

National Institute on Disability, Independent Living, and Rehabilitation Research

2024–2028 Long-Range Plan



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Acronyms and Abbreviations

ACL	Administration for Community Living
ACS	American Community Survey
ADA	Americans with Disabilities Act
AoA	Administration on Aging
AoD	Administration on Disabilities
APR	Annual Performance Reporting
COVID-19	Coronavirus disease 2019
HHS	Department of Health and Human Services
IDD	Intellectual and developmental disabilities
KT	Knowledge translation
LRP	Long-Range LRP
NIDILRR	National Institute on Disability, Independent Living, and Rehabilitation Research
R&D	Research and development
SCI	Spinal cord injury
TBI	Traumatic brain injury
The Act	Rehabilitation Act of 1973

Introduction

The Rehabilitation Act of 1973 (the Act) states that “disability is a natural part of the human experience and in no way diminishes the right of individuals to live independently, enjoy self-determination, make choices, contribute to society, pursue meaningful careers, and enjoy full inclusion and integration in the economic, political, social, cultural, and educational mainstream of American society.” This view of disability guides the work of the [National Institute on Disability, Independent Living, and Rehabilitation Research](#) (NIDILRR). NIDILRR is part of the Administration for Community Living (ACL) within the U.S. Department of Health and Human Services (HHS).

NIDILRR’s 2024–2028 Long Range LRP (LRP) presents a 5-year agenda that will advance the field of applied disability, independent living, and rehabilitation research and development (R&D). This LRP will continue to emphasize scientific rigor and the need for research that is highly relevant to the lives of people with disabilities. The LRP emphasizes the inclusion of people with disabilities as critical to advancing both the rigor and relevance of NIDILRR-funded work. The LRP builds on the 2018–2023 LRP while responding to new developments in the disability, independent living, and rehabilitation R&D field.

NIDILRR Context

Watch a video to learn more about NIDILRR and the types of projects it funds:
<https://www.youtube.com/watch?v=Zt3O8Dcjd8U>

NIDILRR is the Federal government’s primary applied disability research organization and is part of ACL within the HHS. NIDILRR’s long-standing mission is to generate new knowledge and promote its effective use to

- improve the abilities of individuals with disabilities to perform activities of their choice in the community and
- expand society’s capacity to provide full opportunities and accommodations for people with disabilities.

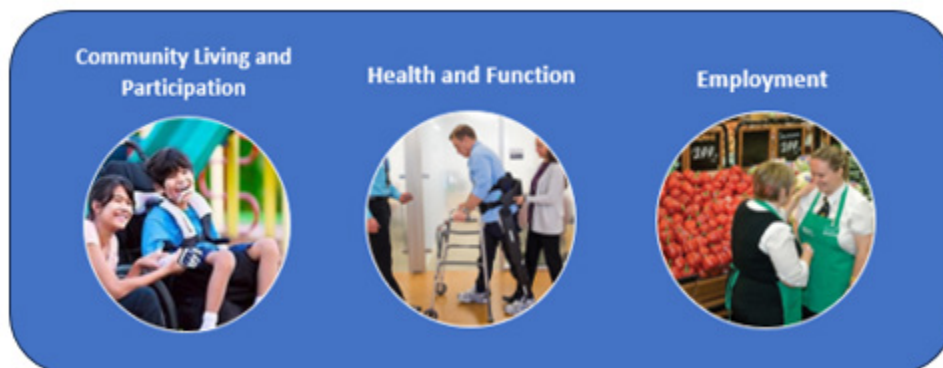
NIDILRR and its programs were originally authorized as part of the 1978 amendments to the Rehabilitation Act of 1973. This LRP will be in effect from 2024 through 2028. NIDILRR developed this LRP during the 50th Anniversary of the Rehabilitation Act, and it will be in effect during NIDILRR’s 50th anniversary in 2028. These important anniversaries provide opportunities to reflect on NIDILRR’s history and to continue to evolve and grow the agency to meet its critical disability research mission.

NIDILRR was originally established by Congress as the National Institute on Handicapped Research (NIHR) and located within the Department of Health, Education, and Welfare (HEW). In 1986, Congress split HEW into the Department of Education and HHS. That year, the 1986 amendments to the Rehabilitation Act renamed NIHR as the National Institute on Disability and Rehabilitation Research (NIDRR) and placed the organization within the Department of Education. Nearly 30 years later, the 2014 amendments to the Rehabilitation Act moved the organization to the (then) newly created ACL within HHS and added the terms “Independent Living” to our name. ACL was created around the fundamental principle that older adults and people of all ages with disabilities should be able to live where they choose, with the people they choose, and with the ability to participate fully in their

communities. Centers across ACL focus on programs and direct services for older adults and people with disabilities, and these Centers can share the experiences of people with disabilities and identify unmet needs that could be addressed by NIDILRR-sponsored R&D activities. Shortly after joining ACL, NIDILRR published its program regulations to provide concrete, detailed guidance for administering programmatic initiatives described in Title II of the Rehabilitation Act. These regulations can be found at [45 CFR 1330](#).

NIDILRR Framework

Authorized under Title II of the Rehabilitation Act of 1973, as amended, NIDILRR is responsible for sponsoring rigorous R&D that is relevant to the lives of people with disabilities. To facilitate success in addressing this responsibility, NIDILRR organizes its portfolio across three outcome domains that are important to all populations and ages of people with disabilities. While NIDILRR primarily sponsors disability R&D activities, the agency also funds important capacity building and knowledge translation (KT) activities to bolster those R&D efforts. The 2024–2028 LRP builds upon and evolves each of these components of our framework to advance NIDILRR’s vital work in applied disability, independent living, and rehabilitation R&D.



Outcome domains

All of the work that NIDILRR sponsors aims at improving outcomes among people with disabilities in one or more of the three interrelated life domains of (1) community living and participation, (2) health and function, and (3) employment. NIDILRR has a long history of using these outcome domains to guide the prioritization and funding of grants in its portfolio. NIDILRR will continue to invest in three areas that support outcomes across these domains: technology for access and function; disability statistics; and a nationwide network of technical assistance, training, and research centers to support ongoing implementation of the Americans with Disabilities Act (ADA).

Target populations

To help balance its portfolio and resources across the broad and diverse population of people with disabilities, NIDILRR categorizes its grants into the following nonexclusive target populations: developmental, cognitive, sensory, psychiatric, and physical disability. According to the Rehabilitation Act, NIDILRR is required to sponsor research on the experiences, needs, and outcomes of all people with disabilities, “especially individuals with the most significant disabilities.” NIDILRR refers to this group as “people with disabilities who have the greatest support needs.”

All ages

NIDILRR's research programs are inclusive of all people with disabilities across the lifespan. NIDILRR intentionally welcomes and invites R&D applications that focus on children with disabilities, especially in areas and outcome domains that are not well covered by other funding agencies. For example, NIDILRR would welcome R&D toward new social environments, parks, and playgrounds that facilitate fully inclusive play and participation for children with disabilities, or research on the school experiences and outcomes of children with disabilities who have plans under Section 504 of the Rehabilitation Act. NIDILRR continues to lead efforts to build bridges between the fields of disability and aging research. NIDILRR intentionally invites R&D that focuses on the experiences and outcomes of older adults in all disability populations. Because NIDILRR's mandate is to sponsor research on people with disabilities who have the greatest support needs, NIDILRR has a specific focus on the population of people with disabilities who are aging with long-term disabilities. NIDILRR's sponsored research has been critical to transforming cultural ideas of aging with long-term disabilities and to improving research, practice, and policy for this population.

Funding activities

While this LRP focuses primarily on the R&D that NIDILRR sponsors, it will also describe and promote its capacity building and KT activities. NIDILRR sponsors capacity building grants and training activities to help ensure that the field of disability, independent living, and rehabilitation research has well-trained research personnel. NIDILRR sponsors KT grants to help ensure that new knowledge and products gained through NIDILRR R&D are used by stakeholders and, ultimately, improve the lives of people with disabilities and further their participation in society.



Models of disability

More than 20 years ago in its 1999–2003 LRP, NIDILRR (then NIDRR) described a “new paradigm” for understanding disability as the product of an interaction between the characteristics of the individual (e.g., conditions or impairments, functional status, or personal and social traits) and the characteristics of the natural, built, cultural, and social environments. This paradigm differed in important ways from previous medically oriented models, which held that disability was the direct result of individual-level impairments or medical conditions. By focusing research on the whole person functioning in an environmental context, the new paradigm created new opportunities for research toward removal of environmental barriers; provision of services, supports, accommodations, and technologies; and design of enabling policies.

For more than 20 years, NIDRR/NIDILRR-sponsored research conducted under the new paradigm has led to new knowledge about environmental- or systems-level factors that lead to positive health and function, employment, and community living and participation outcomes among people with disabilities. For example, the new paradigm led to a focus on research about the accessibility of health care facilities, equipment, and services as a means of promoting positive health. In the employment domain, this paradigm led to a focus on building the evidence base for specific employer practices to hire, retain, and promote workers with disabilities. In the community living and participation domain, the paradigm framed intensive research on policies and technologies to better support people with disabilities in their important role as parents as well as many other activities and roles in the community.

While no longer a “new paradigm,” the holistic model that understands disability as a function of individual- and environmental-level factors, often referred to as the social model of disability, is still a critically important advance over the medical model of disability. With this LRP, NIDILRR will continue to promote a dynamic understanding of disability and will take steps to bolster methodological approaches to better conceptualize, measure, and account for individual- and environmental-level factors that shape experiences and outcomes of people with disabilities. NIDILRR will prioritize research toward collection and analysis of data about the enabling or disabling characteristics of the built and social environments in which people live. For example, the physical accessibility of homes, health care facilities, and neighborhood environments (e.g., sidewalks, bus stops) can and must be measured directly. The extent to which public broadcasts about local emergencies are fully accessible to people with disabilities must be measured directly. With more systematic collection and mapping of such environmental-level data, researchers will be better able to explore the dynamic interplay between people and the enabling or disabling environments in which they live.

While NIDILRR grantees have been conducting holistic disability research under the social model of disability for more than 2 decades, researchers and members of the disability community have been building on this foundation to create new models for understanding disability in diverse and dynamic social contexts. With this LRP, NIDILRR will continue to purposefully sponsor research within the social model of disability while also inviting and supporting research that uses concepts and perspectives from the diversity and human rights model and the disability justice model. NIDILRR anticipated this growth of dynamic social models of disability in its 1999 LRP, stating that disability is a “socioenvironmental issue involving accessibility, accommodations, and equity” (p. 10) and that “the new paradigm’s recognition of environmental factors leads to a focus on underserved minority populations” (p. 12).

The diversity and human rights model of disability recognizes the inaccessible and often oppressive environments that surround people with impairments but fundamentally views persons with disabilities as rights holders. It advances the new paradigm by situating people with disabilities as a unique cultural group because of the experience of impairment, regardless of the individual’s environment. This perspective recognizes the unique human variations that people with disabilities hold both in their bodies and, subsequently, as part of their identities. The diversity and human rights model celebrates the experience of disability, expanding on the enablement concept and embracing disability identity and disability pride. In this way, disability is not viewed from a deficit-based perspective; rather, it is viewed as an aspect of uniqueness that contributes to society’s overall richness.

More specific to multiply marginalized disabled communities is the [disability justice](#) framework. This framework was first introduced by members of Sins Invalid, disabled queer activists of color. This framework highlights that all bodies are unique and essential while caught within the inseparable bindings of ability, race, gender, sexuality, class, nation state and imperialism. This model intentionally focuses on examining disableism and ableism as they relate to other forms of oppression.

