

Is Federal Funding for Dental Research in Jeopardy?

Innovations: The Importance of Money

Innovations are complex in their inception, execution, and their probability of financial success. Although most opinions might differ on the importance of genius, perseverance, or luck to the success of an innovation, it would be difficult to argue the importance of money. Money is the lubricant that allows ideas to flow from the laboratory to a working prototype, and eventually, to the marketplace. It is true that money cannot convert a bad idea into a blockbuster, but it is equally as true that without sufficient money to power the complex engine and lubricate its multitude of wheels, the machine for the translation of a good idea into a successful commercial product would grind to a screeching halt.

Although required at many stages of the innovation process, money is most important at the first step in the process—the discovery stage. Because predicting which idea will make it from the discovery stage to commercial success is far from an exact science but more like gazing into a crystal ball, this first step is fraught with significant risk. Especially true of scientific research, the fact that a vast quantity of manpower, hours, equipment, and supplies are needed and that the payoff is so far from being guaranteed, most investors stay on the sidelines. Of course, without these vital discoveries and advancements in technology, our society and, in the case of medicine, our well-being would be nothing of what it is today. It is necessary to have some other entity assume the risk, or the development of new products and technologies that advance our society and professions would languish. In the United States, this other entity is the federal government.

Edward F Rossomando DDS, PhD, MS

Professor and Director
Center for Research and Education in
Technology Evaluation
University of Connecticut
School of Dental Medicine
Farmington, Connecticut
erossoma@nso2.uconn.edu

The National Institutes of Health: Funding Early Stage Discovery

The federal government provides most of the money that funds the discovery stage of work performed in our nation's academic institutions. Research funds come primarily from 2 sources: the National Science Foundation, which provides money to support research in the basic sciences such as physics and chemistry, and the National Institutes of Health (NIH), which provides funds for biomedical research. The NIH is divided into 27 institutes and centers including the National Institute of Dental and Craniofacial Research (NIDCR), the institute that supports the research that has made oral health care in the United States the best in the world.

The NIDCR has a distinguished history. Founded in 1948 and one of the original 3 NIH institutes chartered by Congress, the NIDCR's goal was the elimination of dental caries. Today, the NIDCR continues to support research in all areas of dentistry including caries and periodontal disease. In addition, the NIDCR is a world leader in research funding for the origins and control of pain and other specialized areas including temporomandibular joint dysfunctions.

Despite such a history, in the 2006 fiscal year the budget for the NIDCR was about \$390 million. To understand the magnitude of this number, several observations are in order. This money is often the only source of funds for dental research in the 56 US dental schools and for dental related research in other US academic institutions. The NIDCR budget is one of the smallest of all 27 NIH institutes and centers (eg, the National Cancer Institute [NCI] budget is about \$4.8 billion). Also, the NIH director has the authority to assess each institute for various multiinstitute projects as part of the NIH's "Roadmap to the Future" initiative. Each assessment is usually a percentage of each institute's budget. This assessment system has a greater impact on institutes with small budgets, like the NIDCR, than those with large budgets, like the NCI. Also, Congress mandates that each institute contributes a percentage of its

budget for international research, for promoting technology transfer, and for other activities. The effect of these assessments and Congressional mandates is a marked reduction in the NIDCR research support below the appropriation level.

Congressional Reauthorization of the NIH: Legislation of Considerable Interest to the Dental Community

At regular intervals, the NIH must be reauthorized by Congress. A bill to reauthorize the NIH, the first reauthorization bill in 13 years, was introduced by Representative Joe L Barton, R-Texas, in 2006. Interestingly, not only is Rep Barton the bill's sponsor, but he is also the Chairman of the House Energy and Commerce Committee. The bill, titled the "National Institutes of Health Reform Act of 2006" (HR 6164), cleared the US House of Representatives on September 26, 2006, an astonishing achievement because this passage occurred just 1 week after being introduced and passed by Rep Barton's Energy and Commerce Committee. Having passed the House, this bill now goes to the US Senate where its fate remains unclear.

Impact of the Reauthorization Bill on the NIDCR

Several features of this reauthorization act will affect the NIDCR and its ability to fund laboratory research to promote innovations at the discovery stage. For example, 1 provision would cap the number of NIH institutes and centers to the present number of 27. This feature does not preclude the formation of a new institute (new institutes are often formed as the needs of science change), but it implies that if a new one is formed, another would have to be eliminated. Although there might be other candidates for closure, the NIDCR, which is one of the smallest in terms of budget and personnel, could be a very likely candidate. The closure of the NIDCR would have a serious impact on the funding of dental research in the United States.

Another provision of the bill would dramatically increase the amount of the assessment by the NIH director for the "Roadmap" initiative for large-scale, trans-NIH projects. These are projects that are considered relevant to more than 1 institute and of such a large-scale that they would not be able to be funded by a single institute; therefore, they are worthy of special funding from a centralized source known as "the common fund." Again, the transfer of institute funds to the common fund would have the net result of reducing the NIDCR budget.

Another provision would require the annual increase of an institute's budget to be determined by the extent of its collaboration with other NIH institutes during the previous fiscal year. This feature would affect the NIDCR not because the NIDCR does not collaborate,

but because the extent of the collaboration would be measured solely in dollars. Given that the NIDCR budget is one of the smallest to begin with, it is difficult to see how its collaboration could be equal to or exceed that of the NCI and other institutes.

Response of the Dental Education and Research Community

Because of the importance of this pending legislation to both the dental education and research communities, 2 national dental associations have joined forces to review the NIH reauthorization bill. The National Oral Health Advocacy Committee (NOHAC), a joint committee of the American Dental Education Association and the American Association for Dental Research, was charged by both organizations to study the legislation and, if necessary, draft a response expressing the views of both organizations to the legislation. Under the leadership of Chairman Dr Dom DePaola and Vice Chairman Dr Frank Catalanotto, the NOHAC membership debated the issues and drafted a response with the assistance of the association's legislative directors, Daryl Pritchard and Jack Bresch. This response has been submitted to the senate committee in charge of reauthorization legislation.

The Fate of the Reauthorization Legislation

At this time, the fate of the reauthorization legislation is unknown and many variables including the results of the 2006 Congressional elections may have an impact on its fate; a change in the leadership of either the House or the Senate could alter its content or path through the Congress. Regardless of what happens in 2006, the reauthorization process will not go away.

The fate of the NIDCR is critical to the progress of the dental profession. Not only does it provide the funds necessary to advance our profession and give us the tools to provide quality oral health care to the American people, it provides the scientific underpinnings for us to be called a learned profession. It is important for each of us to maintain a high state of vigilance on this issue. The quality of oral health care that we are able to deliver to the American people requires nothing less.

For more information or to take action, contact Daryl Pritchard at dpritchard@iadr.org or Myla Moss at Mossm@ADEA.org.