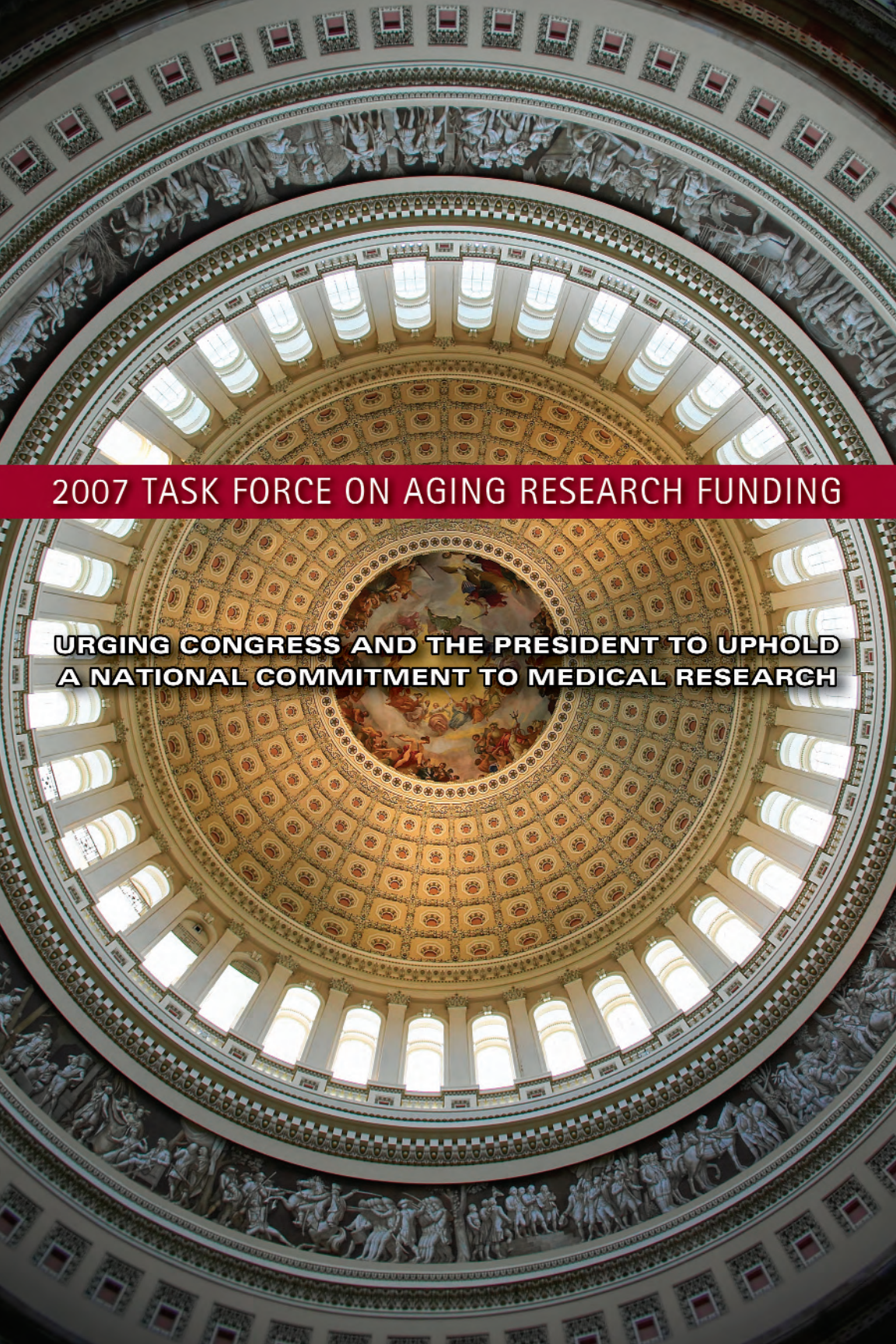
2007 TASK FORCE ON AGING RESEARCH FUNDING
URGING CONGRESS AND THE PRESIDENT TO UPHOLD
A NATIONAL COMMITMENT TO MEDICAL RESEARCH

America's Baby Boomers will begin turning age 65 in 2011. Twenty years from now, Boomers will double the size of the older population, making it more than 20% of the total population. If this generation ages with the same risks of chronic health problems as today's elderly, the healthcare burden in the U.S. will cripple an already fragile medical delivery system. The economic and social consequences could be dire. In fact, the Congressional Budget Office estimates that by 2030, spending on Medicare and Social Security alone will consume 15% of the country's GDP, double what it is today.

More than 85 national not-for-profit health advocacy and patient groups, comprising the Task Force on Aging Research Funding, are putting forth a simple and clear proposal: keep our aging population healthier, more vital, and independent longer. We believe this can be done with what we learn from accelerated medical and scientific research. If these findings can be translated quickly into applications for more effective healthcare, they will reduce social and fiscal pressures that an unhealthy aging population will create.

The number one public agency for biomedical and behavioral research is the National Institutes of Health. Funding for the NIH has been justifiably called the greatest investment, dollar for dollar, in the federal government portfolio.

For example, over the past 30 years Americans on average have gained more than six additional years of life expectancy. That translates to trillions of dollars for the U.S. economy and the federal treasury. Deaths from heart attacks and strokes have been slashed by half. Cancer deaths are down in recent years and treatment outcomes for survivors are better than ever, even as the population ages. NIH-funded research showed the way to dramatic reductions in diabetes disability through better control of blood glucose. Dozens of new and disease-altering drugs for Alzheimer's and other neurodegenerative diseases are entering the drug approval pipeline. All this and more has been achieved for the American taxpayers at a cost of about $44 per person, per year!

For the past four years federal funding for NIH has been in a painful down cycle, even falling short of 3.5% increases each year to keep pace with inflation. If the President's FY 2008 budget proposal is enacted, the NIH's ability to conduct and support life-saving research will be cut by more than 13% (since FY 2003 adjusted for inflation). Looking ahead, plans to balance federal revenues anticipate a prolonged squeeze of the NIH and other public health agencies, resulting in continued loss of purchasing power and less ability to fund promising research grants.

The Task Force on Aging Research Funding implores Congress to chart a better course for medical research on behalf of America's aging population. We urge Congress to provide a 6.7% increase in funding for the NIH in FY 2008. This increase would halt the erosion of the nation's research base and facilitate medical discoveries to fight diseases and disabilities that affect older Americans.

The Task Force on Aging Research Funding is a non-partisan alliance of disease groups, patient advocates, and foundations committed to advancing biomedical research to improve the health of the aging American population. Since 1988, our annual report has served as a tool to assist policymakers in establishing funding levels necessary to achieve this goal.

