

Inc.

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Hearts that
monitor
themselves

Organ
printing

THE NEW AND IMPROVED YOU

Bionic
limbs

Perfect
hearing
forever

**All brought to you by some
of America's most innovative
entrepreneurs**

By Adam Bluestein

ILLUSTRATIONS BY JONATHON ROSEN

flashy new medical technology is often cited as a key cause of rapidly rising health care costs. Of course, that hasn't stopped biotech entrepreneurs—or the investors who finance their ventures—from pulling on their lab coats and inventing technological fixes for blurry eyes, brittle bones, creaky knees, and nearly everything in between. After all, the 78 million baby boomers are starting to hit the magic age of 65. Keeping all those bodies in good working order represents not just a challenge but an unparalleled business opportunity.

But the looming prospect of health care reform—with its emphasis on driving down costs—is beginning to change the way these entrepreneurs both raise funds and market their innovations. No one knows what a revamped health care system will look like.

It's all but certain, however, that the system's gatekeepers will be regarding new technologies more critically than ever, which means new risks for small companies betting big on new technologies. "If the government says it is no longer going to reimburse for certain products, they will only get to the subpopulation that can afford it out of pocket," says Terry McGuire, a co-founder and general partner of Polaris Venture Partners in Waltham, Massachusetts, a leading investor in life-sciences start-ups. "And that market may not be big enough for the innovator to make the investment and take the risk."

Indeed, insurers already play a gatekeeping role. "Being able to demonstrate improved outcomes is critical," says Naomi Aronson, executive director of Blue Cross Blue Shield's technology evaluation center, which provides technical assessments to the 39 regional health plans that collectively provide health insurance for 1 in 3 Americans. If start-ups are to make it out of the lab, they will have to "prove efficacy to highest level," notes Aarti Shetty, an analyst with the medical-device team at Frost & Sullivan, a market research firm. "Will it help a wide demographic? Will it have a long-term effect? Is it something that will ultimately cut health care expenditures?"

