Seminars in Oncology Nursing 000 (2023) 151394

Contents lists available at ScienceDirect

Seminars in Oncology Nursing

journal homepage: https://www.journals.elsevier.com/seminars-in-oncology-nursing

Top 10 Tips for Research Grant Writing: A Guide for Nurses and Allied Health Professionals

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ARTICLE INFO

Key Words:
Allied Health Research
Grantsmanship
Health and Medical Research
Nursing Research
Research Grants Applications

ABSTRACT

Objectives: Nurses and allied health professionals have traditionally received less of the health and medical competitive research funding pool compared with medical practitioners and basic scientists. This instructive article aims to facilitate greater success rates by providing top 10 tips on good grantsmanship, which may serve as a guide for clinician researchers with limited experience with successful grant applications.
Data Sources: Expert advice was used to write this article.
Conclusion: A quality grant application requires considerable time and investment. The top 10 tips include: (1) understanding the grant scheme; (2) partnering with the right mentor; (3) assembling the best team; (4) providing a case for novelty, significance, and urgency; (5) maximizing feasibility, scientific quality, and innovations; (6) providing evidence and data to substantiate claims; (7) ensuring points of difference; (8) clarifying return on investment; (9) ensuring perfect presentation and formatting; and (10) incorporating critical feedback.
Implications for Nursing Practice: Each grant scheme can have different focuses and selection criteria. However, these top tips can be used as a guide to consider in maximizing success for nurse-led and allied health led research.

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Background

Compared with our medical and basic scientist colleagues, nurses and allied health professionals have traditionally received less competitive health and medical funding to conduct nurse-led or allied health-led research.[1,2] While there may be multiple reasons[1,3] for such disparity, many nurses and allied health professionals have demonstrated their ability to obtain research funds from national competitive funding schemes internationally. Nurses, in particular, represent the largest workforce in the health and care service and pride themselves as experts of health, care, self-care, caring solutions, and patient experiences. It is therefore extremely important that the nursing perspective along with allied health is represented in the leadership, conceptualization, operationalization, implementation, and evaluation of all medical and health research. Maximization of funding allocation for nurse-led or allied health led research requires a multipronged approach. Specifically, it will require continual development and enhancement of research literacy in the workforce, successful advocacy efforts at the local, organizational, and policy levels and the development of grantsmanship among nurse and allied health researchers. The purpose of this instructive article is to provide the top 10 tips (FIG) that can assist nurses and allied health professionals in their preparation of research grant applications. While this instructive article is written for nurses and allied health professionals, it refers to good grantsmanship for all health and medical researchers who have limited experience with successful grant applications.

Understand the Grant Scheme Objectives and Selection Criteria

The objectives and selection or assessment criteria of the grant scheme must always be the starting point for potential applicants. Within the first 30 minutes of reviewing these, the applicant should be able to definitively establish whether there is adequate fit between the proposed project or applicant and the grant scheme being submitted to and, thus, determine the viability of proceeding. While the objectives and criteria are fixed, it is up to the applicant to adaptively develop the proposal to fit their proposed project to parameters set by the funder. If the applicant feels that too many compromises are required to change the intended project to fit the grant scheme, then it is probably not the right grant scheme for the proposed project. In addressing the grant scheme's requirements, the iterative adaptation and conversational debates among the

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https://doi.org/10.1016/j.soncn.2023.151394
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FIG. Successful grant writing: Top 10 tips for nursing and allied health professionals.

research team members can often enrich the grant application and, ultimately, the project. It is also important that during application development the applicant use the selection or assessment criteria and funding rules (repeatedly if required) to self-evaluate and identify areas for improvement. The applicant should always be convinced that their grant application clearly meets the objectives and intent of the grant scheme and be convinced it achieves the highest grading within the selection or assessment criteria, to the best of its ability, before submission.

Partner With the Right Mentor

Many researchers recognize the need for a mentor, but few can successfully identify the right mentor and build a fruitful journey with them. Searching for, and engaging with, the right mentor is an art and requires investigation prior to inviting the mentor to adopt this role. The right mentor is preferably someone who: (i) has been successful for the target grant scheme; (ii) has been successful with a wide range of other equivalently competitive grant schemes; (iii) has been on grant review panels, especially for the target grant scheme; and (iv) has the content expertise on the topic area of interest. The right mentor is also someone who has the capability (ie, capacity, ability, and motivation) to contribute to the grant application. Such contribution should include, but not be limited to, the provision of intellectual input, detailed reviews of the application and an impeccable track record relevant to the application.

