David Nierenberg, M.D.: Pharm stand

By Jennifer Durgin

There are two sure ways to get pharmacologist David Nierenberg, M.D., fired up: take notes with a drug-company pen or mention DMEDS, the Dartmouth Medical Encounter Documentation System. The former rouses his ire, the latter his enthusiasm.

On this particular day, he's teaching pharmacology to second-year medical students. As the students suggest possible drug treatments for two fictional patients, he pushes them to think through their answers step by step—from considering the symptoms and physiological mechanisms of each condition to evaluating which drugs to prescribe.

The class "is supposed to be about pharm, but you can't really think about drugs until you've thought through the pathophysiology," explains Nierenberg, who is also senior associate dean for medical education. He is conversational with the students, sometimes humorous, but never condescending and always precise. It's clearly a good approach: he's been awarded the Medical School's Clinical Science Teaching Award twice, in 1986 and in 2000.

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After class, a few students linger to talk with him. As one asks a question, Nierenberg reaches across the table to examine the contents of her purple pencil case. "You're not going to make me angry with any drug-company pens in there?" he asks. His mock glare is softened by his unruffled voice and quick grin. "No," she laughs. A fellow student had already warned her about Nierenberg's disdain for the way many pharmaceuticals are marketed to physicians.

"Good. Because I go into anaphylactic shock when I see drug-company pens," he says, feigning shortness of breath. Nierenberg is creative in the way he conveys his strong opinions about pharmaceutical marketing. For example, he has a "dirty-pen swap," offering students a chance to turn in the free, often fancy, pens they get at drug company-sponsored luncheons and lectures for a "clean" pen.

"This is all voluntary and educational. I've never confiscated," contends Nierenberg. Is it true that he's broken some students' pens? He explodes with laughter. "Wow, that myth has grown."

But the dirty-pen swap is sometimes a tough sell. "See," he explains, "the drug companies hand out $7 or $8 pens" that are colorful, thick, and comfortable in one's hand. His are skinny, bright-orange, 39¢ knock-offs that say "DHMC Clinical Pharmacology Rx: Prescribe the BEST drug!"

The message has great significance for Nierenberg. Teaching medical students how to prescribe the best medicines for their patients is what got him interested in course design and educational administration. But his interest in medicine goes back even further, to when he was a kid and observed the work of his family internist. "That looks like a nice combination of service and science," he remembers thinking. By the time he was 15, he had taken all the science courses that his high school in Chappaqua, N.Y., offered. So, in 1965, he enrolled in Phillips Academy, a boarding school in Andover, Mass. He then carried his passion for science to Harvard, where he earned a degree in biochemistry in 1971.

He planned to go on to medical school but wanted a break from academic rigor. So he headed to Oxford on a Harvard fellowship to work in a research lab. "Research has a very different tempo and feel than taking four or five courses every term," says Nierenberg.

In 1972, he returned to Harvard for medical school. After completing his M.D., he did an internal medicine residency at Boston's Beth Israel Hospital and a clinical pharmacology fellowship at the University of California at San Francisco (UCSF). When the head of clinical pharmacology at UCSF became chair of medicine at Stanford, he asked Nierenberg to be his chief medical resident. In 1981, Stanford tried to entice Nierenberg to stay on by offering him either of two positions—one that would be 90% research and 10% clinical and another 90% clinical and 10% teaching. But Nierenberg had other ideas. "What I really wanted," he says, "was to spend about a third of my time teaching, about a third of my time as a physician, and about a third of my time doing research." He and his wife also wanted to move back to New England. One night, they wondered if Dartmouth might be the right place. They'd always enjoyed visiting New Hampshire on long weekends and vacations. The very next day, out of the blue, Nierenberg got a letter from DMS. "It was literally the next day!" he says, still awed by the timing.

DMS needed someone with his kind of training to set up a division of clinical pharmacology, teach a new fourth-year pharmacology course, and do whatever else that person wanted. Nierenberg accepted. To his surprise, what he enjoyed most was teaching and designing courses. "Between 1981 and 1991, we developed the most intensive, best, required clinical pharmacology course, almost certainly, of any medical school," he boasts.

In 1995, then-Dean Andrew Wallace, M.D., appointed Nierenberg to the newly created role of associate dean for medical education. Ever since, Nierenberg has been helping DMS move to the forefront of medical education. Under his leadership, the school has reduced redundancy among courses; changed the ob-gyn rotation to include general outpatient women's health; infused more clinical material into the first two years and more basic science material into the clinical years; and established itself as a national leader in medical education and medical education research (see page 7).

"We are teaching stuff we didn't do 10 years ago," Nierenberg says. "Medical ethics, cultural competency, increased attention on com-

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Dartmouth medical students know that if they use a free drug-company pen like this one around pharmacologist David Nierenberg, he'll start to pitch his "dirty pen swap."

munication skills, whole new curricula on how the health-care system works, how to work in teams, how to try to improve what you are doing."

But to improve, one must first evaluate the status quo. Nierenberg's favorite tool for assessing medical education is the Dartmouth Medical Encounter Documentation System (DMEDS), launched in July 2004. He leans forward in his squeaky office chair, opens the DMEDS database, and starts reading aloud from it: "Patient was mentally disabled. Much of the history was provided by a friend/employer. Patient was 52 years old and had never seen a doctor." This is just one among thousands of entries made by students about patient encounters during their clinical rotations. "That's a *really* powerful statement of how hard that student had to work to find out what was going on with that patient," Nierenberg says. The data in the system is used in the aggregate to see what gaps there may be in students' experiences and to ensure consistency among numerous clerkship sites.

