Department Of Health and Human Services

FY 2018 Report to Congress

National Institute on Disability Independent Living and Rehabilitation Research (NIDILRR)

ADMINISTRATION FOR COMMUNITY LIVING

Table of Contents

Acronyms

AAC	Augmentative and Alternative Communication
ACL	Administration for Community Living
ADA	Americans with Disabilities Act
ADA-PARC	ADA Participatory Action Research Consortium
APR	Annual Performance Reporting System
ARRT	Advanced Rehabilitation Research Training Project
BMS	Burn Injury Model Systems
CAT	Computer Adaptive Test
CCN	Complex Communication Needs
CL	Community Living
CL&P	Community Living & Participation
CHRIL	Collaborative on Health Reform and Independent Living
DRRP	Disability and Rehabilitation Research Project
ED	Department of Education
EMP	Employment
FIP	Field-Initiated Project
FY	Fiscal Year
H&F	Health & Function
HCBS	Home and Community-Based Services
HHS	Department of Health and Human Services
ICDR	Interagency Committee on Disability Research
ICF	International Classification of Functioning, Disability and Health
ICT	Information and Communications Technology
ID	Intellectual Disabilities
IDD	Intellectual and Developmental Disabilities
KT4TT	Knowledge Translation for Technology Transfer
LIBRE	Life Impact Burn Recovery Evaluation

M&M	Mobility and Manipulation
MSI	Minority-Serving Institution
NARIC	National Rehabilitation Information Center
NIDILRR	National Institute on Disability, Independent Living, and Rehabilitation Research
PAT	Physical Access and Transportation
RERC	Rehabilitation Engineering Research Center
RFP	Research Fellowship Program
RRTC	Rehabilitation Research and Training Center
SBIR	Small Business Innovation Research
SCI	Spinal Cord Injury
SCIMS	Spinal Cord Injury Model Systems
STI	Strategies, Techniques, and Interventions
TBI	Traumatic Brain Injury
TBIMS	Traumatic Brain Injury Model Systems
VISYTER	Versatile and Integrated System for Telerehabilitation

Executive Summary

The mission of the National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR) is to generate new knowledge, and to promote its effective use, to improve the abilities of individuals with disabilities to perform activities of their choice in the community, as well as to expand society's capacity to provide full opportunities and accommodations for individuals with disabilities.

NIDILRR programs address a wide range of disabilities and impairments — across all age groups — and promote health and function, community living and participation, and employment. To accomplish these goals, NIDILRR invests in research, knowledge translation, and capacity-building activities through its discretionary grant-funding mechanisms.

Funding and Grants Management

The allocation of NIDILRR grant funds for FY 2018 totaled $98,780,025. In addition, NIDILRR awarded $6,189,975 in contracts and other support activities in FY 2018. These funds supported 220 grant awards in 2018.

NIDILRR's peer review process for grant competitions is highly rigorous, with 16.4 percent of applicants receiving new grant funding during FY 2018 (See Table 1).

Productivity and Accomplishments

NIDILRR funds research toward the development of new knowledge and innovative new technological devices, prototypes, measurement tools, interventions, and other informational products to enhance community living, health and function, and employment among people with disabilities. Grantees employ advanced methodologies to conduct research, including randomized controlled trials, longitudinal studies, and qualitative studies. These investments produced peer-reviewed publications, intervention protocols, software, databases, and a wide range of other outputs and outcomes. Selected examples of NIDILRR grantee accomplishments in FY 2018 include

- The Rehabilitation Research and Training Center on Employment for People with Blindness and Visual Impairments at Mississippi State University published a paper titled *In-School Predictors of Post-school Employment for Youth Who Are Deaf-Blind* (Cmar, McDonnall, & Markoski, 2018). The paper was published in the peer-reviewed journal, *Career Development and Transition for Exceptional Individuals*.
- The secondary data analysis of the National Survey of Drug Use and Health by the Collaborative on Health Reform and Independent Living (CHRIL) found that, controlling for economic and sociodemographic factors, adults with disabilities were more likely to misuse opioids and heroin than those without disabilities. The findings helped inform NIDILRR's funding opportunity on opioid use disorder and people with disabilities. To make the information more readily available to researchers and consumers, CHRIL

publishes research summaries on its website (<u>The Collaborative on Health Reform and Independent Living</u>).

- Dr. Kazis and his team at Boston University used Disability and Rehabilitation Research Project funds to develop a computer adaptive test (CAT) to measure the essential aspects of social participation of adults with severe burn injuries.

- The Great Lakes Americans with Disabilities Act (ADA) Center is conducting research that will lead to the development of a tool that can be used to audit local jurisdictions' transition plans for implementing the ADA – with a particular focus on making accessible the public places where people walk – sidewalks, paths, and intersections. The audit tool will be made available to professional and lay audiences to examine the quality of transition plans or to prepare future transition plans.

- The Boston-Harvard Burn Injury Model System reported the use of the LIBRE Profile — a CAT that measures a burn survivor's social participation, an essential underexplored area of burn recovery. This is the first tool of its kind and will facilitate the measurement of, and improvement in, social rehabilitation by yielding results specific to individual burn survivors.

Research Capacity Building

Research capacity-building efforts under the Advanced Rehabilitation Research Training Projects, Switzer Fellowship Program, and NIDILRR's Center grant programs develop a diverse cadre of emerging disability and rehabilitation researchers. In addition, NIDILRR directs targeted resources to minority-serving institutions, such as Historically Black Colleges and Universities and Tribal Colleges and Universities, to develop and implement programs to build disability and rehabilitation research capacity.

Training and Technical Assistance on the Americans with Disabilities Act (ADA)

NIDILRR sponsors the ADA National Network, which delivers training, technical assistance, and dissemination of materials for stakeholders with rights and responsibilities under the ADA. The ADA Participatory Action Research Consortium complements the Network's activities through research on factors influencing the community living of individuals with disabilities at state, regional, and community levels.

Knowledge Translation

NIDILRR is committed to ensuring that the products of its sponsored research and development are used to promote the independent living, health and function, employment, and community living outcomes of individuals with disabilities. Through its Knowledge Translation Centers, NIDILRR ensures that new knowledge and products gained through research and development are effectively communicated to stakeholders and used to improve the lives of individuals with disabilities.

Ongoing NIDILRR Activities

NIDILRR will focus on implementing and integrating the visions of the NIDILRR Director and the mission of the Administration for Community Living. NIDILRR's FY 2018–2023 Long-Range Plan

was published in March, 2019. This document defines the organizational and programmatic vision and will frame NIDILRR's research agenda for the coming years. The new Administrator has identified five Pillars: Connecting People to Resources, Supporting Families and Caregivers, Strengthening the Networks, Protecting Rights and Preventing Abuse, and Expanding Employment Opportunities. These Pillars encompass both aging and disability, and NIDILRR will contribute research and subject matter expertise throughout the planning and implementation of the work in each of the Pillar areas for persons with disabilities or rehabilitation needs.

Strategic partnerships with other agencies in the Department of Health and Human Services (HHS) and across the federal government have been instrumental in advancing NIDILRR's mission. As such, NIDILRR will continue to enhance its existing partnerships and seek out new collaborative opportunities within HHS and more broadly across the federal disability and rehabilitation research communities. NIDILRR's Director serves as the Chair of the Interagency Committee on Disability Research (ICDR). Under the NIDILRR Director's leadership, efforts will focus on building upon the ongoing work of the ICDR, contributing to the achievement of goals set forth in the recently drafted government-wide disability and rehabilitation research strategic plan.

National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR)

2018 Report to Congress

Introduction

The National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR) is committed to improving independent living and community participation among people with disabilities by funding research and development in the areas of community living and participation, health and function, and employment. This Annual Report to Congress will describe NIDILRR's activities and accomplishments during the 2018 fiscal year. It begins with a summary of the organization's historical foundation, provides a description of its funding process and fiscal allocations, and follows with descriptions of programmatic outcomes impacting the community. This report concludes by describing ongoing initiatives and directions within the organization.

