# Unmet Needs for Ohioans with Disabilities During the COVID-19 Pandemic

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**Abstract**

The COVID-19 pandemic disproportionately affected individuals with disabilities across the state of Ohio. Determining the needs of individuals with disabilities and the barriers that they face is important to improve response efforts during future emergencies. A needs assessment conducted within the state of Ohio looked to determine the aspects of the COVID-19 pandemic, including vaccines, testing, healthcare access, personal protective equipment accessibility, and communication barriers, that disproportionately affected individuals with disabilities. Results indicated that the most prominent needs for individuals with disabilities during the COVID-19 pandemic were related to social interaction, mental health support, and accessible and adaptable personal protective equipment. Understanding various aspects of the COVID-19 pandemic, including vaccinations, testing, and personal protective equipment use was not a challenge for respondents, but obtaining and accessing the vaccines, testing, and supplies were the most notable challenges. Overall, individuals with disabilities were affected by many distinct aspects of the COVID-19 pandemic, but improvements should be made in several areas including more inclusive communication strategies, training on disability etiquette for providers, and combating misinformation directly, to further prevent disproportionate responses to public health emergencies.

*Keywords:* disability, COVID-19, COVID-19 vaccine, barriers, healthcare access

## Introduction

### Background

The COVID-19 pandemic disproportionally affected individuals with disabilities due to the reduced access to healthcare, negative social impacts, and disparities in information accessibility (Shakespeare et al., 2021). The notable challenges for individuals with disabilities can be addressed through improved preparedness from the side of the professionals responding to emergencies. Throughout the world, individuals with disabilities have been affected by the COVID-19 pandemic. In the United Kingdom, 59% COVID-19 related deaths were among individuals with disabilities (Rotenberg et al., 2021). Within the US, individuals with intellectual disabilities had higher risks of death due to COVID-19 (Rotenberg et al., 2021). These increased rates of COVID-19 related deaths and infections demonstrate the significance of the barriers or challenges individuals with disabilities may face. The level of severity of these barriers is the primary method in determining the processes of overcoming them and being better prepared for future emergencies like pandemics.

Throughout the COVID-19 pandemic and its aftermath, there are a variety of studies looking at the effects it had on the disability population throughout the US (Goyal et al., 2023; Rotenberg et al., 2021; Shakespeare et al., 2021). An additional study looked specifically at the causes of stress and trauma within the disability community related to COVID-19 and areas of healthcare, social stresses, economic stresses, and more and some of the potential strategies that could be used to address them (Lund et al., 2020). Within this specific study, *The COVID-19 pandemic, stress, and trauma in the disability community: A call to action,* the authors refer to concerns related to healthcare, noting that severe disruptions to access and availability to any sort

of healthcare can have a disproportionate effect on individuals with disabilities (Lund et al., 2020). Concerns during the pandemic involved assessing patient health amid critical healthcare rationing, prioritizing individuals' pre-illness health and function, which risked care discrimination (Lund et al., 2020). Shortages on medical equipment and personal protective equipment (PPE) disproportionately affected individuals with disabilities due to rationing strategies or a lack of access to the services that provide them (Andrews et al., 2021).

Another concern regarding healthcare was the uncertainty of the length of the pandemic and the length of the reduction of accessibility to non-essential care, such as rehabilitation, outpatient care, or medical devices (Lund et al., 2020). These were non-essential to the public but are necessary to the individuals that rely on these services for functions, such as needing assistive technology repaired or replaced (Lund et al., 2020). Social isolation is a significant issue also, noting that individuals with disabilities were already at a heightened risk before the COVID-19 pandemic, a situation worsened by the pandemic's isolation measures. Strategies to address these concerns include education about self-care strategies, such as creating connections through alternative means (i.e., online support groups, telehealth mental healthcare or physical healthcare) (Lund et al., 2020). Another area of concern was individuals with disabilities facing new health challenges because of the COVID-19 pandemic, which encompassed access to healthcare treatment or prescriptions, with 44% of respondents answering that they did face new challenges in this area (Drum et al., 2020). Concerns related to mental health status had 24% percent of respondents facing mental health challenges, including anxiety and depression, not receiving emotional support or the related services (Drum et al., 2020).

