COLORADO EMERGENCY MEDICINE
SCIENTIST TRAINING AND INTENSIVE MENTORSHIP
(EM-STIM) PROGRAM

A Collaborative Department of Emergency Medicine
Research Career Development Initiative

July 2014 – June 2015
BACKGROUND AND OBJECTIVES

The research mission of the University of Colorado Department of Emergency Medicine is to: (1) develop and sustain outstanding, nationally-recognized emergency care research programs; and (2) provide scientific training and career development with the goal of ensuring successful progression of faculty members towards independent research careers. To achieve this mission, we recognize the critical importance of deliberate early career development and mentorship to the success of Department of Emergency Medicine junior faculty physician scientists, as well as mid-career mentors, by building a self-sustaining cadre of independent scientists and trainees.

The NIH K series mechanism (e.g., K08, K23) is a well developed method of support for junior faculty to obtain necessary training to launch successful independent research careers. While there have been a relatively modest number of K awardees in the Department of Emergency Medicine, a strong core of junior, research-oriented faculty has emerged in the Department that, with the right mentorship and focus, are poised to submit successful K or equivalent career development award applications in the coming years. As there is a paucity of senior, federally funded scientists within the Department (commensurate with emergency medicine nationally), most junior faculty will need to seek primary content mentorship outside of the Department, and at times, outside of the institution. Although multi-disciplinary collaboration is encouraged, the model of exclusive extra-Departmental mentorship misses important opportunities to develop scientific collaborations, address shared challenges, and build capacity and infrastructure for primary research mentorship within the Department.

Accordingly, we have developed the Colorado Emergency Medicine Scientist Training and Intensive Mentorship (EM-STIM) Program to foster and accelerate the career development needs of junior faculty physician scientists and mid-career mentors in the Department of Emergency Medicine. The EM-STIM Program objectives are:

1) To sustain an infrastructure for research career development, mentorship, scientific review, and collaboration within the Department of Emergency Medicine
2) To prepare EM-STIM mentees with requisite skills in study methodologies, effective oral and written communication, and collaboration for successful major career development award applications and ultimately, independence as physician-scientists.
3) To develop a cadre of highly-trained emergency medicine physician-scientists and mentors to support robust, nationally recognized emergency care research programs.

PROGRAM OVERVIEW

The EM-STIM Program is an intensive research career development program for Department of Emergency Medicine junior research faculty based at the University of Colorado, Denver Health, and Children’s Hospital Colorado. Each mentee will participate in the Program for two years (third year optional based on progress and needs) with the explicit goal of successfully applying for a federal (e.g., K08/K23) or equivalent foundation (e.g., AHA) career development award by the end of their formal participation. The Program leadership will carefully select mentees based on their ability and readiness to meet this goal during the allotted time period.

The EM-STIM Program will provide individualized and comprehensive mentorship to guide mentees’ research career development and supplement scientific mentorship by content mentors. Mentorship will focus on developing all aspects of the career development award application, including the career development plan, mentorship team, research plan, and technical grant writing. Carefully selected educational activities will ensure that each mentee becomes facile with a spectrum of research tools, including research methodology, epidemiology, biostatistics, and technical writing necessary to design and conduct high-quality, independent research. Formal coursework toward a research-based Master’s degree from the Colorado Clinical and Translational Sciences Institute (CCTSI) Clinical Sciences or Colorado School of Public Health programs will be encouraged to enhance methodology training and the ultimate success of career development award applications. Mentees who enter the program with an equivalent degree will be encouraged to develop an educational plan that will provide structure to their career development award application. Finally, the EM-STIM Program will
collaborate closely with the CCTSI Education, Training, and Career Development core, through educational programs, career development resources, and pilot funding mechanisms to enhance the experience by leveraging existing institutional resources.

