

Promising Practices and Emerging Innovations

Growing Assistive Technology Awareness through State Programs, Partnerships, and Innovation

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Table of Contents

ABOUT THIS REPORT..... iv

INTRODUCTION 1

 What Is Assistive Technology, and How Does It Make a Difference?..... 1

 How Do Administration for Community Living and AT Programs Help? 2

AGING AND DISABILITY RESOURCE CENTERS/NO WRONG DOOR SYSTEMS: OPPORTUNITIES FOR COLLABORATION 3

 Georgia..... 4

 Kansas 5

 Maine 5

 Maryland 5

 Massachusetts 6

 Oregon..... 7

 Virginia..... 7

 Washington 8

COLLABORATION WITH MEDICAID 9

 Alaska..... 9

 Kansas 9

 Missouri 10

 Oklahoma..... 10

 South Dakota 10

OPPORTUNITIES EXPANDING ASSISTIVE TECHNOLOGY: THE INTERNET, SMART HOMES, AND HOME MODIFICATION 12

 Guam 12

 North Dakota..... 12

Senior Safety Program..... 13

ND Telecommunications Equipment Distribution Program..... 13

iCan Connect..... 15

 Oklahoma..... 15

 Assistive Technology Collaborations Percolating: Activity in Another State..... 15

EDUCATION, TRAINING, AND WORKFORCE DEVELOPMENT 16

 Colorado..... 16

 Missouri..... 16

 North Carolina 17

 Wyoming..... 17

GETTING INFORMED GOING FORWARD..... 18

About This Report

This report describes assistive technology (AT) program partnerships and innovations in states. We are pleased to include this body of work in the LTSS State Scorecard “Promising Practices” and “Emerging Innovations” series. The definition of *long-term services and supports* (LTSS) first offered by the National Advisory Committee in 2011 included AT. Although AT has not been included as an indicator in the LTSS State Scorecard series, people with LTSS needs often benefit from access to such technology. State AT program data are available at <https://catada.info/federal-reporting-forms/>.

This report was produced in collaboration with the Administration on Community Living and State Assistive Technology Act programs. The information was made available to the AARP Public Policy Institute to inform readers about state AT program partnerships and innovations at the state and local levels, to increase access to and acquisition of AT, and to expand capacity to respond to the increasing demand for AT devices and services.

Introduction

Assistive technology (AT) programs conduct activities in their states to serve individuals with disabilities across the life span, helping users lead more independent lives. Yet there is widespread underutilization of AT among consumers, family caregivers, and professionals. Generally, people are unaware of how and where to find information about available AT, how to use the technology, where to find training and support, where to purchase the technology, and what funding resources are available to pay for the technology. Building partnerships among organizations serving people with disabilities and/or older adults is one way to expand access to AT. After providing an overview of AT and the important role it can play, this report examines different areas of collaboration happening around the country at the state level to increase awareness and adoption of this important form of technology.

WHAT IS ASSISTIVE TECHNOLOGY, AND HOW DOES IT MAKE A DIFFERENCE?

AT includes any item, device, piece of equipment, or system—whether acquired commercially, modified, or customized—that is commonly used to increase, maintain, or improve functional capabilities of older adults and individuals of all ages with disabilities.¹ AT includes a wide range of technologies, from smart home and vehicle automation to devices that enable communication with health care providers.

AT can help reduce social isolation, which is prevalent among older adults and people with disabilities. A recent study by Julianne Holt-Lunstad found that cumulative evidence over decades of research demonstrates that the magnitude of mortality risk related to social isolation and loneliness is comparable with or exceeds the risk associated with other known public health problems (e.g., obesity, air pollution).² One in three adults over age 50 lacks companionship, and one in four feels isolated from other people some of the time. Compared with obesity, social isolation is associated with a 29 percent higher risk in mortality.³ The COVID-19 pandemic and associated guidelines to stay at home have further isolated many individuals, leaving them without their normal community-based supports and daily routines. Although telehealth and online programs allow for virtual connections, many lower-income individuals do not have the technology or data services required to engage remotely with their health care professionals, connect with friends and families, or participate in programs that enable social connectedness.

Several different technology solutions also allow for virtual connection to health care providers, home- and community-based service providers, peers, and others who can support and engage isolated individuals at home. State AT programs facilitate the selection of appropriate technologies to meet individual needs and preferences and provide necessary training on the technology.

1 This is a condensed version of the definition in the AT Act: Assistive Technology Act of 1998, Pub. L. No. 108-364 as amended at 29 U.S.C. § 3002 (2004).

2 Julianne Holt-Lunstad, “A Pandemic of Social Isolation?,” *World Psychiatry: Official Journal of the World Psychiatric Association* 20, no. 1 (2021): 55–56, <https://doi.org/10.1002/wps.20839>.

3 National Academies of Sciences, Engineering, and Medicine, *Social Isolation and Loneliness in Older Adults: Opportunities for the Health Care System* (Washington, DC: The National Academies Press, 2020), <https://doi.org/10.17226/25663>.

HOW DO ADMINISTRATION FOR COMMUNITY LIVING AND AT PROGRAMS HELP?

The US Department of Health and Human Services, Administration for Community Living (ACL) administers the State Assistive Technology Act program and awards a Section 4 formula grant to each of the 56 state AT programs, in all states and the District of Columbia, Puerto Rico, the US Virgin Islands, Guam, American Samoa, and the Commonwealth of the Northern Mariana Islands. The term *AT program* is used to describe all 56 Section 4 grantees.⁴ Section 4 – State Grants for Assistive Technology, of the Assistive Technology Act of 1998, to support programs that increase knowledge about, access to, and acquisition of AT devices and services for individuals with disabilities and older adults. State AT programs conduct a set of required activities for technology-related assistance and offer a continuum of services that reach a wide variety of individuals with functional needs and provide access to a broad range of assistive technology solutions. Each program serves individuals with disabilities of all ages through device demonstrations, device loans, device reutilization, training, technical assistance, public awareness, information and referral, and help with obtaining funding for AT. State AT programs also include telehealth technologies, technology used to address social isolation, durable medical equipment, and home modifications.

