Curiosity

About 15 years ago, when I was dean of students at the University of California, Davis, School of Medicine, yet another of the periodic paroxysms of "holism" in medicine occurred. Several importunate politicians called to tell me that, in their opinion—which presumably reflected that of their constituents—medical students, by selection or by their isolation by the medical curriculum, were insensitive, mechanistic, technocratic, inhumane brutes. The solution, these politicians insisted, was the intercalation of humanities courses into an already crowded curriculum.

I had several concerns about this. The first was that the addition of required courses in literature, drama, sociology, music, and art might actually limit students' opportunities to read, go to the theater, be with friends and family, and attend a symphony or museum. Even if one argues that students would not have done these things anyway—possessed as they were by the intricacies of glucose metabolism—the addition of these courses would cut down on contemplative time, volunteerism in free clinics, hobbies, and sleep. Second, I wondered what evidence supported the idea that being well versed in the humanities made one more humane. I was encouraged in my skepticism by the knowledge that perhaps the most broadly educated of physicians at the beginning of this century practiced in Germany. Moreover, I could not understand why science—a most human pursuit, the exercise of which is one of the defining characteristics of our species—should make students "inhumane." I decided to do a "scientific" study of the effects of humanities courses on humaneness in medical students.

Several colleagues and I read more than 10 years' worth of the subjective descriptions of performance of third- and fourth-year medical students on their clinical clerkships. We looked for adjectives suggesting humane behavior: "caring," "warm," "concerned," "good with patients and families." Each of these descriptors got "nice" points. Words like "callous," "abrupt," and "arrogant" got subtraction points. Then we compared "nice" points to the total number of units taken in the humanities in the student's premedical career.

What a shock: We found a direct correlation. I still thought it did not make sense. These were adults, after all. Was fundamental character, which is usually well formed by adolescence, changed by a class? I did what confused scientists have done for centuries to nonconforming data: I reanalyzed them. This time I ran a correlation between "nice" points and premedical units taken in science. Surprise again! Another direct correlation. Those students who had taken the most units in science had the highest number of "nice" points. In fact, in this idiot-driven experiment, "niceness" correlated directly with the total number of course units taken, regardless of the category.

What did it all mean? I did not know, but I wondered: What is kindness, as perceived by patients? Perhaps it is curiosity: "How are you? Who are you? How can I help you? Tell me more. Isn't that interesting?" And patients say, "He asked me a lot of questions"; "She really seemed to care about what was going on with me." Is curiosity the same, in some cases, as caring?

Curiosity is the urge to investigate, to discover. It can be seen in all small mammals; just watch a kitten explore a paper bag. Evidently, although curiosity can be dangerous ("What's down this dark hole, I wonder? What does this bright pill taste like? What's the funny-looking black animal with the white stripe down its back?"), it also has a redemptive adaptive function that exceeds the risks. Otherwise, puppies and small children would be wiped out. Curiosity is how we learn about our world.

Dr. Erich Loewy, in an unpublished paper, points out that curiosity, this primal "wonderment" that stimulates exploration, engages both imagination (conceiving the alternative explanations of new phenomena) and intelligence (mapping out the best way to determine which explanation is likeliest). Both imagination and intelligence are integral to humanities, science, and the synthesis of the two, which is clinical medicine. Rather than stating that the study of humanities makes one humane, I propose that humane people are curious and therefore choose to explore the humanities as well as the sciences.

An endowed lectureship at my medical school allows us to invite Nobel Prize–winning scientists to visit and lecture for several days. What impressed me most about my conversations with these luminaries was the extraordinarily broad range of their interests, their enthusiasm, and their thought patterns. One thinks science has a sequential and controlled pattern of logical ideas, firmly grounded in antecedent principles and constantly cleansed of intellectual debris by the abrasion of skepticism. Listening to Nobel laureates in medicine was revela-

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tory. No linear thought here. They uninhibitedly threw forth multiple ideas in their observations, the connections between which were often invisible to me. As if the ideas were the small bright stones of a mosaic, forming many possible pictures, these scientists looked at them and rearranged them until they found a picture they liked. Dr. Baruch Blumberg, for example, explaining how he found the hepatitis B virus, told me stories of Australian aborigines, roof thatch, wombats, guitars, bedbugs, the Babylonian Talmud, and manned space flight. No doubt the disciplined thought of scientific proof came later.