When the applicant is seeking the mentor's agreement to support the applicant and application, it is important that the applicant provides their expectations of the mentor, including the amount of time required to assist with the application. Regardless of how successful the mentor is, if the mentor does not have the capacity (time) to attentively assist and meet the needs of the applicant and application, it is likely better to pursue another mentor who may be relatively less accomplished but be available to provide the requisite insights and guidance as desired. Where appropriate, it may also be beneficial to have more than one mentor or have a team of mentors who can provide different value to the grant application. In this scenario, it is advisable to define a lead mentor and to establish the roles and responsibilities of all mentors from the outset, so they are aware of their individual expectations and contributions to the grant application process.

Assemble the Best "Dream Team"

The lead applicant should not recruit the full research team too early or too quickly. Careful planning is required to assemble the best or most appropriate team for the application. During the preparation of a grant proposal, the applicant is often required to manage many components simultaneously (eg, refining the background, establishing the best methodology, calculating sample size, identifying collaborators). Therefore, early career researchers are often tempted to assemble their research team too quickly without sufficient consideration of all the various intellectual or strategic needs of the grant application. Inviting a wrong member to assume one of the often limited chief investigator or coinvestigator roles could jeopardize grant success for the applicant or risk offending an individual if rescinding an invitation is required.

The best research team is one that can demonstrate previous success in completing research together; complement each other's individual skill sets and perspectives required for the proposed research; and represent different stages of their careers (early career, midcareer, and senior researchers) with purposeful consideration of gender balance among the research team. Assembling the best "dream team" requires thoughtful assessment concerning the fit between research team members expertise and track record to the proposed research, their availability, and their character. Recruiting a research team too quickly or with multiple new collaborators are each risky ventures. A considered, thorough discussion with the mentor(s) in selecting the right team, including the determination of order (ie, listing research team members in the right order on the application) before any invitation is crucial. Some questions that may be helpful when selecting the right collaborator as coinvestigators include: (i) Will the collaborator make a meaningful contribution to the grant scheme?; (ii) Will the collaborator be seen as a weak link in the team?; (iii) Does the collaborator have a good reputation as a collegiate team member?; (iv) Is there any missing discipline-specific perspectives that are key to the proposed research? (v) Is the collaborator recognized as a national or international leader in the field for their area of contribution?

Increased recognition of the critical importance of partnering with consumers, patient advocates, and other end users as investigators on grant applications continues.[4,5] Regardless of whether the consumer or end users are formally embedded into the investigating team (which is recommended), it is important that the lead applicant clearly demonstrates tangible evidence of meaningful engagement and partnership with these very important stakeholders. Such evidence should demonstrate how the proposed research and grant application has been informed by consumers and other end users before submission and how these consumers and other end users will continually and meaningfully provide input to the entire research process from the beginning to the end, including dissemination and implementation.

Identifying the best research team takes thought, time, effort, loyalty, sensitivity, and collegiality. It is an effort that requires a time investment *before* any suitable or appropriate grant scheme opens for submission. At all times, successful researchers should work to ensure they build a trusted network of colleagues that enables them draw on at least one to three potential collaborators from each field of expertise or discipline required for their field of research and at least three consumer partners. For early-career researchers, it is completely acceptable and actively encouraged to access the mentors' networks while building their own network.

Provide a Case for Novelty, Significance, and Urgency

Building a strong and emphatic case for the proposed research in the grant application is an extremely important step in preparing a fundable and high-priority grant. One rule of thumb is that the novelty, significance, and urgency must be carefully and clearly narrated with convincing data and rationale along with authoritative references on the first page or as early as possible in the application. See the Table for examples. This narrative provides the first impression at a time where grant reviewers are at their most attentive and should therefore convince the reviewers immediately that they must read the remainder of grant with interest, carefully, and seriously and provide the strong sense that "this could be the winner." This is particularly important given the volume of grant applications each grant reviewer typically receives in each grant round (depending on the scheme and funder of course).

