



Age-Related Macular Degeneration (AMD)

A Policy Blueprint to Protect America's At-Risk Seniors

September 2006



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Age-related macular degeneration (AMD) is the leading cause of blindness and visual impairment in Americans over the age of 50. Today, over 15 million seniors live with AMD and more than 1.6 million have vision loss as a result of the disease in its late stages of progression. AMD patients age 75 and older are particularly susceptible to the vision loss and blindness the disease causes. As the over-50 and over-75 population subsets continue to grow rapidly, so too does the incidence of the disease and its disabling effects on those living with it. The consequences are serious, not only for its victims and their quality of life, but also for Medicare and other government services presently unprepared for the macro-level effects of AMD at what experts warn will reach “epidemic proportions.”¹

AMD's disabling effects already impose heavy costs on the national economy and federal government. Vision impairment and eye disease currently cost the U.S. an estimated \$68 billion annually in healthcare expenditures, reduced productivity, and diminished quality of life,² with \$4 billion of that amount attributable to lost taxable income and benefits.³

Today, the visually impaired are the second largest group of people classified as “disabled” in the U.S.,⁴ and, largely because of AMD, the vast majority of these are seniors. To illustrate how disproportionately this disability afflicts older Americans: Although people age 80 and over currently make up just 8 percent of the population, they account for 69 percent of the nation's blind and visually impaired.⁵

The extent to which AMD-derived vision loss diminishes quality of life cannot be overstated. Its limiting effects include loss of the ability to drive, increased vulnerability to injury, reduced social interaction, and often, depression.

Even the simplest of daily tasks can become impossible to carry out in the face of AMD-imposed blindness. According to the National Center for Policy Research for Women & Families, 25 percent of blind men and 30 percent of blind women over age 75 report a

¹ Cortes, T. Letter to the editor (2005, August 19). 21st Century Braille. *Wall Street Journal*, p. A11.

² (2006, February). *NAEVR E-Zine*, 2, Retrieved August 14, 2006, from www.eyereseach.org/publications/e-zine2.html.

³ Friedman, D., et al. *Vision Problems in the U.S.* (2002).

⁴ Marchi, L (2004). Psychological Effects of Low Vision. Retrieved August 14, 2006, from National Association for the Visually Handicapped Web site: www.navh.org/psycheff.html

⁵ Orr, A., public presentation, September 9, 2004: American Foundation for the Blind statement before the Policy Committee 2005 White House Conference on Aging listening sessions.

total inability to perform any personal care activities whatsoever.⁶ As such, it is not surprising that late-stage AMD often forces its sufferers to seek full-time care in nursing home and similar facilities, most of which operate on public funding and a shortage of which is likely impending as the senior visually disabled population burgeons.

The specific numbers related to a forthcoming spike in the senior visually disabled population are staggering. As aforementioned, an estimated 1.6 million seniors now suffer from late AMD vision loss. Within the next 5 years, the National Eye Institute (NEI) estimates that 8 million seniors are at risk for losing vision from AMD.⁷ In their landmark 2002 study, “Vision Problems in the U.S.,” Prevent Blindness America and NEI warn that the number of Americans with age-related eye disease – chief of which is AMD – will likely double within the next three decades.⁸

The Seniors Coalition represents this largest at-risk population for vision problems. We believe strongly that in light of (a) the existing and projected prevalence of AMD among the nation’s rapidly expanding senior population, (b) the heavy toll that AMD exacts on its victims’ independence and quality of life, and (c) the immensity of AMD-related costs to state and federal systems, Members of Congress and other government decision-makers must act quickly to enact policies aimed at accomplishing the following:

1. Confront and rectify the lack of education among at-risk seniors;
2. Increase rates of early detection and diagnosis for AMD;
3. Improve AMD research funding;
4. Improve FDA resources for AMD therapy review and approval;
5. Direct CMS to provide for full, near-term Medicare coverage for low vision rehabilitation services; and
6. Improve coordination between FDA and CMS.

