NAEVR Releases First-Ever Study of the Cost of Military Eye Injuries and Blindness

Since this was the first attempt at such a study, and NAEVR would be distributing it on Capitol Hill, it had to be fully defensible.

Both, as well as holding the Defense-Related Vision Opportunities briefing at which the DOD representatives announced $12.2 million in awards in the Fiscal Year (FY) 2011/2012 funding cycle. The latter has become an important source of vision research funding that has been made possible through NAEVR advocacy for the Vision Trauma Research Program (VTRP) line in Defense appropriations.

I wanted to report to you on a major deliverable that was released at ARVO 2012—the first-ever study of the cost of military eye injuries and blindness, which was prepared for NAEVR by Kevin Frick, Ph.D. (Johns Hopkins Bloomberg School of Public Health). In releasing the top-line results from the study entitled Costs of Military Eye Injury, Vision Impairment, and Related Blindness and Vision Dysfunction Associated with Traumatic Brain (TBI) without Eye Injury, Dr. Frick noted that the study used only published data from 2000-2010 and widely accepted economic conventions to characterize the incidence numbers and concomitant costs associated with eye injuries, which range from superficial to bilateral blindness, as well as visual dysfunction associated with TBI. Since this was the first attempt at such a study, and NAEVR would be distributing it on Capitol Hill, it had to be fully defensible.

Based on the published data, the total incident cost of eye injury each year has been $2.282 billion, yielding a total cost to the economy over this timeframe of $25.107 billion, which reflects:

- $634 million in first-year costs, which have already been spent;
- $188 million present value of Department of Veterans Affairs (VA) benefits; and
- $24.286 billion in present value costs to the economy and society (Social Security benefits, lost wages, family care).

Dr. Frick has acknowledged limitations to the study, especially related to the growing knowledge about the diagnosis and treatment of visual dysfunction from TBI. “As we learn more in that regard, the estimated costs would likely be greater,” he stated. At ARVO, NAEVR's VA contacts noted that they plan to publish new data on TBI incidence, which would enable an update of the study in the next year or two.

I wish to thank the ophthalmic and optometric consultants to the various branches of the service who participated in NAEVR's Working Group, as well as joint DOD/VA Vision Center of Excellence (VCE) Director Colonel Donald Gagliano, M.D. and Deputy Director Mary Lawrence, M.D., who provided invaluable context to the data. No sooner had the study issued, but NAEVR Executive Director James Jorkasky was participating in Project Gemini, a weeklong exchange of blinded veterans from the US and the United Kingdom that was developed by Alliance member Blinded Veterans Association (BVA) and Blind Veterans UK. I was most pleased that Peng Khaw, M.D., Ph.D., the recently elected ARVO President, hosted the delegation at Moorfields Eye Hospital, where he serves as the Director of Research and Development. Jim also participated the next day at an event at Moorfields in which the institution and its Bristol colleagues signed a collaborative agreement with the NEI for a Human Ocular Immunology Consortium to conduct basic and clinical research into inflammatory eye diseases.

I think Dr. Khaw summarized those events in a most insightful fashion when he stated that, “The past two days exemplify the power of our research to change the lives of patients,” adding that Life Changing Research is the theme of the 2013 ARVO Annual Meeting. Jim has also told me that spending time with the blinded soldiers was humbling and invigorating, reminding him of why he so passionately advocates for our community.

This is an especially robust edition of the Report that also includes highlights of NAEVR's targeted efforts to increase NIH and NEI funding in FY2013 appropriations. NAEVR and AEVR have already had a very productive year thanks to the financial and manpower resources that members have provided. The Alliances will maintain that high level of engagement since the stakes are so high, in terms of funding challenges and the looming threat of budget cuts through sequestration.

