mortality in the industrialized world, 1962–1990. *Int J Epidemiol* 2000;**29**:503–9.
18 **Smith CA**, Shannon HS. How much science is there in injury prevention and control? *Inj Prev* 2003;**9**:89–90.
19 **Blank D**. [Injury prevention and control: will we or will we not step out of the twentieth century?] *J Pediatr (Rio J)* 2002;**78**:84–6.
20 **Moller J**. Reconsidering community based interventions. *Inj Prev* 2004;**10**:2–3.
21 **Bangdiwala S**, Viadro C. A review of national policies and programs to prevent unintentional injuries in the Americas. *Inj Control Saf Promot* 2000;**7**:15–27.
22 **Inon AE**, Haller JA Jr. Caring for the injured children of our world: a global perspective. *Surg Clin North Am* 2002;**82**:435–45.
23 **Ministerio da Saude**. Secretaria de Politicas de Saude. [National Policy of Reduction of Accident and Violence Morbimortality.] *Rev Saude Publica* 2000;**34**:427–30.
24 **Peden M**, Scurfield R, Sleet D, *et al*, eds. *World report on road traffic injury prevention*. Geneva: World Health Organization, 2004.

Advocacy

Evidence based advocacy

E Friedlaender, F Winston

The academic clinician scientist's important role in translating research into action

Evidence based advocacy integrates the otherwise independent but overlapping efforts of clinicians, academics, epidemiologists, public health officials, and policymakers to apply scientific principles to widespread health promotion and prevention initiatives. We argue here that advocacy efforts lie within academic medical responsibilities, in part because health care academics lend credibility, as well as inspiration and imagination to these worthwhile pursuits, but more so because it concludes a professional obligation to those in our care by translating research to action. Just as rigorous science builds the evidence base for change, rigorous efforts and their evaluation are necessary to ensure that this evidence will be translated into change.

SUCCESSFUL MODELS OF ADVOCACY

Perhaps the most striking historical example of the impact of individual academic clinician scientists on advocacy efforts has been in the containment and control of poliomyelitis. International public sector and private sector partnerships among government agencies and local health care providers ensure routine immunizations, offer supplementary immunizations, and implement careful surveillance of the occurrence of acute flaccid paralysis. Recent efforts have reduced the burden of polio globally by greater than 99% since 1988.[1] Academic clinician scientists, Dr Jonas Salk at the University of Pittsburgh and Dr Albert Sabin at Cincinnati Children's Hospital, pioneered broad polio immunization efforts in the 1960s.

Health care providers have also been instrumental in shaping and implementing advocacy efforts related to smoking cessation. Dr Luther L Terry, Surgeon General of the United States Public Health Service, released a landmark report from the Surgeon General's Advisory Committee on Smoking and Health on 11 January 1964, providing the initial scientific evidence linking smoking to cancer and other serious diseases.[2] More recently, the Joint Committee on Smoking and Health issued a Special Report outlining global physician responsibility in the control of smoking related illness: clinicians ought to ensure that counseling and pharmacological management for nicotine addiction are readily available to all patients.[3] Since 1965, the rate of adult current smokers has dropped from 41.9% to 23.2% in 2000.[4] Advocacy driven by healthcare professionals can have a profound impact on healthy behaviors.

Individual successes based on the efforts of healthcare professionals within the field of injury prevention deserve similar accolades, but fall far short of addressing the burden of injury. Child passenger safety advocacy, initially spearheaded by a pediatrician and academic/clinician from Tennessee, Robert Sanders, has had a tremendous impact on protecting children in crashes. Since Sanders began his advocacy to get children into appropriate child safety seats and booster seats, all 50 states and the District of Columbia have enacted laws requiring child restraints for very young children. Through additional research from others, American Academy of Pediatrics policy statements and national and community based advocacy programs, academic clinicians have furthered the field of child passenger safety considerably. Since 2000, 28 states and the District of Columbia have upgraded their child restraint laws to protect older children with booster seat requirements and two federal laws have also been enacted to improve safety standards for children in motor vehicles. Policymakers relied on published data and testimony provided by academic clinicians. Partners for Child Passenger Safety, funded by State Farm® at The Children's Hospital of Philadelphia began reporting national restraint use trends for children in 1999. Since then, child restraint use has increased from 49% to 65% in 2003.[5] The significant increase in child restraint use in recent years has had a direct effect on motor vehicle traffic fatality statistics, which were at historic low levels for children under age 8 in 2002.[6] Advocacy has stimulated tremendous increases in polio immunizations, smoking cessation, and child passenger safety. Still, objective inquiry into these fields of study must continue in order to create evidence bases available for review and translation into policies for the public good.

