■ RESEARCH TOOLS AND ISSUES

How to Launch a Successful Career in Clinical Research: Tips on Making the Most of Available Resources

Robert D. Toto, MD

■ ABSTRACT

Preparing for a career in academic medicine is both challenging and rewarding. Most trainees need guidance to successfully navigate the period of training and early years as a faculty member. An important aspect for young investigators is learning how to avail themselves of resources they will need to build a research program. This article provides some timely and valuable tips on how to lay the groundwork for long-term success as a clinical/translational researcher.

Key Words: protected time, mentor, publish, clinical research, protocol, implementation

■ INTRODUCTION

An important part of implementing any clinical research study is to have the time, resources, and mind-set to publish the final results of the study. This review is focused on some practical aspects of how young investigators may avail themselves of the resources needed to launch and sustain a successful career in clinical research. The 3 elements focused on here are finding protected time, the importance of mentorship, and practical tips for publishing results.

■ FINDING AND PROTECTING TIME TO CONDUCT CLINICAL RESEARCH

One of the most precious commodities for a clinical researcher is creation of protected time for research (Table 1). Achieving and maintaining ample time to conduct a clinical research project and publish it requires thoughtful input by the researcher and his or her mentor(s). Many young clinical investigators are talented individuals who have little training in research methods and may have competing responsibilities that can hinder the implementation and completion of a research project. For example, clinical responsibilities for patient care or

From the Department of Internal Medicine, The University of Texas Southwestern Medical Center Dallas, Dallas, TX.

Reprints: Robert D. Toto, MD, Department of Internal Medicine, The University of Texas Southwestern Medical Center Dallas, 5323 Harry Hines Blvd, Dallas, TX 75390-8856. E-mail: Robert.toto@ utsouthwestern.edu.

teaching junior trainees in a medial or graduate school take time that might otherwise be spent conducting research. Many young investigators are comfortable with teaching or, in the case of physicians, with direct patient care or patient administrative activities as part of their previous training but are not so comfortable with research activities. Young and energetic researchers are assets to their departments and often receive requests to spend time on nonresearch activities that they are often quite comfortable with. For example, junior faculty and postdoctoral fellows training in or beginning a career in clinical research may be tempted to use their talents to help others and will be highly sought after by superiors, colleagues, and others to do administrative work, run and/or attend to clinics, see more patients, provide coverage, and serve on committees. To the greatest extent possible, these activities should be minimized to maximize time for research. The decision to accept new or additional clinical and administrative responsibilities is an important one for those beginning a career in clinical research and should be discussed with their mentor and department chairperson or division chief. In general, when it is an "optional" (eg, request from colleague) activity, then the decision should be based on whether it will benefit one's research plan and career. For example, preparing a lecture on a topic directly related to one's own research question or project might be time well spent in that it can have a direct and positive impact on a future publication in one's own field of research.

An important step before implementing a research project is to exact the protected time that is needed to successfully carry out the project including the writing and publishing of the final manuscript. To accomplish this, it is ideal for a young researcher to meet with their department chairperson or division chief, preferably with their mentor present to discuss their career plans and have a clear outline of expectations on how one's time will be spent over the next 5 years. Obtaining a commitment for protected time to conduct research from one's department chairperson should be done up front before project development to maximize the likelihood of one's success as a researcher and ultimately for academic advancement.

TABLE 1. Tips for Finding Protected Time to Conduct Clinical Research

- Meet with your chief, and discuss your career plans
- Decide how you want to spend your time for the next 5 years
- Obtain commitment to pursue research and develop a realistic plan
- Avail yourself of relevant resources (eg, General Clinical Research Center)
- Focus your "free" time on research project(s)
- Minimize clinical service time (25% or less)
- Minimize administrative work
- Limit lectures to those that serve to foster your research career
- Presentation or attendance at local, regional, and national meetings that advertise your work
- Avoid writing manuscripts unrelated to your research

This discussion should include some details of what the research project will entail and if the plans of the researcher and their mentor are congruent with the goals of the department. This is extremely valuable not only for the researcher but also for the department or division head.

Learn to Say No!

