

## A Scoping Review on Healthcare Access for Individuals with Disabilities

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## **Abstract**

Healthcare access for individuals with disabilities has been identified as a national priority in the effort to eliminate health disparities. Existing literature shows that individuals with disabilities use more healthcare services than people without disabilities, though they experience many unique barriers to access. Barriers related to the Americans with Disabilities Act (ADA) include inaccessible transportation, medical equipment, communication, and buildings and facilities. The purpose of this scoping review is to determine the scope of the current literature and discover what patterns emerge in existing literature on barriers and facilitators to healthcare access for people with disabilities.

## Introduction

Healthcare access for individuals with disabilities has been identified as a national priority in an effort to eliminate health disparities (Office of Disease Prevention and Health Promotion, 2018). Individuals with disabilities use more healthcare services than people without disabilities (Dejong et al., 2002; Pendo, 2010), though they experience many unique barriers to access. Barriers include lack of accessible transportation (Drainoni et al., 2006; McDoom, Koppelman, & Drainoni, 2014), inaccessible medical equipment (Barr, Giannotti, Van Hoof, Mongoven, & Curry, 2008; Pendo, 2010; Pharr, 2013; Story, Schwier, & Kailes, 2009), failure to provide effective communication (e.g., assistive technology, sign language) (Barnett, Koul, & Coppola, 2014; Kuenburg, Fellingner, & Fellingner, 2016; McDoom et al., 2014; Pendo, 2010), and inaccessible buildings and facilities (Drainoni et al., 2006; Mudrick, Breslin, Liang, & Yee, 2012). Individuals with disabilities are often dissatisfied with their healthcare experience and interaction with healthcare professionals (Barnett et al., 2014; Drainoni et al., 2006; Pendo, 2010), and are more likely to experience financial barriers to paying for care, medication and equipment (Drainoni et al., 2006; Iezzoni, 2009).

Exclusion of people with disabilities from access to healthcare, whether intentional or not, is a form of discrimination on the basis of disability and can have real consequences. For example, women with disabilities are less likely to receive screening for breast and cervical cancer due to barriers that are both healthcare related (e.g., inaccessible mammography equipment and facilities, attitudes and lack of knowledge of providers) and non-healthcare related (e.g., finances, transportation, severity of disability) (Ramjan, Cotton, Algosio, & Peters, 2016; Todd & Stuijbergen, 2012). Likely as a result of reduced access, women with

disabilities have higher breast cancer mortality rates and are less likely to receive standard radiotherapies after breast-conserving surgery (McCarthy et al., 2006). These findings hold for other types of cancer screening in both men and women (Merten, Pomeranz, King, Moorhouse, & Wynn, 2015).

The Americans with Disabilities Act (ADA) ("Americans With Disabilities Act," 1990) prevents discrimination on the basis of disability in a wide range of contexts including employment, transportation, access to government-funded programs, and access to privately owned public entities (e.g., stores, movie theaters). Healthcare access falls under Title II (State and Local Government, which includes publicly managed hospitals and healthcare services and facilities) and Title III (Public Entities, which includes privately owned hospitals and healthcare services and facilities) of the ADA. The ADA requires that healthcare facilities and providers ensure equal access to services and facilities.

Although the ADA has been in effect for 28 years, people with disabilities still experience both active and passive discrimination. For example, in employment, 32% (26,838 cases) of charges filed with the US Equal Opportunity Employment Commission in 2017 were disability related (U.S. Equal Employment Opportunity Commission, 2018). Less is known about access issues and discrimination in healthcare settings. In 2014, Harris, et al. published a scoping review to map the landscape of ADA research. Out of 980 research records published between 1990 and 2012 only five percent (n=49) of records addressed health or healthcare as the main topic. The ADA Expert Panel that guided the scoping review identified 'healthcare' as a high priority topic to consider for a subsequent systematic review but expressed concerns about the timing due to the recent passage of the Affordable Care Act

(ACA) ("Patient Protection and Affordable Care Act," 2010). The ACA has now been in effect for over eight years, and although there is a great deal of uncertainty about national healthcare policy, Medicaid expansion should result in more people with disabilities having access to healthcare, and thus further accelerating the need for ADA implementation within the healthcare sector. In this scoping review, we wanted to expand upon the work of Harris et al. (2014) to understand what research had been conducted that identified barriers and facilitators to healthcare access by people with disabilities.

## **Methods**

### **Developing the review protocol**

Scoping review methods were drafted and refined based on feedback from the Northwest ADA Center (NWADA) director and research team, NWADA consumer advisory committee and NIDILRR program officers. Methods included scoping review questions, study population, key literature search terms and sources, inclusion and exclusion criteria, screening protocol, and extraction and synthesis strategies. Once the review methods were finalized, the NWADA research team held monthly meetings during the scoping review screening and extraction process to address any questions that lead researchers were not able to resolve.

### **Research question**

The scoping review was designed to address the following broad research question: *What are the ADA-related barriers and facilitators to healthcare access for people with disabilities identified in existing evidence?* We define ADA-related barriers and facilitators as physical

and programmatic factors that affect access to healthcare that are under the control of healthcare providers and administrators. For example, we included physical facilities, equipment, intake processes, and personnel attitudes, but excluded variables such as health insurance coverage and cultural competency of staff.

### **Study population**

The population of focus for the review was persons with disabilities in the United States. We defined persons with disabilities broadly to include all individuals with functional limitations or impairments, including aging populations and people with chronic conditions.

### **Search strategy and sources**

We first conducted a comprehensive cited reference search in Web of Science on the subset of publications that were coded as Health/Healthcare (N=44) in the Harris et al. (2014) scoping review. One reviewer conducted the cited reference search and selected records that met inclusion criteria based on review of publication date and title. Records were excluded if published before 2000, the title indicated a non-US study population, or it was on an unrelated topic area (e.g., employment). The cited reference search in Web of Science yielded a total of 145 results of which 54 were selected for possible inclusion in the scoping review.

Next, academic databases that yielded the most relevant evidence in the ADA scoping review were searched for combined concepts (disabilities) 'AND' (healthcare) 'AND' (Americans with Disabilities Act). See Appendix A for full list of databases, search strings and results.

A total of 1048 results were obtained when searches were conducted in February 2017; 913 remained after filtering out duplicates. Searches were designed to exclude records published before 2000, non-English articles, and publication types (e.g., editorial, conference abstracts, etc.) to meet inclusion/exclusion criteria. Table 1 details all inclusion and exclusion criteria.

**Table 1.** Inclusion and exclusion criteria for retrieved journal articles. Inclusion criteria included publications from 2000-2017, English language, US population. Excluded articles included non-research review articles and any missing sufficient detail about methods.

| Inclusion criteria   | Exclusion criteria   |
|--|--|
| <p>Addressed key concepts as the primary topic of research interest</p> <p>Publication dates 2000-current</p> <p>Not limited by age</p> <p>English only</p> <p>US population</p> <p>Types of research included quantitative, qualitative, mixed method studies, evidence reviews; both intervention and descriptive studies.</p> | <p>Theoretical, historical reviews, editorials/commentaries, lectures/speeches, book reviews.</p> <p>Publications missing critical content including study aims, methods, results or findings.</p> |

## Screening

Three reviewers screened all abstracts to determine if studies addressed the topic of interest and met inclusion/exclusion criteria. A second reviewer screened 10% of each reviewer's abstracts to gauge reliability. Inter-rater agreement was calculated to be 90%. We used the following criteria to make inclusion/exclusion decisions. If a reviewer was unsure about decision, a second reviewer was consulted to make final decision.

