



Medicine gobbles up research money

By Nancy McGuire

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At a nanotechnology conference I attended several years ago, I was pinning my press badge onto my blazer when I saw two of the conference organizers making a beeline in my direction.

They gave me the kind of greeting that associate editors of small trade magazines rarely get. "You're the only media person to show up so far," they explained.

Being the only journalist there had its advantages. I rubbed elbows with noted scientists, including a Nobel Laureate. I listened to presentations by the presidential science adviser, representatives from six national laboratories, a congresswoman, a senator, a government program director and representatives from IBM and General Electric.

Although I enjoyed the attention, I couldn't help noticing the contrast between this conference, which launched the research centers for the National Nanotechnology Initiative, and a medical conference that I had written about just a few months earlier.

That conference got so much media attention that several of the participating drug companies saw their stock trading volumes double immediately after the abstracts of their presentations were released on the Web.

Journalists (and their editors) follow the money, and for the past couple of decades, the money has been in medicine and pharmaceuticals.

According to the Bureau of Labor Statistics, the number of workers in the pharmaceutical industry increased 28 percent between 1985 and 2005, compared with a 20 percent drop in the number of manufacturing jobs overall. A 2005 survey of American Chemical Society members showed that the number of chemists employed that year in polymer sciences and the "classical" fields (organic, inorganic, analytical, physical and theoretical) was roughly three-quarters the number for 1985.

In contrast, the number of chemists working in biotechnology, medical and pharmaceutical specialties nearly tripled over that time period. In 2005, almost one in three chemists under 40 years old worked in the pharmaceutical industry.

With all that industry money and manpower available for medical and pharmaceutical research, one might suppose that the federal government would pick up the slack in other areas like energy, advanced

materials and the environment. Not so.

In 2007, medical research received \$23.2 billion in federal funding, roughly five times the funding received by any one of seven other scientific research categories. In 2003, the ratio was six to one.

This emphasis on medical research began in the mid-1980s. The National Science Foundation has tracked federal research funding for eight broad categories of basic and applied scientific research from 1970 through 2007. The funding levels for all these categories (stated in constant 2008 dollars, to adjust for inflation) ranged from \$340 million to \$4.27 billion, remaining fairly constant from 1970 through 1985. After 1985, funding for seven of these categories remained almost flat, but medical research funding began to rise steeply.

Not surprisingly, the medical and related sciences have made great strides since 1985. Medical imaging technologies allow doctors to make diagnoses with a speed and accuracy never before possible, and new drug treatments have transformed many diseases from death sentences into treatable chronic conditions.

But humans require more than healthy bodies to live in this world. During those same 25 years, America has fallen behind in such fields as alternative energy research and telecommunications. A recent issue of *The Economist* called American mobile network coverage “some of the flakiest” in the developed world.

The Bush administration paid lip service to rebalancing America’s research and development investment portfolio, announcing its intention to double funding for three research agencies — the National Science Foundation, the National Institute of Standards and Technology, and the Department of Energy Office of Science — between 2006 and 2016. However, these agencies received only modest funding increases over the next two years.

These agencies got an infusion of funding with 2009’s American Recovery and Investment Act, but biomedical research still leads the pack. President Obama requested \$10 billion for biomedical research in fiscal year 2010, and \$7 billion for everything else: energy, the environment, space exploration, broadband communications, and the list goes on.

The Obama administration’s stated budget priorities for fiscal years 2010 and 2011 focus on four key areas of research. Human health is on the list, but clean energy, economic prosperity and national security are there as well. A statement in the 2010 budget says, “In no area will innovation be more important than in the development of new technologies to produce, use, and save energy.”

The demands of present-day crises could easily turn these words into empty promises unless we citizens are willing to urge our elected officials to commit to a serious, sustained effort to address our nation’s innovation needs in all areas, not just in medicine and health research.

America’s needs for sustainable energy sources, reducing greenhouse gas emissions, building and updating laboratory facilities, next-generation manufacturing processes, and improving the reliability and security of wireless communications will not put themselves on hold while our attention is directed elsewhere.

If we are successful in rebalancing priorities in the distribution of federal research funding, the public will benefit from important developments in all fields of science. I may never again get the first-class welcome that I got at that nanotechnology conference six years ago, but it's a sacrifice I'm willing to make.

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