NIDILRR was established by Congress to conduct research that would lead to improved health and function, employment, and community living outcomes of individuals with disabilities. First constituted as the National Institute on Handicapped Research by the Rehabilitation, Comprehensive Services, and Developmental Disabilities Amendments of 1978 (P.L. 95–602), amending the Rehabilitation Act of 1973, the organization was originally housed in the Department of Health, Education, and Welfare, and later the Department of Education (ED). The 1986 amendments to the Rehabilitation Act changed the agency's name to the National Institute on Disability and Rehabilitation Research. On July 22, 2014, the agency was renamed the National Institute on Disability, Independent Living, and Rehabilitation Research and transferred from ED to the Administration for Community Living (ACL) within the Department of Health and Human Services (HHS). This change occurred with the passage of P.L. 113–128, the Workforce Innovation and Opportunity Act. NIDILRR personnel officially became HHS/ACL employees on February 8, 2015.

NIDILRR'S 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 as well as to expand society's capacity to provide full opportunities and accommodations for individuals with disabilities. To accomplish this mission, NIDILRR:

- Supports research, development, training, technical assistance, and related activities to build new knowledge.

- Promotes the transfer, use, and adoption of technology for individuals with disabilities to improve health and function, employment, and independent community living and participation outcomes.

- Provides for research training to increase the number of qualified researchers, including researchers with disabilities and from minority backgrounds.

- Fosters widespread dissemination and use of scientific and technological information to advance policy, practice, and services that improve outcomes for people with disabilities.

NIDILRR programs address community living and participation, health and function, and employment outcomes of people with disabilities. NIDILRR's investments in research, development, knowledge translation, and capacity-building activities are carried out through the following discretionary grant-funding mechanisms:

- Rehabilitation Research and Training Centers (RRTC) conduct advanced research and training on a wide variety of health, rehabilitation, employment, and community living topics.

- Rehabilitation Engineering Research Centers (RERC) conduct rehabilitation engineering research and development toward technological solutions to rehabilitation problems or environmental barriers.

- Disability and Rehabilitation Research Projects (DRRP) conduct research, development, technical assistance, training, and utilization activities on health, rehabilitation, employment, and community living topics.

- Americans with Disabilities Act (ADA) National Network projects conduct research and provide information, training, and technical assistance to ADA stakeholders.

- Small Business Innovation Research (SBIR) projects support small businesses to explore feasibility and develop or evaluate the commercialization potential of new technology products for people with disabilities.

- Knowledge Translation projects promote the use of research-based knowledge in NIDILRR's community of stakeholders.

- Field-Initiated Projects (FIP) involve three-year studies on topics proposed by grant applicants to address disability and rehabilitation issues in promising and innovative ways.

- Model Systems programs in spinal cord injury (SCI), traumatic brain injury (TBI), and burn injury conduct research on rehabilitation and long-term outcomes of individuals with these conditions. Research in these programs includes collaborative, multisite research and collection and analysis of longitudinal data.

- Advanced Rehabilitation Research Training Projects (ARRT) support institutions of higher education to provide advanced interdisciplinary research training to postdoctoral Fellows.

- Research Fellowship Programs (RFP), or Mary E. Switzer Fellowships, are awarded to qualified individuals to conduct one-year independent research projects.

- Section 21 projects focus on research capacity building for minority-serving institutions, including Historically Black Colleges and Universities and other institutions with significant racial/ethnic minority student populations.

Grant Mechanisms

Grant Competition and Peer Review Process

NIDILRR sponsors disability and rehabilitation research and development in the outcome domains of community living and participation, health and function, and employment. Funding is provided to the research community through its funding mechanisms, with priorities within these mechanisms determined by the agency. NIDILRR utilizes a rigorous peer review process, as required by federal regulation, and internal and external program evaluation to ensure the quality of its sponsored research and development activities. Subject matter experts with the appropriate credentials and content knowledge evaluate the scientific, technical, and management aspects of proposals submitted in response to NIDILRR funding opportunity announcements. This process generates an average score across reviewers, reducing bias and facilitating the ranking of projects by scientific merit. Only the highest-ranking proposals are recommended for NIDILRR funding.

Grant Competitions

Table 1 describes NIDILRR's FY 2018 grant competitions. The number of eligible applicants, review panels, reviewers, awards made, and percentage of applicants receiving funding are shown. A large percentage of applications receive high peer review scores that indicate strong technical merit and significant need. NIDILRR's limited resources allow only a small percentage of these applicants to receive grants each year.

Table 1. NIDILRR Peer Review Process Overview, FY 2018

Grant Opportunity	# Eligible Applicants	# Panels	# Reviewers	# Awards Made	% of Applicants Receiving Funding
FIP MSI	7	1	5	1	14.3%
ARRT H&F	7	1	5	1	14.3%
ARRT CL&P	1	1	5	1	100%
ARRT EMP	1	1	5	1	100%
ARRT MSI	1	1	5	1	100%
SBIR Phase I	46	5	25	10	21.7%

Grant Opportunity	# Eligible Applicants	# Panels	# Reviewers	# Awards Made	% of Applicants Receiving Funding
SBIR Phase II	14	2	9	3	21.4%
Switzer Fellowship	48	5	20	6	12.5%
Field-Initiated DRRP in CL&P	25	3	15	1	4.0%
Field-Initiated DRRP in H&F	34	4	19	1	2.9%
Field-Initiated DRRP in EMP	26	3	14	1	3.8%
TBIMS Collaborative	5	1	5	1	20%
BMS Data Center	1	1	5	1	100%
DRRP College & Career Success	9	1	4	1	11.1%
DRRP Exercise Interventions	6	1	5	1	16.7%
DRRP KT4TT	2	1	4	1	50%
DRRP Opioid	17	2	9	2	11.8%
RERC Aging	2	1	5	1	50%
RERC Universal Access	2	1	5	1	50%
RERC-STI	6	1	5	2	33.3%
RERC M&M	8	1	5	1	12.5%
RERC PAT	3	1	5	1	33.3%
RRTC Rural	3	1	5	1	33.3%
RRTC Stats	2	1	5	1	50%
RRTC Aging	5	1	5	1	20%
RRTC EMP Physical	4	1	5	1	25%
RRTC CL&P MSI	3	1	4	1	33.3%
RRTC MSI	4	1	5	1	25%
RRTC H&F IDD	2	1	4	1	50%
RRTC CL&P IDD	2	1	5	1	50%

Grant Opportunity	# Eligible Applicants	# Panels	# Reviewers	# Awards Made	% of Applicants Receiving Funding
RRTC on Community Living Policy	2	1	5	1	50%
Total	298	46	217	49	16.4%

Source: U.S. Department of Health and Human Services, Administration for Community Living, National Institute on Disability, Independent Living, and Rehabilitation Research. These figures do not include FY 2018 awards made from 2017 slates (14 FIP, 1 DRRP—CL&P).

Monitoring and Oversight

NIDILRR uses its Annual Performance Reporting (APR) System, formative review mechanisms, and close monitoring of grant activities by NIDILRR staff to provide rigorous oversight of its funded initiatives. NIDILRR's APR is a web-based grants performance system used by grantees to provide data about goals and objectives, staffing, budget, research and development methods, progress, outputs, and accomplishments. Data are used to determine whether continuation funding should be provided to a grantee. For a new grantee, the first reporting period begins on the start date of the award and extends until May 31 of the following year. Subsequent reporting periods begin June 1 and end May 31. Grantees submit their progress reports annually on July 1.

Formative evaluations of funded awards are used as supplemental oversight and technical assistance tools for grantees. Such reviews are conducted when NIDILRR program officers believe that a grantee could benefit from targeted technical assistance in addition to that available from the program officer. A panel of subject matter experts is chosen to provide the technical assistance and make recommendations for improvement if needed.

NIDILRR staff, as experienced program administrators and researchers, are highly adept at maintaining ongoing, routine communication with, and oversight of, grantees to help inform their scientific programs and ensure that they are meeting goals and objectives. Program officers use the HHS Grants Policy Administration Manual to provide consistent oversight across projects. Risk assessments are conducted to locate poor-performing grantees, with additional oversight and technical support provided as needed. Though rare, findings of ongoing poor performance can lead to a discontinuation of funding to a grantee.

Funding Overview

The allocation of NIDILRR grant funds for FY 2018 for the 11 funding mechanisms discussed in this section is shown in Table 2. For each funding mechanism, the table includes the number of new and continuation awards. NIDILRR's overall grant allocations across all 11 funding mechanisms totaled $98,780,025 for FY 2018. NIDILRR awarded $6,189,975 in contracts and other support activities for FY 2018.

