

Commencement Address

How Popular TV Shows Shape Public Perceptions of Medical Scientists

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DOCTORS, DOCTORS-TO-BE, families and friends of doctors-to-be:

Thirty-five years ago, a few blocks from here, my classmates at Columbia's College of Physicians and Surgeons were joyfully receiving their diplomas. But I was finishing my fourth year elective at a mission hospital in India by hiking towards a glacier in Kashmir. With this essentially selfish act, I was missing out on some important things that you are likely to get from today's ceremony. A chance to participate in one final assembly of the people with whom you have shared a long, dramatic, life-altering experience. And a chance to allow your family and friends to look briefly at your life — to meet your classmates, to celebrate your accomplishments, and to learn about the kind of work you have chosen to do.

This last goal — to make your work understood and appreciated — is not an easy one, and it won't be fully achieved today. In fact, most of you will spend lots of time throughout your careers trying to explain your work and its demands to family and friends, patients and strangers. Given the centrality of work in our lives, I am surprised how infrequently we try to understand the labors of our fellow citizens, instead of their politics, crimes, and love lives. As someone who now thinks of himself more as a scientist than as a physician, I am often frus-

trated by the public's limited understanding of what it is like to be a scientist and doing a scientist's job. This is very different from the common complaint that most people don't know much about what science has accomplished. But it is equally important. In fact, a genuine understanding of science cannot be divorced from some knowledge of how scientists make discoveries, interact with their colleagues, obtain grant support, and contend with adversities.

There are, of course, exceptions to the general lack of attention to how people work. Television and movies sometimes try to show us what it is like to be an athlete, a police officer, a journalist, or a doctor. But until relatively recently, the media's perception of a physician's work has been unduly romanticized — as in the televised portrayals, popular in my youth, of Drs. Casey, Kildare, and Welby.

Several years ago that changed for the better, as I learned when my wife persuaded me to watch my first episode of "ER." It was not my last. Although at this point in its history, "ER" has come to seem a bit stale and sometimes as trivial as any soap opera, in its best moments it has been gratifyingly graphic about the intensity and physical demands of medicine as work; about the importance of collegial teamwork for delivery of care; and about the diversity of the team, with plenty of women, members of racial minorities, and even authority figures who are not doctors. Because "ER" has been a popular network show — attracting many millions of all kinds of viewers each week — those of us concerned with the public's understanding of medicine and science should be curious about what it reveals. And we who are pleased by audiences of a few hundred can only gaze in awe at an event that attracts tens of millions.

So what have the "ER" scriptwriters done with their extraordinary opportunity to educate

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as well as entertain? Perhaps surprisingly, that opportunity has not been entirely lost. For example, on one pre-Christmas show, a 35-year-old man was brought to the ER unconscious after a ski-mobile accident. An imaging procedure showed a herniated cerebral hemisphere, and a signed transplant donor card was found in the patient's wallet. So Dr. Peter Benton, the impulsive surgical resident, contacted a national tissue-matching program by computer, hoping to find suitable recipients for a heart, a liver, and two kidneys. He did this despite warnings from his supervisor that a reluctant relative could overrule the signed donor card. Naturally, when the patient's estranged, guilt-ridden wife turned up, she wanted a second opinion about the verdict of impending brain-death. Time was running out. Helicopters from three cities were heading for Chicago to pick up organs. Benton was agitated. Mark Greene, "Dr. Nice Guy," bailed Benton out by talking sympathetically with the wife, who then signed a permit allowing the helicopter pilots to fly back to waiting patients with their Christmas gifts.

All in all, this episode told a remarkably realistic and ultimately moving account of current practices in the world of organ transplantation. It introduced viewers to the concept of brain death, the legalities of organ donation, the existence of computerized matching services, the urgency of transporting donated organs, and the anguish of the patients waiting for them. I would be surprised if the show did not produce greater acceptance of organ donation; certainly, it increased understanding and promoted altruism.

