

Disability Research and Dissemination Center Cycle 2 Annual Evaluation Years 4 & 5

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Executive Summary

This report summarizes the work of the Disability Research and Dissemination Center (DRDC) in Years 4 & 5 (April 1, 2021, to September 29, 2022) of a five-year funding period started on October 1, 2017. This five-year funding period continued work of the DRDC after a previous funding period (Cycle 1) between the years of 2012 and 2017 and the funding period between 2017 to 2022 is thus referred to in the remainder of this report as Cycle 2. This report includes the second half of Cycle 2, Year 4 and all of Cycle 2, Year 5. The decision to combine the last half of Year 4 and all of Year 5, Cycle 2 in this evaluation was made jointly by DRDC core personnel, including discussion with the funding agency.

The work of the DRDC during Cycle 2 was significantly impacted by the unprecedented Sars-COV-2 pandemic (COVID-19). The included Notable Events section summarizes the context in which the DRDC was operating and is referenced throughout the report to provide context for the work of the four cores in Years 4 & 5.

In Cycle 2, Years 4 & 5 the Administration Core has continued to provide administrative and technical support to DRDC funded projects, and to facilitate coordination with CDC's NCBDDD through the RFA process. The Research Advisory Council (RAC) members continued to further the work of the DRDC through dissemination.

The Research Core funded two sole source RFAs. The Research Core continued work on numerous previously funded projects.

The Research Translation Core continued the development of educational activities and translational projects, most notably literature reviews and evidence evaluations. This included the continuation of the Disability Integration Toolkit (DIT) and other translational projects. The Research Translation Core conducted multiple research projects related to disability and continues to collaborate with the Research Core on a DRDC funded project. In addition, the Research Translation Core conducted additional research related to COVID-19 and disability.

The Dissemination Core continued to manage the DRDC website and disseminate both RFAs as well as information about DRDC funded projects. The website had 6,390 users between April 1, 2021, and September 30, 2022.

The Evaluation Core completed the Years 4 and 5 annual evaluation report, in collaboration with the other cores.

Cycle 2 of the DRDC is anticipated to continue to address specific aims via a no-cost extension through September 29, 2024, in order to allow severely delayed projects an adequate time to complete their work. The end of the no-cost extension will be the conclusion to two cycles of funding of the DRDC.

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Introduction

DRDC Description

Cooperative Agreement #1U01DD001007 was initiated on September 30, 2012 (Cycle 1), with the University of South Carolina (USC) acting as the administrative home of the Disability Research and Dissemination Center (DRDC). Subcontracts were established at the American Association on Health and Disability (AAHD) and SUNY Upstate Medical University. A 5-year competitive renewal, Cooperative Agreement #1U19DD001218, was granted on September 30, 2017 (Cycle 2). In the summer of 2020, late in Cycle 2, Year 3, the Co-PI for Research and Administration moved her academic home from USC to the City University of New York (CUNY). A subcontract was established with CUNY so that the co- could continue to be an active member of the DRDC leadership team.

This report presents information from Cycle 2, Years 4 & 5 of the DRDC (April 1, 2021, to September 29, 2022).

For more detailed information about the DRDC see Appendix A: Disability Research and Dissemination Center Logic Model. This logic model incorporates aims and activities agreed upon during post-award negotiation with the CDC's National Center for Birth Defects and Developmental Disabilities (NCBDDD).

Mission

Establish a Disability Research and Dissemination Center (DRDC) that will expand NCBDDD's capacity to conduct research and to disseminate evidence-based practice related to birth defects and developmental and other disabilities.

Notable Events: SARS-COV2 Pandemic

SARS-COV2 (COVID-19) in the United States

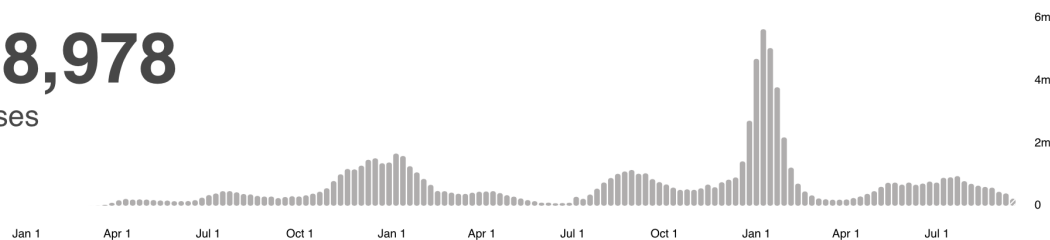
SARS-COV2 is the virus that has been the cause of the global COVID-19 pandemic beginning in 2019. The global COVID-19 pandemic had a large international and domestic impact in 2020 and has continued this impact in 2021 and 2022.

Between January 2020 and September 2022 in the U.S., there were 94,618,978 confirmed cases of COVID-19 and 1,044,127 (28,585.56 per 100,000) COVID-19 related deaths (315.44 per 100,000; Figure 1).¹

As of September 16, 2022, 604, 511, 670 vaccine doses (182.63 per 100 population) have been administered in the United States.¹ Despite this, however, COVID-19 continues to circulate throughout the U.S., mutates to cause new spikes in infection rates, and impacts hospitals' infrastructure, economics, and society at large.¹ The impact of the COVID-19 pandemic on the DRDC reporting period from April 2, 2021 to September, 29 2022, is recognized in this report.

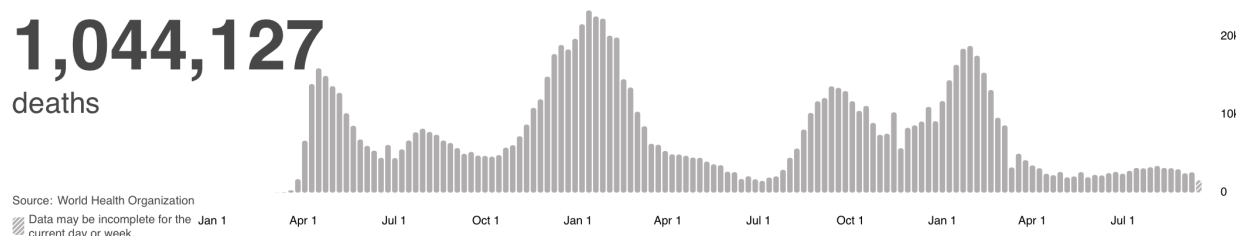
94,618,978

confirmed cases



1,044,127

deaths



Source: World Health Organization
Data may be incomplete for the current day or week.

Figure 1 COVID-19 cases and deaths, United States (data as of September 2022, reported by the World Health Organization)¹

Impact on Funding

The CDC and NCBDDD specifically reallocated resources to account for the COVID-19 pandemic.² Many staff from CDC and NCBDDD were called upon to participate in the emergency response to the public health emergency caused by the COVID-19 pandemic in the United States and abroad; thus, staff were temporarily detailed to various locations and teams within the agency to address the pandemic. The DRDC staff noted that the emergency response seemed to reduce the NCBDDD's engagement in the development of new research ideas and a long-term research agenda, which, consequently, may have been the cause for the reductions in their annual offers to issue and fund new RFAs.

