

A small grant funding program to promote innovation at an academic research hospital

Kelsey Orrell, MD
 Rosanna Yankanah, MSc
 Elise Heon, MD
 James G. Wright, MD

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Correspondence to:

J.G. Wright
 The Hospital for Sick Children
 555 University Ave.
 Toronto ON M5G 1X8
 james.wright@sickkids.ca

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SUMMARY

Innovation is important for the improvement of health care. A small grant innovation funding program was implemented by the Hospital for Sick Children (SickKids) for the Perioperative Services group, awarding relatively small funds (approximately \$10 000) in order to stimulate innovation. Of 48 applications, 26 (54.2%) different innovation projects were funded for a total allocation of \$227 870. This program demonstrated the ability of small grants to stimulate many applications with novel ideas, a wide range of innovations and reasonable academic productivity.

Innovation in health care is an important strategy to improve quality of care. While research by its very nature generates new knowledge, it often does not directly improve clinical outcomes. Improvement in clinical care requires innovation, such as new technology or models of care, in addition to research.

The innovation pathway starts with an idea and ends with successful application.¹ The challenge for health care institutions with limited funds is how to encourage clinical innovation at the earliest stages. In research, “seed” grants with small amounts of money have been effective in allowing researchers to obtain valuable pilot data to test novel ideas that can be further explored through larger grants when indicated. While grants are a standard approach to support research, there has been little attention to seed funding for idea development in clinical settings.² Although possibly insufficient to complete an entire research project, small grants have the potential advantage of allowing a greater number of projects to test new ideas. We propose that small grants are a useful strategy to stimulate innovation in a health care setting.

In July 2010, a small grant innovation funding program was initiated at the Hospital for Sick Children (SickKids) for the Perioperative Services group. The program awarded relatively small funds (up to \$10 000) with the goal of allowing any member of the Perioperative Services group to apply for small grants to develop innovative ideas for which there were no other avenues for funding. For the purposes of this program, innovation was defined as a new method, product, service or idea with the potential to improve any aspect of health care at SickKids. Completed 1-page innovation project applications were accepted at any time, with no submission deadline. Ad hoc reviewers, who were selected based on their expertise on the topic, evaluated each application, the potential benefit of the innovation to children and the potential for its completion with the understanding that innovative grants should anticipate a higher rate of “failure” than traditional research grants.

To evaluate this initiative, we surveyed participants about their experience with the program, specifically asking if the relatively small amount of money allowed and promoted innovation within a multidisciplinary services group. Of 48 applications, 26 different innovation projects were funded for a total allocation of \$227 870. For the majority of participants (73%) the funding

granted was sufficient to complete the original objectives proposed. Additional funding to supplement the initial grant was obtained by 15% of applicants, totaling \$233 700. Of the 48 applicants, 86% were satisfied with the small grant innovation funding program, and the majority agreed that the availability of many small grants was better than few large grants. The types of innovations from the small grant innovation funding program were extremely diverse. Of the 26 funded projects, 50% of the innovations created or will create beneficial change in clinical care, including the creation of a computer algorithm to reduce out-of-window wait times, assessment of clinically relevant doses of hypertonic saline in children undergoing cardiac catheterization during general anesthesia, analysis of laryngotracheal vasculature using corrosion casting, and the development of multidimensional strategies to improve the quality of the prebriefing component of the SickKids surgical safety check list. Novel devices were created in 31% of the 26 funded projects, including a pediatric intubating facemask; a bedwetting alarm for urinary incontinence in children with neurogenic bladder; and the development of software and hardware to track, measure and compare the movement of instruments in a laparoscopic simulator. Innovative educational models were developed in 19% of the projects, consisting of integrating telemedicine into an outpatient surgical clinic, casting simulation, developing a bronchoscopy training platform, and creating an educational program regarding communication in resuscitation roles in the critical care unit. Of the funded projects, 27% led to an average of 2 published papers, 27% were at the stage of preparing a manuscript, 31% led to an average of 2 abstracts, and 35% were at the stage of submitting an abstract.

Innovation in health care has the potential to enhance many processes to improve access, quality and affordability through new and creative approaches. Irrespective of the amounts of money available for funding innovation, the challenging question for health care institutions is whether to invest in several large projects or many small projects. While there are no firm guidelines, many research grants have minimal amounts of approximately \$50 000. The

results of this program suggest that small amounts of money encouraged more applications from a greater number of applicants. Not only would large grants have resulted in much fewer projects, smaller grants may have encouraged applications from researchers discouraged by large grants.

We identified several ways to improve our program. First, a timeline to complete the proposed innovations needs to be established, and funding for incomplete projects returned. Second, a budget tracking template should be completed at least quarterly to ensure accountability and allow an opportunity for applicants to communicate difficulties they may be experiencing that would potentially require an extended deadline. Third, the decision not to fund was largely based on a determination that a project was “not innovative enough.” Applicants questioned the program’s lack of definition of innovation, suggesting that the definition should be more explicit.

In summary, the small grant innovation funding program at SickKids achieved its goal of allowing clinicians with innovative ideas to develop them by applying for grants where there were no other avenues for funding. For the cost of 1 “standard” principal investigator–led grant (\$233 700) this program stimulated 26 investigators to explore innovation that had many diverse impacts across SickKids.

Affiliations: From the Royal College of Surgeons in Ireland, Dublin, Ireland (Orrell); the Division of Orthopaedics, Hospital for Sick Children, Toronto, Ont., (Yankanah); and the Department of Surgery, The Hospital for Sick Children, Toronto, Ont. (Heon, Wright).

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References

1. Wright JG, Weinstein S. The innovation cycle: a framework for taking surgical innovation into clinical practice. *J Bone Joint Surg Am* 2013; 95:e164.
2. Check E. Seed money to bring in pioneers. *Nature* 2007;446:228-239.