SCCM Critical Care Research Methodology and Career Trajectory Foundation Course

Learning objectives:
1. Discuss expectations of a mentor-mentee relationship
2. Identify funding opportunities
3. Develop a plan for research collaborations and building a reputation
4. Discuss how to effectively disseminate research findings through development of abstracts, presentations, and publications
5. Describe how to complete a specific aims page for a grant proposal and critical nonscientific portions of a grant application, develop a research proposal from hypothesis to outcomes, and experience a mock NIH review section to review grant scoring

In the hands-on sessions, attendees will acquire guidelines on how to:
1. Complete a specific aims page for a grant proposal
2. Write the nonscientific portions of a grant application
3. Develop a research proposal from hypothesis to outcomes
4. Experience a mock NIH review section

Who should attend:
- Physicians (junior faculty pursuing a new research career, mid-career research faculty, fellows, residents, medical students)
- Nursing research faculty and staff
- Pharmacists
- Respiratory therapists
- Occupational therapists and physical therapists

Course Design:

The course will comprise two formats: talks and breakout sessions or hands-on sessions. The course will begin with a welcome and overview, followed by a plenary session. Next will be two presentations, "Securing Success for Research" and "Mentorship and Research Collaboration." Each will consist of two 20-minute talks followed by a 20-minute panel discussion After a break, there will be two hands-on sessions focusing on grant-writing skills. After lunch will be two more hands-on sessions, again focusing on grant-writing skills. An afternoon break will be followed by two 20-minute presentations on research dissemination, followed by a 20-minute panel discussion. The course will end with a final plenary presentation and closing remarks.
Moderators: Sheila A. Alexander, BSN, PhD, RN, FCCM; Sonal R. Pannu, MD, MS

Plenary Session: What Is the Discovery Research Network and How Can It Help You?
This session will focus on Discovery's current and proposed activities. Opportunities for researchers to present their ideas, possibilities for funding, and conducting clinical research will be discussed, including prospects for multicenter research.
Faculty: Jonathan E. Sevransky, MD, FCCM

Securing Success for Research

1. **Turning Clinical Questions Into Funded Research**
    Designing a hypothesis is the initial step in starting a research project. This talk will focus on how to develop a clinical observation or outcome measurement into a research question or hypothesis. The core aspects of research questions such as novelty, feasibility, relevance, and ethical aspects will be discussed. Clinical questions or protocols within a healthcare system are rich with opportunities to collect data around an intervention, participate in a clinical trial, or test a hypothesis. Stakeholders in the clinical and management arenas require education, support, and guidance on why and how to invest in the personnel and time required for research infrastructure. Involving both front-line bedside providers and top-line administration requires multiple disciplines for success. Easy acquisition of data that are accurate and protected will be reviewed, as well as gaining the support for analysts and information technology early in the design process. General research project organization and methods to identify stakeholders will be reviewed.
    Faculty: J. Perren Cobb, MD, FCCM

2. **Fundamental Aspects of Grants and Funding Opportunities**
    Converting the proposal into reality requires grant funding. In this era of budget cuts and deficits, obtaining peer-reviewed research funds has become more competitive. It is important to understand funding opportunities (government, industry, etc.) but not to become a victim of doing only what is funded regardless of your expertise and interest. Key aspects of grant types, the grant writing process, and funding opportunities will be reviewed.
    Faculty: Marilyn Hravnak, ACNP, PhD, RN, FCCM

3. **Panel Discussion**
    Faculty: Mary Beth Happ, PhD, RN, FGSA, FAAN; Theodore J. Iwashyna, MD, PhD, FCCM; Michelle Ng Gong, MD, MS

Mentorship and Research Collaboration

1. **Finding Mentorship and Enhancing Success Through Mentoring Relationships**
    Mentorship is the crux of the birth of a researcher. This talk will provide guidance on selecting a primary mentor. The nature and importance of a mentoring panel will be discussed, emphasizing the necessary diversity, boundaries, and limitations of mentors. Most researchers struggle with finding the right mentor at their institutions. Methods for approaching mentors at other institutions and strategies to enhance the success of this type of mentorship will be covered. Unclear expectations are among the main causes of conflict between mentees and mentors. Mentors' expectations of supervision, direction, and accelerating opportunities will be discussed, as well as reciprocation expected from mentees such as a proactive approach, vision for research, and adaptability. How to make the best of the relationship toward a shared vision of successful future careers for both will round out the talk.
    Faculty: Sonal R. Pannu, MD, MS

2. **How to Develop a National and International Reputation, Role of Research Collaboration Teams and More**