Each of these models provides important concepts and perspectives that help combat ableism. Ableism is discrimination and social prejudice against people with disabilities. Antiableism is strategies and practices that challenge and counter ableism. Ableism still prevails within the disability community where certain disability voices are privileged over others. It has long plagued the research enterprise in terms of who generates new knowledge and who participates in research studies. The features of

systemic ableism have made it complicated for disabled investigators and other research team members to be comfortable claiming or disclosing their disability identity.

Disability language

NIDILRR strives to lead the way on breaking down ableist stereotypes and hierarchies of disability. It is important that NIDILRR applicants and grantees do not use outdated, offensive, or euphemistic language related to disability. The most recent style guides from the Associated Press (AP) and the American Psychological Association (APA) provide up-to-date recommendations for talking about disability. Person-first language (e.g., person with autism, person with a disability) or identity-first language (e.g., autistic person, disabled person) are acceptable based on current use in the disability community. Additionally, terms like “nonverbal” and “noncommunicative” to describe people who cannot depend on their own speech to be heard and understood are ableist. Not all language is spoken, and these terms do not account for the experience of alternative/augmentative communication (AAC) users or those using sign language. This terminology has evolved, and the current preferred term is nonspeaking. This term makes room for the other modalities and ways of communicating. NIDILRR knows that disability is not a monolith, meaning there are various language preferences among the disability communities, and strives to honor these important differences.

NIDILRR Aims

Through its portfolio of research and related activities, NIDILRR’s primary aim and responsibility is to generate new knowledge about the experiences and outcomes of people with disabilities and to develop new products and interventions for use by people with disabilities and those who provide them with services and supports. Once new knowledge, products, and interventions are generated, NIDILRR’s aim is to promote their adoption and use in ways that shape policy, practice, behavior, and systems capacity. In the long term, NIDILRR’s aim is that these knowledge-based improvements will reduce and eliminate long-standing disparities between people with and without disabilities in the domains of health and function, employment, and community living and participation. With these practical aims of creating and applying research-based knowledge in the real world, NIDILRR views and uses research as the antidote to long-standing traditions that have poorly served people with disabilities and have led to persistent disparities.

- Short-term outcomes: Advances in understanding, knowledge, skills, and learning
- Intermediate outcomes: Adoption and use of new knowledge leading to changes and improvements in policy, practice, behavior, and systems capacity
- Long-term outcomes: Changes in overall conditions, including the elimination of disparities between people with and without disabilities in employment, community living and participation, and health and function.

NIDILRR Collaborations

NIDILRR has flourished as a Center within ACL, given ACL’s programmatic strength and its strongly complementary mission of “maximizing the independence, well-being, and health of older adults, people with disabilities across the lifespan, and their families and caregivers.” NIDILRR will continue to work closely and intentionally with other ACL programs and colleagues. Programs administered by ACL’s Administration on Disabilities (AoD), Administration on Aging (AoA), Center for Innovation and Partnership (CIP), and Center for Policy and Evaluation (CPE) will continue to inform NIDILRR’s research

programs. At the same time, NIDILRR and its grantees will actively promote the use of NIDILRR-sponsored research findings and products among programs administered by ACL. Following are a few examples of intentional ACL synergies.

- NIDILRR and AoD's Office of Independent Living Programs co-funded a Disability and Rehabilitation Research project to generate and share new knowledge that empowers centers for independent living to optimize transition outcomes among youth with disabilities from minority backgrounds.
- NIDILRR and AoD both funded grants to establish and maintain four national centers to support the work of advancing equity and inclusion for people with disabilities who are also from other underserved communities. The centers come together twice per year, and each will serve as a national resource in its specific topical area.
- NIDILRR has worked closely with the AoA when preparing briefs or documents of mutual interest, including the 2022 National Strategy to Support Family Caregivers.

NIDILRR continues to be actively engaged in collaboration and coordination of research activities with agencies across the Federal government. NIDILRR-funded research is consistently being used and shared across the Federal government in formal and informal ways. While NIDILRR is one of several Federal funding agencies focused on research for people with disabilities, it is unique in sponsoring applied research. Other agencies include, but are not limited to, the National Institutes of Health (e.g., the National Institute on Aging, the Eunice Kennedy Shriver National Institute of Child Health and Human Development and its National Center for Medical Rehabilitation Research, and the National Institute of Mental Health), the Substance Abuse and Mental Health Services Administration (SAMHSA), the U.S. Department of Transportation, and the U.S. Department of Defense. NIDILRR has partnered with SAMHSA, for example, for more than 3 decades to co-fund grants that advance the health and function, employment, and community living and participation outcomes among people with serious mental illness. NIDILRR will continue to build on its strong history of formal interagency agreements where common interests across agencies exist and to pursue co-funding when possible.

Background

Stakeholder Input

Overview and methods

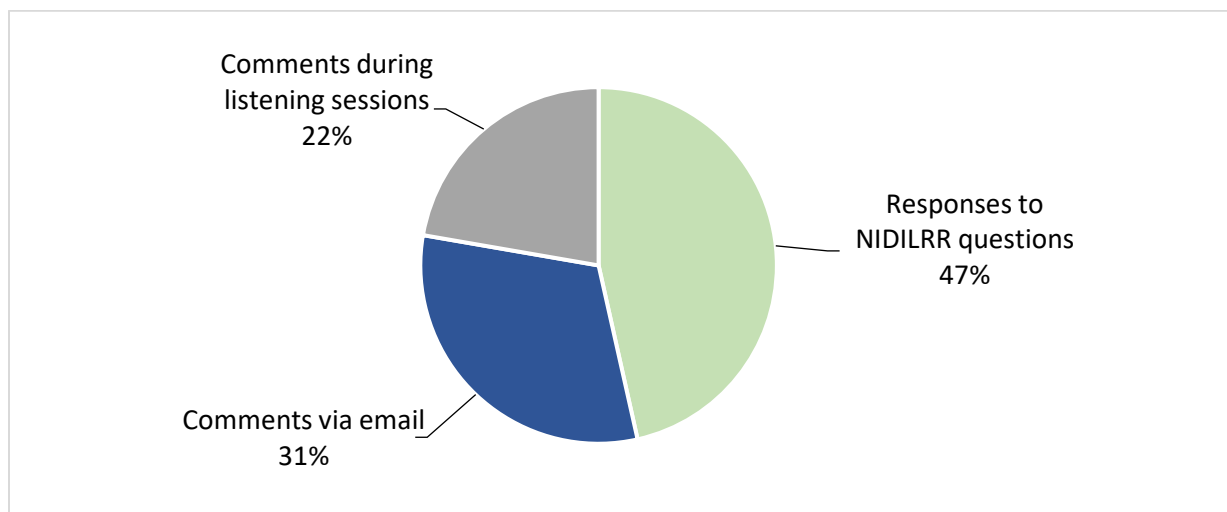
The LRP presents a foundational guide for NIDILRR's daily activities. Thus, it is critical for NIDILRR to hear from key stakeholders in the rehabilitation research community, and especially those with lived experience of disability, about current gaps and needs, experiences, and opportunities for people with disabilities. It is also critical that this input help to ensure NIDILRR's planning is relevant and responsive to the needs of the disability community. To incorporate these perspectives, NIDILRR obtained feedback for this LRP from diverse groups of stakeholders, including people with disabilities, disability researchers and technical assistance providers, state and Federal officials, and members of the disability advocacy community. Stakeholders had the option of providing feedback via an email drop box or via participation in virtual listening sessions.

A total of **249 individuals** participated in the listening sessions, with NIDILRR grantees representing the largest participant group (n = 76), followed by representatives from disability groups and advocacy

organizations (n = 45). Feedback via the email inbox was received from **56 individuals**. Twenty-four of the individuals who participated in the listening sessions or submitted comments via the email box provided their feedback on behalf of an organization or a group.

Listening Sessions	Number of Participants
NIDILRR Grantees	76
General/All Invited	57
Disability Groups and Advocacy Organizations	45
Direct Service Providers and Non-NIDILRR Grantee Researchers	35
Individuals With Disabilities and Those Supporting Them	20
Administration for Community Living (ACL)/NIDILRR Staff	10
Interagency Committee on Disability Research Executive Committee	6
Total Number of Participants	249

Stakeholders provided a total of **413 comments and responses**. Six comments and responses were duplicative of earlier entries and were counted only once. Of the 413 comments and responses, 192 (47%) were unique responses provided to specific NIDILRR questions, 129 (31%) were unique comments submitted via email, and 92 (22%) were unique comments provided during listening sessions. When stakeholders provided the same comment more than once in multiple sessions or via multiple emails, only one of the submissions was used for the thematic analysis.



Themes

In addition to input that recommended new models of disability and antibleist approaches to disability research described in the prior section, five key themes were identified based on the collective stakeholder feedback and input from NIDILRR staff: (1) involvement of people with disabilities across the research enterprise, (2) intersectional focus, (3) international amplification and presence, (4) deepening capacity building, and (5) innovation. These themes are described in the New Emphases section that follows the research agenda.

Revisiting Key Commitments From the Previous Long-Range LRP

In the previous LRP (2018–2023), several key commitments were made: building infrastructure to systematically include people with disabilities in research, funding across all stages of R&D, expanding research on issues of aging and disability and community living, and funding research that advances health policy. The following section summarizes how each commitment has been addressed.

Inclusion of people with disabilities in research

In recent years NIDILRR has placed an increased emphasis on inclusion of people with disabilities in all aspects of the disability, independent living, and rehabilitation research enterprise. NIDILRR has begun to systematically gather voluntary information about the disability status of experts who serve on its peer review panels. In 2022, NIDILRR revised its peer review criteria to emphasize the importance of encouraging applications for employment from people with disabilities. These new data collection efforts and peer review criteria will assist NIDILRR in evaluating and tracking the inclusion of people with disabilities in the work that it sponsors.

The emphasis that NIDILRR has placed on the inclusion of people with disabilities in research has resulted in a higher prevalence of investigators and staff with disabilities involved in NIDILRR-sponsored research. Figure 1 demonstrates that the number of grants led by principal investigators (PIs) with a declared disability has been steadily rising since 2007, reaching 50 in 2020, 57 in 2021, and 65 in 2022. More than 15% of grants were led by PIs with a declared disability in the 2022 Annual Performance Reporting (APR) year. NIDILRR also analyzed the number of staff with disabilities who are paid as members of NIDILRR-funded grant teams. This analysis over the period of the last LRP (APR year 2018–2022) shows an increasing number of staff with disabilities (see Figure 2).

To highlight progress during the last LRP (2018–2023), NIDILRR conducted an analysis that looked at strategic LRP periods: APR years 2008–2012, APR years 2013–2017, and APR years 2018–2022 (the period covered by the last strategic LRP). Figure 3 demonstrates that the period of the previous strategic LRP (2018–2022) saw the most dramatic increase: from 22% of the staff who may have a disability in the 2013–2017 period to 28% who may have a disability in the 2018–2022 period.

Figure 1. Number of Nonunique Principal Investigators With a Declared Disability by Annual Performance Reporting Year.