Alzheimer's Disease

- An estimated 5.1 million Americans have Alzheimer's disease—a debilitating, dehumanizing, and fatal disease. Every 72 seconds, someone in the U.S. develops Alzheimer's.
- The greatest risk factor for Alzheimer's is age—1 in 10 people over the age of 65, and nearly half of those over age 85, have the disease. With the aging of our population, by 2050 as many as 16 million Americans age 65 and older could have Alzheimer's.
- Alzheimer's drains more than $148 billion from the nation's economy each year. If prevalence continues to increase as expected, by 2050 Medicare will spend more than $1 trillion on beneficiaries with Alzheimer's and related dementias.
- Alzheimer's also exacts a huge toll on caregivers—87% of whom are caring for relatives. 1 in 4 provide constant care—40 or more hours per week, often doing so for many years. Over 40% report high levels of emotional stress and 1 in 5 dementia caregivers is in fair or poor health. Many family caregivers must also sacrifice other obligations such as work—14% give up work or choose early retirement, and 13% cut back on their hours.
- Currently there is no cure for Alzheimer's and no treatments that stop or slow its progression. However, there are a number of drugs that treat the symptoms of Alzheimer's, improving the patient's quality of life, and in some cases, delaying the need for nursing home care.
- The NIH is poised to make major discoveries in predicting Alzheimer's, personalizing individual treatments, and preempting the disease. Four genes have been shown to conclusively affect development of Alzheimer's, numerous targets for drug development have been revealed, and newly discovered therapeutic drugs are being developed for clinical trials. Current work includes the Alzheimer's Disease Neuroimaging Initiative (ADNI) that is designed to facilitate imaging techniques and biomarkers for early diagnosis, and exploration of complex factors that influence disease progression.
- Alzheimer's disease is a public health emergency of epidemic proportions. Left unchecked, it will rob millions more Americans of their dignities and their lives, overwhelm our healthcare system, and jeopardize the financial security of millions of Americans and their families.

Arthritis

- Arthritis is a general term for a group of more than 100 diseases. The most common type of arthritis is osteoarthritis. Other common types include rheumatoid arthritis, gout, and fibromyalgia. Nearly 1 in 5 adults has been diagnosed with some form of arthritis—around 46 million Americans. By 2030, an estimated 67 million adults in the U.S. are projected to have doctor-diagnosed arthritis.
- Arthritis is one of the most prevalent chronic health problems in the U.S. and is the leading cause of disability of Americans over the age of 15. It is second only to heart disease as a cause of work disability. It also causes activity limitations for 16 million Americans and every year results in 36.5 million ambulatory care visits and 744,000 hospitalizations.
- Arthritis and related conditions cost the U.S. $128 billion every year in both direct medical costs and indirect costs from lost productivity.
- Recent research findings supported by the National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS) at NIH include discovery of a new imaging technique that may help scientists better understand and treat osteoarthritis, identification of a potential biomarker for osteoarthritis, discovery of three genes involved in rheumatoid arthritis, and advances in potential new treatments.
- The rising human and economic costs of arthritis underscore the need for urgent measures that will reduce the disability and expense of this chronic condition. Research on the horizon offers much hope and includes exploration of new insights in genomics and proteomics; identification of triggers and risk factors that help predict disease susceptibility; and continuation of the Osteoarthritis Initiative, an observational study of knee osteoarthritis that is providing data for the discovery and validation of disease risk factors, genetic and imaging biomarkers, and improved outcome measures.

Autoimmune Diseases

- Autoimmune diseases are a family of chronic, and often disabling, illnesses that result from a dysfunction of the immune system and that cause the body to attack its own cells, tissues, and organs. Lupus, multiple sclerosis, rheumatoid arthritis, type 1 diabetes, autoimmune thyroid diseases, myasthenia gravis, and scleroderma are some of the more than 80 autoimmune diseases.
- Approximately 50 million Americans—1 in 5 people—have an autoimmune disease. Autoimmune diseases disproportionately affect women and are among the 10 leading causes of death for young and middle-aged women. For some diseases, more than 85% of affected individuals are women. While autoimmune diseases do not typically afflict the elderly, scientists are finding potential links between autoimmunity and diseases such as Alzheimer's disease and cardiovascular disease.
- Most autoimmune diseases do not yet have a cure so those afflicted often face a lifetime of illness and treatment, debilitating symptoms, loss of organ function, reduced productivity at work, and large healthcare costs. Each year, autoimmune diseases cost the U.S. approximately $120 billion in healthcare costs.
- In 2005, the NIH Autoimmune Diseases Coordinating Committee released a report to Congress detailing progress and priorities in autoimmune disease research. The report identified major research areas including biomarker development, bioinformatics, and the application of new technologies such as genomics and proteomics. Despite significant progress, additional research is needed to gain a better understanding of genetic and environmental factors that contribute to disease, apply knowledge gained by the Human Genome Project in revealing hereditary risks, and develop effective prevention strategies that may arrest the autoimmune process.

Biology of Aging

- Understanding when and how changes occur as we age provides us with important clues for developing interventions that will prevent and treat diseases, and improve quality of life.
- The only approach that scientists have found to-date that increases longevity in mammals is to reduce calorie intake by about one-third. Caloric restriction has been shown to extend the average life spans of worms, insects, and mice by 30-40%, and is showing great promise in primate studies. These studies are raising the hope that further studies of caloric restriction will uncover the mechanisms responsible for age-related diseases.
- Scientific research into telomeres, the repeating sequences of genetic material at the tips of chromosomes that shorten each time a cell divides, may hold the key to understanding cell replication and cellular aging. These DNA sequences may function as a "clock of aging."
- Researchers studying aging in nematodes (roundworms) have found that by altering certain genes, they can substantially extend the normal lifespan of these tiny organisms. This exciting research may lead to the discovery of the genetic and biologic secrets to longevity in humans.
- Scientists are working to determine what "longevity genes" are and how they work. There may be a group of genes in each species that can extend life beyond what is presently considered maximum life span. These longevity-enabling genes could open the gateway to understanding the roots of biological aging in humans and provide revolutionary cures in treating age-related diseases.
- The National Institute on Aging has a broad research portfolio and studies the normal changes associated with aging as well as promising interventions for detecting, preventing, and treating many age-related diseases such as Alzheimer's disease, Parkinson's disease, and osteoporosis. This research is becoming especially urgent as our older population rapidly increases with the aging of the Baby Boom generation.

Bone Diseases

- Osteoporosis is a syndrome characterized by low bone mass and deterioration of bone tissue, that leads to bone fragility and an increased risk of fracture. Osteoporosis is a major public health threat for an estimated 44 million Americans—55% of the 50 and older population. Only 10 million Americans have been diagnosed with osteoporosis; however, an estimated 34 million more have low bone mass, putting them at risk. Osteoporosis is under-recognized and under-treated, and left unchecked, will affect more than 60 million people by 2020.
- Osteoporosis predisposes older adults to fractures, contributing to 1.5 million each year—300,000 hip fractures, 700,000 vertebral fractures, 250,000 wrist fractures, and 300,000 fractures at other sites. 1 in 2 women and 1 in 4 men, over the age of 50, will have an osteoporosis-related fracture during their lifetime. An average of 24% of hip fracture victims die within a year of the fracture. For patients who were ambulatory before a hip fracture, 20% require long-term care afterwards.
- The estimated national direct care expenditures (including cost of hospitals, nursing homes, and outpatient services) for osteoporotic fractures is $18 billion per year in 2002 dollars.
- While medical experts agree that osteoporosis is largely treatable, scientists to-date have been unable to unlock the key to bringing osteoporosis under control or finding a cure. Research is needed to isolate genes that may help identify individuals at high risk for osteoporosis; understand how to stimulate osteoblasts; produce new bone medications that replace lost bone (i.e. parathyroid hormone); learn more about osteoporosis in men and minority populations; and understand how children, adolescents, and young adults can achieve optimal peak bone mass. Research into the basic mechanisms of bone metabolism may also lead to treatment and prevention breakthroughs.
- Paget's disease of bone is a condition that primarily affects middle-age and older persons and is the second most prevalent bone disease after osteoporosis. An estimated 1 million people in the U.S. have Paget's disease. When severe, Paget's disease can be extremely painful and can cause significant deformity and other complications including hearing loss, bowing of limbs, neurological problems, and arthritis. There are medical therapies available but more research is needed to understand the causes of the disease.