Table 2. NIDILRR-Funded Centers and Projects: Funding and Awards, FY 2018

Funding Mechanism	Number of Continuation Awards	Number of New Awards	Grant Amount for Continuation Awards in Thousands of Dollars	Grant Amount for New Awards in Thousands of Dollars	Total Number of Awards	Total Grant Amount in Thousands of Dollars
RRTC	13	8	9,724	700	21	16,724
RERC	11	6	9,929	5,550	17	15,479
DRRP	21	8	10,032	4307	29	14,339
ADA Network	12	0	12,424	0	12	12,424
SBIR	4	13	1,163	1,887	17	3,050
KT	8	1	2,792	924	9	3,716
FIP	34	14	6,782	3,799	48	10,581
Model Systems-SCI	15	0	7,398	0	15	7,398
Model Systems-TBI	17	1	7,862	600	18	8,462
Model Systems-Burn	4	1	1,500	350	5	1,850
ARRT	15	3	2,244	450	18	2,694
Switzer Fellowships	0	6	0	440	6	440
Section 21	0	5	0	1,623	5	1,623
Totals	154	66	71,850	20,630	220	98,780

Source: U.S. Department of Health and Human Services, Administration for Community Living, National Institute on Disability, Independent Living, and Rehabilitation Research.

Exhibits 1 and 2 illustrate the distribution of funded research and development grant projects in FY 2018 across NIDILRR's three domains: health and function, community living and

participation, and employment. "Cross-cutting" is a composite category used in the Annual Performance Report to describe projects that reflect two or more domains. Roughly 47 percent of development projects and about 29 percent of research projects were described as cross-cutting. "Research projects" are defined by NIDILRR as "an intensive systematic study, based on a clear hypothesis or research question that is directed toward producing new scientific knowledge about the subject or problem being studied." "Development projects" are defined as "the use of knowledge and understanding gained from research to create materials, devices, systems, or methods beneficial to the target population, including design and development of prototypes and processes."

Exhibit 1. Research Grant Projects by Domain, FY 2018
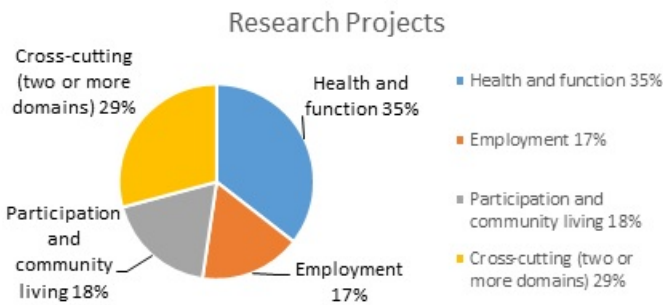
Source: U.S. Department of Health and Human Services, Administration for Community Living, National Institute on Disability, Independent Living, and Rehabilitation Research. *2018 Annual Performance Reports*. "Program Performance Report Table 9."

Exhibit 2. Development Grant Projects by Domain, FY 2018
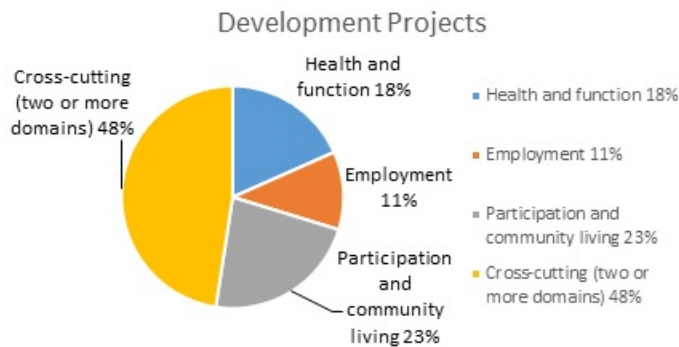
Source: U.S. Department of Health and Human Services, Administration for Community Living, National Institute on Disability, Independent Living, and Rehabilitation Research. *2018 Annual Performance Reports*. "Program Performance Report Table 11."

Grantee Activities and Progress

NIDILRR collects output data through the APR. Grantees are required to report each output from their funded activities in one of four categories: publications; tools, measures, and intervention protocols; technology products and devices; and informational products.

A brief description of each category of output type follows:

- **Publications** are documents directly funded by a grantee's current NIDILRR award. Publications include journal articles, periodicals, web journals, proceedings from meetings and symposia, books or book chapters, monographs, abstracts, technical or research reports, and reviews. Within this output category are peer-reviewed and non-peer-reviewed publications. Peer review is a process to evaluate the accuracy of a manuscript and the validity of the research methodology and procedures described. Manuscripts are typically reviewed by a panel of reviewers from the same scientific or academic discipline as the authors. This process is conducted prior to publication, and the review panel can recommend revisions to the work or reject its submission for publication. Non-peer-reviewed publications do not receive this level of review and feedback. Documents that are currently in review, accepted for publication, in press, or self-published are not reported in the APR (source: APR-PPR, Tables 18 and 19).

- **Tools, measures, and intervention protocols** include instruments or processes created to acquire quantitative or qualitative information, knowledge, or data on a specific disability or rehabilitation issue as well as research-based protocols for delivering interventions to specific target populations of people with disabilities. Examples include checklists, survey questionnaires or interview schedules, interventions, statistical or methodological techniques, databases, and diagnosis or assessment instruments, including physiologic measures and outcome measures (source: APR-PPR, Table 20).

- **Technology products and devices** are developed, modified, tested, or evaluated by the grantee. This category refers to any technology product or device developed under the award that the grantee disseminated or delivered to external audiences during the current reporting period. These include the development of industry standards/guidelines; software or netware; inventions, patents, licenses, and patent disclosures; working prototypes; product(s) evaluated or field-tested; product(s) transferred to industry for potential commercialization; and product(s) in the marketplace (source: APR-PPR, Table 21).

- **Information products** refer to items such as training manuals/curricula, fact sheets, newsletters, audiovisual materials, marketing tools, educational aids, websites, presentations, and other forms of disseminated information (source: APR-PPR, Table 22).

Exhibit 3 (see below) compares the number of output products produced by grantees within each category type in FY 2018. Additional detail has been provided for the category of

publications, with peer-reviewed and non-peer-reviewed publications being reported separately.
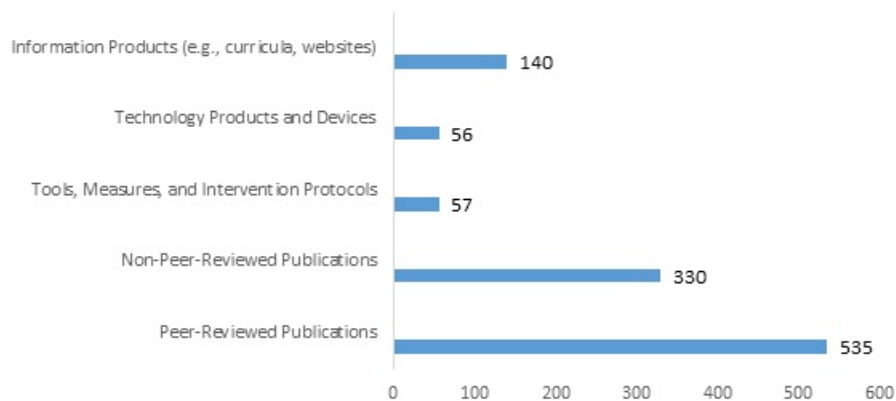
Source: U.S. Department of Health and Human Services, Administration for Community Living, National Institute on Disability, Independent Living, and Rehabilitation Research. *2018 Annual Performance Reports*. "Program Performance Report Tables 18–22."

Data obtained through the 2018 APR show that NIDILRR supported 220 grantees during FY 2018, totaling $98,780,025 across all program mechanisms. These projects reflect the breadth of disability and rehabilitation research within the agency's outcome domains of community living and participation, health and function, and employment. The knowledge and products that are generated by NIDILRR-sponsored research or development grants have a wide variety of important impacts in the field. The summaries that follow, organized by funding mechanism, provide examples of the outcomes and impacts that resulted from NIDILRR's investments. Additional information concerning these projects is available through the National Rehabilitation Information Center (NARIC) website.

Rehabilitation Research and Training Centers (RRTCs)

RRTCs conduct coordinated, integrated, and advanced programs of research, training, and information dissemination in topical areas that are specified by NIDILRR. Areas of focus include the improvement of rehabilitation methodology and service delivery systems; the improvement of health and functioning; and the promotion of employment, independent living, family support, and economic and social self-sufficiency for individuals with disabilities. RRTCs provide training — including graduate, pre-service, and in-service training — to build capacity for disability and rehabilitation research. They also serve as centers of national excellence in rehabilitation research. Awards are normally made for a five-year period.