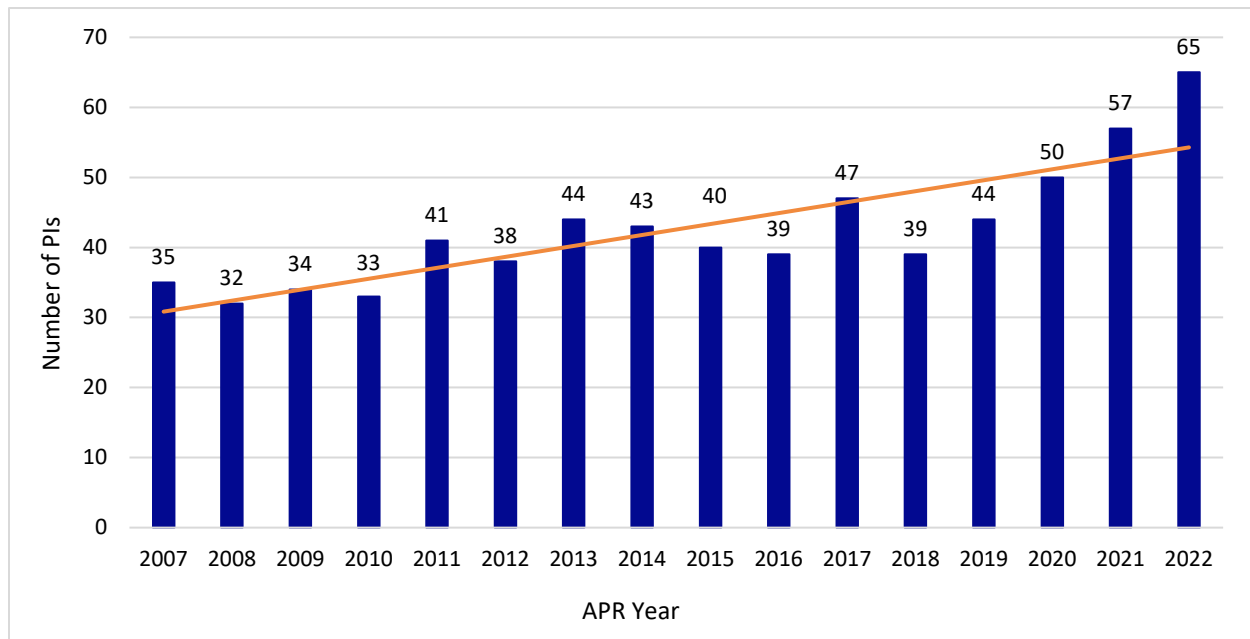


Figure 2. Number of Staff Counts by Declared Disability Status by Annual Performance Reporting Year 2018–2022.

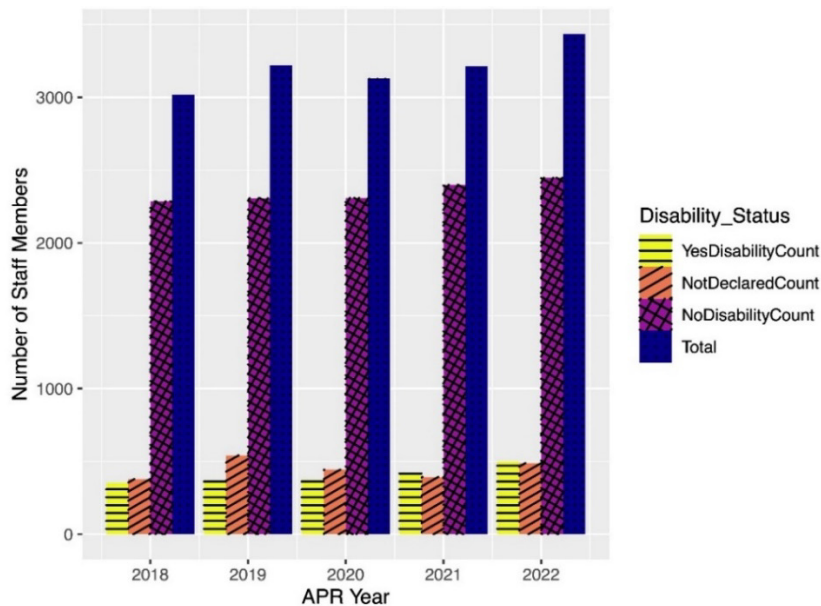
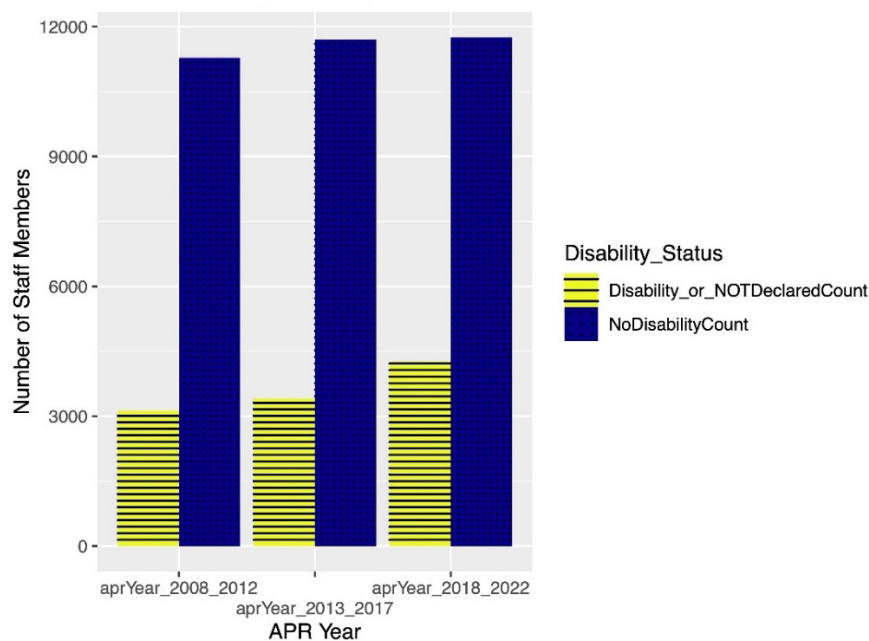


Figure 3. Staff Counts by Disability Status 5-Year Intervals.



Funding across stages of R&D.

In the last LRP, NIDILRR sought to build on prior investments by advancing particular services, supports, interventions and products through its stages of R&D. The goals of this effort were to avoid repetitive exploration and discovery work and to develop the evidence base for interventions, products, and policies for people with disabilities. Figure 4 shows a healthy distribution across all stages over the period of the last LRP (2018–2022). In later years it shows a growing percentage of projects being

conducted in the Intervention Efficacy and the Scale-Up Evaluation stages, suggesting advances in the evidence base for specific interventions and products. A similar pattern can be seen among recently funded development projects, shown in Figure 5. This graph indicates the lowest percentage in the Proof-of-Concept Stage (and correspondingly the highest percentages of Proof-of-Product and Proof-of-Adoption Stages) in 2021.

Figure 4. Stages of Research Percentages by Annual Performance Reporting Year.

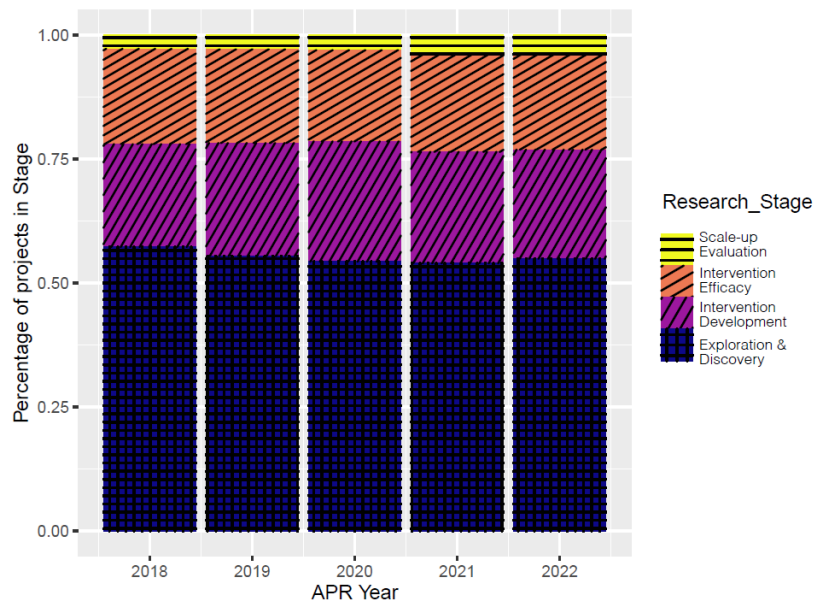
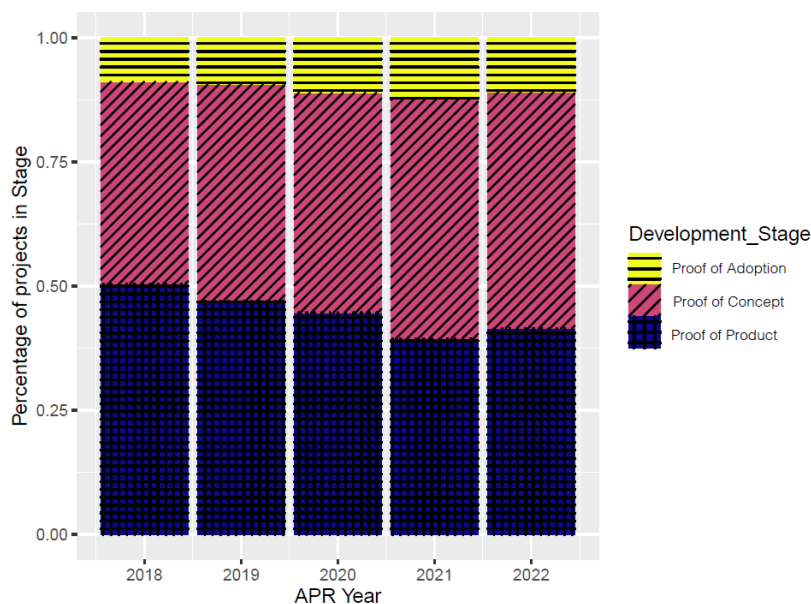


Figure 5. Stages of Development Percentages by Annual Performance Reporting Year.

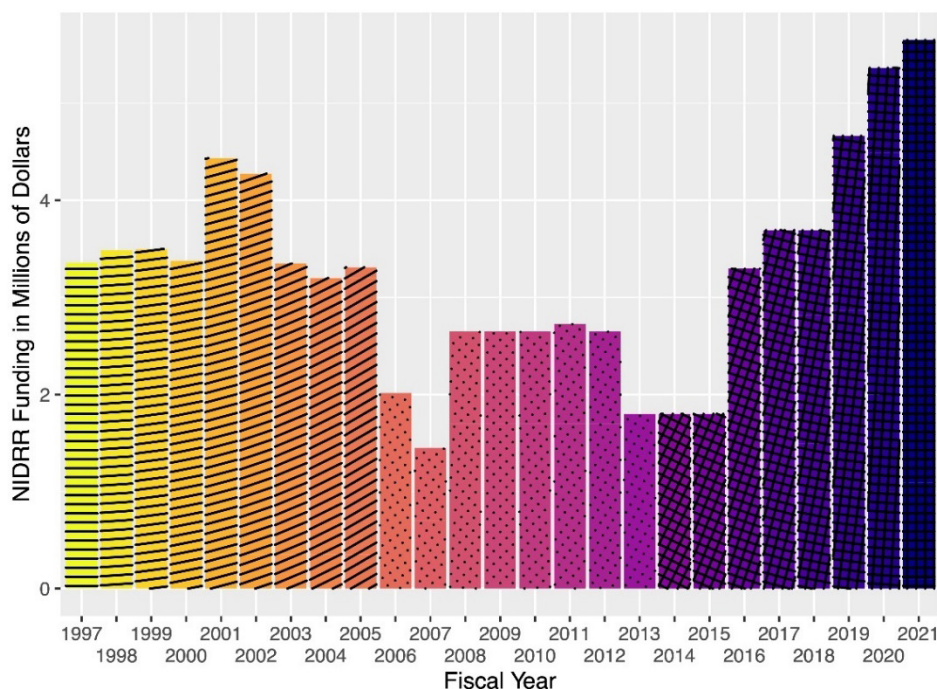


[Expand research on issues of aging and disability and community living.](#)

NIDILRR has had a long-term commitment to funding grants that focus on the experience of people aging with disabilities. The move from the Department of Education into ACL in HHS came with the opportunity for renewed commitment to funding in the area of aging. Over the period of the last LRP, funding in this area increased. Figure 6 plots by fiscal year the number of dollars (in millions) that NIDILRR invested in grants related to aging with disability.

