BOOKS & ARTS

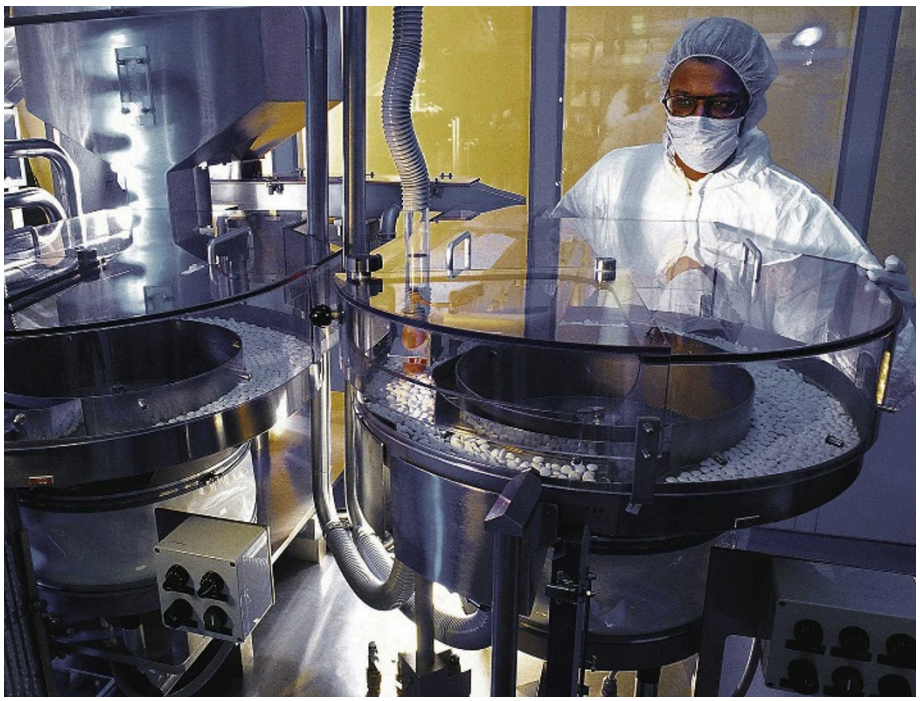
A prescription for public health

Will high drug prices and a lack of new medicines force the pharmaceutical industry to restructure and take a more personalized approach to research, asks **Merrill Goozner**.

Pharmaceutical executives will find nothing reasonable in the provocative view offered in *Reasonable Rx*. In this discussion of prescription drug (or Rx) policy, medical researcher Stan Finkelstein and economist Peter Temin of the Massachusetts Institute of Technology propose the break-up of pharmaceutical companies into two separate entities: one devoted to research and development (R&D) and the other to manufacturing and marketing. To broker between them, the authors would create a non-profit agency to establish research priorities, offer prizes to R&D winners and auction off the intellectual property to manufacturers, who would operate as generic companies.

Why is radical restructuring necessary? The first two-thirds of this short and accessible book takes readers through the standard critique of contemporary drug-industry practices. For years, the industry has justified its high prescription-drug prices — at least in the United States, where there are no price controls and purchasers have little bargaining power — by claiming they are a prerequisite for innovation. That policy has been an abject failure. The number of new drugs coming out of industry labs is declining, and high prices either deny patients the drugs they need or turn their lives into a constant scramble to come up with the money to pay for them.

The core of the problem, assert Finkelstein and Temin, is that perverse market signals are channelling most of the pharmaceutical industry's research skills into areas that improve health only marginally. In its search for blockbuster drugs, defined as those that make more than US$1 billion in annual sales, industry deploys marketers to medicalize trivial conditions such as enlarged prostate and heartburn. It pursues copy-cat drugs for chronic conditions such as high blood pressure and high cholesterol so it can gain a share in well-established markets. Meanwhile, its R&D managers ignore the infectious diseases that are ravaging the developing world, where tens of millions of poor patients cannot support research.



