

Accessible Health Information in the Digital Age: A Systematic Analysis of Online Federal Resources for Secondary Health Conditions Common in Adults with Developmental Disabilities

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Introduction

Currently in the United States, there are more than 4.6 million individuals with an intellectual and/or developmental disability (I/DD). This population is incredibly diverse with a myriad of complex health needs. According to the *Surgeon General's Call to Action to Improve the Health and Wellness of Persons with Disabilities* (2005), there is a public health crisis occurring among Americans who identify as disabled. In particular, the population with I/DD has both a significantly increased risk of secondary health conditions such as mental health problems, oral health issues and obesity, and decreased access to health promotion and education programs

With the dawn of the Internet age, many health promotion programs have transitioned from in-person interventions to online resources and information dissemination. As technology becomes ubiquitous in the United States it is becoming simpler than ever for millions of Americans to access healthcare information in new ways. Nearly 74% of adults in North America use the Internet regularly, and among those, 79% have searched for health topics and information regularly (Internet World Stats, 2009; Evers, 2006). The accessibility of these resources for individuals with I/DD is not well studied, and therefore the organizations and governmental departments funding these programs may be entirely missing a huge population in need of their support.

Objectives and Methods

The following paper seeks to explore the accessibility of online resources for preventable health conditions common to people with developmental disabilities.

The major topics addressed in this paper are gleaned from the Healthy People 2010 report produced by the Office of Disease Prevention and Health Promotion. The report, which states the narrowing of the health disparity via reduction of secondary conditions in adults with I/DD as one of its major goals, articulates ten public health concerns for the decade (HP2010, 2000, II, p. 6.3). A literature review corroborates that these topics are relevant to individuals with I/DD.

The topics and associated government resources are as follows:

- Nutrition and Obesity: choosemyplate.org
- Physical Activity: fitness.gov
- Oral Hygiene: cdc.gov/oralhealth
- Reproductive Health: womenshealth.gov
- Mental Health: mentalhealth.gov
- Tobacco Use: smokefree.gov
- Substance Abuse: drugabuse.gov
- Injury and Violence: cdc.gov/injury
- Environmental Quality: epa.gov/learn-issues/learn-about-health-and-safety
- Access to Healthcare: healthcare.gov

Accessibility was assessed via three methods:

1. WAVE Web Accessibility Evaluation Tool will be applied to the homepage of each site
2. Functional Accessibility Evaluator (FAE) will be applied to three levels of the domain, including subdomains and links
3. Search for disability-related terms: The terms "disability," "developmental disability," and "intellectual disability" will be entered into the search bar and the number of results will be recorded.

Results

• WAVE Web Evaluation Tool

- Four of the ten resources-fitness.gov, smokefree.gov, cdc.gov/injury, and epa.gov/learn-issues/learn-about-health-and-safety-had no errors on their homepages.

Most Common Accessibility Across Resources

Warning	Frequency	Percent
Empty Link	22	75.8
Linked Image, No Alt Text	3	10.3
Empty Button	2	6.9
Empty Form Label	1	3.4
Broken Skip Link	1	3.4
Total	29	100

Accessibility Errors By Resource

Resource	Empty Link	Image, No Alt Text	Empty Button	Empty Label	Broken Skip Link	Total
choosemyplate.gov	1	0	1	0	0	2
cdc.gov/oralhealth	2	0	0	0	0	2
womenshealth.gov	10	1	0	1	0	12
mentalhealth.gov	0	2	0	0	0	2
drugabuse.gov	5	0	0	0	0	5
healthcare.gov	4	0	1	0	1	6

- Example of WAVE Analysis



• Disability-Related Terms Search

- Three terms, "disability," "developmental disability," and "intellectual disability" were chosen to measure levels of specificity. The term "disability" covers a wide range of impairments and conditions, the term "developmental disability" refers exclusively to those impairments acquired before the age of 22, and the term "intellectual disability" refers to a developmental disability that significantly impacts cognitive functioning.
- On the 1,055 pages searched across 10 domains, the term "developmental disability" only appeared 68 times, and the term "intellectual disability" only appeared 82 times.

Frequency of I/DD-Related Terms by Resource

Resource	"Disability"		"Developmental Disability"		"Intellectual Disability"	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
choosemyplate.gov	5	0.008	0	0	0	0
fitness.gov	8	0.013	0	0	0	0
cdc.gov/oralhealth	1550	2.544	39	57.4	33	40.2
womenshealth.gov	56600	92.886	6	8.8	19	23.2
mentalhealth.gov	5	0.008	3	4.4	1	1.2
smokefree.gov	3	0.005	0	0	0	0
drugabuse.gov	61	0.100	1	1.5	4	4.9
cdc.gov/injury	510	0.837	4	5.9	7	8.5
healthcare.gov	23	0.038	0	0	0	0
epa.gov	2170	3.561	15	22.1	18	22.0
Total	60935	100	68	100	82	100

Results

• Functional Accessibility Evaluator (FAE)

- The FAE examines domains, subdomains, and links three levels down from each of the homepages.
- Composite Scores were created by averaging the pass rates across five categories.
- The FAE measures accessibility across five major categories:

Navigation and Orientation: Inclusion of structural markup that facilitates navigation and contextual orientation.

Text Equivalents: Proper use of images for interoperability and the provision of text descriptions for non-text content.

Scripting: Avoidance of scripting techniques that compromise accessibility and interoperability.

Styling: Use of CSS styling techniques to separate content and structural information from styling and presentation.

HTML Standards: Support for HTML standards to improve interoperability and provide more choices in the use of technologies for rendering web content

Composite FAE Score by Resource

Resource	Pages Evaluated	% Pass
choosemyplate.gov	110	96.6
fitness.gov	74	82.0
cdc.gov/oralhealth	162	90.0
womenshealth.gov	123	87.8
mentalhealth.gov	147	90.4
smokefree.gov	73	89.6
drugabuse.gov	42	95.2
cdc.gov/injury	155	90.0
healthcare.gov	16	83.6
epa.gov	153	83.2

- Example of Complete FAE Analysis

Composite FAE Best Practices Score Across Resources

Best Practice Category	% Pass
Navigation/Orientation	89.4
Text Equivalents	80.4
Scripting	98.7
Styling	93.1
HTML Standards	82.7

Discussion

• Limitations

- Technological Accessibility vs. Content Accessibility
- Readability and Reading Level
- Photos, language, and inclusiveness

• Conclusions

Ultimately, this study has found that online federal resources addressing major preventative health concerns often experienced by individuals with developmental disabilities have navigated the area of technological accessibility fairly well. The format appears to be largely accessible, although areas of concern include images, HTML standards, and ensuring that structural elements are compatible with accessibility software and techniques used by individuals with I/DD. Collectively, however, these resources are not actively addressing the population with I/DD, and therefore may be limiting the reach of the health promotion materials presented. By increasing the accessibility and specificity of online health promotion materials regarding the preventable conditions that prove costly and oftentimes deadly for individuals with I/DD, the federal agencies responsible for disseminating this information may save billions of dollars in healthcare costs—including federal aid—and significantly increase the quality of life for millions of individuals with intellectual and developmental disabilities around the country.

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Disability in the Social Context (PSP)