The figure shows that prior to the last LRP there was a high point in 2001 of NIDILRR funding aging-related grants (\$4.44 million). Subsequently there was a falloff in NIDILRR funding in this area, with funding reaching a low of \$2.45 million in 2007. Funding did recover in 2008, with funding levels remaining rather steady at around \$2.65 million between 2008 and 2012. Again, there was a slight decline, but with investment beginning to grow substantially during the period of the last LRP. This steady increase reached a high point of \$5.64 million in 2021.

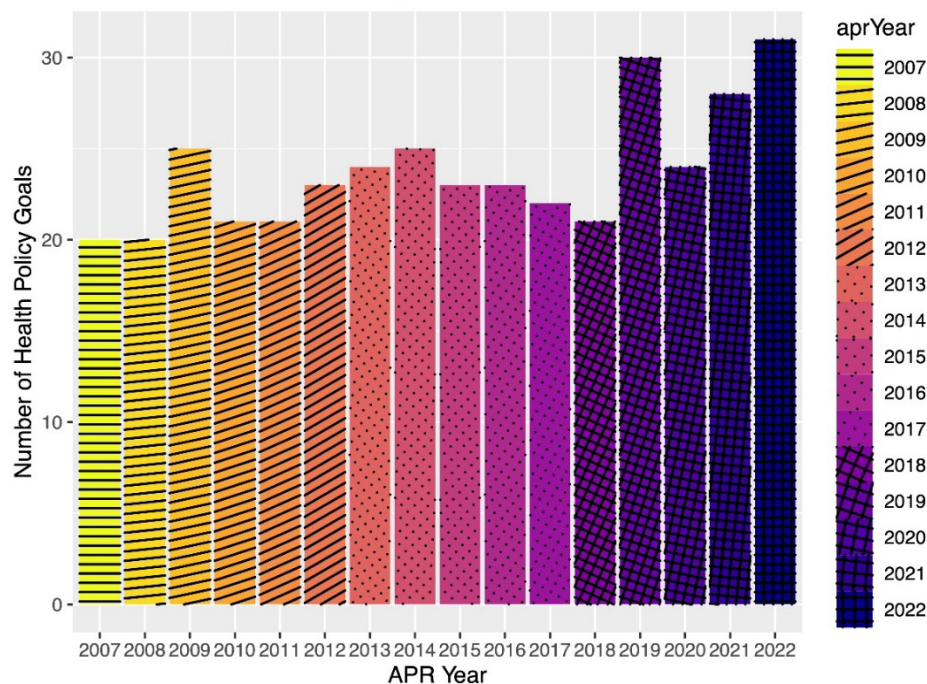
Figure 6. Funding Amounts for Aging Grants by Fiscal Year, 1997–2021.



[Conducting research on health policy issues to inform the national agenda.](#)

To understand NIDILRR's progress on this commitment, NIDILRR analyzed the goals of NIDILRR-funded grants that related to health policy. To illustrate NIDILRR's success in this area over the period of the last LRP, Figure 7 shows the number of health policy goals in NIDILRR-funded grants between 2007 and 2022.

Figure 7. Health Policy Goal Count by Annual Performance Reporting Year.



New Research Agenda

The following section summarizes a number of overarching new emphases, then presents more detailed specific research directions by domain. NIDILRR’s research programs have long been aimed at improving outcomes among people with disabilities in the three interrelated domains of (1) community living and participation, (2) health and function, and (3) employment. Its research agenda for the next 5 years builds on current investments and moves them along the stages of R&D while also initiating new research on topics that are important and beneficial to people with disabilities. The agency will carry out this agenda through thoughtful planning and publication of field-initiated and NIDILRR-initiated grant opportunities.

New Emphases

During the next 5 years, NIDILRR plans to carry out a research agenda that builds on the strengths of its existing portfolio and evolves in ways that broaden the agency’s reach and impact. The following emphases are derived from the input that NIDILRR received while planning this LRP, the work of its grantee network, and the requirements in Title II of the Rehabilitation Act. These emphases will guide NIDILRR’s planning and activities for the next 5 years.

1. **Emphasis 1: NIDILRR will strive to be a leader as an [antiableist research organization](#).**

Antiableism is strategies and practices that challenge and counter ableism, or discrimination and social prejudice against people with disabilities. An antiableist research organization centers the lived experiences of people with disabilities throughout the organization and its operations, acts as a champion for inclusion and accessibility, supports people with disabilities in the workplace, and uses updated terminology and images throughout its daily operations.

2. **Emphasis 2: NIDILRR will encourage and expand opportunities for inclusion of people with disabilities across the research enterprise with intentional strategy and operationalization.**
NIDILRR has long valued and advocated for input from people with disabilities in the work it funds. In 2024–2028, NIDILRR will deepen and expand the expectation for disability inclusion in the activities and grants it sponsors. This commitment to and focus on intentionally inclusive teams across its various R&D portfolios requires foresight, commitment, communication, engagement, and openness to change among staff, grantees, and applicant organizations. Including people with disabilities across the research enterprise means talking about the disability identity of individuals and building inclusive research spaces where investigators and staff with disabilities are integral members of the research team. For the NIDILRR Federal staff, this means purposeful inclusion of people with disabilities as project officers and research administrators. NIDILRR will intentionally invite and encourage the inclusion of people with disabilities in the work that it sponsors, which will add depth, relevance, and nuance to findings and products that emerge from sponsored R&D projects. In addition, NIDILRR will continue to develop and apply administrative infrastructure to solicit and measure the involvement of people with disabilities in the agency’s planning and peer review processes, as well as their participation in and leadership of NIDILRR grant teams.
3. **Emphasis 3: NIDILRR will encourage the adoption of innovative research approaches.**
NIDILRR will intentionally invite R&D applications that use new and innovative research approaches to generate new knowledge about the experiences and outcomes of people with disabilities. These approaches may include, but are not limited to, critical and community-based participatory action research (PAR), critical epidemiologies, digital ethnographies, group-level analyses of the interaction between individual and environmental-level variables, intersectional research methods, and various methods for predictive modeling.
4. **Emphasis 4: NIDILRR will expand its visibility and grow the field of disability and rehabilitation research through its grantee network.**
This commitment means growing and expanding NIDILRR’s reach in terms of applicants, grantees, research disciplines, and geographic locations. NIDILRR will expand the pipeline of disability research expertise by conducting outreach to organizations, professions, disciplines, and researchers who are not yet engaged with NIDILRR. This expansion may include efforts to introduce people with disabilities and disability advocacy organizations to researchers in the field. It may also include explicit solicitation of R&D focused on populations of people with disabilities who have not historically been prominent in NIDILRR’s portfolio. These populations may include, but are not limited to, people in the limb loss community, people experiencing Long COVID, or people with end-stage renal disease or people with disabilities who are on kidney or organ transplant lists.
5. **Emphasis 5: NIDILRR will encourage research proposals that assess environmental- and system-level variables that affect disabled people and the disability community.**
NIDILRR will intentionally invite and prioritize innovative approaches to measuring, quantifying, and understanding environmental- and system-level factors and the ways that they shape the experiences and outcomes of people with disabilities. NIDILRR grantees understand and apply the social model of disability in their research, but most disability researchers are trained in behavioral, social, or clinical disciplines in which individuals are the basic unit of measurement

and analysis. NIDILRR will strengthen disability research by prioritizing new methods and approaches for collection and analysis of data about the enabling or disabling characteristics of the built and social environments in which individuals live. While some NIDILRR programs, such as the Traumatic Brain Injury (TBI) Model Systems and the ADA National Network, have been exploring the impact of environmental-level variables on outcomes among their target populations, additional emphasis on measuring environmental factors will further promote such analyses across NIDILRR's programs and target populations.

6. **Emphasis 6: NIDILRR will build its portfolio of international R&D activities.**

The purpose of this portfolio will be to develop new knowledge and methods for the practice of rehabilitation in the United States and internationally, and to facilitate an international exchange of research-based information and expertise that is beneficial to people with disabilities around the world (29 U.S.C. 764(b)(6)). NIDILRR has a responsibility to share the work of grantees nationally and internationally, enhance the strengths of its researchers and grantees, and act as a key international player in rehabilitation research.

7. **Emphasis 7: NIDILRR will invest in research projects across its entire portfolio that intentionally include populations of people with disabilities with the greatest support needs.**

NIDILRR will continue to emphasize that the R&D it sponsors will address the needs, experiences, and outcomes of people with disabilities who have the greatest support needs. The Rehabilitation Act specifies that the agency must make research grants that have practical applications and maximize the full inclusion and integration of people with disabilities, "especially individuals with the most significant disabilities" (29 U.S.C. 764(a)(1)). NIDILRR uses the term "people with disabilities with the greatest support needs" as it continues to fulfill and emphasize this statutory requirement.

8. **Emphasis 8: NIDILRR will invest in research projects across its entire portfolio that have an intersectional focus.**

NIDILRR will continue to expand its portfolio of disability R&D grants that focus on people with disabilities from underserved populations. This emphasis reflects the statutory requirements of the Rehabilitation Act and the stakeholder input NIDILRR received about sponsoring research focusing on disabled individuals with two or more intersecting identities. Much can still be learned about the experiences and outcomes of disabled people who come from underserved racial and ethnic communities and other underserved communities highlighted in Section 2 of [Executive Order 13985](#), including religious minority populations, LGBTQ populations, rural areas, and others adversely affected by persistent poverty or inequality. There is a need to measure disparities resulting from multiple systems of oppression: racism, ageism, sexism, ableism, homophobia, etc. NIDILRR will continue to require that applicants for all of its R&D grants demonstrate that people with disabilities from underserved racial and ethnic communities will be included in study samples in sufficient numbers to generate knowledge and products relevant to the full racial and ethnic diversity of their target population. Addressing this emphasis will also include expanding grants made to historically Black colleges or universities, Hispanic-serving institutions, American Indian tribal colleges or universities, and other institutions of higher education whose minority student enrollment is at least 50% (29 U.S.C. 718(b)(2)(B)). These grants build research capacity and tend to focus recipients' R&D activities on the experiences of people with disabilities from underserved racial and ethnic communities.