State and territory AT programs conduct activities that provide access to and resources for low- to

high-tech AT, such as telephone amplifiers, Wi-Fi boosters, telehealth technologies, smart home solutions, apps, durable medical equipment (DME), and many more devices for accessibility. Many states have financial loan programs specifically for AT devices and services, including home and vehicle modifications. Programs conduct virtual device demonstrations and provide device demonstration centers that include access to a wide variety of AT devices, apps, and equipment for environmental adaptations to make homes more accessible.

ACL and the Assistive Technology Act Technical Assistance and Training (AT3) Center conducted interviews with all state and territory Assistive Technology Act programs—including State Units on Aging, Area Agencies on Aging (AAAs), Centers for Independent Living, Aging and Disability Resource Centers, and state Departments of Veterans Affairs—to learn more about emerging AT innovations and the activities that AT programs conduct in coordination with the No Wrong Door system. AT programs focus on improving the provision of AT through comprehensive, statewide programs that are consumer responsive, coordinating activities and collaborating with several partners across the state to enable access to and acquisition of AT devices and services. Through this process of conducting interviews with directors and key staff from all state AT programs, ACL selected activities conducted in several of the programs to highlight emerging AT innovations and collaborations across the nation.

⁴ Assistive Technology Act of 1998, Pub. L. No. 108-364 as amended at 29 U.S.C. § 3002 (2004).

Aging and Disability Resource Centers/No Wrong Door Systems: Opportunities for Collaboration

Building partnerships through collaboration between AT and long-term services and supports (LTSS) agencies is one way to expand awareness and facilitate access to AT devices and services. Aging and Disability Resource Centers (ADRCs)⁵/No Wrong Door (NWD) Systems offer a coordinated pathway to LTSS programs through outreach, person-centered planning, and streamlined eligibility determination for publicly funded programs. ADRCs provide information about LTSS and raise visibility into the full range of available options; provide objective information, advice, counseling, and assistance; empower people to make informed decisions about their LTSS; and help people access public and private programs. ADRCs give unbiased, reliable information and counseling to people at all levels of income.

The ADRC/NWD System initiative is a collaborative effort of ACL, the Centers for Medicare & Medicaid Services, and the Veterans Health Administration (VHA). The NWD System initiative builds on ADRC programs that support state efforts to streamline access to LTSS for older adults and individuals with disabilities. NWD systems simplify access to LTSS and are a key component of LTSS system reform. The ACL website describes the context and functions of NWD Systems:

Finding the right services can challenge and frustrate individuals and their family members who are searching for help. The current LTSS system involves multiple funding sources and is administered by multiple federal, state, and local agencies. These agencies often use complex, fragmented, and often duplicative intake, assessment, and eligibility processes. There are growing options for services

and supports in home, residential, and institutional settings. Individuals trying to access new LTSS frequently find themselves confronted with a maze of agencies, organizations, and bureaucratic requirements at a time when they may be vulnerable or in crisis. These issues frequently lead to the use of the most expensive forms of care, including institutional care such as nursing homes or extended hospitalization, and can cause people to quickly exhaust their resources.

NWD systems provide information and assistance not only to individuals needing public or private resources, but also to professionals seeking assistance on behalf of their clients and to people planning for their future long-term care needs. NWD systems also serve as the entry point to publicly administered LTSS, including those funded under Medicaid, the Older Americans Act, VHA, and state revenue programs. State NWD systems have become even more essential as our nation responds to the COVID-19 pandemic.

The state NWD system agencies identify people who are at risk for food insecurity, social isolation, and loneliness, and connect them to nutrition, social engagement, and social connection programs and technologies.⁶

Eight state AT programs—Georgia, Kansas, Maine, Maryland, Massachusetts, Oregon, Virginia, and Washington—described collaboration with ADRC/NWD agencies as an emerging innovation. Kansas also has a smart home program that is described below.

5 Administration for Community Living, *Aging and Disability Resource Centers* (Washington, DC: Administration for Community Living, December 13, 2017), <https://acl.gov/programs/aging-and-disability-networks/aging-and-disability-resource-centers>.

6 Administration for Community Living, *Aging and Disability Resource Centers Program/No Wrong Door System* (Washington, DC: Administration for Community Living, March 5, 2021), <https://acl.gov/programs/connecting-people-services/aging-and-disability-resource-centers-program-no-wrong-door>.

GEORGIA

Tools for Life (TFL), Georgia's Assistive Technology Act Program, provides access to, training for, and acquisition of AT devices, as well as services to individuals of all ages and all disabilities living in the state. TFL is a statewide program focused on all areas of life, including living, learning, working, and playing. TFL core activities include AT demonstration, assessments, and access to AT lending libraries; AT and DME reuse; education funding; and training for individuals and groups.

Georgia's state NWD system, which includes 12 AAAs and Centers for Independent Living, use AT toolkits as part of the state's continuum of AT services. The toolkits lead to increased access, in-depth AT trainings, demonstrations, loans, and evaluations; they also help the NWD system to connect with individuals who are trying to transition out of nursing homes back into the community.

Georgia is working to create a TFL ACCESS (Addressing Challenges & Concerns with Everyday Strategies & Solutions) tool, an online solution that uses predictive analytics, machine learning, and algorithms to determine AT solutions that will help individuals accomplish their goals for living, learning, working, and playing in the communities of their choice.

Examples of AT that is available include a spoon that assists in controlling a tremor, a talking microwave, and outlets that can be controlled from a smartphone or tablet. At monthly access classes, participants can bring their smart devices, and an AT consultant will help them set up applications so they can become more familiar with technology. People who are having difficulty accomplishing a task due to a disability can arrange for a private consultation.