The information that follows provides additional details on each of these areas.

⁶ Zuckerman, D. (2004). *Blind Adults in America: Their Lives and Challenges*. Washington, DC: National Center for Policy Research for Women & Families.

⁷ Congressional justification for FY2005 National Eye Institute. Retrieved September 4, 2006, from National Eye Institute Web site: www.nei.nih.gov/news/congressjust/cj2005.asp

⁸ Friedman, D., et al. *Vision Problems in the U.S.* (2002).

1. Policy options to address the lack of education among at-risk seniors

Early detection and diagnosis of AMD is critical to preserving as much of a patient's vision as possible for as long a duration as possible. The statistics suggest, however, that seniors by in large do not report their vision problems to their healthcare providers. Dr. Liam Smeeth, a notable researcher at the London School of Hygiene and Tropical Medicine, says that "Often, older people become used to a gradual deterioration in their vision or, if they do notice it, may feel that little can be done to help. In fact, the available evidence suggests that often an awful lot could be done to improve their vision."⁹

The statistics also suggest that seniors simply do not know to communicate symptoms of AMD to their healthcare provider because, by in large, they do not know what AMD is. A recent survey commissioned by AMD Alliance International reported that 82 percent of the adults surveyed were unfamiliar with AMD.¹⁰ The Alliance for Aging Research reports that only 2 percent of adults know that AMD is the leading cause of severe sight loss among adults age 50 and older.¹¹

Because early access to AMD treatments and careful physician monitoring can prevent or otherwise limit vision loss, it is crucial that America's seniors be fully versed not only on the signs and symptoms of AMD, but also the importance of reporting those symptoms to their doctors immediately upon their onset.

The Seniors Coalition believes that the need for broad-based education about AMD is glaring and urgent. We applaud the NEI for its intent to form an AMD working group under the umbrella of the National Eye Health Education Program (NEHEP), which currently develops and distributes valuable education tools specific to three areas: (1) diabetic eye disease (2) glaucoma, and (3) general low vision. The addition of AMD to this list will, in our view, significantly enhance the program's overall impact. We appreciate those Members of Congress who have recognized the need for more AMD-specific education and encouraged NEI to move in this direction accordingly.¹²

Likewise, we strongly recommend that Members of Congress work more closely with the Department of Health & Human Services (HHS) and the Centers for Disease Control

⁹ Obesity, Fitness & Wellness Week, 26 August 2006.

¹⁰ United States AMD Fact Sheet. Retrieved September 13, 2006, from AMD Alliance International Web site: <http://www.amdalliance.org/amd-alliance/regions/americas/us/amd-fact-sheet.asp>

¹¹ Alliance for Aging Research Fact of the Day Almanac. Retrieved August 19, 2006, from Alliance for Aging Research Web site: http://www.agingresearch.org/fod_almanac.cfm?action=all

¹² See S. 2766 Senate Report 107-216 – Departments of Labor, HHS, & Education, & Related Agencies Appropriation Bill 2003: "the Committee encourages the NEI, through the National Eye Health Education Program (NEHEP), to launch an education and outreach program relating to AMD to increase public awareness about the need for early detection and diagnosis, recognition of symptoms, and treatments for the disease. The Committee likewise encourages the NEI to expand its intramural research efforts on this disease."

(CDC) to make AMD a higher priority in their existing and forthcoming educational programs.

In particular, we urge congressional support for the inclusion of AMD education in government anti-smoking initiatives. Although the root causes of AMD are still unclear, studies suggest that cigarette smoking – either currently or in the past – can increase an individual’s risk for developing macular degeneration by up to 34 fold.¹³ Experts agree that not smoking or quitting smoking is the number one modifiable behavior to protect against AMD and its disabling effects.