Researchers are often observed complaining that the funder or the grant reviewers do not understand or appreciate their type of research. However, it is incumbent on the researchers to communicate the value of their work. To help combat misunderstanding, it is advised that such researchers be proactive in educating and convincing the research community and consumer reviewers of the importance of their research, noting that many grant review panels often have members from beyond the applicant's direct area of expertise. Such researchers should actively seek to be thought leaders in their field who strategically craft their narratives (ie, need for the research) and disseminate such narratives through the right channels that reach the medical and health research communities (ie, potential reviewers). Such dissemination channels may be mainstream media, social media, editorials, or communiqués of authoritative journals in the field. The more these narratives are preached outwardly, the more easily they can be embedded in grant applications.

TABLE
Examples of Evidence Illustrating Novelty, Significance, and Urgency of the Proposed Research.

Novelty
"The most recent, authoritative review, published in *JAMA Oncology* by Mustian et al,[6] including 113 randomized clinical trials (n = 11,525), concluded that exercise (WES, 0.30; 95% CI, 0.25-0.36; $P < .001$) and psychological (WES, 0.27; 95% CI, 0.21-0.33; $P < .001$) interventions or combined (WES, 0.26; 95% CI, 0.13-0.38; $P < .001$) are effective for reducing cancer-related fatigue during and after cancer treatment, and they are significantly more effective than pharmacologic interventions. Despite the plethora of level 1 evidence of effective treatments, there is *not* yet a systematic model of care in the acute cancer care setting to implement the constellation of interventions that have been shown to be effective.[7] There are also no randomized trials to date testing the effects and cost-effectiveness of *any* model of care for systematic implementation in the acute cancer care setting."[7]
Significance
"Our study involving 1,873 cancer survivors of mixed cancer types suggests that 2 in 3 cancer survivors experience some form of fatigue; and 1 in 3 experience severe fatigue (>7/10 on the Numeric Rating Scale).[8] The impact of cancer-related fatigue on a patient's ability to function (including return to work and engaging in meaningful social relationships and leisure activities) is significant. This symptom is thus reported by patients to be among the most distressing of all symptoms."[9,10]
Urgency
"Based on our point-prevalence study (n = 1,873),[8] over 400,000 Australian cancer survivors are experiencing sever fatigue each day in the absence of any high-quality implementation study to manage this debilitating symptom.[7] Therefore, this study is urgently required."

CI, confidence intervals; *Journal of the American Medical Association*, *JAMA*; WES, weighted effect sizes.

Maximize Feasibility, Scientific Quality, and Methodological Innovation

A grant applicant is required to balance the most robust science within the most innovative research design while demonstrating clear feasibility to deliver the intended outcomes within the time frame of the grant scheme. Being conservative and playing it safe are no longer options in the highly competitive grant funding environment. Researchers, together with their mentors, must always attempt the best scientific and most innovative design. The most robust research design should always be attempted. Where it is not possible, it is incumbent on the researcher to provide a clear and convincing rationale to satisfy the reviewers. For example, a researcher who is testing the effectiveness of an intervention for homeless people, who can argue strongly and logically that a randomized controlled trial design is not appropriate in this scenario and can suggest an alternative design that is the most robust and appropriate, may be satisfactory to the reviewers, provided that the researchers clearly articulate their reasoning supported by evidence where possible.

Research teams need to constantly tackle newer and larger problems with greater innovation and, thus, more novel methods. For example, at the Flinders University Caring Futures Institute, our Cancer Care Research program (https://www.flinders.edu.au/caring-futures-institute/cancer-care) has been using pragmatic research trial

designs to implement and evaluate models of care for cancer survivors. Our research designs have needed to evolve to ensure we continue to lead the field of science in this area. Several of our latest efforts to advance the science included: (i) refining our techniques in calculating sample sizes and operationalizing implementation when using stepped-wedge cluster randomized controlled trial designs; (ii) embedding discrete choice experiments to identify patient preferences and establish their willingness-to-pay values; (iii) applying systems-thinking and mapping studies to optimize our policy translation; (iv) applying more sophisticated data analytical approaches (eg, hierarchical linear modeling, latent profile analysis) to analyze toxicity data; and (v) embedding policy internship opportunities for early- and midcareer researchers to facilitate policy translation of the trial learnings and build capacity in policy translation.