The Georgia Coastal Regional Commission Area Agency on Aging and LIFE Center for Independent Living joined together to house and staff a technology lab in cooperation with the Georgia Institute of Technology. The lab which is set up like a studio apartment and is open to the public, gives visitors the opportunity to touch and use items designed to make everyday life more manageable or leisure time more fun. Examples of AT on display include devices to assist people with mobility issues, dementia, vision loss, communication problems, hearing loss. The AAA and LIFE Center co-locate staff to create a "one-stop" approach to serving their clients.

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AT Helping Consumers and Families:

Georgia's AT Program Helps to Support Independence

In Georgia, AT allowed a resident to live in her home of choice and helped reduce her social isolation. Lisa, an outgoing, active woman in her mid-50s who works two jobs, had her life changed instantly after a car accident. Following complex medical and physical challenges with months of therapies, she was transferred to a nursing home hundreds of miles away from her family, friends, and support system. Assistive technologies, including a ceiling lift system, voice-activated devices, environmental and sensory controlled technologies, and a variety of AT for safety and health care management, provided Lisa the ability to move back to her home and maintain her social connections. For information that shows Lisa using and describing her AT and how it enabled her to move back home, please watch the following YouTube video <https://www.youtube.com/watch?v=6MX3AnKmN-4>.

KANSAS

Assistive Technology for Kansans collaborates with ADRCs to inform seniors and people with disabilities about AT resources and services available to all Kansans. ATK staff participate in health and resource events conducted across the state by ADRC offices. They set up interactive displays on topics such as medication management, assistive listening, and accessible health-monitoring devices, which have proved to be effective in drawing seniors and people with disabilities to these events. Health care representatives and ADRC staff often attend regional workshops conducted by ATK staff on AT topics. In addition to outreach and training activities, ATK works directly with more than 2,000 older Americans each year.

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MAINE

The Maine CITE Program, designed to help make assistive technology more available to Maine children, adults and seniors who need them, has worked collaboratively with the Aging Network to disseminate information about the impact of AT on adults with disabilities, seniors, families, and caregivers in Maine. The Maine CITE Program is Administered by the Maine Department of Education and funded by the federal Administration for Community Living. Maine CITE seeks to collaborate with the state Department of Health and Human Services Medicaid policy makers, the state Long Term Care Ombudsman, the five regional Agencies on Aging, and a growing number of age-friendly communities.

For many years, Maine CITE has been a member of the Maine Medicaid Advisory Committee (MAC), working with policy makers to develop policy to support and reimburse for the delivery of AT services. Maine has five Medicaid waivers

that include funding for AT services and the purchase of AT. Maine CITE provides ongoing technical assistance to the MAC on the impact of AT, emerging technology, and expanding reimbursement to grow the AT provider network.

The Maine CITE program has offered instruction to Area Agencies on Aging/ADRC staff and has given to Maine residents onsite in-service presentations and webinars on AT for living independently and safely. Maine CITE has provided each agency with an AT toolkit that includes 15 devices. This kit can be used in regional senior centers to display affordable AT devices for use at home.

Annually, Maine CITE staff attend the Senior Wisdom Summit to promote AT. This statewide event draws more than 450 community care providers, policy makers, therapists, case managers, consumers, families, and caregivers. At the summit, the CITE program boasts a large table display of AT and offers a workshop session on AT to support seniors living at home.

In recent years, more than 90 Maine cities and towns have joined the age-friendly movement to ensure that they minimize barriers and create opportunities for their aging citizens to keep living in their homes. Maine CITE has offered guidance and training as these towns create local resources for AT device lending and recycling.

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MARYLAND

The Maryland Assistive Technology Equipment Reuse (MATR) Center, an initiative of the Maryland Assistive Technology Program, partnered with AAA to loan high-tech AT devices to users. The MATR Center initiative started with a memorandum of understanding (MOU) between the state of Maryland and the Howard County government. The Howard County Office on Aging and Independence is one of the Maryland AAAs.

The Loan Closet of Howard County provides space, material, and resources for the MATR Center while the Maryland Assistive Technology Program provides expertise to manage and staff the program, with the ultimate intent to holistically support individuals utilizing the loan closet services.

MATR serves the entire state from one central location at the Loan Closet of Howard County and accepts donations of AT devices, such as video magnifiers, adapted keyboards, communication devices, and eye gaze technologies. MATR staff clean, repair, and restore these devices, which are then available for long-term loan to anyone who needs them. Additionally, the Maryland Assistive Technology Program provided input on the creation of an AT library within the Loan Closet of Howard County and offers AT demonstrations, consultations, and loans of equipment.

The use and need for AT services grew significantly in the past three years: more than 12,000 residents borrowed assistive devices, saving families nearly \$5 million. New Loan Closet space has permitted an expansion of services and accessibility, allowing Howard County to continue working toward creating a community that improves the quality of life for residents of all ages and abilities. Since 2004, the Howard County Loan Closet has processed more than 26,000 pieces of donated medical and therapeutic equipment (e.g., canes, walkers, wheelchairs) and provided them at no cost to more than 17,000 county residents. Loan values range from \$50 to \$20,000, with an average of \$225. Future initiatives will include hosting fix-it clinics, with the support of volunteers who can help sanitize and repair AT devices.

