How to Jump Start Your Research Career: Perils and Pitfalls and a Recipe for Success
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Outline and Objectives
• Why choose a career in EM Research?
• Potential obstacles/challenges to a research career in EM
• Potential advantages EM provides to those seeking a research career
• Suggestions for developing a successful EM research career:
  – selecting your research focus – post-graduate training
  – goal setting – balancing your time
  – finding a mentor – importance of collaboration
  – taking advantage of the university setting
  – characteristics of a productive research environment

Why Choose a Career in Emergency Medicine Research?
• Chance to improve care of our future patients
• Opportunity to advance and shape the future of our specialty and how EM is practiced
• Opportunity to become expert in a given area
• Opportunity to help develop others
• Career longevity
• Research can be exciting

Challenges Unique to a Career in Emergency Medicine Research
• The history and youth of our specialty
• The personality or characteristics of those attracted to our specialty
• Lack of time and funding
• Lack of infrastructure

History
• EM born out of a service need, and has developed with a strong clinical orientation and a lesser emphasis on academics.
• Initial and primary academic emphasis has been in education: 1) building residency programs and 2) more recently an emphasis on undergraduate education.
• Emphasis in research began slowly only during the past decade
• Relative lack of experienced role models in academic EM, particularly in research

Challenges Unique to a Career in Emergency Medicine Research

Our Personality
• ADD/ADHD?!?!
• Big-picture versus detail oriented
• Not well-socialized to the academic environment

Lack of Time and Funding
• Clinical load of the academic ED attending typically greater than that of other academic faculty
• Shift work not conducive to academic productivity
• Lack discretionary funds or endowment for research

Lack of Infrastructure
• Space - clinical and laboratory
• Personnel/Support services - research nurses, laboratory technicians, statisticians, grant administrators
• Equipment - computers, lab equipment

Characteristics of Emergency Medicine that are Conducive to a Research Career
• ED is an excellent clinical research laboratory
• EM physician’s extensive clinical experience provides unique insight to formulate meaningful research questions
• EM physician’s experience and perspective greatly valued by the non-clinical researchers, who lack this perspective
• No better specialty to bridge the bench and the bedside
• Ideal environment to test new devices and technologies
• Infinite number of subjects relevant to EM research
• Our personalities - we are team oriented and collaborative

Recipe for a Successful Career in Emergency Medicine Research
• Pick a focus
• Define your goals
• Get a mentor and develop collaborations
• Get more training
- Select a supportive environment
- Know your institution and its resources
- Stay focused
- Reassess and redefine your goals
- Develop good time management skills

**Developing a Research Focus:**
- This will define your career
- Select something you can remain passionate about
- Topic must be focused, but broad enough to lead to ongoing study
- Topic must pass the “so what” test

**Importance of Focus:**
- Allows you to have command of the literature in that area
- Will help you identify mentors and collaborators
- Will define the necessary resources and support you will need.
- Will help you target grant proposals and respond to RFP’s
- Will determine how you fit into the overall mission of your department and even perhaps the university

**Steps and Considerations When Developing A Research Focus**

**Step 1:** Determine what excites you, and pick a **GENERAL** topic. What do you **LOVE!!!!**

**Step 2:** If possible, consider the mission of your department and the institution.

**Step 3:** Decide on laboratory versus clinical research

**Step 4:** Consider the resources (both physical and human) available to you.

**Step 5:** Hone or refine your focus.
- More lit searches and reading
- Visit laboratories and research groups
- Go to relevant conferences, lectures, and meetings

**Poorly Developed Focus:**
To study the effect of resuscitation with hypertonic solutions on TBI and hemorrhagic shock.

**Well-Developed Focus:**
To study the mechanism of secondary ischemic brain injury in the setting of TBI and hemorrhagic shock, and the effect of various resuscitation regimens in attenuating this process.

**Poorly Developed Focus:**
To develop an educational tool for instructing medical students in the basic principles of resuscitation using a patient simulator

Well-Developed Focus:
To develop and validate new educational methodologies which use a patient simulator for medical student instruction

Set Appropriate Research and Career Goals

• Short-term goals (6-12 months):
  — relate to the long-term goal
  — specific tasks
  — monitor productivity
• Long-term goals (5 and even 10 years):
  — describe the ideal position you are ultimately seeking
  — 2-3 long-term goals

Some Specific Goals for Research:
• Writing grants and obtaining funding
• Data presentation at meetings
• Manuscript preparation and submission
• Development of new research skills

How to Use Your Goals and Why They Are Important
• Use these to keep your focus - FOCUS, FOCUS, FOCUS, FOCUS, FOCUS!!!!!
• Assess every academic activity in relation to your mission and goals.
• Allow some flexibility for new opportunities.
• Frequent reassessment of progress and goals.

