

Having grown up before role models were invented, it is hard for me to see the appeal of this term. Perhaps it makes sense to people whose life experience has come mostly from watching actors on television and in films, but there is a difference between learning to do something and training for a role. I hope that clinical instructors still practice and teach medicine, as distinguished from “modeling” it, and that physicians in training will still try to understand the reasons behind what they do and learn from listening to patients and their families, as opposed to simply imitating models.

C. DENNIS THRON, M.D.  
5 Barrymore Rd.  
Hanover, NH 03755

1. Skeff KM, Mutha S. Role models — guiding the future of medicine. *N Engl J Med* 1998;339:2015-7.

The authors reply:

*To the Editor:* Aron and colleagues suggest that effective teaching might be harmful to one’s academic career. Their finding that teaching-award winners left two research-oriented departments of medicine sooner than their counterparts is interesting, but where are the winners going and why? In both the study that surveyed the chairs of the medical schools’ promotions committees<sup>1</sup> and a survey of chairs of the departments of medicine,<sup>2</sup> teaching skills were the most important factors considered in the promotion of clinician-educators and not the “kiss of death” implied by the results of the study by Aron et al. Furthermore, in the first two studies, mentoring and role modeling were also thought to be important skills in considerations of the promotion of clinician-educators.

As for Dr. Thron’s criticism that our definition of a role model was too vague, we disagree. We believe that our definition, “a person considered as a standard of excellence to be imitated,” which came from *Webster’s New World Dictionary*,<sup>3</sup> is clear. A role model is a person who serves as a model in a particular role for another person to emulate — nothing more and nothing less. The identity of role models lies in the eye of the beholder, and we acknowledge that various combinations of skills, attitudes, and behavior will influence and impress different learners. On the basis of Bandura’s social learning theories<sup>4</sup> and the work of many others, this definition of a role model is supported by the literature and previous research.

Dr. Thron’s assertion that role modeling is complex and not meant to be studied in a quantitative fashion could be applied to all social-science studies. The doctor–patient relationship is also a complicated phenomenon, but research, both qualitative and quantitative, has helped our comprehension of the process.<sup>5,6</sup> We agree that a qualitative research approach might have highlighted aspects of role modeling not addressed in the study, but we believe that our quantitative results provide information that, in the context of the literature, enhance our understanding of role modeling in medical education.

We disagree with Dr. Thron’s opinion that physicians should just practice and teach medicine and not consider or be aware that trainees are watching carefully. We believe that there is sufficient evidence to suggest that teaching

physicians should think about and aspire to be excellent role models in the context of their practice and teaching.

SCOTT M. WRIGHT, M.D.  
DAVID E. KERN, M.D., M.P.H.  
FREDERICK L. BRANCATI, M.D., M.H.S.  
Johns Hopkins University School of Medicine  
Baltimore, MD 21224

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3. Webster’s new world dictionary of the American language. College ed. Cleveland: World Publishing, 1958.
4. Bandura A. Social learning theory. Englewood Cliffs, N.J.: Prentice-Hall, 1977.
5. Lipkin M Jr, Putnam SM, Lazare A, eds. The medical interview: clinical care, education, and research. New York: Springer-Verlag, 1995.
6. Kern DE, Cole KA. Patient education, behavior change, and compliance. In: Barker LR, Burton JR, Zieve PD, eds. Principles of ambulatory medicine. 5th ed. Baltimore: Williams & Wilkins, 1999:41-62.

### More Guns, Less Crime

*To the Editor:* Hemenway’s review of my book *More Guns, Less Crime* (Dec. 31 issue)<sup>1</sup> makes false and misleading claims. My book analyzed Federal Bureau of Investigation data on crimes in all American counties from 1977 to 1994, as well as similar data on accidental deaths and suicides involving guns. Laws that allow people to carry concealed handguns deter criminals and reduce violent crime, with murder rates falling by more than 10 percent. Urban, crime-prone counties have benefited the most, and women have benefited much more than men.

Hemenway starts his review by falsely claiming that I “approvingly” quote Archie Bunker’s suggestion to stop airplane hijacking by arming “all the passengers.” My book does not even cite this quotation, though I mentioned it in an earlier research paper because it was relevant to the debate over concealed handguns: it illustrates both the possibility of deterrence and the fears about the possible disasters that such laws could lead to.

I did account for crime cycles and other factors that determine the crime rate. The decreases in the crime rate started precisely when the concealed-handgun laws went into effect, and the crime rate fell well below what it had been before the laws were enacted. I accounted for arrest and conviction rates, the length of prison sentences, police expenditures, the number of officers, alternative policing strategies (e.g., the “broken window” strategy, which is based on the notion that preventing property crimes will reduce violent crimes), illegal-drug prices, and the specific year and county. Additional variables included unemployment, poverty, and other detailed demographic characteristics, as well as state waiting periods, the Brady Law, and other gun laws.

The strengths and weaknesses of the poll data were discussed in my book. The data were reweighted for state-level use, and I accounted for all the other factors Hemenway mentioned.