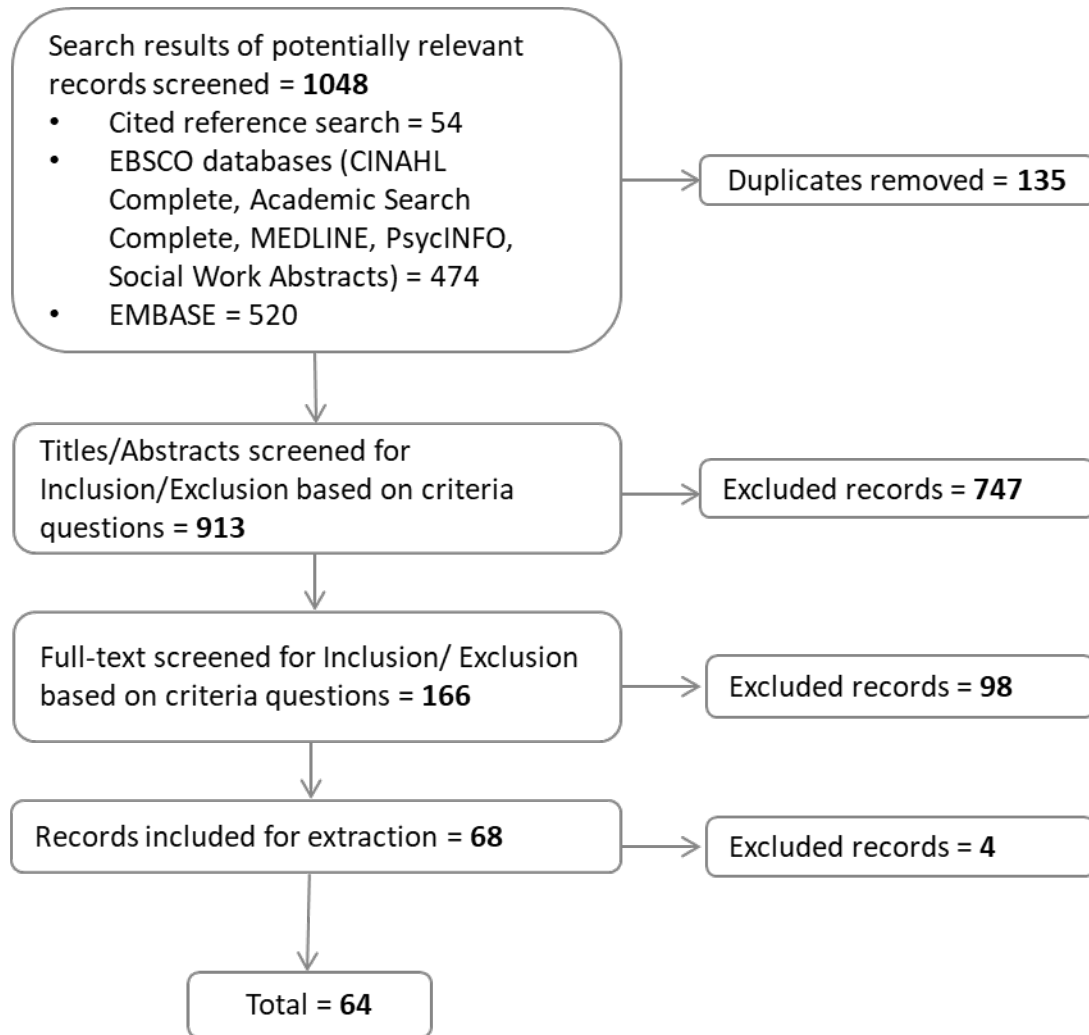
1. Is this a research article about a US population?
  - a. Not research (see inclusion/excluded study and reference types)
  - b. No US population included in the study
2. Does the research article address all three primary concepts?
  - a. Disability
  - b. Healthcare access
  - c. ADA topic, including
    - i. effective communication
    - ii. accessible health information
    - iii. facility access
    - iv. exam rooms - tables & chairs
    - v. accessible medical equipment
    - vi. accessible transportation (routes and vehicles) & parking
    - vii. attitudes/knowledge/skills of healthcare professionals & staff
    - viii. disability policy
    - ix. other (write in)



Screening resulted in 64 publications included for extraction. Appendix B provides references of all included publications.

### **Extraction**

The results from cited reference search were added to the newly identified records. We created a database REDCap (Research Electronic Data Capture) to support extraction of information from the articles. Initially, four articles were extracted by all reviewers and compared for accuracy. Three reviewers then extracted information to characterize the body of evidence, and 15% of the extracted records were cross-checked by one reviewer for accuracy. Figure 1 outlines the search, screening, and extraction process. Appendix C includes key characteristics of included publications.



**Figure 1.** Screening flowchart beginning with initial search results and delineating the number of articles excluded according to inclusion/exclusion criteria outlined in Table 1. The total number of articles included after this screening process was 64.

### Data analysis and synthesis

Quantifiable characteristics of the included evidence (e.g., population, health services type, ADA topic, and study design) were summarized in tables and charts to display descriptive data. Qualitative information was also extracted from all 64 publications to capture both *barriers* and *facilitators* to healthcare access that were reported in the results

section of each publication. These extracted data were then imported into NVivo 11 and inductively coded by themes to develop an inventory of barriers and facilitators. We identified topics and subtopics using conventional content analysis, most of which fit within the existing ADA topics used in the screening protocol. We also summarized and reported themes that did not fit under the existing ADA topics.

## **Results**

A total of 1,048 articles were screened according to our inclusion criteria. Of these, 64 articles met our inclusion criteria. The final studies include quantitative, qualitative, mixed-methods studies, and evidence-reviews, published from 2000-2016. Table 2 shows the characteristics of the included studies. Note that percentages may sum to more than 100% because publications sometimes addressed more than one characteristic. Publications were found across all years with the fewest in the first 5-year period (2000-2005) (N=16) and an increase in the following two periods. The number of publications stayed stable across those periods (N=24 each period).

Most of publications addressed the age group 18-65 (54.7%), with fewer studies addressing individuals over 65 (28.1%) and even fewer addressing those under 18 (7.9%). Notably, there were many publications where the age groups were unknown due to poor quality reporting of demographics (42.2%).

Most publications addressed patients/consumers (62.5%) and healthcare providers (43.8%). Fewer addressed administrators (14.1%) and others (10.9%).

When gender was reported, most publications addressed both males and females (43.8%), although some only addressed females (17.2%) and one only addressed males (1.6%). Many articles did not identify gender (37.5%).

Over half of the studies (55%) did not identify race/ethnicity. When race was identified, the majority of publications included people who are White (42%). A few publications included people who are American Indian/Alaskan Native (8%), Asian (13%), or Native Hawaiian/Pacific Islander (5%). Most publications did not differentiate Hispanic (25%) or non-Hispanic (14.1%) and were coded as unknown (71.9%).

A majority of studies did not identify rural/urban settings (53.3%) but of those that did, most covered both rural and urban settings (26.6%) with fewer focusing on rural (4.7%) or urban (12.5%) settings solely. Finally, there was a mix of study types with an equivalent number of quantitative (39.1%) and qualitative (35.9%) studies and a few mixed-methods studies (14.1%) and evidence reviews (10.9%).

**Table 2.** Characteristics of included studies, including frequency data for date of publication, age groups, population type, gender, rural/urban, and study type.

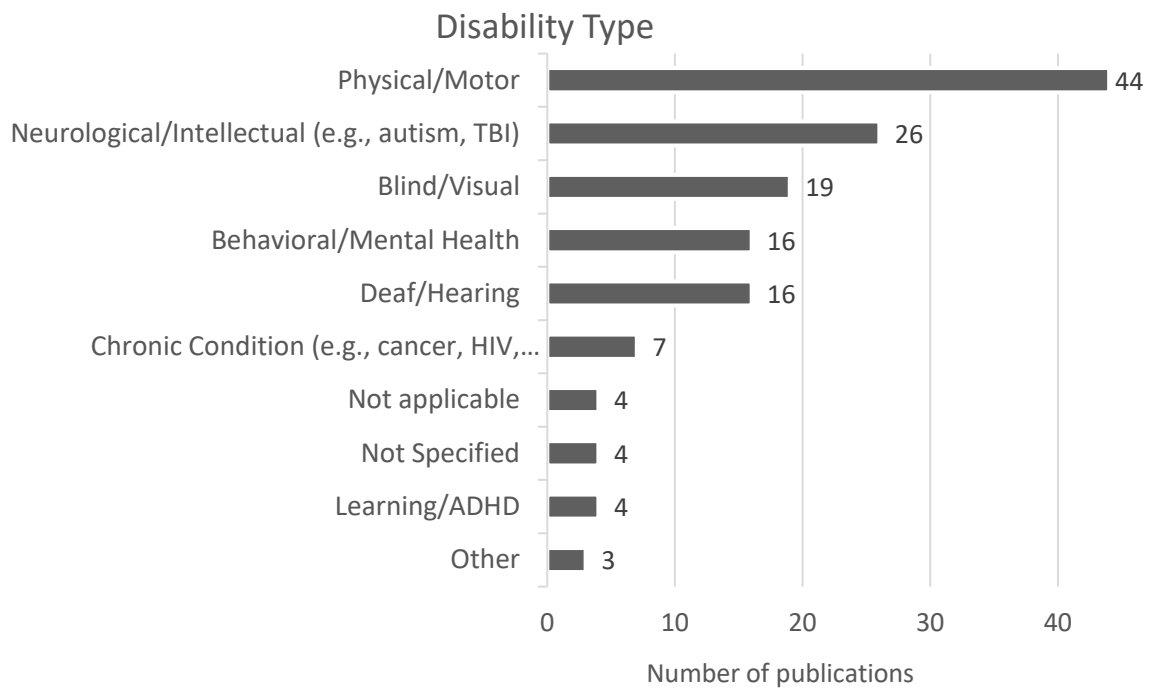
| Characteristic                              | N (%)     |
|---|-----------|
| <b>Date of publication</b>                  |           |
| 2000-2005                                   | 16 (25)   |
| 2006-2010                                   | 24 (37.5) |
| 2011-2016                                   | 24 (37.5) |
| <b>Age Groups (select all that apply) *</b> |           |