The Importance of a Mentor

What Specifically Will a Mentor Do?
• Assist in setting and achieving your goals
• Provide feedback regarding performance
• Help build your confidence/ moral support
• Read and critique your manuscripts
• Read and critique your grants
• Introduce you to leaders in your field of interest
• Keep you on track
• Protect you
• Help with promotion

Why Do You Need a Mentor?
• Importance of mentoring relationships for career development not unique to medicine
• Definite correlation between establishment of a mentoring relationship and:
  1) academic success
  2) career satisfaction

“Mentorship in the first years is critical for launching a productive career. Learning the informal network that supports productivity—the inner workings of professional associations and who the productive people are—is critical.” Blackburn RT. Cur Iss Higher Education 1981; 52: 369-377.

The corollary: “During a researcher’s first year on the job, the most significant negative correlate with productivity is autonomy.” Katz RL. Admin Sci Q 1978; 23: 204-223.

Considerations When Choosing a Mentor
• Track record in your chosen area of academic focus
• Available time / Must invest in YOU!
• Good personality fit
• No conflict of interest
• You need more than one mentor
• Look outside of EM

The Importance of Collaborations
• Develop better research protocols and implement them more effectively
• Build on each others work
• Critique and replication of your work
• Help maintain quality of work in the field via review panels and refereed journals
• Provide quick access to recent work in the area
• Thinking partners
• Cheering section

Why Do You Need Post-Graduate Training?
• Medical school and residency DO NOT prepare you for a career in research
• Post-graduate training will facilitate becoming an expert in your chosen area of focus
• Enhance career satisfaction and chances of academic success

Preparedness of Graduating Residents for an Academic Career
Survey of EM residency directors demonstrated that only 29% of EM program directors felt that their EM graduates were prepared for an academic career that required original research.

• Post-graduate research training significantly enhances the likelihood for success in an academic career.
• Training should be at least 2 years in duration.
• Training should include formal course work.

• Examined the relationship between fellowship training and career outcomes
• Surveyed 821 full-time primary care faculty at 24 representative U.S. medical schools
• Fellowship trained primary care physicians were more productive researchers and were more likely to have achieved senior academic rank than were their non-fellowship trained peers.

• Survey of practicing emergency physicians
• Obstacles to research productivity:
  — Insufficient research training
  — Finding knowledgeable collaborators

• Surveyed 392 surgeons
• Fellowship training in research correlated positively with professional confidence and career satisfaction.

The NIH Perspective and Recommendations:
“In all cases, postdoctoral trainees should agree to engage in at least 2 years of research, research training, or comparable activities beginning at the time of appointment since the duration of training has been shown to be strongly correlated with post-training research activity.”

Fellowship training is the only mechanism by which you will be granted adequate protected time to develop the academic skills required in the discipline of your choosing!
Another Benefit to Fellowship and Other Post-Graduate Training:
Facilitates the establishment of mentoring and other important collaborative relationships!!!!!!!!

What Types of Post-Graduate Opportunities Are There?
- Formal research fellowships
- Formal Master’s and PhD programs
- Robert Woods Johnson Clinical Scholars Program
- NIH sponsored career development awards: The K Awards (K08 and K23)
- OJOC Programs
- EMF Research Training Grants
- SAEM Research Fund Training Grants
- EMF: Emergency Medicine Basic Research Skills Workshop (EMBRS)
- Check your local institution

Know and Take Advantage of Your University’s Resources
- Grant announcements
- Administrative support for grant writing
- Clinical Research Centers/ Cores -
  Example - U of M Center for Advancement of Clinical Research (will match ideas with funding sources, assist in finding collaborators, assist in study design, assist with budgeting, assist with training of study coordinators)
- Laboratory cores
- Internal Funding

Time Management is Crucial
- Uninterrupted time is essential to be a successful researcher. You need time to JUST THINK!!!!!
- Use your FOCUS and goals to guide how you manage your time.
- Evaluate each new proposed activity in light of your goals and objectives.
- Learn to say NO!!!!
- Leverage activities so they count for more than one thing.
- It is more important to accomplish a few crucial tasks every day than it is to accomplish a large number of less critical tasks.
- Break down larger more crucial tasks into smaller components.
- Develop weekly and daily schedules.
• Know what time of day you are better at thinking creatively or writing.
• Work with your door closed.
• Batch your phone calls, routine paperwork, and e-mails.
• Good time management begins with long range planning, and requires regular evaluation by you, your mentor, and your chair.

**The Research Environment**

Abundance of data demonstrating that the research environment significantly effects satisfaction and productivity.


**What are the Characteristics of a Supportive Research Environment?**

• Research Emphasis
• Accessible Resources -
  – human (colleagues, assistants, technical consultants, research-knowledgeable leader)
  – time
  – funding
  – research facilities
  – libraries
• Sufficient size
• Leadership with expertise

**Find a Supportive Chair**

• Department Chair must value your academic pursuit.
• Department Chair must be willing to invest in your career.

**Recipe for a Successful Career in EM Research**

**Summary**

• Select an area of study - BE PASSIONATE!!!
• Develop short- and long- term GOALS
• LET THE GOALS GUIDE YOU IN YOUR ACADEMIC PURSUITS
• FOCUS FOCUS FOCUS FOCUS FOCUS FOCUS
• GET A MENTOR
• COLLABORATE
• GET MORE TRAINING
• FIND A SUPPORTIVE ENVIRONMENT