

stat

stat: an abbreviation for the Latin *statim*, an adverb that signals a need—for a surgical instrument, a medical supply or, as in this magazine, a short, compelling story—to be met without delay.



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TAKING HIT AFTER HIT can exact a heavy toll well after a player has left the gridiron: In a 2009 study of retired NFL players, Boston University researchers found that multiple concussions often lead to chronic traumatic encephalopathy, which is marked by paranoia, depression and aggression. Quarterbacks are at particularly high risk of concussion, the brain forced against the skull at a force as great as 100 Gs (the equivalent of being slammed against the windshield of a car that's traveling at 25 mph—twice).

INTERVIEW //

Medicating Young Minds

■ BY CHARLES SLACK

As a follow-up to her bestseller Perfect Madness: Motherhood in the Age of Anxiety, Judith Warner set out to write about what she considered the willful overmedication of children with mental health disorders. Producing a provocative exposé of prescription-happy psychiatrists and parents seeking chemical solutions to family problems would just be a matter of dogged legwork to connect the appropriate dots, she supposed.

Yet as Warner conducted her research, a very different tale emerged. We've Got Issues: Children and Parents in the Age of Medication, published earlier this year, actually comes to the defense of parents driven by concern for their children. The rise in diagnosis and treatment for children's mental health disorders, she argues, is a sign that society is finally waking up to a serious problem.

Q: What changed your initial thesis?

A: I tried very hard to make it work. I had been reading news reports about overmedicated children. I had just finished a book about hyper-competitive, perfectionist parents. But when I started looking for reliable numbers to confirm overdiagnosis and overmedication, I couldn't find them.

Q: What did your talks with parents reveal?

A: The stereotype that they are irresponsibly taking the easy way out by giving pills to their kids is false. None of the parents I interviewed wanted to medicate their children. Even when the medication works, they're always looking for ways to take their kids off it or to keep the dosage from increasing.

Q: So what's the source of the stereotype?

A: The media have perpetuated the idea that Americans take mental health medications for trivial concerns and that the medication of American children is a symptom of everything



that's wrong with our era and with parents. The demands on kids are so excessive these days that it's not much of a leap. It feels like the truth.

Q: Do that many American children really suffer from mental health disorders?

A: The best government estimates range from 5% to 20%. The 5% refers only to those conditions involving serious impairment. The 20% includes children with milder conditions.

Q: Does one disorder stand out as being particularly misunderstood?

A: Attention deficit/hyperactivity disorder has been consistently trivialized as a disorder of perfectly normal kids who happen to be high-strung or nonconformist or, on the flip side, kids who just need discipline. That image does a terrible injustice to children who, in fact, are suffering and are impaired.

Q: Critics claiming overmedication point to the ADHD drug Ritalin as Exhibit A.

A: During the 1990s, Ritalin use jumped 250%—not 600%, as is often incorrectly reported, but still a big increase. Yet during the same decade, there were huge leaps forward in the understanding of ADHD. It was really just a matter of recognizing a problem that already existed.

Q: Is the same thing happening with other disorders?

A: Yes. A generation ago, it was believed that depression did not exist in children; that thinking has changed. And though experts still debate how early children can develop bipolar disorder, it's widely accepted now that teens and even preteens can suffer

from the condition. More parents are willing to find out if their kids have problems.

Q: What prompted the stereotype of psychiatrists medicating children at the drop of a hat?

A: Some psychiatrists take money from drug companies for giving lectures about medication, or even allow drug companies to ghostwrite medical journal papers for them. This creates the impression of a conflict of interest. It also adds to impressions that medicines are sometimes prescribed for the wrong reasons and that kids are getting too much care. In fact, there's a dearth of children's mental health providers.

Q: Does the new health care bill address children and mental health?

A: Private plans don't always offer mental health coverage. But any plan offered as part of the exchanges described in the legislation will be required to offer mental health benefits on par with other medical benefits.

Q: What other changes must happen?

A: I'd like to see institutions take greater control of research so that drug companies are not able to subordinate research findings to commercial interests. More important, there should be an end to direct-to-consumer advertising, which trivializes these conditions. We not only allow such advertising, we subsidize it by giving drug companies tax deductions for advertising costs. A few years ago, I saw an ad in a parenting magazine for an ADHD drug. On one page, a mom was tearing her hair out over her son. On the next, all was calm, and he'd finished a big homework project. Solutions rarely come that easily. ■

BY THE NUMBERS //

What's That Racket?