Examples of 2018 RRTC Accomplishments

The following are examples of RRTC accomplishments reported to NIDILRR in FY 2018:

University of Minnesota RRTC on Home and Community-Based Services (HCBS) Outcomes Measurement

Regents of the University of Minnesota: RRTC on HCBS Outcomes Measurement (RRTC/OM) (Grant # 90RT5039)

The RRTC/OM has developed a web-based relational database of available measures to assess the quality of non-medical, person-centered HCBS outcomes. To do so, the RRTC/OM has worked closely with the National Quality Forum HCBS workgroup, ACL, and a national multi-stakeholder advisory group. First, they conducted more than 50 focus groups with a broad range of stakeholders to identify and prioritize HCBS outcome domains. Next, they collected and cataloged all existing measures in this topic area and evaluated these for validity and appropriateness. The focus included cross-disability measures at the individual HCBS recipient, organization, and systems levels, gathered directly from people with disabilities or through program administrative and encounter data. The RRTC/OM recently released the public version of the HCBS Instrument Database, as well as the password-protected version, which will be made available to measure developers and government (NIDILRR, ACL, the Centers for Medicare & Medicaid Services) staff who work in areas related to HCBS. They held two webinars to introduce the Database to potential users. Additionally, they have analyzed the database to identify measure gaps and are currently developing new measures to address some of these gaps. The RRTC/OM's development of a database of non-medical, person-centered outcome measures will help educate many stakeholders about available measures, and their work to promote it is a critical step toward effectively informing the design, implementation, and continuous improvement of federal and state policies and programs related to the delivery of HCBS to people with disabilities. [View the HCBS Instrument Database information page](#).

Employment for Individuals with Blindness or Other Visual Impairments

Mississippi State University: Employment for People with Blindness and Visual Impairments (Grant # 90RT5040)

The RRTC on Employment for People with Blindness and Visual Impairments at Mississippi State University published a paper titled *In-School Predictors of Post-school Employment for Youth Who Are Deaf-Blind* (Cmar, McDonnall, & Markoski, 2018). The paper was published in the peer-reviewed journal, *Career Development and Transition for Exceptional Individuals*. Using data from the National Longitudinal Study-2, authors reported that major findings included that vocational educational services and parent expectations were significant predictors of post-school employment. Implications of these findings suggest that parents should receive education about career options for youths with deaf-blindness, and that teachers should encourage vocational education services and early work experiences. Citation: Cmar, J., McDonnall, M. C., & Markoski, K. (2018). In-school predictors of post-school employment for youth who are deaf-blind. *Career Development and Transition for Exceptional Individuals, 41*(4).

For more information, visit the [Mississippi State University's National Research and Training Center on Blindness and Low Vision Website](#).

RRTC on Employment Policy and Measurement

University of New Hampshire (Grant # 90RT5037)

The RRTC on Employment Policy and Measurement published "Transportation Patterns of American Workers with Disabilities (Brucker & Rollins, 2018). The authors found that travel time and approximate travel distance are similar for both groups. However, workers with disabilities who travel similar distances compared to workers without disabilities earned substantially less per year, even when controlling for individual characteristics and hours worked. Transportation remains a substantial barrier to employment for people with disabilities, and this study will help inform policy development for improving transportation options for workers with disabilities. Citation: Brucker, D. L., & Rollins, N. G. (Pre-press). Commuting time and wages of American workers with disabilities. *Journal of Vocational Rehabilitation*. For more information visit the [Disability Statistics and Demographics Rehabilitation Research and Training Center Website](#).

Online Policy-Related Resources for Improving the Lives of People with Mental Illness

RRTC on Self-Directed Recovery and Integrated Health Care at University of Illinois-Chicago (Grant # 90RT5038)

The online resource bank entitled "Recovery Academy for Policymakers" is devoted to the health, recovery, and employment of people with mental illness. Sample resources address disability employment policy, the opioid crisis and behavioral health, a successful jail diversion and alternative justice model, and the social determinants of health; they also include an interactive map of U.S. state mental health peer support training and certification programs. For more information visit the [University of Illinois at Chicago's Health and Recovery Academy for PolicyMakers website](#).

Online Family Resource for Employment of People with Psychiatric Disabilities

RRTC on Improving Employment Outcomes for Individuals with Psychiatric Disabilities at Boston University (Grant # 90RT5029)

The online resource entitled "Let's Talk Employment: A Guide for Family Members of Individuals in Mental Health Recovery" is designed to support, encourage, and educate family members as their relatives consider, choose, gain, and keep employment. This guide was developed with the understanding that family members with sufficient education on employment options for their relatives can have a significant influence on helping make decisions about work. Since first published online in March 2018, more than 1,600 people have accessed the guide, demonstrating the interest in the topic and relevance of the materials.

For more information, visit the [Center for Psychiatric Rehabilitation's Families Webpage](#)

Informational Resources to Improve Educational and Employment Outcomes for Youth and Young Adults with Serious Mental Health Conditions

RRTC on Learning and Working during the Transition to Adulthood at the University of Massachusetts Medical School (Grant # 90RT5021)

The grantee published new resources to help young adults with serious mental health conditions succeed in postsecondary education and in employment. The "Outside-The-Box College Accommodations: Real Support for Real Students: Tools for School II" tip sheet includes information designed specifically for young adults and their advocates on requesting postsecondary education accommodations that are helpful for individuals with mental health conditions. It helps young adults with serious mental health conditions think "outside the box" to get the educational accommodations that will assist them in achieving educational success.

In addition, the "There's More to Young Adult Unemployment Than Mental Health: What Else to Look For" research brief discusses how inequalities other than mental health conditions can be barriers to employment for young adults with these conditions. The brief points out to researchers, policymakers, and other stakeholders that in order to improve vocational employment services for young adults living with serious mental health conditions, one must take into account sociodemographic and social factors that can impact employment readiness and employability.

Toolkit to Promote Community Inclusion for People with Mental Illness

RRTC on Community Living and Participation of Individuals with Psychiatric Disabilities at Temple University (Grant # 90RT5021)

The grantee has created an online toolkit entitled "Jump-Starting Community Inclusion," which describes 66 practical first steps that community mental health providers can take to more effectively support their service recipients' participation in everyday community life. This compendium of simple strategies, drawn from 15 years of research and training activities at the NIDILRR-funded Temple University RRTC on Community Living and Participation, focuses on policy changes, programming shifts, and practice innovations that can quickly give new life and relevance to your agency's operations. The toolkit offers a set of do-able strategies, along with links to over 100 publications and products.

Rehabilitation Engineering Research Centers (RERCs)

The RERC program is designed to improve the effectiveness of services authorized under the Rehabilitation Act by conducting advanced rehabilitation engineering research and development of innovative technologies designed to solve particular rehabilitation problems or remove environmental barriers. RERCs demonstrate and evaluate such technologies, facilitate service delivery systems changes, stimulate the production and distribution of equipment in the private sector, and provide training opportunities to enable individuals, including individuals

with disabilities, to become researchers and rehabilitation engineers. Awards are normally made for a five-year period.

Examples of 2018 RERC Accomplishments

The following are examples of RERC accomplishments reported to NIDILRR in FY 2018:

RERC on Physical Access and Transportation

The Pennsylvania State University (Grant # 90RE5017)

The T2L (transition to literacy) visual scene display (VSD) app was designed and evaluated for use by children and adults who have complex communication needs (CCN) and are preliterate, including those with autism spectrum disorder, Down syndrome, intellectual developmental disabilities, cerebral palsy, and multiple disabilities. The app was successfully transferred to TobiiDynavox, the largest Augmentative and Alternative Communication (AAC) manufacturer, and it was released to the marketplace as Snap Scene Snap Scene is currently used by many service providers in the AAC field and by families as a communication and literacy support for children and adults with CCN. The app supports daily communication and the development of literacy skills for individuals who are nonliterate, with the goal of transitioning them from picture symbols to text. Prior to the development of the T2L VSD app, there were no AAC apps that supported individuals with CCN who were nonliterate in making this transition. Clinicians and families have a new tool to use (in conjunction with literacy instruction) to support individuals with CCN in developing the literacy skills required to participate more fully in education, employment, health care, and community living.

