Tips on how to write a research grant submission

Prepared by the CSHP Foundation Research Committee

Are you a Hospital Pharmacist who has observed or noticed something that you are concerned about at work? Maybe you have noticed that prescribers are reluctant to adopt new guideline recommendations? Maybe workflow at your site seems to be highly inefficient? Or perhaps drug costs at your institution have increased more than you expected over the last year?

Any question you encounter in practice can be formulated as a research question and any research question can be answered (within reason of course). The CSHP Foundation's Research Grant Program can provide the financial support to complete your study and find the answer you are looking for. This may be the first time you have considered completing a research study or quality improvement project but remember that all researchers started out somewhere and you can do this. Here we provide a detailed checklist that aims to help you complete your CSHP Grant Program Submission and includes our best tips and tricks that will give your submission the best chance of being selected and funded.

- Start with a research question. It can be in the most rough form and it does not even need to make sense in the beginning, it just has to be clear in your mind what the issue is. Once the research question is fully conceived it must be refined. It is beneficial to take your time here; write the question, edit it, and refine it (probably 10+ times) until it makes sense to anyone who reads it (experts and non-experts). Vet your research question with colleagues, mentors and experienced researchers.

- Once the question is written in a clear format, take the question down to its components in the PICOt format. Identify the population, intervention, control group, outcome, and time period of observation. For a qualitative research question, instead of the PICOt format, focus on the methodology including the study participants, site and context for the study, and the guiding research paradigm. This will be the basis of the research proposal, so you need to make sure that these items are clear and are explained well in the proposal.

- This is not the end of the planning. Now it is important to develop your hypothesis. Develop two statements. The first statement should be that which you think is most likely and the second statement that which is not expected (the opposite likely). For a qualitative research study, in place of a hypothesis, it is important to address how you will approach reflexivity (acknowledgement of the researchers' position, biases, and assumptions).

⌑ At this point, review the literature to see if similar research questions have been asked. If so, identify existing work to support your hypothesis, identify gaps in the literature that exist, and to identify how your study will contribute to the field - perhaps by filling the identified gaps.

⌑ It is critical that your grant proposal contains a clear research question and you should spend time finalizing this question before proceeding onto next steps. It is important as a grant applicant that you make the job as easy as possible for reviewers who will be evaluating the proposal. We recommend bolding/underlining/or using another method to draw reader attention to the research question and hypothesis the first time they are presented in the grant proposal.

⌑ The next step is to develop objectives. Objectives are the actions intended to answer the research question. Each objective can be written in the SMART format (specific, measurable, attainable, relevant, time-bound) and should be aligned to a method.

⌑ The next step in the planning is to develop the methods to address the objectives and research question. This is a complex step and often is limited by what it is possible for us to achieve given resources, ethical considerations, and time constraints. These limitations are inherent in all research and the focus should be on developing a way to answer the question that presents the limitations but justifies them and explains how the findings will be applied to answer the research question.

It can feel daunting to develop final study methods/procedures when the data is not in hand and all of the potential challenges are still completely unknown. Remember that the proposal is not being evaluated for perfection but rather as a reasonable way to provide an answer to a well-developed research question. It is better to completely describe the study with limitations than provide only vague details of a seemingly better quality study. A completely conceived proposal will include procedures and tools for data collection, as well as procedures for data analysis and interpretation. For a quantitative study this will include:

i) data sources
ii) time frames for investigation
iii) location for study
iv) variables of interest with justification for their inclusion
v) study population
vi) statistical analysis procedures
vii) a sample size justification
viii) any survey materials
ix) details of statistical software to be used

For a qualitative study this will include:

i) guiding research paradigm or methodological orientation, and theory (if applicable)
ii) participant selection and procedures (sampling technique, e.g. purposive, convenience)
iii) sample size and justification
iv) location for study (setting, context for the study)
v) data collection method(s) and tools (e.g., interview guide, focus group guide, field notes)
vi) data analysis technique(s), tools, and procedures
vii) researcher reflexivity
viii) ethical considerations

- A detailed budget is a component of a grant proposal. This should incorporate all expected costs and sources of funding including in-kind contributions. Wherever possible quotes should be included to support cost estimates. Cost estimates should be reasonable and reflect necessary costs for the grant. At the same time, if you underestimate costs and promise more than you can provide at the budget proposed, reviewers will be skeptical. Do not forget that patient partners' time is valuable and including budget lines for honorarium or parking costs related to attending meetings for any patient partners is a key part of any grant proposal.

