



2006

**The Year in
Alzheimer Science**

alzheimer's  association®

100 Years Ago: The Birth of Alzheimer Science

The year 2006 marked the 100th anniversary of a small medical meeting in Tübingen, Germany, where physician Alois Alzheimer presented the haunting case of Auguste D.

Alzheimer first saw Auguste in 1901, following her admission at age 51 to the psychiatric hospital where he worked. She was plagued by symptoms that did not fit any known diagnosis: rapidly failing memory, confusion, disorientation, trouble expressing her thoughts and unfounded suspicions about her family and the hospital staff.

Auguste died after four years of steady decline that left her bedridden and mute, and Alzheimer performed an autopsy. In her brain, he found dramatic shrinkage, widespread dead and dying cells, and two kinds of microscopic deposits he'd never seen before.

“All in all,” Alzheimer wrote in his presentation abstract, “we are faced obviously with a peculiar disease process.”

This mysterious, devastating disorder soon entered the medical literature as “Alzheimer’s disease.” The unusual brain deposits gained recognition as its pathological hallmarks and became known as “plaques” and “tangles.”

In 1915, Alois Alzheimer himself died at age 51, never suspecting that his encounter with Auguste D. would one day touch the lives of millions, drive a massive international research effort and set the cornerstone for the Alzheimer’s Association vision: A world without Alzheimer’s disease.

100 Years Later: The Alzheimer’s Association International Conference on Alzheimer’s Disease and Related Disorders (ICAD)

If Alois Alzheimer had new observations to share with colleagues in 2006, chances are good he would present them at the Alzheimer’s Association 10th International Conference on Alzheimer’s Disease and Related Disorders (ICAD). The July event attracted more than 5,000 scientists, breaking previous attendance records and solidifying its position as the premier global event in dementia research and treatment. Over five days in Madrid, more than 2,100 scientific sessions offered state-of-the-art insights into the basic biology of dementia, strategies to translate new knowledge into targets for next-generation therapies and latest findings on the emerging field of prevention. ICAD coverage in print, online and broadcast news generated more than 142 million media impressions worldwide, raising awareness of Alzheimer’s and highlighting the Association’s pivotal role in supporting the science that will solve the mystery of this devastating disease.

Headline-generating ICAD news included several reports strengthening the connection between insulin resistance, Type 2 diabetes and dementia. One study found borderline diabetes increases dementia risk almost 70 percent. Another concluded that among Type 2 diabetics, those with the poorest blood sugar control have the greatest dementia risk. And several preliminary reports hinted that the thiazolidinediones (TZDs) might help treat Alzheimer’s disease or prevent it from developing. TZDs, which include pioglitazone and rosiglitazone, are Type 2 diabetes drugs that help the body’s cells respond to insulin more effectively. This improved insulin response, in turn, aids better use of blood sugar to fuel essential cellular work. To provide more robust evidence about the possible benefit of TZDs, GlaxoSmithKline in 2006

launched a large Phase III clinical trial of extended-release rosiglitazone in combination with cholinesterase inhibitors as a treatment for mild-to-moderate Alzheimer's disease.

The Alzheimer's Association 2006 grant portfolio includes an award to ICAD opening plenary speaker Monique Breteler, M.D., Ph.D., to help clarify the relationship between metabolic syndrome, insulin resistance and cognitive health. Breteler, an internationally renowned epidemiologist, will explore these issues as part of the Rotterdam Study, which has been collecting biochemical, genetic and autopsy data on more than 8,000 volunteers since 1990.

In another attention-grabbing ICAD session, Harvard scientist Lee Goldstein, M.D., Ph.D., reported that changes in the lens of the eye detectable by a brief, non-invasive laser pulse might reliably indicate the earliest stages of beta-amyloid buildup. The chief substance in the plaques originally identified by Alois Alzheimer, beta-amyloid has emerged as a prime suspect in brain cell destruction. Ability to monitor levels could provide a better way to monitor disease progression and response to beta-amyloid-targeting drugs. Goldstein's ICAD report earned him an invitation to appear as a keynote speaker at the 14,000-member Optical Society of America's October 2006 annual meeting. His work is supported by the Alzheimer's Association through the generosity of Rally for Research.