I have been especially interested in "ER's" portrayal of research. The most dramatic emergency medical practices pose special problems for clinical investigation. Informed consent is impossible when patients are unconscious and relatives are unavailable. During my tenure at the NIH, we and the FDA developed ways to perform studies on such patients in an ethical manner. Still, the show has been understandably reluctant to depict research efforts that might improve care of this unusual class of patients. But "ER" also weaves many other kinds of medical disorders, even chronic diseases, into its episodes. So there have been opportunities to show a wide range of medical research activities. But, disappointingly, for the first several years of its popularity, "ER" depicted research in a singularly negative and cynical fashion.

This was first made apparent to me through the portrayal of the arrogant, even satanic vas-

cular surgeon, Carl Vucelich. Dr. Vucelich was testing a new procedure for the repair of dissecting aortic aneurysms, and his stature at the hospital depended on the research funds he brought in from a pharmaceutical company. His clinical research methods were entwined with the show's story line for several months after Peter Benton helped him repair an elderly woman's aneurysm and the patient fared poorly after the operation. Vucelich consoled Benton by attributing the outcome to her preoperative condition rather than to the procedure itself. By deeming her inappropriate for inclusion in the study, Vucelich was also increasing the fraction of patients who benefited from the procedure. Benton seemed bewildered by this *post-facto* manipulation, but did not object. As a reward, he was invited to join the research team and was provided with some pleasant perks: a parking space near the hospital, a key to a quiet room for study, and a check for accruing patients.

The medical student John Carter was then drawn into the research project. Carter, of course, is now, as you soon will be, a doctor. (Like me, he missed his commencement exercises, though he was on a mission of mercy. Dr. Benton also missed his, to do an emergency hemorrhoidectomy!) Carter was understandably tempted by the \$1000 bounty Vucelich offered for finding patients with aneurysms. The temptation was so great that Carter's first claim was based on a radiological reading made by his girlfriend, after he missed the diagnosis. This patient, a relatively young man, also did poorly. So Vucelich also excluded this patient from the study. Benton then confronted Vucelich with an accusation of biased exclusion, but was too fearful of the consequences to submit a written complaint.

Up to this point, the story is interesting and even instructive about clinical trials, even if hardly flattering to medical science. In fact, it presaged by several years some of the recent aberrations in clinical trials that have now prompted a long-overdue national debate about conflicts of interest in medical research. And viewers were exposed to the classic dilemma of the whistleblower and an institution's need to respond to allegations of wrongdoing — important issues in current discussions of misconduct in science. Unfortunately, these issues were treated in a stereotyped and cynical fashion, presenting a distorted picture of how institutions handle such problems. Not too surprisingly, when Benton finally registered a written complaint, it was not taken seriously, and the

episode ended with the announcement that Benton had been named Resident of the Year. His nominator? Carl Vucelich!

Clinical trials have not been the only object of “ER’s” scorn for research. When an MD/PhD student turned up in the ER for a rotation, he was notably disorganized, incompetent with patients, and roundly ridiculed. Finally, when he left footprints of radioactivity on the ER floor from shoes contaminated in his laboratory, he was booted. Other efforts to incorporate research have focused on the imperative to do research for career advancement, on sloppy methods used to gather data, and on frivolous research objectives.

There is plenty here to disturb those of us who think research deserves a more balanced hearing. Of course, I don’t expect a show like “ER” to risk sacrificing its entertainment appeal for the purposes of people like me. But some of the episodes I have described prove that serious issues — like transplantation or the conduct of research — can be confronted in interesting ways for a mass audience.

Some years ago, Leon Lederman, the Chicago-based Nobel Prize-winning physicist and educator, and a former colleague of Dean Rubenstein, proposed a network show called “The Dean,” to portray the work and ethical dilemmas of scientists in a dramatic serial to be set in a high tech university. But he was unable to find a major sponsor. So those of us who believed that the public would welcome serious airings of such topics had to plead with the writers and producers of established shows like “ER” to tell our stories.

