President’s Message

Based on preliminary Fiscal Year (FY) 2009 data from the National Institutes of Health (NIH) for “regular” and American Recovery and Reinvestment Act (ARRA)-related appropriations, as well as 2009 extramural research awards announced by the Department of Defense (DOD), funding for vision research increased by an unprecedented $230 million!

The accompanying chart reveals that, in addition to the FY2009 Congressional appropriations to the National Eye Institute (NEI) of $196 million (“regular” and ARRA), vision researchers successfully competed for another $34 million in funding. At NIH, this included competing successfully within the common fund (e.g., Bridge Awards), the Office of the Director (OD) at NIH (e.g., ARRA-related Challenge Grants), and within other NIH Institutes and Centers (ICs). At DOD, this meant competing in FY2008 against 21 other areas of disease research within the Congressionally Directed Medical Research Program (CDMRP)—before vision was given its own dedicated line item in subsequent appropriations.

I believe that this success is attributable to three factors. Vision researchers submit high quality proposals that address scientific need. Often, it is collaborative research that relates to other diseases, so it stands out within the NIH common fund and at other ICs. Vision research meets a very real public health need, especially with 78 million Baby Boomers turning age 65 and the visual implications of the epidemic of diabetes.

In passing resolutions earlier this year—the Senate and the House (Res. 366 and S. Res. 209) Congress not only recognized NEI’s pivotal role during its 40th anniversary year, but designated 2010-2020 as the Decade of Vision to acknowledge the daunting public health challenge of vision loss. At DOD, vision research is addressing the reality of battlefield conditions, such as corneal healing, corneal and retinal protection, and visual dysfunction from Traumatic Brain Injury (TBI).

NAEVR advocacy and AEVR education have been key to this success. NAEVR was among the first to urge then-President Obama and Congress to support ARRA. Again, NAEVR was among the first to share examples of ARRA-funded research during the October 30 Association for Research in Vision and Ophthalmology (ARVO) Advocacy Day, supplementing participants’ own stories about the scientific and economic impact of their research. All the while AEVR, through its Decade of Vision 2010-2020 Initiative, has sustained Capitol Hill awareness through its briefings, two of which are detailed herein. The $230 million increase reflects an almost 500-fold return on the vision community’s investment in the Alliances in 2009.

Unfortunately, as new NIH Director Francis Collins, M.D., Ph.D. has noted, sustained NIH funding for FY2011 will be a challenge, especially with expiration of the two-year stimulus. As the ARVO researchers recently heard first-hand, many Congressional offices are unwilling to discuss FY2011 NIH funding until they have a better sense of return on the stimulus investment. That means that NAEVR needs to be ever-vigilant in making the case for the value of vision research and, in that regard, will need the vision community’s full financial support in 2010.

In closing, I want to thank NEI Director Paul Sieving, M.D., Ph.D., Extramural Research Program (CDMRP)–before vision was given its own dedicated line item in subsequent appropriations. The Decade of Vision to acknowledge the daunting public health challenge of vision loss. At DOD, vision research is addressing the reality of battlefield conditions, such as corneal healing, corneal and retinal protection, and visual dysfunction from Traumatic Brain Injury (TBI).

Director Loré Anne McNicol, Ph.D., and the entire NEI staff for their herculean efforts in committing the appropriated funds in such a timely fashion. I also want to acknowledge former NEI Deputy Director Ed McManus who, along with former NEI Director Carl Kupfer, M.D., have released their book History of the National Eye Institute 1968-2000. As much as we are looking ahead with the recent infusion of unprecedented funding for the NEI, it is also useful to look back and remember the rich history of the Institute, especially as it concludes the year-long celebration of its 40th anniversary.

Dr. Stephen Ryan (left) and NAEVR Executive Director James Jorkasky (right) with Ed McManus, who served for more than 25 years as the NEI Deputy Director and previously as the Alliances’ Executive Director. Mr. McManus co-authored the recently released History of the NEI 1968-2000 with former NEI Director Carl Kupfer, M.D.

Have a happy and healthy holiday season. Thanks for your support in 2009, and I look forward to working with you in 2010.