Further, insufficient attention has been paid to suicide, intentional injury deaths, drownings, suffocation, burns and smoke inhalation, and pedestrian injuries. Investigation into these growing public health epidemics has been on-going; however, most injury prevention research has yet to be applied to control measures.

With increasing demands on academic physicians, both clinically and academically, public health advocacy for many has become another burden rather than a responsibility. For others, failure to translate research into practice stems, in part, from hesitation by investigators, dedicated to research, to actively engage in advocacy. The common misperception that advocacy lacks scientific rigor or is not a scholarly pursuit has distanced many scientists from pursuing such activity as a core professional role. In fact, advocacy, defined as the translation of research into action, requires application of principles central to the disciplines of

communication, education, and sociology. Armed with the skills and inspired to act, academic clinicians involved in evidence based advocacy ought to earn professional rewards in terms of academic currency as appropriate acknowledgment of and compensation for such efforts.

THE ART OF ADVOCACY

The leap from science to advocacy first requires skill in preparing a message for a target audience. Effective advocates engage others with simple and straightforward presentations supported by sound evidence. Physicians are well positioned to adopt the role of advocate and promote the interests of their patients to those who can effect change. Medical education and training prepared them for this role: as scientists, they can evaluate and interpret the evidence; as clinicians, on a daily basis, they deliver complex messages to a lay audience, their patients. Further, clinicians are looked to as the ''voice of reason'', the practical scientist who presents balanced recommendations based on evidence (that is, a treatment plan). The following discussion serves as a guide to crafting and disseminating a message, the bedrock of evidence based advocacy.

(1) Choose a position that is grounded in science

Thoroughly review the existing body of literature on your issue to ensure that your position is rational and defensible. If the research is lacking, conduct the necessary studies to define the problem and offer evidence based solutions. Your advocacy stance should be an outgrowth of available, current science. Struggle with your position. Challenge yourself to ensure that you, as a scientist, believe your review and recommendation. Then, set goals for change.

(2) Determine target audiences

According to your formative research, identify the primary audience that you are targeting for a change in behavior and know who influences its members. Respected community leaders, teachers, primary care physicians, media, industry, or policymakers may already be in a position to stimulate your desired behavior change. Your most effective path may be through these secondary audiences and collaboration with them is essential.

(3) Know your audience

Tailor your discussion to those receiving your message. Your primary and secondary audiences will likely need different messages. Learn their educational background and inquire about pertinent cultural issues that may impact on how your message will be received. Acquire an understanding of and appreciation for the needs and priorities of your target population; identify how your current goals intersect with theirs. Immerse yourself in their local newspapers, listen to their community leaders, and scan the horizon for other pressing concerns competing for attention and resources.

(4) Choose evidence that is appropriate for your audience

Spell out why your issue is important and how it impacts on your audience members. Identify the benefits of action as well as the dangers of inaction, choosing the evidence and points that will resonate with your audience. Most importantly, support your arguments with data that matter to the audience. Remember that business leaders and legislators often require economic data. Incorporate anecdotes to bring a tangible humanistic element to your message as long as they reflect a larger scientific truth. Speak in simple vernacular, avoiding complicated scientific expression that may distance and frustrate your listeners. One of the best ways to ensure that your message will be effective is to pilot it with representatives of your audience.