9. Emphasis 9: NIDILRR will invest in research projects that focus on **children and youth with disabilities**.

NIDILRR will welcome and intentionally solicit research applications that focus on the experiences and outcomes of children and youth with disabilities, including experiences and outcomes in their school communities. Section 504 of the Rehabilitation Act entitles students with disabilities to aids and services necessary to meet their educational needs. Section 504 extends beyond the classroom to provide equal opportunity to participate in school athletics and extracurricular activities and to be educated in settings free from harassment and bullying based on their disability. NIDILRR's authorization under the Rehabilitation Act makes it a natural sponsor of research that explores how and to what extent these Section 504 rights are being facilitated and realized among students with disabilities across the United States.

10. Emphasis 10: NIDILRR will invest in research projects that focus on **adults aging with disability**.

NIDILRR will continue to prioritize and invite R&D activities that focus on the experiences and outcomes of adults who are aging with long-term disabilities. NIDILRR research in this area has focused primarily on people aging with physical disabilities or aging with intellectual and developmental disabilities. Under this LRP, its aging portfolio will expand to include a focus on aging with serious mental illness, aging with sensory disabilities, and other specific disability populations.

Community Living and Participation Domain

Overview

NIDILRR supports important research within all three of its interrelated outcome domains, but community living and participation among people with disabilities is the ultimate outcome of all of the agency's research, development, capacity building, and KT grants. For example, NIDILRR sponsors research on health care and rehabilitation not just to improve health and functional abilities but also to enable people with disabilities to be more active and engaged in their communities.

NIDILRR aims to improve community living outcomes among people with disabilities by sponsoring R&D activities to improve knowledge of the wide variety of factors that promote or hinder community living. NIDILRR and its grantees will then apply this new knowledge toward improved policies, practices, services, and supports that promote community living outcomes among people with disabilities.

Context for research on community living and participation

The United States continues to prioritize integration and inclusion of people with disabilities through active implementation of the ADA, the Supreme Court's Olmstead decision, and the [Centers for Medicare & Medicaid Services \(CMS\) Home and Community-Based Services Settings Rule](#). For more than a quarter of a century the United States has been actively shifting its provision of long-term services and supports for people with disabilities into the community and away from institutional settings such as nursing homes. As more people with disabilities, including those with the greatest support needs, live in and receive services and supports in the community, new research-based knowledge about factors that impact community living outcomes is needed to guide and shape the provision of those services. These factors include, but are not limited to, Federal and state long-term care policies and practices, the availability and accessibility of housing and transportation options, the accessibility of the built environment, and the availability of direct support providers, peer mentors, and other support services in the community.

The COVID-19 pandemic highlighted several of these barriers to community living. For example, the shortage of home- and community-based long-term services and supports providers was amplified during the pandemic, with a large majority of providers turning away referrals due to lack of adequate staffing. The pandemic also exacerbated existing feelings of social isolation and loneliness among people with disabilities.

Accomplishments of past community living and participation research

- **Supporting parents/guardians with disabilities.** NIDILRR grantees continue to lead the way in creating new knowledge about the experience of parenting with a disability and the policies that are barriers to and facilitators of positive parenting outcomes among people with a wide variety of disabilities. NIDILRR grantees are developing research-based services, supports, and adaptive childcare equipment and resources for parents with disabilities.
- **Creating evidence-based interventions to support community living.** NIDILRR grantees have conducted research leading to the development of interventions that improve community living outcomes among youth with serious mental health conditions who have been previously placed in residential treatment or foster care, or who have been involved in the criminal justice system.
- **Generating the evidence for supported decision-making.** NIDILRR grantees have conducted research toward supported decision-making interventions, which help people with intellectual disabilities to live more independently in the community. Supported decision-making promotes self-determination, independence, and autonomy among people with intellectual disabilities and enables them to take more control over their lives and their chosen activities in the community.
- **Reducing social isolation and loneliness.** NIDILRR grantees are conducting research toward the development and testing of interventions to increase social connections and to reduce social isolation and loneliness among people with disabilities. One of these interventions is being developed for application among people with disabilities generally, while another is being developed for use among people with serious mental illness.

Proposed new community living and participation research agenda

- **School experiences among children with disabilities.** NIDILRR will support research on the school experiences and outcomes among children with disabilities who have 504 plans under the Rehabilitation Act of 1973. Schools are a primary community in which children with disabilities spend their time. While the Department of Education sponsors significant research on the educational and learning outcomes of students with disabilities under the Individuals with Disabilities Education Act, there is currently very little research-based knowledge about how students with disabilities participate in their school environments, nor about experience barriers to or facilitators of a positive social experience in their schools.
- **Climate change and disability.** NIDILRR will support research to better understand how climate change and its consequences shape the experiences and community living outcomes among people with disabilities.
- **Disaster and emergency preparedness among people with disabilities.** While NIDILRR has previously sponsored research toward disaster and emergency preparedness and emergency

response practices that are fully inclusive of people with a wide range of disabilities, more work is needed to inform and shape inclusive responses to emergency situations that are becoming more prevalent. These may include, but are not limited to, mass shooting emergencies and intense weather-related emergencies.

- **Accessible travel infrastructure.** NIDILRR will continue to sponsor R&D activities toward fully accessible air travel and ground travel options for people with disabilities, including research on the use of personal wheelchairs for airline travel. NIDILRR will continue to coordinate these activities with Federal partners, including the U.S. Department of Transportation, Federal Aviation Administration, and U.S. Access Board.

Health and Function Domain

Overview

Maximizing health and function outcomes among people with disabilities is critical to the achievement of NIDILRR's mission and to optimizing community living and employment outcomes. NIDILRR's health and function portfolio stems from its founding as a rehabilitation research agency aimed at developing an evidence base for interventions that maximize function, health, and long-term independence among people with disabilities. Grants in the health and function domain of NIDILRR's portfolio in part reflect its historical roots in medical rehabilitation research and practice. NIDILRR's three Model Systems programs that focus their research on people living with SCI, TBI, and burn injury are based in medical rehabilitation and related clinical settings that serve these populations. These programs focus primarily on development and testing of interventions to maximize long-term functional status and health in the community following traumatic injury, but they also conduct research toward improved community living and employment outcomes. In addition to these medical rehabilitation research programs, NIDILRR's health and function portfolio features an important diversity of research grants that focus on promoting positive health outcomes among people with developmental, cognitive, sensory, psychiatric, and physical disabilities.

Context for Research on Health and Function

People with disabilities continue to experience significant health disparities attributable to poor access to needed health care services. People with disabilities are significantly more likely than individuals without disabilities to be in fair or poor health and to experience a wide variety of diseases and chronic conditions. Women with disabilities are more likely to give birth prematurely and have infants with low birthweight than are women without disabilities. Relative to people without disabilities, people with disabilities are more likely to experience obesity, hypertension, and heart disease, and these risks often have major adverse health outcomes, including reduced longevity. Health disparities between people with and without disabilities are often greater among people from underserved communities. For example, Black and Latino/a adults with intellectual and developmental disabilities (IDD) are more likely to report fair or poor physical and mental health compared to White adults with IDD.

The COVID-19 pandemic called attention to and worsened many of the existing health disparities between people with and without disabilities. People with disabilities were disproportionately impacted by the pandemic and experienced delays in care and unmet health care needs during its first year. People with IDD are significantly more likely to die from COVID-19 than the general population, spotlighting the need for additional research and resources on adverse health outcomes among this population. More broadly, NIDILRR-sponsored research has determined that during the COVID-19

pandemic, working-age people with disabilities who received Medicaid home and community-based services experienced an excess mortality rate that was 26.6 times that of the working-age general population under the age of 65. People with disabilities also experienced a variety of unique sources of stress and trauma related to the pandemic, such as fears about health care rationing and ableism in health care, isolation, and death and illness of loved ones and community members.

Many people with disabilities lack adequate access to health care, rehabilitation, and personal assistance services and interventions that meet their needs. Increasing access to these services and maximizing health and function outcomes among people with disabilities are critical to their general well-being and their fulfillment of their employment and community living goals. Achieving these goals requires ongoing research to generate the evidence base for new rehabilitation strategies and for refinement of policies, programs, practices, and technologies that lead to improved access and improved health and function outcomes.

NIDILRR's location within ACL in HHS allows the agency to collaborate and share knowledge with ACL's health-related policy and service delivery programs, as well as with HHS agencies such as the National Center for Medical Rehabilitation Research (NCMRR), the National Institute on Aging (NIA), the Centers for Medicare and Medicaid Services (CMS), SAMHSA, the Centers for Disease Control and Prevention (CDC), and the Health Resources and Services Administration (HRSA). NIDILRR's proximity to these HHS agencies informs its research opportunities and provides connections through which grantees can share their expertise and research findings with relevant Federal organizations. For example, NIDILRR grantees from the ADA National Network have been meeting with colleagues from ACL, HRSA, and the HRSA-funded telehealth resource centers to discuss collaborations that can maximize the availability and accessibility of telehealth services for people with disabilities.

Accomplishments of past health and function research

- **Understanding TBI as a chronic condition.** The TBI Model Systems program has been instrumental in shaping the field's understanding of TBI as a chronic health condition that requires lifelong management to promote positive health and community living outcomes.
- **Promoting mental-health self-management.** NIDILRR grantees developed the first-ever mental health self-management education referral algorithm, designed to help primary care (and other) providers identify and refer their patients to peer-led illness self-management programs, including online options during the COVID-19 pandemic, across the United States.
- **Preparing clinicians to serve people with disabilities well.** NIDILRR grantees provide training, practicum experiences, and technical assistance to medical students and residents on effective self-directed care, integrated health care, and recovery models to prepare them to better meet the needs of adults with serious mental illnesses in primary and specialty care settings.
- **New evidence-based practice guidelines.** Following a history of funding to improve assessments and treatments for persons with significant TBI, NIDILRR collaborated with the American Academy of Neurology and the American Congress of Rehabilitation Medicine to sponsor the development of evidence-based practice guideline recommendations for the diagnosis and treatment of people with prolonged disorders of consciousness.

- **New national health goal focused on TBI recovery.** NIDILRR's TBI Model Systems program successfully proposed a Healthy People 2030 objective to "increase the percentage of adults who can resume more than half of their preinjury activities 5 years after receiving acute inpatient rehabilitation for TBI." This focus on recovery following TBI is now one of a limited number of national objectives in the Healthy People 2030 effort, and the NIDILRR-funded TBI Model Systems database is the approved data source for monitoring progress toward the goal.

Proposed new health and function research agenda

- **Inclusive Health Measurement.** NIDILRR grantees will continue to work directly with people with IDD to systematically develop valid and reliable health measures that people with IDD can directly answer. This emerging, inclusive research infrastructure will allow people with IDD to independently report their health status to researchers and clinicians instead of relying on family members or caregivers to serve as their proxy respondents.
- **Expanding the reach of NIDILRR's SCI research.** NIDILRR will build upon the strengths of its long-standing SCI research program, by exploring ways in which people with non-traumatic spinal cord injuries (ntSCI) can be included in ongoing and future research protocols. Inclusion of people with ntSCI has the potential to significantly expand the generalizability of NIDILRR-funded SCI research findings.
- **Improved pregnancy and maternal health outcomes.** NIDILRR will continue to sponsor research toward evidence-based interventions, services, and supports to improve pregnancy and maternal health outcomes among people with disabilities.
- **New advances in prosthetics and orthotics.** NIDILRR will revitalize its long-standing portfolio of R&D grants in the field of prosthetics and orthotics (P&O). Sponsored work in this area will include development and testing of advanced sockets and interfaces that improve the limb health and function among P&O users.