RERC on Information and Communications Technology (ICT) Access

University of Pittsburgh (Grant # 90RE5018)

Versatile and Integrated System for Telerehabilitation (VISYTER) is an interactive telehealth platform designed to support various telehealth and telerehabilitation services for rural clinics or directly to patients at home or in the community. Dr. Bambang Parmanto and his colleagues at the RERC have produced a brief presentation in PDF format entitled Versatile & Integrated System for Telerehabilitation (VISYTER). This presentation briefly explains and illustrates the basic features of VISYTER.

As a result of NIDILRR-sponsored R&D, this system is now being used by a wide variety domestic and international service providers to deliver services to people with disabilities. The platform can deliver high-quality rehabilitation services with minimal equipment and maintenance, low investment cost, and ease of setup and operation. The technology is designed to support rehabilitation services for people with disabilities who live in underserved areas (rural or areas without specialized rehabilitation services). The new VISYTER 2.0 is cross-platform that runs on any device, while the original VISYTER is a Windows-based system. The primary outcomes and impact of the technology are to provide access to health care and educational services that are otherwise not available or unaffordable to people with disabilities who live in underserved areas, and to provide high-quality services that are as good as in-

with disabilities, to become researchers and rehabilitation engineers. Awards are normally made for a five-year period.

Examples of 2018 RERC Accomplishments

The following are examples of RERC accomplishments reported to NIDILRR in FY 2018:

RERC on Physical Access and Transportation

The Pennsylvania State University (Grant # 90RE5017)

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person services. The technology has been used to support vocational rehabilitation services in Pennsylvania as part of the Cognitive Skills Enhancement Program. The program evaluation shows that the telerehabilitation program is as good as the in-person program. The technology has also been used for speech-language teletherapy at DePaul School of Hearing and Speech to provide tele-therapy over a tristate area (PA, OH, WV) for families with deaf children or children with hearing impairments who live more than 50 miles from Pittsburgh. Gallaudet University currently uses the technology to deliver auditory training to adults who are deaf or hard of hearing in Ohio (in collaboration with Cleveland Clinic) and in Kentucky (in collaboration with the University of Kentucky). Other uses of VISYTER to provide services include telerehabilitation for in-home exercise, international telerehabilitation serving children with disabilities in Mexico, and wheelchair prescriptions for people with disabilities who live in rural areas of Pennsylvania. Access to health care and vocational services enable people with disabilities to live anywhere, even in rural areas where services usually are not available. Accessibility anywhere, anytime also allows people with disabilities to receive care and services within the community (home, workplace, long-term care, independent living) instead of at clinics.

Disability and Rehabilitation Research Projects (DRRPs)

The DRRP funding program supports projects that carry out one or more of the following activities: research, development, training, dissemination, utilization, and technical assistance. The purpose of the DRRP program is to plan and conduct research, training, and related activities to develop methods, procedures, and rehabilitation technology that maximize the full inclusion and integration of individuals with disabilities into society, employment, and independent living; promote economic and social self-sufficiency; and improve the effectiveness of services authorized under the Rehabilitation Act.

NIDILRR funds several types of DRRPs, including (1) Knowledge Translation projects; (2) Model Systems in traumatic brain injury (TBI) and burn injury; additionally, a separate portion of NIDILRR's statutory authority created the Model System program in Spinal Cord Injury (SCIMS); (3) ADA National Network projects; (4) Section 21 program; and (5) individual research projects. The SCIMS is typically not included with the other model systems as a DRRP because of its unique statutory authority but is included in this section of the report for conciseness and efficiency in reporting. The first four types of DRRPs are managed as separate programs and, therefore, only individual research DRRPs are described here under the general DRRP heading. DRRPs differ from RRTCs and RERCs in that they are not always required to provide training and technical assistance. Award periods range from three to five years.

Examples of 2018 DRRP Accomplishments

The following are examples of DRRP accomplishments reported to NIDILRR in FY 2018:

Understanding and Increasing Supported Decision-Making's Positive Impact on Community Living and Participation Outcomes

Syracuse University Supported Decision-Making for Persons with Intellectual Disabilities (ID) (Grant # 90DP0076)

All too often, persons with ID are subject to court-appointed guardianships. In many cases, these guardianships substantially limit — if not prohibit — the freedoms most people take for granted, such as where and with whom to live, where to go, and what to do. However, research has shown that with appropriate supports, persons with ID can make informed choices and structure their lives around them. The members of the DRRP on Supported Decision-Making at Syracuse University's Burton Blatt Institute, recently published a comprehensive textbook on this subject that is the first to compile past, present, and future theory, research, and practice on supported decision-making. As such, it will close existing gaps in knowledge about supported decision-making in academia and for professionals. The contents of the book include a history and background of supported decision-making; a summary and detailed description of supported decision-making research efforts (including this project); updates on adoption of supported decision-making in the United States and internationally; best practices in supported decision-making presently and in the future; and current and future directions in supported decision-making research and practice. Citation: Shogren, K. A., Wehmeyer, M. L., Martinis, J., & Blanck, P. (2018). *Supported decision-making: Theory, research, and practice to enhance self-determination and quality of life*. New York, NY: Cambridge University Press.

Researchers Raise Awareness about Opioid Misuse and Health Policy Implications for People with Disabilities

Washington State University: Collaborative on Health Reform and Independent Living (Grant # 90DP0075)

The Collaborative on Health Reform and Independent Living (CHRIL) brings together disability advocates and researchers from four institutions (Washington State University, the University of Kansas, George Mason University, and the Independent Living Research Utilization program at TIRR Memorial Hermann Hospital) to systematically investigate and disseminate essential findings about how implementation of health reform affects adults with disabilities. CHRIL's secondary data analysis of the National Survey of Drug Use and Health found that, controlling for other economic and sociodemographic factors, adults with disabilities were more likely to misuse opioids and heroin than those without disabilities. The findings helped inform NIDILRR's funding opportunity on opioid use disorder and people with disabilities. To make the information more readily available to researchers and consumers, CHRIL publishes research summaries on their website

Knowledge Translation

Knowledge translation, when applied to disability and rehabilitation research, is a process of ensuring that new knowledge and products gained through the course of research and development can ultimately be used to improve the lives of individuals with disabilities and

further their participation in society. Knowledge translation is built upon, and sustained by, ongoing interactions, partnerships, and collaborations among various stakeholders in the production and use of such knowledge and products, including individuals with disabilities, researchers, practitioners, policymakers, and others. NIDILRR has invested in knowledge translation by directly funding research and development projects in its Knowledge Translation portfolio and by integrating underlying knowledge translation principles into the content of all priorities.

Examples of 2018 Knowledge Translation Accomplishments

The following is an example of a knowledge translation accomplishment during FY 2018:

Research In Focus, **a Lay-Language Information Product to Help the Public Learn About New Research from NIDILRR**
HeiTech Services, Inc. (Contract # GS-06F-0726Z)
The National Rehabilitation Information Center (NARIC) is an information resource center funded by NIDILRR to disseminate information to the public about disability, independent living, and rehabilitation research. Since the last reporting period, NARIC has produced a new publication series, *Research In Focus*, a weekly digest of new research from the NIDILRR community. The purpose of this new publication is to make available in lay language information from new research studies published in peer-reviewed articles, which are written in scientific language. Its aim is to increase the availability and usability of research information for lay audiences by ensuring that they have access to new research information in a timely fashion, and in ways that they can understand and use. During this reporting period, the audience for *Research In Focus* grew significantly, with each new issue being read and shared by more than 500 readers, resulting in more than 20,000 readers accessing the series overall. The series has also received increasing attention from community partners such as the American Congress of Rehabilitation Medicine, the American Association for Health and Disability, and the National Association of States United for Aging and Disability, all of whom pick up and share the weekly articles with their readers. In addition, the grantee community has an extremely positive response to this production process — from enthusiastic participation in the editorial process to promoting the summaries in their own literature —and has increased awareness of the importance of sharing research information with stakeholders in lay language. View the Research In Focus Page for more information.