| <b>Characteristic</b>                            | <b>N (%)</b> |
|--|--------------|
| Under 18   | 5 (7.8)      |
| 18-65  | 35 (54.7)    |
| Over 65  | 18 (28.1)    |
| Unknown  | 27 (42.2)    |
| <b>Population Type (select all that apply) *</b> |              |
| Patients/Consumers                               | 40 (62.5)    |
| Healthcare Providers                             | 28 (43.8)    |
| Administrators                                   | 9 (14.1)     |
| Other  | 7 (10.9)     |
| <b>Gender</b>                                    |              |
| Female   | 11 (17.2)    |
| Male   | 1 (1.6)      |
| Both, Female & Male                              | 28 (43.8)    |
| Unknown  | 24 (37.5)    |
| <b>Demographics: Race/Ethnicity</b>              |              |
| Not Reported                                     | 35 (55)      |
| Reported (select all that apply) *               | 29 (45)      |
| White  | 27 (42)      |
| Black  | 22 (34)      |
| American Indian/Alaskan Native                   | 5 (8)        |

| <b>Characteristic</b>                                   | <b>N (%)</b> |
|---|--------------|
| Asian   | 8 (13)       |
| Native Hawaiian/Pacific Islander                        | 3 (5)        |
| <b>Demographics: Hispanic (select all that apply) *</b> |              |
| Hispanic  | 16 (25)      |
| Not Hispanic  | 9 (14.1)     |
| Unknown   | 46 (71.9)    |
| <b>Rural/Urban</b>                                      |              |
| Rural   | 3 (4.7)      |
| Urban   | 8 (12.5)     |
| Both, Rural & Urban                                     | 17 (26.6)    |
| Unknown   | 36 (53.3)    |
| <b>Study type</b>                                       |              |
| Quantitative  | 25 (39.1)    |
| Qualitative   | 23 (35.9)    |
| Mixed-methods   | 9 (14.1)     |
| Evidence review   | 7 (10.9)     |

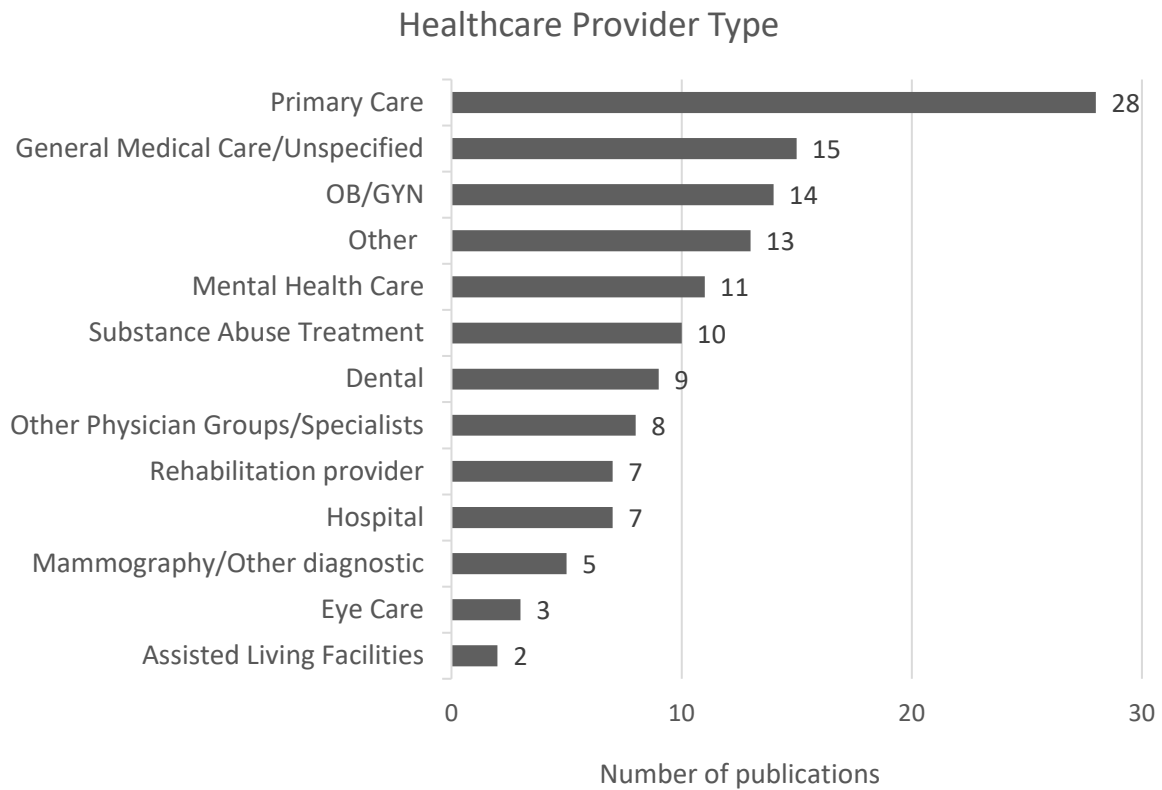
\*Percentages sum to higher than 100%.

We coded publications by disability type. The most frequent disability type was physical/motor, followed by neurological/intellectual. The least frequent disability types were chronic conditions and learning/ADHD. Some publications included more than one disability type. Figure 2 shows the number of publications by disability type.



**Figure 2.** Number of publications by disability type.

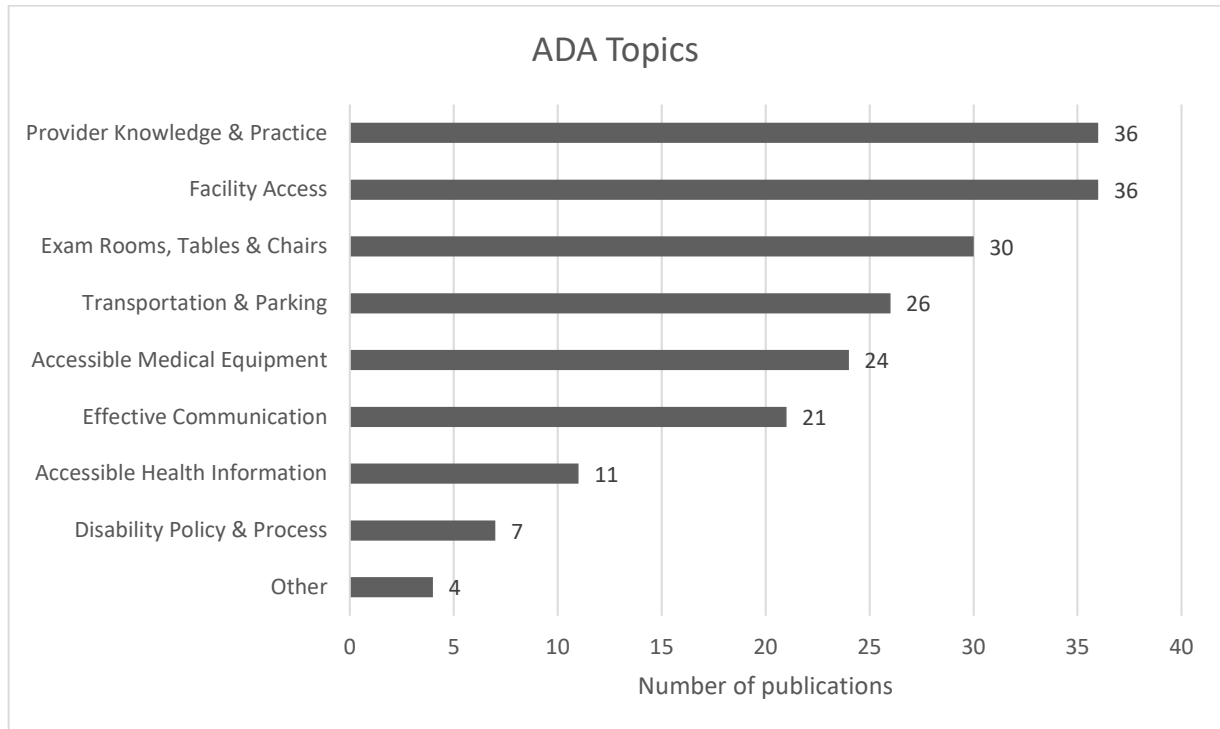
We also coded publications by type of health provider. The most frequent types of providers were primary care providers, followed by OB/GYN providers. The least frequent types of providers were assisted living facilities and eye care. Some publications included more than one type of healthcare provider. Figure 3 shows number of publications by type of healthcare provider.