Cancer

- Cancer continues to be the second leading cause of death in the U.S., exceeded only by cardiovascular disease. Cancer accounts for 1 in every 4 deaths in the U.S. In 2007, more than 1.4 million new cancer cases are expected to be diagnosed, and an estimated 559,650 Americans are expected to die from their cancer—more than 1,500 people a day.
- Age is a major risk factor for developing cancer. About 77% of all cancer cases are diagnosed in individuals age 55 and older. The incidence rate for colorectal cancer is more than 50 times higher in people ages 60-79 than in those under 40; more than 65% of all prostate cancer cases occur in men age 65 and older; and 80% of all breast cancer cases occur in women over age 50. As our population ages, a doubling of cancer diagnoses is predicted—from 1.3 million in 2000 to 2.6 million in 2050. The number of cancer patients age 85 and older is expected to increase four-fold.
- Men have slightly less than a 1 in 2 lifetime risk of developing cancer. The leading cancer sites in men are the prostate, lung and bronchus, and colon and rectum. Women have a little more than a 1 in 3 lifetime risk of developing cancer. The leading cancer sites in women are the breast, lung and bronchus, and colon and rectum.
- The NIH estimated that the overall cost of cancer in 2006 was $206.3 billion. This figure includes $78.2 billion in direct medical costs, $17.9 billion in indirect morbidity costs, and $110.2 billion in indirect mortality costs.
- NIH-sponsored research has produced significant health and economic benefits. Cancer mortality is decreasing due to the impact of prevention, early detection, and more effective treatments. The 5-year survival rate for all cancers has improved from 50% from 1974-1976, to 65% from 1995-2001. These health gains produce huge economic consequences—a modest decrease of 1% in cancer mortality has been estimated to be worth $500 billion in social value.
- Continued developments in molecular biology, immunology, and genetic research—specifically, genomics, proteomics, and pharmacogenomics—will lead to tremendous advances in cancer prevention, diagnosis, and treatment; particularly regarding issues such as drug resistance. Additionally, technologies like high-speed nuclear magnetic resonance spectroscopy and functional imaging provide new targets for disease interventions and drug design. Scientists hope to gain understanding of how individual cancers differ from each other, as well as how basic aging processes contribute to the development and progression of cancer.

Cardiovascular Disease

- Cardiovascular disease (CVD), including heart attack and stroke, remains the nation's No.1 killer of men and women, causing more than 36% of all deaths. Each year more than 870,000 Americans die from CVD—nearly 2,400 deaths every day—or 1 death every 36 seconds.
- Nearly 80 million Americans have 1 or more types of CVD. An estimated 37.5 million of them are age 65 and older. As the Baby Boomers age, deaths from heart disease are projected to increase 2.5 times faster than the population as a whole, and the prevalence of heart disease is projected to increase by 16% each decade.
- More than 6 million hospitalizations every year are due to CVD, which remains the largest cause of hospitalization for Americans age 45 and older. Coronary heart disease is also an enormous cause of disability—within 5 years of a recognized heart attack about 22% of men age 70 and older, and 25% of women age 70 and older, will be disabled by heart failure.
- The estimated direct and indirect cost of CVD in 2007 will be $432 billion, costing Americans more than any other disease. The aging of the population alone could drive up costs for CVD between 64% and 84% by 2025.
- Approximately 1 in 3 adults has high blood pressure (HBP) which, if not properly diagnosed and treated, can lead to heart failure, heart attack, stroke, blindness, and kidney disease. The recent NHLBI (National Heart, Lung, and Blood Institute)-supported Antihypertensive and Lipid-Lowering Treatment to Prevent Heart Attack Trial, the largest clinical trial designed to study drug treatments for HBP, revealed that low-cost diuretics are as effective as more expensive drugs in lowering blood pressure and preventing complications.
- Perhaps the most effective measures for preventing CVD are behavioral and relate to diet and physical activity. For example, NHLBI-supported studies have shown that the DASH (Dietary Approaches to Stop Hypertension) diet and the TLC (Therapeutic Lifestyle Changes) program can help lower blood pressure and cholesterol.
- Research also shows that noninvasive magnetic resonance imaging (MRI) technology can improve the diagnoses of heart attacks by allowing for faster, more accurate detection in the emergency room. Use of MRI will save lives and reduce disability among survivors by allowing for quick diagnosis and treatment.

Chronic Obstructive Pulmonary Disease

- Chronic obstructive pulmonary disease (COPD) is a term that includes chronic bronchitis and emphysema. COPD is characterized by obstruction to airflow that interferes with normal breathing and causes a gradual loss of lung function.
- COPD is the fourth leading cause of death in the U.S.—killing more than 120,000 people each year. 11.4 million Americans have been diagnosed with COPD and an additional 12 million are believed to have the disease but have not been clinically-diagnosed.
- COPD is a major cause of hospitalization in the older population—in 2004 approximately 65% of COPD-related hospital discharges were in the 65 and older population. It also has a significant impact on quality of life with 51% of COPD patients reporting that it limits their ability to work, and 70% reporting limitations in normal physical exertion.
- The annual cost of COPD in 2004 was approximately $37.2 billion—$20.9 billion in direct healthcare expenditures, $7.4 billion in indirect morbidity costs, and $8.9 billion in indirect mortality costs.
- Available treatments including bronchodilators, inhaled corticosteroids, pulmonary rehabilitation, and oxygen therapy; can control symptoms and prolong life. However, none of the existing treatments modify the long-term decline in lung function that is typical of the disease. Some carefully selected patients may benefit from lung volume reduction surgery (LVRS) or transplantation surgery. Treatments that provide better symptomatic relief and prevent progression of the disease are a high priority at the National Heart, Lung, and Blood Institute of the NIH. Earlier this year, the NIH also launched a national public awareness campaign—"Learn More Breathe Better"—that underscores the benefits of early detection and treatment.

