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A Kangaroo and Your Research Toolbox

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In a previous article in *Biological Research for Nursing*, “Beyond the PhD: Putting the Right Tools in Your Research Toolbox,” Downs and Morrison (2011) present rationales for the pursuit of postdoctoral training, enumerate key skills for development during this phase of a research career, and provide an expansive review of funding opportunities, including intra/extramural options at the National Institutes of Health (NIH), National Institute of Nursing Research (NINR), and a wide array of nonprofit foundations. I thank the authors for this great review and think it should be a required reading for all nurses pursuing doctoral studies who wish to follow a research-intensive career trajectory.

I, like the authors, had to choose between pursuing a tenure-track faculty position or a postdoctoral fellowship. Because I share the authors’ belief in the importance of postdoctoral training, I ultimately chose that route. The training mechanisms that I have utilized during my postdoctoral journey, however, were not discussed in Downs and Morrison’s article. Thus, I would like to take this opportunity to share my personal perspective on postdoctoral training and describe additional postdoctoral funding mechanisms. I have also provided a framework for planning the postdoctoral training period.

What Is Your Dream Research Career?

When developing a research skill set, it is particularly important to envision your dream research career by asking yourself the question, “What do I want to be doing in 10 years?” Your answer will allow you to break down the individual skills necessary to meet your objectives and develop steps toward achieving that goal. Each individual’s predoctoral training and career trajectory are different, and in some cases a postdoctoral fellowship may not be feasible or warranted. For me, the ultimate goal is to pursue an independent, academic career in translational (bench-to-bedside/bedside-to-bench), biobehavioral, clinical research focused on pulmonary outcomes in critically ill adults. This goal requires a specific skill set including (a) PhD training (academic), (b) didactic/clinical focus in adult critical care/pulmonology (clinical focus), (c) basic science skills (bench), (d) biobehavioral clinical research skills (bedside), (e) skills in dissemination/writing/obtaining grant funding, and (f) working in and ultimately leading interdisciplinary teams. By understanding the individual research tools you need in your own toolbox, you can maintain focus and make educated decisions in planning your career trajectory in order to maximize your time in training. Look at your current skill set as if you were a grant reviewer and ask yourself, “Do I have all the tools I need in order to build my dream research career? If not, what areas need further development?”

Postdocs at NIH-Funded Centers

My research journey began as a new graduate nurse in critical care where I developed clinical questions that prompted my pursuit of doctoral studies. In my BS-to-PhD program I was cross trained in nursing and medicine, specifically in bench science immunology. Because my long-term goal is to conduct biobehavioral clinical research, I chose to pursue postdoctoral studies in order to gain clinical research experience since I had not fully developed that skill set during predoctoral training. Because I was not tied to one geographical location (which is often a barrier in seeking postdoctoral training), I was able to pursue a wide range of postdoctoral fellowship opportunities. While networking at a regional research conference, I learned about an institutionally funded postdoctoral fellowship that was a part of an NIH-funded P20 center focused in biobehavioral clinical research. I owe a debt of gratitude to the forward-thinking colleague who shared this information with me because this opportunity fit perfectly with my goal of incorporating biobehavioral clinical research skills into my career trajectory and I had not previously been aware of postdoctoral fellowships associated with such mechanisms. What is particularly attractive about this type of postdoctoral training is that it provides the infrastructure associated with an NIH-funded center, such as data management, statistical analysis, laboratory facilities, and a multitude of federally funded mentors. I encourage those seeking postdoctoral training opportunities to maximize networking opportunities, investigate NIH-funded centers, and inquire about postdoctoral fellowships associated with those identified centers. One good mechanism for identifying NIH-funded centers is the NIH RePORTER search engine (<http://projectreporter.nih.gov/reporter.cfm>). Select “Centers” in the Activity Code field on the online query form.

K99/R00: The “Kangaroo”

During my predoctoral studies, I attended several grant-writing seminars/workshops and learned about the NIH K99/R00 mechanism. The K99/R00 pathways to independence award, often referred to as the “Kangaroo,” is an “NIH-wide program that allows promising postdoctoral scientists to receive both mentored and independent phases of research support for up to five years” (NINR, 2011). In thinking about my long-term career goals, the K99 appeared to be an ideal funding mechanism. Therefore, when I interviewed for postdoctoral fellowships, my potential mentors and I discussed devoting a period of time for writing this grant. Because it is fairly new (since 2007), many potential mentors may not be aware of this mechanism. In their article, Downs and Morrison inaccurately presented this mechanism by number (K00/R99) and did not include it in Table 1, which might mislead the reader in thinking it is not supported by NINR. In fact, the K99 mechanism is supported by NINR through annual grant competitions, with 11 having been funded since 2007 (data gathered from NIH RePORTER). The goal of the K99 is to provide independent funding to support postdoctoral fellows’ research program development followed by the R00 phase, which provides protected research time in a tenure-track faculty position. This mechanism directly assists junior researchers in launching their research programs in order to obtain independent (R level) funding earlier in their research career.