Employment Domain

Overview

NIDILRR supports research on employment to create knowledge that can be used to improve employment outcomes among people with disabilities and to close the employment gap between those with and without disabilities. Employment is an important component of community living as it leads to financial resources that allow people with disabilities to have real choices about how they participate in their communities. Areas of research focus within this domain have included improving our understanding of policies and practices that support employment among people with disabilities, development and promotion of employer practices associated with positive employment outcomes among people with disabilities, and R&D toward evidence-based services and supports that maximize employment outcomes.

NIDILRR has a long history of collaborating with other Federal agencies, such as the Rehabilitation Services Administration and the Department of Labor's Office of Disability Employment Policy. These collaborations help NIDILRR and its grantees identify critical research questions aimed at examining employment experiences and outcomes among people with disabilities. NIDILRR is committed to

working closely with these and other partners to improve employment outcomes among people with disabilities.

Context for research on employment

The context for NIDILRR-funded work in the area of employment is shaped by a variety of changes in Federal legislation and public policy, programs, and services. Several emphases in the 2014 Workforce Innovation and Opportunity Act (WIOA) remain relevant for people with disabilities. They include competitive integrated employment as the preferred employment outcome; students' and young adults' transition to employment; implementation of evidence-based practices in employment and training programs; coordination between state vocational rehabilitation, Medicaid, and IDD agencies; and new definitions of customized and supported employment.

In the past several years, the nature of employment has shifted significantly due to the COVID-19 pandemic, with greater access to remote work and more flexible schedules. Pandemic-related labor shortages created a disproportionate demand for workers, which benefited people with disabilities who remained in or entered the labor market. These trends were associated with the historically high rates of employment among people with disabilities in 2022, which were systematically documented by NIDILRR grantees. If sustained, these changes in workplace practices and labor force trends have the potential to benefit people with disabilities, reducing many barriers to employment. Despite these positive trends, NIDILRR grantees have also demonstrated that the 2022 ratio of employment to population among working-age people with disabilities (34.8%) was less than half that among working-age people without disabilities (74%).

As the labor market and the employment landscape continue to evolve with the availability of new technology and emerging evidence-based policies, services, and supports, NIDILRR remains committed to funding research that leads to continued improvements in the employment experiences and outcomes among people with disabilities.

Accomplishments of past employment research

- **Monitoring and reporting labor market trends among people with disabilities.** NIDILRR grantees systematically produce and provide timely public reports about key economic and employment indicators among people with disabilities. NIDILRR grantees produce the monthly "[national Trends in Disability Employment](#)" (nTIDE) reports and webinars upon release of the Bureau of Labor Statistics' monthly jobs report. These reports have been cited by high-profile financial and labor market outlets such as Bloomberg.com, the Wall Street Journal, the Los Angeles Times, Forbes, and Fortune.
- **Improving employment outcomes among people who are blind or have low vision.** NIDILRR grantees have demonstrated that an intentional meeting between hiring managers and a vocational rehabilitation professional reduces employers' implicit bias about the competence of potential employees who are blind. NIDILRR grantees have also demonstrated the positive impact of a summer work experience program on the employment outcomes of transition-age youth who are blind or have low vision.
- **Improving employment outcomes among people with IDD.** NIDILRR grantees have demonstrated that youth and young adults with IDD who participate in a customized employment intervention experience significant increases in independence and employment outcomes. NIDILRR grantees have also conducted research that demonstrates the positive

employment outcomes experienced by young adults with IDD who participate in postsecondary education programs.

- **Advancing competitive integrated employment.** NIDILRR grantees are developing the evidence base for a variety of services and supports to promote competitive integrated employment outcomes among people with a wide variety of disabilities.
- **Understanding the important role of employers.** NIDILRR grantees have moved well beyond the study of employer attitudes to generate an evidence base for employer practices that lead to strong employment outcomes among people with disabilities.
- **Adapting effective employment interventions to support youth with disabilities.** NIDILRR grantees have adapted the evidence-based intervention, Individual Placement and Support (IPS) and IPS Fidelity Scale, to more effectively meet the unique employment needs of youth and young adults with serious mental health conditions.

Proposed new employment research agenda

- **Focus on the needs and experiences of day habilitation program participants.** With the transition to competitive integrated employment and the closure of segregated workshops and subminimum wage jobs, many people with disabilities are being served in day habilitation programs. There is a need for focused research on the employment experiences and outcomes of people with disabilities in these programs. Such research can document the experience of program participants and create an evidence base for targeted services and supports to achieve their competitive integrated employment.
- **Research toward increased participation in competitive integrated employment (CIE) among people with disabilities.** The Department of Labor's Office of Disability Employment Policy (ODEP) has described a number of priorities to be pursued that can increase CIE among people with disabilities. They include employment first policies, restructuring reimbursement rates to incentivize CIE, building capacity of state and provider staff to support and prioritize CIE, interagency coordination, and employer engagement, among others. NIDILRR will continue to consult and collaborate with ODEP to ensure that its employment research resonates with and supports these priorities.
- **Systematically building the evidence base for services, supports, and interventions that promote CIE among people with disabilities.** NIDILRR will intentionally create opportunities for disability employment research that advances the knowledge base about the efficacy and scalability of specific interventions for specific populations of workers with disabilities. Such interventions may focus on individual characteristics, on environmental-level factors such as policies or employer practices, or on both. NIDILRR will intentionally apply its "stages of research" and "stages of development" frameworks to help grow the availability of evidence-based interventions that can be applied in communities and settings throughout the United States.

Technology for Access and Function

Overview

NIDILRR supports research, development, and adoption of technology products to promote positive outcomes among people with disabilities in the domains of health and function, community living and participation, and employment. NIDILRR's investments in the development of technology have broadly and positively impacted people with disabilities and American society as a whole.

Technology is the application of knowledge through scientific means to solve practical problems. NIDILRR-sponsored activities toward new technologies generate knowledge, models, methods, tools, standards, applications, devices, and systems that promote positive outcomes among diverse populations of people with disabilities. They result in products that can be made available to people with disabilities and to those who provide them with services and supports. NIDILRR supports the transfer of products into use in the community through work with partner organizations such as manufacturers and distributors.

NIDILRR recognizes four key types of technology that are beneficial to people with disabilities. NIDILRR categorizes these technology types to highlight the multiple practical ways that technology researchers and engineers in the field can contribute to improved outcomes among people with disabilities:

- Rehabilitation technologies restore, maintain, or slow the decline of function among people with disabilities.
- Assistive technologies address activity and participation difficulties encountered by people with disabilities by augmenting, compensating for the loss of, or restoring function to improve performance.
- Service technologies facilitate the provision of rehabilitation, assistive technology, training, and other interventions to people with disabilities.
- Systems technologies provide improved access to and use of critical infrastructures utilized by people with disabilities and others in the general population. They include information and communication technology, the built environment, public transportation, and health care infrastructures and equipment.

NIDILRR has long recognized the importance of the field of rehabilitation engineering to the health and function, community living, and employment of people with disabilities. Rehabilitation engineering is concerned with research toward technologies to evaluate, diagnose, restore, or maintain a person's physical, sensory, communicative, or cognitive functions, or slow their decline, so as to promote full inclusion and participation in the community. Rehabilitation engineering generally leads to rehabilitation and assistive technologies.

Context for R&D toward technology for access and function

Advances in scientific knowledge and technologies are rapid and accelerating. High-powered and long-lasting batteries, cloud computing, machine learning, artificial intelligence, pervasive information, big data and analytics, rapid design and fabrication, advanced materials, micro-electro-mechanical systems, sensor technologies, and advanced communication technologies may all be adapted or built upon to address specific circumstances and needs of people with disabilities. Automation and robotics techniques continue to show strong potential to improve many aspects of community mobility and travel. Rapid ongoing changes in all of these areas must be harnessed toward the development of new

technologies that promote the full societal participation and integration of people with disabilities. New products and technologies that arise from these advances must be designed so as to ensure that people with disabilities can fully use them.

The need for remote, virtual, and hybrid supports and services during the COVID-19 pandemic accelerated use and adoption of virtual communication platforms, telemedicine, and other virtual services. This shift toward greater use of virtual communications and services has highlighted the importance of accessibility and usability of information and communication technologies among people with disabilities. Despite civil rights protections in the Rehabilitation Act and the ADA, a large percentage of websites are inaccessible for many populations of people with disabilities. The digital divide can make the use of technology-based communications and services difficult for people with disabilities. People with disabilities are significantly less likely than those with disabilities to own a computer and are significantly less likely to have technology components that allow access to high-speed internet services.

Within this broad context of rapid technological advances as well as ongoing access barriers, NIDILRR is committed to sponsoring advanced R&D toward technologies that promote positive health and function, community living and participation, and employment outcomes among people with disabilities.

Accomplishments of past technology R&D

- **Improving telecommunications access.** NIDILRR grantees have contributed to significant innovations and system changes in the area of telecommunications access. They include research-based provision of real-time text in wireless phones, video relay services, and access to 9-1-1 services. These and related advances allow people who are deaf and hard of hearing to communicate directly with hearing counterparts. NIDILRR R&D in this area has, for the first time in history, allowed people who are both deaf and blind to communicate with sighted people in a standardized way.
- **Improving gait rehabilitation and function.** NIDILRR grantees have contributed to significant innovations in robotic and exoskeleton-based rehabilitation strategies for improved mobility and manipulation among children with cerebral palsy. These innovations include a modular over-ground, robotic training platform that augments walking capability and leads to effective loading and efficient functional gait during walking practice.
- **Greater access to exercise opportunities.** NIDILRR grantees have made important contributions in the area of exercise accessibility among people with disabilities. These contributions include research toward exercise-monitoring technologies for use by wheelchair users and online tools to promote community-based physical activity among youth with disabilities. NIDILRR grantees have developed accessible exercise equipment, active video game controllers adapted for use by people with disabilities, virtual environments to socially motivate recreational exercise, and standards for the universal design of fitness equipment.
- **Shaping communication technologies.** An NIDILRR grantee has advanced the science and practice of AAC by creating a new way for people with communication disabilities to use their communication devices. Another NIDILRR grantee has developed visual scene displays (VSDs) for communication devices, which are an alternative to traditional grid displays that have isolated symbols presented in rows and columns. VSDs are context-specific photos or pictures that

people can use to communicate with others. The grantee has successfully transferred this technology to major manufacturers of AAC hardware and software.

Proposed new technology R&D agenda

NIDILRR will maintain a strong balance of field-initiated and agency-initiated R&D opportunities that lead to needed innovations in rehabilitation technologies, assistive technologies, service technologies, and system technologies.

As in all other areas of NIDILRR's portfolio, the agency will strengthen requirements for inclusion of people with disabilities on sponsored technology-focused research teams. By promoting the inclusion of people with disabilities on the staff of Rehabilitation Engineering Research Centers (RERCs) and other grant mechanisms that support technology development, NIDILRR will promote the practice of participatory action design and engineering (PADE). This practice will increase the successful development and use of NIDILRR-funded technologies in the real world by incorporating the inclusion and engagement of people with disabilities from conceptualization to commercialization.

NIDILRR will continue to support and emphasize the need for new and improved recreational, sport, and exercise technologies for use by people with disabilities. Emerging artificial intelligence tools show promise for creation and personalization of exercise options for people with disabilities, based on their individual capacities and interests and the facilities and equipment available to them. Rapid design and fabrication capacities in the field make it increasingly feasible to develop and mass-market accessible sports equipment that was once only available to elite Paralympic athletes.