But despite this evidence, attention to AMD and the blindness it can cause is noticeably absent in government-sponsored anti-smoking consumer education. The Seniors Coalition believes that anyone who has ever smoked must understand their high risk of developing AMD so that they can take appropriate precautions, and it is important to note that among America’s seniors, the number of past smokers is especially high. Current and potential smokers should also know the risks to their eye health. To this end, at minimum, we support the recommendation of the 1999 *Medical Journal of Australia* editorial proposing new warnings on cigarette packages to indicate the link between smoking and blindness.¹⁴

The Seniors Coalition also encourages Members of Congress to work for AMD education’s inclusion as a priority area in healthy lifestyle promotion campaigns carried out by the HHS Office of Disease Prevention and Health Promotion. Studies show that good nutrition – specifically, a diet rich in antioxidants and omega-3 fatty acids – can prevent or slow AMD’s progression. But these facts as they relate to AMD have not been part of major health education campaigns to date. The Steps to a HealthierUS campaign, for example, has as its stated priority areas diabetes, obesity, asthma, heart disease, stroke, and cancer. We suggest that AMD be included among these priority areas in this and similar health education programs going forward.

Finally, we encourage all Members to make AMD education a priority on their websites and in their discussions with senior constituents.

2. Early screening: the key to improved outcomes

As mentioned earlier, a major thrust of AMD education must be to persuade at-risk seniors to seek early, regular screening for the disease. The Seniors Coalition considers

¹³ Despriet DG et al., Complement factor H polymorphism, complement activators, and risk of age-related macular degeneration. *JAMA*. Vol. 296, No. 3, July 19, 2006.

¹⁴ Mitchell, P., Chapman, S., & Smith, W. Smoking is a major cause of blindness: A new cigarette pack warning?. *Medical Journal of Australia*, 171, Retrieved August 14, 2006, from http://www.mja.com.au/public/issues/171_4_160899/mitchell/mitchell.html.

early screening to be the key to improved outcomes for seniors with AMD, greatly enhancing and protecting their quality of life and functional status.

Specifically, we fully support the recommendation of the American Optometric Association (AoA) for Congress to create incentives for states to develop new programs to encourage their seniors to get comprehensive annual eye examinations. Ohio, for example, has considered discounting the cost of auto insurance for seniors who voluntarily complete comprehensive eye exams – a noteworthy idea in that it considers the benefits of the comprehensive exam in contrast to the simple, DMV-based vision test mandated for older seniors in many states. The American Academy of Ophthalmology recommends that persons 65 and older receive comprehensive eye exams at least once per year.

An increase in regular eye exams among seniors directly translates into major quantifiable benefits for seniors themselves, their communities, and the government. Data suggests, for example, that an increase in eye exams for at-risk seniors can help make our roads safer and even decrease the number of broken hips from falls.¹⁵ Most importantly, more eye exams have the potential to help people with AMD live independently longer, contributing productively to their communities and the economy.

To that end, we also strongly encourage all Members of Congress to formally support the full participation of optometrists in federally qualified community health centers to increase eye care education and access.

3. Improving funding for needed research

Today, less than one half of one percent of the NIH budget is dedicated to AMD research. The proportion of federal research funding for AMD is so low in contrast to the disease's prevalence that the Alliance for Aging Research has labeled it a "Disease in the Shadows."¹⁶ In evaluating the level of federal research that has thus far been conducted on AMD, Dr. Frederick Ferris, director of the Division of Epidemiology and Clinical Research at the NEI, stated matter-of-factly, "It is not that we have done nothing about macular degeneration, but what we have done leaves a lot of room for improvement."¹⁷

¹⁵ (2005, June 24). 2005 White House Conference on Aging Solutions Forum: Eye care access: Eliminating barriers for seniors and baby boomers. Retrieved September 4, 2006, from White House Conference on Aging Web site:

http://www.whcoa.gov/about/policy/meetings/Sol_forum_agenda/2005_June/PER_TX_06_24_05.pdf#search=%22American%20Optometric%20Association%20%22Top%20Three%20Eye%20Care%20Solutions%22%22

¹⁶ Diseases of the Shadows summary. Retrieved September 4, 2006, from Alliance for Aging Research Web site: http://www.agingresearch.org/dshadow_summary.cfm

¹⁷ F. Ferris, public presentation, September 24, 2004: Diseases in the Shadows Capitol Hill briefing.