Also closely watched was an ICAD report on a new strategy for administering rivastigmine (Exelon®) via a skin patch. Rivastigmine is a cholinesterase inhibitor now approved by the U.S. Food and Drug Administration (FDA) in pill form to treat mild-to-moderate Alzheimer's disease. The ICAD study showed the skin patch offered participants with moderate Alzheimer's disease greater benefit than a placebo in memory, ability

to carry out daily activities and overall function. In addition, more than 70 percent of study caregivers preferred the skin patch over the currently available pill. The patch was also less likely to cause nausea and vomiting, common side effects in this class of drugs.

More Younger Individuals Than Expected Have Alzheimer's

The June 2006 Alzheimer's Association report, *Early Onset Dementia: A National Challenge, A Future Crisis*, suggests Auguste D. was far from alone in having Alzheimer's disease in her 50s. Based on data from the Health and Retirement Study (HRS), a large, nationally representative survey, and findings from several other studies, the Alzheimer's Association estimates there are between 220,000 and 640,000 Americans age 55 to 64 with early onset Alzheimer's and other dementias. Additional research is needed to develop a more exact figure, but this evidence-based first estimate indicates many more Americans are affected by dementia in late middle age than is generally acknowledged. Younger individuals with Alzheimer's face special challenges, such as difficulty getting an accurate diagnosis because the cause of their symptoms is so unexpected; coping with how their symptoms and diagnosis affect their jobs and families, which often include children still living at home; and inadequate services and support, since most of these programs are geared to older adults. To better understand these challenges, the Alzheimer's Association in 2006 convened a new advisory group of early-onset individuals. Their input will help us better understand their experience, and develop strategies and programs to meet their unique needs.

The early-onset report was released at the Alzheimer's Association Annual Public Policy Forum in June 2006.

Progress in Next-Generation Treatments

Alois Alzheimer had nothing to offer Auguste D. in terms of specific medical treatments or specialized care. The year 2006 was the 10th anniversary of FDA approval of donepezil (Aricept®), the mainstay of drugs specifically approved to treat Alzheimer symptoms. Donepezil is now one of five approved Alzheimer drugs, and progress is accelerating in developing and testing additional treatments that may be able to delay or stop the progression of underlying disease processes.

To help fuel this progress, the Alzheimer's Association Research Roundtable in 2006 hosted two face-to-face meetings where members and invited guests convened to address important issues in drug discovery and development. The April meeting explored the most promising experimental treatment approaches aimed at targets other than beta-amyloid, and the November event focused on cognitive health economics and the real-world value of dementia treatments.

Results of the face-to-face meetings are disseminated to the larger science community in papers appearing in *Alzheimer's & Dementia: The Journal of the Alzheimer's Association*. Our journal celebrated its first full year of publication in 2006.

To ensure that promising treatments become available as quickly as possible, Alzheimer's Association senior management and science and policy staff met with then acting FDA Commissioner Andrew von Eschenbach to discuss strategies to facilitate expedient review of investigational Alzheimer drugs. In response to Association requests, the FDA established an intra-agency Neurology Working Group to better address new products to diagnose and treat Alzheimer's and other neurological disorders. The FDA also agreed to appoint to the appropriate panels both an individual with Alzheimer's disease and a caregiver to broaden the review process to reflect their unique perspectives.

Caregiver Support Improves Life, Delays Nursing Home Care, Saves Money

Auguste D. was not happy to be a patient in the psychiatric hospital where Alois Alzheimer became her doctor. Like others with Alzheimer's, she would have preferred to stay at home. Many caregivers also prefer to keep their loved ones home as long as possible: A 2006 study by Mary Mittelman, M.D., Dr. P. H., suggests one successful strategy to maximize time at home. Mittelman found that intensive, proactive counseling for people caring for a spouse with Alzheimer's disease improved coping skills, and reduced stress levels and likelihood of developing depression. On average, the counseling delayed the need for nursing home care by 18 months, translating to an average savings of about \$90,000 for each family. This study was supported in part by an Alzheimer's Association grant, through the generosity of the Zenith Fellows.

