

I. Executive Summary

The aging of the U.S. population is becoming an increasingly urgent issue for Congress to address. During the 110th Congress, the oldest members of the baby boom reached the age of 62 and became eligible for Social Security benefits. By 2029, the youngest baby boomers will have reached age 65 and will be eligible for Medicare. America's older population will double in the coming three decades, and even after the demographic impact of the baby boom has passed, the share of the population age 65 and over will grow due to longer life expectancies and declines in fertility. After remaining fairly constant for most of human history, average life expectancy has nearly doubled in the past century. Older Americans are able to spend these additional years working or by providing society with the benefit of their knowledge and experience through volunteerism or caregiving. As the nation's population ages, Congress will have the opportunity to help the growing number of older Americans contribute to and enrich the lives of their communities, and it will face the challenge of meeting the needs of the elderly who are poor, frail, or socially isolated.

In fields as diverse as biomedical sciences, housing, and environmental protection, federal agencies are making important contributions to the body of aging-related knowledge and science. Collecting data about older people and conducting research on their health, economic status, and social support systems substantially improves the ability of community leaders, program administrators, and the Congress to develop, implement, and monitor public policies that are effective, efficient, and equitable. Aging-related research conducted by federal agencies has led to significant breakthroughs in science and medicine and to the development of public policies that help older Americans lead healthier and more productive lives. By continuing to support aging-related research, the Congress is committing the federal government to supporting public policies that enrich the lives of all Americans by improving the quality of life of older Americans.

Recognition of Excellence in Aging Research

The U.S. Senate Special Committee on Aging (Committee) was established in 1961 to serve as a focal point in the Senate for discussion pertaining to the opportunities and challenges facing older Americans. The Committee has historically sought to recognize and promote the importance of aging research. Accordingly, this report describes federally-funded research that addresses the well-being of older adults in a wide range of areas, such as maintaining health, assuring adequate income, finding employment, engaging in productive and rewarding activity, securing proper housing, and obtaining long-term care services. The report demonstrates that the public sector is dedicated to improving the quality of life for older adults and their families and serves as a catalyst for continued progress in addressing the most pressing concerns of the nation's older population.

In May 2008, the Committee asked all federal departments and agencies to identify federally-funded research projects that address the well-being of older adults. Agencies were asked to submit to the Committee examples of research projects that contributed significantly to policymakers' knowledge and understanding of social, economic, and medical issues related to

aging. Agencies were asked to describe how each research project was deemed to be exceptional, relevant, effective, and innovative. Agencies responded by identifying a wide range of research projects, including efforts to promote interagency collaboration in aging-related research, strengthen research infrastructure, initiate or advance data collection efforts, and carry out demonstration projects that are testing new methods of resolving aging-related policy issues. All research projects submitted for inclusion in the report were conducted, administered, or sponsored by a federal department or agency within the past four years. Research submissions included both intramural and extramural research and research co-funded by multiple federal agencies and by federal agencies and nongovernmental organizations. The following is a summary of aging-related research findings submitted by federal agencies.

II. Scope of Federal Aging-Related Research

A large number of agencies conduct aging-related research

Twenty-seven agencies, ranging from the National Institutes of Health and the Department of Veterans Affairs to the Environmental Protection Agency and NASA, submitted over two hundred research projects to be included in this report¹. The research these agencies sponsor and conduct draws on the knowledge and expertise of individuals representing a broad range of disciplines and professions who are advancing our understanding of the aging process and developing improved strategies for providing services to older Americans.

While many federal departments and agencies provide services to older Americans, four agencies focus on the needs of this population to a greater extent than most: the **National Institute on Aging**, the **Administration on Aging**, the **Centers for Medicare and Medicaid Services**, and the **Social Security Administration**. While the size, budget, and mission of each of these agencies differs substantially from that of the others, each conducts, administers, or sponsors aging-related research as part of its responsibilities to the public. For example:

- The National Institute on Aging (NIA) sponsors and conducts more aging-related research than any other agency of the federal government. NIA-sponsored research has contributed significantly to advancing scientific and medical understanding of the aging process and diseases of old age, including the identification of genes associated with a high risk of late-onset Alzheimer's disease.
- The Administration on Aging (AoA) provides supportive services to older Americans, including nutrition services, preventive health services, and home and community-based long-term care services. Recently, the AoA conducted an evaluation of supportive services provided under the Older Americans Act, including their role in planning, coordinating, and providing community services for older people.
- The Centers for Medicare and Medicaid Services (CMS) administers Medicare, Medicaid, and the State Children's Health Insurance Program. CMS research highlights the need for older Americans with multiple chronic diseases to receive recommended screening and preventive care services. Researchers have found that these services not

¹ See Appendix I for a full list of agencies.

only reduce mortality by one half, they may also reduce significant Medicare expenditures.