- The CSHP Foundation research proposal should include a title page with title. In my experience it is advised to choose a title for the grant proposal that will also be used for the Research Ethics Board submission and for any other necessary paperwork/registrations.

- For brief summaries consider attempting to keep them in lay language as much as possible. The review function in Word can provide an assessment of the reading level needed to understand the summary. It is often hard to get summaries down to elementary reading levels, especially if any technical jargon is necessary. However junior high/high school is often attainable.

- Please be mindful of formatting requirements. If you cannot manage the formatting requests in the application, there will be worry that this is not the team for answering the proposed question.

- Timelines are well represented in Gantt charts. You can easily make one of these in Word and search for a format that fits your style/need.

⌑ Signed letters of support go a long way. Trying to get governmental support is often the most complex and may require up to 16 weeks. So start early if this is a goal. Many non-governmental organizations can provide much quicker turnarounds with respect to time, but no one ever got angry about having more time than they needed to complete a task.

⌑ The proposal will be considered with respect to originality, suitability of methods, expected contribution to the literature, strengths, weaknesses, and scope and timeframe with respect to likelihood of completion so ensure that consideration of these factors is part of every component of the application.

⌑ Resources from the *Canadian Journal of Hospital Pharmacy*

These 15 articles are part of the CJHP Research Primer Series, an initiative of the CJHP Editorial Board and the CSHP Foundation Research Committee, to encourage and support novice researchers. The goal of the series was to build research capacity among practicing pharmacists.

Austin Z, Sutton J. Qualitative research: getting started. Can J Hosp Pharm. 2014;67(6):436-440.

Bond CM. The research jigsaw: how to get started. Can J Hosp Pharm. 2014;67(1):28-30.

Bresee LC. An introduction to developing surveys for pharmacy practice research. Can J Hosp Pharm. 2014;67(4):286-91.

Cadarette SM, Wong L. An introduction to health care administrative data. Can J Hosp Pharm. 2014;68(3):232–7.

Charrois TL. Systematic reviews: what do you need to know to get started? Can J Hosp Pharm. 2014;68(2):144–8.

Dolovich L. Playing in the sandbox: considerations when leading or participating on a multidisciplinary research team. Can J Hosp Pharm. 2015;68(5):401–5.

Edwards DJ. Dissemination of research results: on the path to practice change. Can J Hosp Pharm. 2015;68(6):465–9.

Gamble JM. An introduction to the fundamentals of cohort and case–control studies. Can J Hosp Pharm. 2014;67(5):366-72.

Houle S. An introduction to the fundamentals of randomized controlled trials in pharmacy research. Can J Hosp Pharm. 2014; 68(1):28–32.

Kanji S. Turning your research idea into a proposal worth funding. Can J Hosp Pharm. 2015;68(6):458–64.

Loewen P. Ethical issues in pharmacy practice research: an introductory guide. Can J Hosp Pharm. 2014;67(2):133-7.

Simpson SH. Creating a data analysis plan: what to consider when choosing statistics for a study. Can J Hosp Pharm. 2015 Jul-Aug;68(4):311-7.

Sutton J, Austin Z. Qualitative research: data collection, analysis, and management. Can J Hosp Pharm. 2014;68(3):226–31.

Tsuyuki RT. Designing pharmacy practice research trials. Can J Hosp Pharm. 2014;67(3):226-9.

Tully MP. Research: articulating questions, generating hypotheses, and choosing study designs. Can J Hosp Pharm. 2014;67(1):31-4.

For more details related to qualitative research:

Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care.* 2007; 19(6):349–357.