Research Career Mentoring Over the Academic Life Cycle: Tips for Mentors and Mentees
Your hosts and topics today

• Roland C. Merchant, MD, MPH, ScD
  – Topic: Medical students

• Lynne D. Richardson, MD
  – Topic: Residents

• Michael W. Donnino, MD
  – Topic: Fellows

• Manish N. Shah, MD, MPH
  – Topic: Junior faculty
Overarching themes

• Transition from possibilities to career
• Expected milestones
• Progressive responsibilities
• Increasing independence
• Different needs by stage
• Changing nature of relationships
Medical students

Roland C. Merchant, MD, MPH, ScD
Brigham and Women’s Hospital
Harvard Medical School
Questions to consider

• **Medical student mentees**
  - Why am I looking for a research mentor?
  - What do I want to accomplish?
  - Who should I ask?
    • Why that person?

• **Mentors**
  - Why am I mentoring? Should I be?
    • Right time in career, right reason
  - Can I do it?
Medical students: who/why

• Mentees seeking mentors
  – Summer research project
  – “Capstone” research project
  – Required research
  – Residency resume building
  – Research career curious
Appropriate project selection

- Mentors should help guide selection of the right project for the right medical student mentee for the right purpose at the right time
  - **Purpose**: residency seeking, interest in research career, etc.
  - **Time**: time-limited vs. time-flexible
  - **Person**:
    - Mentee’s skill set, experience, motivation
    - Mentor’s skill set, experience, motivation
Career stage mentoring needs

- **Directive approach (heavy-handed)**
  - Project selection
  - Clear goal setting for project
  - Clear timelines
  - Clearly stated path for project to completion

- **Emphasis on the basics**

- **Regular, fixed meeting schedule**

- **Provision of examples**
  - Show one, do one like mine (mimicry)
Career stage milestones

• Understand project
  – What are we doing? Why? What steps are we taking?
• Human subjects training
• Background topic knowledge
• References for manuscript
• Initial draft of abstract, manuscript
• Presentation practice, delivery
• Small grant application (if possible)
Pearls and pitfalls

• Pearls
  – Patience, clarity, regularity, availability, time
  – Right-sized project
  – Big picture focus
  – Tangible product for the mentee

• Pitfalls
  – Too big a project, poor fit
  – Cog-in-the-wheel research
  – Mentor over-reliance on project, mentee
Residents

Lynne D. Richardson, MD
Professor & System Vice Chair, Department of Emergency Medicine
Professor of Population Health Science & Policy
Icahn School of Medicine at Mount Sinai
Resident Research Priorities

Identify the best mentor available

- Experienced, preferably funded, investigator
- Solid track record as mentor
- Committed to your success
- Provides resources: data, training, guidance

*The relationship is more important than the project*
Resident Research Priorities

• Cultivate the relationship with your 1º mentor
• Develop relationships with other mentors and researchers at varying levels
• Explore content areas / lines of inquiry
• Acquire methodological skills
• Participate in works-in-progress sessions
• Attend conferences – go to abstract sessions
• Read the literature
Career stage milestones

• Skill & knowledge acquisition
• Complete an original research project
  – Research question, design study, collect & analyze data, prepare & submit manuscript
• Collaborate on additional project(s)
• Present at regional & national meetings
• Submit a small grant application
Choosing a Fellowship

• Mentors: experienced & funded
• Colleagues: fellows & junior investigators
• Track record of graduates
• Must offer a research degree
• Should offer at least 60% protected time

*Faculty position: unlikely to provide sufficient support for you to succeed as a researcher*
Career stage mentoring needs

- Directive approach (*lighter touch*)
- Adjust demands & expectations to accommodate the resident’s schedule
- Provide opportunities for:
  - Skills acquisition
  - Observation of experienced research teams
  - Networking with content & methodologic experts
- Give advice: prioritize the resident’s needs
NIH-Funded Research Fellowship

Mount Sinai Clinician Scientist Training Program in Emergency Care Research

• Individual & Collaborative Research Opportunities
• Outstanding Mentorship
• Multidisciplinary Research Training
• Masters of Science in Clinical Research
• Career and Leadership Development

NIH/NHLBI 1T32HL129974
Fellows

Michael Donnino, MD
Vice Chair of Resuscitation Science
Director of Faculty Research Development
Beth Israel Deaconess Medical Center
Harvard Medical School
Who Do You Want To Be?

