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BEAR Cage: Mentoring through Engagement

The Way is in training. Become acquainted with every art. Know the way of all Professions.

—Miyamoto Musashi, *A Book of Five Rings*

As health sciences is broadening its focus to include transforming new knowledge into various health care system improvements, establishing a career as a scientific investigator is increasingly a challenging process. To achieve success in this environment, young investigators need to integrate knowledge from many different disciplines. They also require understanding of both the art and science of research translation, as it enhances scientific creativity and efficient strategic thinking, leading to real-world innovations (1–3). Furthermore, this knowledge will better position young investigators for careers and leadership positions across university, industry, nonprofit, and government settings, including regulatory agencies such as the U.S. Food and Drug Administration and the European Medicines Agency. And it will improve their ability to compete for ever-tightening resources in these environments. Going forward, we must make every effort to find new venues to enhance and further develop this art and wisdom as a complementary discipline to the more traditional research skills (4–7).

The Solution

The American Thoracic Society (ATS) needs to further enhance its leadership position in educating early-stage researchers by preparing them for these challenging translational careers. In new ways, we, as active ATS members, need to show junior faculty

that they have the support of their professional organization and that continuing guidance will be available as their careers develop. Although already enhancing the careers of its junior investigators on many levels, the ATS should continue to evolve by being recognized as an exemplary professional organization for facilitating translational research training and career development. Our goal, however, is not only to train investigators but also to convey the excitement of translational science: learning how to adapt ideas to the real world of improving health, be it in health policy or clinical care.

The ATS, with its diverse membership and expertise, is uniquely positioned to achieve this vision through coordinated activities, including learning opportunities and mentoring of early-career investigators.

To these ends, the ATS Drug, Device, Discovery, and Development (Quad D) Committee was given the assignment to promote translational science by training and inspiring young investigators in respiratory medicine, critical care, and sleep disorders through providing an infrastructure for teaching and mentorship. It began as an ATS “Academy of Translational Sciences” (ATS²), dedicated to filling in learning gaps and providing mentoring for early career investigators, who will be the future of translational science.

The Quad D Committee considered ways to maximize impact and leverage resources for ATS members. A survey of committee members indicated that components of a Translational Core Curriculum, some developed, in part, to facilitate the Clinical and Translational Science Award program, are already available. Duplication of these training modules, many available online, was deemed unnecessary and would not contribute meaningfully to career advancement of ATS members, especially junior faculty.

We chose to follow complementary routes to achieve these goals, in part through activities at or around the ATS International

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Conference. Taking this broader view, gaps in training included identifying new and emerging worldwide trends in translational sciences theory and achieving training through post-graduate courses, translational symposia, and simulation centers. The committee also recognized the importance of mentorship for our junior investigators, but mentorship for the future, more broadly defined. In the evolving scientific and fiscal environment, mentorship must take a different and longer-term perspective. Although mentorship must be successful at the local level, it is no longer restricted to the laboratory or the clinic. This evolution of mentorship should include providing more robust opportunities, including networking with a broad range of senior and junior investigators, and exposure to colleagues internationally and from other disciplines, institutions, and work environments. The diverse composition of the ATS, which is reflected on the Quad D Committee, including members from academia, industry, nonprofits, and government, provides mentors with different backgrounds to support career development of junior members. Therefore, it is the diversity of ATS members with these skill sets that provides the backbone of mentorship for young investigators who are interested in a career in translational and clinical science.

The Deliverables

The ATS² comprises several parts (Figure 1). For example, during the ATS 2014 International Conference, the Committee presented a post-graduate course on “Translational Research Training for the Early Investigator: A Practical Skills Workshop”; junior ATS members were encouraged to submit research proposals for

review by experienced clinical investigators, who provided feedback during and after the course. At ATS 2015, the Quad D and Documents Committees organized a symposium entitled “Clinical Trials: An Evolving Art,” providing a forum for young and seasoned clinical investigators to hear “the future state-of-the art” presentations about clinical trial design and implementation. Using this format made it possible for ATS membership to be exposed to trial design experts, outside standard ATS membership, who might otherwise not be included in our disease area symposium. In each instance, additional value of this activity was in possible future interactions and the opportunities to develop new relationships and new networks, as well as in the immediate short-term education of participants.