Administration Core

Project Management and Reporting

In Years 4 & 5, the DRDC Administration Core was primarily comprised of Bo Cai, PhD, Suzanne McDermott, PhD, and Deborah Salzberg Clark, MS, MAT; and it included several graduate assistants. Ms. Salzberg Clark worked closely with the USC Office of Sponsored Awards in the management of external grantees. As noted in the progress report submitted in eRA commons in Spring of 2021, the Co-PI for Research and Administration, Suzanne McDermott, PhD, moved her academic home from USC to City University of New York (CUNY) in August of 2020. A subcontract was quickly established with CUNY so that Dr. McDermott could continue to be an active member of the DRDC leadership team, and the subcontract was continued in Year 5. At USC, Bo Cai, PhD, became the contact PI for the DRDC cooperative agreement with CDC. The project manager for the DRDC, Deborah Salzberg Clark, continued to be responsible for day-to-day administrative oversight and management of DRDC funded projects in Cycle 2, Years 4 & 5. This has included direct participation in certain intramural research projects, as well as organizing and attending calls between project PIs and CDC scientific advisors, overseeing the issuance of subcontracts for extramural projects, and providing technical assistance to project PIs as needed. The Administration Core also completes

required reports to the CDC, using the eRA commons system. A revised budget request for the change in PI at USC as well as the anticipated Year 4 budget was completed in June 2020, and another budget revision request was completed in August 2020 to account for the new subcontract to CUNY. In March of 2020, a continuing application for Year 4 was completed, and another was completed in March of 2021 for Year 5. In the summer of 2022, a request for no-cost extension through September 29, 2023, was completed. The Administration Core was required to collect data and project information from all funded PIs, including the Co-Principal Investigators, to complete the administrative and budget requests.

In Cycle 2, Years 4 & 5 the Research Advisory Council (RAC) was not required to disseminate the annual call for grant applications (RFAs) or triage applications to assist the DRDC in forwarding applications to CDC, as there were no unrestricted RFAs in Year 4 or Year 5.

Research Core

Requests for Applications (RFAs)

RFA Process

This section addresses the RFA review process and funded projects. In Cycle 2, Years 4 & 5 there were two sole-source/non-competitive RFAs. The first RFA, started in 2020 and titled *Modeling Small Area Estimates of Indicators of Children's Mental Health and Mental Disorders using National Survey Data*, was awarded to PI Alexander McLain, PhD of USC. The second RFA, started in 2021 and titled *Improving Measures to Identify Tics and Tic Disorders*, was awarded to PI James Hardin, PhD also of USC. Due to predetermined timing of RFA release there was no mechanism to fund new RFAs in 2021 and moving forward, and thus, no additional projects were funded in 2021 or 2022. However, ongoing annual support was provided to the Greenwood Genetics Center for the *David W. Smith Workshop on Malformations and Morphogenesis* through 2022.

Table 1. Overview of RFA proposals and sole-source funded projects

Year	RFAs Posted by DRDC	Funding Opportunities	Applications Received by DRDC	Applications Reviewed by CDC	Funded Projects
2020	1	1	1	1	1
2021	1	1	1	1	1

Geographic Spread of Projects Funded in the United States

Geographic Spread

Both projects funded in Cycle 2, Years 4 & 5 were awarded to PIs located in South Carolina.

Proposals of Funded Projects

In Years 4 and 5 there were two new sole-source RFAs. Both proposals were sent to the CDC for consideration, and subsequently funded. The 2020 proposal (*Modeling Small Area Estimates of Indicators of Children's Mental Health and Mental Disorders using National Survey*

Data) outlined this project and a primary goal of identifying disparities in children’s mental health and well-being across U.S. counties and Census Divisions, and related modifiable factors at the individual- and area-level using National surveys (e.g., National Survey of Children’s Health, BRFSS, National Health Interview Survey).

The 2021 project proposal (Improving Measures to Identify Tics and Tic Disorders) outlined a plan to analyze data from existing questionnaires, namely, the Motor or Vocal Inventory of Tics (MOVEIT) and the Description of Tics Symptoms (DoTS). Each questionnaire contains information related to tic frequency and severity and provides data on more than 1,000 children. See Appendix B for a list of funded projects, primary investigators, and academic homes.

Research Impact

The research impact of the DRDC is summarized here through publications generated from internal and external research projects. Research impact was assessed using metrics available via Scopus, which provides data on the dissemination of scholarly publications. Both internal and external DRDC funded research projects have produced publications. Additional publications are anticipated during the No Cost Extension (NCE). To date, sixty-five DRDC related publications have been produced since 2018, when Cycle 2 began. Of these, 23 publications were produced during the years referenced in this report, 2021 and 2022. See Appendix C for the citations of the sixty-five DRDC related publications to date, beginning in 2018 following the start of Cycle 2 funding.

Dissemination is being evaluated using Scopus which provides metrics for publication dissemination on several platforms (see Appendix D). Metrics are collected through internet data tracking.³ These metrics can be used to understand how publications are accessed. For more information on the specific data collection used by Scopus Metrics visit the Scopus Metrics website.⁴

For this report, data was collected from Scopus including captures/readers, view counts, abstract views, full text views, and links out. Other included metrics were dissemination through other platforms, such as tweets, news mentions, blog mentions, and “shares, likes, and comments.” Finally, there are measures of citations, such as citation indexes, citations, field weighted citation impact, and policy citations. Information on captures (i.e., readers) information for 55 DRDC related publications indexed in Scopus can be found in Table 2. Ten DRDC related publications were either not indexed in Scopus, or metrics for newer publications were not yet available. For further information and data regarding these metrics and dissemination of research refer to Appendix D, Scopus Metrics Data.

Table 2. Captures (readers) and view count for DRDC Cycle-2 related publications, n=55

Citation	Article	Captures (readers)	Views Count
1	Schleiss, 2022	3	-
4	Finkelstein, 2022	20	12
5	Meinzen-Derr, 2022 (5)	1	14
6	Schleiss, 2022	2	5
7	Geris, 2022	6	2
8	Meinzen-Derr, 2022 (8)	7	22
10	Zgodic, 2021	31	7