The Seniors Coalition sees room for improvement at every turn where AMD research funding is concerned. The small amount that has been allocated to federal AMD research in recent years has yielded promising findings, setting the stage for NIH researchers to finally pinpoint the root causes of the disease, methods for delaying its onset and progression, and treatments capable of halting and reversing the vision loss it inflicts.

Among these promising recent developments in AMD research is the Age-Related Eye Disease Study (AREDS), an NEI-sponsored 10-year, 4,757-participant study conducted at 11 leading medical research centers across the U.S., showed that a high-dose combination of vitamins C and E, beta-carotene and zinc can decelerate AMD's progression. Specifically, participants diagnosed with advanced cases of AMD who took the combination were able to slow further progression of the disease by about 25 percent. Other participants in earlier stages of AMD reduced their risk of developing advanced AMD by 25 percent, while also reducing vision loss by about 19 percent.¹⁸ Today, seniors with AMD can access the AREDS vitamin and mineral formulation at pharmacies and grocery stores nationwide.¹⁹ AREDS constitutes a major step forward for AMD patients, particularly for the estimated 90 percent with the "dry" form of the disease (see Appendix A), for which there are presently no treatments available.

Another major step forward is last year's identification of Complement Factor H (CFH), a gene strongly associated with a person's risk for developing AMD. The discovery, 15 years in the making, was made possible by NEI-sponsored research within NIH and at other leading research centers. Since the announcement of the CFH-AMD link discovery in March 2005, NIH Director Elias Zerhouni, MD, has praised it repeatedly as one of the year's most important breakthroughs. In his April 6, 2006 testimony before Congress, Zerhouni highlighted the breakthrough as a clear example of how "The return on investment of the American people at NIH is nothing short of spectacular."²⁰

Equally spectacular are the subsequent findings that have emerged because of the CFH-AMD link discovery. Among them is the identification of an additional gene variant – "Factor B" – that appears to work with the CFH variant to cause AMD. Dr. Rando Allikmets, a Columbia professor of ophthalmology who helped conduct this follow-up research, underscores the exciting implications of this and related AMD studies: "We can now target the beginning of the disease."²¹

¹⁸ AREDS study . Retrieved September 4, 2006, from The Macular Degeneration Partnership Web site: <http://www.amd.org/site/PageServer?pagename=AREDS>

¹⁹ Brands include Alcon's ICaps® and Bausch & Lomb's OcuVite® PreserVision®.

²⁰ Zerhouni, E. (2006, April 6). Testimony before the House Subcommittee of Labor - HHS - Education Appropriations, US House of Representatives. Retrieved September 4, 2006, from Office of Legislative Policy & Analysis Web site: <http://olpa.od.nih.gov/hearings/109/session2/testimonies/overview.asp>

²¹ Dotinga, R. (2006, March 6). Genes may hold key to elderly vision loss: Scientists spot DNA behind age-related macular degeneration. *HealthDay*, Retrieved September 3, 2006, from <http://www.medicinenet.com/script/main/art.asp?articlekey=60346>.

He cautions, however, that much more research is in order. “You have to have a trigger that gets this thing into motion,” he explains. “We don’t know specific triggers at this point. That’s one of the things we have to figure out.”²² More genetic research – including isolation and study of AMD “triggers” – has the potential to help scientists identify those groups at higher risk for the disease while also contributing to the development of preventive treatments. The potential benefits to the tens of millions likely to develop AMD within the next 30 years are enormous.

If federal commitment to AMD research wavers or lags, however, the benefits of these discoveries may never be realized, even as we now stand on the cusp of bringing such benefits to fruition. Indeed, aggressive follow-up studies are crucial at this juncture, and a failure to fund them would constitute, in our view, gross negligence on a massive scale.

