



The Implicit and Explicit Exclusion of People with Disabilities in Clinical Trials



National Council on Disability

August 14, 2024

National Council on Disability (NCD)
1331 F Street NW, Suite 850
Washington, DC 20004

The Implicit and Explicit Exclusion of People with Disabilities in Clinical Trials

National Council on Disability, August 14, 2024
Celebrating 40 years as an independent federal agency.

This report is also available in alternative formats. Please visit the National Council on Disability (NCD) website (www.ncd.gov) or contact NCD to request an alternative format using the following information:

ncd@ncd.gov Email

202-272-2004 Voice

202-272-2022 Fax

The views contained in this report do not necessarily represent those of the Administration, as this and all NCD documents are not subject to the A-19 Executive Branch review process.



National Council on Disability

An independent federal agency making recommendations to the President and Congress to enhance the quality of life for all Americans with disabilities and their families.

Letter of Transmittal

August 14, 2024

President Joseph R. Biden Jr.
The White House
1600 Pennsylvania Ave. NW.
Washington, D.C. 20500

Dear Mr. President,

People with disabilities (PWDs) face persistent discrimination and are purposely excluded from clinical trials research thus limiting access to life-changing or even life-saving healthcare resources. On behalf of the National Council on Disability (NCD), I hereby transmit NCD's report titled *The Implicit and Explicit Exclusion of People with Disabilities in Clinical Trials*.

This report summarizes the underlying causes of exclusion, both implicit and explicit, of PWDs in clinical trials (CT). It discusses the legal requirements clinical trial investigators must follow and identifies actions federal agencies should take to ensure compliance. It also provides recommendations to CT administrators and federal agencies. Implementation of these recommendations will mitigate some of the exclusionary practices and improve the participation rate of PWDs in clinical trials and strengthen health outcomes for American's seeking research informed care.

This report is based on findings from a review of published studies, legislation, and CT protocols as well as subject matter expert interviews, trial participant interviews, healthcare provider and participant surveys as well as feedback from stakeholders at the National Institutes of Health (NIH) and Food and Drug Administration (FDA).

One of many notable report findings identified that exclusion criteria in 97 CT protocols barred people with varying types of disabilities from participation, such as those with psychiatric (68%), substance use (62%), HIV or hepatitis (53%), cognitive or intellectual (42%), visual (34%), hearing (10%), mobility (9%), long-term care (6%), and speech and communication (3%) disabilities. Also, clinical trials for Alzheimer's therapeutics have excluded people with Down syndrome for decades, despite the fact that 90% of people with Down syndrome will develop Alzheimer's by the age of 55. While these findings demonstrate some of the discrimination PWDs face in CT research, they do not account for the implicit exclusion of PWDs from CTs due to inaccessible trial sites, medical equipment, and biases toward PWDs. These factors collectively marginalize PWDs in CTs, contributing to poorer health outcomes compared to their non-disabled peers.

1331 F Street, NW ■ Suite 850 ■ Washington, DC 20004

202-272-2004 Voice ■ 202-272-2074 TTY ■ 202-272-2022 Fax ■ www.ncd.gov

The report offers recommendations aimed at increasing the participation of people with disabilities in CTs.

Since assuming the NCD Chair position in January 2021, Andrés Gallegos championed health equity for PWDs. His untimely passing in December 2023 is a profound loss. Implementing these recommendations would honor his legacy by advancing his vision.

Respectfully submitted,

Claudia Gordon

Claudia Gordon
Chair

(The same letter of transmittal was sent to the President Pro Tempore of the U.S. Senate and the Speaker of the U.S. House of Representatives.)

National Council on Disability Members and Staff

Members

Claudia Gordon, *Chair*
Emily Voorde, *Vice Chair*
Hoskie Benally, Jr.
Sascha Bittner
Theo Braddy
Shawn Kennemer
Risa Rifkin
Neil Romano

In Memoriam

Andrés Gallegos, Chairman (passed away December 1, 2023)

Staff

Anne C. Sommers McIntosh, Executive Director
Joan M. Durocher, General Counsel & Director of Policy
Lisa Grubb, Director of Administration, Finance, and Operations

Stacey S. Brown, Staff Assistant
Kimie Eacobacci, Legislative Affairs Specialist
Netterie Lewis, Administrative Support Specialist
Amy Nicholas, Senior Attorney Advisor
Nick Sabula, Public Affairs Specialist
Amged Soliman, Senior Attorney Advisor
Ana Torres-Davis, Senior Attorney Advisor
Keith Woods, Financial Management Analyst

Contents

Executive Summary	9
Key Findings	9
Key Recommendations	11
Methodology	11
Acronym Glossary	13
Introduction	17
Background	17
Need for Inclusion	17
Why Now?	18
Defining Disability	18
Models of Disability	19
Ethical Considerations	19
State of Disability in the United States	21
Health Literacy	21
Historic Trauma	22
Bias Within the Health Care Field	23
<i>A Case Study—Lee-Anne</i>	23
Chapter 1: Explicit Exclusion	25
Overview	25
Introduction	25
<i>Food and Drug Administration</i>	25
<i>National Institutes of Health</i>	25
<i>Department of Health and Human Services (HHS)</i>	26
<i>Centers for Medicare and Medicaid Services</i>	26

<i>Centers for Disease Control and Prevention</i>	26
<i>Department of Justice</i>	26
Protocol Design	26
Eligibility Criteria	27
Reasonable Accommodations	30
<i>A Case Study—Christina</i>	30
Clinical Trial Eligibility for People with Down Syndrome:	
Alzheimer’s CT	31
Informed Consent (IC).	32
Increasing Acceptance of People with Disabilities—Protocols and	
Eligibility Criteria	34
Chapter 2: Implicit Exclusion	37
Overview	37
Health Care Provider Bias	37
Increasing Awareness and Mitigating Bias for Health	
Care Providers	37
Website Accessibility.	38
Site Selection.	39
Site Accessibility	40
<i>A Case Study—Elena</i>	40
Medical Diagnostic Equipment Accessibility	42
Artificial Intelligence and Machine Learning	44
AI and Machine Learning in Protocol Development and Recruitment	45
Transportation	46
<i>A Case Study—Benjamin</i>	47
Insurance Coverage	49
Chapter 3: Legal Requirements	51
Overview	51
Department of Health and Human Services	51
<i>The Common Rule</i>	51
<i>Informed Consent</i>	52

<i>HHS Secretary’s Advisory Committee on Human Research Protections</i>	52
FDA.....	53
<i>Food and Drug Administration Amendments Act of 2007 (FDAAA)</i>	54
<i>FDA Reauthorization Act of 2017</i>	54
<i>Evaluating Inclusion and Exclusion Criteria in CTs Public Workshop Report</i>	54
<i>Food and Drug Omnibus Reform Act (FDORA) Public Law No. 117–328 (2022)</i>	55
<i>Enhancing the Diversity of Clinical Trial Populations— Eligibility Criteria, Enrollment Practices, and Trial Designs Guidance for Industry</i>	56
<i>Accessibility of Recruitment Materials</i>	57
<i>Diversity Plans to Improve Enrollment of Participants from Underrepresented Racial and Ethnic Populations in Clinical Trials</i>	58
<i>Building Trust with the Disability Community</i>	58
Existing Legislation	58
<i>The Clinical Treatment Act</i>	59
<i>Section 1557 of the Patient Protection and Affordable Care Act</i>	60
Proposed Legislation	60
<i>Health Equity and Accountability Act</i>	60
NIH Efforts Toward Inclusion	60
Inclusion Requirements at a Hospital Level	62
Data Drives Inclusion: A Case Study from the Department of Labor	63
Chapter 4: Recommendations by Agency	65
Policy and Legislative Changes Within Federal Agencies	65
Recommendations to NIH	65
Recommendations to FDA	66
Recommendations to CMS	67

Recommendations to DOJ	68
Recommendations to IRS	68
Recommendations to HHS	68
Recommendations to Congress	70
Recommendations to CT Investigators, IRBs, and Study Teams	70
Conclusion	71
Endnotes	73

Executive Summary

This report showcases exclusionary practices that prevent people with disabilities (PWDs) from participating in clinical trials (CTs), discusses how health care practitioners' (HCPs) internal biases and federal policies contribute to the participation rate disparity, and how that disparity impacts PWDs and the efficacy of clinical trials. This report offers recommendations for HCPs and federal partners in the hopes to improve the participation rate of PWDs in CTs.

There are various federal agencies that oversee the CT process. The Food and Drug Administration (FDA) ensures that drugs and biological and device products in the United States are safe and efficacious for use.¹ The Department of Health and Human Services (HHS) ensures the protection of participants' rights, welfare, and well-being.² The National Institutes of Health (NIH) coordinates with the FDA to fund and conduct research, while the Centers for Medicare & Medicaid Services (CMS) is involved in determining what CT services are covered by Medicare and Medicaid.^{3,4} The Department of Justice's (DOJ) Disability Rights Section is responsible for enforcing the Americans with Disabilities Act (ADA), which impacts the overall accessibility of public services including health care.^{5,6} And, HHS Office for Civil Rights (HHS OCR) enforces civil rights protections provided by Section 504 of the Rehabilitation Act and Section 1557 of the Affordable Care Act (ACA).⁷

PWDs are a global community of 1 billion people, including members of every race, ethnicity, gender, religion, and sexual orientation. There are 61 million Americans living with a disability, accounting for 26 percent of U.S. adults.⁸

Key Findings

Despite the size of the disability community, PWDs are often not included in diversity and inclusion initiatives. Multiple efforts in recent years have been made to enhance the diversity in CTs. However, disability is not included as a

Federal roles in clinical trials

FDA – Ensures drugs and biological and device products are safe and efficacious.

HHS – Ensures protection of participants' rights, welfare, and well-being.

NIH – Funds and conducts research.

CMS – Determines what CT activities are covered by Medicare and Medicaid

DOJ DRS – Enforces ADA.

HHS OCR – Enforces civil rights protections provided by Section 504 of the Rehabilitation Act and Section 1557 of the ACA.

dimension of diversity in such efforts. FDA recent guidance provides recommendations on diversity plans to improve enrollment of participants from underrepresented racial and ethnic populations; however, PWDs are not overtly mentioned.

Explicit exclusion of PWDs in CTs occurs primarily due to exclusions embedded in the study protocol. The inclusion and exclusion criteria of studies

can create barriers to participation for PWDs, often without scientific justification. Further, in the absence of overt statements that allow accommodations for

PWDs to complete trial activities, availability of accommodations is left to the interpretation of study teams. This often results in the exclusion of people who may need such support to adhere to the protocol. Similarly, informed consent (IC) documents, which are required to be completed before a person can participate in a study, are often written and presented in ways that are not accessible to PWDs. Issues can arise due to the frequent use

of scientific jargon or technical language or a lack of digital or physical accessibility for IC documents. Often no explicit allowances

are made for the use of a caregiver or legally authorized representative (LAR).

Existing CT protocols automatically exclude up to 25 percent of the U.S. population, according to a 2018 study.⁹ This study also demonstrated that 12.4 percent of protocols have explicit exclusion criteria for people with intellectual

or development disabilities and 1.8 percent of protocols explicitly excluded those with physical disabilities.¹⁰ These findings, however, do not account for the PWDs who are implicitly excluded from CTs due to inaccessible trial sites and medical equipment or biases toward PWDs. Factors such as these lead to exclusion of PWDs from CTs and may lead to poorer

health outcomes in PWDs compared to their nondisabled peers.

It is well documented that PWDs are often excluded from research and data collection. A study published in 2022

reported that, in a review of 97 protocols, people from a variety of disability subgroups were excluded from CTs, including psychiatric (68%), substance use (62%), HIV or hepatitis (53%), cognitive or intellectual (42%), visual (34%), hearing (10%), mobility (9%), long-term care (6%), and speech and communication (3%).¹¹

CTs for Alzheimer's therapeutics have excluded people with Down syndrome for decades, even though 90 percent of people with Down syndrome will develop Alzheimer's by the age of 55.¹²

In recent years, federal agencies have

made efforts to address the exclusionary practices of clinical trials pertaining to people with disabilities. HHS has updated its section 504 regulations and explicitly spells out required inclusionary practices for any clinical trials receiving federal funds. In 2022, Congress passed the Food and Drug Omnibus Reform Act

Multiple efforts in recent years have been made to enhance the diversity in CTs. However, disability is not included as a dimension of diversity in such efforts.

The inclusion and exclusion criteria of studies can create barriers to participation for PWDs, often without scientific justification.

(FDORA) and one of the provisions is for HHS to convene public workshops and gather input from stakeholders on promising practices to increase enrollment of historically underrepresented populations in clinical studies. The Food and Drug Administration (FDA) facilitated the workshops, which discussed inclusion of individuals with disabilities, including intellectual or developmental and mental illness, in clinical trials. Findings and recommendations from those workshops will be available on the HHS website toward the end of July 2024.

The explicit requirements of CT inclusion in the amended section 504 regulations as well as FDA's workshops are a positive step. However, implementation of and inclusion of PWDs in clinical trials will require dogged enforcement of section 504, section 1557 of the ACA and the ADA by HHS OCR and DOJ to ensure compliance.

Key Recommendations

- NCD recommends CT study teams should incorporate overt explanations and justifications of the availability of reasonable accommodations in IC documents. These would include, but not be limited to, additional time, caregiver support, and auditory presentation for participants with impaired consent capacity.
- NCD recommends FDA and NIH should develop guidance on eligibility parameters for investigators, similar to FDA's "Informed Consent: Guidance for IRBs, Clinical

Investigators, and Sponsors," the guidance should:

- Aim to reduce subjectivity in eligibility criteria to eliminate PI bias and participant selection.
- Provide robust eligibility criteria for protocol teams to access to determine decision making capacity decisions.
- Broaden inclusion criteria to avoid unnecessary exclusion.
- Recommend acceptable accommodations be incorporated into inclusion criteria to reduce subjective assessment of a permissible accommodation.
- Recommend all exclusion criteria be scientifically justified.
- Recommend inclusion of PWDs in patient advisory boards.
- HHS and DOJ should increase oversight and enforcement of section 504, section 1557 of the ACA and the ADA at health care facilities to ensure that programs and services are accessible to PWDs.

Methodology

To understand the causes of explicit and implicit exclusion of PWDs in CTs, as well as the legal requirements investigators have to include PWDs in this critical research, NCD used independent research, subject matter expert interviews, trial participant interviews, and

CTs for Alzheimer's therapeutics have excluded people with Down syndrome for decades, even though 90 percent of people with Down syndrome will develop Alzheimer's by the age of 55.

Methodologies employed in this report

- Independent research
- Subject matter expert interviews
- Trial participant interviews
- Participant and health care practitioner (HCP) surveys
- Site visit to one CT center to evaluate physical and operational accessibility

participant and health care practitioner (HCP) surveys. The team also completed a site visit to one CT center to evaluate its physical and operational accessibility.

The use of research, interviews, and surveys to gather information was purposeful to understand relevant legislation, requirements, and laws that guide clinical research practices, as well as the “field-level” experiences of participants, providers, and those that oversee trial practices at a federal level.

Acronym Glossary

ACA	Affordable Care Act
ADA	Americans with Disabilities Act
ASL	American Sign Language
AI	Artificial Intelligence
CC	Closed Captioning
CDC	Centers for Disease Control and Prevention
CMS	Centers for Medicare & Medicaid Services
CHNA	Community Health Needs Assessment
CT	Clinical Trial
DOL	Department of Labor
DOJ	Department of Justice
DOT	Department of Transportation
EHB	Essential Health Benefits
FDA	Food and Drug Administration
FDAAA	Food and Drug Administration Amendments Act
FDARA	FDA Reauthorization Act
HCP	Health Care Provider
HEAA	Health Equity and Accountability Act
HHS	Department of Health and Human Services
IC	Informed Consent
IRB	Institutional Review Board
LGBTQ	Lesbian, Gay, Bisexual, Transgender, Queer
LAR	Legally Authorized Representative
MRI	Magnetic Resonance Imaging
NCD	National Council on Disability
NIH	National Institutes of Health
NPRM	Notice of Proposed Rulemaking
PI	Principal Investigator

PWDs	People with Disabilities
SACHRP	Secretary's Advisory Committee on Human Research Protections
SIIDR	Subcommittee on Inclusion of Individuals with Impaired Decision-making in Research
WCAG	Web Content Accessibility Guidelines
WHO	World Health Organization



Simply put, what gets measured gets done . . . In [clinical trials], attention to increasing participation of [people with disabilities] is nonexistent because there is currently no requirement to count them to begin with. . . . [C]urrent efforts to improve access and health equity are not working without measurements and targets. . . . Not only does this exclusion contradict the principle of justice, but nonmaleficence as not gathering and analyzing this information also creates harm.

Introduction

Background

A 2022 study reviewed 97 clinical trial study protocols across four therapeutic areas.¹³ In these 97 protocols, clinical trial (CT) investigators were given broad discretion to determine eligibility for 85 percent of the protocols. The result was people from differing disability-related domains were excluded to varying degrees, including psychiatric (68%), substance use (62%), HIV or hepatitis (53%), cognitive or intellectual (42%), visual (34%), hearing (10%) mobility (9%), long-term care (6%), and speech and communication (3%). Only 24 percent of exclusions against people with disabilities (PWDs) had documented justification.¹⁴

Common CT protocols exclude up to a quarter of the U.S. population. In fact, a study published in *JAMA* (the publication of the American Medical Association) in 2018 demonstrated that among 338 Phase III and IV studies, which are the final trials before treatments are approved and publicly available, explicit exclusion criteria for people with intellectual or developmental disabilities were present in 12.4 percent of the CTs.¹⁵ Additionally, 1.8 percent of CTs included exclusion criteria for those with physical disabilities.¹⁶ This finding, however staggering, still does not account for

the implicit exclusion of PWDs from CTs because of inaccessible trial sites, medical equipment, and other misperceptions and biases. These factors prevent PWDs from accessing potentially life-saving treatments.

Perhaps more than any other underrepresented group, disability is omitted from diversity, equity, inclusion and belonging initiatives, and otherwise "inclusive" designs of systems, processes, and infrastructure. This exclusion leaves many PWDs unable to access everyday health care services and research opportunities, including CTs.

Only 24 percent of exclusions against people with disabilities (PWDs) had documented justification.

Need for Inclusion

Such exclusion restricts access to potentially life-changing treatments by limiting the generalizability

of the studies and fails to provide information about their safety and efficacy for one of the population's most affected. When researchers attempt to develop a diverse data set "without studies that include persons with disabilities, clinicians lack evidence for effective treatment of this large minority group."¹⁷

Fundamental change is needed to improve access to CTs for PWDs, who tend to be in poorer health and experience a higher prevalence

of secondary conditions than people without disabilities.¹⁸ PWDs face both physical and attitudinal barriers by health care practitioners (HCPs). Not only is it physically difficult for people with a variety of disabilities to access health care, but also a general lack of knowledge about the community can be to blame for the notably decreased access to quality care, including CTs.¹⁹ HCPs may have stereotypes about disability and lack the appropriate training to effectively treat and advise PWDs. An absence or shortage of accessible medical facilities, sign language interpreters, and individualized accommodations is similarly problematic as barriers to PWDs participating in CTs.²⁰

The barriers for PWDs in health care settings is pervasive, existing in every aspect of the medical system, including but not limited to CTs. Changes to federal policy can eliminate some of these barriers and increase the participation rates of PWDs in CTs.