11	Yoshinaga-Itano, 2021	7	9
12	Goss, 2021	15	4
13	Wiggin, 2021	19	13
14	Salzberg, 2021	23	7
15	Hernandez-Alvarado, 2021	10	4
16	Yoshinaga-Itano, 2021	36	7
17	Finkelstein, 2021	24	8
18	Schleiss,2021	6	7
19	Betts, 2021	32	4
20	Chodron, 2021 (20)	27	26
21	Chodron, 2021 (21)	14	6
22	Dollard, 2021	46	15
23	French-Lawyer, 2021	82	57
24	Finkelstein, 2020 (24)	10	3
25	Froehlich-Grobe,2020	57	11
26	Schaefer, 2020	5	4
27	Ozturk, 2020	3	10
28	Osterholm, 2020	44	18
29	Yoshinaga-Itano, 2020	69	47
30	Finkelstein, 2020 (30)	39	11
31	Meinzen-Derr, 2020	36	36
32	Schleiss, 2020	9	5
33	Yoshinaga-Itano, 2020	35	7
34	Danielson, 2020	54	42
35	Goss, 2020	26	19
36	Morley, 2020	38	21
38	Gale, 2019	24	37
39	VanDam,2019	63	31
40	Ioerger, 2019 (40)	26	22
41	Ioerger, 2019 (41)	47	46
42	Bennett, 2019 (42)	20	11
43	Cyrus, 2019	36	21
44	Ioerger, 2019 (44)	29	23
45	Bennett, 2019 (45)	39	24
46	De Diego-Lazaro, 2019	59	35
47	Hong, 2019	38	14
48	Gadomski, 2018	36	-
49	Andrews, 2018	145	31
50	Barger, 2018 (50)	87	62
51	Barger, 2018 (51)	48	22

52	Bennett, 2018	2	-
53	Betts, 2018	190	40
55	McDermott, 2018 (55)	44	14
56	McDermott, 2018 (56)	73	30
57	Thomson, 2018 (57)	51	21
58	Thomson, 2018 (58)	2	12
59	Xu, 2018	32	20
60	Yoshinaga-Itano, 2018	118	56

Research Translation Core

Training and Professional Development

The research translation core supported research, training, and professional development efforts through the Disability and Health Research team (DHRT) at Upstate Medical University (UMU) which is composed of Dr. Margaret A. Turk, two full time employees (previous DRDC Fellows Katherine D. Goss, MPH and Jeremy French-Lawyer, MPH, CAS, CHES) and two graduate assistants (GSA). While Katherine Goss has maintained employment for the duration of this reporting period, Jeremy French-Lawyer transferred to a new position at Upstate Medical University in August of 2021, and was supported for only a portion of this reporting period. The primary GSAs employed in Cycle 2, Years 4 & 5 included Margaret Lovier and Matthew Komen, both Master of Public Health candidates at SUNY Upstate, who continued their work on the DRDC project funded in Year 2, *Systematic Review and Meta-analysis of Pain Interventions for People with Longstanding Disability*, including project development, research, and analysis. In addition to contributions to the *Systematic Review and Meta-analysis of Pain Interventions for People with Longstanding Disability* project Margaret Lovier has worked on data analysis projects focused on trauma experiences among patients with disability, using data from the 2016 National Trauma Database. An abstract/poster based on this data was presented at the 2022 Association of Academic Physiatrists' Annual Meeting. In addition, a poster based on a selection of findings from the *Systematic Review and Meta-analysis of Pain Interventions for People with Longstanding Disability* project was accepted for poster presentation at the Association of Academic Physiatrists' Annual Meeting, scheduled for February of 2023. In addition to research activities, both GSAs have supported other DHRT activities (described below) and have engaged in professional and personal development opportunities. Prince Yearwood, also an MPH candidate at SUNY Upstate, was previously hired to assist with DRDC projects including next steps for *Systematic Review and Meta-analysis of Pain Interventions for People with Longstanding Disability* and an updated assessment of DRDC publications for Research Translation and was employed for a portion of this reporting period.

In Years 4 & 5, DHRT member Katherine Goss accessed new research platforms available to Upstate researchers and facilitated the PM&R resident Journal Club. DHRT has also provides mentoring and one-on-one instruction for UMU medical students, PMR residents, and Master of Public Health students. She has worked with medical students and PM&R residents to develop education modules and quality improvement projects and has consulted on other publications within the department. Several students have participated in the *Systematic Review and Meta-analysis of Pain Interventions for People with Longstanding Disability* or have been guided/mentored on analytic methods and reports. One such report which is currently in

development with a UMU medical student and former MPH student (Davis Hedbany) focuses on the impact of the Covid-19 pandemic on patients with spinal cord injury. Another project focused on reproductive health experiences for women with disability, involving previous GSA Caitlin Ward, was accepted for publication in *Women's Health Reports* during the reporting period. These students have been offered training on the methodology necessary to conduct their projects, professional mentoring, and opportunity for individual skill enhancement and interest exploration within the field of disability. Relationships and collaborations have also been maintained with previous GSAs (Cait Ward and John Agles) and medical students.

Additional Projects

The Research Translation core continues to develop the Disability Integration Toolkit, with a particular focus on the translation of research into educational interventions. Highlights of these efforts related to the Disability Integration Toolkit include:

- i) Content development for an educational activity focused on shoulder pain among people who use wheelchairs has been completed. This project was carried out by a fourth-year medical student, Benjamin Jung, who was a previous participant in SUNY Upstate's PMR-SE program, a summer clinical/research experience for rising 2nd year medical students. Content development has been completed under supervision and consultation with Dr. Margaret Turk and Mr. Jung is now working with Katherine Goss of the DHR team to create an interactive module using Articulate programming to later be posted on the DIT website.
- ii) In collaboration with the DIT Working Group, a collaborative working group operating within the Association of Academic Physiatrists' Medical Student Educators Council and Education Committee, development of a new educational tool to be included in the DIT website has commenced. These tools, called Disability Integration Inserts, aim to provide information on health care for people with disability that can be easily integrated into existing educational lectures and activities for medical students. These inserts will cover a variety of topics in areas where disability information can complement and expand existing medical education topics, integrating this information rather than separating and presenting this disability-specific information as a separate topic. Currently, content development has been completed for several inserts, and group members are currently working to adjust previous lectures and presentations to fit insert priorities. After development, these inserts will be available on the DIT website and will be fully modifiable for end users.
- iii) DIT tools were successfully implemented for remote learning during the COVID-19 pandemic in summer 2021 and 2022 as part of a summer externship program at SUNY Upstate which is coordinated by the DHRT (PMR-SE program).
- iv) Work is in progress at a national level with the Association of Academic Physiatrists to establish a DIT process and sustainability plan. Plans for future tools are underway incorporating input from experts in the field and from medical students.

Additional translation of research into educational activities is planned to continue via a carry forward process through March of 2023.

Dissemination Core

Outreach and Dissemination

Website Utilization

The DRDC website,^a acts as a platform for the RFAs, dissemination of research, publications, and information about the DRDC. The DRDC website was launched on January 17, 2013; and it is maintained by the Dissemination Core, which is led by Roberta S. Carlin, MS, JD. All data from Google analytics was extracted in December of 2022.

Google Analytics was used to collect data for Cycle 2, Years 4 & 5. This data includes information from April 1, 2021, to September 30, 2022, which represents the second half of Year 4 and all of Year 5. During this period, there were 6,390 unique users of the DRDC Website. Of these users 89% of visitors were new users, and 11% were return visitors (Appendix E, Google Analytics Data; Visitors to www.disabilityresearchcenter.org)

The DRDC website had users from every continent except Antarctica. By country, the majority of website users were from the United States (49.06%), while the second-highest number of users (16.74%) were from China. Canada, Indonesia, India, United Kingdom, and Japan represented less than 3% of website users each, while Bangladesh, Germany, and Brazil represented less than 1% each (See Appendix E, Google Analytics Data for counts and percentages of users in the top 10 represented countries).