72 Average daytime decibel level (about as loud as a vacuum cleaner), recorded in hospitals worldwide, of talking and footsteps, overhead paging, beeping IV pumps and cardiac monitors, telephones, moving bed rails and carts, and other sounds bouncing off the many hard surfaces

57 Average decibel level recorded during the day in hospitals in 1960

45 Maximum daytime decibel level for patient rooms recommended by the World Health Organization

0 Number of hospitals in the past 50 years whose decibel numbers have fallen within WHO noise guidelines

30 Decibel level above which noise disturbs sleep

133 Peak decibel level recorded in patient rooms during hospital shift changes at the Mayo Clinic

24 Percentage reduction in the peak noise level at the Mayo Clinic after administrators taught staffers the importance of speaking quietly and covering IV pump speakers with one's hand while programming changes; restricted overhead paging; and required the use of padded patient-chart holders to prevent clattering

6 Typical number of alarms to which intensive-care-unit patients are hooked up

30 Percentage reduction in medical errors reported by one unit at the Karmanos Cancer Institute in Detroit after it installed acoustical panels and decentralized its nurses' stations ■

INFOGRAPHIC //

More Dollars, More Drugs?

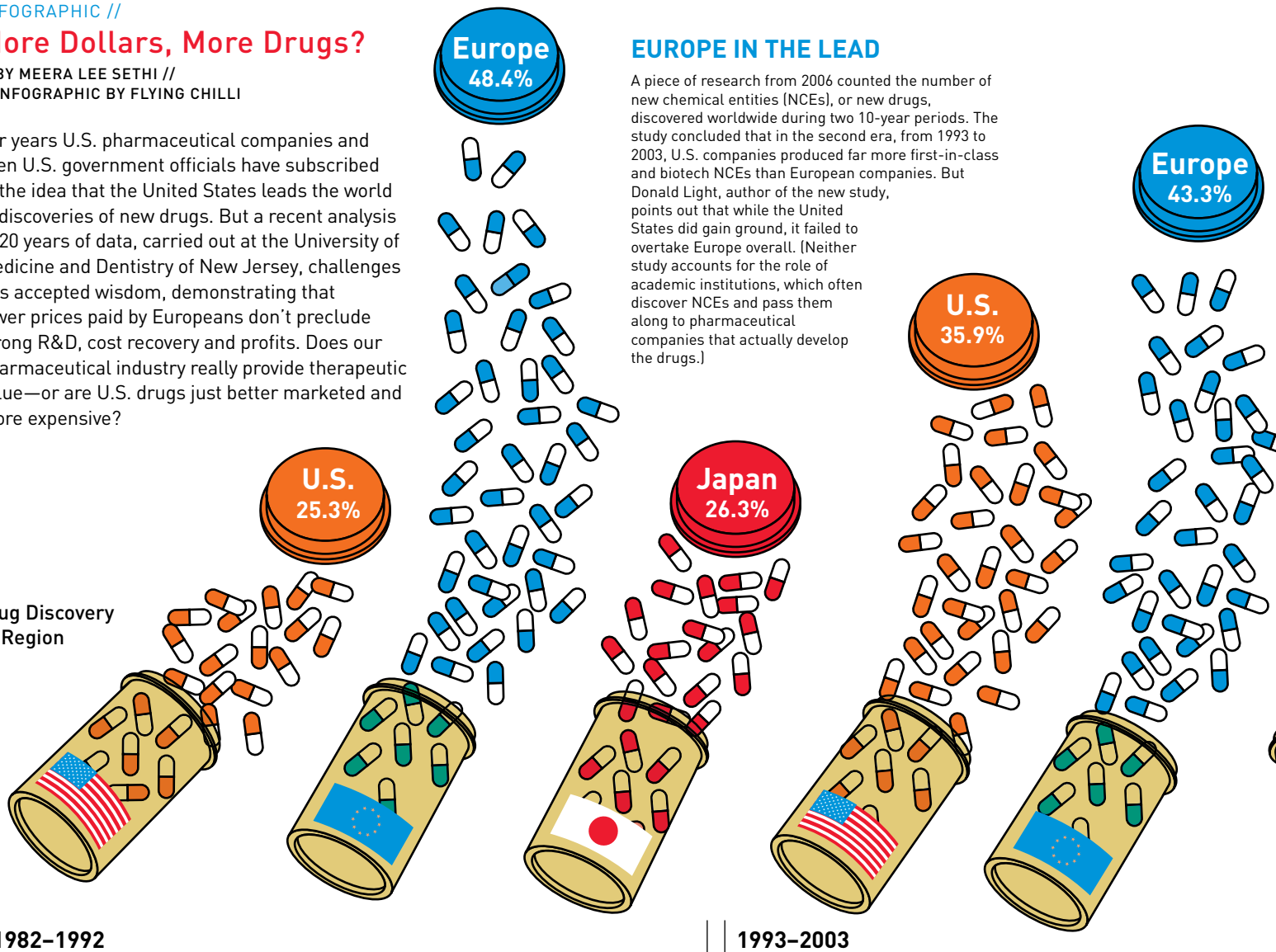
BY MEERA LEE SETHI //
INFOGRAPHIC BY FLYING CHILLI

For years U.S. pharmaceutical companies and even U.S. government officials have subscribed to the idea that the United States leads the world in discoveries of new drugs. But a recent analysis of 20 years of data, carried out at the University of Medicine and Dentistry of New