Stephen J. Ryan, M.D.
President, NAEVR/AEVR Boards
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Contributor Report

**FY 2009**
Vision Research Funding Increase of $230 Million

<table>
<thead>
<tr>
<th>Amount</th>
<th>$230.0 M</th>
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<tbody>
<tr>
<td>“Regular” NEI Appropriation</td>
<td>21.4 M</td>
</tr>
<tr>
<td>NIH Common Fund (e.g., Bridge Awards)</td>
<td>5.6 M</td>
</tr>
<tr>
<td>ARRA NEI Appropriation</td>
<td>175.0 M</td>
</tr>
<tr>
<td>ARRA NIH OD, Common Fund, Other ICs</td>
<td>160.0 M</td>
</tr>
<tr>
<td>2009 Awards/FY2008 Defense Vision</td>
<td>12.0 M</td>
</tr>
</tbody>
</table>

Fall 2009
In an October 30 Advocacy Day hosted by NAEVR, the ARVO Board of Trustees was joined by local ARVO members as one of the first communities to educate Members of Congress and their staffs about the impact of ARRA-funded research. Timing was propitious, as NIH had just released an initial report on how the $10.4 billion in stimulus funding has been spent in FY2009, which had piqued Hill interest. ARVO members provided a useful context to the top line NIH numbers by describing the vision research awards that they and their institutions received from the $175 million in NEI stimulus funding. Three of the participating researchers—incoming ARVO President J. Mark Petrash, Ph.D., Shukti Chakravarti, Ph.D., and Justine Smith, Ph.D.—were direct recipients of ARRA-related NEI awards.

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In addition to describing their work and sharing a NAEVR-generated fact sheet of examples of ARRA-supported NEI research that addresses basic, translational, epidemiologic, and comparative effectiveness research, participants also stressed economic impact in terms of employees retained or hired. Since healthcare reform legislation is also a current Congressional priority, participants commented on the potential for research that prevents blindness and restores vision to reduce costs, especially to the Medicare system, while increasing productivity and improving quality of life.

The ARRA discussion was a prelude to two important requests: that Congress finalize FY2010 NIH funding at the higher House bill level of 3.1 percent (3.57 percent for NEI), and that Congress fund NIH at a robust, predictable, and sustained level in FY2011, especially since stimulus funding expires in FY2010. In that regard, the ARVO advocates emphasized that, in both FY2009 and FY2010, NIH is supporting research at a level of $37 billion (base appropriations, plus half of the two-year stimulus).

ARVO was pleased to engage several international Trustees as participants. In addition to describing research being conducted in other countries, they emphasized the unique nature and important global leadership role of the NIH biomedical enterprise.
Legislative Scorecard Issues

NIH Releases Preliminary FY2009 ARRA Funding Data

In an October 26 report, NIH stated that $4.73 billion of the two-year $10.4 billion stimulus funding has been committed to grants and contracts. Of the 12,788 grants funded to date, 60 percent reflect new science, while nearly 40 percent accelerate science of existing projects. NIH estimates 50,000 jobs will be created or retained, 5,000 of which reflect summer 2009 and 2010 positions for students and science educators.

FY2009 ARRA NEI Funding Factoids:

- Of the $175 million appropriated, 97 percent is funding extramural research, with $5.4 million being spent on administration (peer review process)
- NEI has already committed $142 million to 333 grants, mostly to investigator-initiated research (R01) grants and supplements
- NEI awarded ten Challenge Grants at $1 million each, seven of which were funded through the Office of the NIH Director (OD)

NEI’s “Signature Program” is its Centers for Excellence in Genomics of Eye Disease

The FY2010 funding balance of $26.7 million will be committed to grants, supplements, and other initiatives, many of which are co-funded by the OD

Visit the dedicated ARRA box on the home page of NAEVR’s Web site for details, including a link to the NIH RePorter System summary of ARRA NEI grants

Dr. Francis Collins Cites FY2011 NIH Funding Challenge, Describes Opportunities

Since his August 7 confirmation, NIH Director Francis Collins, M.D., Ph.D. has spoken frequently, citing sustained funding as the NIH’s biggest challenge, especially in FY2011 after ARRA funding expires. He stated that NIH must communicate themes that resonate with Congress, such as the role that biomedical research can play in reducing healthcare costs, and how ARRA-funded breakthrough research must be funded post-stimulus. He also described five areas of special opportunity:

- **Apply high-throughput technologies** (e.g., gene sequencing, nanotechnology, microbiome) to determine the basis of disease
- **Translational research, especially rapid development of diagnostics and treatments/therapies**
- **The beneficial role of science in healthcare reform, especially developing data that will be helpful in making decisions**
- **NIH’s beneficial role in global health issues**

Visit the Defense-related Vision Research section of NAEVR’s Web site to review the abstracts of DOD awards

FY2010 NIH/NEI Appropriations Summary

At press time, Congress had yet to finalize the FY2010 Labor, Health and Human Services, and Education (LHHS) appropriations bill, which might be included in an omnibus. NAEVR has supported the higher House-passed bill funding level (see chart), which would result in a $24.6 million, or 3.57 percent increase, for the NEI.

