

Federal government and big pharma seen as increasingly diminished source of research funding

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In a commentary to be published in the Dec. 12 issue of *The Journal of the American Medical Association*, two Johns Hopkins faculty members predict an ever-diminishing role for government and drug company funding of basic biomedical research and suggest scientists look to "innovative" kinds of private investment for future resources. Current negotiations in Washington over sequestration and the so-called "fiscal cliff" provide an opportunity to fundamentally rethink the funding of biomedical research, they say.

Pointing to a decade of flat government funding for [biomedical research](#), higher-than-ever costs of clinical trials, reduced drug industry investment and the threat of deep cuts to the federal research budget without [congressional action](#) by January to stop them, the commentators warn that without "creative" new sources of funding, biomedical innovation faces a crisis.

"Regardless of what happens in Congress, biomedical research must look to the private sector and not the federal government as the source of new funds," write Hamilton Moses III, M.D., an adjunct professor of neurology and onetime chief physician of The Johns Hopkins Hospital, and E. Ray Dorsey, M.D., M.B.A., an associate professor of neurology at the Johns Hopkins University School of Medicine. "The uncertainty of federal support of biomedical research now and in the near-term only makes the need to look to the private sector for support more certain,"

adds Dorsey.

Moses and Dorsey also have business experience, on top of their medical credentials. Moses, a management consultant, runs the Alerion Institute, which conducts studies on research policy, and Alerion Advisors, LLC, which advises nonprofits and corporate boards on strategy, organization and governance. Dorsey is an associate professor at the Johns Hopkins Carey Business School.

Moses says the National Institutes of Health, which supports \$32 billion a year for research, has already reduced the proportion of grants to individual investigators—the historical producers of most biomedical advances—and is focusing instead on collaborations, multicenter clinical trials and large-scale projects such as the Human Genome Project.

Inflation associated with conducting research at universities is running at three to four times the base U.S. rate of inflation, decreasing the amount of research by one-third every three years, he adds.

Meanwhile, Moses and Dorsey say, the pharmaceutical and drug device companies—which spend roughly two-thirds of the estimated \$100 billion spent each year on biomedical research in the United States—are focused on large clinical trials and late-stage research, rather than the basic research that fuels future innovation. He says they are, understandably, spending research dollars on projects most likely to yield short-term returns, even at the expense of investment in diseases that are severe, common and cannot be prevented or treated effectively.

Noting that only 5 percent of research funding comes from private charities and foundations—resources already strained—Moses says the best way forward is to create new forms of funding, such as mutual funds for individual and institutional investors, "Biomedical Research Bonds," or patent pools to share risks and rewards inherent in innovation

and technology transfer.

"These measures are analogous to those used to build sports arenas, ports, bridges or highways, lessening the financial burden on government," the Hopkins experts write. "They also promise to lower barriers that prevent collaboration between competing universities, companies and researchers."

Some areas of science, such as basic biology and mechanisms of disease, will likely never yield financial value to its discoverer, and consequently should continue to be the major focus of the NIH, Moses says.

But to realize the benefits of translational research and the development of marketable new therapies and good businesses, funding must increasingly come from sources other than the government. Moses' idea is to create new financial instruments that invite individuals, investors or pension funds to invest in research bonds that help cover the cost of making new scientific discoveries. Such bonds would draw not only those looking for financial rewards, but also those with a personal stake in a disease, a willingness to delay financial returns or a desire to help others. Buying a "cancer bond" or an "autism bond" has appeal for many, he adds.

"These bonds may not return anything in five to 10 years, or ever," says Moses, who believes raising \$10 billion a year or more this way is doable. "Science is a form of speculation and the risk of failure is quite high. Yet it's precisely the high-risk, high-reward scientific endeavors that aren't getting funded anymore. We need to find a way to ensure they are. Clinical need and scientific opportunity far outstrip our current ability to support innovation."

Provided by Johns Hopkins University School of Medicine

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