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Left to right: NAEVR consultant Kevin Frick, Ph.D. (Johns Hopkins Bloomberg School of Public Health) and joint DOD/VA Vision Center of Excellence Deputy Director Mary Lawrence, M.D. at the release of NAEVR's study at the 2012 ARVO Annual Meeting
**NAEVR In the United Kingdom**

**NAEVR Participates in Project Gemini, an Exchange Between US and UK Blinded Veterans**

NAEVR’s James Jorkasky was honored to participate in Project Gemini in late May, just prior to Memorial Day, in which blinded United States veterans travelled to England for a week to meet with blinded United Kingdom (UK) veterans. The program, now in its second year, is a joint initiative between NAEVR member organization Blinded Veterans Association (BVA) and Blind Veterans UK (formerly known as St. Dunstan’s). Its objective is to provide veterans who have recently lost their sight with opportunities to interact with men and women who have lived happy and prosperous lives despite their blindness and can serve as role models. During the week, the veterans discussed blind rehabilitation and readjustment training, adaptive technology for the blind, and vision research, as well as visited attractions throughout England, many of which provided special tours in which the participants touched objects being described, such as armor, jewels, and architectural elements.

This year, the four American Army veterans who were blinded in Operation Iraqi Freedom (OIF), including Steven Baskis, Dexter Durrante, Timothy Hornik, and Mark Shrand, interacted with UK veterans Billy Baxter (blinded in Bosnia), Darren Blanks, Bill Drinkwater, and Ken Facal. BVA Director of Government Relations Tom Zampieri, Ph.D., who is blind, VCE Director Colonel Donald Gagliano, M.D., and VCE Associate Director of Rehabilitation and Reintegration Bobbi Hillen also participated. Blind Veterans UK’s Cadet Youth Challenge Project Officer Colin Williamson and Membership Manager Simon Brown served as hosts.

On May 21, the delegation visited Moorfields Eye Hospital in London, where it was hosted by 2012-2013 ARVO President Peng Tee Khaw, M.D., Ph.D., who serves as the Director of Research and Development and Director at the National Institute of Health Research (NIHR) Biomedical Research Centre (BRC), based at Moorfields, and the University College of London (UCL) Institute of Ophthalmology. Moorfields’ researchers informed the audience of more than 50 invited guests about groundbreaking research to save and restore sight.

**Comments on Project Gemini**

“It was a pleasure and an honour to meet these brave American and British veterans, most of whom have lost their sight while serving their countries. We were able to explain to them some of the state-of-the-art research being carried out here and at other NIHR research facilities elsewhere in the country. The work we discussed included some exciting and positive developments in regenerating damaged and diseased nerve cells and new stem cell transplantation and drug delivery discoveries which may in the future lead to people with loss of vision having it restored.” —Dr. Khaw

“Project Gemini was a remarkable and life-affirming experience that enabled me to reflect on the very reason why NAEVR exists—to ensure funding for vision research that brings hope to patients.” —Mr. Jorkasky

**NAEVR Attends NEI/UK Signing Ceremony for Collaborative Research into Ocular Immunology**

On May 22, James Jorkasky attended a ceremony at Moorfields, at which the NEI signed a Human Ocular Immunology Consortium agreement with the UK’s NIHR BRC at Moorfields Eye Hospital and UCL Institute of Ophthalmology, University Hospitals Bristol National Health Service (NHS) Foundation Trust, and the University of Bristol. Dr. Khaw hosted the event at which the NEI was represented by Gyan Prakash, Ph.D., Associate Director for International Programs, and Robert Nussenblatt, M.D., M.P.H., Clinical Director for Human Immunology.

More than 100 attendees heard a series of presentations regarding the developing science of ocular immunology and how the Consortium can “fuse the scientifically and clinically powerful research from the two countries,” including immune platforms, advances in imaging, and the availability of patients, especially for a joint clinical trial for new therapies.

Left to right: Signatories for the Human Ocular Immunology Consortium agreement include Dr. Khaw, John Prakash, Ph.D. (NEI), Andrew Dick, M.D. (Research Director in the Faculty of Medicine and Dentistry at the University of Bristol and Theme Lead for Inflammation and Immunotherapy at the NIHR Moorfields BRC), and Robert Nussenblatt, M.D., M.P.H. (NEI)

“We are all convinced that the Consortium agreement we have made to promote human ocular immunology, specifically to encourage the transfer of technologies, scholars, and biomaterials for the study of uveitis, age-related macular degeneration, and diabetic retinopathy, will greatly enhance our efforts to better understand and combat these common and often devastating eye diseases.” —Dr. Khaw
Legislative Scorecard: Issues—FY2013 Funding