Defense-Related Vision Research Update

FY2010: Congress has yet to finalize the Defense appropriations bill. NAEVR has urged that the conference bill includes the House-passed dedicated Peer Reviewed Medical Research-Vision line item that is funded at $5 million, a 25 percent increase over FY2009.

FY2009: The Department of Defense’s (DOD) Telemedicine and Advanced Technology Research Center (TATRC) will make $5.4 million of awards in first-quarter 2010. TATRC, which added $1.54 million to the $4 million Congressional appropriation, is currently reviewing full proposals submitted in October after a mid-summer review of pre-proposal submissions.

FY2008: To date in 2009, the DOD has awarded $12 million to vision research, $6 million from its Peer Reviewed Medical Research Program (PRM RP) and $6 million from its Deployment Related Medical Research Program (DRMRP) for research into corneal healing, corneal and retinal protection, and eyelid muscle replacement.
On September 22, AEVR’s Decade of Vision 2010–2020 Initiative sponsored a Congressional briefing that recognized International Age-related Macular Degeneration (AMD) Awareness Week 2009 (September 19–25).

Kang Zhang, M.D., Ph.D., professor of Ophthalmology and Human Genetics at the Shiley Eye Center and Director of the Institute for Genomic Medicine at the University of California at San Diego, spoke about his research into AMD, which focuses on the role of Robo4, which is a protein found only in cells in the interior surface of blood vessels. Once the protein is activated, it initiates a chain of biochemical events to stabilize blood vessels and prevent uncontrolled growth and leakage. In the “wet” form of AMD, new blood vessels grow into a part of the retina (the light sensitive back of the eye) called the macula, which is necessary for central vision. These new blood vessels are often unstable and leak, affecting vision. In a March 2008 study published in *Nature Medicine*, a team of researchers led by Dr. Zhang and Dean Li, M.D., Ph.D., (University of Utah), reported that damage from AMD could be prevented or even reversed when the Robo4 protein was activated in mice models that simulated the disease, inhibiting abnormal blood vessel growth and stabilizing blood vessels to prevent leakage.

Dr. Zhang’s research has used the same animal models required for drug development, meaning that the timeframe required to test treatments for AMD, as well as for diabetic retinopathy, could be shortened. “Our research is already looking at a small molecule approach to activate the Robo4 protein pathway, which could result in a minimally-invasive therapy to treat AMD, such as an eye drop or a pill,” said Dr. Zhang.

Dr. Zhang’s research has been funded by the NEI, which has described his work as “a prime example of basic science research yielding a discovery with direct clinical applications.” He has also been supported by the private funding foundations Research to Prevent Blindness (RPB) and Burroughs Wellcome Fund.

AEVR Executive Director James Jorkasky noted Dr. Zhang is the recipient of two ARRA-funded NEI grants—a joint project with the Doheny Eye Institute/University of Southern California on the genetic basis of diabetic retinopathy in the Latino population, and support for education of science teachers/summer students. For many attendees, this was the first opportunity to meet an ARRA-funded investigator and to learn about the scientific and economic impact of that research.

AEVR acknowledges its co-sponsors:

- Congressional Vision Caucus
- AMD Alliance International
- ARVO
- Lighthouse International
- Prevent Blindness America
NEI and FDA Address the Use of Patient Reported Outcomes in Medical Product Development

On October 13, the NEI and the Food and Drug Administration (FDA) held the third of a series of ARVO-managed symposia about endpoints appropriate for use in clinical trials that support approvals for new drugs and devices. Entitled Use of Patient-Reported Outcomes in Medical Product Development, the meeting featured representatives from the reviewing divisions within FDA’s Center for Drug Evaluation and Research (CDER) and the Center for Devices and Radiological Health (CDRH) that oversee ophthalmic drug and device approvals, respectively.

A Patient Reported Outcome (PRO) is a measurement of any aspect of health status that comes directly from the patient without having been interpreted by a physician or researcher. Because some treatment effects are known only to the patient, PROs are increasingly recognized as an essential component to be considered in the evaluation of drugs and medical devices. Quality of life indicators that arise from PROs are increasingly used in decisions about drug and device reimbursement, and are even being considered in potential health care reform legislation.