BAYER AG/AP

Drug manufacturers' focus on finding blockbuster drugs often provides only small gains in health.

Reasonable Rx: Solving the Drug Price Crisis
by Stan Finkelstein and Peter Temin
FT Press: 2008. 208 pp. $27.99

The authors point out that the current R&D model undermines one of the most promising areas of contemporary research: personalized medicine, a term that conjures up images of individualized treatments using promising technologies such as stem cells. But the more immediate opportunity lies in the growing recognition by researchers that many of the most intractable diseases facing ageing societies, such as many cancers and dementia, have multiple causes. The process of discovering drugs for their cure will divide a disease into subsets according to cause. Each subset will be treated more like a rare disease, an area that also lacks the attention of drug companies because of market failure.

Reasonable Rx highlights another personalized medicine opportunity that has been lost to the blockbuster-drug mentality. Industry has skimped on promising techniques for identifying patients who might experience side effects from drugs or who could benefit from drugs that help only a small fraction of people, such as the lung-cancer drug Iressa. It makes little sense to invest in tools or pursue strategies that will only shrink your market.

In their search for an answer to the conundrum of high drug prices and declining research productivity, the authors reject price control, stating that it "kills innovation". Thankfully, this point is not crucial to their case because it makes no sense. They are right that more than a third of the top-selling drugs originated from US-based companies, and that foreign firms have gravitated to the United States to take advantage of its excellent biomedical research infrastructure, which is mainly financed by US taxpayers. Although some of that R&D is innovative, a lot more of it, from a medical standpoint, is duplicative or wasteful. And even without price controls, the number of new drug approvals is taking a nosedive. Health-care systems around the world will always pay for unique medicines, so how much would the United States really lose by adopting the same price-control strategies used in the European Union, Canada and Japan?

The solution to getting medical innovation back on track, the book argues, is to transfer the risk of drug development from "sick people to society". The authors propose to do this by

establishing an independent, non-profit drug-development agency to acquire new drugs from private or public entities after they get regulatory approval. The agency would then auction the drug rights to manufacturing firms, who would bid based on prices it set. The auction revenue, supplemented by government funds generated by the lower cost of medicines for the health-care system, would cover the rewards given to R&D companies. To enforce the separation of the research and manufacturing arms, the authors propose that the agency would refuse applications from companies engaged in drug production.

Finkelstein and Temin argue that their proposal preserves free enterprise. They also tip their hats to Senator Bernie Sanders (Independent, Vermont), the socialist maverick who introduced legislation to establish a prize fund to spur drug innovation. They claim their scheme is better because of its auction component, but like Sanders they propose to replace exclusive marketing rights derived from patent monopolies with a prize system. The real innovation is their insistence on also changing the pharmaceutical industry's structure.

The authors should have spent more time wrestling with the finer points of their proposal instead of dwelling on the failures of the current system. For instance, to determine research priorities and set prize levels once market failure has been ushered off stage, their solution is to give the task to multidisciplinary committees set up by the new drug-development agency, which they compare with the grant-approval sections of the National Institutes of Health. The work would be peer-reviewed by groups such as the National Academy of Sciences or the US Pharmacopeia, a 188-year-old non-profit organization responsible for establishing formularies as part of the Medicare Prescription Drug, Improvement and Modernization Act of 2003. It added a prescription-drug benefit to Medicare, the US health-care programme for senior citizens.

This solution is curious given that Finkelstein, as revealed in the book, sat on the US Pharmacopeia–Medicare committee that set formularies under the act; drug firms successfully lobbied to influence the committee's decisions. It is unlikely to be any different when a panel is determining, for example, the relative value of a cure for Alzheimer's disease versus an incremental advance in treating dyspepsia. In the end, the perceived values of such cures determine the willingness of the private sector to pour resources into the hunt.

These quibbles could be thrashed out in the legislative arena if the book's ideas ever gain traction. The hard facts remain: drug prices are unsustainably high, new drug approvals are declining, and promising approaches are being ignored. By suggesting a way for public-health objectives to drive private biomedical research investment, Finkelstein and Temin offer the drug industry a path out of its current predicament. ■

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See Editorial, page 823 and online at http://tinyurl.com/3tt3y3.