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MASSACHUSETTS

MassMATCH, the Massachusetts state AT program, held trainings for staff in the Massachusetts NWD system, which includes organizations and specialists across the state: independent living centers, case managers from aging service access points, veterans service officers, resident service coordinators at housing developments, registered nurses from adult family care, and case managers from the statewide head injury program. The staff received training on the use of a simple assessment tool to identify AT needs and resources to support individuals with disabilities and older adults to live independently in their communities. The Transition Assistance to Community Living Environment tool, developed specifically to be used by nonprofessional staff working with individuals to enhance their independence, covers topics such as environment, safety, mobility, home management, cognition and memory, and more.⁷

A second training initiative was developed specifically for options counselors from aging services access points. Options counselors work with consumers to explore their LTSS service options based on their individual needs. MassMATCH and the Massachusetts Rehabilitation Commission worked closely with the Executive Office of Elder Affairs and other state agencies to develop a two-day training curriculum and process for new options counselors. The curriculum includes a segment on AT resources, including specific activities offered under the AT Act program. More than 200 NWD system staff completed the training, which will increase awareness and access to services.

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⁷ Additional information about MassMATCH Transition Assistance to Community Living Environment is available at https://www.massmatch.org/help/transition.php?zoom_highlightsub=TACLE.

OREGON

Access Technologies Inc. (ATI), and the Aging and Disability Resource Connection (ADR Connection) of Oregon recognized a need to increase awareness and access to AT and developed an MOU to work together to address it. The purpose of the MOU is to recognize the partnership and to define roles, responsibilities, and procedures for collaboration and for partnering in the assistive device loan and demonstration project.

The ADR Connection of Oregon and ATI use the GetCare software system to refer consumers who are interested in learning more about AT. Upon receipt of a referral, ATI works with the consumer by providing device demonstrations and device loans for a hands-on experience.

The desired outcome for the MOU is to increase awareness about AT devices and services. Options counselors meet with individuals looking for solutions to a wide range of challenges. Many of these challenges focus on gaining or maintaining independence, which can be addressed with the right AT and knowledge. As a result of the MOU, the Oregon ATI program saw an increase in activity and interest in AT.

ADR Connection staff are given access to assistive devices from ATI's existing device demonstration and loan library, for the purpose of demonstrating these items to ADR Connection consumers across the state. ADR Connection staff consult with ATI to share the needs of the consumer and learn about an item or a series of items to include in that consumer's demonstration kit.

ATI and ADR Connection created an AT guide, used by ADR Connection staff when they are visiting consumers in their homes, and an AT poster that is displayed in ADRCs across the state. Further, options counselors have access to more than 2,000 devices in the program's demonstration library; they show these devices to their clients who are transitioning from a nursing facility back to home.

ATI also worked with ADR Connection to develop half-day, regional AT workshops that offer training on AT devices and services, Medicare, and K Plan—the Medicaid 1915(k) State Plan program—as well as hands-on exposure to technologies through such activities as an AT scavenger hunt.

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VIRGINIA

No Wrong Door Virginia is a public-private initiative of a statewide network of health and human services agencies that serve individuals with disabilities and older adults. NWD Virginia provides older adults, individuals with disabilities, families, and their caregivers with comprehensive information and streamlined access to long-term supports via collaborative partnerships and shared technology. NWD Virginia uses a secure, web-based referral system that allows providers to send, receive, and track referrals and individual-level data with consent. This web-based tool, called CRIA (Communication, Referral, Information, and Assistance), provides a single point of entry to more than 26,784 unique programs and services offered through Virginia's 25 AAAs, 120 Virginia Departments of Social Services, and the Virginia Assistive Technology System (VATS).

VATS joined the network of participating NWD agencies in 2019. VATS staff participated in a virtual training session to demonstrate CRIA and discuss VATS's customized needs. This instruction led to a better understanding of the capabilities of the technology platform as well as each organization's mission and needs.

NWD Virginia and VATS received federal stimulus funding through the Coronavirus Aid, Relief, and Economic Security CARES Act to improve access to AT and reduce the risk of COVID-19 exposure for older adults, individuals with disabilities, and caregivers, by improving

health, reducing ill effects of social isolation, and enhancing access to critical services (e.g., food, health care, work, AT). VATS staff worked with NWD partners to develop unique AT kits designed to address independence, personal safety, and social inclusion. These kits are available statewide through Virginia's NWD system and are helping the system respond to the COVID-19 pandemic.

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WASHINGTON

The Washington Assistive Technology Act Program (WATAP) is located at the University of Washington Seattle campus, and its mission is to provide AT resources and expertise to individuals with disabilities, their support networks, and AT service providers throughout the state. Specifically, WATAP provides a continuum of services to help individuals with disabilities locate resources and information and make better decisions, and to provide alternate means for obtaining the technology and supportive services that these individuals require for employment, education, and independent living.

WATAP deployed 13 AT kits to the state's AAAs at community trainings, workshops, and community awareness events. The kits provide AAAs with a wide selection of AT options they can demonstrate to meet functional needs. Options include an outline of the contents; talking points; highlighted community resources; and examples of devices to help with medication management, activities of daily living, fall prevention, memory, hearing assistance, vision assistance, communication,

and mobility. In addition, everyday off-the-shelf materials such as duct tape, Velcro, double-sided rug gripper tape, pipe wrap, pink board, moldable plastic, Sugru, polyvinyl chloride (PVC) tubing, cabinet bumpers, Model Magic clay, and other items are included to customize and improvise low-cost solutions.

WATAP specialists conducted 10 half-day train-the-trainer workshops throughout the state. Instruction was given as well as some hands-on learning with AT, and specialists conducted a Q&A focused on matching functional needs for people with disabilities, including older adults, with the appropriate AT. They also demonstrated how everyday off-the-shelf materials could be customized and improvised to create low-cost solutions that help individuals maintain independence in the home. WATAP's comprehensive device demonstration and device lending programs give clients the opportunity to "try before you buy," helping inform consumer choice and reduce assistive device abandonment due to device complexity or the product does not meet the consumer's need.

As a companion to the AT kits, WATAP produced a short video that shows people using different AT options to be more independent. Interweaving the stories of real people sharing their experiences with AT, the video introduces AT to those who might not have thought about such technology before and explains how users' lives might change to be more independent and yet connected with the community.