In maximizing the quality and innovation of the research, it is important for reviewers to be strongly assured and reassured of the study feasibility as they progress through the grant application. While there is no quick-and-fast rule, some strategies may be used to maximize study feasibility. First, the researcher team should adopt a knowledge translation research approach that demonstrates early stakeholder engagement to maximize implementation success.[11] Second, an expert who can bring their expertise and track record in successfully using the new method (albeit in another setting to the grant being submitted) may be recruited to the research team. Third, the applicant may demonstrate evidence that the problem of feasibility is not an issue of concern (depending on the research proposed). Fourth, the applicant should outline a risk assessment, reduction, and mitigation strategy to assure the reviewers that the research team has thoughtfully and systematically addressed all concerns. Fifth, the applicant can, in the context of risk, reinforce the project value to target individuals, organizations, or society because high-value propositions can influence risk appetite among some grant reviewers. Remember, that whatever strategy is used, there must be evidence to support any claims made.

Provide Evidence (Data, Track Record, Past Success)

It is essential that the applicant, mentor(s), and wider research team of content experts, consumers, people with lived experience, and other end users, systematically review the application and closely scan for any gaps in the application where scientific or other claims have been made that must be substantiated with data or further evidence. Such data should include but not limited to scientific data, factual description of the team's track record, and past success. When reviewing a drafted or penultimate presubmission grant application, the applicant should systematically circle each argument within the application and screen for any unsubstantiated statements or claims or where the currently provided evidence needs strengthening to be definitive in its assertion. Where claims cannot be supported by data or evidence due to the novelty of what is being proposed, at times, an element of trust that the research team are informed may work, but this should only ever be reserved for highly experienced and senior researchers with strong reputations and track records that verifies their demonstrable authority in the field and should be used as sparingly as possible because this would be a high-risk strategy reserved for unique circumstances.

The budget section is one part where applicants often fail to provide sufficient rationale or evidence. Where possible, each budget item must be clearly thought through with justifiable rationale. This section should be carefully developed by the lead applicant and reviewed by the research team and grant administration office (if available).

Make Explicit Your Point of Difference

Grant reviewers are normally required to review multiple applications at a time within a given scheme. After the aforementioned considerations, the key for success then becomes about how to make an application positively different and set it apart from the other well-written grants in the submission pool. In an extremely competitive funding environment where only a small proportion of applications get funded, there are many quality applications. As an example, among the Australian National Health and Medical Research Council investigator grant and ideas grant schemes, only approximately 11%-16% and 10%-11% were funded over the past 4 years, respectively.[12] The applicants must therefore consider carefully and seriously how the application stands out among all other high-quality, good applications to warrant such a strong level of investment and withstand strict scrutiny.

The research grant should clearly address how the proposed research will have the merit to bring the field forward and deliver translation from research to practice. Important questions for applicants to consider surround the transformative nature of the grant, such as whether the grant is going to (i) enable the next logical step without much excitement; (ii) enable a progressive step in the field with some excitement; or (iii) be paradigm-shifting and bring forth an ambitious and exciting advancement. Providing a clear, achievable, ambitious, and tangible vision that will lead to real-world outcomes and measurable change to clinical practice will aid in capturing the attention and imagination of grant reviewers.

Clarify Return on Investment

Applicants and applications should discern, from the scheme's objectives and selection or assessment criteria, what perspectives the funders have in considering return on investment. Some funders may be more concerned about return on investment from an individual patient perspective, and others may have a stronger interest in the organizational or societal-level return on- investments. Regardless of their perspectives, the descriptions surrounding return on investment need to clearly demonstrate value of the proposed research if it is funded and if it succeeds in delivering its outcomes. Value can be described in several ways, including monetary and other terms. Accordingly, it is highly recommended that nursing and allied health researchers consider using the quintuple aim for health care improvement[13] to guide their descriptions around project value in grant applications. The applicant must address within the grant how the research will bring value to (i) improving population health and outcomes; (ii) enhancing care experiences; (iii) enhancing care team's well-being; (iv) reducing costs; and (v) advancing health equity.