Why Now?

PWDs are a global community of 1 billion people who are members of every race, ethnicity, gender, religion, and sexual orientation. There are 61 million Americans living with a disability, accounting for 26 percent of U.S. adults.

Enhanced inclusion of PWDs in CTs would improve health care access and improve health outcomes for patients with disabilities, including

those of diverse races, ages, ethnicities, genders, gender identities, and sexual orientations.

Defining Disability

Before further exploring the inclusion of PWDs in CTs, it is critical to define disability and

[A] study . . . in 2018 demonstrated that among 338 Phase III and IV studies, . . . explicit exclusion criteria for people with intellectual or developmental disabilities were present in 12.4 percent of the CTs.

demonstrate the impact that it has on the lives of the quarter of Americans who are a part of the disability community. The Americans with Disabilities Act (ADA) defines a disability as “a physical or mental impairment that substantially limits one or more major life activities” and a PWD as “a person who has a history or record of such an impairment; or, a person who is perceived by others as having such an impairment or mental condition that limits a person’s movements, senses, or activities.”²¹ This is the definition that is widely used to inform policy and systems within the United States.

[E]xclusion restricts access to potentially life-changing treatments by limiting the generalizability of the studies and fails to provide information about their safety and efficacy for one of the population’s most affected.

The heterogeneity of disabilities is highlighted by the experiences of the 61 million plus Americans living with disabilities today. The limitations of a disability can fluctuate, with up to 60 percent of PWDs reporting limitations that can worsen, improve, or be absent at times.²² Disability can be related to conditions that are present at birth and may affect function in later life such as cognition, mobility, vision, and behavior. Disabilities can be genetic or the result of an environmental exposure that a mother

experiences during pregnancy.²³ A disability can present during childhood, occur because of injury, and/or be associated with a long-term condition. The impact of a disability may be progressive, static, or intermittent.²⁴

Therefore, although the term “PWDs” can seem to represent one monolithic community or population, it is not that simple. PWDs are a diverse group of people whose needs are unique. Two people with the same diagnosis may require entirely different supports to participate fully in an activity, such as a CT.²⁵

Models of Disability

How people think about or perceive disability impacts how they both feel and act regarding the disability community as a whole and on an individual level. These models of thinking create systems of output that result in either greater or lesser value. Though there are many models of thinking on this topic, there are three major models of disability:

- **Medical Model:** In this view, a disability is perceived as an individual deficiency or abnormality that exists within a person. The medical model typically frames disability as a problem that needs to or can be fixed by medical intervention.^{26,27} Many federal

policies and practices (Social Security, Centers for Medicare & Medicaid Services [CMS]) are guided by this model of disability, which is limiting due to its focus on an impairment within an individual as opposed to external factors that could be altered to enable participation.

- **Social Model:** The social model shifts the focus to the fact that people are disabled by barriers in their environment and societal structures, as opposed to their impairments (ADA, Rehabilitation Act of 1973).^{28,29} This shifts the “blame” for a limitation from a person to an environment or context in which they exist.
- **Biopsychosocial Model:** This model recognizes the interaction of the medical and diagnostic aspects of disability along with the physical and social environments in which they exist. This model, used by the World Health Organization (WHO), recognizes that while some disabilities are the result of conditions and diagnoses, disability and health are not mutually exclusive. Therefore, the biopsychosocial model also points to the fact that health impacts can be achieved through a variety of means including policy, medical, contextual, and physical adaptations.³⁰

Ethical Considerations

In the field of bioethics, which examines the ethical issues in biomedical research, there are four primary principles to guide ethical clinical and research practices. Below we address how these principles of bioethics should be addressed through greater inclusion of PWDs in CTs:³¹

- **Autonomy:** This principle refers to the ability for patients to make their own medical decisions for treatment and to participate in research. Thus, this principle relates to good,

(continued)

Ethical Considerations: *continued*

comprehensive, accessible informed consent (IC) practices. Additionally, it means PWDs need options to participate in CTs without additional barriers.

- **Beneficence:** This principle describes the edict to do good in practice: to be benevolent, compassionate, and sympathetic. Here, researchers need to proactively develop accessible CT procedures to ensure PWDs can access trials. This means not only creating accessible and flexible consenting procedures (see below), but also being exact and explicit in exclusion and inclusion criteria and descriptions of disability accommodations to overcome potential exclusions. Unless it is explicitly stated in the eligibility criteria that supports, such as speech-to-text forms or screen readers for digital content, are permitted, study teams may assume that they are not and therefore may exclude participants who would, with the appropriate accommodations, be entirely capable of participating. Under stringent interpretation of eligibility criteria, without explicit mention of its allowance, PWDs can be excluded by default.
- **Nonmaleficence:** This principle relates to the traditional “do no harm” stipulation in medicine. For inclusion of PWDs in CTs, researchers need to avoid creating CTs that exploit or exclude PWDs for nonmedical reasons, such as cost, time, or ableism. Support for accommodations and anti-ableism training for staff should be included in the research budget to ensure that CT sites are safe, inclusive, and welcoming to PWDs
- **Justice:** Justice refers to fairness or equity. PWDs have historically been left out of research or abused by it. Thus, contemporary research practices must be fair and attentive to this history. PWDs must have the same opportunities to participate as people without disabilities, and researchers must actively recruit PWDs to reflect the diversity seen in the general community or patient population.

Even as recent efforts have been made by federal agencies and leading pharmaceutical companies to enhance access to trials for underrepresented groups, none of these efforts includes disability. Study findings would become more representative of the greater population in a world where accommodations are made and disability is included in trial diversity efforts,

Even when accommodations are granted, it is important to recognize that mere access is not enough, especially when it comes to health care. Developing a diverse data set “without studies that include persons with disabilities, would lack evidence for effective treatment of this large minority group.”³²

Based on the models of disability and the ethical considerations for clinical research, we can start to build a picture of disability inclusion in CTs. Additionally, there are other contextual factors at play that impact participation (or lack thereof) for PWDs in such research.

State of Disability in the United States

In order to build a more equitable clinical study, we benefit from understanding human, structural, and systemic realities. The state of disability in the United States is complex and can be examined through a number of societal indicators and statistics. These indicators point to an experience as a disabled person in the United States that is quite different from that of a nondisabled peer and that presents barriers to truly equitable participation.

In the United States, 26 percent of adults have a disability, increasing to 40 percent of adults over the age of 65. This makes disability the largest underrepresented group.^{33,34}

Incidence of disability by type in the U.S.

According to the Centers for Disease Control and Prevention (CDC):³⁵

- 11.1 percent of Americans have a mobility disability
- 10.9 percent of Americans have a cognitive disability
- 5.7 percent of Americans have a hearing disability
- 4.9 percent of Americans have a vision disability
- 18.3 percent of Americans have a mental health disorder³⁶

Data indicates that the prevalence of disability increases as community population density decreases. PWDs who live in less densely

populated areas may also have fewer resources and supports available for a variety of needs.³⁷

Further, according to the 2023 Annual Disability Statistic Compendium (ADSC), the rates of disability and poverty both increase with a decrease in population density. Rural or noncore communities (population < 10,000) have higher rates of poverty and disability than metropolitan communities.³⁸

“For the 5-year period from 2014-2018, the estimated rate of disability was 12.0% for metropolitan, 15.8% for micropolitan, and 17.9% for noncore counties. Estimated rates were higher in noncore counties for all reported disabilities, including hearing, vision, cognitive, ambulatory, self-care, and independent living disabilities.”³⁹ All of this suggests that the prevalence of disability is higher in smaller communities, and thus these communities deserve specific consideration when it comes to CT inclusion efforts.

Health Literacy

Health literacy is the degree to which a person is able to find, understand, and use health information. Limited health literacy increases barriers to receiving adequate health care and, many times, results in poor health outcomes.⁴⁰ It is estimated that inadequate health literacy is associated with annual health care expenditures approximating \$172 billion and is seen as a contributing factor of health disparities.^{41,42} Yet, research on the impact of health literacy and health disparities has mainly been explored in racial/ethnic populations, and PWDs have traditionally been excluded.⁴³ Additionally, research has shown that PWDs may have the greatest need for health literacy and health communication because they

already face issues regarding access and poorer outcomes.^{44,45,46} The impact of limited health literacy becomes particularly important in the realm of CTs, because in order to participate, people must be able to gather and make sense of materials, such as recruitment brochures and IC documents. When these are not accessible due to language or formatting, this creates a barrier to participation for all people, including PWDs. This concept will be further explored in subsequent chapters.

Historic Trauma

To understand the barriers that typically keep PWDs from participating in CTs, it is important to outline various historic events that have largely influenced the perspectives of the disability community as it relates to health care and CTs.

The *Belmont Report* is a central document in CT ethics.⁴⁷ This document is the result of the backlash to the Tuskegee Syphilis Study after it was publicly exposed in 1972. The study began in 1932 with the aim of investigating the natural progression of syphilis in African American men in rural Alabama. Researchers failed to fully inform the men of their condition, including transmission, and instead told them that they had “bad blood,” which would be treated with various fake interventions. The study continued after penicillin was found to be an effective treatment in the 1940s. This, and many other studies like it, contributed to the emerging field of bioethics and the distrust of medicine and medical research in Black and African American communities.⁴⁸

There is a similar distrust of medicine in the disability community. In the United States, there is a history of neglectful and abusive practices in large residential institutions for people with psychiatric, intellectual, and developmental disabilities, as well as unethical research practices on children and adults with disabilities.

One source of this distrust in the United States stems from the eugenics movements, which sought to “improve qualities of the human population by preventing people with ‘defective’ inheritable traits from reproducing” through segregation, sterilization, and even euthanasia. Physicians played a notable role in this, with one physician even letting six

“defective” infants die – an act that was presented in journalism and film as noble.⁴⁹

Related to and in part stemming from the eugenics movement, there are other examples of similar mistreatment

and unethical practices within the disability community. For example, in the Willowbrook hepatitis study, researchers infected otherwise healthy children with hepatitis to track the development of the infection and test various interventions. Many parents consented to this after learning their child would be allowed entry into the crowded institution as well as residence in a unit that was more hygienic with more nutritious food.⁵⁰

Medical ableism that results in excluding PWDs in CTs, may also eventually be recognized as a similar form of mistreatment. This report will address such mistreatment and begin to outline opportunities to alter it.

[R]esearch has shown that PWDs may have the greatest need for health literacy and health communication because they already face issues regarding access and poorer outcomes.

Bias Within the Health Care Field

A Case Study—Lee-Anne

Bias within the Health Care Field

Lee-Anne is Deaf and has no chronic health conditions. When she found out the local university was conducting compensated research for the National Institutes of Health (NIH) on healthy participants, she decided to enroll and reached out to the participating hospital. She asked that an American Sign Language (ASL) interpreter be provided for her during the screening process and subsequent visits.

Perplexed, the site contact responded by asking whether Lee-Anne met the study's eligibility criteria. She said yes and that she had completed the online pre-screen, which indicated that she qualified. At this point, the site contact was uncertain about their ability to provide an interpreter and wasn't sure Lee-Anne was a good fit for the study.

Lee-Anne persisted, telling the person that she met all the criteria and simply needed an interpreter as an accommodation during the study. The site contact became frustrated and directed Lee-Anne to contact the university hospital's human resources (HR) department to see if they could arrange it. The HR person was completely perplexed, directing Lee-Anne to the student disability services center. They were also unable to provide the interpreter for Lee-Anne.

Frustrated and angry, Lee-Anne decided, after weeks of being referred from one person to another, that this study was simply not worth the compensation for participating. CTs clearly were just "not made for Deaf people, certainly not at this site."

General bias within the field of health care, specifically the biases of HCPs, has a profound impact on PWDs and is a contributor to the exclusionary practices in clinical research. A study published in late 2022 explored the experiences and challenges that HCPs have in caring for patients with disabilities.⁵¹ The title of the article speaks volumes about its content: "I Am Not the Doctor for You." The study, which included physicians from across the United States, found many barriers exist when it comes

to providing care for PWDs. Such barriers include:

- Physical accommodations
- Communication accommodations
- Lack of knowledge, experience, and skills
- Structural barriers
- Attitudes toward PWDs

These barriers, compounded with the existing professional landscape that leaves providers

overwhelmed, underresourced, and strapped for time, often lead to poorer quality of care for PWDs. In fact, the study found that many physicians reported discharging or denying certain patients with disabilities care due to an inability to meet accessibility needs. Further, 36 percent reported knowing little to nothing about their responsibilities to provide accommodations and

accessible services required under section 504 of the Rehabilitation Act of 1973 and the ADA.⁵²

When considering the overall state of disability as well as the historic trauma experienced by the disability community, one can see why the existing barriers in the current CT structure exist.

Chapter 1: Explicit Exclusion

Overview

This chapter outlines the main areas in which common CT practices lead to explicit exclusion of the disability community. The chapter details how the protocol drafting process, particularly the determination of inclusion and exclusion criteria, creates barriers to participation for PWDs, often without scientific justification. The chapter also describes how, in the absence of explicit mention of allowed accommodations to complete trial events, available accommodations are often left to interpretation, resulting in study teams excluding people who may need such supports

Introduction

Prior to examining the causes of explicit exclusion for PWDs in CTs, it is important to understand the roles of federal agencies involved in approving, funding, and overseeing the implementation of CT protocols and procedures.

Food and Drug Administration

The FDA is responsible for ensuring that drug products, biological products, and medical devices in the United States are safe and effective. The FDA works to protect participants in CTs and to ensure that people have reliable

information before deciding whether to join a CT. The Federal Government has regulations and guidelines for clinical research to protect participants from unreasonable risks.⁵³ For example, once a drug has undergone a safety screening and is ready for use in a CT, the drug developers, or sponsors, must submit an Investigational New Drug (IND) application to FDA before beginning clinical research. FDA reviews the IND to make sure that participants would not be exposed to an unreasonable and significant risk of illness or injury. An IND may go into effect 30 days after FDA receives the application, unless FDA notifies the sponsor that the investigations described in the application are subject to a clinical hold, or on earlier notification by FDA that the CT of the IND can begin.⁵⁴

National Institutes of Health

NIH works with FDA to support and conduct biomedical research of drugs, technologies, and therapies that FDA deems are safe and effective for research.⁵⁵ NIH funds and conducts clinical research studies for a variety of biomedical products, develops policies to guide NIH clinical research processes, and is involved in educating investigators and HCPs about various research topics. These topics can include diversity and

inclusion of underrepresented groups within its studies.⁵⁶

Department of Health and Human Services (HHS)

HHS is the overseeing body for the Office of Human Research Protections, which is tasked with protecting the rights, welfare, and well-being of research participants.⁵⁷ HHS is responsible for ensuring that the basic principles for ethical research, as outlined in The Common Rule, are followed. This is further explored in Chapter 3. HHS also has regulations surrounding IC, which is required before a subject can participate in any clinical research study. HHS is the overseeing body of International Review Boards (IRBs), whose members are tasked with reviewing clinical protocols for ethical research practices before studies begin. The HHS Office for Civil Rights ensures NIH and FDA grantees as well as healthcare facilities comply with HHS civil rights regulations. Such as section 504 of the Rehabilitation Act, section 1557 of the ACA. And monitors the requirement for the use of the Assurance of Compliance, Form 690,⁵⁸ for studies utilizing federal funds.

Centers for Medicare and Medicaid Services

CMS may determine what CT services are covered by Medicare and Medicaid. Private insurance providers also typically use Medicare's assessments to determine which aspects of a trial to cover, meaning that the determinations made at a governmental level can impact not only those who participate in Medicare but also other Americans utilizing private insurance providers to fund trial participation.⁵⁹

Centers for Disease Control and Prevention

CDC protects the health of the country by providing science-based public health information and fighting diseases before they become a threat to the American people.⁶⁰ CDC oversees the Prevention Research Centers program, which funds academic institutions (Prevention Research Centers [PRCs]) to conduct applied community-based public health research to prevent chronic diseases and other threats to the health of the country. The PRCs also develop tools and resources for researchers about evidence-based interventions, practices, and policies.⁶¹

Department of Justice

The Disability Rights Section of the DOJ is responsible for enforcing the ADA via settlements and lawsuits. They do so in matters related to employment (Title I); state and local government services, programs, and activities (Title II); and businesses and nonprofits open to the public (Title III). Many health care facilities that carry out CTs, therefore, fall under the purview of DOJ's enforcement of the inclusion practices outlined in the ADA.⁶²

Protocol Design

When writing protocols for a new study, the priority is to ensure that the study activities will yield scientifically accurate, reproducible, and generalizable findings. Typically, scientists or researchers will write the protocols that must be approved by the funder, which, in the case of federal funding, is often NIH. A critical component at this stage is assessing patient burden to build study plans with which patients will be able to comply and safely complete.

Here, the framework of universal design is useful. Individuals writing protocols must consider the activities that will occur during each visit or data collection point in a study and ascertain what the experience will be for each patient. They must consider how the protocol can be written to reduce the burden on both the site and patients.

There are components of patient burden that are directly related to the treatment, such as pain, invasiveness, harmful exposure, and hospitalization. There are also the practical considerations of participating in the CT, such as workdays lost to site visits, travel distance, travel costs, and strain on caregivers, all of which contribute to the overall patient burden. Many of these practical factors can have a larger impact on patients with disabilities because of functional impairments. An added burden for participants with a disability may be multiple site visits that for the PWDs may require accessible transportation and caregiver assistance. When designing protocols, the CT developers must make certain that the patient burden is balanced with the rigor of the study. If consideration is not given at this stage to the increased patient burden of PWDs, it is more likely that the design of the protocol may be too burdensome for PWDs participation.

NCD recommends that NIH should prioritize funding studies that document increased patient burden for PWDs and allow for accommodations to support participation.

Examples include travel support costs and including allowances for assistive technology, mobility aids, and other devices into protocols.

Eligibility Criteria

Eligibility criteria, including the inclusion and exclusion criteria, form another piece of the CT structure that has a great impact on who can and cannot participate and therefore are essential to review to enhance the inclusion of PWDs. Clinical scientists and their teams are responsible for writing eligibility criteria during protocol drafting. *Inclusion criteria* are the elements that must be satisfied before a patient can enter into a trial, whereas *exclusion criteria*

identify elements that, if met, will keep a patient from participating. The eligibility criteria should always be objective and as broad as possible.