DRDC website visits totaled 7,503 sessions, with 11,993 page views and an average of 1.6 pages viewed per session. The visitor bounce rate was 58.95%, a decrease from the previous reporting period bounce rate of 74.93%.^b The average session duration was 42 seconds.

Social Media

Social media strategies were implemented to target public health professionals to ensure current research and practices were widely disseminated. The Dissemination Core used a social media platform, Buffer, to schedule on-going social media posts via Twitter, Facebook and LinkedIn.

The twitter account for the DRDC was initiated in January 2014, in Cycle 1, Year 2 of the DRDC. Since then there have been a total of 2,773 tweets. The account has 1,451 followers and is following 822 other twitter accounts, both of which have decreased since the Years 3 & 4 Evaluation Report (Twitter data extracted November, 2022). The account has been used to disseminate information about RFAs, as well as information on research, disability facts, and news.

Evaluation Core

Annual Evaluation Reports

The Evaluation Core of the DRDC completes annual evaluations. It is currently comprised of Telisa Stewart, MPH, DrPH and Katherine Goss, MPH, and previously included Jeremy French-Lawyer, MPH, CAS, CHES. All of the previous evaluation reports are available on the DRDC website, as is the Cycle 1 Evaluation.^{5,6,7,8,9,10,11,12,13}

^a The DRDC website is www.disabilityresearchcenter.org

^b Bounce rate refers to the number of users that visit only one page before exiting the site

Substantial Changes to DRDC Evaluation Process

Change to the Data Reporting and Evaluation Timeline

No substantial change was made to the Evaluation process in Years 4 and 5. The Notable Events section, added to the previous evaluation report, was included again in this evaluation to outline the continued impact of the COVID-19 pandemic on DRDC activities.

A consistent method has been developed and successfully implemented in the first four years of Cycle 2 and continued for the creation of this evaluation report. Data is collected from project PIs in the spring of each year by the Administration Core, and the report to CDC is made by the end of April. After this process is complete, the Evaluation Core completes the annual evaluation process, using the data that was collected by the Administration Core as well as data from other sources such as Scopus and Google Analytics. The evaluation process includes data analysis and additional data collection related to dissemination and other aspects of the DRDC. This process allows for efficient data collection from the PIs of each project. The data represented in the Cycle 2, Years 4 & 5 report includes the second half of the Year 4 data, and all of Year 5. This is the final annual report for Cycle 2, and following a carry-forward to March of 2023, funding for the DRDC through this mechanism will cease.

Final 5 Year Cycle 2 Summary

This annual report marks the conclusion of the second cycle of funding for the DRDC. The DRDC was established September 30, 2012, and has demonstrated success in achieving its mission to conduct research, and to disseminate evidence-based practices related to birth defects and developmental and other disabilities throughout two five-year cycles of funding.

As stated earlier in this evaluation, there have been a total of sixty-five publications to date associated with Cycle 2 funding of the DRDC. Publications were highest in number during the calendar year of 2014 ($n=14$), with 13 articles each being published in years 2018 and 2020 (see Figure 2). In total, 55 of these publications were indexed in Scopus, and reached a total of 2,045 readers (see Appendix D for a definition of capture/reader counts). View counts across all 55 indexed articles totaled 1,035, with 2,441 full text views, and 1,719 abstract views. These articles were the topic of 486 tweets and 635 shares, likes, or comments. These articles had a total of 466 citations in Scopus, a total of 222 citation indexes, and an average field weighted citation impact score of 1.68.

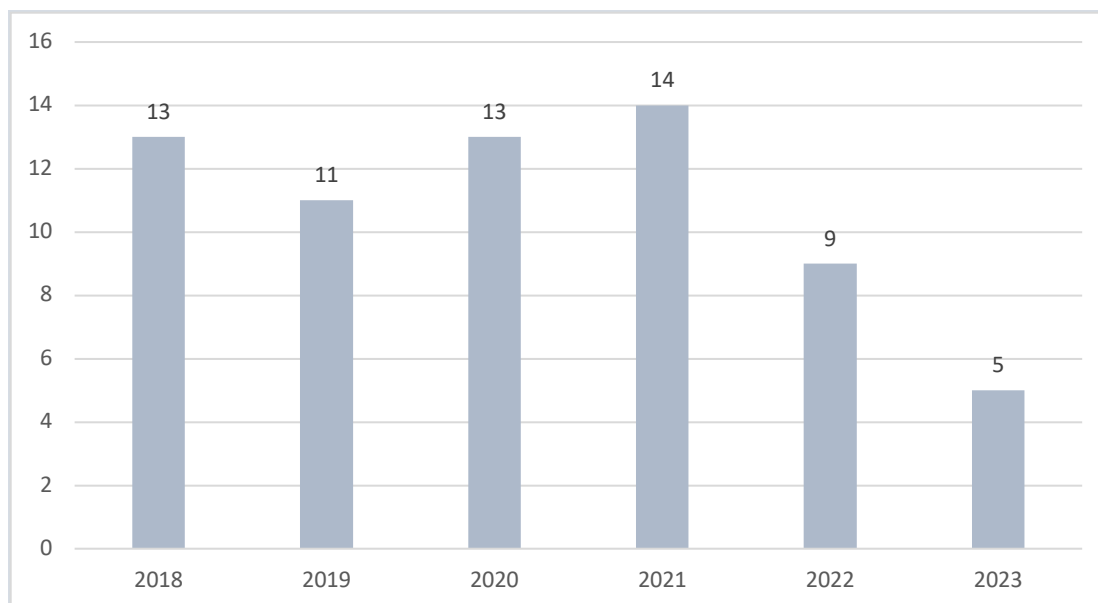


Figure 2 Frequency of DRDC Cycle 2 related publications by calendar year of publication, N=65

In addition to the impact of published articles in the research community, a total of 25,810 users visited the DRDC website since the start of Cycle 2 funding in October of 2017. Over the course of five years of Cycle 2 funding, from October of 2017 through September of 2022, these users amassed a total of 56,250 page views across 31,875 sessions. Users were from a variety of countries, with the largest number of viewers located in the United States (16,398 users), China (1,633 users), and Canada (1,307 users; see Figure 3 for a visual representation of users by country).

