Mentoring Sideways—A Model of Resident-to-Resident Research Mentorship

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The traditional apprenticeship model of research mentorship, where residents pursue research projects directed by attending surgeons, may be ill-suited to optimize research innovation, productivity, and leadership experience. This is particularly true in an era of ever mounting demands of academic attending surgeons, easier availability of powerful clinical databases, and more residents beginning training with prior research experience and advanced degrees.

To help makeup the gaps of traditional research mentorship, we propose a complementary peer-focused, "sideways mentorship" approach. This model revolves around a consortium of residents who develop their own research ideas, and obtain feedback and technical input from fellow residents. Such a model provides trainees more opportunities to explore their own ideas, become exposed to a wider range of disciplines, share technical knowledge and prior experience, and practice being mentors themselves. We believe sideways mentoring model can be successful in this changing research era, and is a valuable addition to the traditional research model and encourage educational programs to support efforts in establishing resident-run research collaborative. (J Surg Ed 76:1–3. © 2018 Association of Program Directors in Surgery. Published by Elsevier Inc. All rights reserved.)

PERSPECTIVE

Research is an integral component of general surgery residency programs; however, in this modern climate of academic medicine, the traditional model of research mentorship is outmoded and ill-fitted to foster independence and innovation among trainees. Research mentorship during residency training has typically followed a common structure: residents commit their research time to a specific faculty mentor who directs them through projects of his or her principle design.[1] While these apprenticeship relationships historically have been effective, drastic changes in both academic medicine and clinical research have recently pushed the limits of this model's feasibility. Specifically, the ever mounting operative, administrative, and research demands of academic surgeons, as well as the dwindling availability of research funds, hinder the ability of attendings to focus on research, let alone mentorship. Additionally, the availability of powerful clinical databases, increasing interest in surgical outcomes and health services research, and attainment of advanced degrees among trainees has made residents less reliant on this hierarchical model of research mentorship.[2] In this environment, additional sources of mentorship are needed to encourage new and independent research among residents.

In Silicon Valley, the "hackathon" represents a new model of mentorship and collaboration that has been extremely successful in fostering innovation and professional development. At a typical hackathon, programmers form collaborative teams to develop solutions to an identified idea or problem. In this setting, informal peer mentorship provides participants with a safe environment to think "outside the box" and transform exciting ideas into innovative, disruptive technologies. This form of peer-driven collaboration and exchange of ideas embodies the concept of "mentoring sideways", a model we have successfully incorporated into the world of academic research through a resident-run surgical research consortium.

At the heart of our model is the quarterly "research hackathon". At these open meetings, residents arrive

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prepared with their ideas of clinical interest and relevant background research. Following a brief presentation of the topics and potential research questions, members are then encouraged to informally discuss the clinical aspects of the ideas, how to refine the concepts, and which databases and methodologic approaches would be most applicable—all in a low stress environment. Interested residents then form collaborative teams to continue the work forward, and recommendations are given on which faculty may best help further guide and refine the project. Unlike traditional lab meetings or research-in-progress workshops, the goal of these meetings is not an assessment of progress or a presentation of results. Rather, like a startup incubator, these forums focus on ways to accelerate an idea to fruition and to potentially expand its impact.

This model has a number of advantages that align with traditional models of mentorship.[3] First, peer mentorship provides a less intimidating arena for residents to explore their own ideas and questions.[4] Good research is founded on generating thoughtful clinical questions, which can be the most difficult part of the research process, and hackathons provide an opportunity to practice idea generation in a supportive environment. Even beyond promoting innovation in research ideas, resident generated projects increase the sense of ownership of research projects and help inspire interests in careers in academic surgery. Second, we have found that research ideas from traditional mentors are often siloed in their areas of expertise, and our model allows for the cross-pollination and exposure of ideas among residents who have wide-reaching clinical and academic interests. This is evidenced in the abstracts and manuscripts that our collaborative has produced encompassing not only multiple different surgical subspecialties, but also spanning into the diverse areas of medical education, public health, clinical outcomes, and health policy. Third, as surgical trainees are increasingly pursuing additional academic degrees during research time, hackathons allow residents to practice their newly learned skills while also providing a forum to teach other residents research and statistical methodology in a hands-on manner. Finally, this model allows residents to serve as mentors for one another, and gain experience in a skill that is important for all future academic surgeons. We have even broadened our model to include medical students in our consortium, and have worked with them on developing their own research projects and advised them on future careers in surgery.

The success of sideways mentoring requires several key, but reproducible, steps. First, while peer-mentoring is at the heart of the model, finding attending faculties who are supportive and willing to help shepherd along resident-driven projects is an essential factor for the success of a resident research collaborative. It is important to emphasize that this model does not advocate for the exclusion of experienced faculty from the resident research process; time and again, surgical attendings have joined our hackathons to provide valuable clinical experience and assist in framing clinical questions from their inception. There is truly no hierarchy of opinion or experience during these sessions, and researchers at all levels are encouraged to express their thoughts and ideas. Indeed, attendings have joined our hackathons to not only provide insights, but to also elicit feedback and collaboration on their own research ideas. Furthermore, this model does not aim to replace the traditional research apprenticeship experience, which continues to have immense value in imparting research skills, but rather it works best as an adjunct that allows residents the opportunity to apply this knowledge to independently driven ideas. Second, it is essential to identify and encourage residents with key skills, including technical expertise and the willingness to initiate collaborative efforts. This helps establish a local champion who can organize hackathons, recruit peers, and provide an example for others to follow. Third, highlighting success can help develop momentum for nascent collaborations. Seeing that resident-generated ideas can lead to meaningful scholarship can be motivating and helpful in promoting, and sustaining, independent interests and clinical curiosity among residents. Finally, a modicum of material support—to gain access to clinical databases, purchase statistical software, and provide a space to work—can be fundamental to jump-starting resident scholarly work.

A sideways mentorship approach is powerful because it is—at every level—driven primarily by the initiative, collaboration, and support from within the resident community, without competition or adversity. We believe sideways mentoring is a valuable addition to the traditional research model and encourage educational programs to support efforts in establishing resident-run research collaboratives.

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SUPPLEMENTARY INFORMATION

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