suture thread—and began slowly grinding its tip into the child’s exposed white skull.

At first, nothing happened. The tip kept sliding off the hard, bony surface. But it began to find purchase, and over the next fifteen painstaking minutes he ground and scraped until a tiny hole through the skull appeared. He worked to widen the aperture, taking care not to slip and puncture the now exposed brain. When the opening was large enough, he slowly slid one end of the tubing through into the gray and white matter of the brain and onward into the swollen fluid ventricle inside it. He took the other end of the tubing and snaked it under the skin of the neck and chest down to the abdomen. Before popping the tubing into the open space of the abdominal cavity, though, he stopped momentarily to watch the fluid of the brain flowing out of its new channel. It was clear and lovely, like water. Like perfection. He had not given up. And as a result, at least this one child would live.

Afterword: Suggestions for Becoming a Positive Deviant

In October 2003, upon my return from India, I officially began my life as a general and endocrine surgeon in Boston. Mondays, I saw patients in a third-floor surgical clinic at my hospital. Tuesdays and some weekends, I took emergency call. Wednesdays, I saw patients at an outpatient clinic across the street from Fenway Park. Thursdays and Fridays, I spent in the operating room doing surgery. It has proved to be an orderly life, and I am grateful for that. Nonetheless, there was much I wasn’t prepared for, including how small one’s place in the world inevitably proves to be. Most of us, most of the time, are far removed from planning a polio mop-up for 4.2 million children in southern India or inventing new ways to save the lives of frontline soldiers. Our enterprise is more
modest. In my clinic on a Monday afternoon, I need to think about Mrs. X and her gallstones; Mr. Y and his painful hernia; Ms. Z and her breast lump. Medicine is retail. We can tend to only one person at a time.

No doctor wants to believe that he or she is a bit player, though. After all, doctors are given the power to prescribe more than 6,600 potentially dangerous drugs. We are permitted to open human beings up like melons. Soon we will even be allowed to manipulate their DNA. People depend on us personally for their lives. And yet, as a doctor each of us is just one of 819,000 physicians and surgeons in this country tasked with helping people live lives as long and healthy as possible. And even that overestimates the size of our contributions. In on this work are also 2.4 million nurses, 388,000 medical assistants, 230,000 pharmacists, 294,000 lab technicians, 121,000 paramedics, 94,000 respiratory therapists, 85,000 nutritionists.

It can be hard not to feel that one is just a white-coated cog in a machine—an extraordinarily successful machine, but a machine nonetheless. How could it be otherwise? The average American can expect to live at least seventy-eight years. But reaching, and surpassing, that age depends more on this system of millions of people than on any one individual within it. None of us is irreplaceable. So not surprisingly, in this work one begins to wonder: How do I really matter?

I get to lecture to the students at our medical school on occasion. For one lecture, I decided to try to figure out an answer to this question, both for them and for myself. I came up with five—five suggestions for how one might make a worthy difference, for how one might become, in other words, a positive deviant. This is what I told them.

* * *

My first suggestion came from a favorite essay by Paul Auster: Ask an unscripted question. Ours is a job of talking to strangers. Why not learn something about them?

On the surface, this seems easy enough. Then your new patient arrives. You still have three others to see and two pages to return, and the hour is getting late. In that instant, all you want is to proceed with the matter at hand. Where’s the pain, the lump, whatever the trouble is? How long has it been there? Does anything make it better or worse? What are the person’s past medical problems? Everyone knows the drill.

But consider, at an appropriate point, taking a moment with your patient. Make yourself ask an unscripted question: “Where did you grow up?” Or: “What made you move to Boston?” Even: “Did you watch last night’s Red Sox game?” You don’t have to come up with a deep or important question, just one that lets you make a human connection. Some people won’t be interested in making that connection. They’ll just want you to look at the lump. That’s OK. In that case, look at the lump. Do your job.