Hemenway misleadingly describes the academic debate.

I have made the data available to faculty members at 36 universities, and everyone has been able to replicate my findings. Three articles that are critical of my general approach have used the data, and even my harshest critics have found no statistically significant evidence that laws permitting concealed handguns increase crime. Other articles argue that I was too conservative in estimating the benefits. Most of those who have examined the data have been very supportive. No one has challenged my findings about accidental deaths or suicides or my finding that the Brady Law failed to reduce crime.

JOHN R. LOTT, JR., PH.D.  
University of Chicago School of Law  
Chicago, IL 60637

1. Hemenway D. Review of: *More guns, less crime: understanding crime and gun-control laws*. N Engl J Med 1998;339:2029-30.

Dr. Hemenway replies:

*To the Editor:* My review of Lott's book was accurate. The Archie Bunker quotation comes from the article that formed the basis of Lott's book. The quotation is in the middle of a long discussion of the benefits of guns in thwarting and deterring burglary, assault, and robbery. The main lesson Lott draws from the school shootings in Jonesboro, Arkansas, and elsewhere is that we should arm teachers.<sup>1</sup>

Lott's variables are not good predictors of crime waves. Nor does he provide for any effect of history in the way he models crime. For example, the year 1982 could as well follow 1991 as 1981 in his analyses.

As the source of the voter exit poll has emphasized, these data are not appropriate for determining levels of or changes in gun ownership. (For example, the percentage of adults who personally owned a gun in 1996 was not 39 percent, as the poll suggests, but 25 percent.<sup>2</sup>) Lott's reweighting of the data does not make them appropriate.

At least 10 academics have written or cowritten articles showing that there are enough serious flaws in Lott's analyses to discount his major findings completely. It would be difficult to have more such articles published. All Lott's subsidiary results are equally questionable, since he uses the same flawed model or unreliable data. The data he uses for accidental deaths involving handguns are usually off by a factor of more than 3 (e.g., in 1988 there were not 200 accidental deaths involving handguns, as he claims, but over 600).<sup>3</sup>

DAVID HEMENWAY, PH.D.  
Harvard School of Public Health  
Boston, MA 02115

1. Lott JR Jr. The real lesson of the school shootings. Wall Street Journal. March 27, 1998.
2. Cook PJ, Ludwig J. Guns in America: results of a comprehensive national survey on firearms ownership and use. Washington, D.C.: Police Foundation, 1996.
3. Kleck G. Targeting guns: firearms and their control. New York: Aldine de Gruyter, 1997.

## Wasted Paper in Pharmaceutical Samples

*To the Editor:* Clinicians give pharmaceutical samples provided to clinics by industry sales representatives to patients who are unable to afford medicines or use them as starter packs for patients initiating a new treatment. These samples are usually contained in large, elaborate, colorful, single-use packages. Paper packaging constitutes up to 50 percent of the 180 million tons of garbage Americans produce each year and represents the fastest-growing segment of garbage production.<sup>1</sup>

For these reasons, we sought to determine the relative amounts of packaging and pills in pharmaceutical samples in a university general-medicine clinic. We measured the mass and the total volume of pills and packaging in one of each brand of drug samples stored in the clinic. All pills were packaged in either foil blister packs or plastic bottles; these were contained in paper-product boxes and accompanied by paper package inserts.

Ninety-two packages contained 665 pills (mean [ $\pm$ SD],  $7.2 \pm 6.2$  pills per package). Paper packaging (paper-product boxes plus paper package inserts) constituted 65 percent of overall package weight (Table 1). The ratio of the volume of pills to the volume of paper-product boxes was 0.0132.

**TABLE 1.** WEIGHTS OF THE COMPONENTS OF PHARMACEUTICAL-SAMPLE PACKAGES.

COMPONENT	WEIGHT (g)	PERCENTAGE OF TOTAL WEIGHT
Pills	260	12
Bottles	260	12
Plastic or foil packaging	220	11
Paper packaging	1350	65
Total sample	2090	100

We conclude that pharmaceutical samples have a very high ratio of packaging to pills. Large packages may contribute to increased brand recognition and prescribing, but they also take up excessive space in overcrowded clinics and waste paper. The Paperboard Packaging Council<sup>2</sup> predicts that use of medicinal cartons in the United States will grow 5 percent per year over the next four years and that the traditional paper box will make way for cartons with curves, metallic coatings, holograms, and barrier coatings, all of which make the packaging less recyclable.

MARTIN T. DONOHOE, M.D.  
HARMONY MATTHEWS  
Oregon Health Sciences University  
Portland, OR 97201-3098

1. The Earth Works Group. The recycler's handbook. Berkeley, Calif.: Earth Works Press, 1990.
2. Donahue M. Make every second count with cartons. Pharmaceutical & Medical Packaging News. November 1998. (Or see: <http://www.devicelink.com/pmpn/archive/98/11/002.html>.)