They should also

include a scientific or ethical justification for the exclusion of certain populations, which should be reviewed by IRBs or Independent Ethics Committees.⁶³

A common challenge in clinical research is striking a balance between the desire to minimize heterogeneity in the participant population, which can obscure findings, while also gathering data that is generalizable to a wider patient population that may eventually use the asset being studied. According to the Multi-Regional Clinical Trials Center of Brigham and Women's Hospital and Harvard, "narrow eligibility criteria create greater similarity

among participating individuals in a trial, limiting heterogeneity and optimizing consistency in results. More permissive eligibility criteria create a more diverse participant population, potentially increasing heterogeneity of results but equally potentially revealing a differential effect on outcomes and increasing generalizability of results.”⁶⁴ The writing of inclusion and exclusion criteria, consequently, is of paramount importance both for the application of findings and the inclusion of underrepresented communities.

Eligibility criteria are an important piece of the study protocol that minimize harm to participants, but at the same time may unintentionally limit the inclusion of underrepresented groups, such as PWDs. Exclusion criteria will often contain vague language that leaves the decision of whether someone can participate to the discretion of the principal investigator (PI).⁶⁵ This leaves the PI with the ability to exclude potential participants without any specific criteria to identify and introduces the opportunity for bias to influence these important decisions. PIs will often cite issues with safety and compliance with the protocol as the reason for exclusion of PWDs and use subjective claims of perceived vulnerability,

frailty, instability, or anticipated negative impact on the study due to perceived health conditions, abilities, or manner of participation as the justification.⁶⁶ The inaccurate assumption that disability equates to ill health is one ableist belief that may prevent PIs from accepting

Pis will often cite issues with safety and compliance with the protocol as the reason for exclusion of PWDs and use subjective claims of perceived vulnerability, frailty, instability, or anticipated negative impact on the study due to perceived health conditions, abilities, or manner of participation as the justification.

PWDs. According to an article published by the NIH in 2020, it is deeply ingrained in HCPs that disability and health cannot coexist, which leads to a systematic failure to provide equitable preventative care or refer to other health services in an equitable manner.⁶⁷ Therefore, without clear, detailed, or measurable

guidelines for exclusion criteria, the validity of the PI’s decision cannot be evaluated.

Additionally, differences in the personal and professional backgrounds, education, professional experience, and training of PIs can result in a

[I]t is deeply ingrained in HCPs that disability and health cannot coexist, which leads to a systematic failure to provide equitable preventative care or refer to other health services in an equitable manner.

large amount of variability in the perceived state and abilities of PWDs. These issues can be compounded when protocols that rely on the subjective discretion of PIs are copied and integrated into future

studies without thorough examination. Some protocols will specifically exclude PWDs, but not provide clinical or scientific reasoning to justify their exclusion. If there is a lack of transparency for these choices, there is an opportunity for bias

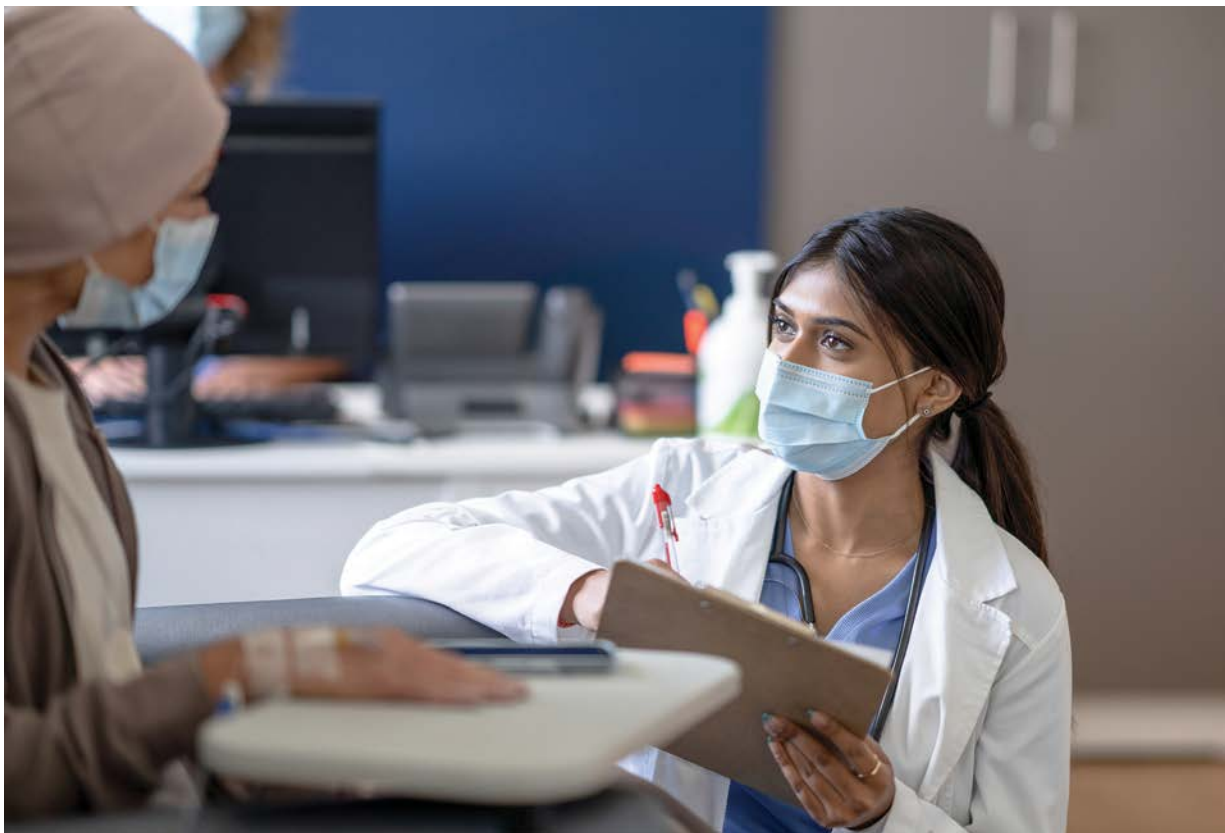
or negligence to influence the demographics of the participants in the CT.

The prevalence of these issues related to subjectivity and PI discretion was also examined in a study conducted in 2022 that reviewed 97 protocols across four therapeutic areas.⁶⁸ In these 97 protocols, investigators were given broad discretion to determine eligibility for 85 percent of the protocols. People from differing disability-related domains were excluded to varying degrees, including psychiatric (68%), substance use (62%), HIV or hepatitis (53%), cognitive or intellectual (42%), visual (34%), hearing (10%), mobility (9%), long-term care (6%), and speech and communication (3%). The lack of transparency was highlighted by the finding that only 24 percent of the exclusions of PWDs had documented justification.⁶⁹

CT exclusion of disability subgroups

[I]n a review of 97 protocols, people from a variety of disability subgroups were excluded from CTs:

- Psychiatric (68%)
- Substance use (62%)
- HIV or hepatitis (53%)
- Cognitive or intellectual (42%)
- Visual (34%)
- Hearing (10%)
- Mobility (9%)
- Long-term care (6%)
- Speech and communication (3%)



Reasonable Accommodations

A Case Study—Christina

Reasonable Accommodations

Christina is a woman with Down syndrome. She lives in a supported living community in rural New York.

Recently, after showing signs of forgetfulness, irritability, very uncharacteristic anger, and occasionally violence, Christina was diagnosed with early onset Alzheimer's. Her family physician referred her to a CT specifically focused on people with Down syndrome and Alzheimer's. The trial was four hours away in a more metropolitan area,

Christina had a very overwhelming experience when she arrived with her family for the consent appointment. She heard a lot of unfamiliar words, met new people, and was completely out of her routine. Fatigue from the long trip increased anxious and fearful feelings.

When she met the doctor, she became emotionally charged, yelling and crying, because he wasn't her familiar and trusted doctor. Luckily, her parents calmed her down and the doctor, well trained in working with people with Down syndrome, was patient, calm, and kind. He worked to build rapport with Christina by showing her videos of his cat and sitting with her while she doodled on her favorite notepad.

The study was well designed to welcome participants with Down syndrome. The study's designers used a video with fun, engaging, cartoonish graphics to describe the CT process and what to expect. The video used elementary school-level words and built in breaks for the person watching to stop and ask questions.

With the support of her parents and the site staff, Christina was able to provide assent for the study, indicating that she understood what was being asked of her and she was willing to participate.

Part of the trial involved Christina filling out a log about how she was feeling by circling pictures to answer a series of three questions. Knowing that Christina's direct support staff at home would have to help her with the log, the site staff offered to let Christina's parents record them, explaining what to do for Christina's team at home. This helped Christina's parents make sure her day-to-day caretakers were able to support the process.

In between on-site visits, Christina and her parents had video calls with the site team to check in and build rapport.

A critical requirement for a disability-inclusive CT is the allowance for reasonable accommodations at every stage of the study. Christina’s study team was specifically looking for patients with cognitive disabilities and knew what accommodations would be required. Had Christina tried to participate in a different study, it is likely that the outcome, because many study teams lack disability-cultural competence, would have been drastically different. The description, or lack thereof, of allowed support can lead to automatic exclusion of PWDs. As low as 18 percent of protocols explicitly permit PWDs to use forms of support (such as supported decision making or assistive devices).

Even when supports are listed, it is often unclear whether the listed supports are the only support options available or if they could serve as generalized examples. This is another case in which the lack of intentional and clear language in the eligibility criteria can lead to ableist assumptions and exclude PWDs from CTs.

NCD recommends that NIH and FDA should provide guidance and strongly encourage study teams include the following in its design protocol:

- **A list of all available accommodations on all study recruitment materials**

A critical requirement for a disability-inclusive CT is the allowance for reasonable accommodations at every stage of the study.

Despite the fact that 90 percent of people with Down syndrome will develop Alzheimer’s disease, this population has never been included in the CTs that have led to FDA approval of multiple therapeutics.

- **The process required to request a reasonable accommodation on all recruitment materials**
- **Language stating listed accommodations in the design protocol are not exhaustive and additional accommodations may be afforded upon request**
 - **Inclusive language of PWDs when describing eligibility criteria**
 - **Language inclusive of PWDs, including but not limited to eligibility criteria**
- **Reasonable accommodations, stating specific examples of supportive devices and measures that can be used (such as screen readers for people who are blind/have low vision, support service providers for people who are deafblind, and other relevant supports)**

Clinical Trial Eligibility for People with Down Syndrome: Alzheimer’s CT

Despite the fact that 90 percent of people with Down syndrome will

develop Alzheimer’s disease, this population has never been included in the CTs that have led to FDA approval of multiple therapeutics.⁷⁰ For the past 20 years, as promising therapies have been studied and approved, study teams continue to write exclusion criteria for people with Down syndrome.⁷¹ Further, even in cases in which

people with Down syndrome are not explicitly excluded, they may be implicitly excluded because “the timing of Alzheimer’s disease onset makes identification of trial-eligible participants with Down syndrome a challenge,” according to a development leader for the pharmaceutical company, Eli Lilly. Most trials include participants starting in their 60s, but people with Down syndrome may start to develop Alzheimer’s far earlier.⁷²

Such exclusion restricts access to potentially life-changing treatments by limiting the generalizability of the studies and providing no information about their safety and efficacy for one of the populations most affected by the disease. This example highlights the potential impact of exclusion for PWDs in CTs because when researchers attempt to develop a diverse data set “without studies that include persons with disabilities, clinicians lack evidence for effective treatment of this large minority group.”⁷³

Informed Consent (IC)

To enroll in a CT, the participant needs to be able to provide IC. IC is accomplished if the participant has been provided sufficient opportunity to consider whether to participate. This process involves more than obtaining a consent form with a signature. The IC process should provide and facilitate the comprehension of adequate information about the participant’s responsibilities and expectations during the CT.

An IRB, which typically consists of a team of physicians, a scientist, a nonscientist, and a representative from the community from which the participants of the study are drawn, is responsible for approving IC documents and

procedures and assessing compensation to reduce the risk of coercion.

FDA published guidance for investigators in August 2023 on how to obtain IC for participants with physical, sensory, or cognitive disabilities.⁷⁴ The FDA guidance encourages reasonable modifications and auxiliary aids and services when necessary for inclusion of people with disabilities and advises investigators of the legal requirements for reasonable accommodations under the Rehabilitation Act of 1973.⁷⁵

FDA provides additional guidance for inclusion of participants with impaired consent capacity. The guidance cautions investigators to assess the ethical and scientific necessity for participation, given past practices, but encourages willing participants access to CTs and provides several reasonable accommodation modifications for participation, such as established waiting periods for decision making to allow additional time to process; simplification and repetition of information; or involvement of a subject advocate or trusted family member or friend.⁷⁶

This newly released FDA guidance is a promising practice and should lead to increased acceptance of PWDs in clinical trials. However, this guidance is only effective if investigators are made aware of its existence. As such:

- **NCD recommends all HHS components (NIH, FDA . . .) should include FDA’s “Informed Consent: Guidance for IRBs, Clinical Investigators, and Sponsors”⁷⁷ in all materials provided to CT study teams.**
- **NCD recommends FDA should promulgate regulations that incorporate the “Informed**

Consent: Guidance for Investigators,” making the guidance legally enforceable.

- **NCD recommends CT study teams should incorporate overt explanations and justifications of the availability of reasonable accommodations in IC documents. These would include, but would not be limited to, additional time, caregiver support, and auditory presentation for participants with impaired consent capacity.**

Psychiatrist and bioethicist Paul Appelbaum suggests four psycho-legal standards in evaluating consent.⁷⁸ The first is communication of choice, either verbally or in writing, without frequent reversals of choice. Second, the patient

A high reading level or assumptions of health literacy on IC documents can result in a patient with and without disabilities feeling too uninformed to participate.

must understand the relevant information, which can be assessed by asking the patient throughout the consenting process to explain, in their own words, the various sections of the

IC document covered so far. Third, the patient must appreciate the situation, including the consequences of both participating and not participating, as it relates to any present medical conditions. Finally, the

fourth criterion is the ability to rationalize and reason with the relevant information by, for example, demonstrating the process of decision making.

One method of ensuring PWDs are capable of providing IC is by making the requisite information about the CT more accessible. The understanding and retention of IC information have significant impacts on not only CT enrollment but also completion. A study in 2019 found that 35 percent of participants who dropped out of a study thought the IC document was hard to understand, compared with only 16 percent who completed the study.⁷⁹ Similarly, 36 percent of participants who dropped out said their questions about IC were not answered, compared with 11 percent who completed the study.⁸⁰ This clearly highlights the importance of the IC documents and processes for engagement in and completion of the CT journey.

There are several aspects of IC documents that create challenges for PWDs enrolled in a CT. To facilitate comprehension of the provided information, the reading level and language of the text need to be appropriate for people with

Evaluating Consent

Psychiatrist and bioethicist Paul Appelbaum suggests four psycho-legal standards in evaluating consent:

1. Communication of choice, either verbally or in writing, without frequent reversals of choice.
2. Understand the relevant information.
3. Appreciate the situation, including the consequences of both participating and not participating.
4. Ability to rationalize and reason with the relevant information.

all types of disabilities, including cognitive. Additionally, the IC materials may use medical information that is unfamiliar or difficult to understand. A high reading level or assumptions of health literacy on IC documents can result in a patient with and without disabilities feeling too uninformed to participate, illustrated by the statistics discussed above in which 35 percent of prospective participants dropped out because of an inability to understand the requirements. IRBs may also decide certain PWDs are incapable of providing IC. Additionally, IC documents and videos can have accessibility issues. Videos may not have closed captioning (CC), or tablets may not have full-screen reader capabilities for patients who are blind or visually impaired.

NCD recommends the HHS Office for Human Research Protections (OHRP) and the FDA should:

- **Recommend IRBs ensure that website content and IC material are written in plain language at the 6th to 8th grade reading level and undergo a health literacy check.**
- **Recommend IRBs review all website content and IC material (written and digital) to ensure that they are accessible for the Deaf and Hard of Hearing and/or blind or low vision (including braille, speech to text, CC, and interoperability with screen readers).**

Typically, IC is gathered in a face-to-face visit in which the PI, or a designated and trained site staff member, engages with a patient (and

a legal representative, if necessary) to review the printed IC documents, answer questions, and secure a signature on a sheet of paper. Alternatively, eConsent, which is the use of a tablet to review and gather IC, can be used for the IC process. Both systems require the patient to travel to the CT site, which can have a substantially larger impact on PWDs than on their nondisabled peers. These barriers will be discussed further in a later discussion of implicit exclusion.

Increasing Acceptance of People with Disabilities—Protocols and Eligibility Criteria

Every clinical investigation begins with the development of a clinical protocol. Development of a protocol is a team effort with contributions from a medical expert, a statistician, the clinical research coordinator, and

the project manager, who all provide input to the medical writer to produce the final document.⁸¹ The protocol describes the background, rationale, objectives, design, methodology, statistical considerations, and organization of a clinical research project.⁸² As discussed previously, eligibility criteria can unintentionally exclude PWDs from CT participation. NIH determines which protocols are funded, and federal agencies rely on the outcomes of the CTs when approving medications and therapeutic treatments. It is imperative that the results from a CT are representative of all prospective patients, including PWDs.

[F]ederal agencies rely on the outcomes of the CTs when approving medications and therapeutic treatments. It is imperative that the results from a CT are representative of all prospective patients, including PWDs.

NCD recommends FDA and NIH should develop guidance on eligibility parameters for investigators, and similar to FDA's "Informed Consent: Guidance for IRBs, Clinical Investigators, and Sponsors," the guidance should:

- **Aim to reduce subjectivity in eligibility criteria to eliminate PI bias and participant selection**
- **Provide robust eligibility criteria for protocol teams to access when making decision making capacity decisions**
- **Broaden inclusion criteria to avoid unnecessary exclusion**
- **Recommend acceptable accommodations be incorporated into inclusion criteria to reduce subjective assessment of a permissible accommodation**
- **Recommend all exclusion criteria be scientifically justified**
- **Recommend inclusion of PWDs in patient advisory boards**

Chapter 2: Implicit Exclusion

Overview

This chapter outlines the implicit factors that lead to exclusion of PWDs in clinical research. It addresses the structural and systemic biases as well as other areas of implicit exclusion such as website, physical site, equipment, and technological accessibility. It also addresses challenges related to transportation and funding structures.⁸³

Health Care Provider Bias

For PWDs to begin their CT journey, they first need to become aware of the CT and the opportunity to participate. HCPs are a fundamental element of CT recruitment as they present one of the strongest channels for recruitment and referral of their patients. According to a 2017 study, 19 percent of participants found out about CTs from their primary care physicians, accounting for the largest proportion of responses.⁸⁴ Further, a 2013 survey, which represents the most recent data on the subject, reported that 72 percent of Americans said they would likely participate in a CT if it were recommended by their doctor but that only 22 percent had a physician discuss one with them.⁸⁵

HCPs are a fundamental element of CT recruitment as they present one of the strongest channels for recruitment and referral of their patients.