The scientists seemed oblivious to intellectual constraints and unconcerned about being seen as naive or unknowledgeable. I suppose being a Nobel laureate means that one has little left to prove of one's adequacies as a thinker, but I have no doubt that these thought patterns preceded and were the reason for these people's Nobel Prize–winning discoveries, not a consequence of the prize. Curiosity without constraint, no preconceived image to emulate, no need for the facade of competence, opening inquiry into any area that stimulated their interest—these qualities seemed common to them all.

In fact, the best clinical diagnostic thinking is more like the forming of a mosaic than linear thinking: It requires the physician to constantly alter diagnoses as each new piece of data enters the picture. One conceives constantly of many possible diagnoses, narrows down, reexpands, and generates an ever-evolving flux of ideas; the more information gained from patients, the better. For example, a 30-year-old woman with shortness of breath and fever (maybe a virus: pneumonia, of course) for 3 months (tuberculosis, multiple pulmonary emboli, lupus, sarcoidosis) recently returned from India (malaria, hepatic abscess, weird tropical disease) where she was visiting her mother, who was dying of breast cancer (anxiety; metastases from breast, ovarian, or colonic cancer; maybe she visited a guru and got toxic herbal medications), and so on.

What does curiosity have to do with the humanistic practice of medicine? Couldn't it just convert patients into objects of analysis? I believe that it is curiosity that converts strangers (the objects of analysis) into people we can empathize with. To participate in the feelings and ideas of one's patients—to empathize—one must be curious enough to know the patients: their characters, cultures, spiritual and physical responses, hopes, past, and social surrounds. Truly curious people go beyond science into art, history, literature, and language as part of the practice of medicine. Both the science and the art of medicine are advanced by curiosity.

One problem for medical students and physicians is that they must already have two things before engaging in uninhibited curiosity: a sense of competence (without which one tries to cultivate the appearance of competence, which generally means having more answers than questions) and time to think. The former is threatened by modern medical education and the latter by modern medical practice.

How is curiosity suppressed in medical students and physicians? It is. I have discovered, in nonclinical settings, that students who, on the wards, seem totally without curiosity or culture—dolts, in short—were, in their private worlds, avid poets, artists, musicians, and craftspersons of exquisite skill, vitally interested in a wide range of topics. They just did not think it wise to let anyone know because they had received a message from housestaff, faculty, or peers that interest in anything other than purely biological medicine was inappropriate for a medical student.

Medical education itself suppresses the expression of curiosity, emphasizing examinable facts rather than more ineffable thought processes in order to provide reproducible experiences for students. It may even substitute virtual patients (case discussions, simulations, CD-ROMs, and syllabi) for real ones. Patients languish on the wards wondering who their physicians are while their physicians discuss abstract patients in small rooms or play diagnostic games on the computer. Acting as a preceptor to second-year students, I discovered to my dismay that they gave up a physical diagnosis session to study for the written examination in physical diagnosis. Does this make sense?

Efficiency, in which patients are seen as "work units," also suppresses curiosity. One senior resident once presented a patient in morning report and, as part of the physical examination, mentioned a scar in the patient's groin. When I asked how the scar had been acquired, she said, "He told me he was bitten by a snake there."

"How did that happen?" I asked.

"I don't know," she said.

How could that be? How could one not ask? The imagination runs riot with the possibilities of how this man got bitten by a snake in the groin. But the resident was too busy (or not curious enough) to ask!

