

The Illusion of Explanation

In this issue of *Academic Emergency Medicine*, White et al.¹ attempt to identify common causes of adverse outcomes from emergency department care by analyzing risk-management files. Their approach closely parallels that of Karcz et al.²⁻⁵ and Trautlein et al.⁶ with results similar to those reported by the Harvard^{7,8} and Colorado-Utah^{9,10} medical practice studies. The authors report that some preventable underlying cause could be identified in roughly 90% of the cases reviewed. They go on to categorize these problems into failures in diagnosis, problems with communication, and so on.

The urge to distinguish between different categories of things is probably universal among human beings. Delineating categories is one of the first steps we take when confronting a set of complex and confusing observations and one of the predictable reactions to failure.¹¹ Classifying events into categories may feel like progress, but Bowker and Starr¹² and others^{13,14} point out that classification is not necessarily a form of understanding. In fact, it often provides only the illusion of explanation. We can easily imagine that we have advanced our understanding by substituting one label (e.g., failure to diagnose) for another (e.g., human error) when all we have accomplished is the renaming of our misunderstanding.

Hindsight bias¹⁵⁻¹⁸ is a major problem with post hoc classification of the causes of failure. Knowing the outcome contaminates causal analysis, transforming the irreducibly uncertain world that confronted practitioners into one where it is "obvious" what they should have known. The causal explanations that result are internally consistent and compelling but only because hindsight bias is so powerful. Even consistency among experts may be misleading because hindsight bias affects them all more or less equally. Classifying outcomes as "preventable" is particularly susceptible to bias in this way, so that consistency across studies here reflects the consistency of hindsight bias rather than the consistency of preventability. One result of this internal consistency is the rather bland nature of the countermeasures that are suggested by this sort of classification. They are general admonitions, variants on "Always do the right thing—make the right diagnosis, not the wrong one; communicate well, not poorly," not specific guidance for practice.

How can we move forward from here to begin to make emergency care safer? There are other approaches to studying success and failure in complex domains, although these are not well known in health care. One involves detailed studies of health care

professionals doing technical work "in the wild."¹⁹ In contrast to more familiar methods that seek to reduce the influence of "the messy details," this approach uses a variety of methods to examine those messy details and discover their effects.²⁰ It explicitly acknowledges that complex systems always function in degraded states. Instead of relying on post hoc judgments that degraded conditions should have been recognized before the event, this approach seeks to explain how practitioners routinely cope with messy details, how this coping usually works, and how it sometimes fails.²¹ The approach is time-consuming and difficult. It requires unfamiliar skills and collaborators from diverse fields, but it ultimately provides insight and opportunity that retrospective chart reviews do not.

Reviews of charts and other records have been useful in getting patient safety onto the research agenda, but their usefulness is now coming to an end. Further progress on safety will not come from reviewing more charts but from reviewing our basic understanding of how success and failure are produced and discovering the sources of power that make the health care delivery system resilient and robust.—**Robert L. Wears, MD, MS** (wears@ufl.edu), *Center for Safety in Emergency Care, Department of Emergency Medicine, University of Florida Health Science Center, Jacksonville, FL*; and **Richard I. Cook, MD**, *Cognitive Technologies Laboratory, University of Chicago, Chicago, IL*

doi:10.1197/j.aem.2004.07.001

References

1. White AA, Wright SW, Blanco R, et al. Cause-and-effect analysis of risk management files to assess patient care in the emergency department. *Acad Emerg Med.* 2004; 11:1035-41.
2. Karcz A, Holbrook J, Auerbach BS, et al. Preventability of malpractice claims in emergency medicine: a closed claims study. *Ann Emerg Med.* 1990; 19:865-73.
3. Karcz A, Holbrook J. The Massachusetts Emergency Medicine Risk Management Program. Massachusetts Chapter of the American College of Emergency Physicians. *QRB Qual Rev Bull.* 1991; 17:287-92.
4. Karcz A, Holbrook J, Burke MC, et al. Massachusetts emergency medicine closed malpractice claims: 1988-1990. *Ann Emerg Med.* 1993; 22:553-9.
5. Karcz A, Korn R, Burke MC, et al. Malpractice claims against emergency physicians in Massachusetts: 1975-1993. *Am J Emerg Med.* 1996; 14:341-5.
6. Trautlein JJ, Lambert RL, Miller J. Malpractice in the emergency department—review of 200 cases. *Ann Emerg Med.* 1984; 13:709-11.
7. Brennan TA, Leape LL, Laird NM, et al. Incidence of adverse events and negligence in hospitalized patients. Results of the Harvard Medical Practice Study I. *N Engl J Med.* 1991; 324:370-6.