Jersey, challenges this accepted wisdom, demonstrating that lower prices paid by Europeans don't preclude strong R&D, cost recovery and profits. Does our pharmaceutical industry really provide therapeutic value—or are U.S. drugs just better marketed and more expensive?

EUROPE IN THE LEAD

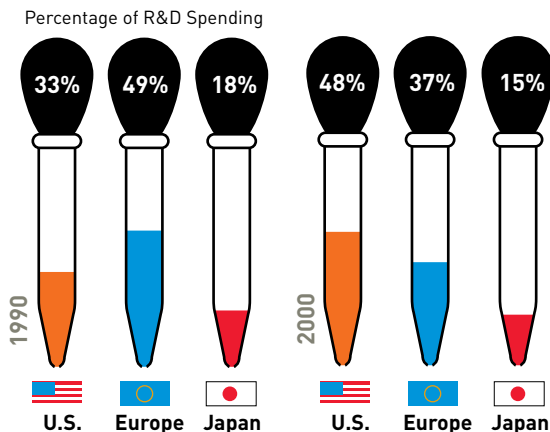
A piece of research from 2006 counted the number of new chemical entities (NCEs), or new drugs, discovered worldwide during two 10-year periods. The study concluded that in the second era, from 1993 to 2003, U.S. companies produced far more first-in-class and biotech NCEs than European companies. But Donald Light, author of the new study, points out that while the United States did gain ground, it failed to overtake Europe overall. (Neither study accounts for the role of academic institutions, which often discover NCEs and pass them along to pharmaceutical companies that actually develop the drugs.)

Drug Discovery by Region



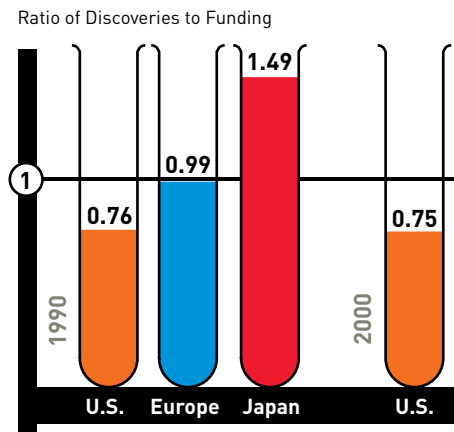
LOTS OF RESEARCH AND DEVELOPMENT...

Between 1990 and 2000, drug companies poured far more money into U.S. labs while reducing the share for Europe and Japan. But did the extra funding boost U.S. productivity?



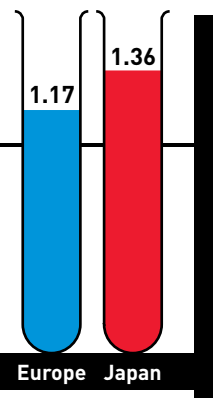
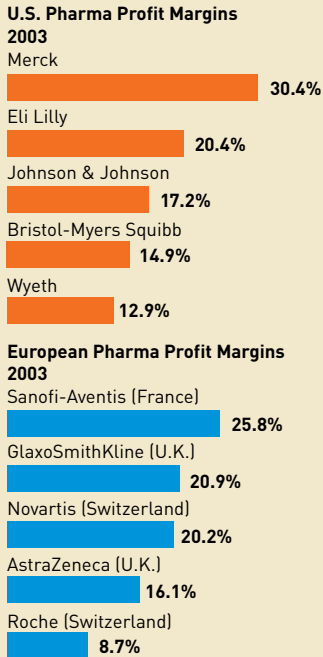
...WITH AN UNEVEN PAYOFF

Light divided the percentage of drugs developed in each region by the region's R&D share to gauge return on investment—a measure of productivity, if not innovation. The higher the ratio, the better. (Critics might argue that the U.S. R&D figure should not include money spent on phase IV trials, which are aimed at promoting prescriptions rather than drug development itself.)