Although this study dramatically demonstrates the power of appropriate support and services, most individuals with Alzheimer's eventually need more day-to-day assistance than families can provide. With its multi-year Campaign for Quality Residential Care, the Alzheimer's Association has taken the lead in developing evidence-based, consensus-driven standards to make life in nursing homes and assisted living as good as possible. In September 2006, the Association released Phase 2 of its Dementia Care Practice Guidelines detailing best practices in preventing falls, avoiding use of restraints and protecting residents from wandering. The Phase 2 practice guidelines were announced at the 14th Annual Alzheimer's Association Dementia Care Conference, the premier educational event for professional care providers.

Taking another giant step for quality care, the Alzheimer's Association in June launched CareFinder™, an online resource that takes users through a step-by-step personalized assessment to help them identify the best care options to meet their individual needs.

Alzheimer's Association Awards Its Largest Grant Portfolio

To sustain the momentum driving recent progress in Alzheimer research, treatment and care, the Alzheimer's Association in July 2006 announced its largest research grant portfolio ever. Awards included about \$21 million to 96 projects ranked highest in a field of 644 applicants in a rigorous peer-review process. The 2006 portfolio also included the Association's largest single grant in its history: a \$2.1 million award to add a study arm focusing on positron emission tomography (PET) scans using Pittsburgh compound B (PIB) to the Alzheimer's Disease Neuroimaging Initiative (ADNI). ADNI is a multi-year effort to standardize brain imaging procedures and to determine whether imaging or laboratory tests can offer improved strategies to diagnose Alzheimer's and monitor response to experimental treatments.

As always, key goals of the Alzheimer's Association research program are to move the field forward and help shape the science agenda; sustain a robust pipeline of novel ideas; and provide funds to attract talented young investigators to dementia research.

Federal Funding Slips Drastically

The Alzheimer's Association is a passionate advocate for sufficient federal funding to meet the critical public health challenge posed by Alzheimer's disease. According to new data from the National Center for Health Statistics, Alzheimer's disease is now the seventh leading cause of death in America. In February 2006, President George W. Bush proposed a budget representing the largest cuts in federal spending for Alzheimer research and programs in the history of the Alzheimer's Association. Congress adjourned on December 9 without agreeing on a final budget. As a result, funding continues flat at 2006 levels until Congress again addresses the budget issue in February 2007.

The inability of Congress to complete the budget is deeply disappointing, in light of recent progress in Alzheimer science. Severe health and economic consequences face our nation if we fail to meet the challenge of Alzheimer's disease.

A report in the April 22, 2006 *Lancet* dramatically demonstrates the short-sightedness of giving medical research short shrift in our national priorities. The study, one of the first to systematically analyze the health and economic impact of publicly funded research, found the ten-year return on investment in clinical trial funding was 4,600 percent. New discoveries emerging from just eight of these trials were responsible for an estimated additional 470,000 healthy years of life. The study analyzed research funded by the National Institute of Neurological Disorders and Stroke, one of the U.S. National Institutes of Health (NIH).

Moving Forward

Progress in 2006 continued at the same rapid pace we have seen over the last 15 years, and the Alzheimer's Association intends to use every means at its disposal to ensure that we sustain that pace. Although we have learned a great deal about Alzheimer's disease, there is still much we don't know.

But one thing is certain: One hundred years is long enough.

January

- 1** Medicare Part D, a new prescription drug benefit, takes effect. The Alzheimer's Association takes steps to ensure Alzheimer drugs are included in Part D insurance plans, and to provide information and resources to help beneficiaries with Alzheimer's select plans that best meet their needs.
- 9** A six-month extension to a large clinical trial of memantine (Namenda[®]) reported in the *Archives of Neurology* shows that participants who originally received memantine continued to decline more slowly than those who received a placebo. Those who switched to memantine from the placebo declined more slowly than they did while on placebo. All extension study participants received memantine, but researchers did not know who was originally taking the placebo until the study ended.
- 10** *Improving Hospital Care for Persons with Dementia* is published to address the special needs of individuals with dementia in emergency room and inpatient hospital settings. Editors are Nina M. Silverstein, Ph.D., associate professor of gerontology at the University of Massachusetts–Boston, and Katie Maslow, M.S.W., Alzheimer's Association associate director for quality care advocacy.
- 17** Through the generosity of an anonymous donor, the Alzheimer's Association awards its second grant in the European Alzheimer's Disease Neuroimaging Initiative (E-ADNI) to Lars Olof Wahlund, M.D. Working at Stockholm's Karolinska Institute, Wahlund will investigate whether three clinical study sites in the Swedish Brain Power Project can be integrated into ADNI.
- 17** Older adults who exercise at least three times each week may reduce their risk of dementia by about one-third, according to a study in *Annals of Internal Medicine*. Risk reduction was greatest for those with some physical limitations, underscoring the importance of exercise for older adults of all ability levels.