HCPs' implicit biases about the capabilities of their patients with disabilities can play a significant role in whether patients learn about CTs for which they may be qualified.⁸⁶ If an HCP thinks that PWDs will not understand, be interested in, or be eligible for a CT, the HCPs may not recommend the CT to PWDs.⁸⁷ Additionally, some HCPs may believe that PWDs will not be reliable study participants.⁸⁸ These assumptions can result in withheld information that lowers the participation rate of PWDs in CTs.

Increasing Awareness and Mitigating Bias for Health Care Providers

A contributor to health care disparity outcomes

for PWDs are physicians' erroneous assumption about the values and expectations of PWDs, assumptions that mirror widespread, stigmatized societal views about the disabled.⁸⁹ Improving disability cultural competence among HCPs is a core strategy that can reduce health care disparities for PWDs.⁹⁰

Strong evidence exists that cultural training for health care professionals improves providers' knowledge, understanding, and skills for

treating patients from culturally, linguistically, and socioeconomically diverse backgrounds.⁹¹ Requiring disability cultural competence training for all HCPs involved in CTs would likely produce the same results for the disability community by reducing the potential biases that lead to both implicit and explicit exclusion. Training should include how social determinants of health directly impact implicit biases about a PWD's abilities or lack of abilities and lifestyle. Any training should incorporate the core guidelines found in the Nisonger Center *Core Competencies on Disability for Health Care Education*.⁹²

NCD recommends:

- **NIH should incentivize disability competence training as a prerequisite for any NIH award funding for all personnel involved in CTs.**

Requiring disability cultural competence training for all HCPs involved in CTs would likely produce the same results for the disability community by reducing the potential biases that lead to both implicit and explicit exclusion.

Website Accessibility

The inability to obtain necessary information from websites may result in unnecessary exclusion from CTs. Many people who are blind, dyslexic, have learning and attention challenges, or even reduced language literacy often rely on screen reading programs. These programs help people with a variety of impairments to make sense of what is being presented on webpages and allow them to interact with the sites effectively.

However, even with such programs, many websites today remain difficult to navigate. For example, webpages that rely heavily on

symbols, icons, or images without descriptions (alt-text) and form fields to input data may be inaccessible and difficult to understand without proper context. Other aspects of website design that can present access challenges for people with vision- and learning-based disabilities include nonstandard font sizes, color contrasts, color choices, unintuitive navigation, and content written above an 8th grade language literacy level.

Aside from visual or cognitive impairments that may make it hard to perceive or interpret information presented on websites (such as CT recruitment pages), individuals with physical disabilities who are unable to interact with a

computer through a traditional keyboard may also experience challenges if websites are not built with accessibility in mind. People with a variety of physical impairments in their upper extremities may use alternate methods

for navigation or data entry, such as speech-to-text software. These access challenges may make it difficult for someone to gather more information about a trial using a linked webpage or to fill out screening forms.

Potential participants may also need to access patient portals, electronic patient-reported outcome applications, and electronic consent platforms. When these technologies are not accessible, they can create substantial barriers to PWDs. For example, eConsent platforms can impact a participant's ability to enroll in a trial.

Some PWDs may not be able to complete the application process due to lack of interoperability with a screen reader or lack of closed captioning on videos for prospective Deaf and Hard of Hearing participants. Without this access, PWDs cannot access all the information needed to make an informed decision about the trial and whether they wish to participate. Providing the required accessibility features will eliminate these barriers and may allow PWDs to participate in a CT that may otherwise be excluded simply because of the inaccessibility impeding their ability to apply.

NCD recommends all HHS components (FDA, NIH . . .) and CT administrators should:

- **Ensure patient-facing digital and web-based CT content is accessible based on WCAG 2.1 standards. This includes all government sites, such as the NIH-managed ClinicalTrials.gov and recruiting websites.**
- **Ensure website content is written in plain language.**
- **Ensure that all videos are closed captioned.**

Site Selection

Site selection has a profound impact on who participates in a CT because people generally participate in trials they can physically and geographically access. Therefore, it is critical to consider location when targeting increased inclusion for underrepresented groups such as PWDs. Most broadly, it is important to consider

the different participant pools that would be available for participation through sites within large academic research hospitals compared with small community hospitals, clinics, or community health centers.

When sites are assessed to determine whether they are suitable for a particular CT, feasibility reviews examine several factors. These feasibility reviews often focus on the site’s capacity to conduct the study based on the experience of the PI, the available equipment and resources, and the population from which the patients will be enrolled. However, when the priority of the site selection is operational feasibility, patient-centered

factors, such as accessibility for PWD, are often overlooked.

NCD recommends study teams and funders, such as the NIH, should inquire about site accessibility on study applications

and prioritize funding for sites that are physically accessible for PWDs in accordance with the guidelines by the U.S. DOJ Civil Rights Division in the document “Access to Medical Care for Individuals with Mobility Disabilities.”

Similarly, since sites are often selected based on access to experienced PIs, rather than access to relevant patient pools, it is often the case that site locations are selected that are further from rural communities, which typically have higher populations of PWDs.⁹³ Additionally, selecting sites that have experienced PIs offers the opportunity for those sites to continually

develop their team's CT experience and will likely lead to selection in future trials. This can create a cycle in which the same sites are continually prioritized or excluded. As long as rural sites' increased access to PWD patients continues to be undervalued, CT participation will continue to be a challenge for many PWDs living in rural areas.

NCD recommends NIH should ensure CT funding is spread across a variety of geographic locations to increase participation of diverse representative pools.

Site Accessibility

In addition to the geographic location, physical accessibility of a building should be evaluated as well. To increase access to CTs for PWDs, the physical sites need to be accessible. NCD visited several CT sites and found few examples of proactively inclusive practices to support participation of PWDs. Site accessibility requirements were similar across every location.

Site access by means of public transit may be inconsistent depending on the geographic location and budgeted resources. Once on site, a lack of accessible parking and sheltered drop-off areas may prevent PWDs access to the building. While newly constructed buildings are more likely to have ADA-compliant automatic door openers on the exterior building entrance, these openers may not exist on a secondary set of doors

within the vestibule, or older buildings may lack them altogether. This can create a barrier to enter the building. Additionally, for a person who uses a mobility device and

or who may require assistance for self-care tasks, the lack of accessible restrooms in sites can present a significant barrier to potential participation. Studies may require a participant to remain on site for as many as 12 hours, and participation may be impossible without access to restrooms that the person can use independently or with their caregiver.

As long as rural sites' increased access to PWD patients continues to be undervalued, CT participation will continue to be a challenge for many PWDs living in rural areas.

A Case Study – Elena

Elena was diagnosed with relapsing and remitting multiple sclerosis (MS) in 2019 and the diagnosis truly upended her world. Elena has a complicated relationship with the health care field that started during a difficult childbirth when challenges were brushed off as "nothing to worry about." She has trouble trusting HCPs because she feels they never take her seriously. When she received her MS diagnosis, she resolved to be her own best health care advocate.

A Case Study—Elena: *continued*

When Elena learned about a new CT for her particular form of MS, she was motivated to enroll and quickly reached out to the team. She was becoming increasingly frustrated with challenges to her mobility, such as having to use crutches every day and a wheelchair for long distances or when her fatigue level was particularly high. She has seen changes to her trunk control, leading to frustration when she sometimes struggles to stay upright in her chair for the duration of the workday. She hoped that by enrolling in a trial, she could potentially regain some strength.

For her first CT appointment, Elena's husband dropped her off out front so she would not have a long walk from the garage to the door. The elevator up to the reception was a far walk from the main entrance and was slow to arrive, so Elena was already feeling tired by the time the elevator door opened.

Upon arrival at the reception area, Elena could not wait to sit down. Upon checking in, the people at the front desk gave her and her husband a lot of overwhelming instructions and asked them to have a seat and wait until they were called back to meet the PI. She immediately noticed that none of the chairs in the waiting room had a lot of support and she was concerned about staying upright for a long time without help.

When they met with the PI, she asked a lot of questions she'd prepared beforehand in an effort to prove she was "good enough" to participate. The PI disregarded her questions, saying, "Don't worry about that," and Elena, yet again, felt unheard by the medical community.

Luckily, when the nurse came in to take her baseline vitals, they took time to answer Elena's questions and even offered their email address for any other questions that may come up.

Throughout the trial, Elena completed daily check-ins online, but sometimes struggled with the volume of these check-ins because of work and kids. She had to go on site for medication delivery and vital checks and did not have the option of using a clinic closer to home.

Fortunately, Elena's manager at work was understanding and supportive for the time Elena needed to take off for her appointments. When the trial ended, Elena had mixed feelings about her participation. Her symptoms were largely the same, but she was grateful to have had the chance to contribute to science that may help other people someday. She felt empowered by her relationship with the nurse who was the first HCP who made her feel seen and heard. So, while she didn't come away with what she had hoped for, she was glad she had the ability to participate.

Many features that enhance site accessibility are similar across site types and can be implemented in small Phase I academic-based sites, medium-sized Phase II and Phase III independent sites, or large, multiarm medical centers. Therefore, the findings and recommendations that follow are generalizable. Most of these recommendations will have to be implemented by sponsors, investigators, or site teams. However, federal agencies could impact the incorporation of such practices by including them in education and advocacy related to diversity and inclusion. Additionally, collaboration between funding agencies and the DOJ and HHS OCR for increased enforcement of ADA and section 504 and Section 1557 requirements would incentivize sites to ensure they are compliant and accessible.

NCD recommends when selecting location sites sponsors, investigators or site teams should:

- **Require an assessment of building accessibility as part of the site feasibility assessment**
- **Conduct equipment audits of potential CT sites to build a logistical and financial plan for how to update exam, treatment, and diagnostic equipment as part of the strategic master planning process**

Medical Diagnostic Equipment Accessibility

Due to the vast array of equipment that may be involved in CTs, medical diagnostic equipment accessibility can quickly exclude PWDs from participation. For PWDs who use wheelchairs, it can be impossible or dangerous to get onto

an exam table if the table cannot be lowered or if the staff is not trained to provide safe transfer assistance. This is one example of a lack of accessible equipment that is likely to lead to unnecessary exclusion from a CT and will negatively impact recruitment and retention of PWDs in clinical research.

Similar to barriers with fixed-height exam tables, access to diagnostic imaging equipment, such as magnetic resonance imaging (MRI) machines, can present challenges for a number of people. Most MRI machines require patients to lie on a retractable table that moves them into a tube for 15 to 90 minutes to gather the images.⁹⁴

Therefore, this machine can be difficult to use for people who require wheelchairs, have trouble sitting still for long periods of time, or the Deaf and Hard of Hearing when they are not able to see someone's lips to read them and follow cues. In the case that a patient is unable to access the MRI machine or that the site staff is not trained to provide them the support needed to do so, that person may be unable to participate in the CT.

Equipment to measure vital signs can be another barrier. A CT protocol may require the study team to log basic vitals, such as blood pressure, for each visit. Many medical facilities only have a one-size blood pressure cuff that is intended to be used on a patient's arm. However, for some PWDs, such as those who have limb differences, have had arms affected by stroke, or live in a larger body, this is not possible. In these cases, if the site does not have blood pressure cuffs that are made to be used on a leg, there may be no option other than to turn patients away if they cannot use the existing equipment. These are only a few examples of equipment

commonly used in CTs that could prevent PWDs from participating in CTs.

More than 20 million adults have a disability that limits their functional mobility and creates a barrier to accessing standard medical diagnostic equipment (MDE), and PWDs have reported that HCPs create ad hoc “accommodations” when a barrier was encountered or refused to treat the patient.⁹⁵

The ACA amended section 510 of the Rehabilitation Act and required the U.S. Access Board to develop accessibility standards for MDE.⁹⁶ In coordination

with the FDA, the Access Board issued its accessibility standards final rule in February 2017.⁹⁷ The Office for Civil Rights (OCR) within HHS published a final rule in May 2024 that adopts “the US Access Board’s accessibility standards for medical equipment to address barriers like exam tables, weight scales and mammogram machines. The rule requires most doctors’ offices to have an accessible exam table and weight scale within 2 years.”⁹⁸ In January 2024 DOJ announced a notice of proposed rulemaking (NPRM) under Title II of the ADA. The rule hopes to improve access to MDE such as examination tables, weight scales, dental chairs, x-ray machines, and mammography equipment.⁹⁹

HHS OCR recognizes that section 504 requires covered medical practices to be accessible to people with disabilities, which includes accessible equipment.¹⁰⁰ In the newly

amended section 504 HHS regulations, a new subpart was added to address the lack of accessible medical equipment, and the regulation provided a specific time frame during which HCPs are required to have accessible MDEs available at their clinic site for people with disabilities.

Similarly, in January 2024 DOJ published an NPRM under Title II of the ADA that would require accessible medical diagnostic equipment and other accessibility-related practices for people with disabilities.

More than 20 million adults have a disability that limits their functional mobility and creates a barrier to accessing standard medical diagnostic equipment (MDE), and PWDs have reported that HCPs create ad hoc “accommodations” when a barrier was encountered or refused to treat the patient.

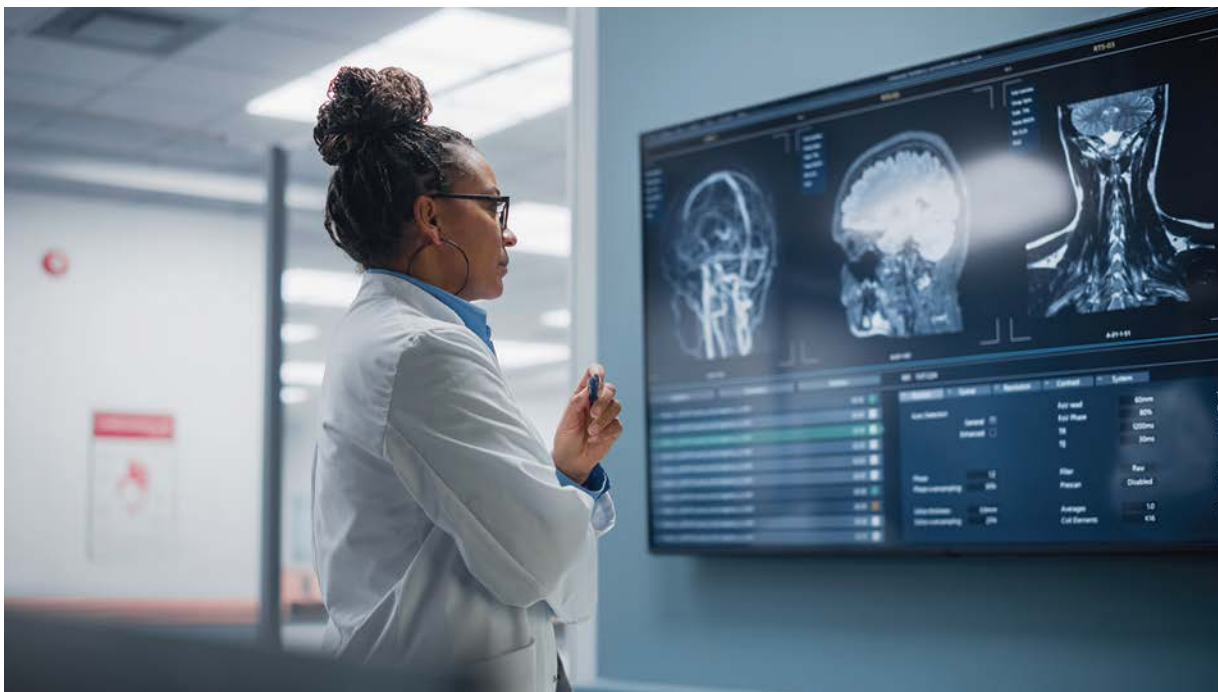
NCD recommends NIH should prioritize funding for clinical trial sites with accessible MDE.

NCD recommends DOJ should revise Title III ADA regulations to require covered health care providers to acquire equipment

that complies with the Access Board MDE standards.

NCD recommends DOJ and HHS should develop a technical assistance document on accessible MDE and update their 2010 (updated June 2020) “Access to Medical Care for Individuals with Mobility Disabilities” to include information on the Access Board’s MDE standards.

NCD recommends NIH should conduct a biannual nationwide health facility accessibility survey (HFAS), modeled on California’s Facility Site Review, which includes questions on the availability of



accessible medical equipment, and publish the results biannually.

Artificial Intelligence and Machine Learning

Artificial intelligence (AI) has the potential to improve identification and recruitment of PWDs for participation in CTs if and only if the data with which the AI is being developed includes PWDs in its data set. Among its many applications, AI has been explored as a potential tool in research to assist in designing protocols and creating efficient patient recruitment for CTs. AI is defined as “machine simulation of human intelligence processes including learning, reasoning, and self-correction,” and the ultimate goal is to create machines that can make the same decisions as humans.¹⁰¹ NIH defines AI as “a feature where machines learn to perform tasks, rather than simply carrying out computations that are input

by human users.”¹⁰² AI can include machine learning, deep learning, and natural language processing. The use of AI in research has existed since the 1970s when it was used to help with diagnostic decisions.¹⁰³ Researchers were slow to adopt AI because of limitations in technology and resources. Improvements in machine learning and deep learning and the availability of electronic health records led to a surge of interest in the use of AI in research and health services like medical imaging.¹⁰⁴ A study by von Itzstein and colleagues described how technologies such as AI, machine learning, and natural language processing can be incorporated into several aspects of CT research.¹⁰⁵ Some examples include data mining, prescreening for possible participants, and automating invitations to possible participants who have been prescreened through automation. Academic researchers and the pharmaceutical industry are using AI to mine

and utilize data from electronic sources such as health records and devices.¹⁰⁶

AI and Machine Learning in Protocol Development and Recruitment

The recruitment of participants can pose multiple limitations in CTs. Insufficient enrollment remains a serious and costly barrier. Researchers must consider multiple eligibility requirements to determine the suitability of potential participants. An ineffective recruitment process is considered a top reason for CT delays, with 86 percent of trials not meeting enrollment deadlines and approximately 33 percent of Phase III trials fail because of enrollment issues.¹⁰⁷ Another issue is that participants from marginalized communities, including PWDs, who would be eligible for CT are not provided the opportunity to participate.¹⁰⁸

There are many benefits to the implementation of AI in CTs. AI applications can process pertinent information such as previous studies and relevant research to assist in protocol development for trials.¹⁰⁹ AI can be used to process and analyze available data sources (medical records, social media, eligibility databases) to identify new eligible participants, as well as those that might be at risk of dropping out of trial. Chow and colleagues found AI enhanced the screening process for recruiting participants in cancer CT research.¹¹⁰ AI was used to perform the prescreening, such as analyzing the available patient data for eligibility. The AI process was followed by a manual

human check. Researchers have studied the effectiveness of AI systems that used natural language processing and machine learning to match patient information (e.g., doctors' notes, health records) and protocol data (e.g., inclusion and exclusion criteria) from ClinicalTrials.gov.¹¹¹ These AI systems were found to expedite the process of identifying eligible candidates to recruit.^{112,113}

There have been studies examining the feasibility and the utility of AI in CT protocols and enrollment. For example, a study piloted an AI system to automate the CT eligibility surveillance. Researchers implemented the Trial Eligibility Surveillance, an automated system that uses natural language processing and machine

An ineffective recruitment process is considered a top reason for CT delays, with 86 percent of trials not meeting enrollment deadlines and approximately 33 percent of Phase III trials fail because of enrollment issues.

learning algorithms to detect patients eligible for CTs by linking electronic health records and CT descriptions.¹¹⁴ They used Trial Eligibility Surveillance on cardiovascular and cancer CTs and found that their prototype

achieved moderate accuracy. This study showed the potential of what AI could do in the future to reduce the burden on researchers during the recruitment process. In a recent systematic review and meta-analysis, the use of AI in cancer CT enrollment was examined.¹¹⁵ The researchers reviewed 19 data sets that were examined in 10 articles. They noted that the accuracy, specificity, and sensitivity of the AI exceeded 80 percent in all but one data set in their predictive accuracy in identifying eligible patients for inclusion in CTs. AI was presented as a comparable, if not superior, option to manual screening when reviewing

patient eligibility for enrollment into cancer CTs because of its high efficiency and the reduced need for human resources.¹¹⁶

AI has the potential to improve identification and recruitment of PWDs for participation in CTs if and only if the data with which the AI is being developed

includes PWDs in its data set. Otherwise, the incorporation of such technology will only drive deeper, more systematic exclusion.