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Collaboration with Medicaid

Medicaid is an important source of funding for AT programs and has the potential to increase access to AT. Examples of the use of Medicaid to support AT are presented for Alaska, Kansas, Missouri, Oklahoma, and South Dakota.

ALASKA

Alaska will complete 40 smart AT assessments and plans to install equipment in 2021. The project is managed by HCBS Strategies. To be eligible for an assessment, individuals must be enrolled in the Alaska Senior and Disabilities Services (SDS) home- and community-based services waiver program; reside in a home owned or rented by the participant, family member, or friend; and have a reliable Internet connection throughout the house. Applicants should also be interested in technology (or willing to learn and use technology in their daily activities) and in benefiting from a system of interrelated devices that do not require human-to-human or human-to-computer interactions.

The smart home “ecosystem” is made up of apps, smart devices, and cloud service. Its purpose is to manage efficiently, control, and monitor every smart device—no matter where the user may be in the home.

The Alaska AT Program is also collaborating with NWD/ADRC and Medicaid (through SDS and the Alaska Department of Health & Social Services). The Alaska AT program provides training and has an AT loan and device reuse program.

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KANSAS

The Kansas Adult Medical Services and ATK operate Kansas Equipment Exchange (KEE), a statewide DME reuse program designed to quickly move DME that is not being used and is still in good condition to Kansans who need it. DME includes such items as manual and powered wheelchairs, power-operated vehicles, patient lifts, home care beds, standers, gait trainers, and communication and other devices, which are tracked upon their initial purchase. Five regional AT access sites affiliated with ATK work with a minimum of 10 organizations in their region to operate regional reuse teams that can pick up, clean, conduct minor maintenance and repair of, and deliver equipment. If more substantial maintenance is needed to return equipment to good working order, authorized repair is conducted by certified DME vendors. The coordinator of the project keeps an electronic inventory of available equipment and matches the technology to customers who have requested items.

The intent of the program is for consumers to have access to needed equipment at no cost, in the following priority: (1) Medicaid beneficiaries, (2) Medicaid-eligible individuals, (3) individuals likely to become eligible for Medicaid, and (4) individuals eligible for limited medical coverage by virtue of their low income and assets, and their disability. If the equipment is not reassigned to eligible Kansans within six months, the equipment is transferred to free equipment loan closets that operate within the region.⁸

Since 2003, KEE has received 12,839 DME donations worth \$14,235,013. The program has reassigned 10,816 items worth \$11,294,476. The program has had requests for 19,466 devices.

⁸ The University of Kansas, Life Span Institute as Parsons, *Kansas Equipment Exchange: Increasing Access to Durable Medical Equipment* (Parsons, KS: The University of Kansas, no date), <https://parsons.lsi.ku.edu/kansas-equipment-exchange-increasing-access-durable-medical-equipment>.

More than \$1.2 million of equipment purchased by the Kansas State Medicaid Agency has been recovered, refurbished, and reassigned to Kansans through the program.

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MISSOURI

Missouri Assistive Technology (MoAT) has been actively involved in two initiatives designed to help streamline and improve the provision of LTSS for Missourians with disabilities. The first initiative is the Money Follows the Person⁹ AT Demonstration Service for individuals transitioning from nursing homes to community living.

The AT Demonstration Service is designed to enhance the state's Money Follows the Person program by providing up to \$5,000 in additional transition funding that can be used by participants to obtain the AT, environmental accessibility accommodations, and/or vehicle access modifications they need to enhance their independence, safety, and access to the community.

To further such efforts, since 2016, MoAT has worked with the state's Department of Social Services, Medicaid program, Department of Mental Health, Centers for Independent Living, and AAAs to help all parties involved put in place the funding, education, application, and implementation of needed AT that has been tailored to the specific needs of those individuals currently transitioning to community living.

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OKLAHOMA

Oklahoma ABLE Tech's Device Reuse Program, in partnership with the Oklahoma Health Care Authority (OHCA, Oklahoma's Medicaid Agency), began operations in 2012. Gently used DME is retrieved, refurbished, repaired, appropriately matched, and reassigned to Oklahomans. Priority is given to OHCA members, but others are eligible. The program has reassigned DME to 10,078 Oklahomans, of whom 5,804 were OHCA members, resulting in health care savings to Oklahoma totaling \$4,686,779.

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SOUTH DAKOTA

The South Dakota Medicaid Solutions Workgroup recommended establishing a DME reuse program to contain and control Medicaid costs while maintaining quality services for recipients. A stakeholder workgroup was assembled to further discuss what a DME reuse program should look like in the state. The workgroup consisted of a variety of DME providers, community support providers, the South Dakota Health Care Association, the Coalition for Citizens with Disabilities, representatives from another reuse program, and state agencies. The goal was to create a program to provide lightly used equipment to increase individuals' access to AT; the intent was not to take away from current businesses but to make the program cost-neutral to providers. A request for proposal for a program vendor was drafted and approved during stakeholder meetings. The project was implemented in the Sioux Falls region in order to determine the cost-effectiveness and sustainability of the DME reuse program. The

⁹ Information on the Missouri Community Options & Resources, Money Follows the Person program, is available at <https://moco.or.mo.gov/money-follows-person.htm>.

equipment listed on this website is available as a way to provide the most conservative option to meet eligible Medicaid recipient needs. Equipment may also be used to meet the needs of other individuals who could benefit from reused medical equipment.

The South Dakota Medical Equipment Recycle & Reuse was originally funded in May 2016. In fiscal year (FY) 2019–20, it distributed \$215,000 worth of equipment to 87 recipients, with a program budget of \$120,000—making the program self-sustaining in its fourth year of operation. Currently, 40 pieces of equipment are available, at

a total value of \$138,000. Any new equipment is available to Medicaid recipients for 90 days; after 90 days the equipment is available to the general public. Recipients must pay a recycling fee. Most recipients are Medicaid-covered individuals and about 20 percent are on a Medicaid waiver program. Several uninsured people have benefited, but the program is overwhelmingly used by Medicaid recipients.