The sacrosanctity of print and the ancient human belief that what is written is more true than what is said suppress curiosity. A third-year student presenting a patient to me at the bedside told me that the patient had had "BKA [below-knee amputation] times two." Standing there, I saw that the patient had legs. I asked the student, "Did you find legs on your physical examination?"

"Yes," he said.

"How then did he have bilateral below-the-knee amputations?" The student was confounded. He could not understand it. He was struck mute. He reached out and touched the legs: warm, hairy, clearly the patient's own and not prosthetics.

"I don't know," he said.

"What makes you think the patient had bilateral below-the-knee amputations?"

"It said so in the chart." We got the chart, and indeed, for this patient's past three admissions, "BKA times two" was listed under history. It was only after looking at the past five admissions that the transcriptionist's error became clear. The patient had been previously admitted twice for diabetic ketoacidosis—DKA. But once typed, BKA became enshrined chart lore and was repeated by every subsequent house officer as if it were true, even in the face of the evidence of their own senses.

Technology is wonderful and seductive, but when seen as more real than the person to whom it is applied, it may also suppress curiosity. When I was a house officer and installing one of the first right-heart catheters, the machine that showed intrapulmonic arterial pressures was enormous and was equipped with strain gauges rather than computer chips. Making it work was difficult. After the line was in, the attending, the nurse, and I tried desperately to adjust the machine to show the pulmonary arterial pressure waves. We could not get them. The line on the screen remained flat. We manipulated toggle switches and strain gauges for about 15 minutes. Nothing. Finally, I glanced at the patient: He was dead. We had been so engaged with the machine that we had missed this significant clinical event, which explained why the pulmonary arterial pressures were unobtainable. We assumed that the answer to the question lay in the machine and explored no further until it was too late.

What is the reward of curiosity? To the patient, it is the interest and physical propinquity of the physicians, which is therapeutic in and of itself. To the physician, curiosity leads not only to diagnoses but to great stories and memories, those irreplaceable "moments in medicine" that we all live for. When I was a young attending at San Francisco General Hospital, morning rounds usually consisted of briefly going over the 15 or 20 patients admitted to the team the night before and then concentrating on the "interesting" ones. I was righteous and was determined to teach the housestaff that there were no uninteresting patients, so I asked the resident to pick the dullest.

He chose an old woman admitted out of compassion because she had been evicted from her apartment and had nowhere else to go. She had no real medical history but was simply suffering from the depredations of antiquity and abandonment. I led the protesting group of housestaff to her bedside. She was monosyllabic in her responses and gave a history of no substantive content. Nothing, it seemed, had ever really happened to her. She had lived a singularly unexciting life as a hotel maid. She could not even (or would not) tell stories of famous people caught in her hotel in awkward situations. I was getting desperate; it did seem that this woman was truly uninteresting. Finally, I asked her how long she had lived in San Francisco.

"Years and years," she said.

Was she here for the earthquake?

No, she came after.

Where did she come from?

Ireland.

When did she come?

1912.

Had she ever been to a hospital before?

Once.

How did that happen?

Well, she had broken her arm.

How had she broken her arm?

A trunk fell on it.

A trunk?

Yes.

What kind of trunk?

A steamer trunk.

How did that happen?

The boat lurched.

The boat?

The boat that was carrying her to America.

Why did the boat lurch?

It hit the iceberg.

Oh! What was the name of the boat?

The Titanic.

She had been a steerage passenger on the Titanic when it hit the iceberg. She was injured, made it to the lifeboats, and was taken to a clinic on landing, where her broken arm was set. She now was no longer boring and immediately became an object of immense interest to the local newspapers and television stations—and the housestaff.

For whatever reason—economics, efficiency, increased demands on physicians for documentation, technology, or the separation of education from patient care—curiosity in physicians is at risk. I believe it is our duty, as those who now teach young physicians, to identify medical students with a gift for curiosity and take infinite pains not to suppress but to encourage that gift. Not only will patient care be enriched, but so will the lives of these physicians and the vigor of our art and science. Besides, it will be much more interesting.

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