Complementary & Alternative Medicine

- The use of complimentary and alternative medicine (CAM) in the U.S. is becoming widespread, with 75% of adults reporting having used CAM at some point in their lives. People use CAM to treat a number of diseases and conditions and are most likely to use it for back pain, colds, neck pain, joint pain, arthritis, anxiety or depression, stomach upset, headache, recurring pain, and insomnia. The ten most commonly used natural products are Echinacea, ginseng, gingko biloba, garlic supplements, glucosamine, St. John's wort, peppermint, fish oils, ginger supplements, and soy supplements.
- A study funded by the National Center for Complementary and Alternative Medicine (NCCAM) at NIH found that acupuncture is an effective complement to conventional therapies in patients with osteoarthritis of the knee. Another study, conducted by researchers at the University of Maryland that looked at osteoarthritis in the elderly, found that acupuncture helped 7 out of 29 patients avoid surgery that would have cost an estimated $63,000 per person.
- In another study, 27% of patients treated with gingko biloba in its EGB 761 form achieved at least a 4-point improvement in cognitive performance as measured by the Alzheimer's Disease Assessment Scale-Cognitive subscale.
- The Internet is a common source of health information and consumers often go on-line to get information concerning their health or the health of their loved ones. Unfortunately, a study of Internet marketing of herbal products found that 81% of sites that sold an herbal product or directly linked to a vendor, made direct health claims yet often lacked clinical information or FDA advisories. Consumer awareness about CAM therapies and health claims needs to be raised.
- Research priorities for NCCAM at NIH include understanding the underlying mechanisms of CAM therapies to facilitate integration into conventional medical care, identification of key study endpoints for use in clinical trial design, and studies on the use of CAM in the treatment of cardiovascular disease, depression, respiratory diseases, and liver disease to name a few—conditions that affect millions of Americans. NCCAM is also developing a diverse research portfolio to explore the use of CAM in treating menopausal symptoms.

Dental & Oral Disease

- Oral health problems that result from dental caries (cavities), periodontal (gum) disease, missing teeth, improperly fitting dentures, and oral infections can cause difficulty eating, impact quality of life, and compromise compliance with therapy for other conditions. Research has also shown that oral disease can impact systemic health. For example, periodontal disease may seriously compromise the health of individuals with vulnerable immune systems.
- While an increasing number of Americans are keeping their natural teeth late into life, about 23% of 65-74 year-olds have severe periodontal disease, and 26% of those age 65 and older have lost all of their teeth. Additionally, low-income individuals and minorities suffer disproportionately from oral disease and are at increased risk of tooth loss and serious health complications. About a quarter of the population now accounts for ~80% of the oral disease burden.
- Each year, oral and pharyngeal cancers are diagnosed in about 30,000 Americans and result in 8,000 deaths. Methods used to treat these cancers are often disfiguring and costly, and about half of those diagnosed die within 5 years. These cancers are primarily diagnosed in elderly Americans—incidence rises steadily with age, peaking in persons ages 65-74.
- A side effect of many prescription medications is xerostomia (dry mouth), a condition that results from reduced salivary flow that can cause increased prevalence of dental caries and periodontal disease, chewing and swallowing problems, trouble speaking, and inability to wear dentures. Estimates of the number of adults in long-term care facilities with xerostomia have been as high as 40%.
- Research supported by the National Institute of Dental and Craniofacial Research continues to show associations between oral and systemic disease. Periodontal disease and other oral infections may be linked with diabetes, heart disease, stroke, and respiratory infections—all disproportionately prevalent in the elderly. Additional research funds are needed for investigational studies that include people over age 65, who have been underrepresented in past research. This will go far in finding the answers necessary to prevent or reduce the impact of chronic diseases by reducing oral disease in elderly populations.

Diabetes

- 20.8 million Americans have diabetes although 6.2 million of them are unaware that they have the disease. An additional 54 million people are estimated to have pre-diabetes, a condition where blood glucose levels are abnormally high—but not yet high enough to be considered diabetes. Close to 50% of those with diabetes are age 60 and older.
- Diabetes is the fifth deadliest disease in the U.S. and the leading cause of kidney failure, adult-onset blindness, and nontraumatic lower limb amputations. It is also a significant cause of heart disease and stroke—adults with diabetes have heart disease death rates 2 to 4 times higher, and risk of stroke that is 2 to 4 times greater, than non-diabetic adults. Every year, over 210,000 deaths are attributable to diabetes and its complications.
- In 2002, the cost of diabetes in the U.S. was $132 billion—$92 billion in direct costs and $40 billion in indirect costs resulting from lost workdays, disability, and premature mortality. The per capita annual cost of healthcare for a person with diabetes is more than $13,000.
- The burden of diabetes is only going to rise with conservative estimates predicting a 165% increase in diabetes prevalence between 2000 and 2050. By 2030, 29 million Americans could have the disease. The alarming rise in obesity in the U.S. will also significantly impact diabetes prevalence.
- A recent study conducted by the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) so clearly demonstrated that lifestyle interventions reduced the risk of developing type 2 diabetes (by 58%) that the trials ended a year early. Other research has aided new drug development by validating the hemoglobin A1c marker, led to improved forms of insulin and continuous glucose monitors, identified susceptibility genes, and made significant progress towards understanding the molecular underpinnings of diabetes. Current research is pursuing major discoveries in diabetes prevention, molecular links between obesity and insulin resistance, genetic predisposition, effect of maternal diabetes on offspring, and personalized treatments.

Disabilities

- 14 million Americans age 65 and older report some level of disability. Individuals with disabilities have 3 to 4 times the number of secondary health problems, compared to healthy individuals of the same age. Diabetes is 5 to 6 times higher in many disability groups; cardiovascular disease is the second leading cause of death for persons with spinal cord injuries; fractures are 5 times more common in persons with cerebral palsy; and osteoporosis affects close to 70% of individuals whose mobility is affected by a disability.
- Each year, 1.6 million seniors have fall-related injuries that require emergency room visits. Among older adults, falls are the No.1 cause of fractures, hospital admissions for trauma, lost independence, and injury-related deaths. In 2003, close to 14,000 older adults died from falls.
- Disability can not only impact quality of life, but can result in psychological problems. Rates of depressive disorder are 2 to 3 times higher among people aging with a disability than with non-disabled individuals of the same age. Depression has a powerful negative impact on ability to function and is one of the leading causes of disability in the U.S.
- Older individuals with disabilities are also more likely to develop secondary conditions such as chronic pain, excessive fatigue, changes in skills or conditions, fractures from falls, and pressure sores from continuous wheelchair use.
- Conditions such as chronic pain are too often accepted as a normal consequence of aging and as a result, too few preventive measures are practiced and problems are allowed to compound. Patient, caregiver, and healthcare provider education regarding pain management will have significant impact on how pain is diagnosed and treated, and rehabilitation explored.
- Advances in medical research, technology, and delivery have dramatically lengthened the average life span of persons with disabilities. However, we need additional knowledge about the aging process and its interactions with age-related diseases and disabilities.
- Scientists supported by the National Institute of Arthritis and Musculoskeletal and Skin Diseases have demonstrated that disease-modifying antirheumatic drugs and newer treatment strategies have greatly eased long-term disability among older patients with rheumatoid arthritis. Non-medicinal therapies that improve quality of life and level of function have also greatly impacted patients.