(5) Choose action that is realistic for your audience

Clearly state for your audience their role in effecting change. Establish a reasonable time commitment needed to realize your intentions, both on your part and theirs. Propose reasonable goals and highlight tasks commensurate with the interests and abilities of your audience. An audience of doctors might be charged with incorporating anticipatory guidance into their practice; an insurance company with subsidizing the cost of safety devices. Remember that proposing a small step in the right direction that will likely be successful is better than proposing more grand action for which your audience is not ready or might fail.

(6) Keep your message clear and succinct

Attempt to identify no more than three separate points that are repeatedly reinforced and reiterated to ensure clarity and emphasize the importance of your message. The first point should introduce the subject to your audience, bringing them to your issue through a topic that is familiar and relevant. The second point should include strong evidence that links the introduction to the action, drawing the audience from something familiar to serving as your agents of change. The final point should be a call to action appropriate for that audience. For all points, choose topics and evidence that will be meaningful to your audience. Remember to stay on message and not be tempted to go in directions for which you are not prepared in order to avoid losing credibility.

(7) Tailor your message to the given forum

The audience largely dictates the format: formal or informal, speech or demonstration, brief or lengthy? Consider whether a presentation is a lone opportunity to plead a case or the first in a series of interactions during which time an idea may be introduced and later developed in detail. If your time is short, begin with the requested action and then back it up with evidence: ''This is what I need; now, let me tell you why''. Despite the final length of your presentation, prepare for more. Your short conversation with a legislator might lead to a series of questions or to formal testimony.

Prepare rebuttals to the likely potential challenges to your proposal and encourage partnership rather than dictating and delegating responsibilities.

(8) Acknowledge your limitations and seek collaboration to strengthen your position

Although clinicians remain a powerful figure for advocacy, do not go beyond your expertise in your evidence or your advice. Remember your training and stay true to your science. Join with other professionals to add the relevant expertise. This will both strengthen your position as a rational advocate and add to your expert constituency. It is best to collaborate with a colleague from your target audience when advocating before other professionals.

(9) Evaluate your efforts

Through qualitative and quantitative methods ensure that the message that you delivered was the one that was received. Then, if possible, track the responses to your message in terms of tangible action. Based on this feedback, revise and refine your message.

THE SCIENCE OF ADVOCACY

In following these recommendations, consult and draw upon the techniques and expertise of other disciplines dedicated to the successful communication of ideas and an appreciation of the

insights afforded by the teachings of the social sciences regarding health behaviors and behavioral modification.

For example, social marketing applies traditional marketing principles to sell adoption of safe and healthy behaviors to the public. Social marketing is customer focused: it positions a healthy behavior as desirable from a customer's perspective rather than from a public health perspective. This approach is most useful when the target audience is neither prone nor resistant to the desired behavior change. Social marketing applied to the promotion of a socially beneficial behavior change lends academic rigor to resource development, program development, health promotion, coalition building, and policy initiatives. Just as successful marketing campaigns rely on market research, social marketing is steeped in formative research and evaluation. The integration of the principles of audience segmentation, determinants of behaviors, competition, exchange, market strategy, and market research enhances any health promotion campaign.[7 8] Similarly, media advocacy, or the use of the mass media to direct popular attention to a particular cause, improves health by influencing the greater social and political environments in which policy decisions are made.[8]

Utilizing behavior change theories and models regarding human behavior can help to develop and refine a strategic approach for creating a sustained behavior change. Social marketing and behavior change theories provide guidance in determining allocation of resources along a continuum of interventions that could involve any combination of education, marketing, and law/policy advocacy efforts. Education is most effective with highly motivated audiences. Law and policy advocacy may be necessary to motivate entrenched groups to adopt a healthy behavior, while social marketing can be effective at motivating those in between.

Advocacy can be an academic pursuit, dependent on peer reviewed original data, a commitment to public health, and finely tuned communication skills. In contemplating the responsibilities of the academic clinician, prioritize continued research over advocacy: be a scientist first. The advocacy should flow from the science rather than implementing scientific pursuits to support an already planned advocacy campaign. The process of advocacy cannot take hold without a substantial foundation of evidence upon which to act and against which to react. Ultimately, collaborating with appropriate stakeholders, identified and involved early in the research process, will most effectively help advance your interests later. Take the responsibility of translating the implications of scientific discovery into practice ideas and then enable others to help disseminate your message. Finally, include funds for outreach and program evaluation in your research budgets to ensure this critical step in the evolution of research into action takes place.