It is important for individuals to learn to say no to requests for non–research-related activities when the time commitment is substantial, and the benefit is questionable or not palpable, for example, preparing a lecture that is unrelated to the research project at hand. Delivering a lecture may take less than an hour, but preparation time may take 20 to 40 hours depending on the topic when considering researching the topic, writing and practicing the lecture, and finally, making the presentation. In addition, to learning to say no when asked to perform less productive activities, those apart from research, a researcher should avail themselves of all available resources. These can include local, regional, and national resources that apply to the research question and research project including local environmental resources such as a National Institutes of Health–funded clinical research center. A few hints on how to maintain protected time include (1) focusing "free" time on research project(s); (2) minimizing clinical service time (for physicians, no more than 25%); (3) minimizing administrative duties (eg, declining invitations to serve on non–research-related committees); and (4) limiting lectures to those that foster one's research career. In addition, opportunities to write book chapters, editorials, and review articles that deviate from one's main research topic should, in most cases, be avoided. In contrast, preparing and delivering presentations

to patients and health care providers that may foster recruitment and or retain study participants is time well spent. Similarly, presentations or attendance at regional and national meetings that serve to promote research represent activities in which one's participation makes good use of time. Finally, an article that is a critical review of literature central to one's research hypothesis or a paper on the study design of an ongoing research project is an example of time well spent by a young investigator.

A Positive Approach

A positive approach to clinical research training is to look at it as a challenge and an opportunity. Those who choose to pursue research as a career have already achieved much success as undergraduates, graduates, and house staff (MDs). Still, the challenges of training and pursuing a research career can be daunting and may necessitate overcoming anxiety and insecurity, or fear of failure. A suggested approach is to take the view that research training is a process that provides new and exciting opportunities for professional and personal growth. Preventing or overcoming anxiety related to the prospect of succeeding in a research project can be achieved by keeping a positive outlook, not worrying about what might be and having faith in one's abilities and the environment. In addition, the thought of finishing a project and seeing it published inspires and creates a sense of satisfaction, self-worth, and for some, relief.

■ WORK CLOSELY WITH MENTORS

Identifying and working closely with a mentor can be both rewarding and productive not only for junior but also for

TABLE 2. Mentor and Mentee Relationships

Role and Responsibilities of Mentor	*Role and Responsibilities of Mentee*
• Inspiration	• Self-awareness
• Intellectual input/critique/challenge	• Be open with mentor about career plans, needs, wants, etc
• Protection of time for research	• Prepare before meeting with mentor
• Recognition-local, regional, national, and international	• Set expectations and review progress regularly
• Academic advancement	• Be fierce about your work, work hard, and persevere
• Funding	• Exercise discipline and perseverance
• Success in publication	• Stay focused on research question
• Success in promotion and finding position	• Know strengths and limitations

TABLE 3. Tips for Publishing Results: What You Can Do Ahead of Time

- Outline manuscript
- Use study protocol as template
- Create templates for tables and figures
- Use your protocol!
- Think about presentation of results
- Create templates for tables and figures
- Collect and catalogue key references along the way
- One manuscript–one message

senior investigators. Many investigators develop and maintain healthy relationships with mentors throughout their careers, although one may have more than 1 mentor at any given time, and the mentor(s) may change over time. A mentor provides many tangibles and intangibles of value to those planning a career in research. For example, some mentors are inspirational and charismatic. Charismatic or not, they stimulate young investigators to pursue research in areas that they are passionate about. Mentors also provide important intellectual input and critique of one's approach or interpretation of research data. They challenge mentees to ask important questions and develop methods to answer such questions that can help to build a research career. Mentors serve as advocates for mentees in a variety of ways including eking out and maintaining protected time for research endeavors; introducing mentees to other leaders in the field; and helping them to obtain recognition for their work at local, regional, national, and international levels. Mentors also assist mentees for academic advancement within their institution, in grant applications for research funding and research publications, and in finding full-time jobs. Characteristics of a good mentor include the ability to teach—a person within an institution that is respected and trusted by his/her peers in the research community and one who himself/herself is an accomplished researcher. Finally, a key feature of a good mentor is one who is accessible. A mentee will have little success with a mentor if the mentor is relatively inaccessible. Accessing a mentor as often as needed is ideal, but in general, early on in training, a mentee should access his or her mentor at least once a week to review data, progress on a project, monitor career development, and solve problems.

