The current recommended approach for detecting melanoma at best identifies only 80 percent of cases, says Martin Weinstock. (Others say only one third.) It’s time to move on, Weinstock believes.
Martin Weinstock remembers his obscure pursuits as a math major at Williams College in the early 1970s. One night in the computer lab, he wrote a program to find what were then called happy numbers. He was interested in any number whose digits, when raised to a power (squared or cubed, for example) and added, equal the number itself. His program ran for a couple of hours and was still going when it was time to shut the computer off for the night. He convinced the student computer administrator to let it keep running, despite department policy. The computer was still churning away at Weinstock’s program the next morning, which landed him in the office of the chair of the math department.
Weinstock got a wink-and-a-nod lecture and notoriety in the department. But the lack of practicality in searching for things like happy numbers made him certain that he did not want to spend his life doing pure math. Many of his friends were premed students, as was his older sister, Ruth (now an MD/PhD who directs a well-regarded diabetes center at SUNY Upstate Medical University, in Syracuse). So Weinstock wondered whether there might be a way to use his math skills in medicine. Years later, he is pursuing another kind of happy numbers formula—one that he believes will save the lives of thousands.

In his junior year in college, he typed letters to 50 medical researchers asking whether they needed a summer lab intern with no prior lab experience. Only one of them did: the director of Columbia University’s cancer institute. Weinstock moved into the medical school dormitory and went to work in the lab. It was a classic wet lab, with pipettes and solvents. He didn’t care for this work, either.

Weinstock’s dorm offered its residents complimentary breakfast, so he was there every morning. One day late in the summer, he sat down at a table with a lively group of about 10 people, none of whom had he seen there before. In the group was a white-haired woman. As they talked, she looked at him closely; then she asked whether he had written her a letter looking for a summer job.

The woman was Zena Stein, even then a famous epidemiologist. Her offices were in the next building, and she invited Weinstock to come see what she did. As Stein talked about her research—which, in a broad sense, involved studying how the public could be motivated to adopt healthier behaviors, such as quitting smoking—she piqued his interest. Weinstock arranged a winter study program with her.

“It was complete happenstance, and it really changed my life,” he says. After he graduated from Williams, summa cum laude in mathematics, he became the first MD/PhD candidate in Columbia’s epidemiology program.

“It’s quite special to have someone with both mathematical and medical interests” in epidemiology, says Stein. Weinstock, whose dry one-liners are delivered in a Groucho Marx cadence, made her laugh, too. When Stein studied IQ scores based on birth order, Weinstock, with his own family’s pecking order in mind, wanted to know “if the first born was a girl, will you have a higher IQ if you’re the second born?”

She remembers how upset he was about the incident at Three Mile Island. It was nice to see that he cared as deeply about public health issues as she did.

“To the average young man or woman entering medical school, ‘public health’ means drains and sanitation,” she says with a sigh.

Weinstock’s own PhD work established that filtered cigarettes had the same impact on birth weights and miscarriages as the unfiltered kind. After finishing his MD at Columbia in 1983, he trained in the University of Pittsburgh programs at UPMC Presbyterian and at the VA Pittsburgh Healthcare System as a resident in internal medicine. Both Weinstock and his wife found the city a relief after years of being cramped in Manhattan. They particularly enjoyed taking their 1-year-old daughter to summer events at Point State Park. Weinstock also remembers that the Pitt training environment under the chair of medicine, Gerald Levey, was rigorous yet more supportive than many. “In a very real sense, it trained me to be a doctor,” he says.

But he picked internal medicine as a residency before his final rotation of medical school, dermatology.

Dermatology appealed to him on multiple levels. The mathematician in him liked the elements of pattern recognition in the field—most skin diseases can be diagnosed on sight. The epidemiologist in him saw obvious potential for public health. The doctor in him liked the clear-cut impact a dermatologist can have on patients—lesions can be excised, rashes dispelled.

“You can often make people feel better very quickly—and that’s really nice!” he says.

Weinstock was accepted for a dermatology residency at Harvard after he started at Pitt. It was at Harvard that Weinstock began to study melanomas and to develop ways to apply epidemiological approaches to the field of skin cancer.

“What he did with us was really top-quality work,” says Walter Willett, a professor of medicine as well as the Frederick John Stare Professor of Epidemiology and Nutrition at Harvard. Willett says that one of his main career regrets is that Harvard couldn’t find a way to keep Weinstock when Brown University came calling.

“We consult with him even now. He is one of the very few dermatologists with epidemiological experience. And he’s special—reasonable, thoughtful, smart, generous with his ideas.”