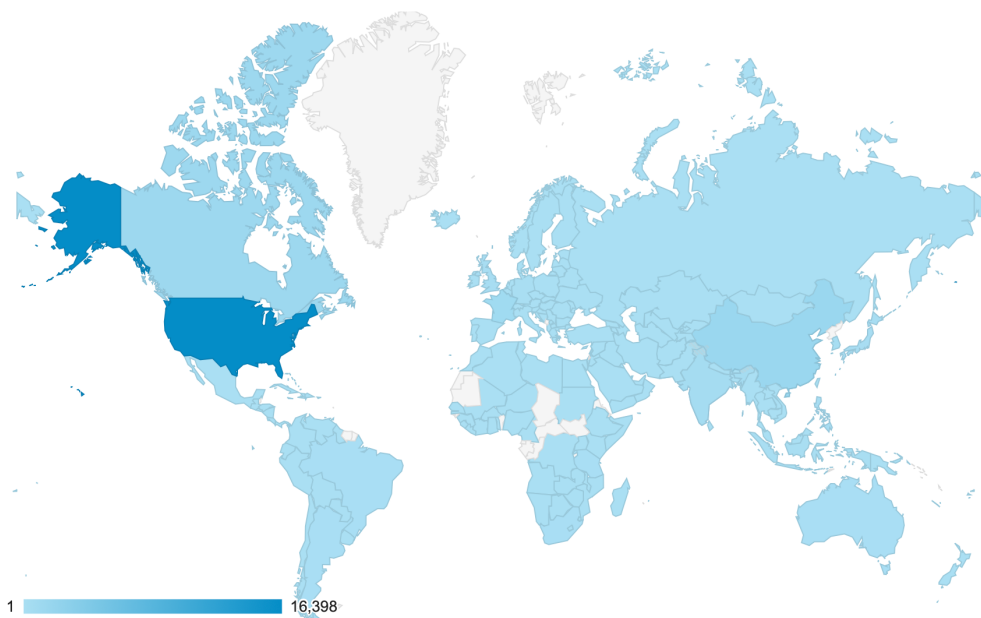


Figure 3 Map Overlay DRDC Website Users by Country, from October 1, 2017 through September 30, 2022

Throughout the duration of Cycle 2 funding a large variety of personnel from multiple locations, both nationally and internationally, were employed within the DRDC to carry out the organization's mission. In all, 84 individuals were employed by the DRDC between 2017 and 2022, not including student and other volunteers who contributed to research translation and other projects (See Appendix F: Personnel Data Across Cycle 2 Funding for full initial role classification frequencies). Of these, the highest number of personnel were classified as research assistants (n=29), including both student (graduate and undergraduate) and non-student research assistants. The second highest number of personnel were listed as co-investigators (n=18 co-investigators, and n=10 consortium PI/Co-Is), supporting work both within the DRDC and through funded RFAs. The majority of personnel received support for more than one year (70%, n=59), and all three project PIs stayed with the DRDC for the duration of Cycle 2 funding, demonstrating a continued commitment to the DRDC and funded projects.

Conclusion and Future Action

Cycle 2 of the DRDC in the second half of Year 4 and Year 5 has continued progress in each of the five cores, although reduced funding has impacted RFAs. Despite changes in funding due to the COVID-19 pandemic, the DRDC continues to fulfill its mission to expand the capacity of the CDC's National Center on Birth Defects and Developmental Disability to conduct research, and to disseminate evidence-based practices related to birth defects and developmental and other disabilities.

The DRDC is expected to continue through a No-Cost Extension to September 29, 2024. Future actions for the DRDC will include completing the currently funded projects with dissemination of their results and implementing strategies to accomplish the broader goal of conducting research translation.

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Appendix A. Disability Research and Dissemination Center Logic Model

Figure 4 - Logic Model for Inputs (Cores and Activities), Outputs, and Outcomes.

Each program input (defined as the creation of cores with specific tasks, and the activities of those cores) leads to specific work products, which in turn lead to measurable outcomes. The outcomes are identified by "SMART" criteria, originally described by Doran as "Specific, Measurable, Attainable, Relevant, and Timely" variables that indicate whether a program has or has not had a desired effect, and to what extent. The Evaluation Core for this project will focus on immediate (proximal) outcomes, with distal outcomes measured as opportunities to measure SMART variables arise.

Core component	Activities	Planning Outputs	Program Outcomes	Distal/ Outcomes
Infrastructure	→ Convene Research Advisory Committee (RAC); Establish partnerships; Manage & coordinate Core activities and programs; Conduct subcontracts and working arrangements; Establish	→ # of RAC activities convened; Management & administrative structures in place for internal reporting and budgeting; Informational meetings held; Collaborations maintained; # of scoring rubrics established.	→ Increase in RAC directed activities; Increase in internal monitoring for centralized management; Increase in reviews for priority areas of interest; Increase in networks; Increase in maintaining	→ Increase in flexible multi-disciplinary administrative systems; Increase in sustainable partnerships; increase extramural grant competition.
Research Core	→ Conduct intramural research; Develop RFAs for extramural research; Solicit research projects; Dissemination of research initiated.	→ # of Active research structures devised and maintained; Support services developed; Research projects solicited; Research projects disseminated.	→ Increase in completed studies related to NCBDDD priorities; Increase in acceptance of research manuscripts to conferences and published in scholarly journals.	→ Increase number of PIs managing their own prevention and disability studies; Increase in dissemination of best research in the field.
Research Translation Core	→ Identify and prioritize topics and areas for translation efforts; Develop translation products in formats for specific audiences; Disseminate products; Evaluate product usage; Evaluate individual	→ # of topic areas for translation prioritized including NCBDD participation; External stakeholder participations in development; Translation products formatted; Products disseminated for target audiences.	→ Research translation strategies completed and products developed; Increase evaluation for product effectiveness; Increase in disseminated products.	→ Increase knowledge and skills translated for health professionals working with people with disabilities; increase overall translation of individual projects.
Dissemination and Policy Core	→ Maintain web/social media implementation plan; Update core dissemination plan; Engage stakeholders in dissemination; Support NCBDDD RFA; Participate in NQF and other policy	→ # of web/social media plans developed; Core dissemination plans created; Stakeholders engaged in dissemination; NCBDDD supported RFAs; # and type of policy activities.	→ Increase usage of web/social media; Improved dissemination plans; Increase in network for dissemination of RFA's and research findings; Research translation products uploaded; Successful meetings.	→ Increase in dissemination about evidence-based practice /policies.
Evaluation Core	→ Organize and implement routine evaluations for all processes, research, training, dissemination strategies, and other activities related to the grant; Complete annual report.	→ # of evaluations that collect information on process, research, training, dissemination; Annual reports completed.	→ Increase indention of process implemented; Increase effectiveness of data collected, analyzed; Increase research & training programs monitored for effectiveness; Increase program database support; Increase annual report.	→ Increase the use of evaluations that ensure program fidelity and continual quality improvement; Increase external dissemination; Increase dissemination of results.
Inputs		Immediate Outputs	Proximal and Distal Outcomes (Evaluation will focus on proximal outcomes)	

Appendix B. List of Projects Funded During the Reporting Period, Primary Investigators and Academic Homes

Modeling Small Area Estimates of Indicators of Children's Mental Health and Mental Disorders using National Survey Data