Roles of the Mentor and the Mentee

The mentor-mentee relationship is first and foremost a professional relationship that is a 2-way street (Table 2). Both parties benefit from a working relationship in similar ways. For example, both may benefit by working together on a research project that culminates in a publication that changes clinical practice. The mentor's roles and responsibilities in the relationship include providing guidance and logistical support that may include monetary and material support for a research project. The mentor must also be a promoter, protector, and advocate for the mentee in many spheres including those mentioned above (eg, protected time and academic advancement), as well as a challenger and empathizer. The mentee's roles and responsibilities include having self-awareness about what they desire in the future and what drives them. Understanding these is very important in the mentor-mentee relationship and should be openly discussed with the mentor at the earliest point in the relationship. This self-awareness helps both parties understand how to best plan the career development of the mentee. Therefore, having an open relationship with the mentor concerning career plans, needs, and wants is an important responsibility of the mentee. A mentee should therefore be prepared and set expectations before his/her meeting with a mentor and thereafter set expectations and review progress regularly (eg, weekly). Ultimately, success of the mentee requires both discipline and perseverance and being fierce about one's work. Meeting with one's mentor weekly to discuss ideas, protocol problems, data, and troubleshooting is very important for starting and staying focused on the protocol at hand. Productivity in these meetings can be enhanced by the mentee reading voraciously both in his/her own field ($\sim$90%) and in disparate fields ($\sim$10%). Conducting one's own research project under the tutelage of a strong mentor enhances the intellectual growth, acquisition of new skills, and elaboration of underlying talents while, at the same time, helping the mentee to understand his/her strengths and limitations. Valuable lessons can be learned from close professional relationships with one's mentors.

Learning From the Research Team

In addition to learning aspects of research design, new knowledge in the field, and practical information from one's mentor, members of a research team are a valuable resource for implementing a research protocol. For example, one may learn a great deal about patient recruitment and good clinical practice from a senior research nurse. This experience is extremely important for those who wish to conduct clinical trials. Collaborating researchers are another source of educational value for a young investigator conducting a new research protocol. Some collaborators may become comentors to mentees who wish to expand their expertise at some point in their career. Engaging clinicians who care for the study population of interest either through direct patient contact or through educational seminars is another way one can enhance recruitment and recruitment skills. In addition, whenever possible, optimally on a regular basis, one-on-one meetings with a biostatistician is another way a young investigator should avail himself/herself of an important learning process. Other members of a study team such as a database manager and a pharmacist can also teach

mentees aspects of protocol implementation that a mentor may not be familiar or facile with. In summary, a young investigator should avail himself/herself of all human resources possible on the road to implementing a research proposal.

■ PUBLISHING YOUR RESULTS

The central and most important goal of a research project is to get the results published regardless of whether the findings are those predicted in the beginning and regardless of whether the results are "positive" or "negative." During the protocol implementation, it is desirable to begin to think about publishing the results and, in fact, envisioning how the final paper will actually appear in print (Table 3). One can ask oneself "How will my final paper look when published?" It is helpful to revisit the research question posed and what the message of the paper will be in the end. Keeping this in mind helps one to conduct the research protocol properly that, in turn, helps to ensure the validity of the findings at study end.

It is not premature to think about publishing results before a study is completed. For some young investigators, writing clearly and scientifically is challenging and can sometimes lead to procrastination in getting studies published. One can begin the process of writing the final paper during the protocol implementation and completion. A first step in this process is to write an outline of the manuscript and then begin to fill in the spaces.

One may not realize it, but a substantial portion of the manuscript is written in the protocol. For example, the methods section of the protocol can be used as a template for the methods section of the paper. In addition, the background and significance of the research protocol becomes a template for the introduction and may lend itself in part to the discussion section of the paper pending the results. Although the results section cannot be written, one can begin to create shells for tables and figures. For instance, a table of the participant characteristics in a clinical trial or observational study can be constructed inpreparation for input of data later on. Also, one can catalogue the key references that will be used in the introduction, methods, and discussion sections of the manuscript, and many, if not most, are in the references to the protocol or are part of the body of literature reviewed by the investigator when preparing the protocol. Finally, one can consider several potential journals where the future manuscript may be submitted, and formatting for the selected journal can begin ahead of time. These are time-saving tips for getting ready to publish the manuscript later on when the data are collected, analyzed, and interpreted.

In summary, young investigators need research resources including protected time mentors and materials and a study team to successfully conduct a clinical research project. Finding the time for research, working closely with mentors, and thinking about publishing results early on are important aspects to future success in clinical research.