You will find, however, that many respond—because they’re polite, or friendly, or perhaps in need of human contact. When this happens, try seeing if you can keep the conversation going for more than two sentences. Listen. Make note of what you learn. This is not a forty-six-year-old male with a right inguinal hernia. This is a forty-six-year-old former mortician who hated the funeral business with a right inguinal hernia.

One can of course do this with people other than pa-
tients. So ask a random question of the medical assistant who checks their vitals, a nurse you run into on rounds. It’s not that making this connection necessarily helps anyone. But you start to remember the people you see, instead of letting them all blur together. And sometimes you discover the unexpected. I learned, for instance, that an elderly Pakistani phlebotomist I saw every day during my residency had been a general surgeon in Karachi for twenty years but emigrated for the sake of his children’s education. I found out that a quiet, carefully buttoned-down nurse I work with had once dated Jimi Hendrix.

If you ask a question, the machine begins to feel less like a machine.

My second suggestion was: Don’t complain. To be sure, a doctor has plenty to carp about: predawn pages, pointless paperwork, computer system crashes, a new problem popping up at six o’clock on a Friday night. We all know what it feels like to be tired and beaten down. Yet nothing in medicine is more dispiriting than hearing doctors complain.

Recently, I joined a group of surgeons and nurses having lunch in the hospital cafeteria. The banter started off cheerily enough. First we chatted about a patient one of the surgeons had seen (a man with a tumor the size of his head growing out of his back), then about the two cans of Diet Vanilla Coke we watched one of the nurses consume. (The Coca-Cola Company had discontinued the flavor—such as it is—but she had hoarded enough to keep herself in supply.) Next, however, a surgeon told a bitter tale of being called to the emergency de-

partment at 2:00 A.M. the previous Sunday to see a woman with a severely infected gallbladder. He had advised that she would best be treated with antibiotics, fluids, admission to the hospital, and a delay in surgery until the inflammation had subsided, only to have the emergency physician tell her that such a plan was dangerous and she should be operated upon right away. The emergency physician was wrong, the surgeon said. Worse, he had not had the common courtesy to pick up the phone and discuss his concerns before speaking to the patient. When the surgeon confronted him later, he was not in the least apologetic. The story unleashed from the others a raft of similar tales of unprofessional behavior. And when lunch was over, we all returned to our operating rooms and hospital wards feeling angry and sorry for ourselves.

Medicine is a trying profession, but less because of the difficulties of disease than because of the difficulties of having to work with other human beings under circumstances only partly in one’s control. Ours is a team sport, but with two key differences from the kinds with lighted scoreboards: the stakes are people’s lives and we have no coaches. The latter is no minor matter. Doctors are expected to coach themselves. We have no one but ourselves to lift us through the struggles. But we’re not good at it. Wherever doctors gather—in meeting rooms, in conference halls, in hospital cafeterias—the natural pull of conversational gravity is toward the litany of woes all around us.

But resist it. It’s boring, it doesn’t solve anything, and it will get you down. You don’t have to be sunny about everything. Just be prepared with something else to discuss: an idea you read about, an interesting problem you came across—
even the weather if that's all you've got. See if you can keep
the conversation going.

MY THIRD ANSWER for becoming a positive deviant: Count something. Regardless of what one ultimately does in medicine—or outside medicine, for that matter—one should be a scientist in this world. In the simplest terms, this means one should count something. The laboratory researcher may count the number of tumor cells in a petri dish that have a particular gene defect. Likewise, the clinician might count the number of patients who develop a particular complication from treatment—or just how many are actually seen on time and how many are made to wait. It doesn’t really matter what you count. You don’t need a research grant. The only requirement is that what you count should be interesting to you.

When I was a resident I began counting how often our surgical patients ended up with an instrument or sponge forgotten inside them. It didn’t happen often: about one in fifteen thousand operations, I discovered. But when it did, serious injury could result. One patient had a thirteen-inch retractor left in him that tore into his bowel and bladder. Another had a small sponge left in his brain that caused an abscess and a permanent seizure disorder.