Ensure Perfect Presentation, Writing, and Formatting

Perfection (or near-perfection) in the presentation of your application (ie, captions, font types, font sizes, etc.) and formatting (spacing, margins, white space versus text, etc.) should be an expected and deliverable standard. Some of these items may be mandated by the funding body within templates provided to applicants for use. However, other formatting, logical flow and order of information, visual presentation, and overall polish are the domain of the applicant to show thought, care, attentiveness, and professionalism among themselves and the research team when preparing their grant application, all of which consciously or subconsciously influences grant reviewers' impressions of an applicant and their research team's credibility (ie, well organized vs rushed; thoughtfully prepared vs haphazard) and standard of work.

All information should be presented in the most logical order that is made as easy as possible for grant reviewers to follow and understand. While some researchers may think these points are basic, there are often complaints by reviewers on grant panels regarding difficult-to-read applications such as small text, illegible or low-resolution images, cluttered information, or missing information (such as labels

for figures and tables). While there is often a resource concern, it is extremely important to present tables neatly and diagrams or figures that are professionally designed where possible and with adequate resolution. For example, at the Flinders University Caring Futures Institute, our Cancer Care Research Program uses thoughtfully considered acronyms as study names for proposed research applications along with a professionally designed study logo. While not essential, having these items and attributes presented in a grant application is highly beneficial because it sends a very strong three-pronged message: (i) the research team is extremely attentive to detail; (ii) the research team strongly cares about the time commitment of the grant reviewer and would like to make the reviewers task as enjoyable as possible; (iii) the research team is highly confident that this study should be, and will be, funded (therefore we have the acronym all ready to go). In essence, this helps assure grant reviewers that the research proposal has been scrupulously planned, with considerable investment provided prior to submission, and that it is able to be earnestly commenced should it be funded.

Get as Many People as Possible to Review Your Grant

Applicants should get as many trusted, honest, and critical peer reviewers (ie, volunteers or paid) as possible to review their grant to provide essential feedback. Many applicants fail to appoint potential presubmission peer reviewers, often due to a lack of trust among their research community and fear that someone may steal the proposed research idea. While it is certainly prudent to protect one's own intellectual property, there must be a cultivation of culture that promotes peer review and collegiality in the nursing and allied health academic community to help uplift the quality and quantity of research applications and submissions to health and medical research funding bodies. In doing so, it will almost inevitably lead to greater successful outcomes.

Appointed presubmission peer reviewers should be given the permission to be extremely honest in their feedback and be provided with sufficient time to provide a thoughtful review (ie, at minimum, 2 weeks). It is also important for the applicant to know that it is *not* necessary for them to accept every suggestion offered by these reviewers, particularly as many reviewers provide feedback that may also be conflicting. A successful researcher along with their mentor does *not* ignore every piece of feedback but, instead, thoughtfully considers every feedback and suggestion and makes revisions where appropriate, noting that queries raised by presubmission peer reviewers may well be similar to concerns inevitably raised during the grant review process. As such, respect must be given to this process, while duly appreciating that not all feedback is suitable for incorporation.

Conclusion

Further concerted efforts are required to enhance the success of nursing and allied health researchers and their grant applications within the highly competitive health and medical funding environment. This instructive article provides essential perspectives from successful researchers and grant panel reviewers that can assist nursing and allied health researchers in developing a high-quality and prepared research grant application. While such perspectives are not exhaustive, they propose key areas for consideration in preparation of research grant applications. It is clear some strategies and activities require time and considerable investment, and they need to start a lot earlier than preparation times often allowed by grant schemes. However, it is important to stress that quality research grant applications take time and robust efforts and should be commenced as early as practicable. Many grant schemes open on an annual basis allowing for some level of predictable and foresight in planning and preparation; and where spontaneous grant schemes are announced, earlier preparations will almost certainly benefit any unforeseen shorter application time frames in these cases. Accordingly, the commencement of preparation is never too early, as an underprepared application in one round may form very good preparation for the next round. Similarly, a prepared grant for an anticipated grant scheme may form very good preparation for an unforeseen yet suitable grant scheme if identified.

Declaration of Interests

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: Raymond J. Chan reports financial support was provided by National Health and Medical Research Council. Nicolas H. Hart reports financial support was provided by National Health and Medical Research Council.

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