Year: 2020

PI: Alexander McLain, PhD

Academic home: University of South Carolina

Improving Measures to Identify Tics and Tic Disorders

Year: 2021

PI: James Hardin, PhD

Academic home: University of South Carolina

Appendix C. List of DRDC Publications during Cycle 2, to date

1. Turk MA, McDermott S, Zhang W, Cai B, Love BL, Hollis N. Associations between opioid prescriptions and use of hospital-based services among US adults with longstanding physical disability or inflammatory conditions compared to other adults in the Medical Expenditure Panel Survey, 2010–2015. *Journal of Pain Research*. Accepted 4/23/2023.
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3. Adams HR, Augustine EF, Bonifacio K, Collins AE, Danielson ML, Mink JW, Morrison P, van Wijngaarden E, Vermilion J, Vierhile A, Bitsko RH. (2023). Evaluation of New Instruments for Screening and Diagnosis of Tics and Tic Disorders in a Well-Characterized Sample of Youth with Tics and Recruited Controls. *Evidence-Based Practice in Child and Adolescent Mental Health*. Online publication. DOI: 10.1080/23794925.2023.2178040.
4. Zhang W, McDermott S, Salzberg DC, Hollis ND, Hardin J. A Randomized Controlled Trial using Brief Educational Messages Directed to Adults with Intellectual Disability and Hypertension or their Helpers Reduces Hospital Stays. *Am J Health Promot*. 2023 Mar 6:8901171231161470. doi: 10.1177/08901171231161470. Epub ahead of print. PMID: 36880149.
5. Soli M, Reeder JA, Alderman SL, Zuckerman KE. An Intervention to Increase Detection of Developmental Delays in WIC Programs. *Acad Pediatr*. 2023 Jan 13:S1876-2859(23)00004-9. doi: 10.1016/j.acap.2023.01.003. Epub ahead of print. PMID: 36646317
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10. Meinzen-Derr, J., Tabangin, M. E., Altaye, M., Ehrhardt, J., & Wiley, S. (2022). Factors Associated with Early Intervention Intensity for Children Who Are Deaf or Hard of Hearing. *Children (Basel, Switzerland)*, 9(2), 224. <https://doi.org/10.3390/children9020224>

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Appendix D. Scopus Metrics Data*

Included in this Appendix is a summary of the data collected via Scopus metrics for the publications produced by projects funded through the start of DRDC Cycle 2 to date and which are indexed in Scopus. The final metrics data from Scopus was extracted on December 23, 2022.

Metrics were available in Scopus for all but 10 of the 65 total DRDC related publications* between 2018 and 2022. Of these 55 indexed publications, all reported capture/reader counts, which are defined as “the number of people who have added the artifact to their library/briefcase”.¹⁴ Fifty-two of these publications also reported views count, or “the number of times the article has been viewed”, which includes views on sources including Mendeley data, Dryad, figshare, and Slideshare.⁴ See Chart 2 for reader and view counts.

Full Text and Abstract Views

Eight articles reported Full Text Views, which are defined as “The number of times the full text of an article has been viewed”.⁸ Seventeen articles reported Abstract Views, which are “The number of times the abstract of an article has been viewed.”⁴

Citation #	Article	Full-text Views	Abstract views
37	Folger, 2019	-	548
40	Ioerger, 2019 (40)	1559	158
43	Cyrus, 2019	115	64
45	Bennett, 2019 (45)	-	10
46	De Diego-Lazaro, 2019	71	112
47	Hong, 2019	-	46
48	Gadomski, 2018	-	31
49	Andrews, 2018	91	79
50	Barger, 2018 (50)	-	198
51	Barger, 2018 (51)	-	2340
53	Betts, 2018	-	69
55	McDermott, 2018 (55)	322	584
56	McDermott, 2018 (56)	249	645
57	Thomson, 2018 (57)	33	47
58	Thomson, 2018 (58)	-	2
59	Xu, 2018	1	30
60	Yoshinaga-Itano, 2018	-	15

Links Out and Exports (saves)

Fifteen articles reported links out, defined as “the number of times an outbound link has been clicked to a library catalog or link resolver” and sixteen reported exports/saves, which “includes the number of times an artifact’s citation has been exported direct to bibliographic management tools or as file downloads, and the number of times an artifact’s citation/abstract and HTML full text (if available) have been saved, emailed or printed”.^{4, 14}

Citation #	Article	Links Out	Exports- saves
40	Ioerger, 2019 (40)	2	5
43	Cyrus, 2019	18	6
45	Bennett, 2019 (45)	1	1
46	De Diego-Lazaro, 2019	7	16
47	Hong, 2019	10	22
48	Gadomski, 2018	4	1
49	Andrews, 2018	1	34
50	Barger, 2018 (50)	124	13
51	Barger, 2018 (51)	122	18
53	Betts, 2018	34	-
55	McDermott, 2018 (55)	32	37
56	McDermott, 2018 (56)	30	66
57	Thomson, 2018 (57)	-	3
58	Thomson, 2018 (58)	1	-
59	Xu, 2018	13	3
60	Yoshinaga-Itano, 2018	7	1

Citation/Index Metrics

Scopus Metrics also report the indexes in which an article has been archived or referenced. Twenty-five articles reported citation indexes, which are defined as the number of articles that cite the artifact across a variety of sources.¹⁵ Citations in Scopus and policy citations (“number of policy documents that reference an artifact”) are also reported where available.¹⁵ A field-weighted citation impact (FWCI) is reported for 22 articles, which is the “ratio of the total citations actually received by the denominator output and the total citations expected based on the average of the subject field”, showing how well this document is cited when compared to similar documents. A value greater than 1.00 means the document is more cited than expected.¹⁶

Citation #	Article	Citation indexes	Citations in Scopus	Policy citations	FWCI
4	Finkelstein, 2022	1	-	-	-
5	Meinzen-Derr, 2022 (5)	-	1	-	2.01
6	Schleiss, 2022	1	1	-	2.48
8	Meinzen-Derr, 2022 (8)	1	-	-	-
10	Zgodic, 2021	-	1	-	0.18
11	Yoshinaga-Itano, 2021	1	3	-	1.34
13	Wiggin, 2021	-	5	-	1.69
15	Hernandez-Alvarado, 2021	-	-	-	0.57
16	Yoshinaga-Itano, 2021	-	8	1	1.31
17	Finkelstein, 2021	-	5	-	1.21
18	Schleiss, 2021	-	1	-	0.89
19	Betts, 2021	-	1	-	0.33
20	Chodron, 2021 (20)	6	8	-	2.73
21	Chodron, 2021 (21)	-	3	1	0.98
22	Dollard, 2021	-	28	-	12.1