February

- 3** The Alzheimer's Association launches Inside the Brain: An Interactive Tour, a new, consumer online resource. In easy-to-understand language, the tour explains how the brain works and what goes wrong in Alzheimer's disease. Viewers navigate at their own pace through 16 illustrated screens and follow colored text links highlighting key areas and special concepts in each illustration.

15 The MetLife Foundation annual awards in Alzheimer's disease research include two recognizing scientists with Alzheimer's Association ties. The Medical Research in Alzheimer's Disease Award honors Karen Hsiao Ashe, M.D., Ph.D., for her groundbreaking technical achievements in developing mice genetically engineered to produce human forms of proteins linked to Alzheimer's disease and other dementias. The award also recognizes her generosity in sharing the mice with fellow scientists.

MetLife's Promising Work Award honors Frank LaFerla, Ph.D., who has developed a new line of genetically engineered mice with three variations of human genes linked to Alzheimer's disease. These mice seem to experience Alzheimer-like brain changes in a sequence that very closely mimics the human course of the disorder. Both Ashe and LaFerla have received Alzheimer's Association funding for their work, including a 2005 Zenith Fellows Award to LaFerla.

16 Dementia-related hospitalization of a husband or wife raises the nonhospitalized spouse's risk of dying by about 25 percent, exceeding the increased risk seen with hospitalization for several types of cancer, heart disease, stroke, lung disorders or serious fractures, according to a study in the *New England Journal of Medicine*.

21 Heart health, physical activity, freedom from chronic illness, and a strong social support network may all help maintain mental sharpness and emotional well-being as we age, according to an expert consensus panel report appearing in *Alzheimer's & Dementia: The Journal of the Alzheimer's Association*. The panel was appointed by the National Institutes of Health (NIH) to assess current scientific knowledge about brain health and to identify promising areas for future research.

22 The Alzheimer's Association issues a statement decrying proposed federal funding cuts for Alzheimer research and programs that, if enacted, will represent the largest such reductions in the 26 years since the Association was founded.

March

14 Data from the Cache County Study, a large epidemiological project in Utah, suggest that taking blood pressure drugs called potassium-sparing diuretics may reduce Alzheimer's disease risk by more than 70 percent, according to report in *Archives of Neurology*.

16 A large Phase III clinical study of donepezil (Aricept®) as a potential treatment for vascular dementia showed 11 deaths in study participants receiving donepezil and no deaths in those receiving a placebo, according to an announcement by Eisai Co., Ltd., the study sponsor and manufacturer of donepezil.

- 23** According to a *Lancet* study, Aricept[®], approved at the time of publication for mild to moderate Alzheimer's disease, also helped nursing home residents with advanced disease.
- 24** Inside the Brain: An Interactive Tour is designated "Kool Site of the Day" by popular consumer electronics radio show host and columnist Kim Komando, doubling daily traffic on the Alzheimer's Association Web site.
- 27** Genworth Financial's annual Cost of Care survey finds the average cost of a private room in a nursing home exceeds \$70,000 per year for the first time. Average annual cost for a one-bedroom unit in assisted living exceeds \$32,000, and the average rate for a home health aide is more than \$25 per hour. Regional variation around the averages is significant, with costs in urban regions surpassing non-urban regions by about 17 percent.