**Figure 3.** Number of publications by type of healthcare provider.

Finally, we coded publications by ADA topic. The most frequently reported ADA topics were provider knowledge and practice and facility access. The least frequently reported ADA topics were accessible health information and disability policy and process. Some publications included more than one ADA topic. Figure 4 shows publications by ADA topics.





**Figure 4.** Number of publications by ADA topic.

Qualitative data extracted from the results sections of all included publications were analyzed to create an inventory of barriers and facilitators to ADA-related healthcare access. Table 3 shows an inventory of the barriers and facilitators to healthcare access found through the qualitative analysis. This table outlines the result of the qualitative content analysis and themes that emerged on barriers and facilitators related to facility access, exam rooms/tables/chairs, medical equipment, effective communication, health information, transportation and parking, provider knowledge and practice, disability policy/process, and other.

**Table 3.** Inventory of ADA-related barriers and facilitators to healthcare access.

| ADA<br>Topic                   | ADA<br>Subtopic | Results reported in publications  |  |
|--------------------------------|-----------------|---|--|
|                                |                 | Barriers  | Facilitators   |
| Facility<br>Access             | Pathways        | <ul style="list-style-type: none"> <li>• Obstacles on routes into and within facility.</li> <li>• Lack of elevators in multistory buildings.</li> <li>• Lack of automatic doors.</li> </ul>                 | <ul style="list-style-type: none"> <li>• Accessible doors (automatic, adequate space)</li> <li>• Ramps.</li> <li>• Accessible hallways.</li> </ul> |
|                                | Signage         | <ul style="list-style-type: none"> <li>• Lack of tactile signage mounted at the correct height and location.</li> <li>• Lack of signage for accessible entrance way if not the primary entrance.</li> </ul> | <ul style="list-style-type: none"> <li>• High-contrast signs and lighting.</li> </ul>  |
|                                | General spaces  | <ul style="list-style-type: none"> <li>• Inaccessible baths/showers in patient rooms.</li> </ul>  | <ul style="list-style-type: none"> <li>• Accessible restrooms and waiting rooms.</li> </ul>  |
| Exams rooms, tables and chairs |                 | <ul style="list-style-type: none"> <li>• Lack of accessible exam rooms.</li> <li>• Fixed height tables.</li> </ul>  | <ul style="list-style-type: none"> <li>• Adjustable tables</li> <li>• Accessible dental chairs</li> </ul>  |

| ADA<br>Topic            | ADA<br>Subtopic | Results reported in publications  |   |
|-------------------------|-----------------|---|---|
|                         |                 | Barriers  | Facilitators  |
| Medical equipment       |                 | <ul style="list-style-type: none"> <li>• Lack of accessible radiology and mammogram equipment.</li> <li>• No lifts for transferring.</li> <li>• Lack of adjustment exam tables</li> <li>• Cost of accessible equipment.</li> <li>• Lack of nonvisual diabetes self-management equipment.</li> </ul> | <ul style="list-style-type: none"> <li>• Accessible scales.</li> </ul>                            |
| Effective communication |                 | <ul style="list-style-type: none"> <li>• Lack of sign language interpreters.</li> </ul>   | <ul style="list-style-type: none"> <li>• Use of accessible communication technologies.</li> </ul> |

| ADA<br>Topic             | ADA<br>Subtopic | Results reported in publications  |   |
|--------------------------|-----------------|---|---|
|                          |                 | Barriers  | Facilitators  |
| Health Information       |                 | <ul style="list-style-type: none"> <li>• Online health information not accessible for use with screenreaders.</li> <li>• Inaccessible online health services (e.g., ordering prescription drugs).</li> <li>• Lack of accessible information (alternative formats, TTY, etc.).</li> </ul>  | <ul style="list-style-type: none"> <li>• Health promotion/prevention materials provided alternative formats.</li> <li>• Public health events are accessible.</li> </ul>   |
| Transportation & Parking |                 | <ul style="list-style-type: none"> <li>• Inadequate disability parking for cars and vans.</li> <li>• No public transport available between home and healthcare provider.</li> <li>• Lack of accessible transport.</li> <li>• Difficulties scheduling accessible transportation.</li> <li>• Lack of funding for accessible transport.</li> </ul> | <ul style="list-style-type: none"> <li>• Sufficient accessible and conveniently located parking spaces.</li> <li>• Provides transport service to and from facility or to other treatment facilities where patients are referred.</li> </ul> |

| ADA<br>Topic                        | ADA<br>Subtopic                      | Results reported in publications  |  |
|-------------------------------------|--------------------------------------|---|--|
|                                     |                                      | Barriers  | Facilitators   |
| Provider<br>Knowledge<br>& Practice | Provider<br>awareness &<br>knowledge | <ul style="list-style-type: none"> <li>• Dentists lack experience working with patients with disabilities.</li> <li>• Lack of ADA awareness among providers.</li> </ul>   | <ul style="list-style-type: none"> <li>• Deaf cultural competency training.</li> </ul>   |
|                                     | Provider<br>attitudes                | <ul style="list-style-type: none"> <li>• Unwilling to provide accommodations.</li> <li>• Lack of disability sensitive etiquette.</li> <li>• Patronizing attitude of providers.</li> <li>• Biases of people with disabilities, assumptions.</li> </ul> | <ul style="list-style-type: none"> <li>• Willingness of mammography technicians to provide accommodations to women with disabilities.</li> </ul> |

| ADA<br>Topic | ADA<br>Subtopic               | Results reported in publications  |   |
|--------------|-------------------------------|---|---|
|              |                               | Barriers  | Facilitators  |
|              | Provider practice & skills    | <ul style="list-style-type: none"> <li>• Lack skills in performing safe transfers.</li> <li>• Conducting exams in wheelchairs.</li> <li>• No assistance for personal care activities (dressing, toileting).</li> <li>• Lack of training in effective communication.</li> <li>• Lack of skill in using accessible equipment.</li> <li>• Lack of training in developmental disabilities.</li> </ul> | <ul style="list-style-type: none"> <li>• Providers trained in basic low vision accommodations.</li> <li>• Access to well-trained personal care attendants</li> <li>• Providers trained in serving patients with SCI.</li> </ul> |
|              | Provider-patient relationship | <ul style="list-style-type: none"> <li>• Provider not taking patient seriously.</li> <li>• Cognitive and emotional difficulties that interfere with communication with healthcare provider.</li> </ul>  | <ul style="list-style-type: none"> <li>• Good communication.</li> <li>• Positive interactions.</li> </ul>   |

| ADA<br>Topic                | ADA<br>Subtopic             | Results reported in publications   |   |
|-----------------------------|-----------------------------|--|---|
|                             |                             | Barriers   | Facilitators  |
|                             | Scheduling and appointments | <ul style="list-style-type: none"> <li>• Allow from additional time</li> <li>• Schedule appointment around times when accessible transport is available</li> </ul>   | <ul style="list-style-type: none"> <li>• Scheduling and appointments</li> </ul> |
| Disability Policy & Process | Denied access or service    | <ul style="list-style-type: none"> <li>• Clinics inaccessible for women with SCI.</li> <li>• Provider denies service due to severe disability.</li> <li>• Inaccessible methadone clinics.</li> <li>• Inaccessible dental clinics.</li> </ul> |   |

| ADA<br>Topic | ADA<br>Subtopic             | Results reported in publications   |   |
|--------------|-----------------------------|--|---|
|              |                             | Barriers   | Facilitators  |
|              | Accommodations & complaints | <ul style="list-style-type: none"> <li>• Lack of complaint process.</li> <li>• Lack of time and process to make accommodation requests.</li> </ul> | <ul style="list-style-type: none"> <li>• Proactive strategies pursued by patient.</li> <li>• Providers involve people with disabilities in accessibility planning process.</li> <li>• Implement complaint process.</li> </ul> |
| Other        | Safety                      | <ul style="list-style-type: none"> <li>• Lack of fire alarms with both auditory and visual alerts.</li> </ul>                                      |   |
|              | Chemical sensitivity        | <ul style="list-style-type: none"> <li>• People with chemical sensitivity not able to use facility (e.g., perfumes, cleaners, paint).</li> </ul>   |   |



Qualitative analysis also yielded a number of non-ADA issues. Table 4 outlines the non-ADA topics that emerged in the literature, including insurance, staffing, language, funding, and service delivery models.

