

## GUIDES TO UNDERTAKING RESEARCH

### 2.1 Planning a Research Project

Once an exciting new research project has been conceived, it is important to draft out a project plan. This is not a challenge for those used to structured study and working; the main considerations are to work closely with a mentor, and to identify the resources and people instrumental to project success. However, with the details sketched out, it is important to pause before rushing off to start the hard work.

This is a critical juncture, where careful reflection will save time, effort and heartache later on. Once underway almost all research projects hit a range of unforeseen hindrances, so it is at the very start there is a chance to spot issues needing to be avoided, or at least mitigated. While this seems obvious, it is hardly surprising it is often overlooked due to pressures to get moving. However, what is needed is not simply to sit alone pondering potential disasters lying in wait, but rather a guided process of systematic thinking about potential disasters lying in wait. A standardised checklist approach is very useful for that, i.e., a checklist of points that illuminate the project from different angles and that provoke new, critical thinking.

An example of a checklist for a small to medium size scientific and medical project might be as follows:

1. How much time is available for the project? Is there a hard deadline that cannot be changed?
2. What is question that the project seeks to answer? Can it be clearly stated?
3. What are the ethical issues involved in pursuing the study? Will human research ethics and governance approval be needed, and if so how long will that take?
4. Why do you want to do the project? What is the motivation? How keen are you to do it?
5. What resources (money, equipment and salary) will be needed to complete the project, and are they already available?
6. What skills are required for the project? Are people with these skills available?
7. What type of statistical analysis is needed and is there likely to be enough data, i.e., is there sufficient statistical power?
8. Does the project depend on other people to perform tasks or provide data or materials? What will happen if they fail to do this or take longer than envisaged?
9. Who is interested in the study and its outcomes? If the research question is answered, will anyone consider it important or find it useful?
10. Who is in charge of the study, who makes the key decisions?
11. Does the project involve data already generated or is will it require generation?
12. What sort of publication is desired and what journal would published it?

Note that in any checklist there would also need to be some field- or subject-specific questions as well.

In the above list the first eight points relate

specifically for the feasibility of the project, and to the decision as to whether to proceed at all.

The consideration of the checklist points will benefit greatly from discussion and advice from experienced mentors, colleagues or departmental research officer. Listening to their previous experiences on related projects is also enlightening, and most people do love talking about their old work. Inexperienced researchers, for example, tend to be over-optimistic about project timelines compared to a mentor who has seen the consequences of such optimism. Indeed, it is surely one of the biggest issues in medical project work that nearly everything takes longer than planned, so it often feels as if drawing up a formal project timeline document is only useful later on to tell us how late we are. Knowing that, hopefully, gives extra motivation to think about how to cope with the consequences of those near-inevitable delays.

Some of the checklist questions will have simple answers, but it pays to be cautious in accepting that sort of simplicity at face value, because digging a little deeper (and examining the assurances of future help that other people give) can be revealing. Probably the most deceptively simple point on the list is number 2, which relates to the research question that underpins the whole study design. It

is all too easy to be glib in composing research questions. Point 9 on the list, asking who would be interested in outcomes of the study, is an important one to be clear about, especially if seeking funding support. It is also a consideration at the very end when trying to persuade a begrudging journal editor to publish the manuscript.

In all these considerations, the importance of mentorship and planning, and of seeking input from others should be clear. A traditional, and very eye-opening approach is to present the whole research proposal to a group of peers. Formal presentations to a large audience are good for getting unvarnished advice from a variety of perspectives, and giving a presentation imposes a preparation deadline that can provide useful impetus to get the project organised. Smaller more expert audiences are generally better for critiquing the finer project details.

And so, suitably forewarned and prepared, and with a little luck and the wind behind us, we can dare hope that taking the trouble to think carefully and get good and provocative advice, the project will turn out well.

**Author:** Julian Quinn

**Version** 2.1 (Nov 2020)

**Thanks to** Professor Thomas Hugh, Dr Richard Piper and Frances Bass (RNSH ICU Dept) for reviewing and critiquing this article.

Royal North Shore Hospital, DIVISION of SURGERY and ANAESTHESIA