Complementary cures tested

Trick or Treatment? Alternative Medicine on Trial
by Simon Singh and Edzard Ernst
Random House/Norton: 2008. 352 pp. £16.99/$25.95

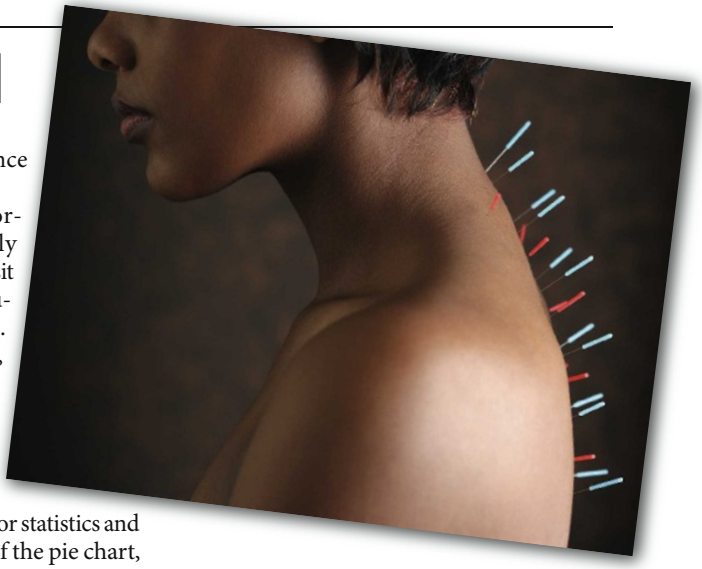
The international market for alternative therapies is estimated at US$40 billion. Because so many people use alternative medicine, it provides an excellent vehicle for discussing the nature of scientific research. Yet explaining the evaluation of evidence, balance of probabilities and risk is not easy.

Combining their communication skills and knowledge, writer Simon Singh and professor of complementary medicine Edzard Ernst set out for the lay person the scientific approach to testing alternative medical treatments. *Trick or Treatment?* starts by detailing the development and evolution of the double-blind, placebo-controlled, randomized controlled trial and its role in evidence-based medicine. The authors evaluate the evidence for four common alternative therapies — acupuncture, homeopathy, herbal medicine and chiropractic. They discuss the pitfalls of placebo-based medicine and ask who is to be blamed for spreading misinformation about unproven treatments. The book concludes with a manifesto for better regulation of alternative medicine and reliance on properly tested therapies.

Trick or Treatment? is thoroughly researched and clearly written. Historical descriptions sit beside detailed and lucid evaluations of the research evidence. Some stories are well known, such as how naval surgeon James Lind developed the first clinical trial to test the effectiveness of lemons for treating scurvy. Others are less familiar, such as Florence Nightingale's aptitude for statistics and her development of a variant of the pie chart, the polar area chart, to support the case that good sanitation dramatically reduced deaths in military hospitals. The description of the Nazis' adoption of homeopathy is particularly compelling and sobering. These tales make the book entertaining as well as informative.

In the discussions of the four therapies, the authors' combined strengths shine through. The examination of the evidence is comprehensive, forensic and, for champions of these therapies, damning. For each treatment, Singh and Ernst present the available randomized controlled trials. They describe and dissect good-quality evidence and dismiss the poor-quality stuff, giving their reasons why it should be discounted. The authors conclude that acupuncture works as a short-term analgesic and can relieve nausea but not much else; that some herbs such as Devil's Claw for musculoskeletal pain or garlic for high cholesterol are effective; chiropractic can improve back pain but less well than conventional treatments; and that homeopathy is no better than placebo. They summarize evidence for a further 30 therapies, most of which they find wanting.

Singh and Ernst base their evaluations solely on results from randomized controlled trials. Many advocates of alternative treatments argue



Acupuncture: pain relief or placebo?

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