• Independent Investigator

• Clinical Innovator/Educator with research component
The Balancing Act

• Research (Project-based)

• Research Didactics (MPH, other)

• Clinical Work
Independent Investigator

- Project/Publication Line – building a story
- Project/Publication Line – ancillary work
- Other
Grant Success as a Goal

• Seeking out the optimal training grant and being in a position to succeed

• Training Grant success
  – Project line and ancillary work
  – The mentor and team
  – The environment
  – The “formula”
  – Timeline and elements for success
Mentor/Mentee Relationship

• Optimal mentor/mentee relationships during fellowship

• Goal Alignment
  – Mentor/mentee goals tend to align 90+% of the time but not always
  – A good mentor supports during the 90% but a great mentor sacrifices for the 10%
The Timeline
Junior Faculty

Manish Shah, MD, MPH
Professor & Vice Chair of Research
The John & Tashia Morgridge Chair of Emergency Medicine Research
Director, UW-Madison KL2 Program
Starting Out

• Find a research mentoring team
  – Mentor mapping between content, methods, and career type
  – Peer / big sib / senior mentors
  – Must have experience with ultimate funding goal

• Be competency driven
  – Number of models in the literature
  – Assess current and targeted proficiency
  – Other needs?
Competency

Research Competencies

Scientific Concepts & Research Design

Ethics & Participant Safety Considerations

Investigational Products Development & Regulation

Clinical Trials Operations

Study & Site Management

Data Management & Informatics

Leadership & Professionalism

Communications

Teamwork & Team Science

Stakeholder Engagement
Starting Out

• Build an Individualized Development Plan
  – Explicitly defines the target and how to get there
    • Independent scientist is the most common goal
    • Critical co-investigator is a new role being recognized
  – Considers non-research factors
  – Sets milestones
  – Update every 6-12 months
Milestones

• Research training
  • Which classes when
  • Follow studies, papers, grants

• Studies
  • Year 1: Data set analysis
  • Year 1-2: Retrospective study
  • Year 2+: Prospective studies

• Papers
  • Increasing quantity and impact
  • Movement to senior author

• Grants
  • Year 1-2: Pre-K award
  • Year 1-2: Internal / foundation pilots
  • Year 2-4: K award
  • Year 5-6: R01-level award

• Team development
  • Collaborators
  • Trainees
  • Staff
Structure / Processes

• Mentee: Create an agenda before each meeting
  – Forces mentees to think before the meeting
  – Focuses mentor’s thoughts during the meeting
  – Focuses mentor’s thoughts between meetings

• Mentor: Learn the powerful questions
  – How…
  – What…
  – Why…
Evaluation

• Adherence to milestones
  – Grants
  – Papers

• Qualitative check in
  – Research progress
  – Mentor-mentee relationship

• Evaluate mentor-mentee relationship with mentor mapping
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<tr>
<th>Research</th>
<th>Agree covered</th>
<th>Mentor covered, scholar not</th>
<th>Scholar covered, mentor not</th>
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<tbody>
<tr>
<td>Teach disciplinary knowledge</td>
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<td>Develop disciplinary research skills/research design</td>
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<td>Develop technical skills</td>
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<td>Help learn to manage data</td>
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<td>Help learn using medical informatics</td>
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<td>Teach/promote ethical behavior and responsible conduct</td>
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<tr>
<td>Sponsorship</td>
<td>Agree covered</td>
<td>Mentor covered, scholar not</td>
<td>Scholar covered, mentor not</td>
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<td>Actively advocate</td>
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<td>Foster independence</td>
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<td>Prepare for promotion</td>
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<td>Connect with key people/resources</td>
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<td>Provide structured growth experiences</td>
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Success or Failure

• Mentor: Create a culture of accountability
  – Deadlines
    • Must achieve with quality (e.g., grants)
  – Resources (i.e., time, space, $)
    • Do not be cheap
    • Mentees must use and be successful
    • Mentors should not put more resources into failure
Questions and Discussion