

## COMMENTARIES

## Emergency Medicine Research—A Time to Celebrate, Contemplate, and Propagate

The Society for Academic Emergency Medicine (SAEM) Board of Directors and Program Committee are pleased that the 2001 annual meeting will be, like its predecessors, a showcase of emergency medicine (EM) research. Research has been a focus area for SAEM over the past year, and SAEM leaders have used various messages, commentaries, and lectures to take a critical look at EM research.<sup>1,2</sup> We have not been shy about pointing out our deficiencies, stressing that, as a field, EM has few experienced investigators and mentors, a lack of trained researchers and training opportunities, a poor track record for funded research, and a weak research infrastructure. While this collective castigation serves a purpose in identifying what must be corrected in order for us to move forward, we must also celebrate the recent progress in EM research that allows us to present a large number of high-quality research abstracts in this issue of *Academic Emergency Medicine (AEM)*. But, in keeping with our theme for the year, I will constrain the celebrating to a few paragraphs, and then offer some opinions on how we can continue to advance EM research.

When the field of EM was first developing, there was little attention to research, and many doubted that EM would emerge as a credible academic discipline.<sup>3</sup> Now, 122 residency programs and 56 academic EM departments later, we can feel secure about the academic strength of EM, and part of this strength lies in original research. Data on EM research output are difficult to find, but we have some indirect indica-

tions that original research in EM is growing. Currently, SAEM receives about 1,000 abstracts each year for its annual meeting, compared with around 500 abstracts a decade ago. Regional meetings receive several hundred abstracts each year (with some overlap with the annual meeting). This means that residency programs on average submit ten abstracts per year to SAEM meetings. Some academic EM programs approach 20 submitted SAEM abstracts per year. This does not count abstracts submitted to other EM meetings or to other scientific forums. Obviously, a large amount of nascent EM research is resulting in this output.

The next question—is the quality of our research increasing along with the quantity? Assessing research quality is a bit like judging figure skating. However, most academicians would agree that quality research is more likely to result in publication in a peer-reviewed journal, and is more likely to be funded. Judging from original research submissions to *AEM*, the amount of quality EM research is increasing. Since the advent of the journal in 1993–94, annual peer-reviewed submissions have gone from less than 100 to 491. Emergency medicine research publications in other EM journals, as well as in highly regarded general medical journals such as *JAMA* and the *New England Journal of Medicine*, also appear to be increasing. And, as EM researchers become more focused and specialized, their work is increasingly published in the best journals in their areas of interest. The other factor that denotes quality in one's research is getting someone else to pay for

it. Funded EM research appears to be growing exponentially. Experienced EM investigators are enjoying the fruits of their labors in conjunction with increased federal appropriations for research, and are securing large, federal grants for multiyear research projects. Junior EM investigators are linking up with mentors and successfully applying for federal research training and career development grants. Emergency medicine investigators are also taking a leading role in industry-sponsored research, acting as consultants and principal investigators for large multicenter trials. So, while we still have too many abstract presentations that do not make it to publication, and too many EM researchers who struggle with unfunded research, we seem to be making progress in both the output and quality of EM research.

We are at an important juncture as a specialty. We have scratched and clawed our way into the world of academic medicine, and growth in research has been an important part of our success. But, we are about as secure as an icicle in March, and the current fiscal challenges of our health care systems threaten to erode our academic base drip by drip. Unfortunately, the last to arrive are more vulnerable than those who have been around for decades. Improving our research programs is obviously good for our academic standing, but research may also be the best investment to make given the present medical fiscal climate. Research funding is increasing to unprecedented levels at a time when we are doing rain dances on the clinical side, trying to squeeze every bit of revenue out of our compromised emergency department operations. Congress is making good on its 1999 proposal to double the National Institutes of Health budget by 2004. This huge in-

crease in funding, along with increased opportunities in other research realms, makes it an excellent time to build our EM research programs. I offer the following opinions, directed at our leaders and our investigators, on how EM research can survive and thrive over the next decade.

### ***1. Are you the marrying type?***

A commitment to EM research is not an undertaking for the faint of heart, and not every program should be wedded to the idea of creating a strong research program. Some EM programs may want to stay “single,” focusing on teaching rather than research. If a strong research program is part of a department’s mission, then research must take a prominent role right from the start. Just as a prenuptial agreement may be a good idea for marriage security, a chair or research director should make a research prenuptial when taking a new job, or when the climate is right for requesting increased support. The best strategy for securing the essential components of a research program is to negotiate aggressively upfront. Some of the best research programs in EM have been made possible before the chair has stepped foot in his or her new office.

### ***2. If you build it, they will come.***

Bricks and mortar and test tubes do not guarantee a strong research program, but researchers have certain basic requirements. On the clinical side, researchers need protected time, seed money, office space, computer support, and research nurses or assistants. The decision to have a basic science research program involves even more expenditures. The initial cost to furnish a laboratory is at least 50,000 dollars, and about half of that amount for annual maintenance and supplies—and that is a low-end laboratory. Add to that research assistants or as-

sociates, animal acquisition and housing costs, and a few fancier machines, and it is apparent why most basic science laboratories require a healthy infusion of research grant support to stay functional. Despite the upfront cost of providing the basic components for a clinical and/or laboratory research program, the return on investment can be substantial. Good researchers are attracted to good facilities. Good researchers who compete successfully for grant funds will pay at least part of their keep, along with a large part of research program costs. This process takes time—a junior-level researcher who is provided with adequate infrastructure will need around five to seven years to become largely self-supporting in terms of research costs. The most successful EM research programs have committed to building a strong infrastructure, and to developing junior investigators. The effects of a strong research program will trickle down through an academic department. A study by Stern et al. found that EM residents who train in a program that strongly supports research are more likely to pursue an academic research career.<sup>4</sup> Like the proverbial “Field of Dreams,” a strong research infrastructure has the potential to attract new researchers to academic EM.