The Seniors Coalition is therefore deeply concerned that the President’s proposed FY2007 budget suggests a reduction in NEI funding by \$5.3M. Dr. Peter McDonnell of Johns Hopkins’ Wilmer Eye Institute recently testified that the proposed cuts will specifically disadvantage AMD research,²³ undermining the value and impact of recent gains.

The Seniors Coalition finds this prospect unacceptable and urges Congress to reject the cuts in question. We agree with the assessment of NAEVR that “NEI is a cost-effective investment in our nation’s health, as it can delay, save and prevent expenditures, especially to the Medicare and Medicaid programs.”²⁴ In this vein, we support the recommendation of NAEVR, the American Academy of Ophthalmology, and larger vision community for a minimum of a six percent increase to NEI’s FY2007 funding.

For those who might argue that AMD is not a “priority” disease, we issue a reminder that AMD-imposed vision loss can be equally as disabling and damaging to quality of life as other, higher profile diseases. It may be worth noting that AMD can severely complicate problems associated with the management of any “priority” co-occurring diseases a patient may have. As the American Federation for the Blind points out, a senior who can no longer operate a vehicle because of vision loss is more likely to miss important doctor visits.²⁵ Likewise, the blurred or blank central vision that AMD causes can increase a

²² *Ibid*

²³ P. McDonnell, public presentation, May 19, 2006.

²⁴ NAEVR Written Testimony in Support of Increased Funding for the National Institutes of Health (NIH) and the National Eye Institute (NEI). Presented to the Labor, Health & Human Services, Education & Related Agencies Subcommittee of the US House of Representatives Committee on Appropriations, April 6, 2006.

²⁵ (2005, June 24). 2005 White House Conference on Aging Solutions Forum: Eye care access: Eliminating barriers for seniors and baby boomers. Retrieved September 4, 2006, from White House Conference on Aging Web site:
http://www.whcoa.gov/about/policy/meetings/Sol_forum_agenda/2005_June/PER_TX_06_24_05.pdf#search=%22American%20Optometric%20Association%20%22Top%20Three%20Eye%20Care%20Solutions%22%22

patient's likelihood of misreading or mixing up medications, with potentially dangerous consequences.

Indeed, AMD poses serious threats that go far beyond the disease's direct physiological phenomena. For this and all of the above listed reasons, we reiterate our position that AMD merits far more research dollars than have heretofore been dedicated to it.

4. Improving FDA resources to allow fast-track review of new AMD therapies

Fortunately, even despite abysmally low federal funding for AMD research, the nation's private-sector biomedical industry has produced several valuable treatments for late-stage AMD, among them Novartis's Visudyne® and Pfizer's Macugen®. Lucentis™, a Genentech product, is the most recent AMD treatment to receive FDA approval and is widely considered a major advancement for patients with wet AMD vision loss.

Lucentis was appropriately approved under the FDA's priority-review mechanism, which fast tracks the typical 10-month drug review time, reducing it to approximately six months. The Seniors Coalition believes that Congress must provide the FDA with the resources to conduct similarly fast-tracked priority reviews of all AMD-specific treatments in the future.

Describing the timeline and pace of advancements in new AMD therapies, Dr. David Boyer declared at a June 2006 symposium: "Twenty-five years ago, we were barely crawling. Ten years ago, we began walking. Now, we're running."²⁶ We believe that the FDA must be able to keep up with the "running" pace of medical technology. But it can do so only if provided the staff, funding, and other resources necessary for the task. AMD patients – 15 million today and as many as 42 million by 2030²⁷ – are depending on it.