Individuals with disabilities and practitioners should be aware of self-care strategies and alternative social interaction strategies because of the disproportionate effects of the COVID-19 pandemic. This would allow targeted care. Providers should better recognize when to refer clients with comorbidities or worsening health conditions to appropriate medical and mental healthcare, considering the individual's disability-related barriers that may not affect the general population (Lund et al., 2020). Another significant barrier to obtaining COVID-19 vaccinations for individuals with disabilities was the presence of inconsistent and inaccessible information about the vaccine and rollout process, along with inequities among disability groups caused by variations in the broader distribution efforts (Epstein et al., 2021).

Individuals with disabilities are more likely to have barriers accessing health services, which can worsen during emergency situations that require isolation or distancing due to illness (Armitage & Nellums, 2020). Also, access to caregivers and case workers at home could worsen, making the institutionalization of individuals with disabilities more likely due to a lack of ability to meet their daily needs (Armitage & Nellums, 2020). While a large population of respondents (47%) received direct care from a caregiver, 23% of these respondents lost access to critical care services because of the COVID-19 pandemic (Drum et al., 2020). Individuals with visual disabilities faced increased challenges during the COVID-19 pandemic due to inaccessible information, reliance on caregivers, unsupportive physical environments, and disrupted support systems (Senjam, 2020).

Additionally, each disability group experienced different barriers. For example, individuals suffering from traumatic brain injuries (TBI) were compared with noninjured individuals in and around Nashville, TN, to determine the differences between how the COVID-19 pandemic affected each group (Morrow et al., 2021). Barriers included communication challenges from COVID-19 regulations, such as masks and social distancing, which hindered body language reading, masked facial expressions, and hearing (Morrow et al., 2021).

**First Survey Iteration**

The first Access Center for Independent Living (ACIL) survey implemented August 12th, 2020, to October 20th, 2020, included questions regarding the ability to access healthcare for both physical and mental health. Over 26% of the respondents said they were unable to access physical and/or mental health *(Unmet Needs,* 2021). Challenges faced by participants were related to telehealth visits, PPE, financial burdens, lack of internet, waiting lists, and fear. Caregivers emerged as a key topic in the original survey, highlighting various challenges faced by individuals with disabilities, including caregiver shortages, fear of exposure, and childcare issues *(Unmet Needs,* 2021). The results of the original survey were used to identify potential priority areas to establish more specific survey items for this study. One question assessed barriers to healthcare, but it was difficult to determine the priority areas. Since it was difficult to identify the barriers a new iteration of the survey was developed. The current study divided healthcare access into various categories to determine which healthcare access needs exist among individuals with disabilities.

**Purpose**

This study's purpose was to determine the unmet needs among Ohioans with disabilities during the COVID-19 pandemic. The areas examined were barriers in healthcare, PPE, mental health support, accessibility and availability of resources, accessibility of health information pertaining to the COVID-19 pandemic, and understanding of COVID-19 testing, PPE usage, and vaccinations. The study also examined the most prominent met and unmet needs individuals with disabilities had during the COVID-19 pandemic. The goal was to determine challenges faced during the COVID-19 pandemic and the extent of their severity among individuals with disabilities. The results will be used to improve planning for future pandemics.

**Research Questions**

The research question for this study were:

1. What are the most prominent needs related to health that were not easily met during the COVID-19 pandemic? Which included caregivers, PPE, transportation, vaccines, and childcare)?
2. Was there a relationship between obtaining PPE and understanding how to use PPE related to the ability to use PPE during the COVID-19 pandemic?
3. What level of challenge did they face in understanding the COVID-19 testing process and the COVID-19 vaccination process?
4. What level of challenge were the barriers related to obtaining PPE, testing, vaccines, and boosters?

