Research in medical education should provide strong evidence for successful educational strategies to improve patient care. Improving ways to teach and designing innovative new curricular strategies is a noble activity with many downstream implications. Implementation of new educational strategies and curriculum innovations may yield better learning, but it also requires outlays of both funding and manpower. Consequently, having confidence in the evidence supporting these educational interventions is critical.

Given the challenges of evaluating the educational process as well as the general lack of funding for medical education research, there seems to be an implicit attitude that medical education research is a unique form of research, and thus standard research designs are not applicable or needed. A quick search of the 16 studies published in *Family Medicine* during 2010 that could be identified as educationally oriented interventions, only six of 16 (38%) included a control or comparison group in their design. Having a control group is a key component to providing a sophisticated understanding of the impact of an intervention. This is particularly disappointing because for several years, the quality of research in medical education has been frequently criticized for using weak research designs and lacking in methodological rigor. Methodological limitations found in much of medical education research makes it difficult to ascertain with any degree of confidence whether the new curriculum innovations actually made a difference.

As Yogi Berra advised, when we come to a fork in the road we need to take it. But which way do we go? Do we search for alternative methods that avoid standard research designs and allow us to justify doing what we have historically done, or do we need to be more creative in finding ways to be more rigorous in using standard designs? In this issue of *Family Medicine*, we have published a paper describing an evaluation technique called “realistic evaluation.” Such methods may be particularly appealing for many doing medical education research because they are relatively dismissive of the need for traditional experimental methods and controlled trials. Moreover, they appeal to the argument that in medical education research, traditional experimental designs are not feasible for evaluation of project interventions. To reiterate, the contention seems to be that medical education research is different and so the standard research designs don’t apply.

Abandoning standard research designs and searching for ones that may make research easier would seem to be counterproductive as a way to overcome the criticisms of medical education research as methodologically weak. In fact, it may be useful to heed the advice of others to embrace and use standard techniques rather than abandoning them. A movement toward more rigorous controlled methods for medical education research would make this research consistent with the type of research that we use to represent the highest level of evidence when we teach evidence-based medicine evaluation to students, residents, and practicing physicians. It would seem appropriate that we should strive to raise the bar and do the best, most rigorous studies we can, thereby increasing the strength of evidence regarding the value of educational interventions.

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There are many advantages and few downsides to controlling for potential confounding variables and eliminating threats to the validity when using strong research designs. It seems obvious that the response to critics that medical education is weak because of the methodological limitations is not to move away from rigorous designs but rather to move toward them.

An argument common in medical education research is that randomized trials or even quasi-experimental studies (non-randomized intervention and control group designs) are impossible or impractical to do for these kinds of questions in these kinds of populations. It is unclear whether randomized trials are possible to do or are simply difficult and costly to implement. It may require some creativity on the part of the investigator, but several recent studies have shown that interesting and important questions can be addressed using a strong research design. One study focused on teaching residents how to insert a central venous catheter using a randomized, controlled design comparing simulation versus standard training. Simulation training was more effective than traditional training. In another study, medical students learned advanced cardiac life support (ACLS) skills in a randomized, controlled trial comparing a group in which the investigators added emotional stressors versus a control group with standard training. Training with added emotional stressors, since this situation is likely to be quite stressful in real life, led to more anxiety during the ACLS training but enhanced performance of ACLS skills later. In a third study, medical students were randomly assigned to receive either a perspective-taking instruction or a neutral instruction prior to a clinical skills examination with the goal to see if the training increased patient satisfaction with the encounter. Perspective taking increased patient satisfaction. These studies exemplify the highest levels of evidence while addressing very relevant questions for medical education.

In some cases it may not be feasible to implement a randomized trial when evaluating a new curricular intervention. The answer is not to revert back to the common, but methodologically weak, design of conducting a study without a control group. Too many studies simply assess attitudes or behaviors in a single group before and after the intervention. The investigator may conclude that if knowledge, attitudes, or behaviors improved, then it must be because of the intervention. This could be a faulty conclusion. Having a control group and statistically controlling for some key variables could definitely improve confidence in the findings of such studies. The use of control groups, even in non-randomized studies, is becoming more common and is a strong step in improving our understanding of the impact of educational interventions.

It may be difficult, but let’s raise the bar on medical education research and strive for the same level of evidence for educational interventions that we would expect for treatments for patients. The students we are training in these programs will be delivering care to real patients very soon. Standard methods have advantages in providing compelling evidence for meaningful hypothesis-driven questions and should be embraced even if it requires a little more work and creativity. The stronger evidence regarding educational innovations the better off students and their future patients will be.

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