5. Securing full, near-term Medicare coverage for low-vision rehabilitation services

Alongside advances in medical technology are advances in low-vision rehabilitation services (LVRS) for those afflicted with AMD-imposed vision loss. LVRS make it possible for seniors with advanced AMD to compensate for lost vision with adaptive

²⁶ Shaberman, B. (July 6, 2006). Educational symposia highlight treatment advances. Retrieved August 14, 2006, from Foundation Fighting Blindness Web site:

<http://www.blindness.org/publications/newsarticle.asp?x=1&NewsID=280>

²⁷ You should know. Retrieved August 19, 2006, from Macula Vision Research Foundation Web site:

<http://www.mvrf.org/md101/youshouldknow.html>

devices and training, providing the clear clinical and economic benefits of optimized independence, quality of life, and, most important, safety.²⁸

But despite these benefits and their concomitant cost-effectiveness for third-party payers, Medicare has yet to provide full, national coverage for LVRS. The Seniors Coalition finds this unacceptable.

The process to coverage for LVRS for those with AMD and other vision robbing conditions has lumbered along confusingly since Medicare's inception. Along the way, there have been steps in the right direction, among them the February 2006 launch of a CMS demonstration project to study the value of providing LVRS Medicare coverage for beneficiaries in select areas with moderate to severe vision impairment not correctable through conventional means or surgery.

Although laudable in its intentions, The Seniors Coalition maintains that the CMS demo is too sharply limited in scope and too long in duration. The five-year demo allows for beneficiaries only in New Hampshire, Atlanta, New York City, Kansas, North Carolina, and Washington State to receive Medicare-covered LVRS, with only 9 hours of services available for coverage.

We are concerned that the CMS demonstration project constitutes, in effect, a delay tactic that denies necessary rehabilitation services to the hundreds of thousands of Medicare beneficiaries that stand in need of it.

It is our position that CMS ought to embrace as a national policy the treatment protocols recognized in the Veterans Administration (VA) LVRS programs, which entail an intensive six weeks of low-vision rehabilitation training. Further, we call upon Congress to mandate that CMS accelerate the demo project endpoint to a more reasonable two years. Full, national Medicare coverage of LVRS is clinically necessary, cost-effective, and long overdue.

6. Improving coordination between CMS and FDA

The Seniors Coalition applauds efforts currently underway to ensure better coordination between CMS and FDA, including the Critical Path Initiative and presumable materialization of a Memorandum of Understanding between the agencies that would allow greater information sharing while protecting proprietary data. We largely concur with the joint assessment of Duke University's Stanley S. Wang and Harvard Medical School's John J. Smith:

²⁸ Pizzimenti, J.J., & Roberts, E. (2005). The Low Vision Rehabilitation Service. Part Two: Putting the Program into Practice. *The Internet Journal of Allied Health Sciences and Practice*, 3, Retrieved September 13, 2006, from ijahsp.nova.edu/articles/vol3num3/Pizzimenti_Roberts.htm.

*The success of collaborative efforts between the agencies will depend largely on nonlegal, but significant, considerations such as integrating agency cultures and achieving industry and beneficiary acceptance in light of conflicting interest between and within those stakeholder groups.*²⁹

That said, we believe that there is an important and necessary role for Congress to play in expediting CMS-FDA coordination for the benefit and protection of AMD patients and others at risk for the disease.

In 2004, The HHS Medical Innovation Task Force, formed under the direction of then-Secretary Tommy Thompson, offered a very clear analysis of the benefits of improved FDA-CMS coordination: “Greater collaboration between FDA and CMS,” it said, “can provide important opportunities to: speed patient access to new, innovative medical products; create resource and time efficiencies in moving medical products from the bench to the bedside; spur new, innovative medical product development; and better inform consumers and health care providers.”³⁰ It’s an inspiring statement. The problem, in our view, lies in the fact that it remains just that – an abstract declaration without sufficient action behind it to bring its vision to fruition.

We posit that a persistently sluggish approach to interagency cooperation has and will continue to cause detriment to AMD victims and Medicare beneficiaries more generally.

We call upon Members of Congress to more vocally advocate for and formally support greater cooperation between the two agencies such that they more efficiently implement agreed upon measures as outlined in the 2004 Medical Innovation Task Force Report.