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AT Helping Consumers and Families:

Fran Stays Independent

Fran is a 61-year-old wife and mother who owns and operates a business in the Denver metro area. Fran has amyotrophic lateral sclerosis and through the use of technology continues to live a very active lifestyle. She continues to operate her business, manage her home, and coordinate her health care needs. The AT program staff collaborated with clinicians, engineers, and students at the Center for Inclusive Design and Engineering (CIDE) to help Fran gain control of her life.

Fran is nonverbal, uses a ventilator, and has upper extremities paralysis and lower extremities weakness. She uses a power wheelchair for all independent mobility and operates the system using a foot-activated control. She has a speech language pathologist who has helped her use eye gaze control technology for communication, a physical therapist to obtain specialized positioning equipment for safe and comfortable sleeping, and an occupational therapist to address her power wheelchair needs and to help her access her smartphone. Using specialized Bluetooth technology, Fran can navigate the screen of her smartphone using a foot-operated joystick to click on icons and keyboard buttons. The equipment allows her to send e-mail and text messages, search the Internet, and participate on social media apps. Due to her disability, Fran requires frequent adjustments to the head and foot position of her electric hospital bed. Recently, CIDE developed a prototype device that enables Fran to control her bed. With the customized switch platform, she can operate bed functions independently using foot movements.

Opportunities Expanding Assistive Technology: The Internet, Smart Homes, and Home Modification

The Internet of Things—a term used to describe smart technology other than a standard computer that connects to the Internet and can transmit data, particularly without human intervention (e.g., Amazon’s Alexa or a smart home security system)—creates enormous opportunities for people with disabilities to create smart homes that allow them to perform many tasks previously not possible. People who have limited mobility can now use voice-activated assistants like Amazon’s Echo and similar technology to adjust thermostats, turn on the lights, lock doors, open the blinds, and much more. Smart technology allows caregivers and family members to check on loved ones remotely.

Smart home technology allows residents to program and automate their living space or entire home using Wi-Fi systems and devices. Smart devices are objects that have built-in connectivity. These items usually include a dedicated application that is controlled via a smartphone, computer, or tablet. Examples of smart devices include such items as household appliances, personal wearables, window blinds, and door locks.

When devices from different manufacturers are used in a home, it is ideal to have them interconnected and controlled with a single app or hub—for example, Google Home and Amazon Echo; other products are available from Apple, Microsoft, and Samsung.

Voice control brings another level of central control and convenience to smart home systems. Smart speakers such as the Amazon Echo, Google Home, Apple HomePod, and Microsoft Cortana have built-in microphones that are activated when a user uses a “wake word” or “wake phrase,” such as “Alexa” or “Okay, Google.” These smart speakers become a verbal command center for smart devices.

Examples of smart home programs for AT are presented for Guam, North Dakota, and Oklahoma. Illinois and Alaska also have such programs.

GUAM

Guam’s Model Home program provides opportunities for “guided exploration” of a specific device or category of devices. Device demonstrations are available to people with disabilities and their families; providers of education, health, and related services; and faculty responsible for teaching future providers (collectively, “users”). Demonstrations do the following:

- Increase users understanding of the types of devices that can help individuals with a specific need, such as talking on the telephone or reading mail.
- Improve users knowledge of a device’s features and of how those features differ from other devices that perform the same task, such as the difference between two personal listening devices.
- Increase users understanding of how devices can help users at work, in school, at home, and in their neighborhoods.

The Guam Model Home Program also collaborates with other agencies to help conduct AT loan programs and reuse.

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NORTH DAKOTA

North Dakota (ND) Assistive is a nonprofit whose mission is to connect people of all ages and abilities with AT to help them live safely and more

independently in the home of their choice. ND Assistive provides comprehensive and statewide technology-related services to North Dakotans residing in rural areas. In addition, ND Assistive contracts with the Minnesota AT Program, MN Star, to help bring AT equipment demonstrations and loans to the northwest corner of Minnesota.

ND Assistive has two Smart Home First demonstration centers, which are simulated homes with AT throughout, including door locks, motion detectors, security cameras, ceiling fans, window blinds, a kitchen faucet, lights, thermostats, a doorbell, a robotic vacuum cleaner, smoke detectors, a TV, and more. Here, anyone can interact with and learn about devices to help them live more safely and independently in their homes. ND Assistive offers tours onsite at both locations and provides virtual tours via video conferencing to teach people about the types of smart home devices that can be controlled and how they work. The centers are also training grounds for students in physical therapy, occupational therapy, speech, service payments for the elderly and disabled, and more. In-person and virtual group tours have been provided to staff from the ND Department of Veterans Affairs, rehab hospitals, and ND Protection & Advocacy Project which is an independent state agency established to advance the human and legal rights of people with disabilities, as well as to ND Developmental Disabilities Program managers, support groups, parent groups, and vocational rehabilitation counselors. These centers are so popular that visitation to the Fargo center increased 1,776 percent after the first year.

Senior Safety Program

The ND Assistive Senior Safety Program, also known as the Assistive Safety Devices Distribution Services program, provides up to \$300 per year of no-cost assistive safety equipment to help North Dakotans over the age of 60 remain in their homes safely and as independently as possible. Priority is given to those at risk for institutional placement, with greatest economic need, living in rural areas, with

severe disabilities, and other priorities as defined by the Older Americans Act. Equipment such as grab bars, tub rails, bed rails, shower chairs, transfer benches, raised toilet seats, toilet safety frames, medication dispensers and reminders, no-monthly-fee emergency response systems, wandering alarms, and more is available.