Then I counted how often such mistakes occurred because the nurses hadn’t counted all the sponges as they were supposed to or because the doctors had ignored nurses’ warnings that an item was missing. It turned out to be hardly ever. Eventually I got a little more sophisticated and compared patients who had objects left inside them with those who didn’t.

I found that the mishaps predominantly occurred in patients undergoing emergency operations or procedures that revealed the unexpected—such as a cancer when the surgeon had anticipated only appendicitis.

The numbers began to make sense. If nurses have to track fifty sponges and a couple of hundred instruments during an operation—already a tricky thing to do—it is understandably much harder under urgent circumstances or when unexpected changes require bringing in lots more equipment. Our usual approach of punishing people for failures wasn’t going to eliminate the problem, I realized. Only a technological solution would—and I soon found myself working with some colleagues to come up with a device that could automate the tracking of sponges and instruments.

If you count something you find interesting, you will learn something interesting.

My FOURTH SUGGESTION was: Write something. I do not mean this to be an intimidating suggestion. It makes no difference whether you write five paragraphs for a blog, a paper for a professional journal, or a poem for a reading group. Just write. What you write need not achieve perfection. It need only add some small observation about your world.

You should not underestimate the effect of your contribution, however modest. As Lewis Thomas once pointed out, quoting the physicist John Ziman, “The invention of a mechanism for the systematic publication of ‘fragments’ of scientific work may well have been the key event in the history of modern science.” By soliciting modest contributions from the
many, we have produced a store of collective know-how with far greater power than any individual could have achieved. And this is as true outside science as inside.

You should also not underestimate the power of the act of writing itself. I did not write until I became a doctor. But once I became a doctor, I found I needed to write. For all its complexity, medicine is more physically than intellectually taxing. Because medicine is a retail enterprise, because doctors provide their services to one person after another, it can be a grind. You can lose your larger sense of purpose. But writing lets you step back and think through a problem. Even the angriest rant forces the writer to achieve a degree of thoughtfulness.

Most of all, by offering your reflections to an audience, even a small one, you make yourself part of a larger world. Put a few thoughts on a topic in just a newsletter, and you find yourself wondering nervously: Will people notice it? What will they think? Did I say something dumb? An audience is a community. The published word is a declaration of membership in that community and also of a willingness to contribute something meaningful to it.

So choose your audience. Write something.

My suggestion number five, my final suggestion for a life in medicine, was: Change. In medicine, just as in anything else people do, individuals respond to new ideas in one of three ways. A few become early adopters, as the business types call them. Most become late adopters. And some remain persistent skeptics who never stop resisting. A doctor may have good reasons to take any of these stances. When Jonas Salk tried out his new polio vaccine on over 400,000 children, when a battlefield surgeon first shipped a soldier to Landstuhl with the bleeding stopped but his abdomen open and the operation unfinished, when Warren Warwick began putting more feeding tubes into CF children—who was to say whether these were truly good ideas? Medicine has seen plenty of bad ones. Frontal lobotomies were once performed for the control of chronic pain. The anti-inflammatory medication Vioxx turned out to cause heart attacks. Viagra, it was recently discovered, may cause partial vision loss.

Nonetheless, make yourself an early adopter. Look for the opportunity to change. I am not saying you should embrace every new trend that comes along. But be willing to recognize the inadequacies in what you do and to seek out solutions. As successful as medicine is, it remains replete with uncertainties and failure. This is what makes it human, at times painful, and also so worthwhile.

The choices a doctor makes are necessarily imperfect but they alter people’s lives. Because of that reality, it often seems safest to do what everyone else is doing—to be just another white-coated cog in the machine. But a doctor must not let that happen—nor should anyone who takes on risk and responsibility in society.

So find something new to try, something to change. Count how often you succeed and how often you fail. Write about it. Ask people what they think. See if you can keep the conversation going.