- The Social Security Administration (SSA) administers both Social Security and the Supplemental Security Income (SSI) program. Research conducted and sponsored by SSA has contributed greatly to our knowledge of the economic security of older Americans. Research findings from one recent SSA research project, for example, demonstrate how automatic enrollment in employer-sponsored 401(k) plans can boost participation in these plans increase workers' future retirement savings.

In addition to these examples, many federal agencies that do not focus exclusively on the needs of older adults conduct research on issues of importance to older Americans and their families. Some federal agencies have undertaken research specifically targeted at issues related to aging and the needs of older persons, while others have incorporated aging-related issues into other research projects. For example:

- The **Department of Transportation** (DOT) examines the driving safety of older adults who take multiple medications by comparing the driving assessments of occupational therapists with in-vehicle video recordings of daily driving by older individuals.
- The **Environmental Protection Agency** (EPA) estimates the exposure of older persons to air pollution through tools that can be used to evaluate whether air pollution is associated with greater risk of heart attack, stroke, chronic obstructive pulmonary disease, and asthma.
- The **National Aeronautics and Space Administration's** (NASA) Human Research Program is undertaking biomedical research on human health, safety and performance during space exploration missions. Because some of the effects of space flight on astronauts have similarities to the effects of human aging, such as loss of bone mass, impaired nutrition, and reduced immunological response, NASA's research offers insights into improving medical treatment of older persons.
- The **Substance Abuse and Mental Health Services Administration** (SAMHSA) is comparing the effectiveness for older adults of an integrated primary health care approach to specialty mental health and substance abuse services.

Several federal agencies that do not typically conduct research are undertaking projects that have added to our knowledge of the process of aging and the particular needs of older citizens. For example, the **National Endowment for the Arts** is evaluating the effects of active involvement in the arts on the physical and mental health and social functioning of older adults through a *Creativity and Aging in America* study. The **Smithsonian Institution's** Department of Anthropology is measuring bone density in 17th and 18th century human skeletons to determine whether low bone mass occurred in that era. The **Appalachian Regional Commission**, a federal-state partnership that works to create self-sustaining economic development and improved quality of life for people in Appalachia, is studying potential economic development opportunities for older persons in that area of the country.

A wide range of aging issues are addressed through research

A majority of aging-related research currently being conducted by the federal government is focused on health care. The National Institutes of Health (NIH) conducts or sponsors most of the clinical research undertaken by the federal government, such as research on diseases and health conditions associated with the aging process. (Some of this research is described in following sections of this report). In addition to NIH; however, other federal agencies are involved in health care research on issues of importance for older adults. For example, the **Agency for Healthcare Research and Quality** (AHRQ) funds the *Falls Prevention in Long Term Care Program* that focuses on the prevention of injurious falls and related injuries and disabilities in nursing home and residential care settings and the **Health Resources and Services Administration** (HRSA) is examining access to home health care services among older people in rural areas. The **Department of Veterans Affairs** (VA) is working to improve end-of-life care through the *Safe Harbor Palliative Care* clinical demonstration project which strives to transfer the best practices of traditionally home-based hospice and palliative care into VA inpatient settings.

In addition to health care, federal aging-related research is also addressing social and economic concerns. For many older Americans their economic well-being depends greatly on their ability to continue working as they age. In addition to providing additional income, work at older ages can be a source of important social relationships. Older persons who continue to interact with others through work and volunteer activities tend to be healthier, both physically and mentally, than those who become socially isolated. Federal agencies are evaluating the benefits of volunteerism for older adults, the investment and management of technology to better assist older people living independently in their homes, and the availability and accessibility of transportation options for older adults and people with disabilities. Examples of these types of research projects include:

- The **Department of Labor** (DoL) uses data from the *Health and Retirement Study*, to examine the economic consequences for retirees of exiting the workforce gradually in stages. The analysis focuses on the types of “bridge” jobs that people choose, the reasons behind their choices, and their socioeconomic outcomes.
- The **Corporation for National and Community Service** (CNCS) uses data from the Census Bureau’s *Current Population Survey* to trace the volunteer habits of the “baby boom” generation to help volunteer program administrators develop strategies that will attract and retain greater numbers of volunteers.
- Researchers at the **National Science Foundation** (NSF) are developing an integrated monitoring system called “smart home” that will capture data in a noninvasive manner about elderly residents and their home environments in order to assess their changing needs and capabilities as they age.
- The **National Council on Disability** (NCD) utilizes a “livable communities” framework to enable older citizens to continue living in their homes, regardless of age or disability. The project assessed the needs of older community residents for safe and affordable housing, access to transportation, access to the political process, and access to services, programs, and activities offered by public and private entities.

III. Models of Federal Aging Research

Investments in basic science are leading to significant breakthroughs on diseases that affect older Americans

With more than half of its funding allocated to basic research, the **National Institutes of Health** (NIH) conducts and sponsors more research on aging-related diseases and disorders than any other federal agency.² While it is the mission of the National Institutes of Aging to provide leadership in aging-related research, the NIH Office of the Director and the other 26 NIH Institutes and Centers also invest heavily in research that contributes to greater understanding of the physical, mental, and sociological aspects of the aging process. For example, through NIH-sponsored research:

- Investigators have demonstrated that restricting caloric intake may improve the body's metabolic efficiency, an effect that could contribute to the slowing of adverse changes that often accompany aging.
- Researchers have studied the ability of cells to repair damage to DNA caused by exposure to environmental toxins, which are a major cause of diseases associated with aging, such as cancer.
- A digital brain atlas of Alzheimer's disease was developed that correlates observations from many images to a single brain model. The research has led to novel methods to characterize and track Alzheimer's disease that are used at imaging centers worldwide.
- Investigators found that a daily, high-dose combination of antioxidant vitamins C, E, and beta-carotene and the trace element zinc reduced the risk of developing advanced age-related macular degeneration by 25 percent over a five-year period.

Other federal agencies also conduct scientific research that contributes to improving the lives of older persons. The **Department of Agriculture**, for example, has studied the effects of improved nutrition on reducing the risk of heart disease, bone fractures, eye disease, and dementia in old age. The **Food and Drug Administration's** (FDA) has used a combination of experimental approaches to understand the growth and repair of tissues in the joints, which are particularly susceptible to injury among older persons. In addition, the **Department of Commerce** is collaborating with other government scientists at the **National Institute of Standards and Technology**, the **FDA**, and the **National Cancer Institute** to develop standards for benchmarking medical imaging algorithms used in the detection and measurement of disease.

Data collection efforts provide valuable information about older Americans

² In fiscal year 2007, aging research accounted for almost nine percent of all spending on health research by agencies in the Department of Health and Human Services, including NIH. Data derived from HHS Budget Office cross-cutting table on aging-related programs, March 2008, and table on "Federal Obligations for Health Research and Development by Federal Agency, FY 1997-2007," "NIH Office of Extramural Research, available at: http://report.nih.gov/award/Research/Fed_Obligations_By_Allocation_Agency_2007.xls

Many federal agencies conduct surveys and maintain data registries that are used to inform policymakers and planners about aging-related trends, including population projections, labor force participation, and the incidence and prevalence of specific health conditions among older people. Several federal agencies collect data through surveys of households, employers, hospitals, and nursing homes. Surveys of nationally representative samples of the population, conducted on a regular basis, are essential to enable researchers to monitor trends in the health, functional capacity, family status, and income of older Americans. National surveys of households and institutions conducted and sponsored by federal agencies are often the only surveys large enough to allow analysts to study the most vulnerable populations, such as racial and ethnic minority populations, residents of institutions, low-income households, and people aged 85 and older. Examples of important federal data collection efforts include:

- The **Social Security Administration** and the **National Institute on Aging** collaboratively conduct the *Health and Retirement Study*, which is the most comprehensive source of longitudinal data for research on health, income, wealth and well-being for older Americans.
- The **Census Bureau's** *Current Population Survey (CPS)* and *Survey of Income and Program Participation (SIPP)* collect data on employment, income, health insurance coverage, household wealth, and other economic and demographic characteristics of individuals, allowing researchers to measure these variables in the elderly population relative to the non-elderly population.
- The **National Science Foundation's** (NSF) *Panel Study of Income Dynamics (PSID)* has collected data on a representative group of American families since 1968, allowing researchers to study the economic and social well-being of older Americans over time.
- The **Agency for Healthcare Research and Quality (AHRQ)** developed the *Consumer Assessment of Health Providers and Services Hospital Survey* to allow consumers to compare the experiences of adult inpatients' hospital care and services.
- The **Office of the Assistant Secretary for Planning and Evaluation (ASPE)** of the Department of Health and Human Services is conducting the first *National Survey of Residential Care Facilities* which will provide nationally representative data on residential care facilities and their residents.

Research provides an important link to policy

Data collected through surveys conducted or sponsored by federal agencies helps to inform Congress during the process of developing legislation, and guides executive branch agencies in implementing programs and policies. Federally-sponsored research also plays a crucial role in evaluating the effectiveness of federal programs and policies in achieving their stated goals. Objective analysis, guided by scientific methods and principles, is essential to ensuring that the public's needs are measured accurately, that the policies adopted by Congress to address those needs are executed effectively, and that the funds appropriated to implement these policies are expended efficiently.

Examples of how research conducted by federal agencies can inform public policy include:

- The **Assistant Secretary for Planning and Evaluation** (ASPE) of the Department of Health and Human Services is studying the potential for reverse mortgages to play a greater role in financing long-term care. In addition, ASPE is studying factors that influence the purchase of private long-term care insurance, including the effect of tax incentives.
- The **Congressional Budget Office** (CBO) examined the potential effectiveness of identifying high-cost Medicare beneficiaries and focusing on early intervention strategies for these individuals as a way to reduce the program's costs.
- The **Congressional Research Service** (CRS) analyzed the effect of possible benefit reductions under Social Security reform proposals on poverty among the elderly and assessed the effectiveness of options to mitigate these effects.
- The **Social Security Administration** (SSA) estimated how much longer a typical worker aged 65 in 2030 would have to work for the same financial resources under a scenario of high taxes and high health costs compared to one of lower taxes and health costs.

IV. New Directions

Building new infrastructure for aging research in federal agencies

In response to the growth of our nation's aging population, some federal agencies have recognized a need to change or restructure the programs that they lead to address the special circumstances facing an aging society. The examples listed below are indicative of how agencies have adapted their research agendas to address the needs of an aging population:

- The **Department of Transportation** is developing a system that will correlate driver performance to age-related functional deficits and use of medications, providing new insights into risk factors for older drivers. DOT will also conduct evaluations of changes to behavior that reduce the risk of accidents among older drivers.
- The **Environmental Protection Agency** developed the *Aging Initiative* to give the agency and the public the ability to anticipate, accommodate, and manage the environmental risks associated with an aging society. The program is generating data, models, and guidance to incorporate the older population into health promotion and intervention strategies and to reduce risks from environmental exposures.
- The **National Institute on Aging's** Edward R. Roybal Centers for Translational Research in the Social and Behavioral Sciences are designed to improve the health, quality of life, and productivity of middle-aged and older people by facilitating the translation of knowledge learned in the social and behavioral sciences into practical outcomes to benefit the health and well being of older Americans.

Interagency collaboration is strengthening research potential

Federal agencies work together and with state and local governments, community-based organizations, and private-sector businesses to integrate their research projects with each other.

Federal agencies and other organizations collaborate on research projects and share the knowledge and expertise of their staffs and affiliated researchers. Collaboration allows agencies to share resources and prevent duplication of effort across agencies. Although agencies have diverse responsibilities and goals, working collaboratively allows them to use scarce resources efficiently and contributes to high-quality research. The examples of interagency collaboration listed below show some of the ways federal agencies are working together to improve the lives of older Americans.