Status as of Early June

The House and Senate Labor, Health and Human Services, and Education (LHHS) Appropriations Subcommittees held hearings with NIH Director Francis Collins, M.D., Ph.D. on March 20 and March 28, respectively, to address the President’s proposed flat funding. The House Subcommittee also held a May 29 Public Witness hearing at which NAEVR testified. On April 25, the House Appropriations Subcommittee allocated $150 billion for the LHHS bill, which is $6.3 billion, or four percent, below the FY2012 enacted level of $156.3 billion. The previous week, the Senate set its LHHS allocation at $157.7 billion, which is $1.4 billion, or 0.9 percent, above the FY2012 level. The Senate Subcommittee plans to mark up a bill on June 12, while the House may wait until the July timeframe, as the Supreme Court’s decision on the constitutionality of the Affordable Care Act is expected in late June. Key issues to resolve include the funding level, the constitutionality of the Affordable Care Act, and the future of the NIH. On April 25, the House Appropriations Committee held a hearing on NIH funding, which was attended by NIH Director Francis Collins, M.D., Ph.D. and Education (LHHS) Appropriations Subcommittee Ranking Member Rosa DeLauro (D-CT). At the hearing, Dr. Collins testified before the House and Senate on FY2013 Budget, NCATS Implementation.

Chairman Rehberg:
- Cited a number of concerns with the President’s budget proposal, including cuts to the IDEA program, changes to the National Children’s Study, and preserving the Clinical and Translational Science Awards (CTSA) program, which was moved from the NCRR and comprises the majority of the NCATS budget.
- Praised the basic research function of NIH, suggesting that NIH needs to work on its “governance” to ensure it maintains its traditional balance of basic versus translational research and extramural versus intramural research.
- Stated that, although he was supportive of NCATS, he didn’t “like the way it came about” and questioned whether it signaled a divestment in basic clinical research.

Ranking Member DeLauro:
- Spoke passionately about the potential damage from NIH cuts stating that, accounting for inflation, the NIH budget had shrunk by five percent since 2010 and 16 percent since 2003. She cited the United for Medical Research (UMR) report released on March 19 entitled NIH’S Role in Sustaining the Economy that estimated that NIH funding supported more than 432,000 jobs in 2011 and generated more than $62.1 billion in economic activity.
- Inquired about the success rate for young investigators compared to ten years ago, to which Dr. Collins responded that it was currently a one-in-six chance of being funded compared to a one-in-three chance a decade ago.
- Asked about the potential impact of sequestration, to which Dr. Collins responded that the Congressional Budget Office’s (CBO) initial estimate of a 7.8 percent NIH cut in sequestration would have a devastating effect, noting that 2,300 grants that NIH had planned to fund could not be awarded.

Dr. Collins Testifies Before House and Senate on FY2013 Budget, NCATS Implementation

At the March 20 House hearing, chaired by Denny Rehberg (R-MT) and attended by Ranking Member Rosa DeLauro (D-CT), Dr. Collins was joined by Thomas Insel, M.D., Director of the National Institute of Mental Health (NIMH) and the Acting Director of NIH’s new National Center for Advancing Translational Sciences (NCATS), which was approved by Congress and initially funded in FY2012 appropriations.

The two most prevalent topics were NCATS, especially its mission and funding, and the Institutional Development Awards (IDeA) program, which provides funding to institutions in 23 states in which aggregate success rates for grants has been low. The IDeA program is move to the National Institute of General Medical Sciences (NIGMS) when the National Center for Research Resources (NCRR) was abolished and the majority of its programs moved to NCATS.

Dr. Collins stressed the NIH’s impact on health and medical advances, as well as its significant beneficial effect on the economy. He also described his vision for how NCATS could play a pivotal role in working with industry to “re-engineer” the drug discovery pipeline, especially to eliminate the bottlenecks that have created the so-called Valley of Death between discovery and translation. He noted that, in FY2012, there was little new funding for NCATS, as it was comprised primarily of existing programs from other NIH Institutes and Centers (I/Cs) other than the new funding for the Cures Acceleration Network (CAN) at $10 M. He did note that the NCATS budget would increase for FY2013, driven primarily by CAN funding at $50 million. He concluded by stating that, although translational research activities at other I/Cs would continue as in the past, all would benefit from NCATS’ efforts.