Specifically, The Seniors Coalition supports congressional leadership in providing a regulatory pathway for FDA-CMS “parallel review” of breakthrough therapies for AMD and other diseases of high priority and prevalence. We also encourage congressional leadership in providing increased resources for CMS coverage analysis to help accelerate coverage determinations and reduce overall administrative delay.

The recent arrival of Lucentis on the market aptly illustrates the urgency of the need for greater coordination between the two agencies and how the lack of coordination can harm seniors involved. Lucentis received FDA approval on June 30, 2006 amid extensive acclaim for its ability to halt wet AMD vision loss and, in some cases, provide moderate vision restoration. As of July 28, however, amid patient and physician clamor for Lucentis, Medicare reimbursements for the drug had not yet begun. The *Orlando Sentinel*

²⁹ Wang, S.S., & Smith, J.J. (2003). Potential legal barriers to increasing CMS/FDA collaboration: The law of trade secrets and related considerations. *Food and Drug Law Journal*. 58, 613-627..

³⁰ You should know. Retrieved August 19, 2006, from Macula Vision Research Foundation Web site: <http://www.mvrf.org/md101/youshouldknow.html>

reported that many patients were “paying \$1,950 per injection out of their own pocket,” for the monthly injection, trusting that Medicare would reimburse them “once coverage kicks in.”³¹

We consider this situation entirely unacceptable. Given that AMD affects the Medicare-eligible population specifically, and because early intervention with Lucentis is critical for patients with wet AMD, there should have been no lag between FDA approval and Medicare coverage. Medicare beneficiaries seeking to access newly approved therapies should not be expected to shoulder enormous financial burdens in the face of CMS administrative delays.

We believe that congressional oversight and review of the Lucentis case is warranted. Similar situations are likely to arise and must be prevented: As high-priced, breakthrough biopharmaceutical products surge in number and promise, the gaps between FDA approval and CMS coverage decisions will become more onerous for those seniors in immediate need of those therapies. FDA and CMS must be prepared to minimize any delay that would impose unreasonable costs on patients, even if for only a short time.

Conclusion

The Seniors Coalition appreciates Congress’ increased attention to AMD and the millions of seniors suffering from it. We look forward to working with individual Members and their staffs to further develop and implement the policy recommendations outlined in this document. Likewise, we encourage Member offices to contact us for additional information about AMD and to further discuss policy options to protect at-risk seniors.

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³¹Shelton, R. (2006, July 26). Treatment fights age-related macular degeneration. *The Orlando Sentinel*, Retrieved August 14, 2006, from www.montereyherald.com/mld/montereyherad/living/health/15143106.htm

APPENDIX A

Age-Related Macular Degeneration: An Overview of the Condition

1. **Dry AMD (non-exudative)** is the most common form of the disease. Early AMD involves the presence of drusen, fatty deposits under the light-sensing cells in the retina. Late cases of dry AMD may also involve atrophy of the supportive layer under the light-sensing cells of the retina that helps keep those cells healthy. Vision loss in early dry AMD is usually moderate and only slowly progressive. Atrophy in late cases of dry AMD can result in more significant vision loss.
2. **Wet AMD (exudative)** is less common, but is more threatening to vision. It's called wet AMD because of the growth of tiny new blood vessels (neovasclarization) under the retina that leak fluid or break open. This distorts vision and causes scar tissue to form. All cases of the wet form are considered late AMD.

Source: "Vision Problems in the U.S.: Prevalence of Adult Vision Impairment and Age-Related Eye Disease in America," produced by Prevent Blindness America and the National Eye Institute, 2002, p. 18.