**New for 2014-15:** As Department of Emergency Medicine faculty members have been successful in receiving several career development awards and new faculty physician-scientists are ready to apply for R mechanisms, we also created a new K to R transition track. We believe this represents the next critical step in development of physician-scientists in the Department. These K to R participants will also present and receive feedback at monthly meetings, and in addition, they will participate as junior mentors for the pre-K participants.

**PROGRAM FORMAT AND STRUCTURE**

The EM-STEM Program relies heavily on mentorship, collaboration, and formal methodological training as primary components. Key personnel include program mentors; a senior advisory committee comprised of senior mentors drawn primarily from outside the Department; the program biostatistician; and program mentees. Modeled after the CCTSI Clinical Faculty Scholars Program, the core of the EM-STEM Program will be monthly research-in-progress meetings, in which three mentees per session present updates on their career development plans/challenges, upcoming grant applications, or key preliminary data for grant applications. Being the reviewer and being reviewed are essential components of the process, and formal presentation of grant applications and reviews will be emphasized. Constructive feedback and discussion will occur on a peer-to-peer mentee level with emphasis on areas of shared challenges, and on a mentor-mentee level with emphasis on solutions and accountability.

Attendance at research-in-progress meetings will be required of EM-STEM mentees and mentors, as well as the EM-STEM biostatistician. We will encourage at least one member of the senior advisory committee and presenters’ primary content mentor to attend each session to obtain additional outside perspective. The mentees’ Chair/Chief and other research-oriented faculty in the Department will also be encouraged to attend when available. Mentees are strongly encouraged to meet one-on-one with EM-STEM and senior mentors to supplement discussions that occur at the monthly meetings. Mentees may also meet with the EM-STEM biostatistician to discuss the analysis plan for their primary grant applications and the UCD Writing Center for technical writing analysis. Specific performance outcomes are extramural grant proposals, manuscripts published in peer-reviewed journals, research and career development skills, and experience as a reviewer and mentor.

**MENTEE RESPONSIBILITIES AND BENEFITS**

**Required**
- >80% attendance and active participation at monthly research-in-progress meetings. These will be scheduled around major conferences and holidays, and mentees are expected to block off the scheduled times on their clinical schedules
- Primary presenter at assigned sessions, up to 4 times per year (trades allowed)
- Bring content mentor to monthly research-in-progress meetings at least annually
- Meet regularly with EM-STEM mentors outside of monthly meetings
- Take grant writing course (7101) or demonstrate equivalent training or experience
- Pre-K: Submit major career development award application (NIH K Award or equivalent) within the first two years of entering the program
- K to R: Submit R01 or equivalent at least one year before career development award or start-up package ends
- Publish, on average, at least 3 peer reviewed manuscripts per year

**Optional, highly encouraged**
- Attend CCTSI Clinical Faculty Scholars Special Topics Seminars
- Apply for CCTSI available grant mechanisms (e.g., CO-Pilots and KL2)
- Enroll in CCTSI CO-Mentor program
- Take courses at Colorado School of Public Health or CCTSI Clinical Sciences Program
• Become EM-STIM K to R participant after successfully completing the pre-K phase
• Become EM-STIM mentor after successfully transition to independent investigator

Benefits
• Receive organized research career development training within the Department and enhance chances of writing successful career development award applications
• Identify gaps in portfolios early that need to be filled to have successful career development applications
• Learn how to overcome common logistical, career development, and scientific challenges through intensive external and peer mentorship
• Strengthen methodology, innovation, and impact of science by cross-disciplinary review
• Improve technical and grant writing
• Obtain biostatistical support for analysis plans of grant applications
• Find new avenues for intra and cross-Departmental collaboration and networking
• Motivate through peer interaction and mentor accountability to accelerate productivity
• Improve readiness to apply for the CCTSI KL2 and mentored pilot grant applications, which typically have minimal notice and a truncated timeline for submission