At the March 28 Senate hearing, Chairman Tom Harkin (D-IA) and Ranking Member Richard Shelby (R-AL) both expressed concern about the proposed flat funding, noting that “NIH funding should be a priority.” The hearing was addressed similar issues as that in the House.

NIH Announces a Pilot Program for Special Review of Research Applications from Principal Investigators with More than $1.5 Million Total Annual Support

On May 18, NIH posted a notice announcing its intent to pilot procedures for investigator-initiated grants and cooperative agreements from Program Directors (PDs) and Principal Investigators (PIs) who already receive in excess of $1.5 million per year in total costs to determine if additional funds should be provided to already well-supported investigators. This process will include special review by the NIH I/C Advisory Councils to receive appropriate feedback.

This process reflects an ongoing review by NIH of the grants management process, especially in light of flat and reduced funding which NIH has experienced in recent funding cycles. In the President’s proposed FY2013 annual budget, special council review for PIs with more than $1.5 million in support is just one of several grants management process changes recommended.
NIH Funding and Management Issues

ARVO Advocates for Vision
Research Funding

NAEVR Testifies at March 29 House Public Witness Hearing

NAEVR—one of twenty organizations selected out of 125 that had requested to appear—was represented by Hendrik Scholl, M.D., who serves as The Dr. Frieda Bambas Professor of Ophthalmology at the Wilmer Eye Institute of the Johns Hopkins University School of Medicine. Dr. Scholl, who received his medical degree in Germany, provided an international perspective. As a clinician-scientist who focuses on diseases of the retina, primarily retinal degenerations that include age-related macular degeneration (AMD), he urged the Subcommittee not to cut FY2013 NEI funding by $8.9 million to a level of $693 million, as proposed in the President’s budget.

“The proposed FY2013 level is just slightly above the FY2009 level. It results in a net $14 million loss in NEI funding since its highest funding level in FY2010, which translates into about 40 research grants—any one of which could hold the promise of curing a blinding eye disease. It also represents just a little over one percent of the $68 billion that blindness and vision impairment cost the United States each year.”

NAEVR and ARVO: Restore the Extramural Salary Cap to Executive Level I

On May 16, NAEVR and ARVO joined 160 other signatories on a letter urging the Chairmen and Ranking Members of the Senate and House LHHS Appropriations Subcommittees to restore the extramural salary cap to Executive Level I in FY 2013 appropriations. In an unprecedented move, the FY 2012 Consolidated Appropriations Act (P.L. 112-74) reduced the direct salary in grants from Executive Level I ($199,700) to Executive Level II ($179,700), a ten percent cut. This was opposed by the medical research advocacy community. In part, the letter reads:

“This change…comes at a time when research institutions’ discretionary funds for clinical revenues and other sources are increasingly constrained and less available to invest in research. As institutions and departments divert funds to compensate for the reduction in the salary limit, they will have less funding for critical activities such as providing bridge funding to investigators who may be between grants, and to provide seed grants and start-up packages for young investigators.”

The letter also notes that the change disadvantages the most productive investigators, as well as physician investigators, and serves as a deterrent to their recruitment into research careers.

Sequestration Update: Advocacy Community Forms Coalition to Oppose Cuts

On June 4, NAEVR, a group formed to oppose mandatory budget cuts and to ensure that nondefense discretionary spending does not bear the full burden of sequestration. As background, the Budget Control Act of 2011 (P.L. 112-25) established caps on discretionary spending over ten years, resulting in $1 trillion in cuts spread across defense and NDD programs. The law also directed a Congressional Joint Select Committee on Deficit Reduction to identify an additional $1.2 trillion in budgetary savings over ten years. The failure of this bipartisan “Super Committee” to come to agreement on a deficit reduction plan triggered a sequester to take effect on January 2, 2013.

On May 10, the House passed an expansive reconciliation package that would replace scheduled defense cuts with greater domestic spending reductions. The Senate currently does not have a plan to address the sequester.