APPENDIX B

Estimated Number of Cases of Age-Related Macular Degeneration in the U.S. Population Age 50 and Older by State, Race, and Sex

State	Total	Female	Male	White	Black	Hispanic	Other
Total U.S.	1,651,335	1,046,572	604,764	1,457,167	94,171	58,387	41,611
Alabama	25,476	16,432	9,044	21,547	3,618	111	200
Alaska	1,436	770	667	1,115	26	20	275
Arizona	29,352	17,196	12,156	26,381	326	1,838	807
Arkansas	17,465	11,032	6,433	15,972	1,245	80	168
California	165,476	101,579	63,898	129,406	6,112	15,842	14,116
Colorado	19,729	12,208	7,521	17,874	335	1,173	346
Connecticut	24,314	15,830	8,484	22,871	751	419	273
Delaware	4,491	2,820	1,671	4,019	378	39	54
District of Columbia	2,731	1,816	914	1,083	1,505	68	75
Florida	128,552	76,992	51,560	112,419	5,622	9,248	1,262
Georgia	34,847	22,629	12,218	28,704	5,396	309	439
Hawaii	5,997	3,199	2,798	1,693	18	133	4,153
Idaho	7,174	4,295	2,879	6,983	6	88	98
Illinois	73,428	47,864	25,564	65,237	5,241	1,653	1,296
Indiana	36,354	23,454	12,900	34,452	1,408	257	238
Iowa	23,841	15,714	8,127	23,535	121	84	101
Kansas	18,912	12,334	6,578	18,109	395	218	189
Kentucky	23,582	15,134	8,448	22,484	853	80	165
Louisiana	22,581	14,503	8,079	18,042	3,979	282	278
Maine	9,178	5,887	3,290	9,100	9	15	54
Maryland	27,370	17,496	9,874	22,571	3,840	302	657
Massachusetts	44,363	29,322	15,041	42,297	781	498	786
Michigan	57,268	36,348	20,921	52,192	3,982	431	664
Minnesota	31,852	20,580	11,272	31,190	202	115	345
Mississippi	15,194	9,911	5,284	12,094	2,919	68	113
Missouri	37,271	24,219	13,052	34,979	1,780	177	335
Montana	6,052	3,688	2,363	5,886	4	28	133
Nebraska	12,422	8,089	4,333	12,104	150	90	79
Nevada	8,731	4,889	3,842	7,627	315	410	379
New Hampshire	7,357	4,675	2,681	7,268	13	24	52
New Jersey	53,189	34,239	18,950	46,842	3,186	1,923	1,238
New Mexico	9,064	5,333	3,731	6,482	85	2,041	456
New York	117,638	76,460	41,179	99,840	8,561	5,648	3,589
North Carolina	42,588	27,466	15,122	36,745	5,096	228	518
North Dakota	5,185	3,295	1,890	5,111	2	9	62
Ohio	71,113	45,812	25,301	66,273	3,938	335	567
Oklahoma	21,821	13,928	7,894	19,884	666	180	1,092
Oregon	22,238	13,710	8,528	21,430	121	216	471
Pennsylvania	92,869	60,202	32,667	87,701	3,920	541	707
Rhode Island	7,920	5,256	2,664	7,606	88	104	122
South Carolina	20,552	13,142	7,410	16,804	3,496	96	157
South Dakota	5,852	3,755	2,098	5,720	4	15	113
Tennessee	32,267	20,807	11,460	29,367	2,523	122	254
Texas	92,697	58,030	34,667	73,552	5,960	11,607	1,577
Utah	8,970	5,335	3,636	8,584	23	196	168
Vermont	3,926	2,509	1,416	3,882	4	12	27
Virginia	35,657	22,825	12,832	30,581	4,027	342	707
Washington	33,058	20,374	12,685	31,057	356	385	1,260
West Virginia	12,952	8,239	4,713	12,608	226	34	83
Wisconsin	36,218	23,271	12,947	35,209	552	188	269
Wyoming	2,765	1,681	1,084	2,656	7	62	40

Source: “Vision Problems in the U.S.: Prevalence of Adult Vision Impairment and Age-Related Eye Disease in America,” produced by Prevent Blindness America and the National Eye Institute, 2002, p. 18.