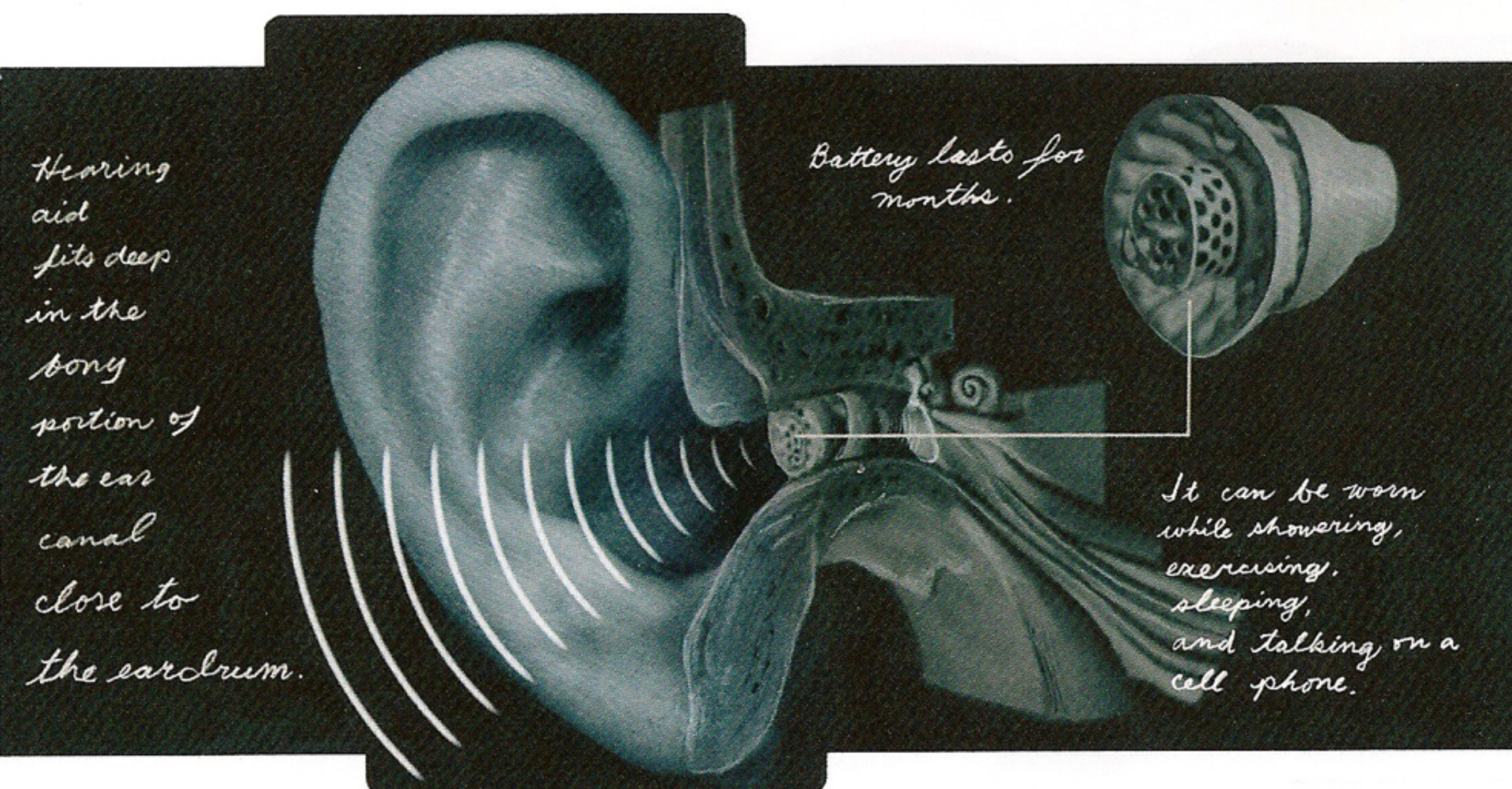
In the pages that follow, you will find one head-to-toe innovations that promise to improve the quality of life for many—and, in some cases, significantly reduce health care costs. They represent some of the biggest, most important trends in medical technology: "smart" sensors and drug delivery devices, networked health monitoring, tissue regeneration, and robotics. Several of the companies, meanwhile, are pioneering new business models as well. And if the science behind them may be unfamiliar, the spirit of the start-ups bringing them to market—innovative, focused, fast, and efficient—is something that entrepreneurs in all fields should recognize.

Finally, after years of effort— an invisible hearing aid

THE LYRIC HEARING AID

the hearing aid has long been viewed as a signifier of personal obsolescence. No wonder, then, that manufacturers of hearing aids have tried for years—and without much success—to make models that fit deep inside the ear, where they cannot be seen. After seven years of stealth development, Newark, California-based InSound Medical appears to have

THE EARS



pulled that off. Released in May 2008 and introduced to the public with a high-profile spot on ABC's *Good Morning America* last July, the Lyric hearing aid—designed by a team headed by Robert Schindler, one of the pioneers of the cochlear implant—can be worn 24 hours a day for months at a time, sort of like extended-wear contact lenses. Made of a soft foam material and powered by a proprietary battery that lasts for months, not weeks, the Lyric fits deep in the bony portion of the ear canal close to the eardrum, delivering high-quality sound. Unlike other devices, it can be worn while showering, exercising, sleeping, and talking on a cell phone. A combination of precise fit and antimicrobial agents helps prevent infection.

InSound's business model is also different: With other hear-

ing aids, you buy the device outright (at a cost of about \$2,000 and up for each ear for high-end digital models) and expect it to last three to five years. With the Lyric device, users buy an annual "subscription" for about \$1,650, which covers replacements, visits to the audiologist, and automatic upgrades when new models come out.

The subscription model makes the first-generation device more expensive than traditional hearing aids. But David Thrower, the company's CEO, is convinced customers will find the added features well worth the price. About 80 percent of the approximately 3,000 Lyric users have reupped for a second year of service. "Most people don't like to get hearing aids," Thrower says. "This is a hearing aid that people really love."

Lyric®

www.lyrichearing.com