**Table 4.** Inventory of non-ADA barriers and facilitators to healthcare access.

| Non-ADA topics          | Results reported in publications   |   |
|-------------------------|--|---|
|                         | Barriers   | Facilitators  |
| Insurance               | <ul style="list-style-type: none"> <li>• Lack of health insurance.</li> </ul>  | <ul style="list-style-type: none"> <li>• Providers that accept Medicaid.</li> </ul>                                     |
| Human resources         | <ul style="list-style-type: none"> <li>• High staff turnover.</li> </ul>   | <ul style="list-style-type: none"> <li>• Hiring more providers and staff who have disabilities.</li> </ul>              |
| Cultural competency     | <ul style="list-style-type: none"> <li>• Language barriers.</li> </ul>   |   |
| Funding                 | <ul style="list-style-type: none"> <li>• Lack of funding for personal care attendants.</li> <li>• Lack of funding for transportation.</li> </ul> |   |
| Service delivery models |  | <ul style="list-style-type: none"> <li>• Medical home</li> <li>• Telemedicine</li> <li>• Home-based services</li> </ul> |

## Discussion

### Scope of Current Literature

Our goal in this scoping review was to understand what research had been conducted that identified barriers and facilitators to healthcare access by people with disabilities. Since the Harris et al.' review in 2014, we found a small increase in publications from 49 to 64, with an overall rate of 4 publications per year and a stable trend in the last 10 years. These numbers suggest that, although numerous governmental and nonprofit organizations have highlighted the need for increased access for people with disabilities to healthcare (Disability Rights Education & Defense Fund, 2018; The Medicare-Medicaid Coordination Office, 2018; U.S. Access Board, 2017), limited research is being conducted on the topic.

The studies that are being conducted are divided nearly equally between quantitative and qualitative research methodologies, a mix that is probably appropriate given the formative stage of the field. It is representative of gender and age, although there are few studies of youth under 18. Notably, over half of the studies do not report race/ethnicity at all despite ongoing concerns regarding differential healthcare access for people with disabilities from minority racial backgrounds (Yee et al., 2016). Current research also does not differentiate rural/urban settings well. The majority of research does not define geographical location or includes both rural and urban. Most studies address people with physical or motor disabilities, with neurological or intellectual disabilities a distant second. Few studies address people with chronic conditions, which may be related to our use of disability as a search term and the fact that people with chronic conditions may not identify as having a disability or understand that they have rights under the ADA.

The emphasis in the available research is on patients and consumers, with a secondary emphasis on healthcare providers. This seems appropriate given the importance of supporting patients and caregivers in accessing and providing accessible healthcare; however, there is limited emphasis on understanding the role of administrators in defining and implementing accessible healthcare policy and supporting changing practices.

Not surprisingly, the majority of studies address primary or general medical care. The third largest category with fourteen studies addresses OB/GYN care, which is appropriate given concerns regarding access to cancer screening and reproductive care for women (Ramjan et al., 2016; Todd & Stuijbergen, 2012). In terms of ADA topics covered in the literature, over half of the publications addressed provider knowledge and practices or facility access. Many articles also covered accessible exam tables and chairs, transportation and parking, and accessible medical equipment. Little research has been conducted on accessible health information and disability policy and process related to accessible healthcare.

The ADA topics and subtopics identified in the qualitative results are comprehensive; however, the results reported in publications are not. In general, the qualitative results of this scoping review show that the majority of research has focused on understanding barriers to access with less information available about facilitators of access. This suggests that, although there is a significant amount of information about facilitators to access for people in general, little work has been conducted with a focus on healthcare. The qualitative results also identify important non-ADA topics that influence access to healthcare including insurance, human resources, cultural competency, funding, and service delivery models.

## **Limitations**

This scoping review provides an overview of the current literature on ADA access to healthcare for individuals with disabilities. A variety of limitations should be kept in mind when considering these results. First, search terms and databases were chosen to be as comprehensive as possible while also keeping the number of results manageable. We searched for disability as a search term, which may have excluded some articles indexed by only condition type. As such this scoping review may have missed some publications that were relevant to healthcare access.

We verified 10% of articles screened by abstract for inclusion/exclusion, finding that we had 90% inter-rater agreement. We double checked 15% of extracted data but did not calculate percent agreement given the number of fields extracted. Only one author conducted the qualitative coding of facilitators and barriers, therefore inter-rater reliability was not calculated for the qualitative results.

## **Conclusions**

The results of this scoping review highlight the need for additional research on access to healthcare for people with disabilities and the role of the ADA in facilitating access. As Yee and Breslin (2010) note, litigation based on the ADA is a blunt instrument for driving change that often encourages defendants to stop doing some things, but is less successful at encouraging them to improve what they do. It seems likely that applying the ADA to healthcare has resulted in improved facility access in outpatient primary care healthcare facilities, methods and channels to challenge discrimination, an expectation of non-discrimination, accessibility, and accommodation, and a framework for meeting

individualized care needs. However, the ADA has been limited in that it does not address many social and economic determinants that influence access to care and health outcomes, there has been minimal effect on individual provider offices, and such providers are slow to voluntarily comply. Physical accessibility (scales, tables, mammography equipment, auxiliary aids and services) and policy modifications are still lacking, as well.

Ongoing work creates possibilities for improved access. For example, in 2012, the Department of Justice's Civil Rights Division and U.S. Attorneys' offices across the nation established the Barrier-Free Healthcare Initiative to focus enforcement efforts on medical services and facilities. This initiative is a multi-phase project that addresses effective communication for people who are deaf or have hearing loss and equal access to treatment for people who have HIV/AIDS. This initiative will eventually address physical access to medical care for people with mobility disabilities. In addition, the U.S. Department of Justice and the U.S. Access Board have issued highly technical requirements for barrier removal in the health-care industry and there are non-discrimination requirements under Affordable Care Act (ACA). Unfortunately, the current administration is unlikely to encourage legislative, regulatory, and enforcement entities to enforce these policies. Until there is more political will to encourage changes in healthcare, disability advocacy organizations and researchers will need to continue developing the knowledge base and rationale for system-level changes in healthcare provision.

Irrespective of the broader political environment, administrators and healthcare providers can proactively apply evidence on facilitators of healthcare access and established guidelines and training resources, in small steps or comprehensive policies, to support ADA

implementation within their healthcare facilities. Continuing to identify, document, and share information on how individual healthcare facilities have improved access for people with disabilities will facilitate voluntary compliance.

### **Conflict of Interest**

The authors of this review certify that they have no affiliations with or involvement in any organization or entity with any financial or non-financial interest in the subject matter or materials discussed in this review.

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Appendix A. Search strings and results

Table A1. Search strings by concept

| Database<br>(Date)   | CONCEPT A: Disability   | CONCEPT B: Healthcare  | CONCEPT C: ADA and<br>access  | NOT search terms   |
|--|---|--|---|--|
| EBSCO<br>CINAHL Complete,<br>Academic Search<br>Complete, MEDLINE,<br>PsycINFO, Social<br>Work Abstracts | AB Disab* = <b>457,845</b>  | AB healthcare OR AB<br>healthcare = <b>865,743</b>   | AB ada OR AB americans with<br>disabilities act OR AB access* =<br><b>975,499</b>   | SU developing country OR SU<br>healthcare cost OR SU<br>epidemiology OR SU education<br>OR SU human<br>immunodeficiency virus =<br><b>3,828,943</b>                |
| EMBASE<br>(2/1/2017)   | 'disability'/exp/mj OR<br>'disability' OR 'disabled<br>person'/exp/mj OR<br>'disabled person' OR<br>'disab*':ab,ti =<br><b>313, 517</b> | 'healthcare facilities and<br>services'/exp OR<br>'healthcare'/exp OR 'healthcare<br>personnel'/exp OR 'health<br>equity'/exp = <b>5,489,466</b> | 'americans with disabilities<br>act'/exp OR 'americans with<br>disabilities act':ab,ti OR<br>'ada':ab,ti OR 'access*':ti =<br><b>81,501</b> | 'developing country'/exp OR<br>'healthcare cost'/exp OR<br>'epidemiology'/exp OR<br>'education'/exp OR 'human<br>immunodeficiency virus'/exp =<br><b>3,959,804</b> |

**Table A2. EBSCO results from Feb 3, 2017= 474 records**

| Search strategy                              |  | Results |
|--|--|---------|
| Total results of combined concepts A + B + C |  | 4,534   |
| Limits                                       | Published Date: 20000101-20170231; English Language; Research Article; Human;<br>Document Type: Article, Book Chapter, Case Study, Interview, Report; Language:<br>English; English Language; Human; Language: English; English; Document Type: Article,<br>Book, Book Chapter, Chapter, Dissertation* | 3,347   |
| NOT terms                                    | 'developing country'/su OR 'healthcare cost'/su OR 'epidemiology'/su OR<br>'education'/su OR 'human immunodeficiency virus'/su   | 2,636   |
| Limits                                       | Subject geographic: united states locations  | 502     |
| Duplicates                                   | Exact duplicates   | 474     |