Environment & Aging

- As we age, our bodies become more susceptible to environmental hazards, some of which are found in our everyday environments and can worsen chronic and life threatening conditions such as heart disease, stroke, diabetes, and chronic obstructive pulmonary disease (COPD). Common environmental hazards for older Americans include contaminants (e.g. particulate matter, ozone, mold, carbon monoxide, and second-hand smoke), lead, mercury, pesticides, extreme temperatures, and drinking water contaminants (e.g. E. coli and microorganisms).
- Exposure to environmental hazards can have serious outcomes, including death. Those that suffer from COPD are among the most sensitive to air pollution and every year, thousands of Americans with COPD die from dangerous levels of particulate matter. Older adults account for 75% of all hospitalizations due to gastroenteritis and other waterborne diseases. The highest death rates from intestinal disease are in individuals age 75 and older. Additionally, while older adults account for a low percentage of incidents reported to Poison Control, they are 2 times as likely to experience a serious outcome, and 10 times as likely to die from the exposure.
- Occupational environments can also be hazardous. For example, research has shown that long-term, occupational exposure to certain combinations of metal and oxidative stressor environmental agents (such as pesticides and heavy metals) is significantly associated with an increased risk of Parkinson's disease in later life.
- Through its Aging Initiative, the U.S. Environmental Protection Agency is working to prioritize environmental hazards that affect older persons, examine the environmental impact of an aging population in a smart growth context, and encourage civic involvement of older persons in order to reduce hazards. Researchers in the Office of Research Development are studying susceptibility of older adults to environmental exposures, how the body processes and rids itself of contaminants, and how the body responds to the stress of those contaminants. Educational materials that translate research findings for multiple audiences are available at www.epa.gov/aging.
- Further investigation is needed to uncover the gaps that exist within research on the effects of environmental hazards on the aging population, develop tools that can address the impact of an aging society on the environment, and design future models that will help reduce environmental hazards on local communities.

Epilepsy

- Epilepsy is one of the most common nervous system disorders and affects more than 3 million Americans. There are approximately 200,000 new cases of seizure disorders and epilepsy diagnosed every year and 10% of Americans will experience some type of seizure in their lifetime.
- Epilepsy and seizures can lead to the loss of driving privileges, independence, and self-confidence; and an increase in depression and social isolation. Additionally, because of seizure-related falls and prolonged use of antiepileptic drugs, individuals with epilepsy are more likely to have bone fractures.
- Epilepsy can develop at any age but is most common in those over 60 years old. The risk of developing epilepsy increases 30% for each decade after the age of 20. 570,000 of the 3 million Americans with epilepsy are age 65 and older. 10% of nursing home residents are on antiepileptic medications. The leading causes of new cases of epilepsy in the elderly are stroke, cerebrovascular disease, degenerative disorders such as Alzheimer's disease, and brain tumors—22% of stroke patients and 10% of Alzheimer's patients can be expected to develop epilepsy.
- Epilepsy in the U.S. costs an estimated $15.5 billion annually in medical costs and lost or reduced earnings and production. The lifetime cost of the approximately 200,000 new cases that develop every year is $11.1 billion.
- Scientists at the National Institute of Neurological Disorders and Stroke (NINDS) are working to find potential antiepileptic drugs that will enhance treatment, exploring how genes may influence epilepsy, improving imaging technology, and experimenting with several new types of therapies including a device that could predict seizures up to 3 minutes before they begin. Additionally, a 2007 scientific conference held by NINDS will bring together leading scientists, healthcare providers, and leaders of voluntary health organizations to discuss potential targets and technologies for new therapies.

Geriatric Training

- Older Americans have much more complex and frequent healthcare needs than younger adults. The incidence of many illnesses such as cancer, heart disease, and Alzheimer's disease rise dramatically with age, leaving the average 75 year-old suffering from 3 chronic conditions. Despite older Americans' huge demand for health services and resources, the professional healthcare workforce is woefully unequipped to deal with older patients, and an acute shortage of professionals with geriatric training persists.
- The U.S. currently needs an estimated 20,000 geriatricians to adequately care for its population of 35 million older people. However, in 2005 there were only 6,615 physicians with active certifications in geriatrics—1 geriatrician per 2,510 persons over age 75. This number is projected to decrease to as few as 1 per 3,592 persons over age 75 by 2030, when the older population is projected to reach 71.5 million. The U.S. will fall far short of the 36,000 geriatricians needed by 2030 unless effective steps are taken to train new geriatricians.
- There is also a lack of geriatric training of pharmacists, nurses, physicians' assistants, and other members of the healthcare field. Of the nation's more than 200,000 pharmacists, only 720 have geriatric certifications—alarming since the average 75 year-old takes 5 prescription medications. Registered nurses are also crucial in the healthcare of older Americans. Unfortunately, of today's 2.4 million registered nurses, less than 1% are certified in geriatrics, and only 3% of advanced practice nurses have specialized training in geriatrics.
- The shortage is further complicated by the lack of academic geriatricians to train the needed providers in geriatric specialties, integrate geriatrics into medical practice, and develop standards of care for older persons. Currently there are less than 900 full-time academic geriatricians in the U.S. and an estimated 2,400 are necessary. Only 9 medical schools have departments of geriatrics and only a handful of medical schools require students to take any geriatric courses.
- The ongoing NIH-supported Geriatric Academic Program is intended to support academic career development programs for junior faculty in geriatrics. However, the changing healthcare needs of the nation warrant a greater investment of resources in geriatric training for healthcare professionals.

Hearing Loss

- Hearing loss is one of the most common disabling conditions for an older person— approximately 28 million American adults have some form of hearing loss. That number is expected to nearly double by 2030.
- Incidence of hearing loss increases with age and by 65, nearly 1 in 3 Americans suffers from hearing loss. By age 75, close to half of all Americans have some form of hearing impairment.
- Hearing loss can make communication difficult and promote social isolation. Adults with untreated hearing loss are more likely to report depression and anxiety, and are less likely to participate in social activities. Other impairments in the elderly such as vision loss, decreased dexterity, and limited mobility tend to make hearing loss increasingly difficult.
- As they age, some individuals experience gradual hearing loss from presbycusis— a condition that affects the highest frequencies first, making discrimination of speech, and therefore conversations, particularly difficult. Although the loss is gradual, it does not mean that hearing loss is a natural part of the aging process.
- An estimated 50 million Americans experience tinnitus, the perception of sound in the ears or head when no external sounds are present. For 12 million people, the tinnitus is severe enough that they seek medical attention; and for about 2 million, it is so severe that it interferes with daily activities. Close to 12% of men between the ages of 65 and 74 are affected by tinnitus.
- 10 million Americans have irreversible noise-induced hearing loss and an additional 30 million are exposed to dangerous noise levels on a daily basis. Around one-third of all people with hearing loss can attribute it, at least in part, to noise. Exposure can occur in the workplace, at home, and in recreational settings; and most noise-induced hearing loss is preventable.
- The average lifetime cost for a person with hearing loss is estimated at $417,000, in 2003 dollars. It is estimated that the lifetime costs for all those with hearing loss who were born in 2000, will reach $2.1 billion, also in 2003 dollars.
- Research at the National Institute on Deafness and Other Communications Disorders is exploring many promising fields in hearing loss including looking at the use of lasers to stimulate the auditory nerve, genetics of communication disorders, sensory transduction mechanisms of hearing and other senses, developmental properties of the inner ear, and epidemiologic studies of human communication processes.