Some of the inspiration for DMEDS, which Nierenberg helped develop, came from his work in the late 1990s on a national committee that revised the U.S. Medical Licensing Exam. The committee converted a multiple-choice section to interactive computer-based case studies. Now, the exam presents fictional patients. Students can ask for the patients' histories, physicals, and lab-test results and then must select diagnoses and treatment plans.

Nierenberg reads another DMEDS entry: "'Patient's from Liberia and spoke a different dialect of English.' This student had to learn to rephrase questions in 'a more simple and clear way to facilitate direct communication,'" he explains. "That's an *advanced* communication skill. That's what we want our students to wrestle with before they go out and be a doctor."

Other medical schools have computer-based systems that record clerkship experiences. But Dartmouth appears to be the first to track its students' acquisition of the competencies now required by residency programs; it's expected that these competencies will soon be required of medical students, too. They cover six areas: medical knowledge; clinical skills for patient care; interpersonal communication skills; professionalism; practice-based learning and improvement; and the ability to navigate a complex health-care system.

The fact that DMEDS is based on these competencies is "huge," says Patricia Carney, Ph.D., DMS's assistant dean for educational research. She helped to develop ClinEdDoc, DMEDS's predecessor, and has worked with Nierenberg for 10 years. "He has been very insightful about the evolution of medical education," she says of her colleague. "He's always looking to improve it."

Carney is also familiar with Nierenberg's willingness to speak out on issues he thinks are important. "Boy, if he really believes in something, he stands there for it," she says, in a way that suggests she's been on the receiving end of his resolve more than once.

And Nierenberg really believes that using pens and other freebies to market pharmaceuticals to physicians is wrong. The "dirty" pens he collects from students are relegated to a box on the crowded shelves of his lab. And on the top shelf sits a larger box labeled "Hall of Shame," which contains such doodads as a colorful "Ene-man" superhero advertising Fleet enemas and a stuffed, talking "stuffy nose" embroidered with "Allegra-D."

Such "crap," he says, is "getting in our way" and preventing doctors from being "clear-headed about prescribing the drug that is most effective for their patient, safest, and—all other things being taken care of—least expensive." The idea that a trinket could alter physicians' prescribing practices is pooh-poohed by some. But, Nierenberg asks, would drug companies spend billions of dollars a year on marketing if it didn't work? "It's about name recognition," he insists. "That's what's in a pen. It alters perspective."

His favorite anecdote to illustrate this point is one that a fourth-year medical student wrote about for the clinical pharmacology course he developed. In her paper, the student described the excitement of nailing her first diagnosis—otitis media, a middle-ear infection. When her resident asked what treatment she'd recommend for the four-year-old patient, the first antibiotic that came to her mind was Augmentin. A few hours earlier, at a drug-company-sponsored lunch, she'd received a pen emblazoned with: "Augmentin: unsurpassed in the treatment of otitis media."

"So what happened?" asks Nierenberg. The resident agreed with the student and handed a prescription for Augmentin to the child's mother. But when the mother went to fill it, she discovered that the drug cost $80—and she had no insurance. Too embarrassed to ask for a cheaper medication, she never filled the prescription. Three days later, the child was admitted to the emergency room with bacterial

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Faculty Focus: Nierenberg

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meningitis—the worst-case consequence of an untreated ear infection. There's a 90% to 95% chance that a generic antibiotic, costing only $10 to $20, would have been effective, says Nierenberg. But doctors all over the country prescribe expensive, name-brand drugs instead of cheaper, often just as effective, generics. A long list of studies in prominent journals has documented that drug-company marketing *does* alter physicians' prescribing practices.

Yet Nierenberg is not "anti-drug company," he asserts, just anti-gift. Not accepting drug-company freebies is one way to combat the rising cost of pharmaceuticals and promote affordable health care, he believes.

His commitment to these causes also extends into the community. For example, he volunteers regularly at the Good Neighbor Clinic, a free clinic that serves the Upper Valley. He recruits DMS students to volunteer there, too. On a recent busy evening at Good Neighbor, Nierenberg was helping a medical student and a resident think through each patient's condition before recommending a treatment. If a prescription was needed, he'd prompt them to consider a generic drug. "It's cheaper," he'd remind them. Doctors must do their part to keep down the cost of health care, he believes—whether by prescribing generics whenever possible or by rejecting that free, fancy pen. ■

Alumni Album: Clark

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people about the worldwide AIDS crisis.

Clark, who has received several national awards for his work, including the Annie Dyson Award of the American Academy of Pediatrics, is currently a fellow at the Center for AIDS Prevention Studies at the University of California at San Francisco. He and fellow soccer players have returned to Dartmouth several times to help develop opportunities for undergraduate and DMS students to participate in Grassroot Soccer. And in November, he participated in a three-day symposium at DMS on HIV/AIDS, "Great Issues in Medicine and Global Health."

For all Clark's worldwide interests, getting back to his own grassroots is nice. ■