Model Systems

NIDILRR's Model Systems programs in spinal cord injury (SCIMS), traumatic brain injury (TBIMS), and burn injury (BMS) provide coordinated systems of rehabilitation care as a prerequisite for receiving NIDILRR funding to conduct research on rehabilitation and long-term outcomes. These centers serve as platforms for collaborative, multisite research, including research on interventions using randomized controlled trials. Founded in 1973, the National SCI Database has collected injury and follow-up data through a total of 29 funded centers. Fourteen funded centers, plus an additional five unfunded centers, actively collected SCI follow-up data in 2017. Their work has contributed to the collection of SCI data from 46,599 individuals as of the end of May 2018. TBIMS and BMS centers have 16,261 and 6,057 persons,

respectively, enrolled in their national databases. Nineteen centers contributed data to the TBIMS National Database in 2018. The BMS collected data from four centers in FY 2018. These databases and their decades of longitudinal data continue to provide researchers with rich opportunities to characterize the life course of people with SCI, TBI, and burn injuries, and the trajectory of the health and community living outcomes that are relevant to their lives. Maintenance and continuation of these databases is critical, as patterns of treatment and related outcome trajectories continue to change over time.

Examples of 2018 Model Systems' Accomplishments

The following are examples of Model Systems accomplishments reported to NIDILRR in FY 2018:

Life Impact Burn Recovery Evaluation (LIBRE) and Measurement of Community Participation Using a Computer Adaptive Test (CAT) in Adult Burn Survivors

Spaulding Rehabilitation Hospital: Boston-Harvard BMS (Grant # 90DPBU0001) and Trustees of Boston University (Grant # 90DP0055)

Recovering from a burn injury can be a lifelong process that affects every aspect of life. Dr. Kazis and his team used the DRRP funds to develop a CAT to measure the essential aspects of social participation of adults with severe burn injuries. The team developed a conceptual and content model for the measure with help from clinicians and burn survivors. The measure they created, the LIBRE Profile, takes a comprehensive look at burn recovery by assessing how burn injury affects a person's life in terms of work, family, friends, social activities, and community. Following the development of the LIBRE Profile, project staff worked to ensure it had strong psychometric properties. They produced a video detailing why and how they created the LIBRE Profile. In 2018, the team published two articles detailing the development of the measure and its reliability and validity:

- Chen, L., Lee, A. F., Shapiro, G. D., Goverman, J., Faoro, N., Schneider, J. C., Ryan, C. M. (2018). The development and validity of the Adult Burn Outcome Questionnaire short form. *Journal of Burn Care & Research, 39*(5), 771–779. doi: 10.1093/jbcr/irz043

- Dore, E. C., Marino, M., Ni, P., Lomelin-Gascon, J., Sonis, L., Amaya, F., Kazis, L. E. (2018). Reliability & validity of the LIBRE Profile. *Burns, 44*(7), 1750–1758. doi: 10.1016/j.burns.2018.04.001

Additionally, the team has begun to use the data they have collected to empirically document the life experiences of people with burn injury. Two of these studies were published in 2018:

- Ohrtman, E. A., Shapiro, G. D., Simko, L. C., Dore, E., Slavin, M. D., Saret, C., Schneider, J. C. (2018). Social interactions and social activities after burn injury: A Life Impact Burn Recovery Evaluation (LIBRE) study. *Journal of Burn Care & Research, 39*(6), 1022–1028. doi: 10.1093/jbcr/iry038

- Levi, B., Kraft, C. T., Shapiro, G. D., Trinh, N. T., Dore, E. C., Jeng, J., Ryan, C. M. (2018). The associations of gender with social participation of burn survivors: A Life Impact Burn Recovery Evaluation Profile study. *Journal of Burn Care & Research, 39*(6), 915–922. doi: 10.1093/jbcr/iry007

Links:

Harvard Medical School, Spaulding Rehabilitation Hospital

Boston University Trustees' Webpage

Mayo Clinic TBIMS Center

Mayo Clinic (Grant # 90DP0030)

This collaboration among NIDILRR's TBIMS centers developed a clinically useful tool to provide prognostic information on long-term functional outcomes for adult survivors of moderate and severe closed TBI. Length of post-traumatic amnesia (PTA), a clinical marker of injury severity, was by far the most critical outcome determinant. This study developed decision trees for gaining prognostic information on meaningful long-term functional outcomes after moderate-severe closed TBI and demonstrated reasonable predictability in a separate test sample. There are many potential benefits of this easy-to-use tool: helping providers set expectations and plan rehabilitation treatments; patient selection and stratification in future clinical trials; assisting patients and families with resource planning; and addressing their emotional burden of future uncertainty. Citation: Walker, W. C., Stromberg, K. A., Marwitz, J. H., Sima, A. P., Agyemang, A. A., Graham, K. M., Merchant, R. (2018). Predicting long-term global outcome after traumatic brain injury: Development of a practical prognostic tool using the Traumatic Brain Injury Model Systems National Database. *Journal of Neurotrauma, 35*(14), 1587–1595. doi: 10.1089/neu.2017.5359. View the full text of the article in HTML or PDF formats.

Link: Mayo Clinic Traumatic Brain Injury Model System

The Midwest Regional SCIMS

Rehabilitation Institute of Chicago d/b/a Shirley Ryan AbilityLab (Grant # 90SI5022)

The Rehabilitation Measure Database (RMD) is a web-based, searchable database of outcomes instruments designed to help rehabilitation providers and researchers select appropriate measures for screening and monitoring patient progress and outcomes. The RMD provides evidence-based summaries that include concise descriptions of each instrument's psychometric properties, instructions for administering and scoring, and a representative bibliography with citations. Summaries of 408 instruments have been completed as of May 31, 2018. Conditions reviewed include stroke, SCI, TBI, multiple sclerosis, vestibular disorders, Parkinson's disease, musculoskeletal disorders, and several conditions specific to geriatric, pediatric, and orthopedic populations. Of these, 117 summaries contain information about use of that instrument with an SCI population, including all 22 domains of the SCI-Quality of Life instrument. To increase

sustainability, the RMD maintained collaboration with academic institutions for the 2017/2018 academic year and has enjoyed success in working with individual clinicians, researchers, and instrument developers to create summaries for specific instruments. The RMD has established collaborations with the following institutions: University of Illinois at Chicago, University of Indianapolis, Duke University, University of North Carolina, DePaul University, University of North Texas, George Washington University, Illinois Institute of Technology, and University at Buffalo-SUNY. In the last year, the RMD team has engaged the American Congress on Rehabilitation Medicine to collaborate on summaries, review dissemination opportunities, and provide feedback on RMD future projects. From June 1, 2017, through May 31, 2018, RMD received 867,972 users, 1,519,112 sessions, and 3,393,490 total page views. Since its inception in 2011, the RMD has generated more than 16.3 million page views from 4.2 million users in 202 territories around the world. Additionally, the RMD has published nine instrument tear sheets focused on SCI in journals including *Archives of Physical Medicine and Rehabilitation*, *American Journal of Occupational Therapy*, and *Rehabilitation Psychology*. Documentation/link: [Shirley Ryan Ability Lab's Rehabilitation Measures Database Page](#)
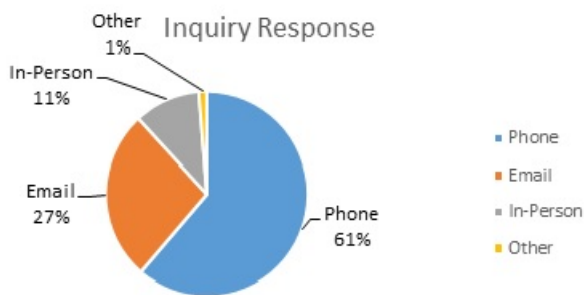

ADA National Network

The ADA National Network consists of 10 regional centers that provide information, training, and technical assistance to individuals, businesses, and agencies with rights and responsibilities under the ADA. The network also includes research and knowledge translation components, which are carried out by two network grantees: the ADA National Network Collaborative Research Project and the ADA National Network Knowledge Translation Center, respectively.

Research funded under the first grantee is known as the ADA Participatory Action Research Consortium (ADA-PARC). ADA-PARC activities focus upon: (1) looking at participation disparities experienced by individuals with disabilities post ADA and Olmstead; (2) identifying and examining key environmental factors contributing to these disparities; (3) benchmarking participation disparities and highlighting promising practices at state and city levels; and (4) planning strategies for dissemination and utilization of findings to be used by ADA Centers and others in community capacity-building and systems change initiatives.