“Simply stated, this meeting will address how patients report their perception of vision in relation to clinical outcomes,” stated NEI Director Paul Sieving, M.D., Ph.D., who noted the importance of these discussions within NIH. Symposium co-chairs Neil Bressler, M.D. (Wilmer Eye Institute/Johns Hopkins) and Rohit Varma, M.D. (Doheny Eye Institute/University of Southern California) emphasized the importance of PROs in vision trials and epidemiologic assessments sponsored by NEI and industry. At issue was whether a PRO could be used as a primary endpoint in new product evaluation and, if so, what would it take to develop and validate that PRO, similar to that which is done with clinical data. A corollary issue was the impact of PROs on product labeling claims or other patient information.

Since PROs are increasingly being considered in new product evaluations across the FDA, representatives of its Division of Epidemiology discussed concepts that are incorporated into a draft FDA guidance document entitled Patient-Reported Outcomes Measures: Use in Medical Product Development to Support Labeling Claims, which will issue shortly in final. They encouraged attendees to consider meeting early with the reviewing division to discuss the potential use of PROs in the regulatory submission.

CDER representative Wiley Chambers, M.D., (Acting Director, Division of Anti-Infective and Ophthalmic Products) commented that, for ophthalmic drug approval, there is no requirement for a quality of life study in addition to safety and effectiveness, but if a manufacturer wants to use a PRO in a label claim, then it must be developed and validated. CDRH representative Malvina Eydelman, M.D. (Director, Division of Ophthalmic, Neurological and Ear, Nose and Throat Devices) commented that, although PROs are not usually primary endpoints, they are considered in safety reviews of a device both pre- and post-market and may be included on separate information sheets to patients. She reported that FDA would announce a collaborative study with the NEI that would use PROs to examine the potential impact on quality of life from Laser-Assisted In Situ Keratomileusis (LASIK), a form of laser eye surgery to improve vision. The study will identify factors that can affect quality of life following LASIK and potentially reduce the risks of adverse effects.

Anne Coleman, M.D. (Jules Stein Eye Institute/University of California-Los Angeles) identified challenges to the use of PROs in ophthalmic drug and device approvals, including developing appropriate measurements and validating these on an ongoing basis. Dr. Varma concluded by stating that, although the vision community may not yet be prepared to use PROs as primary endpoints, they serve an important current and future role in the evaluation of new treatments.

Although the vision community may not yet use PROs as primary endpoints, they serve an important role in evaluation of new treatments. Dr. Rohit Varma

The PRO Endpoints symposium was developed after a session on quality of life indicators at the second of the joint NEI/FDA meetings, Glaucoma Clinical Drug Trial Design and Endpoints, held in March 2008. The first symposium, Ophthalmic Clinical Trial Design and Endpoints, held in November 2006, focused on new treatments for AMD and diabetic retinopathy.
AEVR joined fellow vision groups in co-sponsoring a first-ever World Sight Day (WSD) Congressional Briefing, presented by Vision 2020/USA, a program of the International Agency for the Prevention of Blindness (IAPB). Held the second Thursday of each October, WSD focuses global attention on blindness and vision impairment. Louis Pizzarello, M.D., M.P.H. (Columbia University), who serves as Chairman of Vision 2020/USA and the immediate-past IAPB Secretary General, welcomed attendees and noted that 314 million people around the world are visually impaired, with 45 million of them blind. He added that blindness/vision impairment is the sixth leading cause of disabilities in the United States, 80 percent of vision loss is preventable, and that blindness prevention and treatment has an unparalleled economic payoff. He also highlighted the inordinate burden of blindness in developing countries, where vision-related problems account for 25 percent of all visits to clinics.

WSD 2009, which was recognized in a statement by NEI Director Dr. Paul Sieving, had a theme of Gender Equity in Eye Care and Blindness Prevention, which was addressed by Janine Austin Clayton, M.D., Deputy Director of the Office of Research on Women’s Health in the Office of the NIH Director. A board-certified ophthalmologist who has served as an attending physician and clinical investigator in cornea and uveitis at the NEI since 1996, Dr. Clayton emphasized that women experience an excess burden of visual impairment worldwide due to sex and gender effects on ocular disease, aging, health states and diseases unique to women, and socioeconomic issues, especially access to eye care. She reported that nearly two-thirds of blind individuals worldwide are women and girls, in many countries men have twice the access to eye care as women, and equal access to eye care could substantially reduce blindness in poor countries.

Dr. Clayton was joined by Jennifer Klein, a Senior Advisor on Global Women’s Issues in the Office of Global Women’s Issues in the Department of State, who described current efforts by the Obama Administration. Two Members of Congress—Cong. Tim Bishop (D-NY) and Cong. Gene Green (D-TX)—welcomed attendees and stressed the importance of blindness prevention.