Consistent with these themes, we introduced, at ATS 2015, the Building Education to Advance Research (BEAR) Cage Competition, another mechanism to provide a new avenue of mentoring for junior ATS investigators in translational research. Translational research, by nature, is an integrated, emergent discipline in which “creative tension” among parts is important to success. On the basis of our collective experience, we proposed that the contributions of several mentors, who provide experience in multiple disciplines and translational sciences, should have a greater than additive impact on the mentee. The BEAR Cage is intended to provide support by senior and midcareer ATS members with interdisciplinary experiences and proposes to give the finalists complementary and long-term mentors outside their usual institutional support.

The BEAR Cage

Given these goals, the direct focus of this initiative was how to harness the skills of ATS members to improve both short- and long-term complementary mentoring of junior investigators. The program was

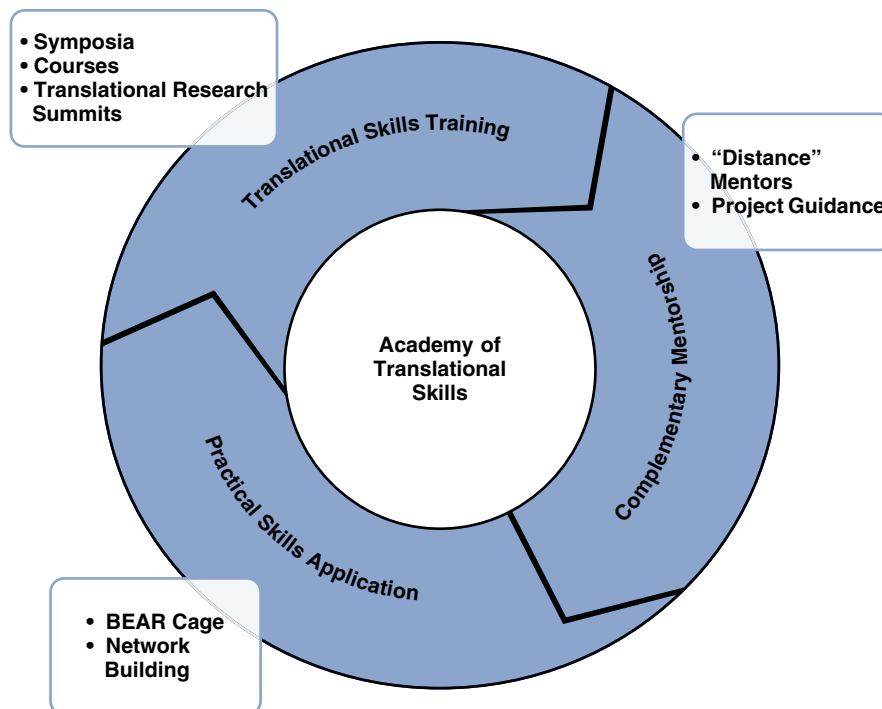


Figure 1. The virtual learning cycle of the Academy of Translational Skills: the Building Education to Advance Research (BEAR) Cage is a major component.

developed to train the next generation of investigators to view translational science strategically and creatively.

What was the outcome of the inaugural 2015 BEAR Cage? Junior investigators were asked to propose a translational project, which was then reviewed and prioritized. After providing each applicant with written feedback, three finalists were selected to enter the BEAR Cage at the ATS 2015 International Conference. The finalists were instructed to present their project proposals concisely. They were then publically questioned on the strategic translational scientific underpinnings of their proposals by translational experts as well as by the audience. This provided a unique learning environment for the finalists, by providing real-time feedback. Additionally, this was a unique experience for the audience, who was exposed to both unique ideas and, through the questions, the sharp, strategic thinking required for these ideas to become innovations.

The proposals of BEAR Cage finalists included broad aspects of translational science. One proposal described development of a device from conception, through prototype, to clinical trials. Another sought to improve health care delivery through a unique implementation approach, and a third was an investigation of the public health impact of an all-too-common consumer habit. BEAR Cage finalists were assigned Quad D Committee members as local and long-distance mentors for the coming year to help these young and talented investigators to pursue their projects.

Future career success may be dependent on taking advantage of these opportunities for interdisciplinary learning. Given the competition for federal funding, university and industry support, and the focus on innovation in health care, a successful career as a translational scientist may require finding more robust opportunities for career development. The availability of senior mentors, as demonstrated by the BEAR Cage, may improve these possibilities, enhance awareness of funding sources, provide career opportunities, enable interdisciplinary networking, and promote the development of junior ATS members. Our junior faculty must be able to live in, adapt to, and flourish in these changing and more complicated environments. Survival in the BEAR Cage may give junior membership the necessary experience and backing for short-term and long-term success. ■

Author disclosures are available with the text of this article at www.atsjournals.org.

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