A couple of years ago, I had a chance to make that plea. The “ER” team was surprised by the evidence for a persistent pattern of maligning research. Some months later, when Alan Alda played a physician forced into retirement by early signs of Alzheimer’s disease, I was pleased to watch his character cheered by an opportunity to enroll in a clinical trial conducted by a kindly neuroscientist.

Still, this effort did not constitute a full portrayal of what it means to be a physician-scientist in the age of the genome, that impending transformation of medicine for which we are honoring Eric Lander today. But my remaining hopes for introducing a mass audience to stimulating accounts of medical science at its best were revived last year by the unveiling of a new show whose central character was a medical scientist, played by a terrific actor, Andre Braugher. Moreover, this new show, “Gideon’s Crossing,” was based in part on *The New Yorker*

essays by Jerome Groopman of Harvard Medical School, who is himself a serious investigator and compassionate physician.

Let’s ignore for the moment the troubling article from last week’s *New York Times*, which suggests that Mr. Braugher’s character will have to become “more accessible to audiences” by shedding his “humorless and self-righteous” attributes and by “dating women,” in order to survive the competition from comedies, conventional dramas, and old movies. Instead, I’d like to recall one of the episodes that caught my attention last fall.

Dr. Gideon was conducting a study of a new anti-leukemic drug, referred to as a “gene-blocker.” One of his patients, a middle-aged man with chronic leukemia, had a long police record. After Dr. Gideon’s female colleague enrolled this unorthodox patient in the clinical trial of the “gene blocker,” the patient was incarcerated again and thereby disqualified from the trial. Gideon respected this rule; his colleague did not. She stole a supply of the drug from a locked cabinet and delivered it to the patient by concluding her visit to him in prison with a “meaningful” (that is, drug-full) kiss. But what interested me more than this bizarre kiss was a glance at the label on the bottles of “gene blocker.” There it was, clear as day: STI-571. Verisimilitude. Few viewers were likely then to have shared my thrill of recognition. But this drug, STI-571, was described, by an act of Providence, in *The New York Times* this very morning, because the FDA has just announced rapid approval of the drug for the treatment of a common form of adult leukemia. At the time that the show aired, this drug was still in clinical trials and said to be showing phenomenal benefits. This was especially exciting to “molecular types” like me, because the drug was chosen for testing on the basis of its selective ability to inhibit the activity of a specific enzyme believed to be the cause of the leukemia. In fact, this part of the story, invisible to the television audience, seemed to me far more interesting than anything happening on the screen, where Gideon’s rule-breaking colleague was in jail waiting for Gideon to bail her out.

What then is so fascinating about this new drug and the way it was discovered? Finding STI-571, with its effects on that enzyme, required the insights of many inspiring scientists over the past forty years. These include a pair of “cell gazers” in Philadelphia, who, in 1960, with relatively crude methods, noted a bizarre chromosome in leukemic cells from adults; a

woman scientist in Chicago who figured out which two human chromosomes had fused to make the bizarre chromosome; teams in Holland and the U.S. who learned that a particular cancer gene was activated by that chromosomal rearrangement; American virologists who taught us what that cancer gene was and the kind of enzyme it made; pharmaceutical chemists who found and synthesized inhibitors of the enzyme; and astute clinicians who designed the drug trials. And brave leukemic patients who were rewarded almost uniformly with beneficial effects on their disease. Clinical scientists realized correctly that the drug could help a few others with rare intestinal tumors caused by changes in certain genes. Even FDA regulators and advisors exerted enormous

efforts to evaluate the drug in record time.

Now, how do we turn these inspiring people and their achievements into stories that can teach the public the challenge and satisfaction of doing work like this?

As each of you now enter our profession — whether as ER resident or medical scientist — your lives will be affected by public perceptions of what you do. Consider my unorthodox digression today on popular TV shows as one manifestation of concern about how the work that you and I do is perceived. As you go proudly from this place to do a lifetime of good deeds, let us find better ways to describe that work to our friends and family, and to the society we serve.

Thank you and good luck.