**Table A3. EMBASE results from Feb 1, 2017 = 520 records**

| Search strategy                              |   | Results |
|--|---|---------|
| Total results of combined concepts A + B + C |   | 1639    |
| Limits                                       | (([article]/lim OR [article in press]/lim OR [conference paper]/lim OR [conference review]/lim OR [review]/lim) AND [humans]/lim AND [english]/lim AND [2000-2017]/py | 803     |
| NOT terms                                    | 'developing country'/exp OR 'healthcare cost'/exp OR 'epidemiology'/exp OR 'education'/exp OR 'human immunodeficiency virus'/exp                                      | 520     |

**Appendix B. References of Included Publications**

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**Appendix C. Key Characteristics of Included Publications**

| <b>Author, Year</b> | <b>Title</b>   | <b>Disability types</b>  | <b>Healthcare services</b>  | <b>ADA topics</b>   |
|---------------------|--|--|---|---|
| Bachman, 2006       | Provider perceptions of their capacity to offer accessible healthcare for people with disabilities | Blind/Visual,<br>Deaf/Hearing,<br>Physical/Motor,<br>Behavioral/Mental Health, Chronic Condition | Primary Care,<br>Hospital,<br>Dental Services,<br>Mental Health,<br>Addiction Treatment,<br>Assisted Living,<br>Other | Communication,<br>Health Information,<br>Facility Access, Exam Rooms-Tables-Chairs, Medical Equipment,<br>Transportation,<br>Attitudes/Knowledge of Staff |
| Bachman, 2007       | Variations in provider capacity to offer accessible healthcare for people with disabilities        | Physical/Motor,<br>Behavioral/Mental Health, Chronic Condition                                   | Primary Care,<br>Hospital,<br>Dental Services,<br>Mental Health,<br>Addiction Treatment,<br>Assisted Living,<br>Other | Facility Access, Exam Rooms-Tables-Chairs, Medical Equipment,<br>Transportation   |

Healthcare access for individuals with disabilities

| <b>Author,<br/>Year</b>  | <b>Title</b>  | <b>Disability<br/>types</b>  | <b>Healthcare<br/>services</b>                       | <b>ADA<br/>topics</b>   |
|--------------------------|---|--|--|---|
| Barr,<br>2008            | Understanding barriers to participation in mammography by women with disabilities   | Deaf/Hearing,<br>Physical/Motor,<br>Behavioral/Menta<br>l Health,<br>Neurological/Intel<br>lectual | Primary Care,<br>Hospital,<br>Mammography            | Communication,<br>Facility Access, Exam<br>Rooms-Tables-<br>Chairs,<br>Transportation,<br>Attitudes/Knowledge<br>of Staff |
| Bauer,<br>2005           | Perceived barriers to healthcare access in a treated population   | Behavioral/Menta<br>l Health, , Not<br>Specified   | Primary Care,<br>Mental Health,<br>Other             | Communication,<br>Transportation,<br>Attitudes/Knowledge<br>of Staff  |
| Bauer,<br>2016           | Disability and physical and communication-related barriers to healthcare related services among Florida residents: A brief report               | Physical/Motor,<br>Behavioral/Menta<br>l Health  | Primary Care,<br>Hospital,<br>General<br>Medical/NOS | Facility Access, Exam<br>Rooms-Tables-<br>Chairs,<br>Transportation,<br>Attitudes/Knowledge<br>of Staff                   |
| Bogensch<br>hut,<br>2014 | We find a way: Challenges and facilitators for healthcare access among immigrants and refugees with intellectual and developmental disabilities | Neurological/Intel<br>lectual  | General<br>Medical/NOS                               | Transportation,<br>Attitudes/Knowledge<br>of Staff  |

Healthcare access for individuals with disabilities

| <b>Author,<br/>Year</b>   | <b>Title</b>   | <b>Disability<br/>types</b>                                   | <b>Healthcare<br/>services</b>  | <b>ADA<br/>topics</b>   |
|---------------------------|--|---|---|---|
| Breckenridge,<br>2014     | Access and utilization of maternity care for disabled women who experience domestic abuse: A systematic review | Blind/Visual,<br>Physical/Motor,<br>Neurological/Intellectual | OB/GYN  | Health Information,<br>Medical Equipment,<br>Attitudes/Knowledge of Staff   |
| Chiri,<br>2012            | Unmet need and problems accessing core healthcare services for children with autism spectrum disorder          | Neurological/Intellectual                                     | Primary Care,<br>Other specialists,<br>Mental Health,<br>Rehabilitation | Transportation,<br>Attitudes/Knowledge of Staff                             |
| Compton-Griffith,<br>2011 | Physical therapists' perceptions of providing services to adults with childhood-onset neuromotor disabilities  | Neurological/Intellectual                                     | Rehabilitation  | Communication,<br>Exam Rooms-Tables-Chairs,<br>Attitudes/Knowledge of Staff |



Healthcare access for individuals with disabilities

| <b>Author,<br/>Year</b> | <b>Title</b>  | <b>Disability<br/>types</b>  | <b>Healthcare<br/>services</b>                           | <b>ADA<br/>topics</b>   |
|-------------------------|---|--|--|---|
| Drainoni<br>, 2006      | Cross-disability experiences of barriers to health-care access: Consumer perspectives   | Deaf/Hearing,<br>Physical/Motor,<br>Behavioral/Mental Health,<br>Neurological/Intellectual, Chronic Condition, Not Specified | General<br>Medical/NOS                                   | Communication,<br>Exam Rooms-Tables-Chairs,<br>Transportation,<br>Attitudes/Knowledge of Staff, Other |
| Fannin,<br>2015         | Using Functional Needs and Personal Care Assistance Rather Than Disability Status During Chronic Care Triage in Community Mass Care | Blind/Visual,<br>Deaf/Hearing,<br>Physical/Motor,<br>Behavioral/Mental Health,<br>Neurological/Intellectual, Other           | Other  | Other   |
| Frost,<br>2015          | Accessibility of outpatient healthcare providers for wheelchair users: Pilot study  | Physical/Motor   | Primary Care,<br>Other<br>specialists,<br>Rehabilitation | Facility Access, Exam Rooms-Tables-Chairs, Medical Equipment,<br>Attitudes/Knowledge of Staff         |

Healthcare access for individuals with disabilities

| <b>Author,<br/>Year</b> | <b>Title</b>  | <b>Disability<br/>types</b>                      | <b>Healthcare<br/>services</b>   | <b>ADA<br/>topics</b>  |
|-------------------------|---|--|--|--|
| Gibson,<br>2010         | Of the world but not in it:<br>Barriers to community access<br>and education for persons<br>with environmental<br>sensitivities | Other  | Dental<br>Services,<br>General<br>Medical/NOS  | Disability Policy  |
| Gibson,<br>2010         | Access to healthcare for<br>disabled people: a systematic<br>review   | Physical/Motor,<br>Behavioral/Menta<br>l Health  | Dental<br>Services,<br>Addiction<br>Treatment,<br>OB/GYN,<br>Mammography<br>, General<br>Medical/NOS | Communication,<br>Facility Access, Exam<br>Rooms-Tables-<br>Chairs, Medical<br>Equipment,<br>Attitudes/Knowledge<br>of Staff |
| Graham,<br>2008         | Accessibility of primary care<br>physician practice sites in<br>South Carolina for people with<br>disabilities                  | Blind/Visual,<br>Deaf/Hearing,<br>Physical/Motor | Primary Care   | Communication,<br>Facility Access, Exam<br>Rooms-Tables-<br>Chairs, Medical<br>Equipment                                     |

Healthcare access for individuals with disabilities

| <b>Author,<br/>Year</b> | <b>Title</b>   | <b>Disability<br/>types</b>  | <b>Healthcare<br/>services</b> | <b>ADA<br/>topics</b>   |
|-------------------------|--|--|--------------------------------|---|
| Graham,<br>2011         | Fee-for-service and managed care for seniors and people with disabilities on Medicaid: implications for the managed care mandate in California | Not Specified  | General<br>Medical/NOS         | Facility Access, Exam Rooms-Tables-Chairs, Medical Equipment, Disability Policy |
| lezzoni,<br>2006        | Rural residents with disabilities confront substantial barriers to obtaining primary care  | Blind/Visual,<br>Deaf/Hearing,<br>Physical/Motor,<br>Behavioral/Mental Health,<br>Neurological/Intellectual, Other | Primary Care                   | Facility Access, Transportation, Attitudes/Knowledge of Staff                   |
| lezzoni,<br>2010        | Physical Access Barriers to Care for Diagnosis and Treatment of Breast Cancer Among Women With Mobility Impairments                            | Physical/Motor   | Other<br>specialists           | Medical Equipment, Attitudes/Knowledge of Staff                                 |