April

- 5** A host of distinguished guests gathers at the Grand Hyatt in Washington, D.C., for the Alzheimer's Association Third Annual National Alzheimer's Gala. The event raises \$1.6 million for local services and research, and sends a strong message in support of greater public spending on dementia research to U.S. elected officials.
- 6** A study in *Stroke*, a journal of the American Heart Association, shows that long-term treatment of high blood pressure significantly reduces risk of both Alzheimer's disease and vascular dementia. The conclusion comes from the Honolulu-Asia Aging Study, a long-term epidemiological project funded by the National Institute on Aging (NIA).
- 14** A *Nature* study offers the first direct molecular explanation of how omega-3 fatty acids might benefit the brain's nerve cells. In a laboratory cell culture, researchers found that certain omega-3s stimulate growth of the extensions that "wire" nerve cells to one another into a powerful information processing network.
- 19** In a provocative "Perspective" in *Alzheimer's & Dementia: The Journal of the Alzheimer's Association*, Allen D. Roses, M.D., and colleagues propose that the root cause of Alzheimer's disease may lie in flaws in brain cell's ability to use sugar to generate energy. Roses led the team that discovered a genetic variant called APOE-e4 is linked to increased risk of Alzheimer's, and has served as chair of the Alzheimer's Association Medical and Scientific Advisory Council.
- 19** An *Annals of Neurology* report suggests those who most closely follow a Mediterranean diet may be up to 40 percent less likely to develop Alzheimer's than those who adhere

least closely. A Mediterranean diet emphasizes vegetables, beans, fruits, cereals and fish; monounsaturated fats such as olive oil; and limited amounts of meat and dairy products.

- 19** The National Center for Health Statistics, part of the Centers for Disease Control and Prevention (CDC), releases “Deaths: Preliminary Data for 2004.” The report finds life expectancy for Americans is the highest it has ever been at 77.9 years, and that Alzheimer’s disease has moved into 7th place among leading killers of Americans.
- 22** A *Lancet* study, one of the first to systematically analyze the health and economic impact of publicly funded research, finds the 10-year return on investment in clinical trials funding is 4,600 percent. New discoveries emerging from just eight of these trials were responsible for an estimated additional 470,000 healthy years of life. The study analyzes research funded by the National Institute of Neurological Disorders and Stroke (NINDS), one of the Institutes of the NIH.
- 26–28** The Alzheimer’s Association Research Roundtable hosts a meeting for members and invited experts to explore the most promising therapeutic approaches aimed at targets other than beta-amyloid. Potential targets include tau, the protein that twists into the tangles considered an Alzheimer hallmark; cholesterol, which, at the molecular level, is one of the substances composing the fatty membranes surrounding cells; inflammation; and oxidative stress.
- 26** The Research Roundtable designates the 2005 Alzheimer’s Association research grant to David Reuben, M.D., as an official project of the Roundtable. Reuben aims to develop a primary care practice redesign model to address the gap between recommended practices in dementia diagnosis and management, and day-to-day reality in the high-volume, time-pressured primary care environment.
- 28** The Alzheimer’s Association announces an Effective Treatments Initiative to raise the profile and priority of Alzheimer’s disease at all levels of drug development, and to bring the unique perspectives of diagnosed individuals and caregivers into the development and review process.

May

- 8** Two reports in the *Archives of Neurology* suggest the specific type of pathology under way in the brain may be less important in determining symptoms than where the problem occurs. Problems affecting memory regions will cause memory symptoms. Brain autopsies of older adults showed that few of those diagnosed with amnesic (memory-focused) mild cognitive impairment (MCI) had sufficient levels of pathology to meet criteria for

Alzheimer's disease. However, all had some type of abnormality affecting key memory regions, and most seemed to be on the road toward meeting standards for Alzheimer's in the future. Most also had evidence of other abnormalities in addition to the "classic" plaques and tangles of Alzheimer's, suggesting "pure" Alzheimer's disease may be relatively uncommon. Lead author of one study was Ronald C. Petersen, M.D., Ph.D., vice chair of the Alzheimer's Association Medical and Scientific Advisory Council.

- 11** MetLife Foundation's *Alzheimer's Survey: What America Thinks* finds that Americans fear getting Alzheimer's disease more than they fear heart disease, stroke or diabetes. More than one-third of those surveyed had a family member with Alzheimer's, and 60 percent expressed concern they might one day have to provide care for someone with the disease.