- The **Agency for Healthcare Research and Quality (AHRQ)** sponsors the *Healthcare Cost and Utilization Project*, a unique federal-state-industry partnership that brings together the data collection efforts of state data organizations, hospital associations, private data organizations, and the federal government to create a national information resource of patient-level health care data.
- The **Administration on Aging (AoA)**, in collaboration with AHRQ, CDC, CMS, NIA and several national foundations, is promoting behavioral interventions that have been proven to reduce the risk of disease, disability and injury among the elderly.
- As part of a larger consortium, the **Center for Disease Control's (CDC) National Center for Health Statistics** operates the *Federal Interagency Forum on Aging-Related Statistics (Forum)* which brings together federal agencies that share a common interest in improving aging-related data. The Forum provides agencies with a venue to discuss data issues that cut across agency boundaries.
- The **Centers for Medicare and Medicaid Services (CMS)** collaborates with the National Cancer Institute to sponsor the Surveillance, Epidemiology, and End Results database to provide detailed information about older cancer patients.
- The **National Institutes of Health's (NIH) Interdisciplinary Research Consortium in Geroscience** fosters collaboration among biologists, biochemists, geneticists, physicians, physiologists, statisticians, and chemists that will help scientists to better understand age-related diseases and disorders. Examples include studies of the effects of diet on aging and why the aging brain recovers less easily from traumatic brain injury.

Future federal aging research

Never has it been more important to have knowledge about the aging process, including the characteristics and needs of the current and future older populations. In the decades to come, Congress and the executive branch will be responsible for developing policies to improve the nation's methods of financing and delivering health care and long-term care systems. This may include not just reforms to the Medicare and Medicaid programs, but possibly a comprehensive redesign and reform of the private health insurance market and the means by which long-term care services are provided and how they are funded. Additionally, as the first baby boomers reach retirement age and begin to rely on Social Security and pension benefits, policymakers must ensure that the systems created to support the economic well-being of older adults are secure. Now is the time for Congress to direct federal agencies to review their agendas for research on aging-related policy issues and to set priorities for their research that will most effectively aid the Congress as it develops legislation to address the needs of older Americans today and in the future.

V. Appendix I: Agency Submissions

Administration on Aging

Agency for Healthcare Research and Quality

Appalachian Regional Commission

Assistant Secretary for Planning and Evaluation

Census Bureau

Centers for Disease Control and Prevention

Centers for Medicare and Medicaid Services

Corporation for National and Community Service

Department of Agriculture

Department of Commerce

Department of Labor

Department of Transportation

Department of Veterans Affairs

Environmental Protection Agency

Food and Drug Administration

Health Resources and Services Administration

Library of Congress/Congressional Research Service

National Aeronautics and Space Administration

National Council on Disability

National Endowment for the Arts

National Institute of Justice

National Institutes of Health/National Institute on Aging

National Science Foundation

Smithsonian Institution

Social Security Administration

Substance Abuse and Mental Health Services Administration

VI. Appendix II: List of Agencies Contacted for Submissions

Department of Agriculture

Department of Commerce

- Census Bureau

Department of Defense

Department of Education

Department of Energy

Department of Health and Human Services

- Administration on Aging
- Administration for Children and Families
- Agency for Healthcare Research and Quality
- Agency for Toxic Substances and Disease Registry
- Centers for Disease Control and Prevention
 - National Center for Environmental Health/Agency for Toxic Substances and Disease Registry
 - National Center for Health Statistics
- Centers for Medicare and Medicaid Services
- Food and Drug Administration
- Health Resources and Services Administration
- Indian Health Service
- National Institutes of Health
 - National Institute on Aging
- Office of the Assistant Secretary for Planning and Evaluation
- Substance Abuse and Mental Health Services Administration

Department of Homeland Security

Department of Housing and Urban Development

Department of the Interior

Department of Justice

Department of Labor

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- Bureau of Labor Statistics
- Employee Benefits Security Administration

Department of State

Department of Transportation

Department of Treasury

Department of Veterans Affairs

INDEPENDENT AGENCIES

Agency for International Development

Appalachian Regional Commission

U.S. Arctic Research Commission

Commission on Civil Rights

Congressional Budget Office

Consumer Product Safety Commission

Corporation for National Service

Environmental Protection Agency

Equal Employment Opportunity Commission

Federal Communications Commission

Federal Reserve System

Federal Trade Commission

General Accounting Office

Interagency Council on Homelessness

Legal Services Corporation

Library of Congress

National Aeronautics and Space Administration

National Archives and Records Administration

National Council on Disability

National Endowments for the Arts

National Endowment for the Humanities

National Science Foundation

Pension Benefits Guaranty Corporation

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Postal Service

Railroad Retirement Board

Small Business Administration

Smithsonian Institution

Social Security Administration