NCD recommends HHS should review the use of AI in CTs and establish regulations as needed to ensure that these technologies are built with data sets that include PWDs, include oversight of interpretability, and monitor its impact on recruitment inclusivity.

Transportation

Some form of travel, even simply across town, will be required for participation in CTs. Many aspects of air, rail, and ground travel are filled with barriers for PWDs.

These barriers may include issues with a lack of available forms of transportation, physical accessibility, and cost. Even when available, public transportation can present a challenge for PWDs. Public transit systems vary greatly from

location to location, with many cities lacking quality public transit systems. For individuals who must use public transit, the cost to make repeated trips throughout the course of a study can become burdensome, particularly for PWDs who may have to make specific arrangements

to use accessible public transit or paratransit.

Paratransit is a federally mandated component of any public transportation system. Paratransit provides accessible transportation for PWDs, but operates only within three-quarters of a mile of a public transit line or stop. Due to this and

other stipulations related to how paratransit services are delivered, it is often the case that even if public transportation does exist for clinic sites, there is still limited access to reliable transportation for PWDs.

Even when a paratransit system is available, other systemic limitations exist. For example, many paratransit systems do not have regular schedules and individuals have to pre-schedule

pickup and drop-off. Therefore, in the case of a medical appointment or trial event running late, it is possible that a person will not have a safe travel plan to get home if they miss their originally scheduled transport.

AI has the potential to improve identification and recruitment of PWDs for participation in CTs if and only if the data with which the AI is being developed includes PWDs in its data set. Otherwise, the incorporation of such technology will only drive deeper, more systematic exclusion.

Many aspects of air, rail, and ground travel are filled with barriers for PWDs. These barriers may include issues with a lack of available forms of transportation, physical accessibility, and cost.

A Case Study—Benjamin

Benjamin has severe arthritis in his hands resulting from years of working on small circuitry machines. He was otherwise healthy until being diagnosed with idiopathic pulmonary fibrosis (IPF) in late 2022. This diagnosis came after he started to experience shortness of breath, dry coughs, and increased finger swelling on top of his arthritis.

Benjamin's daughter found out about an IPF trial for which Benjamin would qualify. She was particularly excited because she saw in the advertisement for the trial that the sponsor would cover transportation costs for visits to and from the site. She knew this would be a selling point for her dad since her work makes it so that she cannot accompany him to every appointment, and he doesn't like distance driving.

Benjamin's daughter told him about the trial, and, after some initial apprehension, he decided to participate. He told his daughter, "There is no way I'd do this if they weren't giving me a ride both ways!"

At the first visit, Benjamin was short of breath and struggled to move from room to room for various tasks. However, the site staff noticed this and made adjustments for all future visits so that he did not have to travel too far for various study events.

When Benjamin was asked to provide a urine sample, he was unable to hold the cup steady enough because of the swelling and arthritis in his hands. He begrudgingly asked for help, which made him both uncomfortable and embarrassed. Fortunately, the site staff was accommodating, patient, and understanding.

Benjamin became frustrated by the number of times he had to re-consent with each visit and sign his name "at least 15 times," because he struggled to hold on to the pen because of his swollen, arthritic fingers.

The most difficult aspect of the trial, however, occurred when Benjamin had an adverse reaction to one of the drug cocktails. He developed a horrible, itchy skin rash that lasted many weeks. He had to go to a dermatologist as well as purchase many over-the-counter products to soothe his skin.

Benjamin was infuriated and felt "duped" because the consent paperwork said that the trial team would support him and address issues throughout the trial, but when they didn't pay for his extra expenses related to his rash, he felt he had been deceived. If he'd known he'd have to pay out of pocket for adverse events that he couldn't foresee or control, he's not sure he'd have signed up.

For PWDs who are enrolled in state-level Medicaid waiver programs and receive services through a community-based day program, funding for transportation outside of that program is not covered. This is likely to result in this population being unable to participate in CTs due to scheduling, funding, and personnel availability.

Airplane travel may be required for some CT participants based on limited locations of CT sites per study. This form of transit presents numerous financial, physical access, and interpersonal barriers that inhibit participation in CTs for PWDs. The barriers increase for wheelchair users. Current airplane design does not allow for an individual to use their own wheelchair while in transit and requires that mobility devices, such as wheelchairs and scooters, be stored in cargo. The March 2023 “Air Travel Consumer Report” shows that in January 2024 there were 56,659 wheelchairs or scooters enplaned, with 836 (1.5%) being mishandled.¹¹⁷ Without accommodations, such as appropriate assistance and communication, passengers with disabilities may face challenges when flying. In 2021, the Department of Transportation (DOT) received 1,394 disability-related complaints, a 54 percent increase from 2019.¹¹⁸ A general lack of disability-inclusive policies and practices within the airline

industry has resulted in a climate where over 10,000 wheelchairs per year are damaged, sometimes beyond repair, while stored and moved during transport.

In addition to lack of access to accessible transportation, there are many socioeconomic barriers to travel if someone must go to another city or state for a CT, which is not uncommon. Many PWDs live at or below the poverty line and it may be impossible for them to independently cover the costs for airline tickets, ground transport to and from the airport or a trial site, food, and housing during travel in addition to the impact of missed work. Additionally, if a person must travel with a companion or personal aid, there are additional costs associated with their travel as well.

Many PWDs live at or below the poverty line and it may be impossible for them to independently cover the costs for airline tickets, ground transport to and from the airport or a trial site, food, and housing during travel in addition to the impact of missed work.

Because PWDs experience higher rates of poverty and increased rates of unemployment, any patient-incurred cost during a CT will disproportionately affect PWDs’ participation rates.

NCD recommends funders, such as NIH, should review proposals to ensure that they have adequately budgeted for providing patient support related to burdensome aspects of the trial such as transportation and lodging. For example, a participant with a mobility disability may require accessible transportation or a participant with a cognitive disability may require a personal care attendant to accompany them when traveling.

Insurance Coverage

Because PWDs experience higher rates of poverty and increased rates of unemployment, any patient-incurred cost during a CT will disproportionately affect PWDs' participation rates.¹¹⁹ For this reason, the financial burden of patients is a significant factor to consider when examining inclusion of PWDs. While the financial burden of a patient can be influenced by the time and travel requirements of a CT, another significant component is what costs are covered by the patient's health insurance. While there have been some protections implemented to increase the likelihood that the costs of a CT are covered by insurance, the extent of the coverage is influenced by the location of the CT site.

Insurance plans may require the insured CT participant to use an in-network provider, whereas the CT intended that a different, out-of-network provider would monitor participants' help and progress during the CT.

If the CT and providers are outside of the network or outside of the patient's state of residence, they may incur unequal costs. This is yet another factor limiting PWDs from traveling to CT sites that are far from their residence.

An additional layer of complexity when considering CT insurance coverage is that coverage is not the same from one site to

another. Insurance providers will often base their coverage decisions on Medicare's assessments. Medicare's coverage for CTs can differ based on the geographic location of the site, because a local Medicare broker will determine the reimbursement rates and covered elements of the CT-associated costs for the area in his or her jurisdiction. These assessments are called the Local Coverage Determinants and should be considered when choosing CT sites.

All the factors noted in this chapter can contribute to the implicit exclusion of PWDs in CTs. These, plus the explicit factors identified previously, demonstrate the barriers PWDs face when it comes to clinical research. However, these are not the only factors at play when considering the participation of PWDs in CTs. Considering the legal and legislative requirements is similarly important to understanding opportunities for enhanced inclusion.

NCD recommends CMS should create standards for Medicare and Medicaid related to CT coverage, to ensure that coverage is consistent across states, and make provisions for in- and out-of-network coverage allowances.

Chapter 3: Legal Requirements

Overview

This chapter outlines the ethical research doctrines, legislation, and oversight that provide the legal and moral requirements for the inclusion of PWDs in clinical research.

The explicit and implicit exclusion of PWDs from CTs has been influenced through doctrines and legislation at the federal and state levels have influenced the explicit and implicit exclusion of PWDs from CTs. Some of the most influential documents for establishing ethical research doctrine are the *Belmont Report* and the Declaration of Helsinki. While there are important protections for research participants outlined in these guidelines, some of the measures they advocate for, such as IC and risk-benefit analysis, subscribe to the medical model of disability and must be updated to reflect current social beliefs and a modern understanding of disability. While the principles in these doctrines have had an overall positive impact, their scope is not large enough to specifically advocate for practices that allow and encourage PWDs and other underrepresented groups to participate in clinical research. In recent years, U.S. policymakers at all levels have supported bills and initiatives, including those that specifically address CT practices, which emphasize the mission of achieving health

equity, but, however, which do not explicitly include disability-inclusive practices.

Department of Health and Human Services

The Common Rule

The “Common Rule” is the label given to the Federal Policy for the Protection of Human Subjects.¹²⁰ The Common Rule applies to human subjects research, and it was derived from subpart A of 45 CFR 46 Protection of Human Subjects developed by HHS Office of Human Research Protections. This policy was created to promote uniformity and compliance with the protection of human subjects and uniformity in regulations across federal departments and agencies. It describes the types of research subjects and defines the key terms such as *research*, *human subject*, and *minimal risk*. The Common Rule provides guidelines for IRBs, IC, and minimal risk requirements, and requires a written assurance of compliance.

The Common Rule was adopted by multiple federal agencies in 1991, and each agency incorporated the policy into its own code of federal regulations. These agencies include the Department of Homeland Security, Department of Agriculture, Department of Energy, National Aeronautics and Space Administration, Department

of Commerce, Social Security Administration, Agency for International Development, Department of Housing and Urban Development, DOJ, Department of Labor (DOL), Department of Defense, Department of Veterans Affairs, Environmental Protection Agency, HHS, National Science Foundation, DOT, Office of Director of National Intelligence, Central Intelligence Agency, and Consumer Product Safety Commission. In regard to the participation of individuals with disabilities as human subjects in CTs, the Common Rule has a substantial influence on institutions conducting CT research, such as universities, specifically in the areas of IC and risk.

Informed Consent

HHS regulations 45 CFR 46.116 and 45 CFR 46.117 (Common Rule) describe IC requirements.¹²¹

Before a subject is involved in research, a researcher must obtain legally effective IC of the subject or the subject's legally authorized representative (LAR). The information provided to either party must be in a language understandable to them. It must be presented in an organized and focused manner that helps them understand why they may or may not participate in the research. A LAR is an individual or judicial or other body authorized under applicable law to consent on behalf of a prospective subject to participate in a research study. Subparts B, C, and D of 45 CFR 46 Protection of Human Subjects provide guidance on protections for pregnant women, prisoners,

and children, but do not provide guidance on protections for PWDs. It is unclear whether this omission was intentional so as not to identify PWDs as a population that needs protection, but the absence of any discussion of disability inclusion in the Common Rule might be viewed by investigators as an implicit exclusion of a PWD's ability to participate in CTs.

NCD recommends HHS should amend the Common Rule to expressly acknowledge PWDs as viable participants in clinical trials.

HHS Secretary's Advisory Committee on Human Research Protections

The Secretary's Advisory Committee on Human Research Protections (SACHRP) created the Subcommittee on Inclusion of Individuals with Impaired Decision-making in Research (SIIDR) to provide recommendations on new guidance and/or additional

regulations necessary to provide appropriate protections in research for individuals who have impaired consent capacity.¹²² The SIIDR recommendations and preamble were approved by SACHRP at its March 27, 2008, and March 4, 2009, meetings.

This guidance states that individuals who have impaired consent capacity are uniquely susceptible to exploitation and research-related harm, and research regulations and guidance have been insufficient. The federal policies point to state and local laws to define who

may provide consent for research on behalf of individuals with impaired consent capacity. Few states specifically define LAR for research, and most state laws are silent on the topic. There are no state laws that address the ethical issues that arise when LARs are involved in the decision making process.

The SIIIDR guidance provides 10 recommendations, not regulations, proposed by the subcommittee. Some of the recommendations included guidance for institutions on the nature of consent capacity and its impairment as it relates to research participation, guidance on appropriate safeguards related to the identification of individuals who may have impaired consent capacity, emphasis on the value of self-determination for research participants even when consent capacity is

impaired, and when consent is provided by an LAR, assent of potential subject should be sought.¹²³ Guidance documents are not legally enforceable. They only describe the agency's current thinking on a topic and can only be viewed as recommendations.

NCD recommends HHS should publish an NPRM to promulgate the SIIIDR 2009 recommendations making them legally enforceable.

FDA

The FDA regulates the participation of human subjects in clinical research, including CTs. These regulations align with the Common Rule and address the protection of human subjects, IC, and IRBs. Most recently, the FDA announced its intent to further harmonize its regulations with



the Common Rule, resulting in several reports related to diversity in CTs.

Food and Drug Administration Amendments Act of 2007 (FDAAA)¹²⁴

This legislation requires that the “Responsible Party” for certain applicable clinical trials register with and submit summary results information for applicable clinical trials to the ClinicalTrials.gov data bank. Responsible parties are required to submit FDA form 3764 to affirm compliance. FDA has been given the following implementation, compliance and enforcement responsibilities related to Title VIII of FDAAA:

- Requiring certification of compliance with ClinicalTrials.gov requirements to accompany certain human drug, biological product, and device applications and submissions to FDA
- Requiring the inclusion of a particular statement in the IC documents for “applicable clinical trials” (trials that will be entered into the ClinicalTrials.gov databank as required by FDAAA)
- Compliance and enforcement activities related to the failure to submit required CT information to ClinicalTrials.gov under HHS regulations at 42 CFR Part 11

NCD recommends Congress should require FDA to amend form 3764 to include a statement of recruiting outcomes that includes efforts and impact for enrollment of PWDs.

FDA Reauthorization Act of 2017

The FDA Reauthorization Act of 2017 (FDARA) was signed into law on August 18, 2017. Section 610(a) of FDARA directed FDA to “convene a public meeting to discuss clinical trial inclusion and exclusion criteria”¹²⁵ and report on the rationale for and potential barriers of CT inclusion and exclusion criteria. Pursuant to that mandate, in 2018, FDA held a public workshop entitled “Evaluating Inclusion and Exclusion Criteria in Clinical Trials” and published a report summarizing the topics discussed at the workshop.¹²⁶

Evaluating Inclusion and Exclusion Criteria in CTs Public Workshop Report

To address the requirements under Section 610(a) of the FDARA, the FDA convened a public

meeting in April 2018 to evaluate inclusion and exclusion criteria in clinical trials. This meeting and subsequent report findings were a precursor to the final guidelines issued in 2020.¹²⁷ The report found that some CT eligibility criteria had become commonly accepted and used as a template, creating exclusion of certain populations from trials without strong clinical or scientific justification.¹²⁸

The report also identified the lack of reasonable accommodation for PWDs and lack of access to transportation, leading to unnecessary exclusion of marginalized communities. Such practices could lead to a failure to discover important safety information about the investigational drug because of the lack of heterogeneity.¹²⁹

Food and Drug Omnibus Reform Act (FDORA) Public Law No. 117-328 (2022)

Sections 3601 and 3602 of FDORA amends the Federal Food, Drug, and Cosmetic Act to require that Phase III clinical trial study sponsors submit a diversity action plan to the Secretary. The plan must include goals for enrollment, rationale for such goals, and an explanation of how the sponsor will achieve set goals.¹³⁰ The action plan must be disaggregated by age group, sex, and racial and ethnic demographic characteristics of clinically relevant study populations. Included characteristics may be geographic location, socioeconomic status and ethnicity, nondemographic factors, and potential barriers to enrolling diverse participants, such as patient population size, geographic location, and socioeconomic status.¹³¹ The legislation mandates specific marginalized communities be represented in the diversity action plan; however, people with disabilities are not expressly mentioned.

NCD recommends Congress should amend the Food and Drug Omnibus Reform Act (sections 3601 and 3602) to require diversity action plans include considerations for inclusion of people with disabilities in clinical trials.

As mentioned above, PWDs are not specifically mentioned in the FDORA, but it does state “any other data or information relevant to selecting appropriate enrollment goals. . . .”¹³² It is NCD’s belief that providing data on PWDs falls squarely within information relevant to selecting appropriate enrollment goals.

Section 3603 of FDORA required HHS to convene public workshops to garner input from stakeholders on promising practices to increase enrollment of historically underrepresented populations in clinical studies and encourage clinical study participation that reflects the prevalence of the disease or condition among demographic subgroups in the workshops, HHS was required to discuss:

- Goals for enrollment in clinical trials and opportunities to support inclusion of underrepresented populations and to encourage clinical study participation that reflects the population to benefit from the drug.
- Establishment of inclusion and exclusion criteria for certain subgroups, such as pregnant and lactating women and individuals with disabilities to include intellectual or developmental disabilities or mental illness.
- Informed consent with respect to individuals with intellectual or developmental disabilities or mental illness, including ethical and scientific considerations.

In November 2023, the FDA held a two-day virtual public workshop to promote diversity in clinical trials. The workshops discussed inclusion of individuals with disabilities including intellectual or developmental disabilities and mental illness. Pursuant to section 3603 of FDORA, FDA provided a 60-day public comment period immediately following the workshops and is required to post a report of topics discussed

It is NCD’s belief that providing data on PWDs falls squarely within information relevant to selecting appropriate enrollment goals.

and recommendations on FDA's website no later than July 28, 2024.

Enhancing the Diversity of Clinical Trial Populations—Eligibility Criteria, Enrollment Practices, and Trial Designs Guidance for Industry

FDA published *Enhancing the Diversity of Clinical Trial Populations—Eligibility Criteria, Enrollment Practices, and Trial Designs Guidance for Industry*¹³³ in November 2020. The document prescribed numerous

recommendations that were influenced by the convening that occurred in April 2018.