MENTOR RESPONSIBILITIES AND BENEFITS

Required
• >80% attendance and active participation at monthly research-in-progress meetings. These will be scheduled around major conferences and holidays, and mentees are expected to block off the scheduled times on their clinical schedules
• Meet one-on-one with EM-STIM mentees outside of monthly meetings
• Review career development award applications of EM-STIM mentees
• Provide annual evaluations of EM-STIM mentees
• Continue own scientific productivity (as measured by grant awards and publications)

Benefits
• Enhance community of science and number of DEM federally funded investigators
• Build capacity and track record of successful mentorship to accelerate skills and qualifications for primary mentorship on future mentees’ K (or equivalent) applications
• Create a venue for DEM funded scientists to interact and enhance potential for scientific collaboration and networking within the Department and across Departments

DEPARTMENT BENEFITS
• Accelerate the timing and increase the number of faculty with K (or equivalent) and ultimately R01-level grants in the Department
• Hold individuals accountable to productivity goals and application deadlines with formal evaluations and progress reports from EM-STIM mentors and senior advisory committee
• Improve the ability to recruit promising physician-scientists due to formal mentorship structure and immediate opportunities for collaboration and networking
• Enhance collaboration with the CCTSI and intra-/cross-departmental collaboration
• Establish the framework for successful Department application for the future training grants (e.g., SAEM Institutional Training Grant, NIH K12/T32 programs)
PERSONNEL (2014-2015)

Department Chair
Richard Zane, MD, Professor of Emergency Medicine

Supervisors
Chris Colwell, MD, Professor of Emergency Medicine (Denver Health)
Timothy Givens, MD, Associate Professor of Pediatrics (Children’s)
Richard Zane, MD, Professor of Emergency Medicine (University)

EM-STIM Pre-K Mentees
Jason Hoppe, DO, Assistant Professor of Emergency Medicine (University)
Sarah Perman, MD, MS, Assistant Professor of Emergency Medicine (University)
Halden Scott, MD, Assistant Professor of Pediatrics (Children’s)
Margaret Sande, MD, MS, Assistant Professor of Emergency Medicine (University)
Stacy Trent, MD, MPH, Assistant Professor of Emergency Medicine (Denver Health)
Jody Vogel, MD, MSc, Assistant Professor of Emergency Medicine (Denver Health)

EM-STIM K to R Mentees
Marian (Emmy) Betz, MD, MPH, Assistant Professor of Emergency Medicine (University)
Roberta Capp, MD, MS, Assistant Professor of Emergency Medicine (University)
Daniel Lindberg, MD, Associate Professor of Emergency Medicine (University)
Andrew Monte, MD, Assistant Professor of Emergency Medicine (University)

EM-STIM Program Mentors
Adit Ginde, MD, MPH, Associate Professor of Emergency Medicine (Director; University)
Jason Haukoos, MD, MSc, Associate Professor of Emergency Medicine (Denver Health)
Diane Fairclough, PhD, Professor of Biostatistics (COHO)
Rakesh Mistry, MD, MS, Associate Professor of Pediatrics (Children’s)
Marion Sills, MD, MPH, Associate Professor of Pediatrics (Children’s)

EM-STIM Program Senior Advisors
Lalit Bajaj, MD, MPH, Associate Professor of Pediatrics (Children’s)
Richard Dart, MD, PhD, Professor of (Denver Health/RMPDC)
Ed Havranek, MD, Professor of Medicine (Denver Health)
Anne Libby, PhD, Associate Professor of Clinical Pharmacy (CCTSI)
Steven Lowenstein, MD, MPH, Professor of Emergency Medicine (University)
Carol Runyan, MPH, PhD, Professor of Epidemiology (School of Public Health)
Desmond Runyan, MD, DrPH, Professor of Pediatrics (Children’s)
Richard Traystman, PhD, Vice Chancellor for Research (University)

EM-STIM Program Coordinator
Katie Rowan, Department of Emergency Medicine (University)

Department of Emergency Medicine includes faculty with a primary appointment in Emergency Medicine and those with a primary appointment in Pediatrics and a secondary appointment in Emergency Medicine