### ***3. Why are we refraining from research training?***

Although 42% of senior EM residents express interest in an academic career, and 30% actually take an academic EM job, only 5–7% of EM residency graduates plan a career that emphasizes research.<sup>4,5</sup> If those graduates stick to their plans, this results in a fairly small annual pool of around 50 to 70 committed new researchers per year. The number of EM graduates who enter research fellowships each year can be counted digitally—with

fingers, not a computer. Presumably, new residency graduates would be champing at the bit to acquire essential research skills and gain an advantage in the research world by doing postgraduate research training. Unfortunately, the opposite is true. Despite the fact that in 1997 only 29% of residency program directors thought that their residents were well prepared for an academic career that required original research, only 25% of 1997 EM graduates who were entering an academic career believed that fellowship training was important for academic success.<sup>4,5</sup> Why, in the face of good evidence that research training strongly correlates with a successful research career, does EM shun such training?<sup>6</sup> The reasons are multifactorial: few funded fellowship opportunities in EM, the large debt burden faced by many graduating residents, and a lack of exposure to research role models. If we are to compete with traditional academic departments for the large grants that fuel research programs, we must send trained investigators to the competition. This means finding the funds for fellowships—for example, applying for training grants that will support a fellow. This also means counseling graduating residents who seek an academic career that involves research that they will have a more successful and prosperous career if they find an experienced research mentor and do a fellowship. Department chairs cannot be faulted for wanting to hire the best and brightest residency graduates as new junior faculty, but they must be convinced that supporting that graduate as a fellow is a great investment to make.

Emergency medicine residents have plenty of exposure to good teachers and clinicians, but little exposure to EM investigators. Researchers tend to compartmentalize as they grow more

successful, and have reduced resident contact hours. This makes it harder to demonstrate the rewards of a research career. We need to find better ways to highlight researchers in our departments and increase their exposure to resident physicians.

Many residents are asked to do a research project during residency, but do not have the opportunity to work with an experienced research mentor. Too often, the process becomes a graduation requirement, rather than a worthwhile research training experience. The key to developing successful resident researchers is to make a meaningful, mentored research experience available to those residents who want to do research, and provide intramural funds for resident research projects. This formula has been shown to be associated with an increased percentage of residency graduates who pursue an academic research career.<sup>4</sup>

**4. What's the rush?** We in EM are a Beaujolais breed—we don't like to wait for that wine to sit in the bottle for a few years. But we have something to learn from expert vintners. One of the reasons that we have few EM research fellows is that EM residency graduates with research potential have routinely been hired and appointed as research directors at developing EM programs.<sup>7</sup> And one of the reasons why we have too few research mentors is that experienced investigators have been advanced to time-consuming chair, director, or administrative positions. The fast-track approach does not work for a research career. In other fields that properly nurture their young faculty, most in-

vestigators do not get their first big grant until they are in their late 30s or 40s. They do not become research directors until they have established funded research programs, and are well-prepared to mentor trainees and younger faculty. Junior investigators are treated as such, and are carefully trained, mentored, and given time to develop their expertise. We do not expect that a first-year EM resident will be able to handle a complicated resuscitation. Why do we expect that a minimally trained junior faculty member will be able to conduct quality research, compete successfully for research funding, and mentor others? The failures and frustrations that predictably occur when an improperly prepared physician is asked to do too much too soon has led to the exit of a number of potentially fine EM investigators from the academic world.

My thoughts and recommendations can be distilled down to these main points. Academic EM department or division leaders must first decide whether developing a strong research program is feasible and desirable. If the answers to these questions are yes, then a full-scale commitment is required to provide the research infrastructure that will allow investigators to flourish. Two essential ingredients are then needed—training and time. Faculty and fellows who will have significant involvement in research should be expected to obtain formal research training, and be given ample time to develop in a supportive, mentored environment.

Many of the research abstracts presented in this issue of *AEM* come from investigators

who have done the training and have been given the time—and the quality will be obvious as the abstracts are delivered as oral or poster presentations. The annual meeting provides an excellent opportunity for younger investigators to meet, interact with, and learn from more experienced investigators. It is a time to celebrate our triumphs in EM research, take a candid look at our strengths and weaknesses, and plan how to take advantage of the great opportunities that will be presented to us in the coming years.—BRIAN J. ZINK, MD (bzink@umich.edu), *President, Society for Academic Emergency Medicine, and Associate Professor, Department of Emergency Medicine, University of Michigan, Ann Arbor, MI*

**Key words.** emergency medicine; research; academic.

### References

1. Biros MH. Reforming a solitary passion [commentary]. *Acad Emerg Med.* 2000; 7:421–4.
2. Zink BJ. Emergency medicine research—no more excuses. *SAEM Newslett.* 2000; 12(3):1, 5–6.
3. Leitzell JD. Emergency medicine: an uncertain future. *N Engl J Med.* 1981; 304:477–80.
4. Stern SA, Kim HM, Neacy K, Dronen SC, Mertz M. The impact of environmental factors on emergency medicine resident career choice. *Acad Emerg Med.* 1999; 6:262–70.
5. Neacy K, Stern SA, Kim HM, Dronen SC. Resident perception of academic skills training and impact on academic career choice. *Acad Emerg Med.* 2000; 7: 1408–15.
6. Gentile NO. Postdoctoral research training of full-time faculty in departments of medicine. Washington, DC: Association of Professors of Medicine, Association of American Medical Colleges, 1989, pp 1–62.
7. Blanda M, Gerson LW, Dunn K. Emergency medicine resident research requirements and director characteristics. *Acad Emerg Med.* 1999; 6:286–91.