Academic support for the translation of research into action is essential for continued and growing successes in public health initiatives in general, and injury prevention specifically. The formal integration of evidence based advocacy into individual academic clinician experience depends upon the accessibility of educational resources instructive in the fields of communication, public health, education, sociology, biostatistics, and epidemiology along with agreement by the academic community to compensate for such efforts. However, most important, is the commitment by individual investigators to conduct sound research as the foundation for policy change and implementation.

Injury Prevention 2004;**10**:324–326.
doi: 10.1136/ip.2004.006536

Authors' affiliations
E Friedlaender, Division of Emergency Medicine, Department of Pediatrics, University of Pennsylvania School of Medicine, TraumaLink at The Children's Hospital of Philadelphia, USA
F Winston, Division of General Pediatrics, Department of Pediatrics, University of Pennsylvania School of Medicine, TraumaLink at The Children's Hospital of Philadelphia, USA

Correspondence to: Dr Eron Friedlaender, Division of Emergency Medicine, Department of Pediatrics, University of Pennsylvania School of Medicine, TraumaLink at The Children's Hospital of Philadelphia, Second Floor, Main Building, Philadelphia, PA 19104, USA; friedlaender@email.chop.edu

REFERENCES

1 **Centers of Disease Control and Prevention**. Progress toward poliomyelitis education—Ethiopia, Somalia, and Sudan, January 2001–October 2002. *MMWR Morb Mortal Wkly Rep* 2002;**51**:1070–2.
2 **National Center for Chronic Disease Prevention and Health Promotion**. *History of the 1964 Surgeon General's report on smoking and health*, Available at: http://www.cdc.gov/tobacco/30yrsgen.htm (accessed June 2004).
3 **Statement of the Joint Committee on Smoking and Health**. Smoking and health: physician responsibility. *Chest* 1995;**108**:1118–21.
4 **Centers for Disease Control and Prevention**. Smoking prevalence among US adults, 1965–2000 (from Health, United States, 2002). Available at: http://www.infoplease.com/ipa/A0762370.html (accessed August 2004).
5 **Winston F**, Chen I, Elliott M, *et al*. Recent trends in child restraint practices in the United States. *Pediatrics* 2004;**113**:e458–64.
6 **National Center for Statistics and Analysis**. *Early assessment: motor vehicle traffic crash fatality and injury estimates for 2002*. Available at: www.nrd.nhtsa.dot/gov/pdf/nrd-30/NCSA/PPT/2002EARelease.pdf (accessed August 2004).
7 **Turning Point National Program Office**. *Social marketing and public health: lessons from the field. A guide to social marketing from the social marketing national excellence collaborative*. University of Washington, Seattle: Turning Point National Program Office, 2003, Available at: http://www.turningpointprogram.org/Pages/socialmkt.html (accessed May 2004).
8 **Social Marketing and Health Communications**. *Substance abuse and mental health services administration*, Available at: http://p2001.health.org/THEORY/communications.htm (accessed May 2004).

A sad departure...with many thanks to Sue Heels

This is a brief editorial regarding Sue Heels' contribution to *Injury Prevention* over the past 10 years. It may come as a surprise to some of you that the journal has been in existence that long. If you have enjoyed reading it or contributing to it, Sue, who will be retiring following this issue, deserves much of your thanks. She certainly has earned my gratitude for having made life so much easier. Sue is the consummate technical editor. It is she, and others like her, who ensure that what you've written or have read is both correct and conforms to journal style. Technical editors of the unsung heroes and heroines of journal publishing. She will be greatly missed. We can only hope that her replacement is up to the task of making us all appear to be better writers (and self editors) then we really are. Thank you Sue for a job superbly done, under often very trying circumstances—Barry Pless, Editor