23	French-Lawyer, 2021	-	5	-	0.67
24	Finkelstein, 2020 (24)	-	2	-	0.31
25	Froehlich-Grobe, 2020	1	2	-	0.21
26	Schaefer, 2020	-	2	-	0.42
27	Ozturk, 2020	-	2	-	0.59
28	Osterholm, 2020	-	13	-	0.53
29	Yoshinaga-Itano, 2020	7	18	1	3.6
30	Finkelstein, 2020 (30)	-	2	-	0.22
31	Meinzen-Derr, 2020	5	7	3	1.48
32	Schleiss, 2020	-	6	-	1.34
33	Yoshinaga-Itano, 2020	-	1	-	2.08
34	Danielson, 2020	1	23	2	7.68
35	Goss, 2020	-	3	-	0.39
36	Morley, 2020	-	11	-	1.45
38	Gale, 2019	5	9	-	4.36
39	VanDam, 2019	-	4	-	0.23
40	Ioerger, 2019 (40)	2	2	-	0.1
41	Ioerger, 2019 (41)	5	13	-	0.87
42	Bennett, 2019 (42)	-	1	-	0.13
43	Cyrus, 2019	-	7	-	0.83
44	Ioerger, 2019 (44)	-	5	-	0.66
45	Bennett, 2019 (45)	2	4	-	0.53
46	De Diego-Lazaro, 2019	5	7	-	1.7
47	Hong, 2019	2	11	-	1.44
48	Gadomski, 2018	-	7	-	0.5
49	Andrews, 2018	54	57	-	3.82
50	Barger, 2018 (50)	29	34	4	2.72
51	Barger, 2018 (51)	23	23	1	1.69
52	Bennett, 2018	1	-	-	-
53	Betts, 2018	7	11	-	1.08
55	McDermott, 2018 (55)	16	28	2	2.81
56	McDermott, 2018 (56)	12	16	-	1.42
57	Thomson, 2018 (57)	4	9	-	1.04
59	Xu, 2018	3	4	-	0.55
60	Yoshinaga-Itano, 2018	28	52	-	3.6

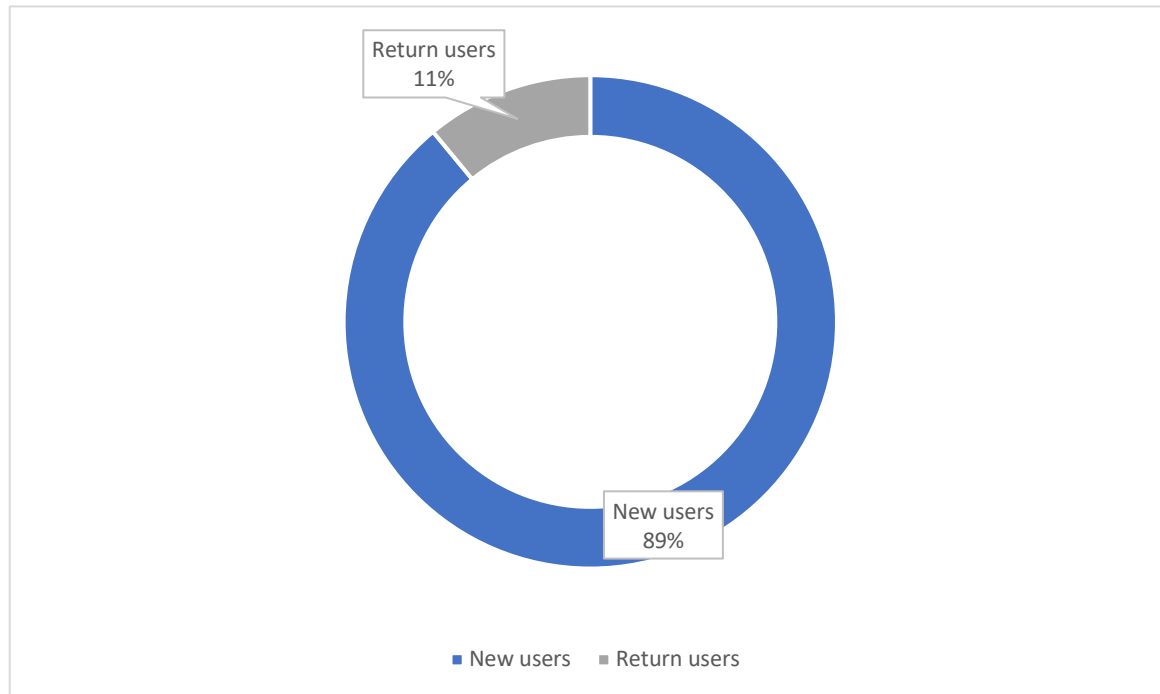
Other Dissemination Metrics (Tweets, Shares/likes/comments, Mentions)

Thirty articles reported number of Tweets, “The number of tweets and retweets that mention the artifact.”¹⁷ A total of fifteen articles report Shares, likes, and comments, defined as “the number of times a link was shared, liked or commented on”, on Facebook.⁸ Blog mentions (“the number of blog posts written about the artifact”, n=1) and news mentions (“the number of news articles written about the artifact”, n=3) are also reported as available.¹⁸

Citation #	Article	Tweets	Shares, likes, and comments	Blog mentions	News mentions
1	Schleiss, 2022	29		1 -	56
4	Finkelstein, 2022	1 -		-	-
5	Meinzen-Derr, 2022 (5)	-	-		1 -
7	Geris, 2022	2 -		-	-
11	Yoshinaga-Itano, 2021	6		2 -	-
12	Goss, 2021	6 -		-	-
13	Wiggin, 2021	4 -		-	-
14	Salzberg, 2021	6 -		-	-
15	Hernandez-Alvarado, 2021	-	-		1 -
16	Yoshinaga-Itano, 2021	1 -		-	-
18	Schleiss, 2021	1 -		-	-
20	Chodron, 2021 (20)	-		97 -	-
21	Chodron, 2021 (21)	4		28 -	-
22	Dollard, 2021	16 -		-	1
23	French-Lawyer, 2021	6		13 -	-
26	Schaefer, 2020	4		2 -	-
29	Yoshinaga-Itano, 2020	5 -		-	-
31	Meinzen-Derr, 2020	206		18	1 2
32	Schleiss, 2020	1 -		-	-
33	Yoshinaga-Itano, 2020	35 -		-	-
34	Danielson, 2020	-	-	-	3
36	Morley, 2020	8		143 -	-
37	Folger, 2019	1		216 -	-
38	Gale, 2019	72		51 -	35
39	VanDam, 2019	-	-		1 -
40	Ioerger, 2019 (40)	-		34 -	-
41	Ioerger, 2019 (41)	1 -		-	-
43	Cyrus, 2019	-	-	-	1
45	Bennett, 2019 (45)	1 -		-	-
46	De Diego-Lazaro, 2019	6 -		-	-
47	Hong, 2019	2		5 -	-
49	Andrews, 2018	11		1 -	-
50	Barger, 2018 (50)	9		22 -	-
53	Betts, 2018	-	-		1 -
55	McDermott, 2018 (55)	2 -		-	-
56	McDermott, 2018 (56)	3 -		-	2
58	Thomson, 2018 (58)	9		2 -	-
59	Xu, 2018	28 -		-	-

* Includes both publications resulting from internal (not funded through RFA process) and external projects since 2018, after the start of DRDC Cycle 2 funding