NIDILRR will continue to support R&D activities that improve local and long-distance travel options for people with disabilities. They will include ongoing work toward the physical, cognitive, and sensory accessibility of emerging autonomous vehicles as well as design of commercial aircraft spaces and technologies to allow the use of personal wheelchairs as airline seating.

NIDILRR will support smart home technologies that enable or assist people with disabilities to live more independently in their homes. They will include, but are not limited to, the ongoing development of smart and accessible living spaces, kitchens, and bathrooms. With the ongoing development of the "internet of things," there are opportunities to develop smart home environments with accessible remote control of home appliances, security systems, and other home features.

NIDILRR will support R&D building upon recent developments in robotics, human–robot interaction, and artificial intelligence in rehabilitation technology applications. These recent advances have led to significant capacities for robot-assisted neurological, musculoskeletal, and cognitive training and rehabilitation for people who have experienced stroke or other neurological events or injuries.

NIDILRR will support research into rehabilitation applications of immersive technologies such as virtual reality, augmented reality, and mixed reality. These technologies can transport people with disabilities into stimulating virtual environments, enabling them to practice functional movements, exercises, and activities in a safe, controlled, and entertaining setting. These immersive experiences can enhance rehabilitation motivation as well as the tracking of progress and provision of real-time feedback to users.

NIDILRR also aims to sponsor R&D that capitalizes on recent advances in sensor technology, which is increasingly being used in hospitals, clinics, homes, and community settings. For example, wireless sensors for continuous, multimodal measurements at the skin interface with prosthetic, orthotic, and

wheeled mobility devices may improve comfort and help protect against skin breakdown. Sensors can be used for personal health care, home health monitoring, and other continuous real-time monitoring applications in the clinic or community. Wearable sensor technologies, which include sensor gloves, wristlets, shoes, glasses, and other devices, show promise for facilitating and guiding rehabilitation services. However, designing these devices as nonobtrusive and intuitive systems for longer-term home and community use by people with disabilities may dramatically broaden their range of applications.

Disability Statistics and Demographics Research

Overview

Like its technology R&D portfolio, NIDILRR sponsors work in disability statistics and demographics to support positive outcomes in each of NIDILRR's three outcome domains. Synthesizing and promoting the use of the growing amount of disability data collected each year by the Federal government and others generates a greater understanding of the needs, experiences, and outcomes of people with disabilities.

Valid and reliable disability data provide current information about the prevalence of disability in the United States and the social and demographic characteristics of the disability population. The capacity for disability data collection and analysis is particularly important following the publication of Executive Order 13985. This order includes people with disabilities among the underserved communities for whom Federal agencies must affirmatively advance equity, civil rights, justice, and equal opportunity. High-quality data about the characteristics, needs, experiences, and outcomes of people with disabilities are critical to providing the evidence base needed to shape these governmentwide efforts.

Context for R&D in disability statistics and demographics

People with disabilities have historically been excluded from many data collection and research efforts. During the COVID-19 pandemic, people with disabilities were not considered or differentiated in COVID-19 vaccine trials. People with disabilities are routinely excluded from clinical research studies without justification, making it difficult to generalize study results to this critical population. NIDILRR's focus on disability statistics and demographics research aims to address the widespread lack of data about people with disabilities by ensuring that people with disabilities are purposefully included and identified in Federal data collection efforts, Federally sponsored research efforts, and other data collection initiatives.

Disability has been defined differently across various Federal entities, making it difficult to collect, combine, or compare data generated by different agencies. Given these challenges, Section 4302 of the Affordable Care Act selected the six-question sequence of disability identifiers included in the American Community Survey (ACS) as the standard for population health survey data collection efforts. These six questions assess difficulty with hearing, vision, cognition, ambulation, self-help, and independent living. Respondents who report having one or more of the six types of disabilities included in the questions are considered to have a disability.

While researchers have noted limitations to the six ACS questions, having these standardized measures included in national surveys year after year and across multiple efforts with different purposes has greatly expanded the data capacity to create new knowledge about the characteristics, needs, experiences, and outcomes of people with disabilities.

In 1982, NIDILRR convened the first meeting of the member agencies of what is now known as the Interagency Subcommittee on Disability Statistics (ISDS) to coordinate and promote the generation of

improved data and statistical knowledge about disability populations. In recent years the NIDILRR director has revitalized the ISDS, which meets on a regular basis to advance this important work.

Despite advances in the identification of people with disabilities in data collection efforts in the United States, disability questions are not regularly included in the majority of national censuses and household surveys internationally. NIDILRR's focus on disability statistics and demographic research capacity in this country can inform international efforts and capacity to collect valid and reliable information from and about people with disabilities in other countries.

Accomplishments of past R&D in disability statistics and demographics

- NIDILRR grantees have worked to expand the availability and quality of data focused on people with disabilities living in rural areas. NIDILRR grantees have collaborated to conduct analyses of rural indicators in existing large datasets and have begun to provide research-based knowledge about the experiences of people with disabilities living in rural areas.
- NIDILRR grantees have published analyses describing the disability populations that are not accurately identified by the ACS six items currently included in Federal data collection efforts. These NIDILRR-generated analyses will inform future modification and strengthening of these items.
- Across multiple decades, NIDILRR's Model Systems grantees have been creating and maintaining invaluable longitudinal datasets that describe the characteristics and life trajectories of people who have experienced SCI, TBI, or burn injury. These publicly available datasets are the largest longitudinal datasets in the world that focus on their respective populations. NIDILRR's Model Systems datasets have been used to generate hundreds of publications that provide information for people living with traumatic injuries, their families, and the clinicians and others who provide them with services and supports.
- The Annual Disability Statistics compendium produced by the Rehabilitation Research and Training Center on Disability Statistics and Demographics continues to provide high-quality disability statistics resources for people with disabilities, policymakers, and managers of programs at Federal, state, and local levels.

Proposed new disability statistics and demographics research agenda

- **Facilitate the modernization of disability data infrastructure.** NIDILRR and its grantees will continue disability research that informs the modernization of disability infrastructure, such as sampling strategies, data collection instruments and approaches, data-linking techniques, and data dashboards. These efforts will contribute to the growing availability of high-quality, detailed disability statistics about populations and subpopulations of people with disabilities.
- **Promote the use of NIDILRR-funded datasets.** [The ACL public access LRP](#) requires that NIDILRR grantees make their NIDILRR-funded data available to the public no more than 2 years following the end of their grants. This requirement took effect among new grantees in 2018, and NIDILRR-funded data from many grants will begin to be available in 2023 and future years. NIDILRR and its grantees will promote the public's access to and use of these rich data sources. Such public use of NIDILRR-funded data has the potential to expand the knowledge that can be generated from NIDILRR's limited resources.

- **Generate high-quality environmental-level data.** NIDILRR will create innovative opportunities for researchers to systematically collect and analyze data about the enabling or disabling characteristics of the environments in which people live.

ADA Technical Assistance, Training, and Research

Overview

NIDILRR funds a network of 10 regional centers that provide information, training, and technical assistance to assist individuals and entities in understanding their rights and responsibilities under the ADA. These 10 regional centers, along with the ADA Knowledge Translation Center (ADAKTC) and the ADA Collaborative Research Project, comprise what NIDILRR refers to as the ADA National Network. This grant program has evolved from its establishment in 1991 into a coordinated national training and technical assistance program that implements national outreach initiatives, conducts rigorous ADA research studies, and collects data on the outcomes of its work. The ADA regional centers function independently—as they provide resources, information, and training to constituents within their respective regions—and collectively, to develop national resource materials, training programs, and outreach efforts that respond to national needs. The ADAKTC facilitates coordinated interaction among the centers and works to optimize the outcomes of the network and to promote effective use of network resources and information.

Context for Technical Assistance, Training, and Research

The ADA National Network program is the only Federally sponsored national network of centers dedicated to providing information, technical assistance, and training on the ADA. The Network also conducts research to generate new knowledge about barriers to ADA compliance, strategies for the ADA’s effective implementation, and greater understanding of stakeholders’ need for and use of ADA National Network services. ADA training, technical assistance, and research activities conducted by the Network continue to evolve as new social, technological, and legal contexts emerge.

For example, the COVID-19 pandemic prompted the Network’s development of a variety of key resources for the disability community, employers, and public health practitioners, including a website featuring information on disability and COVID-19 and public webinars on such topics as equitable health care for persons with disabilities and inclusion of persons with disabilities in emergency management and preparedness practices. The Network also produced various technical assistance resources, such as a fact sheet on the accessibility of drive-thru medical sites and an audio conference on COVID-19 and return to work.

The COVID-19 pandemic necessitated the delivery of a large number of health services via online telemedicine platforms and led to acceleration in use of online platforms for working at home. These rapid shifts to the use of online platforms to support important social and commercial interactions led the Network to quickly develop expertise and materials to maximize ADA implementation in new online environments.

In the coming years there are a number of anticipated amendments to ADA regulations and guidance. These anticipated changes focus on accessibility of medical diagnostic equipment, websites and online systems, and sidewalks and other pedestrian facilities in the public rights-of-way. The ADA National Network will be heavily involved in addressing training and technical assistance requests related to these and other advances in the coming years.

Finally, the growing racial, ethnic, and cultural diversity of the U.S. population requires new regional and national outreach efforts to help ensure effective ADA implementation across communities.

Accomplishments of the ADA Network's Technical Assistance, Training, and Research

- California's Office of Emergency Services used the ADA Network's document entitled [Accessibility at Drive-Thru Medical Sites](#) to guide local efforts to provide accessible drive-thru vaccine clinics during the COVID-19 pandemic.
- The Metropolitan Transit Authority of Harris County (Houston, TX) used maps and data produced by the ADA National Network's collaborative research project to focus their sidewalk improvement efforts on transit stops most frequently used by people with disabilities.
- The Illinois Department of Human Services used ADA National Network resources to help evaluate whether their disability service systems were in compliance with ADA requirements and the U.S. Supreme Court's *Olmstead v. L.C.* decision.
- The ADA National Network developed materials to address barriers to ADA implementation that are unique to rural health care settings.

Proposed ADA National Network Agenda

- Provide outreach to underrepresented communities, and work to understand their information and technical assistance needs related to the ADA.
- Implement a systematic national Spanish language outreach program.
- Expand efforts to understand the racial and ethnic diversity of each region's population, toward development of tools and initiatives to meet their unique ADA information needs.
- Continue to serve as a neutral source of information for Federal enforcement agencies regarding emerging community needs and information gaps related to the ADA.
- Continue to analyze data and information collected during the ADA National Network's delivery of services in order to document successes and to guide future services.

Activities That Promote the Quality and Use of NIDILRR-Sponsored Research

Knowledge Translation

Overview

NIDILRR defines KT as the multidimensional, active process of ensuring that new knowledge and products developed through research ultimately improve the lives of people with disabilities and further their participation in society. KT requires ongoing interactions, partnerships, and collaborations among various stakeholders, including researchers, practitioners, policymakers, people with disabilities, and others. The process of KT, which is applicable to both technological and nontechnological knowledge and products, includes knowledge creation, knowledge dissemination, knowledge use or implementation, and evaluation of impact/outcomes. KT is a critical component of NIDILRR's mission and enables NIDILRR to promote the effective use of knowledge and products developed through its funded research.