Knowledge Translation efforts in the ADA National Network are led by the ADA Knowledge Translation Center. The Center has three primary goals: (1) increase efficiency and impact by serving as a central resource to support the development, coordination, and deployment of ADA information, training, technical assistance, and capacity-building activities across the ADA National Network; (2) increase awareness and use of ADA research findings to inform practice; and (3) improve understanding of stakeholders' need for and receipt of ADA services.

ADA National Network grantees are highly responsive to the community, providing advice, information, technical assistance, and training through multiple modalities. In FY 2018, the Centers received 85,286 inquiries from the public. Exhibit 4 presents the modalities used to provide technical assistance in response to these questions.

Exhibit 4. Inquiry Response

The 10 ADA National Network Centers delivered 121 training activities/projects during the 2018 APR reporting year. Audiences included service providers, individuals with disabilities and their families, business groups, state and local government agencies, architects and design professionals, and other professional groups.

In addition to training and technical assistance, the ADA National Network and its regional centers produce numerous products to aid in disseminating information to the public, employers, and individuals with disabilities about their rights and responsibilities. Table 3 shows the types and number of times a product was disseminated.

Table 3. Product Dissemination

Type	Number Disseminated
Journal Articles	6,409
Project Publications	202,836
Video and Audio Tapes	866
CDs and DVDs	877
Books or Book Chapters	531
Bulletins, Newsletters, or Factsheets	705,412
Research Reports and Conference Proceedings	3,232

Examples of 2018 ADA National Network Center Accomplishments

The following are examples of ADA National Network accomplishments reported to NIDILRR for FY 2018:

Great Lakes ADA National Network Regional Center

University of Illinois at Chicago (Grant # 90DP0091)

The Great Lakes ADA Center is conducting research that will lead to the development of a systematic evaluation tool that can be used to audit local jurisdictions' plans for implementing the ADA – with a particular focus on making accessible the public places where people walk – sidewalks, paths, and intersections. The audit tool will be made available to professional and lay audiences to examine the quality of their own transition plans or to prepare future transition plans. The tool will be validated using an expert panel consisting of engineers; lawyers; ADA coordinators; architects; and consultants, including individuals with disabilities. The audit tool will be converted to a technical assistance tool. This resource will include best practices found as part of the review, interviews, and field stories. Results from this research will be shared through ADA networks and professional planning and engineering networks through reports, manuscripts, and plain language summaries. The development of the [Systematic Evaluation Tool for audits of Public Rights of Way in ADA transition plans](#) is currently underway by the Great Lakes ADA Center's research team. Documentation/links:

[Systematic Evaluation Tool for audits of Public Rights of Way in ADA transition plans](#)

[Great Lakes ADA Center](#)

Southeast ADA National Network Regional Center

Syracuse University (Grant # 90DP0090)

The Southeast ADA Center is developing the QI-FIT as a measure of financial accessibility in the community for individuals with disabilities. The QI-FIT assesses financial institution accessibility across eight domains: Strategy and Internal Leadership, Accessibility in Customer Support and Communications, Physical Accessibility of Banking Locations, Traditional Banking Services, Financial Education and Counseling, Disability Inclusion, Community Development, and Alternative Credit Scoring and Lending. The tool was drafted using expert input, a literature review, and a review of other instruments that are considered best practices in the field of financial inclusion. The tool will be employed across the eight-state southeast region, where the poverty rates for people with disabilities are, on average, twice that of people without disabilities (31%). Accessibility barriers at financial institutions persist, such as a lack of "Talking ATMs" or other mechanisms of alternative formats and effective communications, architectural barriers with physical locations, virtual barriers to online services, and more. The QI-FIT will evaluate financial services' inclusion and accessibility and facilitate recommendations to improve accessibility and reduce the cycle of poverty.

Link: [Southeast ADA Center Website](#)

Section 21
NIDILRR's capacity-building research agenda includes developing the talent of future leaders in rehabilitation research and development. Statutory requirements within Section 21 of the Rehabilitation Act require that, at a minimum, 1 percent of its annual appropriations be used to address traditionally underserved populations from minority backgrounds. NIDILRR supports

research capacity building for minority entities such as Historically Black Colleges and Universities and institutions serving primarily Hispanic, Asian, and American Indian students.

Examples of 2018 Section 21 Accomplishments

The following is an example of an accomplishment of the Section 21 program during FY 2018:

Langston University

(Grant # 90RTST0001)

The RRTC on Research Capacity Building for Minority Entities at Langston University is conducting research that leads to improved outcomes for persons from traditionally underserved racial and ethnic populations and enhanced research capacity and infrastructure at MSIs. The grantee recently published study findings on research productivity in rehabilitation, disability, and allied health programs at MSIs and examined intrinsic- and extrinsic-level factors from the researcher and institutional perspectives. The article contains novel information regarding barriers to research participation and suggests strategies for overcoming these challenges at MSIs. Findings at the individual intrinsic level support the need for new strategies to build MSI faculty research skills and self-efficacy levels. Administrative culture was perceived as a primary issue in relation to the institutional intrinsic theme, with limited promotion and tenure opportunities at some MSIs serving as a disincentive for faculty scholars to engage in research. The study findings also suggest that limited collaboration opportunities and heavy teaching loads are major productivity barriers. Several institutional extrinsic factors include the need for capable mentorship and federally sponsored grant funds. These findings inform the development or refinement of interventions aimed at increasing research capacity and infrastructure at MSIs, as well as faculty and student research skills.

Link: [Langston University Rehabilitation Research and Training Center on Research and Capacity Building for Minority Entities](#)

Small Business Innovation Research (SBIR)

The intent of NIDILRR's SBIR program is to help support the development of new ideas and products that are useful to persons with disabilities by inviting the participation of small business firms with strong research capabilities in science, engineering, or educational technology. Small businesses must meet eligibility criteria to participate: the company must be American-owned and independently operated, be for-profit, employ no more than 500 employees, and employ the principal researcher. During Phase I, NIDILRR-funded firms conduct feasibility studies to evaluate the scientific and technical merit of an idea. During Phase II, NIDILRR-funded firms expand on the results of Phase I to pursue further development and commercialization.

Examples of 2018 SBIR Accomplishments

The following are examples of SBIR accomplishments reported to NIDILRR during FY 2018:

Development of a Wearable Robot for Motor Rehabilitation in Acute Stroke

Rehabtek, LLC (Grant # 90BISB0001)

The wearable rehab robot can be used in the acute phase post stroke even when the patients stay in bed. It is used to help patients recover from stroke and regain mobility by guiding them to relearn motor control with focus on the ankle. It uses closely guided motor relearning based on real-time audiovisual/haptic feedback. It also provides intensive combined stretching and active task-related mobility training with progressive postures in an acute stroke rehabilitation setting. Plus, it provides quantitative assessment of improvements. This intensive, robot-assisted physical therapy provides better motor re-learning in the early post-stroke stage and reduces loads to physical therapists in repetitive practice tasks. It monitors impairment and recovery performance, and provides assessment to gain insight into the mechanisms of impairment and neuroplasticity in early post-stroke rehabilitation.

Link: Rehabtek Company Website

Viability of Social Network-Based Transit Information Systems for Accessibility

Tiramisu Transit, LLC (Grant # 90BI0018)

Tiramisu is an application that provides customized real-time arrival information for transit systems on which it is deployed. It makes using transit easier for everyone, including commuters with visual or mobility impairments. The Tiramisu app (Version 3) was released to the public in the fall of 2017. It is deployed for daily use in Pittsburgh, PA, and New York, NY. Version 3 introduced a completely redesigned user interface and new logging features. These were added to enhance user experience and support new research activities. Version 3 introduces the ability to filter information to reduce complexity and lower risk of confusion. While valuable to everyone, this has significantly greater value to people with visual or cognitive disabilities. Aside from supporting research on real-time transit information, this also provides another illustration of how universal design can be used effectively in transportation.

Documentation/link: Tiramisu Transit LLC Application Available in Google Play or the Apple App Store

Field-Initiated Projects (FIPs)

FIPs are investigator-initiated research projects drawn from a pool of applicants proposing a wide variety of target populations and a wide variety of research and development aims. These projects generate new knowledge through research or development on a smaller scale relative to DRRPs and Center grants. All FIP grantees must carry out research or development projects to improve outcomes of people with disabilities in health and function, employment, or community living and participation domains. Typical FIP awards are three years in duration.