Appendix E. Google Analytics Data

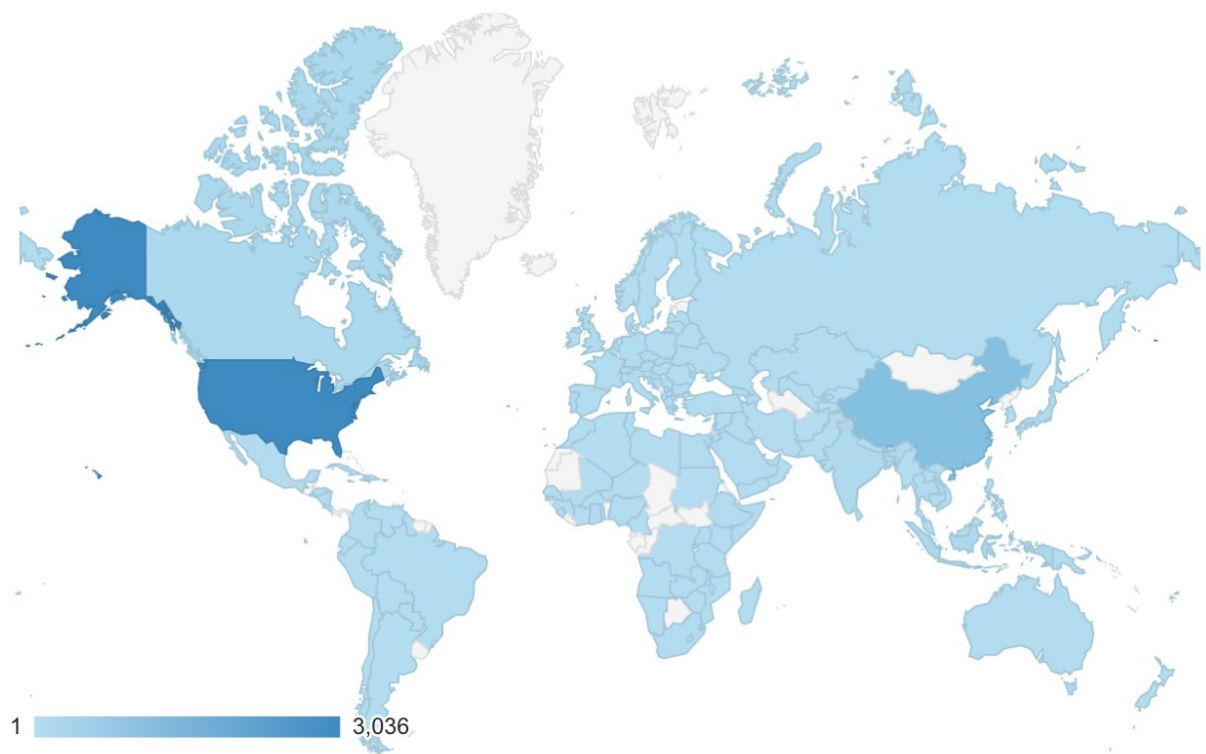


Percentage of new and return visitors to the DRDC Website from April 1, 2021 to September 30, 2022

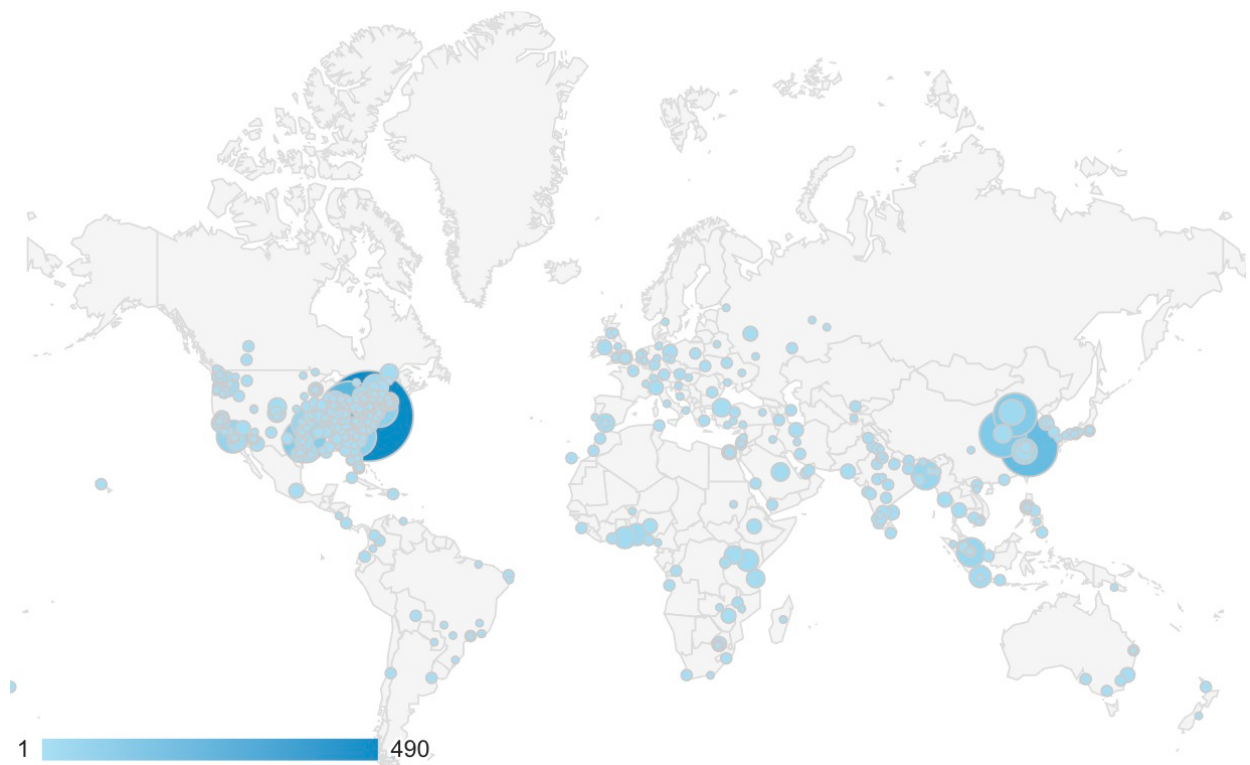
Top 10 Countries with visitors to www.disabilityresearchcenter.org from April 1, 2021 to September 30, 2022

County	Users	% Users
United States	3,036	49.06%
China	1,036	16.74%
Canada	165	2.67%
Indonesia	165	2.67%
India	119	1.92%
United Kingdom	72	1.16%
Japan	71	1.15%
Bangladesh	59	0.95%
Germany	56	0.90%
Brazil	54	0.87%
Total users with location data	6,224	-

Map Overlay DRDC Website Users by Continent, from April 1, 2021 to September 30, 2022



Map Overlay DRDC Website Users by location, from April 1, 2021 to September 30, 2022



Appendix F. Personnel Data Across Cycle 2 Funding

Initial Role Classification of Personnel Across Cycle 2 Funding, 2017-2022 (n=84)

Initial Role Classification	Frequency
Research assistant*	29
Co-investigator	18
Consortium Pi/Co-I	10
Technician	5
Project manager	4
PD/PI	3
Postdoctoral scholar, fellow, or other postdoctoral position	2
Research associate	2
Statistician	2
OB/Gyn Physician	1
Consultant	1
Faculty	1
Lead evaluator	1
PhD Student	1
Project associate/admin	1
Public policy director	1
Regulatory	1
Senior Biochemist	1
Total	84

*Includes both student (graduate or undergraduate) research students as well as non-student research assistants