senior staff go through it with a red pencil. Once it is submitted, make sure to respond to editor's e-mails and attend promptly and carefully to the reviewer's comments.

Finally, try to get your research into practice. A published clinical research study that has passed through proper peer-reviews, revision, and content improvement is strong enough to be evidence for changing practice. Get your research included into the current guidelines, protocols, and relevant policies

Take care to avoid pitfalls in research that will result in unnecessary, invalid and misleading studies including ignorance of previous similar studies, poor study design and implementation, low validity of measurements, no predetermined statistical analysis, insufficient reporting, bias and conflicts of interest.

### **Reference**

Chew B (February 20, 2019) Planning and Conducting Clinical Research: The Whole Process. Cureus 11(2): e4112. <https://doi.org/10.7759/cureus.4112>