Healthcare access for individuals with disabilities

| <b>Author,<br/>Year</b> | <b>Title</b>  | <b>Disability<br/>types</b>   | <b>Healthcare<br/>services</b> | <b>ADA<br/>topics</b>   |
|-------------------------|---|---|--------------------------------|---|
| lezzoni,<br>2015        | Physical accessibility of routine prenatal care for women with mobility disability  | Physical/Motor  | OB/GYN                         | Exam Rooms-Tables-Chairs, Medical Equipment, Attitudes/Knowledge of Staff, Disability Policy                  |
| Krahn,<br>2006          | Access barriers to substance abuse treatment for persons with disabilities: An exploratory study  | Blind/Visual, Physical/Motor, Behavioral/Mental Health, Neurological/Intellectual | Addiction Treatment            | Facility Access, Attitudes/Knowledge of Staff   |
| Kroll,<br>2006          | Barriers and strategies affecting the utilisation of primary preventive services for people with physical disabilities: a qualitative inquiry | Physical/Motor, Neurological/Intellectual   | Primary Care                   | Facility Access, Exam Rooms-Tables-Chairs, Medical Equipment, Attitudes/Knowledge of Staff, Disability Policy |

Healthcare access for individuals with disabilities

| <b>Author, Year</b> | <b>Title</b>  | <b>Disability types</b>   | <b>Healthcare services</b>                                     | <b>ADA topics</b>  |
|---------------------|---|---|--|--|
| Kuenburg, 2016      | Healthcare Access Among Deaf People   | Deaf/Hearing  | General<br>Medical/NOS   | Communication,<br>Health Information,<br>Attitudes/Knowledge<br>of Staff                     |
| Lagu, 2013          | Access to subspecialty care for patients with mobility impairment: A survey | Neurological/Intellectual   | Other<br>specialists,<br>Mental Health,<br>Eye Care,<br>OB/GYN | Facility Access, Exam<br>Rooms-Tables-<br>Chairs, Medical<br>Equipment, Disability<br>Policy |
| Lawthers, 2003      | Rethinking quality in the context of persons with disability                | Blind/Visual,<br>Deaf/Hearing,<br>Physical/Motor,<br>Behavioral/Mental Health,<br>Neurological/Intellectual, Not<br>Specified | General<br>Medical/NOS   | Communication,<br>Facility Access,<br>Transportation,<br>Attitudes/Knowledge<br>of Staff     |

Healthcare access for individuals with disabilities

| <b>Author,<br/>Year</b> | <b>Title</b>   | <b>Disability<br/>types</b>  | <b>Healthcare<br/>services</b> | <b>ADA<br/>topics</b>  |
|-------------------------|--|--|--------------------------------|--|
| Lopez,<br>2012          | Florida mammographer disability training vs needs  | Physical/Motor   | Mammography                    | Facility Access, Exam Rooms-Tables-Chairs, Medical Equipment, Attitudes/Knowledge of Staff |
| McClain,<br>2000        | A qualitative assessment of wheelchair users' experience with ADA compliance, physical barriers, and secondary health conditions | Physical/Motor, Neurological/Intellectual  | General Medical/NOS            | Facility Access, Transportation  |
| McClintock,<br>2016     | Healthcare experiences and perceptions among people with and without disabilities  | Deaf/Hearing, Physical/Motor, Behavioral/Mental Health, Learning/ADHD, Chronic Condition | General Medical/NOS            | Communication, Facility Access, Transportation, Attitudes/Knowledge of Staff               |

Healthcare access for individuals with disabilities

| <b>Author,<br/>Year</b> | <b>Title</b>  | <b>Disability<br/>types</b>  | <b>Healthcare<br/>services</b>   | <b>ADA<br/>topics</b>   |
|-------------------------|---|--|--|---|
| McDoom, 2014            | Barriers to Accessible Healthcare for Medicaid Eligible People with Disabilities: A Comparative Analysis          | Blind/Visual,<br>Physical/Motor,<br>Behavioral/Mental Health,<br>Neurological/Intellectual | Primary Care,<br>Hospital,<br>Dental<br>Services,<br>Mental Health,<br>Addiction<br>Treatment,<br>General<br>Medical/NOS | Communication,<br>Facility Access, Exam<br>Rooms-Tables-<br>Chairs, Medical<br>Equipment,<br>Transportation |
| Mele, 2005              | Access to breast cancer screening services for women with disabilities  | Blind/Visual,<br>Deaf/Hearing,<br>Physical/Motor   | Mammography  | Communication,<br>Facility Access, Exam<br>Rooms-Tables-<br>Chairs,<br>Transportation                       |
| Mesidor, 2011           | A qualitative study: barriers and facilitators to healthcare access for individuals with psychiatric disabilities | Physical/Motor,<br>Behavioral/Mental Health, Chronic<br>Condition                          | Primary Care   | Communication,<br>Transportation,<br>Attitudes/Knowledge<br>of Staff  |

Healthcare access for individuals with disabilities

| <b>Author, Year</b> | <b>Title</b>   | <b>Disability types</b>  | <b>Healthcare services</b> | <b>ADA topics</b>  |
|---------------------|--|--|----------------------------|--|
| Morrison, 2008      | Primary care for adults with physical disabilities: Perceptions from consumer and provider focus groups  | Blind/Visual, Deaf/Hearing, Physical/Motor, Neurological/Intellectual, Other | Primary Care               | Communication, Facility Access, Transportation, Attitudes/Knowledge of Staff               |
| Mudrick, 2012       | Physical accessibility in primary healthcare settings: Results from California on-site reviews   | Not Applicable   | Primary Care, OB/GYN       | Facility Access, Exam Rooms-Tables-Chairs, Transportation                                  |
| Nicolaidis, 2013    | Comparison of healthcare experiences in autistic and non-autistic adults: a cross-sectional online survey facilitated by an academic-community partnership | Blind/Visual, Physical/Motor, Neurological/Intellectual, Learning/ADHD       | Primary Care               | Attitudes/Knowledge of Staff   |
| Persaud, 2000       | Barriers to preventive health practices in women with spinal cord impairments  | Physical/Motor, Neurological/Intellectual                                    | Primary Care, OB/GYN       | Facility Access, Exam Rooms-Tables-Chairs, Medical Equipment, Attitudes/Knowledge of Staff |



Healthcare access for individuals with disabilities

| <b>Author,<br/>Year</b>     | <b>Title</b>   | <b>Disability<br/>types</b>  | <b>Healthcare<br/>services</b>  | <b>ADA<br/>topics</b>  |
|-----------------------------|--|--|---|--|
| Peterso<br>n-Besse,<br>2014 | Barriers to Healthcare Among<br>People with Disabilities Who<br>are Members of Underserved<br>Racial/Ethnic Groups: A<br>Scoping Review of the<br>Literature | Physical/Motor,<br>Neurological/Intel<br>lectual, Chronic<br>Condition | Primary Care,<br>Other<br>specialists, Eye<br>Care,<br>Rehabilitation | Communication,<br>Transportation                                       |
| Pharr,<br>2013              | Predicting barriers to primary<br>care for patients with<br>disabilities: A mixed methods<br>study of practice<br>administrators                             | Not Applicable   | Primary Care,<br>OB/GYN   | Facility Access, Exam<br>Rooms-Tables-<br>Chairs, Medical<br>Equipment |
| Pharr,<br>2013              | Accommodations for patients<br>with disabilities in primary<br>care: a mixed methods study<br>of practice administrators                                     | Not Applicable   | Primary Care,<br>Home Health,<br>OB/GYN                               | Facility Access, Exam<br>Rooms-Tables-<br>Chairs, Medical<br>Equipment |
| Pharr,<br>2013              | Accessible medical equipment<br>for patients with disabilities in<br>primary care clinics: Why is it<br>lacking?   | Not Applicable   | Primary Care,<br>OB/GYN   | Exam Rooms-Tables-<br>Chairs, Medical<br>Equipment                     |