On April 16, FASEB released its estimate of the impact of potential budget cuts on the NIH. Although the CBO has estimated cuts to NDD at 8.4 percent (up from its initial 7.8 percent), FASEB has estimated that cuts to the NIH extramural research program could be as high as 11.1 percent, due to spending categories exempt from cuts in other agencies as well as within NIH. For NIH, the cut would be to its FY2013 appropriation, on which Congress is currently working.

The sequester is just one of several issues that Congress must address by January 2013, including various income and payroll tax cuts, expiration of emergency unemployment insurance, and Medicare physician cuts.

Members Urge Adequate NEI, Defense Vision Funding

In both early March and May, Dean of the UAB School of Optometry Rod Nowakowski, O.D., Ph.D. and UAB Ophthalmology Department Chair Chris Girkin, M.D. sent joint letters to Senator Richard Shelby (R-AL), Ranking Member on the LHHS Appropriations Subcommittee and a Defense Appropriator, requesting that he support NIH/NEI and defense vision research funding increases in FY2013 appropriations.

UMR Report: Declining NIH Investment Threatens U.S. Global Competitiveness

On May 17, UMR released a report showing that the United States’ leadership in global life sciences industry is under threat due to a constant dollar decline in NIH biomedical research funding and intensifying global competition from countries that have expanded their financial support for biomedical research and enacted policies to enhance their biomedical innovation ecosystems. Leadership in Decline: Assessing U.S. International Competitiveness in Biomedical Research was published jointly by the Information Technology and Innovation Foundation (ITIF) and UMR, which is a coalition of the nation’s leading scientific research institutions and industries and health and patient advocates. The report finds that:

• If present trends continue, China’s financial commitment to biomedical research will be twice that of the United States in the next five years (and four times greater as a share of GDP);
• Growth in high-wage, high-skill jobs in the life sciences sector is flat-lining in the United States while employment in other countries, like Germany and France, shows consistent growth;
• The United States accumulated a $136.7 billion trade deficit in pharmaceutical products over the last decade, a period when many competitors realized increasing trade surpluses;
• The United States’ share of global biopharmaceutical patents and overall industry output is shrinking, while China’s continues to expand in these areas; and
• China already has more gene sequencing capacity than the entire United States and about one-third of total global capacity.
Members Urge Adequate NEI, Defense Vision Funding

“NAEVR Central continues to advocate for vision research issues, including funding advocacy and opportunities as well as relationship-building,” said NAEVR Executive Director James Jorkasky. “Advocacy can be a little daunting at first, so it is helpful for researchers to meet with NAEVR’s David Epstein or me to learn how they can be effective in expressing their voice about funding. The various programs and acronyms within the DOD can be a little confusing, too, so we help researchers learn more about those funding sources. Finally, it also provides an opportunity for those who may only know David and me through emails and phone conversations to meet us in person.”

Visit the Defense-related Vision Research section of NAEVR’s Web site for more details.

NAEVR Central, the Vision Research Community’s “Town Hall,” Draws Record Numbers

Prominently situated next to ARVO Central at the entrance to the Exhibit Hall, NAEVR Central drew a record number of visitors. In addition to contacting Congress to urge FY2013 NIH and NEI funding at $32 billion and $730 million, respectively, researchers also visited with representatives of the DOD’s Telemedicine and Advanced Technology Research Center (TATRC) and the joint DOD/VA Vision Center of Excellence (VCE)—see story to right. From Monday to Wednesday, those representatives spent more than 30 hours hearing from ARVO members about research that meets DOD needs.

“NAEVR Central continues to serve as the ‘Town Hall’ for vision research issues, including funding advocacy and opportunities as well as relationship-building,” said NAEVR Executive Director James Jorkasky. “Advocacy can be a little daunting at first, so it is helpful for researchers to meet with NAEVR’s David Epstein or me to learn how they can be effective in expressing their voice about funding. The various programs and acronyms within the DOD can be a little confusing, too, so we help researchers learn more about those funding sources. Finally, it also provides an opportunity for those who may only know David and me through emails and phone conversations to meet us in person.”

At NAEVR’s May 7 briefing entitled Defense-Related Vision Research Opportunities, the DOD announced to the more than 200 attendees that it has allocated $12.2 million for awards to vision researchers in the FY2011/2012 funding cycle for its Vision Research Program (VRP). Since TATRC is currently in negotiations with awardees, those individuals and the abstracts of their research projects will not be identified until later this year.