Incontinence

- Incontinence is the involuntary loss of bladder or bowel control. Urinary incontinence (UI) affects as many as 33 million Americans—an estimated 65-80% of whom are women. An estimated 15 million adult women in the U.S. suffer from stress urinary incontinence (SUI), the most common form of incontinence in women; about 17% of women and 16% of men over the age of 18 have overactive bladder (OAB); and an estimated 12.2 million adults have urge incontinence. While UI does become more common with age—at least 1 in 10 people age 65 and older suffer from it—it is not a normal part of aging and can be treated, controlled, and often cured.
- Fecal incontinence affects an estimated 6.5 million Americans. Because it is under-reported and under-diagnosed, the numbers may be considerably larger. It is suggested that 2.2% of all women who have delivered more than one child experience fecal incontinence. Additionally, 7% of healthy people age 65 and older, 23% of stroke patients, and 33% of elderly people at home or in a hospital also experience fecal incontinence.
- Incontinence is a leading cause of institutionalization and more than half of all nursing home residents are incontinent. The frequent or urgent need for a restroom increases the risk of falls in elderly women by as much as 26%, and the risk of bone fracture by as much as 34%. In 2000, UI was the cause of more than 47,000 hospital stays by adults age 18 and older; and approximately 1.16 million outpatient visits by adults age 20 and older.
- The total cost in 2000 for UI was $19.5 billion (in 2000 dollars)—$14.2 billion of that cost was to community residents and $5.3 billion was to institutional residents. The total cost in 2000 of OAB was $12.6 billion—$9.1 billion to community residents and $3.5 billion to institutional residents. Over their lifetime, women with SUI spend an average of $58,000 on treatment and management.
- The Urinary Incontinence Treatment Network is a network of collaborating investigators established by the NIH in 1999 to conduct long-term studies and trials on commonly used surgical, pharmacological, and behavioral approaches to managing UI in women—a significant healthcare burden for the entire U.S. population and a major burden for the adult female population.

Infectious Diseases

- Infectious diseases are a major cause of morbidity and mortality in the elderly—a population with increased susceptibility to infection due to factors including a decline in the immune system, the common presence of chronic conditions, and the high occurrence of poor nutritional status. Some common infectious diseases in the elderly include pneumonia, influenza, urinary tract infections, shingles, bacteremia, and tuberculosis.
- Influenza and pneumonia together are the seventh leading cause of death in the U.S. and the sixth leading cause of death in those age 65 and older. Every year, around 70,000 Americans die from influenza, pneumonia, and hepatitis B-related illnesses, all of which have vaccines available. More people die of flu-complications than from any other vaccine-preventable disease.
- A severe flu epidemic is projected to cost the U.S. $12 billion in direct medical costs and lost productivity. Research shows that vaccinating healthy employed adults can save as much as $31 per person immunized. The flu vaccine can prevent 60% of hospitalizations and 80% of deaths from flu-related complications in the elderly.
- Shingles, also known as herpes zoster, is a disease that affects more than 500,000 people each year and that is most common in older individuals. The virus can cause hearing and vision loss, scarring, skin infections, intense pain, internal organ complications, and even death. The new shingles vaccine is recommended for adults age 60 and older. Researchers estimate that the new vaccine could prevent 250,000 cases each year, and significantly reduce the severity of another 250,000 cases annually.
- Current research includes new formulation strategies that would eliminate the need for multiple doses of a vaccine, new vector systems for antigen delivery to cells, new antigens that are more immunogenic yet have improved safety profiles, high doses of inactivated vaccines in elderly subjects, and new adjuvants for potentiating immunity and DNA vaccines. These technologies would significantly decrease disease incidence and necessary vaccinations.

Medication Errors & Misuse

- Seniors have more chronic diseases and conditions, and as a result, use more medications. The average 65-69 year-old takes nearly 14 prescriptions a year, and the average 80-84 year-old takes an average of 18 prescriptions a year. Seniors consume 40% of prescription drugs and 35% of over-the-counter drugs. This makes seniors especially vulnerable to medication errors and misuse which can lead to disabilities, impair function, cause confusion, reduce independence, and lead to death.
- Medication-related problems are responsible for 28% of hospitalizations of the elderly, and are the cause of 32,000 hip fractures each year.
- According to one report, in one year over 2 million hospitalized patients experienced a serious adverse drug reaction and 100,000 experienced a fatal reaction. If classified as a distinct disease, adverse drug reactions would rank between the fourth and sixth leading causes of death in the U.S. The economic costs are staggering, with direct medical costs as high as $177 billion annually. 36% of reported adverse drug reactions involve an elderly person.
- Over 25% of adverse drug events in ambulatory settings may be preventable. Current research is looking at the prevention of adverse drug reactions in the elderly by identifying patient and healthcare provider factors associated with the reactions, as well as the underlying clinical causes and system failures.
- More than 7,000 patient deaths each year, in hospitals and other acute care settings, are linked to errors—including in the prescribing, dispensing, and administering of medications. Additionally, 15-25% of drug use in seniors is considered to be unnecessary or inappropriate.
- Elderly patients taking multiple medications are more prone to abuse. As many as 17% of adults age 60 and older abuse prescription drugs.

Men's Health

- Men have a shorter life span than women by more than 5 years. As a result, approximately 15% of women who marry men near their own age enter retirement as widows.
- Men face higher mortality rates for most of the top 10 leading causes of death, and have collective health that is steadily declining. Men are at higher risk of death and disease than women due to multiple factors including making half as many preventive visits to the doctor, being more likely to not have healthcare coverage, having less healthy lifestyles, and having more dangerous occupations. Research into male-specific diseases is also under-funded.
- An estimated 6 million men in the U.S. suffer from a depressive disorder every year. The symptoms and coping mechanisms in men are often very different than in women, and men are 4 times more likely to commit suicide. Shockingly, over 70% of older suicide victims visit their primary care physician within a month of their death. While research has shed light on how to alleviate suffering caused by mental illness and how to gauge effectiveness of treatments and psychotherapy, more research is necessary for improved recognition and treatment of depression in later life.
- Almost twice as many men as women die of ischemic heart disease. After age 45, a man's risk of heart disease begins to rise significantly. Men usually develop heart disease 10 to 15 years earlier than women do.
- 50% more men than women die of cancer. Men have close to a 1 in 2 lifetime chance of dying from cancer. The prostate, lung, bronchus, colon, and rectum are the most common cancer sites in men.
- Aging can lead to low testosterone in men causing fatigue, increased body fat, and depression in the short-term; and potentially osteoporosis, depression, and diabetes in the long-term. Low testosterone is often treatable.

Mental Health

- 1 in 5 Americans has a mental illness, unfortunately less than 25% of older adults with a diagnosable mental illness get appropriate treatment.
- Depression is one of the most common mental health conditions, affecting around 19 million Americans each year. While depression is not a natural part of the aging process, it can be triggered or caused by age-related conditions and chronic illnesses such as stroke, Alzheimer's disease, and cancer. More than 2 million Americans age 65 and older suffer from some form of depression.
- Depressive disorders often co-occur with anxiety disorders and substance abuse. If left untreated, depression can worsen symptoms of other illnesses and can lead to disability and suicide. The suicide rate for those over age 65 is higher than the national average.
- Around 4 million older Americans suffer from dementing disorders, about 5 million suffer from serious and persistent symptoms of depression, and another 1 million suffer from major depressive disorders.
- Older patients with high levels of symptoms of depression have healthcare costs that are close to 50% higher than for non-depressed seniors.
- Depression in older adults leads to a higher risk of heart attack and cancer, and slower healing of hip fractures—leading to higher utilization of healthcare and poorer outcomes.
- Recent research supported by the National Institute on Mental Health has shown that elderly suicide is strongly associated with late onset unipolar depression, a treatable disorder. Although a majority (over 70%) of elderly suicide victims have seen their primary care physician within 1 month of their suicide, they typically are not treated or referred for treatment of their depression.
- In another NIH-supported study, suicidal thoughts among elderly patients decreased by 70%, revealing that educating physicians, social workers and nursing staff; and bringing treatment and intervention guidelines up to standard, can significantly improve an older patient's mental health.