Most academic faculty strive to develop a niche or expertise in an area they are passionate about. Developing local, regional, and national reputation involves seizing opportunities for presentation and publication. This talk will focus on strategies for developing a reputation as a leader, including developing excellence, networking, volunteering, collaborations, teaching, mentoring, and publication. Research is a product of teamwork in any field. A research team divides responsibilities and increases diversity of ideas and is vital for research faculty's productivity. Research collaborations are vital for multicenter research. Collaborations lead to development of ideas and sharing resources. They are also essential for progress and development of early career professionals as they collaborate with more experienced and established professionals. Key strategies for developing collaborations and maintaining successful research teams to foster overall success will be covered.
Faculty: Michelle Ng Gong, MD, MS

3. **Panel Discussion**
   <u>Faculty</u>: Sheila A. Alexander, BSN, PhD, RN, FCCM; Ishaq Lat, PharmD, FCCM; Jonathan E. Sevransky, MD, FCCM

Hands-On/Small Group Sessions:

Hands-On Session 1: Here Is a hypothesis: Let's Develop a Study From Hypothesis to Publication
This session will provide an interactive experience of designing the approach section of learners' grants, from hypothesis to outcomes. Learners are expected to come prepared with a basic plan and idea for their approach. Principles and guidelines will be discussed for presenting the approach to reviewers for easy readability, succinct design, and logical flow. The National Institutes of Health's (NIH) expectations for details of the clinical trial design (form E) will be discussed. Learners will be given tips and ideas to incorporate into their plans. The session will end with feedback and critique of learners' research proposals.
Faculty: Rahul Kashyap, MBBS; Ishaq Lat, PharmD, FCCM; J. Perren Cobb, MD, FCCM

Hands-On Session 2: How to Develop a Specific Aims Page
This session will focus on the critical aspects of developing a succinct specific aims page. Learners are asked to bring in any specific aims pages they may be working on. Learners will be given up to 40 minutes during the session to work on their pages. The session will end with feedback on their pages.
Faculty: Mary Beth Happ, PhD, RN, FGSA, FAAN; Jonathan E. Sevransky, MD, FCCM

Lunch

Hands-On Session 3: Bring the Nonscientific Sections of Your Grant Proposal
This session will focus on the nonscientific portions of the grant, such as background, career objectives, training plan, biosketch, letters of support, institutional environment and resources, budget justification, and human and animal subjects. Resources for efficient grant application will be shared. Learners are encouraged to bring in any applications they may be working on for feedback.
Faculty: Sonal R. Pannu, MD, MS; Sheila A. Alexander, BSN, PhD, RN, FCCM; Theodore J. Iwashyna, MD, PhD, FCCM

Hands-On Session 4: NIH Mock Review Session

This session will provide a visual experience of an NIH study session. Either a study proposal (possibly generated from a previous study) or learners' proposals will be discussed and given feedback.
Faculty: J. Perren Cobb, MD, FCCM; Marilyn Hravnak, ACNP, PhD, RN, FCCM; Michelle Ng Gong, MD, MS

Research Dissemination

1. **Abstracts That Make an Impact and Presentations That Stick**
    Writing abstracts is the initial aspect of research training and is critical right from residency and fellowship. Writing a succinct abstract is the key to acceptance for presentation, combining art and science and usually learned through mentoring, teamwork, and practice. This talk will focus on the essentials of creating a concise and comprehensive abstract and other forms of presentation for disseminating your research, such as social media and podcasts. A successful presentation effectively communicates the importance of your research, clearly stating findings, analysis, and conclusions. It should prompt audiences to give feedback that could further strengthen your research. Effective presentation strategies will be discussed, such as knowing your audience, understanding the basic principles of designing slides, determining the main message to be communicated, and dealing with the anxiety of presentation.
    Faculty: Theodore J. Iwashyna, MD, PhD, FCCM

2. **Manuscripts and Publications: The Key to Keeping Them Going**
    As scholars, we strive for high-quality research that will advance science. Publication in peer-reviewed journals is the outlet for disseminating your research. Publishing an article requires a logical approach and timeliness, often the hardest parts of conducting research. Writing for academic journals is a highly competitive activity, and it is important to understand the reasons for rejection. This talk will focus on the process of writing a manuscript acceptable for publication as well as key aspects of the revision process, such as addressing all reviewers' comments and revising diligently, timely resubmission, and understanding that the revision process might comprise multiple rounds.
    Faculty: Mary Beth Happ, PhD, RN, FGSA, FAAN

3. **Panel Discussion**
    Faculty: Marilyn Hravnak, ACNP, PhD, RN, FCCM; Rahul Kashyap, MBBS; Jonathan E. Sevransky, MD, FCCM

This Is My Story: How to Develop a Career as an Innovator
An experienced and funded critical care researcher will share her journey, setbacks, and pearls for success. Early and mid-career researchers will learn from real-life experiences and obstacles and share the long-term vision of an established physician-scientist.
Faculty: Michelle Gong, MD

Summary
Faculty: Sheila A. Alexander, BSN, PhD, RN, FCCM; Sonal R. Pannu, MD, MS

All programming is subject to change.