June

- 3-6** At its annual Public Policy Forum in Washington, D.C., the Alzheimer's Association releases *Early Onset Dementia: A National Challenge, A Future Crisis*. Based on the Health and Retirement Study (HRS) and other data, the Alzheimer's Association estimates there are between 220,000 and 640,000 Americans age 55 to 64 with early onset dementia. Over the following months, the early-onset report garners major coverage in MSNBC, *U.S. News and World Report*, the *Harvard Post* and CBS News.
- 13** The Alzheimer's Association launches CareFinder™, an online resource that takes users through a step-by-step personalized assessment to identify the care options that best meet their individual needs.
- 22** Reporting in *Nature*, Howard Hughes Medical Institute scientists using an innovative direct observation technique find that new experiences cause nerve cells in the brains of mice to sprout large numbers of new connections, "rewiring" the brain's circuits.
- 26** Autopsies of 134 older adults who had no cognitive impairment prior to death found that more than one-third of them would have been classified as having Alzheimer's disease based on abnormalities found in their brains, according to a *Neurology* paper.
- 29** A *New England Journal of Medicine* report finds that older adults with high blood levels of homocysteine who took a daily supplement containing 1,000 micrograms of folate and 500 micrograms of vitamin B12 did not fare any better than study participants who took a placebo, even though the treatment regimen lowered their homocysteine levels. Homocysteine is a protein building block linked to increased risk of heart disease that may also contribute to increased Alzheimer risk.

July

- 6** GlaxoSmithKline launches a large Phase III trial to explore the benefit of an extended-release form of the Type 2 diabetes drug rosiglitazone, in combination with a cholinesterase inhibitor, in treating mild to moderate Alzheimer's disease
- 15–20** The Alzheimer's Association 10th International Conference on Alzheimer's Disease and Related Disorders (ICAD) attracts more than 5,000 scientists to Madrid, breaking previous attendance records and solidifying ICAD's reputation as the world's premier event in dementia research. New insights and data reported in more than 2,100 scientific sessions gain news coverage worldwide, creating more than 142 million media impressions.
- 28** The FDA approves rivastigmine (Exelon®) as the first drug to treat mild to moderate dementia associated with Parkinson's disease. Rivastigmine is already approved for mild to moderate Alzheimer's.

August

- 9** A four-year study of older women with an average age of 67 finds those with chronically high blood sugar were four times more likely than women without elevated blood sugar to develop mild cognitive impairment (MCI) or dementia. Findings were reported in the *Journal of Nutrition, Health, and Aging*.
- 21** The Alzheimer's Association announces its largest research grant portfolio ever, including \$21 million to 96 projects ranked highest by their peer reviewers in an extremely competitive field of 644 applicants. The portfolio also includes the largest single grant in the Association's history, a \$2.1 million award to add a study arm focusing on positron emission tomography (PET) scans using Pittsburgh compound B (PIB) to the Alzheimer's Disease Neuroimaging Initiative (ADNI).
- 23** A *Nature* report describes a technique for creating embryonic stem cells without damaging the embryos. The strategy is based on a method currently used to test embryos at the few-cell stage for genetic problems prior to implanting them in the mother's uterus.
- 29** Writing in *Stroke*, an international expert panel recommends new standards for diagnosing cognitive impairment caused by strokes and other brain vascular diseases. Although 60 percent of individuals who have strokes may experience some impact on their mental function, there is currently no standard way to detect these problems, which may differ in their symptoms from the pattern of Alzheimer's disease.