5. How do respondents describe the pandemic affecting their access to healthcare services, the respondents' experiences, challenges, and barriers related to the COVID-19 pandemic?
6. What facilitators did they mention addressing their challenges during the COVID-19 pandemic?

## Methods

This study was a new iteration of the initial Access Center for Independent Living (ACIL) survey and contained similar objectives and research questions. The initial survey's small sample size prompted a follow-up survey with a larger sample. Given that the COVID-19 pandemic is officially over, this study retrospectively assessed the needs of individuals with disabilities throughout the pandemic, highlighting their priority needs for emergency planning and responses. This survey was modified from the initial iteration by separating the needs of individuals into different categories and assessed them through skip logic multiple choice design.

### Participants

Participants were recruited across Ohio and the survey was active from July 29th, 2024, to September 16th, 2024. Multiple recruitment strategies were employed. The survey link was posted on the ACIL website and social media platforms. Promotional flyers with the survey link were distributed via email to community partners, including regional and statewide centers for independent living, public health departments, non-profit organizations, and community organizations. Several partnering organizations also posted the survey link to their respective social media pages. To maintain engagement and encourage ongoing participation, biweekly reminders were sent to these partners as well as consumers of the ACIL to promote the survey and solicit additional responses.

Eligibility for participation was extended to any current Ohio resident over the age of 18 who accessed the survey through the ACIL network, its partners, or related organizations. Although the priority population was individuals with disabilities, responses from support persons, health professionals, case workers, social workers, and caregivers were also sought to provide a broader perspective. The results of this survey included all respondents (those with disabilities, caregivers, and support individuals) of the survey regardless of disability status to fully understand the impacts of the COVID-19 pandemic on individuals with disabilities. Individuals who were excluded from this study included those who were under the age of 18 years old as well as individuals who reside outside of Ohio.

### Survey Design and Procedures

This study utilized a cross-sectional survey design. Data collection was conducted through Qualtrics as the primary platform, with paper surveys available upon request. The survey gathered data on respondent demographics, including age, race, gender, and Ohio county of residence. Information was also collected regarding the impact of COVID-19 on various aspects of the respondent’s life, such as PPE usage, vaccination status, healthcare access, challenges in daily life, and childcare.

Participants were asked to self-identify their demographic group (e.g., individual with a disability, support person, health professional, etc.) within the survey. Data was analyzed based on these self-identifications to assess the perspectives of diverse groups concerning the topics of interest. Once respondents documented the impact of COVID-19 on various aspects of their lives, optional areas for qualitative comment were allowed to gain a more in depth understanding of the justifications of these responses.

**Measures**

Demographic measures included self-identification of age group, race, gender, disability status, Ohio county of residence, and disability service organizations used. The disability groups were identified using the Centers for Disease Control and Prevention (CDC) standard disability questions in addition to a question related to status on immunocompromised identifying individuals (CDC, 2024).

Quantitative measures on the survey included what prominent needs related to health were met or not met during the COVID-19 pandemic. These included items about caregivers, caregivers, PPE, transportation, vaccines, and childcare. Other items in the survey measured how they obtained PPE during the COVID-19 pandemic. In this study, PPE defined as, but not limited to, cloth masks, surgical masks, N-95 masks, respirators, surgical (latex) gloves, eye coverings, face shields, hand sanitizer, and isolation gowns. Adaptable PPE is defined as but not limited to masks with a clear mouth window for lip reading, face shields as an alternative to masks for lipreading, latex free gloves, respirators, headbands for holding masks in place, and isolation gowns. Other items on the survey included identifying barriers experienced with obtaining PPE, testing, COVID-19 vaccines, and COVID-19 boosters. Items on the survey also assessed the level of challenge individuals with disabilities faced in understanding the COVID-19 testing process and the COVID-19 vaccination process. Each of the quantitative items were a Likert scale of no challenges to severe challenges.