8. Leape LL, Brennan TA, Laird N, et al. The nature of adverse events in hospitalized patients. Results of the Harvard Medical Practice Study II. *N Engl J Med*. 1991; 324:377–84.
9. Studdert DM, Thomas EJ, Burstin HR, et al. Negligent care and malpractice claiming behavior in Utah and Colorado. *Med Care*. 2000; 38:250–60.
10. Thomas EJ, Studdert DM, Burstin HR, Zbar BW, Orav EJ, Brennan TA. Incidence and types of adverse events and negligent care in Utah and Colorado. *Med Care*. 2000; 38:261–71.
11. Cook RI, Woods DD, Miller C. A tale of two stories: contrasting views of patient safety. Available at: <http://www.npsf.org/exec/toc.html>. Accessed Sept 17, 2002.
12. Bowker GC, Starr SL. *Sorting Things Out: Classification and Its Consequences*. Cambridge, MA: MIT Press; 2000.
13. Ritvo H. *The Platypus and the Mermaid and Other Figments of the Classifying Imagination*. Cambridge, MA: Harvard University Press; 1998.
14. Dekker S. Illusions of explanation: a critical essay on error classification. *Int J Aviation Psychol*. 2003; 13:95–106.
15. Fischhoff B. Hindsight is not equal to foresight. *J Exp Psychol*. 1975; 1:288–99.
16. Caplan RA, Posner KL, Cheney FW. Effect of outcome on physician judgments of appropriateness of care. *JAMA*. 1991; 265:1957–60.
17. Fischhoff B. Hindsight≠foresight: the effect of outcome knowledge on judgment under uncertainty. *Qual Saf Health Care*. 2003; 12:304–11.
18. Henriksen K, Kaplan H. Hindsight bias, outcome knowledge and adaptive learning. *Qual Saf Health Care*. 2003; 12:46–50.
19. Hutchins E. *Cognition in the Wild*. Cambridge, MA: MIT Press; 1996.
20. Cook RI, Woods DD. The messy details: insights from technical work studies in health care. In: *Proceedings of the Human Factors and Ergonomics Society 47th Annual Meeting*. Denver, CO: Human Factors and Ergonomics Society, 2003, pp 379–380.
21. Woods DD, Cook RI. Nine steps to move forward from error. *Cognit Technol Work*. 2002; 4:137–44.

REFLECTIONS

Selling

On occasion, I wonder what I could or would do if I weren't a doctor. Professional sports are out because of age, size, speed, strength, and skill. Professional musician is out because of...well, skill. Teaching seems attractive to me, but I'd have to go back to school and learn something about lesson plans and God-only-knows what other things I don't know about teaching. Also, the pay is disgracefully low, and I have a house mortgage and soon to be three kids in college or professional school. Also, I'd have to curb my language quite a bit.

I doubt I could be a plumber, electrician, or car mechanic based on my past amateur experiences in those areas. Computers, likewise, are out. I'm a laughingstock with the computer guys here at my institution. Lawyer is out because I'd be a lawyer. Accountant is out. Just ask my wife.

The truth is I have no real marketable skill. If I couldn't be an emergency physician, what would keep me from being homeless? It would have to be a career in sales. That thought has always sent a shiver down my spine because I have horrific memories of dealing with car salesmen and haughty department store clerks. These people intimidate me and leave me with little but recriminations and an overpriced car or ill-advised shirt. I do all my shopping online just to avoid them.

Then, just the other day, after a long, hard shift where nothing seemed to go exactly right, while ruminating on this career stuff, it hit me like a ton of bricks. What I had done all night and what I do every shift is "sell."

First, I have to sell myself to patients in the emergency department who are naturally suspicious after waiting too long and having no prior experience with me. They have to buy in for the laboratory work and tests and my decision either to admit them or to send them home. They have to buy in when I don't give them antibiotics or narcotics. They have to buy in when I tell them something even a little different than their primary care provider told them just last week.

I have to sell the radiologist on calling in the ultrasound or nuclear medicine technician. Sometimes even during the routine 9 AM–5 PM hours, I have to sell the radiologist on an MRI. Thank God the CT tech is here 24 hours a day. CT seems to be on sale constantly, a 24-hour-per-day bargain.

I have to then sell the patient to a sleepy and skeptical consultant or admitting physician. This is often after his or her bedtime or at least in those hours we all like to think should be spent with a good book or a favorite TV show. At these times I'm little better than a telemarketer, at least in their eyes.

I have to sell myself to the referring physicians. Even when I think it might be inappropriate, I don't want to eliminate a referral source.

I have to sell the patient to the insurance companies as well. I have to make sure I lay the groundwork and say all the right things so they'll pay for the tests and procedures, or even the visit itself.