September

- 1** Data from the Kame Project, a large epidemiological study of the frequency of Alzheimer's disease and vascular dementia among Japanese living in several countries, finds that Alzheimer risk is reduced significantly for those living in Washington state who drank fruit and vegetable juices more than three times per week, compared with those who drank juices less often. The paper appears in the *American Journal of Medicine*.
- 7** A study in *Neuron* reports identification of an enzyme called puromycin-sensitive aminopeptidase (PSA) that appears to dismantle tangles, twisted accumulations of the protein tau. Tangles, along with plaques, are considered the two Alzheimer hallmark brain abnormalities.
- 8** Reporting in *Cell*, researchers describe what may be a new role for proteins called presenilins in Alzheimer's disease. Presenilins are known to be involved in production of beta-amyloid, and variations in the genes that code the presenilins are among the genetic defects linked to rare, inherited forms of Alzheimer's. This team finds that presenilins also may control entry of calcium into nerve cells, suggesting not only a new role, but a potential new approach to therapy. Ilya Bezprozvanny and Bart De Strooper, two of the scientists involved in the work, have received Association funding.
- 11–13** The Alzheimer's Association 14th Annual Dementia Care Conference in Atlanta, Georgia, provides the nation's premier educational forum for professionals in the field of dementia care, including Association staff, long-term care professionals, social workers, nurses and physicians. Phase 2 of the Alzheimer's Association Dementia Care Practice Guidelines, covering prevention of falls, minimizing use of restraints and protection from wandering are released at the conference.
- 19** The Alzheimer's Association joins a coalition of long-term care and consumer organizations in releasing a new guide to providing care for individuals with dementia during emergencies, such as a major disease outbreak, hurricane or fire.
- 21** *Science* publishes two papers on beta-amyloid. One reports that beta-secretase, an enzyme considered a potential Alzheimer drug target for its role in generating beta-amyloid, also may be involved in forming myelin, a fatty insulation that protects nerve cells and helps them relay signals efficiently. The second finds that injecting beta-amyloid from people with Alzheimer's disease into the brains of mice triggers development of plaques in the animals, lending support to the theory that beta-amyloid plays a key role in Alzheimer's disease.

- 29** Association advocacy efforts lead to reversal of prior authorization requirements for Alzheimer drugs in three national drug plans in Medicare Part D. Under prior authorization, plans technically include certain drugs, but before physicians can prescribe them require extra steps and documentation that are widely considered barriers to access.

October

- 2** The NIA announces an \$8 million, five-year project to study and resolve data disparities on the value of hormone replacement therapy in helping women prevent or delay cognitive decline. Laboratory studies suggest plausible mechanisms by which hormones might support nerve cell health, and epidemiological studies link use of hormone therapy to reduced risk of cognitive decline. Yet clinical studies of hormone replacement to treat or prevent Alzheimer's have either shown no benefit or have, at worst, suggested women taking replacement hormones could be at greater risk of decline. Several scientists who have received Alzheimer's Association funding will participate in the multi-institution initiative.
- 5** The NIH announces a five-year, \$3.8 million award to build a Neuroimaging Informatics Tools and Resources Clearinghouse, with a goal to promote enhancement, adoption, distribution and evolution of neuroimaging data.
- 6** In *Science*, John Trojanowski, M.D., Ph.D., and Virginia M.-Y. Lee, Ph.D., a husband-and-wife team who received the first-ever Alzheimer's Association \$1 million Pioneer Award, report the first molecular connection between a type of dementia and a movement disorder. The discovery links frontotemporal dementia (FTD) and amyotrophic lateral sclerosis (ALS, also called Lou Gehrig's disease), through TDP-43, a protein involved in transcribing and regulating genetic information.
- 9** Omega-3 fatty acids may slow cognitive decline for some people with very mild Alzheimer's disease, according to a small *Archives of Neurology* study.
- 9** Harvard scientist Lee Goldstein, M.D., Ph.D., is a featured plenary speaker at the annual meeting of the 14,000-member Optical Society of America. Reporting on Alzheimer's Association-funded research originally reported at ICAD, Goldstein said that changes in the lens of the eye detectable by a brief, non-invasive laser pulse might reliably indicate the earliest stages of beta-amyloid buildup.

11 Congress renews the Older Americans Act with provisions extending the National Family Caregiver Support Program to people under age 65 who are living with Alzheimer's.

12 Long-awaited results of a large, federally funded study on effectiveness of "atypical" antipsychotic drugs for behavioral dementia symptoms reinforce caution on use of these drugs for this purpose. All three "atypical" antipsychotic drugs in the study gave physicians on overall impression they were helping about 30 percent of the time. However, that benefit did not differ significantly from a placebo, which seemed to help about 20 percent of the time. Significant side effects were seen more frequently in those taking study drugs than in those receiving a placebo. The study appears in the *New England Journal of Medicine*.

13 The FDA approves donepezil (Aricept®) to treat symptoms of severe Alzheimer's. Donepezil was previously approved to treat mild to moderate Alzheimer's, and the new FDA action makes it the only drug currently approved to treat all Alzheimer stages.