NO FREE RIDERS

The U.S. government has claimed that price controls mean European pharmaceutical companies don't make enough to cover R&D costs, and therefore European patients are "free riders" who benefit from high prices and innovation here. But drug firm profit margins in the two regions don't look that different.



NEW, NOT VALUABLE



Independent assessments of NCEs discovered between 1975 and 2004 show that only between one in seven and one in nine qualify as either a clinical breakthrough or a significant improvement over existing drugs. The rest provide few advantages to patients.

And what about the tiny percentage of new drugs that are of value? Each year the journal *Prescrire* conducts independent evaluations of new drugs, honoring those that either are decisive innovations or promise better results for at least some patients.

1981-2007 Prescrire Awards



MILESTONE //

Nursing a Profession

"Perhaps in no one single thing is so little common sense shown, in all ranks, as in nursing," Florence Nightingale wrote in 1859 in *Notes on Nursing: What It Is, and What It Is Not*. In her home country, England, alcoholism was rampant among nurses; she even recalled one surgeon whose evening rounds included bringing intoxicated nurses into the infirmary on stretchers. What's more, nurses tended to lack formal training, and programs that did exist were often as concerned with saving patients' souls as they were with more practical functions. Nightingale complained that there was "but little difference between the religious scruple of the 'sister' who neglects her patients for her rule and the irreligious scruple of the nurse who neglects her patients for her drink."

She sought to remedy this situation the same year *Notes on Nursing* was published, when she established the first secular nursing school, the Nightingale Training School for Nurses, at St. Thomas's Hospital in London. The program accepted students of all faiths, emphasized theory and clinical practice, and approached nurses' education as an academic endeavor rather than an apprenticeship. One hundred and fifty years after the school opened, the institution still exists, now as the Florence Nightingale School of Nursing & Midwifery at King's College London.

Nightingale founded the school with more than £44,000 collected by a public that revered her for her heroic service during the Crimean War, from 1854 to 1856. As superintendent of nurses and the first woman to

hold an official position in the British army, she championed better conditions for the military and became a pioneer in outcomes research, observing that soldier deaths from preventable contagious diseases often outnumbered those from battle injuries. Nightingale was later immortalized by poet Henry Wadsworth Longfellow as the "lady with a lamp."

Though Nightingale, a talented statistician and prolific writer, retreated from public life after the war, she continued working and kept careful tabs on her school. By 1880, Nightingale nurses were esteemed in their profession; some went on to start training programs around the world.

Nightingale hoped to contribute to medicine even after her death, requesting that her body be donated to science. Although that didn't happen after she passed away 100 years ago at the age of 90, her legacy paved the way for modern nurses. ■



SCIENCE MUSEUM/SSPL

POLICY WATCH //

Why Recertify?

■ BY LINDA KESLAR

For physicians an important measure of competence is board certification—a way to demonstrate knowledge in a specialty, subspecialty or both by passing a rigorous test of expertise. Though only state licensing exams are legally required for practicing medicine in the United States, board certification has come to be expected by some medical groups and hospitals, health plan payers and knowledgeable consumers. About 85% of U.S. physicians are certified by one of the two dozen American Board of Medical Specialties member boards, which cover 145 medical specialties.

Though some specialties, such as general surgery, have long required recertification, until recently most board certifications were good for life. Since 2006, however, physicians have been subject to new ABMS rules: They must pass a written exam every six to 10 years, and they're asked to complete "modules" every one to five years that may include analyzing medical records to see whether patients received care that was up to the latest standards and assessing communication skills with patients. Only doctors who received board certification before 1990 are exempt from recertification.

It's no secret that physicians find the recertification process time-consuming and costly, with test fees of \$3,000 or more. And in a recent online poll by the *New England Journal of Medicine*—which asked doctors to consider the hypothetical example of a 55-year-old physician, board certified in endocrinology and in practice for 24 years—63% of 2,512 physicians said the specialist shouldn't volunteer for recertification testing.

"Recertification is a good idea in theory," says Lee Goldman, a cardiologist and dean of health sciences at Columbia University, who co-authored an article criticizing recertification that accompanied the *NEJM* poll. But passing a written exam doesn't necessarily make for a better mid-career doctor, argues Goldman, particularly if the required knowledge isn't useful in day-to-day practice. "It would be ideal to ask doctors to identify the most common problems and diagnoses they encounter in their practices," he says. "For some doctors, much of the exam may be irrelevant."

ABMS president Kevin Weiss counters that member boards have created recertification programs that will build physicians' knowledge base and improve their skills. "The intent is to derive a higher-quality workforce," says Weiss. "We're finding that physicians aren't concerned about the



time recertification takes if it adds value to their experience."