Parkinson's Disease

- As many as 1 million Americans suffer from Parkinson's disease—a degenerative neurological disorder that causes disabling tremors, stiffness, slowness of movement, balance impairment, and cognitive impairment (including dementia); ultimately leaving sufferers incapable of caring for themselves.
- The average age of onset for Parkinson's is around 60 years old—affecting 1-2% of people over the age of 60.
- No cure exists for the disease and every year 40,000 to 50,000 new cases are diagnosed. This number does not reflect the thousands of cases that go undetected. After Alzheimer's disease, Parkinson's is the most common neurodegenerative disease.
- In addition to the enormous pain and suffering of those afflicted, Parkinson's places a tremendous strain on families and loved ones and costs our society more than $26 billion annually in direct and indirect costs.
- Although the cause of Parkinson's is unknown and there is currently no cure, there are treatment options such as medications and surgery to manage the symptoms. Deep brain stimulation is a treatment that can provide significant symptomatic relief and huge cost savings to some patients, decreasing medication costs by as much as 39% after 2 years, in one study.
- Current research supported by the National Institute of Neurological Disorders and Stroke (NINDS) at NIH is using animal models to study progression of the disease and develop new drug therapies; looking for the cause of the disease and continuing to search for environmental and genetic factors; and working to develop new protective drugs that can delay, reverse, or even prevent the disease. A large set of clinical trials are assessing interventions (including dietary supplements—creatine and coenzyme Q10) that may slow the progression of Parkinson's. Studies by the National Center for Complementary and Alternative Medicine (NCCAM) are looking at the neuroprotective qualities of B vitamins and antioxidant phytochemicals; which have been shown to forestall and possibly reverse some of the neurological changes associated with age-related neurodegenerative conditions.

Prevention

- Healthy lifestyles play a key role in prevention. The three leading causes of death in the U.S.—heart disease, cancer, and stroke—are associated with unhealthy lifestyle choices such as smoking, poor nutrition, and lack of exercise. Evidence suggests that around one-third of cancer deaths expected in 2007 will be related to poor nutrition, physical inactivity, overweight or obesity, and other lifestyle factors. Almost 90% of type 2 diabetics are overweight or obese and studies have shown that those at high risk of type 2 diabetes can prevent or delay onset by losing 5-7% of their body weight. Lifestyle also plays a huge role in cardiovascular disease risk—obese individuals are more than twice as likely to develop heart disease and more than twice as likely to have high blood pressure, as normal weight individuals.
- Obesity in the U.S. has reached epidemic proportions—65% of American adults are overweight or obese. In addition to increasing risk for serious chronic disease, obesity is associated with an estimated 112,000 deaths each year. It has a huge economic impact—costing the nation as much as $129 billion annually, and the individual 36% more in healthcare expenses than normal weight individuals.
- The development and use of vaccines also plays an important role in prevention. Vaccinations save around $14 in healthcare costs for every $1 spent. Biotechnology advances are allowing researchers to create "recombinant" vaccines, cause organisms to mass produce antigens which can induce immune responses, and sequence the genomes of disease-causing microbes. This research is leading to vaccines with great potential to eradicate diseases.
- Screening is also an important tool in prevention. Cervical cancer, once the most common cause of cancer death in American women, has decreased 75% since the implementation of the pap smear screening program. Studies have also found that screening with mammograms reduces the number of breast cancer deaths in women ages 40-69. Screening for high blood pressure, high cholesterol, and other risk factors for cardiovascular disease play an important role in reducing mortality.
- Strong federal funding for the NIH is needed to develop cost effective and sustainable interventions for the prevention of diseases such as diabetes, cardiovascular disease, and cancer. Additionally, efforts to provide clinicians with evidence-based information on preventive services will greatly increase awareness and use of services.

Stroke

- Every year an estimated 700,000 Americans suffer a stroke, killing more than 150,000—making it the No.3 killer in the U.S. Deaths from the most common type of stroke (ischemic stroke) are projected to increase by nearly 100% to 275,000 between 2002 and 2032. Nearly 90% of those who die from stroke are age 65 and older.
- Stroke is a leading cause of disability in U.S. adults. 26% of stroke survivors from the most common type of stroke, who are at least 65 years old, require institutional care within 6 months post-stroke; and 15-30% are permanently disabled. A 2005 study found that only 2.7% of 65 year-olds who have experienced a stroke are free of comorbidities and physical limitations—instead 66.4% have 3 or more.
- The direct and indirect costs of stroke in 2007 are estimated to be $63 billion. Stroke treatment costs are projected to exceed $2 trillion between 2005 and 2050.
- Studies by the National Institute of Neurological Disorders and Stroke (NINDS) have shown that administering t-PA (the only FDA-approved emergency treatment for the most common type of stroke) within 3 hours of stroke symptom onset, increases the number of patients with minimal or no disability 3 months post-stroke by 33%. Use of t-PA also reduces healthcare costs by reducing the need for rehabilitative services and long-term care. The results of the original NINDS-funded t-PA trial resulted in a 10-year estimated net reduction in health care costs of $6.47 billion. Additionally, results of the Stroke Prevention in Atrial Fibrillation I Trial resulted in a 10-year net benefit of $1.27 billion, with a savings of 35,000 quality-adjusted life years.
- Another NINDS study demonstrated that stroke patients who received constraint-induced movement therapy, a rehabilitative technique that involves forced use of a partially paralyzed arm, performed motor functions with their affected arm 34% faster than those who received standard therapy.
- Since only a fraction of stroke patients arrive at a hospital in time to benefit from t-PA, NINDS launched a public education campaign—"Know Stroke: Know the Signs, Act in Time"—in order to help people recognize a stroke and get medical help as soon as possible.
- Results of multiple clinical trials have indicated that for many individuals at risk for stroke, aspirin can be just as effective in preventing recurrent strokes as more expensive drugs, has reduced side effects, and is easier to administer.
- While t-PA and aspirin treatment have been found to be effective, they still carry risks. Further research is needed to develop even better therapies for stroke patients, better anti-platelet agents for preventing strokes, and brain protection strategies to address brain injuries following a stroke.

Veterans' Health

- As of 2005, an estimated 9 million Americans age 65 and older were military veterans. The number of veterans coming into the VA healthcare system has been rising about 5% a year as the number of vets returning from Iraq and Afghanistan with injuries and illnesses grows. The veteran population is also aging, and in response, the Department of Veterans Affairs (VA) has established a variety of programs to meet the healthcare needs of older patients. The VA also takes a leadership role in geriatrics through the Geriatric Research, Education and Clinical Centers (GRECCs), which are located at 21 VA Medical Centers.
- Veteran-centered research projects have led to numerous advances that promise to increase understanding of disease and uncover strategies for treatment and cures. For example, the VA Research Program has developed many procedures and devices that are in routine medical practice, including the cardiac pacemaker and the nuclear-powered pacemaker, radio-immune assay techniques, the smart wheelchair, the first robotic limbs, and the laser cane for the blind.
- The VA's National Center for Post-Traumatic Stress Disorder is the nation's first, and until recently, the only national or international source for information concerning trauma and Post-Traumatic Stress Disorder (PTSD). As more troops from Iraq return to civilian life, this center will continue to serve a vital role.
- The VA has outscored the private sector in patient surveys of quality care for the past six years. The VA is also seeing success in patient outcomes—one study showed that veterans age 65 and older receiving VA care had about a 40% lower risk of death than those with Medicare Advantage care provided through private health plans or HMOs.
- Future research efforts should emphasize trauma and diseases of the brain and spinal cord, with a particular emphasis on the impact of such diseases in older patients and on the aging process.

