Future of Aging Services Conference
American Association of Homes and Services for the Aging
& Center for Aging Services Technologies
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Thank you for inviting me to speak this morning on a topic in which my interest mounts with each passing year – growing older gracefully. I was born in 1941, on the leading edge of the Baby Boomers. My life expectancy is longer than my parents, and theirs was longer than my grandparents. Thirty-six million Americans are over 65 today, and at the quarter century mark that number will be 63 million. The fastest growing age group is the one on top – over 85. An entirely new population is emerging within our society, challenging us not only to provide for its special needs but also to capture its special capabilities for enriching our culture and strengthening our nation.

Societal expectations of physical capability

This important new sector is emerging simultaneously with two other major historical developments that will help us meet its challenges. The first is a pervasive elevation of awareness of the needs and capabilities of disabled individuals throughout society. Accommodations required under the titles of the *Americans with Disabilities Act of 1990* have had an enormous influence on architectural and design standards for a wide array of buildings, workplaces, products, and services. Only a fraction of the aging population is disabled, but the new designs and practices make daily life easier for everyone, including the aged.

President Bush's "*New Freedom Initiative,*" announced in February 2001, pledges full enforcement of the ADA, identifies new areas of need, and establishes important new programs that will accelerate the transformation of the systems of everyday life to accommodate persons with disabilities. Particularly relevant to this conference is the initiative on "*Increasing Access to Assistive and Universally Designed Technologies*" which gives high priority to the Rehabilitative Engineering Research Centers, of which I will say more later. The cumulative effect of these and other federal programs, reinforced by a growing number of advocacy and assistance groups for the disabled, is a "mega-trend" amounting almost to a revolution in society's expectations of the physical capacity of its members. It is getting easier for people with a wider spectrum of physical abilities to live their lives. As this audience is aware, however, much more needs to be done to realize the President's vision of "tearing down the barriers to equality that face Americans with disability today."

The information revolution

The second significant development is the even more profound revolution in what is somewhat inadequately called *information technology*. The impact of miniaturization of electronic components in the 1960's and '70's, followed by powerful inexpensive computers in

the 1980's and '90's has been far deeper, broader, and faster than anyone could have predicted three decades ago. High bandwidth wireless communications, cell phones, global positioning devices, and incredible small scale computing power are not just stand-alone applications, but part of an interacting system of devices and processes that have transformed our environment for living and working. And of course there is the Internet, which is easy to define as a set of wires and computers, but whose functions in society have become so diverse as to defy description.

Research and development in information technology is one of a handful of interagency programs in this Administration singled out for priority in the budget guidance issued annually by my office and the Office of Management and Budget. More than $2 billion is requested in the President's 2005 Budget Proposal to Congress for programs in the *National Information Technology R&D* initiative (NITRD). This initiative is coordinated by an interagency office under the auspices of my Office of Science and Technology Policy. Its research products are the science and technology source for the rich flow of innovations that are altering the way we do business and conduct our daily lives.

We are very fortunate that the rapidly growing aging population is accompanied by growing societal awareness of its needs, and growing technical capacity to address them. Just because capabilities exist, however, is no guarantee they will be used. Federal, state, and local governments, universities, and private businesses all have roles to play in identifying problems, devising solutions, and getting them implemented. In my view the most difficult of these roles will be implementation. That is why conferences like this are so important, and why the businesses many of you represent are essential links in a chain that extends from laboratories to homes and workplaces.

Aging Issues

The Department of Education's National Institute on Disability and Rehabilitation Research says that "in 1994-95 more than half of those 65 and older (52.5%) reported having at least one disability and it is estimated that one third of this population has a severe disability. Over 4.4 million (14%) have difficulty in carrying out activities of daily living (ADLs), which includes bathing, dressing, eating, and getting around the house, and 6.5 million (21%) reported difficulty in carrying out instrumental activities of daily living (IADLs) such as preparing meals, shopping, managing money, using the telephone, doing housework, and taking medication. However, despite the increased risks of disability associated with aging, ninety-five percent of older Americans choose to remain in their own homes, use public services and function independently as they age."

"The NIDRR's Long-Range Plan suggests that aging of the disabled population in conjunction with quality of life issues dictates a particular focus on prevention and alleviation of secondary disabilities and coexisting conditions and on health maintenance over the lifespan. Research in this area must focus on the development and evaluation of environmental options in the built environment and the communications environment, including such approaches as universal design, modular design, and assistive technology that enable individuals with disabilities and society to select the most appropriate means to accommodate or alleviate limitations."

Technological advances

Technological advances are being made that can offer real improvements in the quality of life and care for seniors. Already available are products that incorporate advanced information technology for managing medical records, miniaturized electronics, inexpensive sensor/info processor/communication technology, and enhanced connectivity via telecommunication and the internet. Emerging technologies, such as nanotechnology, promise advances that will assist us all as we grow older—targeted medicines that reduce or eliminate side effects, new materials for strong but lightweight mobility devices, or distributed autonomous sensors that assist the elderly with a variety of daily activities.

There are gaps, however, in this research. NIDRR documents state that "this is particularly true for older adults with disabilities. To create enabling home environments, research is needed on assistive and universally designed technologies and environmental interventions that are safe, affordable, support independence and social participation, and involve the integration of information technology and ergonomic principles. As part of achieving this goal, there is a need to develop appropriate devices that unobtrusively monitor key needs (i.e., taking medications, eating, and drinking), as well as critical events (i.e., falls, or stove left on). There is also a need for research to determine the most effective ways to inform professionals, families, and consumers about new and emerging assistive and universally designed technologies, the best ways to use them, and ways to pay for them."