ND Telecommunications Equipment Distribution Program

Telecommunications Equipment Distribution Services (TEDS), also known as the ND Assistive Specialized Phone program, is designed to provide no-cost specialized phone equipment and accessories to qualifying North Dakotans with disabilities who have difficulty independently using a standard telephone. ND Assistive contracts with the state Department of Human Services, Aging Services Division, to implement TEDS. A telephone access line surcharge underwrites TEDS equipment, client services, and administration costs.

The program offers accommodations for landline and cell phones for individuals with hearing and vision loss and for individuals with physical, speech, and cognitive disabilities. On an as-needed basis, the program also utilizes technology solutions such as the Amazon Echo Show.

Amplified corded or cordless landline phones with extra-loud ringers; Cap Tel captioned phones; TTYs (text telephones); and cell phone amplifiers and ring signalers, such as lamp flashers and bed shakers, are available for people with hearing difficulty. People with speech difficulty can access landline phones with outgoing speech amplification, TTYs, and electro larynx phones.

Other technology offered through the program includes switch-activated and voice-activated phones; cell phones with built-in, customized accessibility features for people with physical disabilities; and large-button landline phones with talking keys, memory dialers, and voice dialers for those with vision difficulties.

*AT Helping Consumers and Families:***Kansas Smart Home Automation Helps to Support a 93-Year-Old with Alzheimer's**

A couple, their 3-year-old son, and the father's 93-year-old grandmother with Alzheimer's were living together in Kansas. As the grandmother's Alzheimer's progressed, the family was less confident that she could safely remain at home. The family contacted the Kansas Statewide Assistive Technology Program, Assistive Technology for Kansans (ATK), for solutions. After meeting with family members and visiting their home (built in the 1920s), the ATK team proposed the following action items:

- 1) Design a home safety and security system for the grandmother for when others are not at home. The network system needed to provide visual information for who is at the door, give support staff unique codes so the family knows who accessed the lock and when, lock and unlock doors remotely, provide an alert if smoke or carbon monoxide sensors are activated, activate heating and lighting to keep the family members comfortable, provide a visual monitor of actions within the house for family members to view while at work or out of the home, and support the family in talking with the grandmother throughout the day.
- 2) Design a system to support the grandmother and others in independently engaging in preferred leisure activities such as watching television and listening to music. The system needed to support the grandmother in watching television without using any remote devices because of her increased confusion with the devices and anxiety when the television wouldn't work; it also needed to address the other family members' anxiety when the grandmother had inadvertently erased favorites and preset settings. All adults in the house have different levels of comfort with technology, and all prefer different operating platforms. One family member has little interest in technology and uses Android devices; another family member loves technology—and likes to experiment and try new applications—but has an extensive music collection on existing Apple devices and doesn't want the time or expense of converting the music library to a different platform. The selected home automation hub would need to support all activities.

After technical assistance and supports from the ATK staff, the home is now fully automated. The grandmother and other family members know who is approaching the house—they announce to the grandmother who it is and ask whether it's okay for the person to enter. Through remote monitoring, family members can lock and unlock doors. The grandmother and others can adjust the lighting and temperature either by voice or remotely. Cameras throughout the house let family members check in on the grandmother remotely throughout the day. The grandmother occupies a good portion of her day binge-watching *NCIS*. In the early days of this home automation effort, the grandmother would get frustrated when Netflix would pause after she had watched several episodes of *NCIS* and ask if she was still watching. The family solved this problem by setting timers on their phones so they could access the TV on their phones to either continue watching or change to something else. With this approach, the grandmother cannot disable it accidentally. If she is frustrated or concerned, she can announce through the visual monitoring system that she needs help, and one of the family members or a tech-savvy nephew can reassure her. They can either walk the grandmother through the cheat sheet that the family created or reset a piece of technology remotely.

Other family members can play music seamlessly, and even the 3-year-old reports liking that “he can talk to” his house. The family reports that their “grandmother is continually amazed at everything Google can do,” although she is puzzled by the name and has repeatedly asked, “What is his name again?” She's impressed by Google's abilities, though, and has told her family, “I wish I'd known something like this existed years ago!”

For more information on the decision process this family went through, contact ATK management at www.atk.ku.edu. Videos of home automation solutions and an interactive home automation display kit will be posted on the website in the near future.

iCan Connect

North Dakota's iCan Connect program, also known as the National Deaf-Blind Equipment Distribution Program, provides free equipment and training to help people who have significant vision and hearing loss with all types of telecommunications, such as e-mail, video conferencing, social media, and telephone. The equipment available includes smartphones, tablets, computers, screen readers, Braille displays, and more for people who meet federal disability and income guidelines. The iCan Connect program is a contract with the Federal Communications Commission and is available in every state.

iCanConnect is another name for the National Deaf-Blind Equipment Distribution Program (NDBEDP), a federal program designed to help the many thousands of Americans with combined vision and hearing loss to connect with family, friends and community.

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OKLAHOMA

Oklahoma State University (OSU) is the lead agency for ABLE Tech. ABLE Tech created a small smart home demonstration area on OSU's campus using Teltex Smart Home Automation Company demonstration products. Currently, ABLE Tech and Teltex are collaborating to offer two smart home pilot installations for Oklahomans with disabilities. ABLE Tech will use the smart home studio apartment as a training and demonstration area to better educate Oklahomans with disabilities on safe and optimal

ways to incorporate the technology into people's homes and help them make decisions about needed technology. OHCA, through the Money Follows the Person waiver program, plans to collaborate with ABLE Tech by referring those on the waiver to receive demonstrations and trials of smart home technology, in hopes of including this technology into members' comprehensive assessments.

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ASSISTIVE TECHNOLOGY COLLABORATIONS PERCOLATING: ACTIVITY IN ANOTHER STATE

In 2015, the Iowa state legislature directed the Aging and Disability Resource Center and Mental Health and Disability Services Commission to jointly develop a Home Modification Assistance Program Plan. Since that time, a wide variety of stakeholders, including health care providers, patient advocacy organizations, and home modification specialists, have come together as the Livable Homes Coalition. This group has been actively working to develop a home modification program in Iowa that would allow seniors and individuals with disabilities to modify their homes so they can live independently. Although the project is not yet fully funded, coalition members are engaged in collaborative discussions on the home modification needs of Iowans.