The first phase of the pathways to independence award (currently PA-11-197) is the mentored phase (K99), which consists of 2 years of postdoctoral training, 75% protected research time, salary support, and research costs (with a modified indirect rate). To be eligible for the K99, the candidate cannot be in an independent/tenure-track position and must be within 5 years of terminal degree completion. The second phase is the independent phase (R00), which consists of 3 years of 75% protected research time, salary support, and research costs (with full indirect rate). The R00 requires that the awardee accept a tenure-track faculty position. In the K99/R00 application, the candidate develops a K99 research

and training plan, a proposed R00 plan, and a detailed career plan with a focus on the development of independence. Independence is defined as dissemination (publications/presentations), development of a research program that is independent of the postdoctoral mentors, and acceptance of a tenure-track faculty position. I provide a framework for the K99 training period and outcomes of independence are shown in Figure 1.

The K99/R00 mechanism provides several important advantages. First, it provides a framework that requires vision for the development of the awardee's program of research extending beyond the life of the K99/R00. Second, it provides funding and time for the awardee's personal research program development to enhance the research skill set obtained in doctoral studies and provides an excellent advantage when networking with potential collaborators. Third, it enhances the marketability of the awardee when she or he is seeking a tenure-track position and allows the awardee to be selective in the process of finding the best fit for his or her independent research career trajectory. Fourth, it is expected that during the R00 phase, the awardee will seek additional R-level funding, and in those applications she or he is considered a "new investigator." Overall, this mechanism provides a solid launch for a research career, providing both funding and time to focus research efforts during both the postdoctoral and the critical early years of a tenure-track position.

Planning Your Postdoctoral Training

For those who are interested in pursuing a postdoctoral fellowship or career development award, I would propose the potential framework detailed in Figure 1 to help guide and focus efforts in training and research. The figure is set up as a timeline divided into years and semesters. Key areas include didactic coursework, interdisciplinary seminars and opportunities for networking, goals for mentorship meeting schedule, and methods training with a grant writing and study timeline. Dissemination efforts include goals for manuscript preparation with potential journals specified and conference schedules to provide opportunities for presentations and networking. This framework and timeline allow grant reviewers and postdoctoral fellows to visualize the training as a whole and envision the developing research program and requisite skills.

The postdoctoral training period allows new investigators to focus on developing a research program, build an interdisciplinary network, seek funding, and disseminate findings. New tenure-track faculty member take many additional roles in service and teaching that require the devotion of much time and energy. Having had the time to launch a research program during the postdoctoral period allows a new tenure-track faculty member to hit the research ground running. As Downs and Morrison explained, most doctorally prepared nurses have not chosen traditional postdoctoral training for many reasons. However, with expanding training opportunities, a growing need for multidimensional research skill sets and education about the benefits of postdoctoral training, I believe we will see an increasing number of postdoctorally trained nurse scientists. I once again thank the authors for educating the *BRN* readership and would like to encourage those seeking a research-intensive career to investigate postdoctoral training.

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References

- Downs CA, Morrison HW. Beyond the PhD: Putting the right tools in your research toolbox. *Biological Research for Nursing*. 2011; 13:5–14. [PubMed: 20026452]
- National Institute of Nursing Research. [Retrieved May 23, 2011] Table of NINR grant mechanisms. 2011. from http://www.ninr.nih.gov/ResearchAndFunding/DEA/OEP/Mech_Table.htm

Year 1			Year 2			Year 3		
	Semester	Semester	Semester	Semester	Semester	Semester	Semester	Semester
Didactic	Didactic Coursework to support research and training objectives planned by semester							
Interdisciplinary Seminars	Research Seminars, Interdisciplinary Seminars, Journal Clubs, Clinical Practice Councils, Professional Organizations							
Mentorship	Meeting Schedule with Primary, Secondary Mentors, Other Significant Contributors, Collaborators, Consultants							
Research Methods	Key training areas in research methods, core knowledge area,statistical analysis planned by semester							
Grant Preparation	Grant A Proposal				Grant B Proposal			
Research Aims	IRB or IACUC approval / Preliminary Studies			Primary Aim		Data Analysis		
				Secondary Aim		Data Analysis		
Dissemination Publications	Paper 1	Paper 2		Paper 3		Paper 4		
Projected Journal	Journal A	Journal B		Journal C		Journal X		
Networking Conferences		Conf A Conf B		Conf A Conf B		Conf C		
Career Trajectory	Postdoctoral Fellowship Funding A				Seek Tenure Track Position			
					Postdoctoral Fellowship Funding B			
Other	Training in Human Subjects Research; Grant writing workshops; Other specific activities in professional development							

Figure 1.
Framework for training and research activities in the postdoctoral period.