



**Association of
American Medical Colleges**
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GREAT Group 2007 Annual Meeting

Saturday, October 20, 2007

12:00-1:30 pm

Breakout Lunches

Prepared by Victoria Freedman & Wayne McCormack

TRAINING GOALS FOR THE FUTURE

The goal of this session is to discuss graduate training in the biomedical sciences in light of current and emerging scientific training needs. How can graduate students be better trained for interdisciplinary and team research? Are we meeting current and emerging needs? Are students getting the skills that they need for the future? Should the didactic training we offer in our graduate programs be changed? What new guidelines and approaches should be implemented to ensure that students will have the additional skills required to succeed as innovative scientists? The potential benefits of any additional training must be weighed against local degree requirements and NIGMS mandates for increased training in areas such as responsible conduct of research, quantitative skills, and other training program-specific components.

Participants are asked to share experiences at their home institutions so that best practices may be developed. Participants should be prepared to discuss what has worked and what has not worked at their institutions. What do students like and not like about their training experiences? What do our faculty and students perceive as unmet needs? Broad creative thinking about graduate training is encouraged in these sessions.

Topic 1. Team Science - The Silos are Falling

“Cottage industry” individual investigator-driven science has been effective until now, but the complexity of today’s research problems calls for a paradigm shift to “team science”. Although we have best practices for investigator-initiated research, the complex social and intellectual processes required for successful interdisciplinary teams have not been elucidated. How should teams form? Where does the graduate student fit into the team? Should a team be built around specific parameters or allowed to self assemble? What kind of expertise should be represented? How do you achieve effective complementarity in skills, experience, perspective, and the use of diverse methodologies? How do teams learn to speak the same language? How do you build effective leadership and trust? How do you get fair credit for your contributions in team science? How are results included in dissertations? Who writes the paper? How is the project funded? What impact will team science have on tenure & promotion? How do you ensure a continued commitment to shared objectives and passion? Can we identify the skills necessary for successful team science and then teach these to graduate students and post-docs?

Topic 2. Clinically Relevant Research - Don’t Get Lost in Translation

With NIH Roadmap initiatives such as the Clinical & Translational Science Award (CTSA) driving some research funding, there is an increasing need for PhD biomedical researchers with expertise in clinically relevant research. Do we need to enhance trainee exposure to concepts and opportunities relevant to research on human health and disease? Should courses in physiology and/or pathology be required? Does any increased emphasis on human health and disease have to come at the expense of emphasizing the importance and value of non-targeted research? How do we identify clinical research opportunities within our academic medical centers? How do we encourage basic scientists and clinical scientists to cross the street or hallway to talk to each other? Does co-mentoring of trainees by basic & clinical researchers help facilitate research collaboration? Translational and clinical investigator employment opportunities and the roles of PhD researchers in research teams of the future may also be addressed.

Topic 3. Quantitative Skills - Count on Them

Some biomedical science training programs require that entering students have had math through differential equations and at least one course in probability and statistics, whereas others do not require these skills. Although there will be no single approach or cluster of core competencies that can satisfy the needs of all programs, quantitative training needs to extend beyond that offered to undergraduates. Do our trainees need better quantitative skills? Do mentors do enough, or do we need more formal training opportunities? Are better skills needed for clinical studies and team science? What should be included - experimental design, biostatistics, working with databases and large datasets, other computer and/or technology skills, the “Omics” revolution? Can we teach analytic skills such as problem identification and problem solving? Should this be part of the core curriculum? Should we offer additional required or elective courses? Keep in mind that one size won’t fit all, and that there may be both general and more focused needs in different graduate programs. How do we deal with students from disparate undergraduate backgrounds? Should there be minimum background prerequisites, *e.g.* calculus? Will improved quantitative skills help promote better cross-communication across disciplines? How can quantitative training emphasize the importance of self-learning and interdisciplinary collaboration?

Topic 4. Writing & Communication Skills - Say What?

Scientists rely heavily on good communication skills for many crucial aspects of their work. Communication skills provide opportunities to reflect on our experiments and what our results mean, and are necessary for sharing what we have learned with others to advance scientific discovery. How effective are we as mentors in helping our graduate students and postdoctoral fellows develop not only as scientists, but also as scientific writers and communicators? These skills include scientific writing, such as grant proposals, journal articles, abstracts for meetings, and book chapters, and presentation skills, such as public speaking in seminars and conferences. Good communication also involves critical listening skills. Would formal courses be helpful? Should such courses be required or elective? In lieu of a formal course, is it possible to incorporate elements of writing and communication in graduate courses across the curriculum? Do international students need additional assistance? How can we teach trainees how to write and speak more clearly? How can we teach trainees to get the most out of attending seminars by really listening and learning? Can such training be made interactive and collaborative with other coursework? Can such training emphasize problem-solving? Can such training accommodate a variety of learning styles?

GREAT Group 2007 Annual Meeting

Sunday, October 21, 2007

12:30-2:00 pm

Breakout Lunches

Prepared by C. Gita Bosch and Allan Yates

FUNDING OF BIOMEDICAL GRADUATE PROGRAMS

The changes in federal funding coupled with the increasing costs of graduate education have resulted in considerable financial pressure on biomedical graduate programs. The goal of this breakout session is to stimulate conversations in a small group setting that will allow participants to gain from the experiences of other institutions on two topics related to the immediately preceding plenary session: (1) Fundraising; (2) Financial support of graduate students.

Topic 1. Fundraising

Obtaining funds from private donors to support graduate education is a major challenge. Participants can share their experiences with what has and what has not been successful at their institutions. Topics to discuss can include the following:

- a. Advantages and disadvantages of your current administrative structure for fundraising including who does it and what are graduate programs permitted to do.
- b. What would be the ideal design and strategy to raise private funds at your institution?
- c. What have been the successes, challenges, and failures at your institution, and what factors were responsible for these?

Topic 2. Models for Graduate Student Support

Different medical centers use various financial models to support graduate education, the success of which depends on many factors. This breakout topic will allow participants to discuss different models in use, to identify factors responsible for the successes and challenges of different models, and to present strategies for changes to these models. The discussion could include issues such as:

- a. Tuition – sources; costs pre- and post-candidacy; in state vs out of state.
- b. Stipend – sources, costs
- c. Fringe benefits (health insurance, travel funds, etc.).
- d. Bridge funds for students whose advisors have a lapse of funding, or whose advisors leave the institution.
- e. Operational costs for staff, information technology, program directors, student recruiting