Healthcare access for individuals with disabilities

| <b>Author,<br/>Year</b> | <b>Title</b>   | <b>Disability<br/>types</b>  | <b>Healthcare<br/>services</b>  | <b>ADA<br/>topics</b>  |
|-------------------------|--|--|---|--|
| Redick,<br>2000         | Consumer empowerment<br>through occupational therapy:<br>the Americans With<br>Disabilities Act Title III  | Physical/Motor,<br>Neurological/Intel<br>lectual, Chronic<br>Condition | Rehabilitation  | Attitudes/Knowledge<br>of Staff, Other   |
| Reichard<br>, 2001      | Perspective of Dentists,<br>Families, and Case Managers<br>on Dental Care for Individuals<br>With Developmental<br>Disabilities in Kansas          | Neurological/Intel<br>lectual  | Dental Services   | Communication,<br>Transportation,<br>Attitudes/Knowledge<br>of Staff   |
| Reichard<br>, 2004      | Perspectives of physicians,<br>families, and case managers<br>concerning access to<br>healthcare by individuals with<br>developmental disabilities | Neurological/Intel<br>lectual  | Primary Care  | Communication,<br>Facility Access, Exam<br>Rooms-Tables-<br>Chairs,<br>Attitudes/Knowledge<br>of Staff, Disability<br>Policy |
| Reichard<br>, 2004      | Access to healthcare for<br>individuals with<br>developmental disabilities<br>from minority backgrounds  | Neurological/Intel<br>lectual  | Primary Care,<br>Dental<br>Services,<br>Mental Health,<br>OB/GYN, Other | Facility Access, Exam<br>Rooms-Tables-<br>Chairs,<br>Attitudes/Knowledge<br>of Staff   |

Healthcare access for individuals with disabilities

| <b>Author,<br/>Year</b> | <b>Title</b>   | <b>Disability<br/>types</b> | <b>Healthcare<br/>services</b>   | <b>ADA<br/>topics</b>  |
|-------------------------|--|-----------------------------|--|--|
| Sanchez,<br>2000        | Perceived accessibility versus actual physical accessibility of healthcare facilities                            | Physical/Motor              | General<br>Medical/NOS   | Facility Access, Exam Rooms-Tables-Chairs,<br>Attitudes/Knowledge of Staff   |
| Scheer,<br>2003         | Access barriers for persons with disabilities: the consumer's perspective  | Physical/Motor              | Primary Care,<br>Other<br>Specialists,<br>Mental Health,<br>Rehabilitation,<br>Other | Communication,<br>Facility Access,<br>Medical Equipment,<br>Transportation,<br>Attitudes/Knowledge of Staff, Disability Policy |
| Schopp,<br>2001         | Serving rural women with spinal cord injury: training needs assessment of health professionals in rural settings | Physical/Motor              | Other<br>specialists,<br>Mental Health,<br>Rehabilitation,<br>Other                  | Transportation,<br>Attitudes/Knowledge of Staff  |

Healthcare access for individuals with disabilities

| <b>Author,<br/>Year</b> | <b>Title</b>  | <b>Disability<br/>types</b>  | <b>Healthcare<br/>services</b> | <b>ADA<br/>topics</b>   |
|-------------------------|---|--|--------------------------------|---|
| Schopp,<br>2002         | Removing service barriers for women with physical disabilities: Promoting accessibility in the gynecologic care setting | Physical/Motor   | OB/GYN                         | Health Information, Exam Rooms-Tables-Chairs, Medical Equipment, Transportation, Attitudes/Knowledge of Staff |
| Smeltzer<br>, 2006      | Preventive health screening for breast and cervical cancer and osteoporosis in women with physical disabilities         | Physical/Motor   | OB/GYN                         | Facility Access, Exam Rooms-Tables-Chairs, Medical Equipment, Transportation                                  |
| Smeltzer<br>, 2007      | Perspectives of women with disabilities on reaching those who are hard to reach   | Blind/Visual,<br>Deaf/Hearing,<br>Physical/Motor,<br>Neurological/Intel<br>lectual | Primary Care,<br>Hospital      | Communication, Facility Access, Exam Rooms-Tables-Chairs, Transportation, Attitudes/Knowledge of Staff        |

Healthcare access for individuals with disabilities

| <b>Author,<br/>Year</b> | <b>Title</b>   | <b>Disability<br/>types</b>  | <b>Healthcare<br/>services</b>                                  | <b>ADA<br/>topics</b>   |
|-------------------------|--|--|---|---|
| Splendiani, 2014        | Do physicians make their articles readable for their blind or low-vision patients?<br><br>An analysis of current image processing practices in biomedical journals from the point of view of accessibility | Blind/Visual   | General<br><br>Medical/NOS                                      | Health Information  |
| Stillman, 2014          | Healthcare utilization and barriers experienced by individuals with spinal cord injury   | Physical/Motor   | Primary Care,<br><br>EMS, Dental<br><br>Services,<br><br>OB/GYN | Facility Access, Exam<br><br>Rooms-Tables-<br><br>Chairs, Medical<br><br>Equipment,<br><br>Transportation |
| Story, 2008             | Accessibility of radiology equipment for patients with mobility disabilities   | Physical/Motor   | Mammography   | Medical Equipment   |
| Story, 2009             | Perspectives of patients with disabilities on the accessibility of medical equipment:<br><br>Examination tables, imaging equipment, medical chairs, and weight scales                                      | Blind/Visual,<br><br>Deaf/Hearing,<br><br>Physical/Motor,<br><br>Neurological/Intellectual | Other   | Medical Equipment   |

Healthcare access for individuals with disabilities

| <b>Author, Year</b> | <b>Title</b>   | <b>Disability types</b>                          | <b>Healthcare services</b>                                | <b>ADA topics</b>  |
|---------------------|--|--|---|--|
| Sweeney, 2013       | Physical Accessibility and Healthcare Use for Women with Physical Disabilities: A Case Study Approach            | Physical/Motor                                   | General<br>Medical/NOS                                    | Facility Access  |
| Voss, 2002          | Perceived versus actual physical accessibility of substance abuse treatment facilities                           | Physical/Motor                                   | Addiction<br>Treatment                                    | Facility Access  |
| Ward, 2010          | Uncovering healthcare inequalities among adults with intellectual and developmental disabilities                 | Neurological/Intellectual,<br>Learning/ADHD      | Primary Care,<br>Mental Health,<br>General<br>Medical/NOS | Attitudes/Knowledge of Staff   |
| Watts, 2008         | Access to cervical screening for women with learning disabilities  | Learning/ADHD                                    | OB/GYN  | Health Information,<br>Exam Rooms-Tables-Chairs,<br>Attitudes/Knowledge of Staff |
| West, 2006          | The digital divide in public e-health: Barriers to accessibility and privacy in state health department websites | Blind/Visual,<br>Deaf/Hearing,<br>Physical/Motor | Other   | Health Information   |

Healthcare access for individuals with disabilities

| <b>Author,<br/>Year</b> | <b>Title</b>   | <b>Disability<br/>types</b>   | <b>Healthcare<br/>services</b> | <b>ADA<br/>topics</b>   |
|-------------------------|--|---|--------------------------------|---|
| West,<br>2007           | Physical inaccessibility negatively impacts the treatment participation of persons with disabilities                         | Physical/Motor,<br>Neurological/Intellectual                                  | Addiction<br>Treatment         | Facility Access   |
| West,<br>2007           | The accessibility of substance abuse treatment facilities in the United States for persons with disabilities                 | Blind/Visual,<br>Deaf/Hearing,<br>Physical/Motor,<br>Behavioral/Mental Health | Addiction<br>Treatment         | Communication,<br>Health Information,<br>Facility Access, Exam<br>Rooms-Tables-Chairs |
| West,<br>2009           | Rates of alcohol/other drug treatment denials to persons with physical disabilities:<br>Accessibility concerns               | Physical/Motor  | Addiction<br>Treatment         | Facility Access, Other  |
| Williams<br>, 2002      | A Focus Group Study of Accessibility and Related Psychosocial Issues in Diabetes Education for People with Visual Impairment | Blind/Visual  | Primary Care,<br>Hospital      | Health Information  |
| Williams<br>, 2009      | Making Diabetes Education Accessible for People with Visual Impairment   | Blind/Visual  | Other                          | Health Information  |

Healthcare access for individuals with disabilities

| <b>Author,<br/>Year</b>    | <b>Title</b>   | <b>Disability<br/>types</b>   | <b>Healthcare<br/>services</b>  | <b>ADA<br/>topics</b>  |
|----------------------------|--|---|---|--|
| Wolf-<br>Branigin,<br>2004 | Designing accessible managed care services for people with physical disabilities: consumer suggestions within an emergent design process | Physical/Motor  | Primary Care,<br>Dental<br>Services, Other<br>specialists,<br>Mental Health,<br>Addiction<br>Treatment, Eye<br>Care | Communication,<br>Facility Access,<br>Medical Equipment,<br>Transportation,<br>Attitudes/Knowledge<br>of Staff |
| Wright,<br>2009            | Prescription for trouble: Medicare Part D and patterns of computer and internet access among the elderly                                 | Blind/Visual,<br>Deaf/Hearing,<br>Physical/Motor,<br>Behavioral/Mental Health | Other   | Health Information   |