TATRC Vision Program Manager Robert Read described that, in addition to Congressional allocations of $4 million in FY2011 and $3.2 million in FY2012 under the dedicated Vision Trauma Research Program (VTRP), other DOD divisions have added $5 million in funding in this cycle due to the quality of the grant requests received and their responsiveness to DOD-identified vision research gaps. TATRC initially received 151 pre-proposals in response to its August 5, 2011, Program Announcement that specified that two types of grants would be funded: Hypothesis Development Awards (maximum $250,000) and Investigator Initiated Awards (maximum $1 million). In TATRC’s FY2009/2010 funding cycle, twelve vision researchers received $11 million in awards.

Contact NAEVR’s David Epstein at depstein@eyeresearch.org to be added to the “DOD Interest Email List” to receive updates on funding opportunities and awards.

Draws Record Numbers   DOD Announces $12.2 M Allocated for Awards to Vision Researchers

TATRC Vision Program Manager Robert Read describes plans for the Vision Research Program’s FY2011/2012 funding cycle awards after an introduction by VCE Director Colonel Donald Gaglione, M.D. (left).
On March 22, AEVR’s Decade of Vision 2010-2020 Initiative hosted a Congressional briefing entitled Deployment-Related Vision Trauma Research: A Vision Enhancement System for the Blind and Significantly Visually Impaired. Featured speaker James Weiland, Ph.D., an Associate Professor of Ophthalmology and Biomedical Engineering at the Doheny Eye Institute of the University of Southern California, described his research which addresses two DOD-identified vision research gaps—inadequate vision rehabilitation strategies and inadequate vision restoration/vision surrogates. Dr. Weiland was one of twelve domestic and international researchers who received a total of $11 million in awards from DOD in its FY2009/2010 funding cycle.

The vision enhancement system uses modern mobile computing and wireless technology, coupled with novel computer vision and human computer interfacing strategies, to provide information to help those with visual impairment navigate, find objects of interest, and interact with people. The system was designed primarily to assist individuals with visual disorders and blindness as a result of Traumatic Brain Injury (TBI). Recent reports estimate upwards of 200,000 Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) veterans having experienced mild-to-severe vision impairment from TBI and that upwards of 75 percent of all patients with TBI reporting short- to long-term visual dysfunction, such as light sensitivity, double vision, inability to read print, and low vision. This is often accompanied by other cognitive disorders, such as memory loss, which affects an individual’s ability to use past visual cues to navigate.

The system consists of a wearable camera—similar to that in current smartphones—which feeds images (for example, an exit sign in a room) into a computing system that processes, interprets, and identifies it using software algorithms—again, similar to that in current GPS systems and smartphones. The system then provides tactile (e.g. vibration) and/or auditory feedback to the user as guidance, whether to navigate a room (locate an exit sign), locate a specific object (a chair that may block an exit route), or react to another person’s visual cues (facial expression).

Dr. Weiland discussed the various challenges presented by “computer vision,” especially relating to object recognition and targeting. Object recognition can be complicated by light and/or shading on an object, as well as its orientation, which can make an image match difficult. Another challenge is visual targeting, such as identifying the object of interest (for example, a street sign) amidst extensive visual “background clutter.” He also explained that, unlike the human brain which “self corrects” for any blurring that could occur when rapidly scanning an environment with your eye, computer vision must be programmed to avoid distortion of images.

Communicating these computer vision-interpreted images to the user is just as important as capturing them. Dr. Weiland explained that vision impaired individuals often use other sensory modalities to accommodate, so tactile or auditory feedback that directs the user must not interfere with their natural responses to the environment.

Comparing this system to the traditional use of a white cane, he commented that, “You have to be close to an object with a cane to detect it. This system can detect obstacles as far as five meters away and enable an individual to navigate around them. This not only relates to street level obstacles, but to other objects, such as low-hanging branches.”

He concluded by describing other bioelectronics projects being developed at Doheny and other research centers, including an “artificial retina” (which has been approved for sale in Europe), a visual cortex prosthesis which would stimulate the portion of the brain responsible for vision, and electrical stimulation of the eyelid which can restore the blink reflex.