One of the recommendations is that sponsors enroll participants to reflect the characteristics of clinically relevant populations with regard to age, sex, race, and ethnicity. Disability is not explicitly listed.¹³⁴

NCD recommends FDA should add PWDs as a clinically relevant population in all future guidance.

Inadequate participation and/or data analyses from clinically relevant populations may lead to unreliable information pertaining to medical product safety and effectiveness for product labeling.¹³⁵ FDA provides additional guidance on how to attain adequate participation from clinically relevant populations, for example, during the study

design consider the frequency of planned visits and physical accessibility of trial sites, provide flexibility in the visit window, and consider the use of electronic communication in lieu of site visits.¹³⁶

During recruitment, participants should be told of reimbursements for expenses associated

with costs incurred by participation in clinical trials (e.g., travel and lodging expenses),¹³⁷ and recruiters should use online and social media to identify participants.¹³⁸

Given that 86 percent of Americans are online and 80 percent

use the Internet to look for health information, researchers have an opportunity to access potential participants with unprecedented precision, including PWDs. A recent article in *JAMA Oncology* identified a missed opportunity in Internet-based recruiting. Of 1,500 tweets

containing the words *lung cancer* that were analyzed, nearly 18 percent of those were related to CTs, but only one of these linked to recruitment sites.¹³⁹

NCD recommends FDA should advise and encourage CT teams to use a variety of

media outlets for trial recruitment to increase participation diversity.

The guidance also recommends providing documents in multiple languages to encourage and retain participants with limited English

Inadequate participation and/or data analyses from clinically relevant populations may lead to unreliable information pertaining to medical product safety and effectiveness for product labeling.

Given that 86 percent of Americans are online and 80 percent use the Internet to look for health information, researchers have an opportunity to access potential participants with unprecedented precision, including PWDs.

proficiency but is silent on any guidance or recommendations to include recruitment materials in braille, easy-to-read materials, or American Sign Language (ASL).

NCD recommends FDA should update guidance language to recommend all public-facing CT documents be made available in alternate formats for PWDs (e.g., braille, plain language, ASL).

However, as noted previously, FDA guidance documents are not legally enforceable. They only describe the agency's current thinking on a topic and can only be viewed as recommendations.¹⁴⁰

NCD recommends FDA should promulgate regulations for the guidance provided in *Enhancing the Diversity of Clinical Trial Populations—Eligibility Criteria, Enrollment Practices, and Trial Designs Guidance for Industry*

Accessibility of Recruitment Materials

In a study by Microsoft, 59 percent of consumers were more trusting of brands in which they were represented. Additionally, people who viewed an ad that included PWDs felt the inclusivity made the brand more genuine and authentic and were more likely to trust that brand regardless of whether they identified as a PWD.¹⁴¹

When developing CT recruitment material, sponsors utilize patient brochures, visit planners, and posters about the specific

trial as well as clinical research in general. Inclusive imagery within marketing materials is becoming an increasingly important component for businesses and groups to reach desired audiences.¹⁴² For CTs, the representation of patients in recruitment materials may influence the likelihood that an individual will pursue enrolling in the CT. Most current materials used for recruitment highlight diversity in terms of gender and race, but do not present clear disability representation. This lack of PWDs in

the recruitment materials creates a barrier in that PWDs may feel that the CT is not looking for people like them.

Disability-inclusive imagery is only one area of opportunity related to the accessibility of CT content, media, and communications. For example, when using any text-based

material, there is a range of considerations that must be made in terms of accessibility. Lack of compliance with digital accessibility standards and failure to provide materials in alternate formats, such as plain language and braille, can result in PWDs being completely unaware of the CT opportunity.

NCD recommends all HHS components (NIH, FDA, . . .) that publish and distribute CT materials should ensure that all patient-facing media (including but not limited to consent forms, recruitment material, and websites) include disability representation and are digitally accessible and section 508 compliant.

For CTs, the representation of patients in recruitment materials may influence the likelihood that an individual will pursue enrolling in the CT. Most current materials used for recruitment highlight diversity in terms of gender and race, but do not present clear disability representation.

Diversity Plans to Improve Enrollment of Participants from Underrepresented Racial and Ethnic Populations in Clinical Trials¹⁴³

The Diversity Plan to Improve Enrollment of Participants from Underrepresented Racial and Ethnic Populations in Clinical Trial; Draft Guidance for Industry; Availability, released in April 2022, recommends that sponsors of medical products create and submit Race and Ethnicity Diversity Plans to the FDA in the early stages of clinical development. These plans are meant to help sponsors enroll representative numbers of participants from underrepresented racial and ethnic populations in the United States. The guidance focuses solely on the following groups: Black or African American, Hispanic/Latino, Indigenous and Native American, Asian, Native Hawaiian and Other Pacific Islanders, and other people of color. It does not include any other dimensions of diversity within the guidance or suggested plan framework.

Building Trust with the Disability Community

Building trust within the disability community is critical to enhancing PWDs' engagement in CTs, particularly given the historic mistreatment surrounding PWDs. Federal agencies such as NIH, FDA, and HHS have developed specific plans, legislation, and strategies to improve the participation rate of people from underrepresented groups such as those of racial and ethnic minorities.^{144,145,146,147} However, no such

campaigns have yet explicitly included or targeted PWDs.

NCD recommends FDA should develop guidance similar to the diversity plans created to improve enrollment of participants from underrepresented racial and ethnic populations for PWDs.

Existing Legislation

Section 504 of the Rehabilitation Act of 1973 requires that entities that receive federal funds, such as public and private universities and hospitals, make their programs and activities accessible to individuals with disabilities.¹⁴⁸ In April

2024, HHS published its final rule, which revised regulations under section 504 of the Rehabilitation Act of 1973. The amendments addressed discrimination on the basis of disability in HHS-funded programs and activities.¹⁴⁹

Section 504 requires that entities that receive federal funds, such as public and private universities and hospitals, make their programs and activities accessible to individuals with disabilities. In the final rule, HHS acknowledged the unjustified exclusion of people with disabilities from clinical trials through explicit exclusion criteria and overly narrow inclusion criteria as well as other aspects of CT study protocols.¹⁵⁰ In an attempt to eliminate CT discriminatory practices, HHS amended section 504 as follows:

- Section 84.56(b)(1) clarifies “that (i) bias or stereotypes about a patient’s disability;

In the final rule, HHS acknowledged the unjustified exclusion of people with disabilities from clinical trials through explicit exclusion criteria and overly narrow inclusion criteria as well as other aspects of CT study protocols.

(ii) judgments that an individual will be a burden on others due to their disability, including, but not limited to, caregivers, family, or society; or (iii) a belief that the life of a person with a disability has a lesser value than that of a person without a disability, or that life with a disability is not worth living are not permissible “essential” eligibility requirements for exclusion.”¹⁵¹ Denying, limiting, or refusing CT enrollment and participation is discrimination on the basis of disability because the decision of noninclusion is driven solely by the perception of disability.¹⁵²

- Section 84.56(b)(2) directly applies to clinical research activities of recipients. The provision prohibits “the denial or limitation of treatment for a separately diagnosable symptom or medical condition if it would be offered to a similarly situated individual without an underlying disability.”¹⁵³
- Section 84.68(b)(8) prohibits imposing or applying eligibility criteria that screen out or tend to screen out individuals with disabilities or classes of individuals with disabilities from “fully and equally” enjoying any program or activity, unless the criteria can be shown to be necessary for the provision of the program or activity being offered.
- Section 84.68(b)(3), “prohibits the use of discriminatory methods of administration, criteria, and protocols, including discrimination in the allocation of scarce resources.”¹⁵⁴ Exclusion criteria should not unnecessarily screen out people with disabilities whose participation would not change the purpose of the clinical

trial. Overly broad exclusion criteria may be motivated by concerns regarding the ability of potential study participants with disabilities to perform research-related tasks that can be achieved with a reasonable accommodation, such as filling out tests or responding to instructions from research personnel, or by the failure to take into account the recipient’s obligation to provide for effective communication with people who are deaf, have vision loss, or otherwise need alternative forms of communication.

These amendments are a step in the right direction. The proposed amendments clearly state that clinical trial investigators and sponsors cannot discriminate against people with disabilities in CTs. However, without proper oversight and enforcement, the proposed amendments may do very little to improve the acceptance of and participation rates of PWDs in CTs.

NCD recommends HHS OCR and DOJ should increase oversight and enforcement of section 504, section 1557 of the ACA and the ADA at healthcare facilities to ensure that programs and services are accessible to PWDs.

The Clinical Treatment Act¹⁵⁵

The Clinical Treatment Act went into effect on January 1, 2022; it mandates all state and territory Medicaid programs must cover routine costs associated with participating in CTs for life-threatening diseases, including cancer. Routine costs include study-related services and items that are needed to diagnose or treat complications, administer the study product, or monitor the effects of the product. Routine costs

include items or services generally covered by insurers outside of CTs.

Some states have yet to integrate the requirements of the Clinical Treatment Act into their Medicaid programs. As a result, any PWDs with Medicaid in these states will have to pay for all the routine costs out of pocket if they are not covered by the CT sponsor.

NCD recommends HHS should require nonconforming states to comply with the Clinical Treatment Act.

Section 1557 of the Patient Protection and Affordable Care Act

Section 1557 of the Patient Protection and Affordable Care Act “prohibits discrimination on the basis of race, color, national origin, age, disability, or sex (including pregnancy, sexual orientation, gender identity, and sex characteristics), in covered health programs or activities.”¹⁵⁶ Section 1557 was amended in April 2024. HHS OCR stated in the preamble additional guidance is being considered on the impact of disability protections in research participation.

Proposed Legislation

Health Equity and Accountability Act

In the spring of 2022, the Health Equity and Accountability Act (HEAA), H.R. 7585 and S. 4486, was introduced as a bill in Congress. The legislation directly addresses the intersection of health inequities and PWDs, among other historically disadvantaged groups.¹⁵⁷ Some of the statements and proposed requirements under the HEAA in support of PWDs include the following:¹⁵⁸

- Data collection of various demographic classifications, including disability status,

is both legal and necessary to ensure equity and nondiscrimination in health care services.

- Researchers are to be provided with greater access to disability status data.
- Data sets surrounding disability status are to be made available to the public.
- The Secretary of HHS are to issue a draft guidance addressing how to conduct decentralized CTs with increased focus on participant experience.
- CT sponsors are to reimburse participants for expenses incurred as a result of participation in approved CTs.
- CT researchers and applicant reviewers are to complete education and training programs on diversity in CTs.

These statements and proposed requirements demonstrate an awareness that there is an interaction between the medical and diagnostic aspects of a disability and the physical and social environments in which they exist. This biopsychosocial model of disability that is used by organizations, such as WHO, ascribes that the health of PWDs can be improved through a variety of means including policy, medical, contextual, and physical adaptations.¹⁵⁹

NCD recommends Congress should pass the Health Equity and Accountability Act, H.R. 7585, S. 4486.

NIH Efforts Toward Inclusion

The NIH has increased its efforts to support diversity in CTs centered on a number of educational and outreach efforts, including a cooperative agreement with the FDA and the Clinical Trials Transformation Initiative titled

“Diversity” that resulted in specific guidance to the CT industry for increasing participation of women and ethnic minorities.¹⁶⁰ However, there are still no specific guidelines for investigators to include PWDs. One of NIH's strongest opportunities for influence is to expand its educational efforts around the impact of ableism as a deterrent to the inclusion of PWDs in clinical research. Opportunities include educating researchers as well as conducting workshops that include staff, researchers, caregivers, and patients involved in clinical research. Similarly, the inclusion of director-level employees that form and drive the diversity and inclusion initiatives will remain a critical component to realize change.

NIH provides a number of publicly available protocol templates that provide a recommended

format and structure for proposed studies. To allow for study customization to the type and scope of the proposed study, the content is not required for NIH grant submissions to be eligible for funding. However, the templates do have sections focused on inclusive language and reviewers check to ensure that all submissions have inclusion plans in place before awarding funding. A greater focus on disability within these sections could therefore be impactful for enhancing inclusion.

Along these lines, NIH could influence researchers by requiring the collection of disability-related demographic data for the studies they fund, as they do for other demographic characteristics. However, it would be critical to identify and perhaps even promulgate regulations to provide guidelines for the use of such data, as has been



done for other demographic data points that NIH requires its awardees collect and report.¹⁶¹

NCD recommends NIH should require the collection of disability-related demographic data in NIH-funded CTs pursuant to sections 3601 and 3602 of FDORA.

Inclusion Requirements at a Hospital Level

In addition to specific requirements surrounding research, there are also requirements for health care facilities more generally to take certain steps related to inclusion. For example, hospitals must meet certain requirements based on section 501(r) for tax exemption. One of these requirements is a Community Health Needs Assessment (CHNA). A CHNA involves:¹⁶²

- Assessing every three years to ensure that hospital strategy meets community health needs
- Defining the population that is served within the community based on
 - Geography
 - Age
 - Focus on a particular specialty area/disease
 - Considering the specific population's health needs by soliciting input from community members

Such an assessment, if completed per regulatory standards, could provide information that would help address inclusion in CTs by offering insight into true community needs as well as patient populations available for participation in certain areas. This information

could be used to help create truly inclusive research and recruitment strategies, if collected, disseminated, and utilized effectively.

NCD recommends the Internal Revenue Service (IRS), which mandates CHNAs for tax exemption, should add demographic data such as race, gender, ethnicity, language, and disability as an area for assessment of community served, along with geography, age, and community health needs. This would involve gathering disability-related demographic data to better understand what types of disability are most prevalent and how the community could be best supported.

CMS has mandated Inpatient Quality Reporting programs that similarly seek to capture useful information about patient populations being served at hospitals, which could also be used to drive inclusion strategy.¹⁶³ Two of these measures are related to social determinants of health, which refer to the conditions in the environments where people are born, live, learn, work, and play and which affect their ability to lead healthy lives.¹⁶⁴

CMS asks that hospitals report how many patients are screened for social determinants of health and how many of those patients screen positive, meaning they are impacted in at least one area (economic stability, neighborhood and physical environment, education, food, community and social context, or health care system). A positive screening would indicate that these individuals are more likely to be in poorer health due to one of these factors. Such information would offer great insight into population health status and needs, both of which could be used to inform CT site selection and recruitment. This could potentially enable

more underrepresented individuals, including PWDs, to be recruited. These measures were optional in 2023, but required in 2024, meaning the possibility for their use in CTs is timely.¹⁶⁵

Data Drives Inclusion: A Case Study from the Department of Labor

There are currently no regulations or requirements that explicitly involve including or gathering data on PWDs in CTs, despite recent efforts focused on inclusion and other demographic data collection. Without such data collection related to disability status, the impact of inclusion efforts overall is limited.

The benefit to collecting disability data can be seen in the United States' approach to increasing the employment of PWDs.¹⁶⁶ While workforce participation and full employment for working-age PWDs have not been achieved, the revisions to section 503 of the Rehabilitation Act, enacted in March 2014, for the first time put a measure and a target for both prime and sub-prime federal contractors to both attract and hire disabled talent at every location and in every job band. The impact of requiring data collection and creating accountability is evident. In 2014, the labor force participation rate for PWDs was 16 percent.¹⁶⁷ In 2022, the labor force participation rate

reached 23.1 percent and the unemployment rate decreased by 2.5 percent to 7.6 percent.¹⁶⁸

Simply put, what gets measured gets done. As Office of Federal Contractor Compliance director Patricia Shiu stated in 2011 with the proposed rule changes to section 503, "For nearly 40 years, the rules have said that contractors simply need to make a 'good faith' effort to recruit and hire PWDs. Clearly, that is not working."¹⁶⁹ In CTs, attention to increasing participation of PWDs is nonexistent because

In CTs, attention to increasing participation of PWDs is nonexistent because there is currently no requirement to count them to begin with. . . . [C]urrent efforts to improve access and health equity are not working without measurements and targets.

there is currently no requirement to count them to begin with. As with the prior good faith efforts in employment, current efforts to improve access and health equity are not working without measurements and targets. The lack of data on disability participation

in CTs obscures critical information on how the presence of a particular disability may or may not interact with different medications. Thus, researchers may be approving interventions that are uniquely harmful to a segment of our communities. Not only does this exclusion contradict the principle of justice, but nonmaleficence as not gathering and analyzing this information also creates harm.

NCD recommends NIH should require the collection of disability-related demographic data in all NIH-funded CTs.

Chapter 4: Recommendations by Agency

Policy and Legislative Changes Within Federal Agencies

Full inclusion for PWDs within CTs will not be possible without policy changes. Not only should existing policies be amended to include

PWDs as a dimension of diversity, but also specific actions should be taken to address this community specifically. Below are the policy-related recommendations, organized by federal agency.

Recommendations to NIH

- NIH should prioritize funding protocols that scientifically justify any exclusions that exist and explicitly allow participants to use accommodations while completing CT activities.
- NCD recommends NIH should prioritize funding studies that document increased patient burden for PWDs and allow for accommodations to support participation. Examples include travel support costs and including allowances for assistive technology, mobility aids, and other devices into protocols.
- NCD recommends NIH and FDA should provide guidance and strongly encourage study teams include the following in its design protocol:
 - A list of all available accommodations on all study recruitment materials.
 - The process required to request a reasonable accommodation on all recruitment materials.
 - Language stating listed accommodations in the design protocol are not exhaustive and additional accommodations may be afforded upon request.
 - Inclusive language of PWDs when describing eligibility criteria.
 - Language inclusive of PWDs, including but not limited to eligibility criteria.

(continued)

Recommendations to NIH: *continued*

- Reasonable accommodations, stating specific examples of supportive devices and measures that can be used (such as screen readers for people who are blind/have low vision, support service providers for people who are Deafblind, and other relevant supports).
- NCD recommends all HHS components (NIH, FDA . . .) should include FDA’s “Informed Consent: Guidance for IRBs, Clinical Investigators, and Sponsors,”¹⁷⁰ in all materials provided to CT study teams.
- NIH should incentivize disability competence training as a prerequisite for any NIH award funding for all personnel involved in CTs.
- NCD recommends NIH should ensure CT funding is spread across a variety of geographic locations to increase participation of diverse representative pools.
- NCD recommends funders, such as NIH, should inquire about site accessibility on study applications and prioritize funding for sites that are physically accessible for PWDs in accordance with the guidelines by the U.S. DOJ Civil Rights Division in “Access to Medical Care for Individuals with Mobility Disabilities.”
- NCD recommends NIH should prioritize funding for clinical trial sites with accessible MDE.
- NCD recommends NIH should conduct a biannual nationwide health facility accessibility survey (HFAS), modeled on California’s Facility Site Review, which includes questions on the availability of accessible medical equipment, and publish the results biannually.
- NCD recommends NIH should require the collection of disability-related demographic data in NIH-funded CTs pursuant to sections 3601 and 3602 of FDORA.
- NCD recommends funders, such as NIH, should review proposals to ensure that they have adequately budgeted for providing patient support related to burdensome aspects of the trial such as transportation and lodging. For example, a participant with a mobility disability may require accessible transportation or a participant with a cognitive disability may require a personal care attendant to accompany them when traveling.