Context for knowledge translation

For KT to be successful, new knowledge or products must address real issues faced by people with disabilities, offer helpful information or solutions related to those issues, be presented in ways that are accessible to the intended users, and be disseminated or distributed effectively. As users become aware

of new knowledge or a new product, they can make informed decisions about using it to change behavior, practice, policy, or systems to improve the lives of people with disabilities and further their participation in society.

It is crucial that researchers involve people with disabilities and other stakeholders in all components of KT to maximize the relevance, feasibility, usability, and reach of the new knowledge or products. Stakeholders include not only people with disabilities who may use the knowledge or product but also other interested parties, such as family members of people with disabilities, practitioners, policymakers, employers, Centers for Independent Living staff members, disability advocates, educators, assistive device manufacturers, and insurance companies. These and other stakeholders offer valuable perspectives on contexts in which the knowledge or product will be used. Different types of knowledge or products have different stakeholders, depending on their anticipated use and the contexts of their use. The input of a variety of stakeholders, or the lack of such input, can impact the likelihood that new knowledge or products will be used in the future.

Accomplishments

NIDILRR continues to expand and enhance its KT approach and repertoire, which includes intentional requirements for inclusion of stakeholders in NIDILRR-funded activities. For example, NIDILRR explicitly requires applicants and grantees to include people with disabilities and other relevant stakeholders as partners or collaborators in the research process and in activities related to dissemination, use or implementation, and evaluation of impact. NIDILRR has also recently strengthened its peer review criteria to better value the recruitment of people with disabilities and people from other underserved populations onto proposed grantee teams. By emphasizing the importance of including people with disabilities and other stakeholders in the disability research process, NIDILRR is naturally increasing the relevance of its funded work and the likelihood that stakeholders will use NIDILRR-generated knowledge and products in the future.

NIDILRR grantees are conducting research toward more effective KT in disability research. They are generating findings that contribute to effective KT within the disability and rehabilitation research field. Examples include, among others, research findings that describe the information needs of people with disabilities and other stakeholders, including those from diverse and underserved communities; information on applicable and effective KT strategies; and a new research framework that focuses on enhancing usability of research findings for clinical practice in rehabilitation. NIDILRR continues to fund KT centers to provide technical assistance to grantees as they plan and conduct KT activities to further promote the use of NIDILRR-funded work. In addition, NIDILRR's KT centers offer training opportunities to build capacity in various aspects of KT for grantees and other disability and rehabilitation researchers.

NIDILRR has also made steady progress in implementing the ACL Public Access LRP, under which NIDILRR grantees are required to make their peer-reviewed publications and scientific data available to the public at no cost. Through incremental implementation since 2017, all applicable NIDILRR-funded grants are now required to comply with these public access requirements. This successful implementation will further promote the use of results from NIDILRR-funded work by the public.

Proposed KT agenda for 2024–2028

In the next 5 years, NIDILRR will further its KT agenda through the following LRP goals:

- Implement and strengthen the requirements for inclusion of people with disabilities and other relevant stakeholders in all of its funded research, development, and related activities.
- Continue to fund KT grants in different content areas to provide KT support and capacity building for NIDILRR grantees. These KT grants will further advance understanding and applications of KT in the disability context and promote the use of NIDILRR-funded work.
- Explore ways to strengthen KT and further promote the use of NIDILRR-funded work through NIDILRR grant-making processes as appropriate.
- Expand and strengthen NIDILRR's requirements for making grantee peer-reviewed publications and scientific data publicly accessible.
- Strengthen and expand connections with disability, independent living, and rehabilitation research stakeholders within and outside the Federal government. Through these connections NIDILRR will gather input into NIDILRR-funded work and raise stakeholder awareness and use of new knowledge and products that emerge from it.
- Explore ways to build early KT capacity among students, fellows, and early career researchers who receive training as part of NIDILRR-funded grants.

Capacity Building

Overview

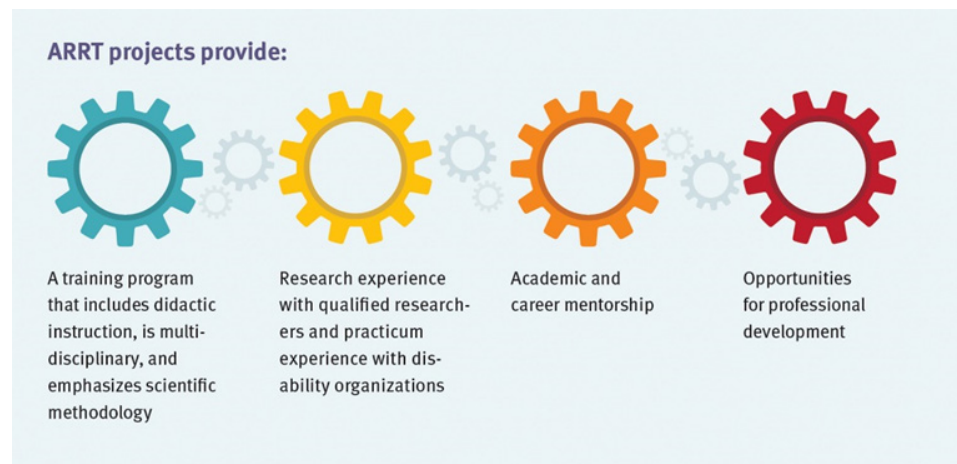
NIDILRR funds capacity-building grants and activities toward ensuring that well-trained research personnel conduct high-quality research activities that result in new knowledge and products in the field of disability, independent living, and rehabilitation research. Title II of the Rehabilitation Act, as amended, authorizes NIDILRR to build capacity for carrying out high-quality disability, independent living, and rehabilitation research by facilitating advanced training that includes trainees from people with disabilities and other underserved populations. The NIDILRR Switzer Research Fellowship Program (Switzer) and Advanced Rehabilitation Research Training Program (ARRT) both fulfill these statutory mandates. In addition, grantees in NIDILRR's Rehabilitation Research and Training Centers (RRTCs) and Rehabilitation Engineering Research Centers (RERCs) programs are required to provide research training to investigators who are early in their research careers.

Context for capacity building

Capacity building is important to demonstrate investment in researchers and support the next generation of collaborators, investigators, and students. NIDILRR's Switzer Program builds research capacity by annually providing 1-year grants to individual researchers to conduct independent rehabilitation projects that further NIDILRR's mission. Fellowships are awarded competitively through peer review, with selection based on the applicant's qualifications and experience and on the strength of their proposed research project. Prospective fellows may apply for Merit Fellowships if they are at the start of their careers in disability, independent living, and rehabilitation research. Applicants may request Distinguished Fellowships, funded at a somewhat higher level than Merit Fellowships, if they have more independent research experience. NIDILRR has awarded more than 300 Switzer Fellowships over the years.

NIDILRR's ARRT Program funds institutions of higher education to provide postdoctoral training, supporting approximately 70 research fellows every year. The goal of the program is to deliver advanced multidisciplinary training in disability and rehabilitation research to individuals with doctorates or similar advanced degrees who have clinical or other relevant experience. ARRT fellows gain knowledge and experience in research methodology, the conduct of research, grant writing, and the presentation and dissemination of research findings, as well as practicum experience with organizations representing individuals with disabilities. This training supports NIDILRR's mission by preparing individuals to conduct independent, high-quality research related to disability, independent living, and rehabilitation to improve outcomes for individuals with disabilities.

Section 21 of the Act describes findings about the relationship between disability, race, and ethnicity in the United States and notes ongoing inequitable rehabilitation service provision experienced by people with disabilities who are from underserved racial and ethnic populations. To help address these inequities, Section 21 requires that NIDILRR make awards directly to minority entities or to other institutions to provide outreach and technical assistance to minority entities. NIDILRR meets this requirement by making awards directly to historically Black colleges and universities, Hispanic-serving institutions of higher education, American Indian tribal colleges or universities, and other institutions of higher education whose minority student enrollment is at least 50 percent. Under Section 21 of the Act, NIDILRR will continue to build capacity in the field by growing its portfolio of grants made directly to minority entities to include RRTCs, ARRTs, FIPs, and other grant programs.



Accomplishments of past capacity building work

NIDILRR has been focused on strengthening the disability, independent living, and rehabilitation research workforce through increasing research training opportunities for people with disabilities and people from groups identified as underrepresented in the scientific workforce.

The research enterprise benefits from diverse perspectives. NIDILRR has enhanced requirements in the ARRT Program for recruitment of people with disabilities and people from groups identified as underrepresented in the scientific workforce to ensure institutions of higher education create inclusive recruiting procedures and support diversity through their ARRT projects. Applicants to the ARRT Program must include plans for recruiting people with disabilities. Applicants may also include plans for recruiting people from other groups identified as underrepresented in the scientific workforce. Similarly, in soliciting applications for the Switzer Program, NIDILRR specifies its particular interest in receiving

applications from people with disabilities, people from groups identified as underrepresented in the scientific workforce, and people from other underserved communities.

Mentorship is critically important to the professional development of researchers and integral to postdoctoral and other research training. NIDILRR has enhanced the requirements for mentorship in the ARRT Program. Applicants to the ARRT Program must include plans for both academic and career mentoring and must describe how they will foster the relationship between their ARRT fellows and mentors.

Proposed new capacity building agenda

To continue to build capacity in the disability, independent living, and rehabilitation research workforce, there is a need to engage and support individuals, including people with disabilities and people from other underrepresented groups, throughout the training and career pipeline. NIDILRR has historically focused on postdoctoral individuals, but it is important to invest earlier in the capacity pipeline. Doing this includes creating pathways for current students to be eligible for grant funding. As such, NIDILRR aims to extend training opportunities through the ARRT Program to graduate and undergraduate students and the Switzer program for doctoral students. These opportunities could include research experiences to expose students to career options in the field of disability and rehabilitation research or immersive, project-based research experiences to prepare recent graduates to pursue advanced degrees or other research-related career opportunities in the field of disability and rehabilitation research.

Strategies are also needed to engage and support disability and rehabilitation researchers with training specific to NIDILRR's programs and funding opportunities. NIDILRR will develop communication materials to inform potential applicants about NIDILRR's mission, programs, and funding opportunities, focusing on materials for potential applicants who are new to NIDILRR's grants process and programs. NIDILRR also will develop grant resources across the life cycle of grants for new and existing applicants. These communication materials and supportive resources can enhance the number and diversity of candidates for disability and rehabilitation extramural research funding and the inclusivity of the grants process.

Summary

This LRP builds on the commitments and accomplishments of the last LRP as well as the perspectives of those with disabilities, researchers, advocates and caregivers. All of NIDILRR's work will continue to be driven by the understanding that disability is a function of dynamic interactions between the individual and their social and physical environment. In addition, NIDILRR will continue to emphasize the need for embracing disability as a form of diversity and the need for combatting ableist stereotypes.

The research agenda for this LRP identifies 10 new emphases that will guide NIDILRR's planning and activities for the next 5 years and will help to broaden NIDILRR's reach and impact, including an emphasis on international exchanges, intersectionality, inclusion of people with disabilities across the research enterprise, and children and youth with disabilities. Embracing these new emphases, NIDILRR will continue to invest in applied research across the domains of community living and participation, health and function, and employment as well as supporting areas (i.e., technology, disability statistics, and implementation of the ADA).

Through its portfolio of research and related activities, NIDILRR will generate new knowledge, develop new products and interventions, and promote their adoption to shape policy, practice, and behaviors. In the long term, it is NIDILRR's aim that these efforts will help reduce and eliminate long-standing disparities between people with and without disabilities in the domains of health and function, employment, and community living and participation.