17 The NIA announces a six-year, \$52 million funding package to conduct three clinical studies of potential new Alzheimer treatments. These studies will:

- (1) explore whether docosahexanoic acid (DHA), an omega-3 fatty acid, can slow decline in Alzheimer's disease
- (2) investigate whether intravenous immunoglobulin (IVIG), an antibody-rich product derived from human donor blood, can benefit those with Alzheimer's
- (3) determine if lithium can safely be taken by older adults, and whether it lowers levels of beta-amyloid and tau in spinal fluid. There is laboratory evidence that lithium, a drug currently approved to treat bipolar disorder, may block abnormal chemical changes in tau.

The \$52 million will also support an exploration of strategies to assess study participants in their homes. Not having to visit study sites might make it easier for seniors over age 75 to participate in research, especially in long-running prevention studies. All four studies will be conducted through the Alzheimer's Disease Cooperative Study, a federally funded consortium of nearly 70 study sites in the United States and Canada.

November

- 2–5** Scientists from around the world convene in Tübingen, Germany, in observance of the 100th anniversary of the first description of the classic symptoms and brain abnormalities of Alzheimer’s disease. Alois Alzheimer, first presented his observations about his patient Auguste D. on November 4, 1906.
- 3** A commentary on the Alzheimer centenary by Sam Gandy, M.D., Ph.D., chair of the Alzheimer’s Association Medical and Scientific Advisory Council, appears on abc.news.com.
- 3–5** The Fifth Annual Dementia Congress offers state-of-the-art continuing medical education credit for more than 1,000 health professionals. The overall goal of the Congress is to encourage a positive clinical attitude toward active medical management of Alzheimer’s disease over the course of the illness from diagnosis through the end of life. The Congress is supported through an unrestricted educational grant from Eisai, Inc., and Pfizer Inc, and is also jointly sponsored by a group of organizations, including the Alzheimer’s Association.
- 4** The Alzheimer’s Association observes the 15th anniversary of its Green-Field Library, the nation’s largest medical library specializing in resources on Alzheimer’s disease and related neurodegenerative disorders.
- 6–8** A face-to-face Alzheimer’s Association Research Roundtable meeting explores the multi-faceted challenge of defining the real-world value of dementia therapies, given the exigencies of health care system economics.
- 13** A *Neurology* study finds that intensive, proactive counseling for people caring for a spouse with Alzheimer’s disease improves coping skills, and reduces stress levels and likelihood of developing depression. On average, counseling delays the need for nursing home care by 18 months, saving each family about \$90,000.
- 14** The most successful ever Alzheimer’s Association Rita Hayworth Gala in New York City raises \$3.2 million for research, support and services.
- 15** A panel convened by the Center for Health Transformation, a collaboration of private and public sector leaders founded by former Speaker of the House Newt Gingrich, calls on government, academia and industry to take urgent, coordinated action to stem the tide of the impending Alzheimer’s disease epidemic. Panelists include acting FDA commissioner Andrew C. von Eschenbach, M.D., and Harry Johns, Alzheimer’s Association president and CEO.

December

- 6** The Alzheimer's Association hosts a briefing with the Congressional Task Force on Alzheimer's Disease, including Sen. Hillary Rodham Clinton (D. - N.Y.) and Rep. Edward Markey (D. - Mass.).
- 9** The 2006 Congressional session ends with lawmakers failing to agree on the 2007 federal budget, including funding for Alzheimer research and support programs. The budget proposed 10 months earlier by President George W. Bush slashes Alzheimer-related funding by the highest amount in the 25-year history of the Alzheimer's Association.
- 12** An *Annals of Neurology* study describes preliminary work suggesting that an overall "bar code" pattern of proteins in spinal fluid may provide a better way to diagnose Alzheimer's disease.
- 20** A *JAMA* study finds certain mental exercises may ward off some of the expected decline in older adults' testable thinking skills, but do not improve ability to tackle everyday tasks. More research is needed to translate findings to everyday life.
- 21** A new molecule called FDDNP can detect and map plaques and tangles in the brain during a positron emission tomography (PET) scan, according to a preliminary study in the *New England Journal of Medicine*. FDDNP was more accurate than other imaging techniques in differentiating participants with mild cognitive impairment (MCI) and Alzheimer's disease from one another and from those with no impairment. The study was funded by the NIA. Early work on FDDNP was funded in part by the Alzheimer's Association through the generosity of the Zenith Fellows.