One of the salient events of Weinstock’s research career occurred while he was at Harvard. An older man came in complaining about a spot on his skin. It was late on a Friday afternoon, and the man apologized to Weinstock and the attending physician at Lahey Clinic for the bother, but there was this mark on his leg, and it wouldn’t go away. Even dumping Gold Bond Medicated Body Powder on it hadn’t helped, he explained.

Weinstock looked at the black, snarled, crusty lesion and knew immediately that it was advanced melanoma, which the man had less than a 50 percent chance of surviving. He doesn’t know what happened to that patient. Weinstock has long since moved from Boston to Brown University’s Medical School, a move he made in 1988; he still wonders about that man.

In time, Weinstock grew more and more concerned with finding ways to diagnose some think Weinstock’s goal is unrealistic.
melanoma earlier. Most of the people who end up dying from melanoma had a lesion that was visible on the surface of their skin at an early, curable stage—when it was no more deadly than a wart. “It just wasn’t noticed,” Weinstock says. “Here it is, a cancer on the surface of the skin in a curable phase, and no one notices it until it reaches a phase that’s not curable anymore. That’s the central irony of melanoma.”

About 1 million Americans are diagnosed with skin cancer each year, making it by far the most common form of cancer, occurring about as often as all other forms combined. Most cases are basal cell carcinomas, a lesser amount, squamous cell carcinomas. But a growing number, now about 60,000 a year, are melanoma, which is the deadliness of the three; about 8,000 Americans die of it each year.

Weinstock thinks this number represents needless tragedy, and he means to change it. “My goal is to cut melanoma mortality in half,” he says.

To do so, he has been plugging away to find a different sort of formula from the one that got him notoriety in college. And he thinks he’s hit on it.

Weinstock has not found a cure for skin cancer. That will be for a wet lab researcher. But he thinks that a two-pronged approach of training doctors to look for melanoma signs and teaching people how to examine their own skin will rapidly drive up melanoma detection rates—and send fatality rates plummeting.

In July, he rolled out a Web-based training program for doctors detailing BSCT, for basic skin cancer triage (referred to as “Biscuit”). It is based on an eight-step detection algorithm for melanoma. The initial study involves 50 doctors.

“We’re trying to demonstrate that it will work. If I can say there’s unequivocal proof that it does, then we have a shot at making this program a requirement for doctors.” (Brown already incorporates skin cancer detection in its med school curriculum and intends to make BSCT its foundation.)

Weinstock is continuing to study the epidemiological impact of skin self-examination, such as the Check-It-Out Project he devised. And he’s using his position as chair of the American Cancer Society’s Skin Cancer Advisory Group to promote self-exams. Although the ACS has yet to formalize guidelines on such exams, it does feature Weinstock’s instruction on its Web site.

There is, of course, an existing detection program for melanoma—the ABCDs campaign. The acronym, introduced in the mid-1980s by a team of dermatologists at New York University (NYU), stands for four characteristics of a melanoma growth: asymmetrical shape, border irregularity, color variations, and diameter (at least six millimeters). It’s been a successful campaign. Numbers show that for 25- to 34-year-olds, melanoma death rates are dropping. Indeed, melanoma, which 50 years ago killed about half the people diagnosed with it, today kills about 11 percent of them. (Although in some groups, like men older than 60, fatality rates have risen sharply.)

Weinstock says the ABCDs have worked very well. In the next breath, he qualifies that remark: The ABCDs at best identify about 80 percent of melanomas (others say less than a third), and it’s time to move on to something else. He recommends focusing on new and changing lesions. But his proposal has been “a tough sell,” Weinstock says, in part because the ABCDs are seen as having been very effective.

Darrell Rigel, a professor of dermatology at NYU who helped devise the ABCDs, thinks Weinstock is right that “it’s time for some movement forward” past them. “Anything that improved survival rates, we would embrace,” he says. “The problem is you will never come up with a template to catch 100 percent of melanomas.”

Rigel has known Weinstock for more than 15 years and says, “His energy and enthusiasm for what he does are infectious.” He thinks Weinstock is generally so far ahead of the crowd that it can take a while for others to grasp his ideas. “I usually look at them and say, ‘Why didn’t anybody think of that before?’”

Even so, Rigel thinks Weinstock’s goal of cutting melanoma deaths by half is “lofty.” He adds quickly, “I would love to do that, too.”

Even Arthur Rhodes, head of Rush University Medical Center’s Melanoma Surveillance Clinic in Chicago and a longtime collaborator of Weinstock’s, thinks the goal is unrealistic, because it depends too much on people developing a good habit.

Weinstock, however, keeps the faith that melanoma numbers will get happier through his vision: “We’ll see if I’m proved naïve.”

In part because of work by Weinstock and others, there is some stirring to add another letter to the ABCDs. A team of NYU researchers in December proposed adding an E to the ABCDs, for “evolving” lesion.

John Kirkwood, a noted melanoma special-