Recommendations to FDA

- NCD recommends FDA should promulgate regulations that incorporate the “Informed Consent: Guidance for IRBs, Clinical Investigators, and Sponsors,” making the guidance legally enforceable.

Recommendations to FDA: *continued*

- NCD recommends FDA and NIH should develop guidance on eligibility parameters for investigators, and similar to FDA's "Informed Consent: Guidance for IRBs, Clinical Investigators, and Sponsors," the guidance should:
 - Aim to reduce subjectivity in eligibility criteria to eliminate PI bias and participant selection.
 - Provide robust eligibility criteria for protocol teams to access when making decision making capacity decisions.
 - Broaden inclusion criteria to avoid unnecessary exclusion.
 - Recommend acceptable accommodations be incorporated into inclusion criteria to reduce subjective assessment of a permissible accommodation.
 - Recommend all exclusion criteria be scientifically justified.
 - Recommend inclusion of PWDs in patient advisory boards.
- NCD recommends FDA should add PWDs as a clinically relevant population in all future guidance.
- NCD recommends FDA should advise and encourage CT teams to use a variety of media outlets for trial recruitment to increase participation diversity.
- NCD recommends FDA should update guidance language to recommend CT documents be made available in alternate formats for PWDs (e.g., braille, plain language, ASL . . .).
- NCD recommends FDA should promulgate regulations for the guidance provided in *Enhancing the Diversity of Clinical Trial Populations—Eligibility Criteria, Enrollment Practices, and Trial Designs Guidance for Industry*.
- NCD recommends FDA should develop guidance, similar to the diversity plans created to improve enrollment of participants from underrepresented racial and ethnic populations for PWDs.

Recommendations to CMS

- NCD recommends CMS should create standards for Medicare and Medicaid related to CT coverage, to ensure that coverage is consistent across states, including in- and out-of-network coverage allowances.

Recommendations to DOJ

- NCD recommends DOJ should revise Title III ADA regulations requiring covered health care providers to acquire equipment that complies with the Access Board MDE standards.
- NCD recommends DOJ and HHS should develop a technical assistance document on accessible MDE and update their 2010 “Access to Medical Care for Individuals with Mobility Disabilities” to include information on the Access Board’s MDE standards.
- NCD recommends HHS OCR and DOJ should increase oversight and enforcement of section 504 and section 1557 of the ACA at health care facilities to ensure that programs and services are accessible to PWDs.

Recommendations to IRS

- NCD recommends the Internal Revenue Service (IRS), which mandates CHNAs for tax exemption, should add demographic data such as race, gender, ethnicity, language, and disability as an area for assessment of community served, along with geography, age, and community health needs. This would involve gathering disability-related demographic data to better understand what types of disability are most prevalent and how the community could be best supported.

Recommendations to HHS

- NCD recommends the HHS Office for Human Research Protections (OHRP), and the FDA should:
 - Recommend IRBs ensure that website content and IC material are written in plain language at a 6th to 8th grade reading level and undergo a health literacy check.
 - Recommend IRBs review all website content and IC material (written and digital) to ensure that they are accessible for people who are Deaf and Hard of Hearing and/or blind or low vision (including braille, speech to text, CC, and interoperability with screen readers).

Recommendations to HHS: *continued*

- NCD recommends all HHS components (FDA, NIH . . .) and CT administrators should:
 - Ensure patient-facing digital and web-based CT content is accessible based on WCAG 2.1 standards. This includes all government sites, such as the NIH-managed ClinicalTrials.gov and recruiting websites.
 - Ensure website content is written in plain language.
 - Ensure that all videos are closed captioned.
- NCD recommends HHS should amend the Common Rule to acknowledge PWDs as viable participants in clinical trials.
- NCD recommends HHS should publish an NPRM to promulgate the SIIDR 2009 recommendations, making them legally enforceable.
- NCD recommends HHS OCR and DOJ should increase oversight and enforcement of section 504 and section 1557 of the ACA at health care facilities to ensure that programs and services are accessible to PWDs.
- NCD recommends HHS should require nonconforming states to comply with the Clinical Treatment Act.
- NCD recommends all HHS components (NIH, FDA . . .) that publish and distribute CT materials should ensure that all patient-facing media (including but not limited to consent forms, recruitment material, and websites) include disability representation and are digitally accessible and section 508 compliant.
- NCD recommends DOJ and HHS should develop a technical assistance document on accessible MDE and update their 2010 “Access to Medical Care for Individuals with Mobility Disabilities” to include information on the Access Board’s MDE standards.
- NCD recommends HHS should review the usage of AI in CTs and establish regulations as needed to ensure that these technologies are built with data sets that include PWDs and include oversight of interpretability and monitor its impact on recruitment inclusivity.

Recommendations to Congress

- NCD recommends Congress should require the FDA to amend form 3764 to include a statement of recruiting outcomes that includes efforts and impact for enrollment of PWDs.
- NCD recommends Congress should amend the Food and Drug Omnibus Reform Act (sections 3601 and 3602) to require diversity action plans include considerations for inclusion of people with disabilities in clinical trials.
- NCD recommends Congress should pass the Health Equity and Accountability Act, H. R. 7585 S. 4486.

Recommendations to CT Investigators, IRBs, and Study Teams

- NCD recommends CT study teams should incorporate overt explanations and justifications of the availability of reasonable accommodations in IC documents. These would include, but not be limited to, additional time, caregiver support, and auditory presentation for participants with impaired consent capacity.
- NCD recommends all HHS components (FDA, NIH . . .) and CT administrators should:
 - Ensure patient-facing digital and web-based CT content is accessible based on WCAG 2.1 standards. This includes all government sites, such as the NIH-managed ClinicalTrials.gov and recruiting websites.
 - Ensure website content is written in plain language.
 - Ensure that all videos are closed captioned.
- NCD recommends when selecting location sites sponsors, investigators or site teams should:
 - Require an assessment of building accessibility as part of the site feasibility assessment.
 - Conduct equipment audits of potential CT sites to build a logistical and financial plan for how to update exam, treatment, and diagnostic equipment as part of the strategic master planning process.

Conclusion

The findings in this report highlight the various barriers that PWDs encounter when attempting to participate in CTs. These barriers stem from implicit and explicit factors and structural and systemic barriers. The absence of accessible medical diagnostic equipment at CT sites is a physical barrier that prevents persons with physical disabilities from participating in clinical trials. However, even if the site has accessible MDE, it is possible that bias from HCPs may prevent participation. The need for disability competency training for all health care professionals is desperately needed to address HCP bias toward PWDs. It remains commonplace for medical facilities, including those that carry out CTs, to be ill equipped to provide quality care for PWDs.

Federal agencies, such as NIH and FDA, can improve PWDs' participation rates by updating guidance and promulgating regulations that will address many of the explicit and implicit exclusionary practices embedded in many CT

design protocols. Increased enforcement and oversight of section 504, section 1557 of the ACA, and the ADA requirements would also increase the participation rates of PWDs in CTs.

Disability exists within every demographic, and it is the only underrepresented community that anyone can join at any time. The exclusion of a group the size of 61 million Americans from clinical research is not only unjust but also unethical. Without disability representation in studies, researchers lack generalizable evidence about a huge swath of the population.

NCD believes the recommendations in this report, when implemented, will help to increase the participation rate of PWDs in CTs. Full inclusion will lead to increased heterogeneity, which increases the CTs' ability to identify important safety information about the investigational drug that may not have otherwise been revealed.

NCD looks forward to a future where CTs are fully inclusive.

Endnotes

- 1 National Council on Disability, "The Current State of Health Care for People with Disabilities," 2009.
- 2 National Council on Disability, "The Current State of Health Care," 2009.
- 3 National Council on Disability, "The Current State of Health Care," 2009.
- 4 Mitra M, Long-Bellil L, Moura I, et al., "Advancing Health Equity and Reducing Health Disparities for People with Disabilities in the United States," *Health Affairs*, 2022;41(10):1379–1386. doi:10.1377/hlthaff.2022.00499.
- 5 Hogan AJ, "Social and Medical Models of Disability and Mental Health: Evolution and Renewal," *CMAJ*, 2019;191(1):E16. doi:10.1503/CMAJ.181008.
- 6 Mitra et al., "Advancing Health Equity and Reducing Health Disparities for People with Disabilities," 2022.
- 7 HHS, <https://www.hhs.gov/ocr/about-us/mission-vision/index.html>, accessed July 15, 2024.
- 8 United States Centers for Disease Control and Prevention, "Disability Impacts All of Us," December 12, 2022. Accessed August 14, 2023. <https://www.cdc.gov/ncbddd/disabilityandhealth/infographic-disability-impacts-all.html>.
- 9 National Council on Disability, "The Current State of Health Care," 2009.
- 10 National Council on Disability, "The Current State of Health Care," 2009.
- 11 Frieden, J, "Clinical Trials Need to Be More Inclusive, Experts Say," *Medpage Today*, April 17, 2018. Accessed August 14, 2023. <https://www.medpagetoday.com/publichealthpolicy/clinicaltrials/72400>
- 12 Frieden, "Clinical Trials Need to Be More Inclusive, Experts Say," 2018.
- 13 Plosky, WD, Ne'eman A, Silverman BC, et al., "Excluding People with Disabilities from Clinical Research: Eligibility Criteria Lack Clarity and Justification," *Health Affairs*, 2022;41(10):1423–1432. doi:10.1377/hlthaff.2022.00520.
- 14 Plosky et al., "Excluding People with Disabilities," 2022.
- 15 Frieden, "Clinical Trials Need to Be More Inclusive, Experts Say," 2018.
- 16 Frieden, "Clinical Trials Need to Be More Inclusive, Experts Say," 2018.
- 17 Williams AS, Moore SM, "Universal Design of Research: Inclusion of Persons with Disabilities in Mainstream Biomedical Studies," *Science of Translation Medicine*, 2011;3(82):82cm12. doi:10.1126/scitranslmed.3002133.
- 18 National Council on Disability, "The Current State of Health Care," 2009.
- 19 National Council on Disability, "The Current State of Health Care," 2009.
- 20 National Council on Disability, "The Current State of Health Care," 2009.
- 21 ADA National Network, "What Is the Definition of Disability Under the ADA?" Accessed August 14, 2023. <https://adata.org/faq/what-definition-disability-under-ada>.
- 22 STATISTICS Canada, "The Dynamics of Disability: Progressive, Recurrent or Fluctuating limitations," December 3, 2019. Accessed August 14, 2023. <https://www150.statcan.gc.ca/n1/pub/89-654-x/89-654-x2019002-eng.htm>.
- 23 National Council on Disability, "The Current State of Health Care," 2009.
- 24 National Council on Disability, "The Current State of Health Care," 2009.
- 25 National Council on Disability, "The Current State of Health Care," 2009.
- 26 Mitra et al., "Advancing Health Equity and Reducing Health Disparities for People with Disabilities," 2022.
- 27 Hogan, "Social and Medical Models of Disability," 2019.
- 28 Mitra et al., "Advancing Health Equity and Reducing Health Disparities for People with Disabilities," 2022.
- 29 Hogan, "Social and Medical Models of Disability," 2019.
- 30 Mitra et al., "Advancing Health Equity and Reducing Health Disparities for People with Disabilities," 2022.

- 31 Niselle P, "The Four Pillars of Medical Ethics," *Medical Protection*, June 29, 2023. Accessed August 14, 2023. <https://www.medicalprotection.org/uk/articles/essential-learning-law-and-ethics#:~:text=Autonomy>.
- 32 Williams, Moore, "Universal Design of Research," 2011.
- 33 United States Centers for Disease Control and Prevention, "Disability Impacts All of Us," 2022.
- 34 United States Census Bureau, "Mobility Is Most Common Disability Among Older Americans," December 2, 2014. Accessed August 14, 2023. <https://www.census.gov/newsroom/archives/2014-pr/cb14-218.html#:~:text=Nearly>.
- 35 United States Centers for Disease Control and Prevention, "Disability Impacts All of Us," 2022.
- 36 Rios D, Magasi S, Novak C, Harniss M, "Conducting Accessible Research: Including People with Disabilities in Public Health, Epidemiological, and Outcomes Studies," *American Journal of Public Health*, 2016;106(12):2137–2144. doi:10.2105/ajph.2016.303448.
- 37 University of New Hampshire Institute on Disability, *Annual Disability Statistics Compendium*, 2021. Accessed August 14, 2023. <https://disabilitycompendium.org/compendium/2021-annual-disability-statistics-compendium-a>.
- 38 University of New Hampshire Institute on Disability, *Annual Disability Statistic Compendium*, 2021.
- 39 University of New Hampshire Institute on Disability, *Annual Disability Statistic Compendium*, 2021.
- 40 University of New Hampshire Institute on Disability, *Annual Disability Statistic Compendium*, 2021.
- 41 Berkman ND, Sheridan SL, Donahue KE, et al., "Low Health Literacy and Health Outcomes: An Updated Systematic Review," *Annals of Internal Medicine*, 2011;155(2):97–107. doi:10.7326/0003-4819-155-2-201107190-00005.
- 42 Rasu RS, Bawa WA, Suminski R, et al., "Health Literacy Impact on National Healthcare Utilization and Expenditure," *International Journal Health Policy Management*, 2015;4(11):747. doi:10.15171/IJHPM.2015.151.
- 43 National Academies Press, *Innovations in Health Literacy Research: Workshop Summary*, 2011, <https://nap.nationalacademies.org/read/13016/chapter/1>.
- 44 Mantwill S, Monestel-Umaña S, Schulz PJ, "The Relationship Between Health Literacy and Health Disparities: A Systematic Review," *PLoS One*, 2015;10(12):e0145455. doi:10.1371/journal.pone.0145455.
- 45 Havercamp SM, Scandlin D, Roth M, "Health Disparities Among Adults with Developmental Disabilities, Adults with Other Disabilities, and Adults Not Reporting Disability in North Carolina," *Public Health Report* 2004;119(4):418–426, doi:10.1016/j.phr.2004.05.006.
- 46 Reichard A, Stolzle H, Fox MH, "Health Disparities among Adults with Physical Disabilities or Cognitive Limitations Compared to Individuals with no Disabilities in the United States," *Disability Health Journal*, 2011;4(2):59–67. doi:10.1016/j.dhjo.2010.05.003.
- 47 The Belmont Report. Ethical principles and guidelines for the protection of human subjects of research, (1979), <https://pubmed.ncbi.nlm.nih.gov/25951677/>, accessed June 11, 2024.
- 48 United States Centers for Disease Control and Prevention, "The Syphilis Study at Tuskegee Timeline." Accessed August 14, 2023. <https://www.cdc.gov/tuskegee/timeline.htm>.
- 49 Doebrich A, Quirici M, Lunsford C, "COVID-19 and the Need for Disability Conscious Medical Education, Training, and Practice," *Journal of Pediatric Rehabilitation Medicine*, 2020;13(3):393–404. doi:10.3233/PRM-200763.
- 50 Doebrich et al., "COVID-10 and the Need for Disability Conscious Medical Education," 2020.
- 51 Lagu T, Haywood C, Reimold K, et al., "'I Am Not the Doctor for You': Physicians' Attitudes About Caring for People with Disabilities," *Health Affairs*, 2022;41(10):1387–1395. doi:10.1377/hlthaff.2022.00475.
- 52 Kittay EF, "The Ethics of Care, Dependence, and Disability," *Ratio Juris*, 2011;24(1):49–58. doi:10.1111/j.1467-9337.2010.00473.x.
- 53 United States Food and Drug Administration, "Basics About Clinical Trials," May 8, 2023. Accessed August 14, 2023. <https://www.fda.gov/patients/clinical-trials-what-patients-need-know/basics-about-clinical-trials#:~:text=FDA%20works%20to%20protect%20participants,protect%20participants%20from%20unreasonable%20risks>.
- 54 Siron Clinical, "FDA, IRB, EMA . . . What Role Do Agencies Play in Clinical Trials?," August 2, 2021. Accessed August 14, 2023. <https://sironclinical.com/role-of-agencies-in-clinical-trials/>.

- 55 United States Food and Drug Administration, "FDA-NIH Joint Leadership Council Charter," March 29, 2018. Accessed August 14, 2023. <https://www.fda.gov/science-research/science-and-research-special-topics/advancing-regulatory-science>.
- 56 United States Department of Health and Human Services, "Grants and Funding." Accessed August 14, 2023. <https://www.nih.gov/grants-funding>.
- 57 Siron Clinical, "FDA, IRB, EMA . . . What Role Do Agencies Play in Clinical Trials?," 2021.
- 58 U.S. Department of Health and Human Services, Assurance of Compliance, form 690. Accessed January 23, 2024. <https://www.hhs.gov/sites/default/files/form-hhs690.pdf>.
- 59 United States Centers for Medicare and Medicaid Services, "Coverage with Evidence development." Updated August 6, 2023. Accessed August 14, 2023. <https://www.cms.gov/Medicare/Coverage/Coverage-with-Evidence-Development>.
- 60 United States Centers for Disease Control and Prevention, "Mission, Role, and Pledge." Accessed August 14, 2023. <https://www.cdc.gov/about/organization/mission.htm>.
- 61 United States Centers for Disease Control and Prevention, "About the PRC Program." Accessed August 14, 2023. <https://www.cdc.gov/prc/about-prc-program/index.htm>.
- 62 United States Department of Justice, "Disability Rights Section." Accessed August 14, 2023. <https://www.justice.gov/crt/disability-rights-section>.
- 63 Multi-Regional Clinical Trials Center, *Achieving Diversity, Inclusion, and Equity in Clinical Research*, August 22, 2020. Accessed August 14, 2023. <https://mrctcenter.org/resource/achieving-diversity-inclusion-and-equity-in-clinical-research/>.
- 64 Multi-Regional Clinical Trials Center, *Achieving Diversity, Inclusion, and Equity in Clinical Research*, 2020.
- 65 Plosky et al., "Excluding People with Disabilities," 2022.
- 66 Plosky et al., "Excluding People with Disabilities," 2022.
- 67 Van Puymbrouck L, Friedman C, Feldner H, "Explicit and Implicit Disability Attitudes of Healthcare Providers," *Rehabilitation Psychology*, 2020;65(2):101–112. doi:10.1037/REP0000317.
- 68 Plosky et al., "Excluding People with Disabilities," 2022.
- 69 Plosky et al., "Excluding People with Disabilities," 2022.
- 70 "Alzheimer's Meds Are Here but for the Down Syndrome Community, It's Still the 1980s," *Biotech Today*, April 14, 2023. Accessed August 14, 2023. <https://biotech-today.com/alzheimers-meds-are-here-but-for-the-down-syndrome-community-its-still-the-1980s/>.
- 71 "Alzheimer's Meds Are Here but for the Down Syndrome Community, It's Still the 1980s," 2023.
- 72 "Alzheimer's Meds Are Here but for the Down Syndrome Community, It's Still the 1980s," 2023.
- 73 Williams, Moore, "Universal Design of Research," 2011.
- 74 Food and Drug Administration, "Informed Consent: Guidance for IRBs, Clinical Investigators, and Sponsors," August 2023. Accessed January 4, 2024. <https://www.fda.gov/regulatory-information/search-fda-guidance-documents/informed-consent>.
- 75 FDA, "Informed Consent: Guidance for IRBs," 2023.
- 76 FDA, "Informed Consent: Guidance for IRBs," 2023.
- 77 FDA, "Informed Consent: Guidance for IRBs," 2023.
- 78 Appelbaum PS, "Assessment of Patients' Competence to Consent to Treatment," *New England Journal of Medicine*, 2007;357(18):1834–1840. doi:10.1056/NEJMcp074045.
- 79 Center for Information & Study on Clinical Research Participation, "Report on the Participation Experience," 2017. Accessed August 14, 2023. <https://www.ciscrp.org/wp-content/uploads/2019/06/2017-CISCRP-Perceptions-and-Insights-Study-Participation-Experience.pdf>.
- 80 United States Department of Health and Human Services, "Informed Consent FAQs." Accessed August 14, 2023. <https://www.hhs.gov/ohrp/regulations-and-policy/guidance/faq/informed-consent/index.html>.