Vision Loss

- Currently more than 38 million Americans age 40 and older have significant vision impairment and eye disease—3.3 million of them are blind or experience low vision. About 35 million Americans age 40 and older, have an age-related eye disease such as age-related macular degeneration (AMD), cataract, glaucoma, and diabetic retinopathy. That number is expected to grow to 50 million by 2020.
- Vision impairment and eye disease are not only a significant cause of disability and lost independence, but also have a huge economic impact, costing the U.S. $68 billion annually in direct healthcare costs, lost productivity, and diminished quality of life.
- Almost every major breakthrough in eye disease in the past 30 years has resulted from support from the National Eye Institute (NEI) at NIH. These advances include discovery of the first generation of FDA-approved drugs (anti-angiogenic factors) that have been shown to slow the progression of AMD—and restore 3 lines of vision on an eye chart; demonstration through AREDS (Age-Related Eye Disease Study) that high levels of dietary antioxidants and zinc reduce risk of AMD by 25%; identification of proteins that help prevent lens clouding in cataract patients; discovery of gene variants associated with the incidence of AMD; and the significant reduction of diabetic retinopathy through better prevention.
- NIH-funded research has also produced significant cost savings. For example, treatments that have been found to delay or prevent diabetic retinopathy save the U.S. $1.6 billion annually; and research that led to cataract surgery saved Americans an estimated $300 billion in benefits in 2003 alone.
- The NIH is poised to make even greater discoveries and breakthroughs in diagnosis and treatment of the leading causes of vision loss. Researchers are beginning the second phase of AREDS; studying drugs that may stop the retina from sending signals to the body to grow new blood vessels—a potential treatment for diabetic retinopathy; exploring the possibility of transplanting healthy cells into a diseased retina; looking at anti-inflammatory treatments for "wet" AMD; and working to understand the normal function of the lens in order to prevent development of cataracts.

Women's Health

- The area of women's health includes all diseases and conditions that affect women solely, predominately, differently, or disproportionately. Gender differences in health can affect prevention, diagnosis, and treatments for many diseases and conditions.
- Women live longer than men. In 2004, life expectancy at birth reached an all-time high of 77.9 years—80.4 for women and 75.2 for men. Older women make up 59% of the 65 and older population and more than 70% of the 85 and older population. However, they also suffer disproportionately from many chronic diseases and conditions such as cardiovascular disease, mental disorders, osteoporosis, autoimmune diseases, stroke, and incontinence.
- Cardiovascular disease is the No.1 killer of women, killing more women than men every year since 1984. Women are more likely than men to have a second heart attack within a year of the first, and are twice as likely to be disabled by heart failure within 6 years. Many of the physiological differences that cause these disparities are still unknown.
- 80% of those who suffer from osteoporosis and 75% of those who suffer from autoimmune diseases such as hypothyroidism, hyperthyroidism, rheumatoid arthritis, and lupus are women. Women are also 2 to 3 times more likely than men to suffer from depression.

- The physiological and psychological consequences of caregiving must also be examined and recognized as a women's health issue since approximately 60% of family caregivers are women. Elderly spousal caregivers who have chronic illnesses and are experiencing stress, have a 63% higher mortality rate than their non-caregiving peers. Caregivers doing long hours of intense caregiving report much higher rates of fair or poor health (37%) than the population as a whole (9%). Caregiving stress can also impact a caregiver's immune system for up to 3 years after their caregiving ends.
- The Office of Research on Women's Health at the NIH set a number of basic, clinical, and translational research priorities for 2007 including developing preventive and therapeutic interventions for acute and chronic diseases that affect women, identifying and validating biomarkers and their application to early detection and treatment, investigating the effects of gender as a modifier of cellular and gene function, and developing non-hormonal alternatives for menopausal symptoms.
- Enrollment of women in clinical trials has reached 50%; however, few longitudinal women's health studies exist and too few do the research and analysis into sex differences. Women must be encouraged to enroll in order to further our knowledge of differences in disease development and progression.

Alliance for Aging Research

Alzheimer's Foundation of America

Alzheimer's Research and Education Consortium

American Academy of Ophthalmology

American Academy of Orthopaedic Surgeons

American Association for Cancer Research

American Association for Dental Research

American Association for Geriatric Psychiatry

American Association of Colleges of Nursing

American Association of Neurological Surgeons

American Cancer Society Cancer Action Network (ACS CAN)

American Chronic Pain Association

American College of Obstetricians and Gynecologists

American Council of the Blind

American Dental Association

American Dental Education Association

American Epilepsy Society

American Federation for Aging Research

American Geriatrics Society

The American Health Assistance Foundation

American Heart Association

American Lung Association

American Medical Directors Association

American Optometric Association

American Osteopathic Association

American Psychological Association

American Society for Bone and Mineral Research

American Society for Geriatric Dentistry

The American Society for Pharmacology and Experimental Therapeutics

American Society of Consultant Pharmacists Foundation

American Society of Hematology

American Society on Aging

American Urogynecologic Society

Arthritis Foundation

Arthritis National Research Foundation

Asian & Pacific Islander American Health Forum

Association for Gerontology in Higher Education

Association of Jewish Aging Services

Association of Population Centers

B'nai B'rith International

Buck Institute for Age Research

Catholic Health Association of the United States

Center for the Advancement of Health

Congress of Neurological Surgeons

The Endocrine Society

Epilepsy Foundation

Family Caregiver Alliance

FasterCures

Foundation Fighting Blindness

Foundation for Osteoporosis Research and Education

Friends of Cancer Research

The Gerontological Society of America

Hadassah, the Women's Zionist Organization of America

The Hormone Foundation

Institute for Advanced Studies in Aging & Geriatric Medicine

International Cancer Advocacy Network

International Eye Foundation

International Longevity Center

International Society for Clinical Densitometry

Lance Armstrong Foundation

Macular Degeneration Partnership/ Discovery Eye Foundation

Men's Health Network

Mental Health America

NCCNHR

National Alliance for Caregiving

National Alliance for Eye and Vision Research

National Association For Continence

National Association for Hispanic Elderly

National Foundation for Cancer Research

National Foundation for Infectious Diseases

National Hospice and Palliative Care Organization

National Prostate Cancer Coalition

The North American Menopause Society

Oral Health America

The Paget Foundation

Parkinson's Action Network

Parkinson's Disease Foundation

Partnership for Prevention

Population Association of America

Prevent Blindness America

Research!America

The Simon Foundation for Continence

Society for Neuroscience

Society for Women's Health Research

Special Care Dentistry Association

United Cerebral Palsy Research and Educational Foundation

US COPD Coalition

United States EPA Aging Initiative

Wisconsin Association for Biomedical Research and Education

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