"Another important area relates to the needs of older persons with cognitive impairments. This population presents the greatest challenge to creating enabling environments. ... [I]ndividuals with cognitive impairment use the fewest numbers of assistive devices but could benefit from the development of "smart" environments -- devices that anticipate needs, suggest (or actually provide) alternatives, and limit the amount of sensory input and decision making required." (These quotes are from material that may be found on the NIDRR website.)

Federal Actions

I mentioned the investments being made by this Administration in Information Technology and related technologies that provide the generic science and technology infrastructure upon which specific aging-related issues may be addressed.   The nation's R&D investment in assistive technology is not collected systematically across agencies, but federal spending in this area has been increasing, particularly at NIH, NSF, Dept. of Veterans Affairs and through the National Institute on Disability and Rehabilitation Research (NIDRR) in the Dept. of Education.

In addition to research aimed specifically at disability and rehabilitation, there is federally funded research scattered throughout the federal R&D portfolio (totaling $132 billion in the FY 2005 request) that may have assistive technology applications. For example, robotic research by NASA, lightweight battery research in the DOD, nanotechnology research at NSF on materials that are many times stronger, yet much lighter, than steel.

The challenge is to link research results and relevant technologies to specific products and to raise awareness of providers and consumers of their availability. The President's *New Freedom Initiative* includes proposals for increasing research on and access to assistive and

universally designed technologies. As a result of the Initiative, funding in FY 2002 for rehabilitation or disability research was increased for:

1. *Rehabilitation Engineering Research Centers* (RERCs) in the Dept of Education National Institute on Disability and Rehabilitation Research (NIDRR) by nearly 50% to over $20 million. Funding for RERCs in FY 2004 is $18 million; 3 new centers will be established this Fiscal Year.
2. *Assistive Technology Development Fund* to assist small businesses in the development and transfer of new technologies. (This was transferred to the NIDRR SBIR program.)
3. NIDRR *Interagency Committee on Disability Research* to coordinate Federal disability research programs.

Allow me to describe these three initiatives in more detail:

Rehabilitation Engineering Research Centers (RERCs) conduct research to apply "advanced technology, scientific achievement, and psychological and social knowledge" to solve rehabilitation problems and remove environmental barriers. Although RERCs are focused on disability and rehabilitation research broadly, not just on the needs of the elderly, many of the centers are working to solve problems that relate directly to those who are losing various "abilities" due to aging.

Each center:
- o Is affiliated with one or more institutions of higher education or nonprofit organizations;
- o Is affiliated with a rehabilitation setting, which provides an environment for cooperative research and transfer of technology into practice.
- o Focuses on a specific area. Examples of currently funded RERCs:
    - − Technology for Successful Aging (University of Florida)
    - − Universal Design and the Built Environment (NC State Univ.)
    - − Wheeled Mobility (Georgia Tech)
    - − Information Technology Access (U. Wisconsin- Madison)

Up to 3 new centers will be funded in FY 2004. The priority focus areas for new centers (which are out for public comment until March 29th) are:
- − Cognitive Technologies
- − Telecommunications Access
- − Telerehabilitation
- − Universal Design in the Built Environment
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The last three topics coincide with the focus of existing centers that will be expiring. Those centers will have to re-compete.

Small Business Assistance A "Report on Technology Assessment of the U.S. Assistive Technology Industry" was released about a year ago by the Office of Strategic Industries and Economic Security in the Department of Commerce Bureau of Industry Security, in conjunction with the NIDRR and the Federal Laboratory Consortium. (I mention all the collaborators to give you an idea of the extensive partnerships working these issues within the Administration). The report focuses on such issues as the size of markets, challenges in getting investors, barriers due

to reimbursement policies of insurers, etc. The report includes the results of a survey of 359 assistive technology businesses and found that although most were small businesses (60% have 10 employees or fewer), utilization of the SBIR program was strikingly low. In general there was very little contact with any federal program or laboratory. The report recommended encouraging partnering with federal laboratories to promote technology transfer from the labs to AT applications and to permit small businesses to benefit from facilities resident at the labs.

The Interagency Committee on Disability Research (ICDR), authorized by the Rehabilitation Act of 1973 as amended, promotes coordination and cooperation among federal agencies conducting disability and rehabilitation research programs. Representatives from over 30 agencies regularly participate in the ICDR. The current chair is Steven Tingus, who is also the Director of the NIDRR.

Among the Committee's goals is the coordination of government-wide activities in support of the New Freedom Initiative, in particular to "prioritize the immediate assistive and universally designed technology needs in the disability community, as well as foster collaborative projects between the federal laboratories and the private sector." The Committee is essentially an intra-governmental counterpart of CAST, one of the sponsoring organizations for this conference.

The ICDR has several subcommittees of interest.
- Interagency Subcommittee on Technology, which held a workshop on electro-magnetic interference issues affecting medical devices, powered mobility devices, and communication equipment.
- Interagency Subcommittee on Technology Transfer
- Interagency Subcommittee on the New Freedom Initiative

In the Committee's most recent annual report (on 2001-2002 activities), recommendations for future directions include more interaction with parties outside the government.
- Getting input from individuals with disabilities
- Seeking better disability statistics
- Developing an improved web portal to information on federally funded disability and rehabilitation research.
- Disseminate research results more broadly through "research summits", web-based material, and other activities.

You can see from all these investments and activities that the challenges of providing for the rapidly emerging aging population are receiving much attention from this Administration. I am grateful to the American Association of Homes and Services for the Aging (AAHSA) and the Center for Aging Services Technologies (CAST) for sponsoring this conference, and to you all for bringing the many assets together that are needed to provide supportive, affordable environments for all of us. Thank you.