- 81 Applied Clinical Trials, “Multidisciplinary Approach to Protocol Writing,” June 10, 2016. Accessed January 23, 2024. <https://www.appliedclinicaltrialsonline.com/view/multidisciplinary-approach-protocol-writing>.
- 82 University of California San Francisco, “Clinical Trial Protocol Development.” Accessed January 23, 2024. <https://hub.ucsf.edu/protocol-development>.
- 83 While not explored in this report, NCD recognizes federal policies exist that discourage people with disabilities from wanting to participate in clinical trials. Specifically, the Social Security Administration’s strict asset and resource limits for people with disabilities who receive Supplemental Security Income (SSI) may hinder their participation in paid clinical trials—receipt of these benefits often has to be offset from prospective benefits and can cause significant administrative burdens.
- 84 Center for Information & Study on Clinical Research Participation, “Report on the Participation Experience,” 2017.
- 85 Research!America, “Poll: Majority of Americans Would Participate in Clinical Trials if Recommended by Doctor,” *Elsevier Connect*, July 31, 2013. Accessed August 14, 2023. <https://www.elsevier.com/connect/poll-majority-of-americans-would-participate-in-clinical-trials-if-recommended-by-doctor>.
- 86 Lagu et al., “‘I Am Not the Doctor for You,’” 2022.
- 87 Multi-Regional Clinical Trials Center, *Achieving Diversity, Inclusion, and Equity in Clinical Research*, 2020.
- 88 Multi-Regional Clinical Trials Center, *Achieving Diversity, Inclusion, and Equity in Clinical Research*, 2020.
- 89 Shakespeare T, Iezzoni LI, Groce NE, “Disability and the Training of Health Professionals,” *Lancet*, 2009;374(9704):1815–1816.
- 90 Association of American Medical Colleges, *Cultural Competence Education for Medical Students*, 2005. <https://www.aamc.org/download/54338/data/culturalcomp.pdf>.
- 91 Govere L, Govere EM, “How Effective Is Cultural Competence Training of Healthcare Providers on Improving Patient Satisfaction of Minority Groups? A Systematic Review of literature,” *Worldviews on Evidence-Based Nursing*, 2016;13(6):402–410. Accessed January 16, 2024. <https://sigmapubs.onlinelibrary.wiley.com/doi/full/10.1111/wvn.12176>.
- 92 The Ohio State University, Nisonger Center, *Core Competencies on Disability for Health Care Education*, June 2019. Accessed January 16, 2024. https://nisonger.osu.edu/wp-content/uploads/2019/08/post-consensus-Core-Competencies-on-Disability_8.5.19.pdf.
- 93 Bierer BE, Ne-eman A, Plosky WD, et al., “Integrating Supported Decision-Making into the Clinical Research Process,” *American Journal of Bioethics*, 2021;21(11):32–35.
- 94 Sawyers T, “MRI Duration by Type of Scan,” *Healthline*, March 31, 2023. Accessed August 14, 2023. <https://www.healthline.com/health/how-long-does-an-mri-take>.
- 95 National Council on Disability, “Enforceable Accessible Medical Equipment Standards: A Necessary Means to Address the Health Care Needs of People with Mobility Disabilities,” May 21, 2021. Accessed January 23, 2024. <https://www.ncd.gov/report/eames-report/>.
- 96 ADA National Network. “Accessible Medical Diagnostic Equipment.” Accessed January 23, 2024. <https://adata.org/factsheet/accessible-medical-diagnostic-equipment>.
- 97 Access Board, “Standards for Accessible Medical Diagnostic Equipment Final Rule.” Accessed January 23, 2024. <https://www.regulations.gov/document/ATBCB-2012-0003-0077>.
- 98 Administration for Community Living, Proposed Update to HHS Section 504 Rule. Accessed January 23, 2024. <https://acl.gov/504rule#:~:text=The%20proposed%20rule%20strengthens%20protections,protecting%20disabled%20people%20from%20discrimination>.
- 99 Department of Justice, “Justice Department Advances Proposed Rule to Improve Access to Medical Care for People with Disabilities,” January 9, 2024. Accessed January 23, 2024. <https://www.justice.gov/opa/pr/justice-department-advances-proposed-rule-improve-access-medical-care-people-disabilities>.
- 100 See, e.g., OCR Complaint 01–21–421198 (Complainant alleged that there was no method to receive an x-ray from the covered entity, as their x-ray machine was not sufficiently adjustable to accommodate her in her wheelchair, nor was there a method to transfer her from her wheelchair to the x-ray machine. After

- investigation, the complaint was closed with corrective action by the covered entity including asking for necessary accommodations during scheduling, training staff on transfers, and acquiring a Hoyer lift for transfers); OCR Complaint 02–18–302905 (Complainant alleged that she told covered entity she would require accessible equipment or a Hoyer lift to transfer for her OBGYN exam. Despite her request, there was no lift or accessible equipment present at her appointment. The complaint was resolved through the early complaint resolution process and corrective action.); OCR Complaint 01–16–248000 (Complainant alleged that covered entity told her she would have to bring her own means of transfer to appointments. Covered entity subsequently acquired a lift, trained employees on its use, and updated its nondiscrimination training.).
- 101 Harrer S, Shah P, Antony B, et al., “Artificial Intelligence for Clinical Trial Design,” *Trends in Pharmacological Science*, 2019;40(8):577–591. doi:10.1016/j.tips.2019.05.005.
 - 102 National Institutes of Health, “Artificial Intelligence (AI).” Accessed August 14, 2023. <https://www.nibib.nih.gov/science-education/science-topics/artificial-intelligence-ai>.
 - 103 Harrer et al., “Artificial Intelligence for Clinical Trial Design,” 2019.
 - 104 Harrer et al., “Artificial Intelligence for Clinical Trial Design,” 2019.
 - 105 Von Itzstein MS, Hullings M, Mayo H, et al., “Application of Information Technology to Clinical Trial Evaluation and Enrollment: A Review,” *JAMA Oncology*, 2021;7(10):1559–1566. doi:10.1001/jamaoncol.2021.1165.
 - 106 Woo M, “An AI Boost for Clinical Trials,” *Nature*, 2019;573(7775):S100–S102. doi:10.1038/D41586-019-02871-3.
 - 107 Harrer et al., “Artificial Intelligence for Clinical Trial Design,” 2019.
 - 108 Unger JM, Vaidya R, Hershman DL, et al., “Systematic Review and Meta-Analysis of the Magnitude of Structural, Clinical, and Physician and Patient Barriers to Cancer Clinical Trial Participation,” *Journal of the National Cancer Institute*, 2019;111(3):245–255. doi:10.1093/jnci/djy221.
 - 109 Woo, M., “An AI Boost for Clinical Trials,” 2019.
 - 110 Chow R, Midroni J, Kaur J, et al., “Use of Artificial Intelligence for Cancer Clinical Trial Enrollment: A Systematic Review and Meta-Analysis,” *Journal of the National Cancer Institute*, 2023;115(4):365–374. doi:10.1093/jnci/djad013.
 - 111 Beck JT, Rammage M, Jackson GP, et al., “Artificial Intelligence Tool for Optimizing Eligibility Screening for Clinical Trials in a Large Community Cancer Center,” *JCO Clinical Cancer Informatics*, 2020;(4):50–59. doi:10.1200/cci.19.00079.
 - 112 Beck et al., “Artificial Intelligence Tool for Optimizing Eligibility Screening for Clinical Trials in a Large Community Cancer Center,” 2020.
 - 113 Haddad T, Helgeson JM, Pomerleau KE, et al., “Accuracy of an Artificial Intelligence System for Cancer Clinical Trial Eligibility Screening: Retrospective Pilot Study,” *JMIR Medical Informatics*, 2021;9(3)e27767. doi:10.2196/27767.
 - 114 Meystre SM, Heider PM, Cates A, et al., “Piloting an Automated Clinical Trial Eligibility Surveillance and Provider Alert System Based on Artificial Intelligence and Standard Data Models,” *BMC Medical Research Methodology*, 2023;23(1):88. doi:10.1186/s12874-023-01916-6.
 - 115 Chow et al., “Use of Artificial Intelligence for Cancer Clinical Trial Enrollment: A Systematic Review and Meta-Analysis,” 2023.
 - 116 Chow et al., “Use of Artificial Intelligence for Cancer Clinical Trial Enrollment: A Systematic Review and Meta-Analysis,” 2023.
 - 117 United States Department of Transportation, “Air Travel Consumer Report 2024.” Accessed April 4, 2024. https://www.transportation.gov/sites/dot.gov/files/2024-04/March%202024%20ATCR_1.pdf.
 - 118 United States Government Accountability Office, “Passengers with Disabilities: Barriers to Accessible Air Travel Remain,” November 17, 2022. Accessed August 14, 2023. <https://www.cdc.gov/ncbddd/disabilityandhealth/infographic-disability-impacts-all.html>.
 - 119 University of New Hampshire Institute on Disability, *Annual Disability Statistic Compendium*, 2021.
 - 120 “Federal Policy for the Protection of Human Subjects, 45 CFR § 46.116-117,” 2017.
 - 121 “Federal Policy for the Protection of Human Subjects, 45 CFR § 46.116-117,” 2017.

- 122 United States Department of Health and Human Services, "Recommendations Regarding Research Involving Individuals with Impaired Decision-Making," July 15, 2009. Accessed August 14, 2023. <https://www.hhs.gov/ohrp/sachrp-committee/recommendations/2009-july-15-letter-attachment/index.html>.
- 123 U.S. Department of Health and Human Services, Attachment A: SACHRP Commentary on the FDA Draft Guidance Entitled, "Informed Consent Information Sheet; Guidance for IRB's, Clinical Investigators and Sponsors," released July 15, 2014. Accessed January 23, 2024. <https://www.hhs.gov/ohrp/sachrp-committee/recommendations/2015-february-11-attachment-a/index.html>.
- 124 United States Food and Drug Administration, "FDA's Role: ClinicalTrials.gov Information," May 26, 2023. Accessed August 14, 2023. www.fda.gov/science-research/clinical-trials-and-human-subject-protection/fdas-role-clinicaltrials.gov-information.
- 125 P.L. 115-52, section 610(a)(1)(A), 2017.
- 126 FDA, "Enhancing the Diversity of Clinical Trial Populations—Eligibility Criteria, Enrollment Practices, and Trial Designs Guidance for Industry," November 2020. Accessed November 22, 2023. <https://www.fda.gov/regulatory-information/search-fda-guidance-documents/enhancing-diversity-clinical-trial-populations-eligibility-criteria-enrollment-practices-and-trial>.
- 127 FDA, "Public Workshop: Evaluating Inclusion and Exclusion Criteria in Clinical Trials," Workshop Report, April 16, 2018. Accessed August 14, 2023. <https://www.fda.gov/media/134754/download>.
- 128 FDA, "Public Workshop: Evaluating Inclusion and Exclusion Criteria in Clinical Trials," 2018.
- 129 FDA, "Public Workshop: Evaluating Inclusion and Exclusion Criteria in Clinical Trials," 2018.
- 130 P.L. 117-328 (12/29/2022). <https://www.congress.gov/bill/117th-congress/house-bill/2617/text>.
- 131 P.L. 117-328 (12/29/2022).
- 132 P.L. 117-328 (12/29/2022).
- 133 FDA, "Enhancing the Diversity of Clinical Trial Populations—Eligibility Criteria, Enrollment Practices, and Trial Designs Guidance for Industry," November 2020. Accessed November 22, 2023. <https://www.fda.gov/regulatory-information/search-fda-guidance-documents/enhancing-diversity-clinical-trial-populations-eligibility-criteria-enrollment-practices-and-trial>.
- 134 FDA, "Enhancing the Diversity of Clinical Trial Populations," 2020.
- 135 FDA, "Enhancing the Diversity of Clinical Trial Populations," 2020.
- 136 FDA, "Enhancing the Diversity of Clinical Trial Populations," 2020.
- 137 FDA, "Enhancing the Diversity of Clinical Trial Populations," 2020.
- 138 FDA, "Enhancing the Diversity of Clinical Trial Populations," 2020.
- 139 Caplan A, Friesen P, "Health Disparities and Clinical Trial Recruitment: Is There a Duty to Tweet?," *PLoS Biology*, 2017;15(3). doi:10.1371/journal.pbio.2002040.
- 140 FDA, "Enhancing the Diversity of Clinical Trial Populations," 2020.
- 141 Microsoft, "The Psychology of Inclusion and the Effects in Advertising: Gen Z," 2020. Accessed January 23, 2024. https://advertiseonbing-blob.azureedge.net/blob/bingads/media/insight/whitepapers/2020/07-july/inclusive-marketing/microsoft-advertising-whitepaper-the-psychology-of-inclusion-and-the-effects-in-advertising-gen-z-final.pdf?s_cid=en-us-gct-web-src_contributor-sub_oth_cam_hubspot.
- 142 Zalis S, "Inclusive Ads Are Affecting Consumer Behavior, According to New Research," *Think with Google*, November 2019. Accessed August 14, 2023. <https://www.thinkwithgoogle.com/future-of-marketing/management-and-culture/diversity-and-inclusion/thought-leadership-marketing-diversity-inclusion/>.
- 143 FDA, "Diversity Plans to Improve Enrollment of Participants from Underrepresented Racial and Ethnic Populations in Clinical Trials; Draft Guidance for Industry; Availability," April 13, 2022. Accessed August 14, 2023. <https://www.fda.gov/regulatory-information/search-fda-guidance-documents/diversity-plans-improve-enrollment-participants-underrepresented-racial-and-ethnic-populations>.
- 144 Federal Policy for the Protection of Human Subjects, 45 CFR, section 46,116–117, 2017.
- 145 United States Department of Health and Human Services, "Recommendations Regarding Research Involving Individuals with Impaired Decision-Making," 2009.

- 146 FDA, "Evaluating Inclusion and Exclusion Criteria in Clinical Trials," 2018.
- 147 FDA, "Enhancing the Diversity of Clinical Trial Populations-Eligibility Criteria, Enrollment Practices, and Trial Designs," 2020.
- 148 United States Department of Health and Human Services, "Your Rights Under Section 504 of the Rehabilitation Act." Accessed August 14, 2023. <http://www.hhs.gov/ocr/civilrights/resources/factsheets/504.pdf>.
- 149 <https://www.regulations.gov/docket/HHS-OCR-2023-0013/unified-agenda>.
- 150 45 CFR 83.
- 151 45 CFR 83.
- 152 45 CFR 83.
- 153 45 CFR 83.
- 154 45 CFR 83.
- 155 Clinical Treatment Act, H.R. 913, 2019. <https://www.congress.gov/116/bills/hr913/BILLS-116hr913ih.pdf>.
- 156 42 USC 18116.
- 157 The Health Equity and Accountability Act of 2022, H.R. 7585, 117, 2022. <https://www.govtrack.us/congress/bills/117/hr7585/text>.
- 158 "Booker, Warnock Introduce Legislation to Advance Health Equity," June 23, 2023. <https://www.booker.senate.gov/news/press/booker-warnock-introduce-legislation-to-advance-health-equity>.
- 159 Mitra et al., "Advancing Health Equity and Reducing Health Disparities for People with Disabilities," 2022.
- 160 "Diversity," Clinical Trials Transformation Initiative. Accessed August 14, 2023. <https://ctti-clinicaltrials.org/our-work/quality/diversity/>.
- 161 United States National Institutes of Health, "What Are the Requirements for Reporting on Human Study Participant Age, Sex/Gender, and Race/Ethnicity?," April 29, 2023. Accessed August 14, 2023. <https://nexus.od.nih.gov/all/2021/04/29/what-are-the-requirements-for-reporting-on-human-study-participant-age-sex-gender-and-race-ethnicity/#:~:text=NIH%20Extramural%20Nexus-,What%20Are%20the%20Requirements%20for%20Reporting%20on%20Human%20Study%20Participant,Gender%2C%20and%20Race%2FEthnicity%3F&text=NIH%20awardees%20must%20report%20individual,Enrollment%20in%20annual%20progress%20reports>.
- 162 United States Internal Revenue Service, "Community Health Needs Assessment for Charitable Hospital Organizations—Section 501(r)(3)." Accessed August 14, 2023. <https://www.irs.gov/charities-non-profits/community-health-needs-assessment-for-charitable-hospital-organizations-section-501r3>.
- 163 United States Department of Health and Human Services, "Social Determinants of Health." Accessed August 14, 2023. <https://health.gov/healthypeople/priority-areas/social-determinants-health>.
- 164 United States National Institutes of Health, "What Are the Requirements for Reporting on Human Study Participant Age, Sex/Gender, and Race/Ethnicity?," 2023.
- 165 United States Department of Health and Human Services, "Social Determinants of Health," 2023.
- 166 United States Department of Health and Human Services, "Social Determinants of Health," 2023.
- 167 United States Bureau of Labor Statistics, "Persons with a Disability: Labor Force Characteristics Summary," accessed August 14, 2023, United States Bureau of Labor Statistics, "Persons with a Disability: Labor Force Characteristics Summary," 2023.
- 168 United States Bureau of Labor Statistics, "Persons with a Disability: Labor Force Characteristics Summary," accessed August 14, 2023, United States Bureau of Labor Statistics, "Persons with a Disability: Labor Force Characteristics Summary," 2023.
- 169 "OFCCP Wants to Know: Can Employers Attain a Workforce Goal of 7 Percent Disabled Employees?," *Husch Blackwell*, December 21, 2011. Accessed August 14, 2023. <https://www.huschblackwell.com/newsandinsights/the-ofccp-wants-to-know-can-employers-attain-a-workforce-goal-of-7-percent-disabled-employees>.
- 170 FDA, "Informed Consent: Guidance for IRBs," 2023.



**National Council on Disability
1331 F Street, NW, Suite 850
Washington, DC 20004**