Examples of 2018 FIP Accomplishments

The following are examples of FIP accomplishments reported to NIDILRR in FY 2018:

The Research Foundation for the State University of New York

The Research Foundation of SUNY| Stony Brook University: Audio-Tactile Web Accessibility with Haptic Gloves (Grant # 90IF0117)

As a result of this research, a FeelX mouse/glove was developed. It will allow blind users to connect to a computer device and then feel out and listen to the content of the screen by moving the mouse on any flat surface, such as a desk. With FeelX, blind users can feel segment boundaries to get the spatial perception of the webpage's layout; they can listen to the content of each segment they touch; and they can zoom into any segment to interact with the objects within it. Most notably, unlike pin-matrix displays, FeelX uses only four braille cells to represent the screen in a high-resolution tactile form.

Links:

The Research Foundation for the State University of New York

Stony Brook University

Aging and SCI: A 45-Year Longitudinal Study

Medical University of South Carolina (Grant # 90IF0112)

There were several key findings from this study: (1) Between 30- and 40-years post spinal cord injury, there is a dramatic increase in the need for health services (physician treatments and hospitalizations). (2) Satisfaction changes over time, but not in the same way for all life areas. Individuals' satisfaction with home life and employment maintains general consistency, as does their satisfaction with finances. Declines in their satisfaction with sex life occur more quickly, and declines in their satisfaction with social life and health are also significant over time. (3) A curious finding is that individual perception of future adaptation declines consistently over time, yet actual adaptation remains constant or resilient. (4) The overall conclusion is that, even among individuals with SCI with extraordinary survival who have adapted well over longer periods of time, there are eventually signs of declining health and need for substantially greater services. There needs to be more attention on assisting individuals with this transition. Citation: Krause, J. S., Newman, J. C., Clark, J. M. R., & Dunn, M. (2017). The natural course of spinal cord injury: Changes over 40 years among those with exceptional survival. *Spinal Cord, 55*(5), 502–508. doi: 10.1038/sc.2016.159. Full Text in HTML

Link: Medical University of South Carolina

Stroke Rehabilitation Writing Program

Rehabilitation Institute of Chicago: Evaluate the Efficacy of a Sentence-Writing Program (ORLA+WT) for Aphasia (Grant # 90IF0034)

Investigators at the Rehabilitation Institute of Chicago are investigating a variety of treatments targeting various language modalities and measuring different outcomes of research on computer interventions for aphasia within the International Classification of Functioning, Disability and Health (ICF) domains. Key findings include: (1) there is a tendency for computer-based treatments to focus on impairment-based interventions, with fewer targeting the activity/participation domain; (2) there are many methodological weaknesses in the current literature, including small numbers of subjects and lack of assessor blinding; (3) computer-

based treatment offers an array of benefits to people with aphasia; (4) computer treatments are advancing the field of aphasiology by offering high-intensity treatment, tracking patient performance, permitting treatment of high fidelity across participants, and providing a platform to study treatment variables of interest; and (5) in clinical practice, the clinician plays an important role in critically evaluating computerized treatments, identifying the active ingredients of the intervention, and ensuring that tasks are appropriate for their clients with aphasia. The publication highlights some of the methodological weaknesses of studies of computer-based treatments for aphasia cited in literature; it sets the stage for this study evaluating ORLA+Writing versus ORLA, because issues such as sample size and blinding are addressed. This publication serves as a review of computer-based treatments for aphasia and illustrates the need for treatments such as ORLA+Writing that address the activity/participation domain of the ICF. Citation: Lee, J. B., & Cherney, L. R. (2016). Computer-based treatments for aphasia: Advancing clinical practice and research. *Perspectives of the ASHA Special Interest Groups, 1*(2), 5–17.

Link: Shirley Ryan Ability Lab Oral Reading for Language in Aphasia (ORLA)

Advanced Rehabilitation Research Training Projects (ARRTs)

ARRTs seek to increase capacity for high-quality rehabilitation research by supporting institutions to provide advanced research training and experience to individuals with doctorates or similar advanced degrees who have clinical or other relevant experience. Grants are made to institutions to recruit qualified persons, including individuals with disabilities, and prepare them to conduct independent research related to disability and rehabilitation, with particular attention to research areas that support the implementation and objectives of the Rehabilitation Act and that improve the effectiveness of services authorized under the Act. Training projects must operate in interdisciplinary environments and provide training in rigorous scientific methods.

There were 56 Fellows enrolled in the ARRT program in FY 2018. Fellows contribute to, and lead, multidisciplinary research projects with mentors and peers, and are encouraged to publish their research. In FY 2018, Fellows were lead and contributing authors on 85 publications. The program supports a diverse cadre of young research professionals. An estimated 41 percent of Fellows in the ARRT funding program identify themselves as Latino, African American, American Indian, Asian, or Native Hawaiian. Five of the 56 Fellows reported having a disability.

Research Fellowship Program (Mary E. Switzer Fellowship Program)

The Mary E. Switzer Fellowship Program seeks to increase capacity in rehabilitation research by giving qualified individual researchers, including individuals with disabilities, the opportunity to develop new ideas and further their research expertise. Awards go directly to individuals, not their institutions, enabling Fellows to pursue independent research and training activities. Distinguished Fellows are seasoned in their careers, must hold a doctorate or comparable academic status, and have had seven or more years of experience relevant to rehabilitation research. Merit Fellowships are given to persons with rehabilitation research experience who

do not meet the qualifications for Distinguished Fellowships, usually because they are in earlier stages of their careers. Fellows work for one year on an independent research project of their own design. Individuals with disabilities are encouraged to apply for each of these Fellowships.

Six Switzer Fellowships were awarded in FY 2018, with a total of 14 Fellows submitting annual or final performance reports in 2018.

Current Switzer Fellows are displayed in Table 4.

Table 4. Current Switzer Fellows and Project Titles

Name	Project Title
Jonathan Delman	Understanding and Addressing the Vocational Barriers and Needs of Black Young Adults with Serious Mental Health Conditions
Melissa Duff	Memory and Learning Phenotypes as a Biomarker of Long-Term Outcome in TBI
Kathryn Connaghan	Social Communication and Participation of Adolescents with Motor Speech Disability
Dara V. Chan	Using GIS and GPS Techniques to Understand Meaningful Participation for Adults with Autism Spectrum Disorder
N. Erkut Kucukboyaci	Pre-Implementation of the "Home-Based Self-Management and Cognitive Training Changes Lives" (HOBSCOTCH) Program to Improve Quality of Life for Patients with Refractory Epilepsy
Irina Cain	Barriers and Facilitators for Transition to Independent Living for Youth with Developmental Disabilities

Ongoing NIDILRR Activities

The accomplishments presented are a small sample of the accomplishments realized as a result of the research and development sponsored by NIDILRR. The accomplishments were chosen to emphasize NIDILRR's broad impact on individuals with disabilities, the families and care communities that support them, and society writ large. Moving forward, NIDILRR will continue to sponsor rigorous research that is relevant to the needs and experiences of individuals with sensory, mental, physical, and developmental/intellectual disabilities.

NIDILRR will also focus on implementing and integrating the visions of the NIDILRR Director and the ACL Administrator. NIDILRR's FY 2018–2023 Long-Range Plan was published in March of 2019. The plan defines NIDILRR's organizational and programmatic framework and research agenda for the coming years. The ACL Administrator has identified five Pillars: Connecting People to Resources, Supporting Families and Caregivers, Strengthening the Networks,

Protecting Rights and Preventing Abuse, and Expanding Employment Opportunities. These Pillars serve as focal points of priority for ACL and encompass both aging and disability. They are also complementary to the themes defined in the NIDILRR Long-Range Plan. NIDILRR will contribute research and subject matter expertise throughout the planning and implementation of work across all of the Pillars.

Strategic partnerships with other agencies in HHS and across the federal government have been instrumental in advancing NIDILRR's mission. As such, NIDILRR will build on its historical collaborations to identify best practices, conduct cosponsored research, and address shared goals. NIDILRR's Director will continue to serve as the Chair of the Interagency Committee on Disability Research (ICDR), a federal partnership charged to promote a cohesive, strategic federal program of disability, rehabilitation, and independent living research; broker partnerships; and facilitate coordination and collaboration among federal departments and agencies conducting such research. NIDILRR intends to continue to lead and contribute to the advancement of the goals and objectives set forth in the recently drafted government-wide disability and rehabilitation research strategic plan.