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Education, Training, and Workforce Development

Assistive technology is a rapidly evolving area—from the technology itself to, as this report details, the programs that foster its adoption. That kind of environment creates the need for devoted education, training, and workforce development. Below are examples of what Colorado, Missouri, North Carolina, and Wyoming are doing in those areas.

COLORADO

The Colorado Technology Act Program has a team of 23 faculty and staff members at the University of Colorado Denver, Anschutz Medical Campus, who are focused on AT research, engineering, clinical services, and worldwide outreach and knowledge translation. In October 2019, the program became the Center for Inclusive Design and Engineering which focuses on serving people with disabilities and older adults. The program leveraged funding from the Assistive Technology Act to cover \$55 million in additional grants, industry contracts, and AT-related consulting.

AT staff partnered with the University of Colorado in a variety of ways. For example, they received five preservice preparation grants dating back to fiscal year 1993 and provided 18 credit hours in AT devices and services to almost 490 graduate students studying a range of education, early intervention, and health care disciplines. In 2013, the University of Colorado launched a new doctorate, Master of Science, and undergraduate program within the Department of Bioengineering and are now working to train the next generation of AT professionals and engineers with specialization in research and development of assistive and medical technologies; information and communication technology accessibility standards; and knowledge of the impact of disability on human function, activity, and program participation. CIDE AT staff are now working to launch a new undergraduate

training program in the next 1–2 years to prepare graduates to work in the field of AT, disability, and aging. CIDE faculty have joint University of Colorado, School of Medicine appointments in physical medicine and rehabilitation, pediatrics, and orthopedics, which has enabled them to partner with scientists, researchers, and medical school personnel to study and develop new assistive and health technologies to support seniors and people with disabilities.

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MISSOURI

Since mid-2019, MoAT has been involved with the state's University Center of Excellence in Developmental Disabilities and the Department of Elementary and Secondary Education to design, develop, and implement the AT Transition Project. The purpose of the project is to identify and prepare students who use AT in the high school environment to identify their anticipated AT needs post-high school and develop a road map for this transition. The road map will emphasize identification and trialing of appropriate AT that matches their intended future needs, acquisition of anticipated AT, and adequate training to ensure that they are effective users of the AT.

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NORTH CAROLINA

During FY 2018–19, the North Carolina Assistive Technology Program (NCATP) provided 10 individuals with disabilities and medical conditions low-interest loans to purchase AT at an affordable cost. NCATP staff worked with MetLife in presenting a Return to Work Summit for physicians, therapists, and case managers, offering opportunities to test assistive devices in the workplace. NCATP staff are working with state human resource professionals and private employers to identify accommodations, accessible material, and technology available for interviewing and hiring individuals with disabilities. NCATP can recommend AT, modified work practices, and/or other adaptive solutions to help reduce disability-related limitations. In September 2019, NCATP hosted the annual AT Expo with 33 vendors and more than 350 attendees.

NCATP has a unique focus on veterans, who comprise 8.6 percent of the population in the state; 45 percent of them are over age 65. Veterans are more likely to have a disability (29 percent) than are nonveterans (16 percent). NCATP staff provided five public awareness sessions to therapists with the Wounded Warrior Transition program at Fort Bragg and the Home Support program at North Carolina Veterans Hospitals. NCATP also hosted three workshops for veterans that included speakers from the Department of Veterans Services, a veterans' coalition, employment security, and veteran-owned businesses.

Examples of ways in which the program has benefited veterans include a veteran retiree

with ALS who received smart home technology services (e.g., light switches, a door opener, and alerting system, voice-activated on/off lights and phone) controlled using Alexa. A 32-year-old veteran with a spinal cord injury received a farm assessment, a lift system, and a utility terrain vehicle with hand controls, which enabled him to return to farming.

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WYOMING

Between September 2016 and May 2019, the Wyoming Institute for Disabilities offered the University of Wyoming a training program on Project ECHO (Extension for Community Healthcare Outcomes) for enhancing assistive technology as a component of education. The network utilizes an interdisciplinary team of individuals working in specific related areas who connect biweekly to learn more about AT and best practices for their own settings. By 2017, more than 8,000 participants had received training. In addition to the ECHO in AT network, the Wyoming AT program provides in-person and virtual training and technical assistance throughout the state. Now in its fifth year, this network continues to build capacity for AT in education, health, and disability services.

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Getting Informed Going Forward

State AT programs enable people with disabilities and older adults, caregivers, their representatives, and others working with them to learn about, use, and make informed decisions about accessing and acquiring AT. State AT programs are skilled at helping people discover and use accessibility features built into technology devices like smartphones, tablets, and laptops. These programs teach people how to use an array of technologies that are most responsive to consumers' needs and, through short-term device loan programs, enable people to try devices prior to making a purchase. When consumers are ready to acquire AT, the reuse and state financing programs present an affordable purchasing avenue.

State AT programs are a key component of ADRC/NWD systems and essential to state

LTSS infrastructures. Such AT programs work in partnership with state, local, and community organizations to increase awareness and access to AT, and partnerships will be key going forward.

To learn more about the Assistive Technology Act Program and for contact information for state AT programs, visit the State Assistive Technology Program Directory on the AT3 Center website (<https://www.at3center.net>). The AT3 Center is a technical assistance project administered by the Association of Assistive Technology Act Programs and is funded by a grant from ACL within the US Department of Health and Human Services.

For further information on AT Act Programs and NWD collaborations, please contact Rob Groenendaal at ACL: Robert.Groenendaal@acl.hhs.gov.



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