Recertification is part of a broader push toward accountability that also includes employers and health plan payers assessing physician performance. Doctors who choose to go through the process may collect additional reimbursement, and the new health care law mandates bonuses, starting next year, for physicians who are recertified and participate in Medicare pay-for-performance programs.

Though encouraged that some specialties are supplementing exams with elements that may more directly relate to physician practices, Goldman remains skeptical. "A secure test of recall may not be nearly as relevant as knowing how to use the myriad modern sources of information," he notes.

Goldman, who became board certified in the 1970s, says he has no plans to recertify. Many of the 250,000 other physicians grandfathered in with lifetime certificates, and the 150,000 or so physicians who have never earned board certification, are likely to feel the same way. ■



Board recertification for physicians: proof of competence or a waste of time? Tell us what you think at protoeditor@mgh.harvard.edu.

An Elusive Isotope

Close to 20 million times a year, U.S. patients are injected with technetium-99m, which is used in scans to detect a variety of serious medical conditions. The radioactive isotope produces clear images, and its short half-life—just six hours—minimizes patients' radiation exposure.

As *Proto* reported in its Winter 2008 issue, hospitals had been waiting for months for the repair and reopening of the nuclear reactor at Chalk River, Ontario, which had provided 30% to 40% of the world's supply of technetium-99m. More than two years later, they're still waiting. What's worse, a Dutch reactor that also produces technetium-99m was closed in February for repairs expected to take six months. The two reactors supply the United States with more than 80% of its molybdenum-99, the radioactive parent of technetium-99m.

The world's hospitals rely almost entirely on five aging reactors, "all about 50 years old," says Michael M. Graham, president of SNM (formerly the Society of Nuclear Medicine). "It's not surprising that the reactors have major maintenance problems."

Covidien and Lantheus, the main manufacturers and distributors of the isotopes, have hustled to distribute 400-pound "generators" filled with molybdenum-99, which then breaks down into the crucial isotope, to hospitals around the world.

In moves still largely unnoticed by patients, hospitals have rescheduled tests, reduced dosages and substituted other



isotopes—a "minor" compromise that produces a poorer image and exposes the patient to more radiation, says Graham.

To meet immediate demand, Covidien negotiated an agreement with the Polish Institute of Atomic Energy to supply as much as 10% of the world's needs, and Lantheus gained FDA approval to provide the United States with molybdenum-99

produced at a Czech reactor. Other projects, meanwhile, aim to ensure a long-term supply: An international group plans to build a reactor in the Netherlands that will begin operation as early as 2016, and an Australian reactor is boosting production.

Efforts to establish a domestic supply in the next several years are afoot as well. In January, GE-Hitachi announced a \$2.25 million Department of Energy award to produce as much as half of the U.S. demand for molybdenum-99 in existing commercial reactors. Also this year, the DOE awarded Babcock & Wilcox Technical Services Group \$9 million to produce more than half of the nation's needs in a yet-to-be-constructed reactor. And the University of Missouri plans to begin production of molybdenum-99 at its research reactor within three years.

U.S. hospitals are especially eager for a home supply, Graham says, because "if terrorists were to set off a dirty bomb, it would suddenly be very difficult to ship radioactive materials by air." ■

DEFINED //

structure/function claim ['stræk-chər 'fɛŋ(k)-shən klām] n: a statement on the label of a food or dietary supplement about how that product might affect the human body's structure ("helps enhance muscle tone") or function ("strengthens your immune system")—the type of statement that critics fear is being used by some manufacturers to make unsubstantiated health claims.

What's the difference between the statements "calcium builds strong bones" and "calcium reduces the risk of osteoporosis"? According to the Food and Drug Administration, the former is a structure/function claim, which does not require FDA approval, whereas the latter is a health claim, and so must be approved because it describes a relationship between an ingredient and a reduced risk of a health condition. Yet in a 2001 AARP Public Policy Institute survey, 38% of respondents made no distinction between the two statements.

Some reform advocates say that the FDA should treat structure/function claims like health claims or do away with them. The Center for Science in the Public Interest calls such claims "a long-standing problem that the FDA has largely ignored," while Marion Nestle, a nutrition expert at New York University, noted the irony that a letter the FDA sent to the Nestlé company regarding its Juicy Juice Brain Development Fruit Juice stated that the claim "no sugar added" violated a nutrient-claim rule, but it didn't address the statement "helps support brain development" because it is a structure/function claim.

Still, those pushing for tougher labeling rules hope the FDA will soon scrutinize structure/function claims. The agency recently requested input from consumers on how they use and understand labels. ■