Qualitative measures were used to assess the challenges and barriers among individuals with disabilities during the COVID-19 pandemic. The qualitative measures were open-ended questions after the quantitative items assessing the level of challenge individuals with disabilities faced. These items allowed respondents to describe how the pandemic affected their access to healthcare services, experiences, challenges, and barriers and facilitators related to the COVID-19 pandemic.

**Data Management and Security**

To ensure the confidentiality and security of respondent information, anonymity was maintained throughout the survey process. Identifiable data was not recorded. Survey data was protected through password protected site that had two-factor authentication. No paper surveys were returned. This study received IRB approval as a Category 2 exempt study.

**Ethical Considerations**

No additional procedures were implemented specifically to mitigate risks, as the investigators did not believe the study posed significant risks or stressors to participants. The

focus remained on ensuring the privacy and security of participant data. There was no financial conflict of interest for the primary investigator, nor the faculty lead for the duration of this study.

### Data Analysis

Results from the survey were downloaded into an Excel file and analyzed for both quantitative and qualitative data results. Quantitative data were analyzed using Excel to determine frequencies and percentages of responses for each of the survey questions as well as analyzed within research questions. The methods for analyzing quantitative data utilized pivot tables to determine the frequencies and percentages for demographic data and disability status.

The qualitative analysis was conducted with Google Gemini artificial intelligence to identify related themes. The process used for this analysis consisted of following along with a qualitative analysis guide specifically for using artificial intelligence (Adu, 2023). The transcript of the rough qualitative data was pasted into Google Gemini and summarized in one thousand words, the results are then summarized based on the corresponding research question to create codes, and then these results are sorted by Gemini into themes with related excerpts from the original data (Adu, 2023).

## Results

### Demographics

Most respondents were aged 18-29 (28.3%) and 41-54 (26.0%), with most identifying as female and white (see Table 1). The most common self-identified disabilities were related to difficulties with memory, concentration, or decision-making (31.5%), followed by mobility issues (26.8%). County-level distributions show that most respondents were from Montgomery County (33.0%), followed by Franklin County (11.0%) as illustrated in Figure 1. Respondents also identified their disability service organizations (Figure 2), with "others" (including those using no services) being the most common, followed by Jobs and Family Services at 38.0%.

Table 1: Demographic Characteristics of Survey Respondents by Disability Status

| | **Total n (%)** | **Vison Loss** | **Hearing Loss** | **Mobility Loss** | **Concentration, Remembering, Making Decisions** | **Daily Cares** | **Running Errands** | **Immunocompromised** |
|---|---|---|---|---|---|---|---|---|
| **Age** | **n (%)** | **n (%)** | **n (%)** | **n (%)** | **n (%)** | **n (%)** | **n (%)** | **n (%)** |
| 18-29 years old | 36 (28.3) | 4 (40.0) | 4 (33.3) | 7 (20.6) | 18 (45.0) | 6 (27.3) | 13 (43.3) | 6 (24.0) |
| 30-40 years old | 19 (15.0) | 1(10.0) | - | 3 (8.8) | 4 (10.0) | 3 (13.6) | 4 (13.3) | 3 (12.0) |
| 41-54 years old | 33 (26.0) | 3 (30.0) | 2 (16.7) | 10 (29.4) | 12 (30.0) | 7 (31.8) | 9 (30.0) | 8 (32.0) |
| 55-64 years old | 26 (20.5) | 2 (20.0) | 3 (25.0) | 8 (23.5) | 4 (10.0) | 5 (22.7) | 3 (10.0) | 5 (20.0) |
| 65 years and older | 13 (10.2) | - | 3 (25.0) | 6 (17.7) | 2 (5.0) | 1 (4.6) | 1 (3.4) | 3 (12.0) |

| **Total** | **127** | **10 (7.9)** | **12 (9.4)** | **34 (26.8)** | **40 (31.5)** | **22 (17.3)** | **30 (23.6)** | **25 (19.7)** |
|---|---|---|---|---|---|---|---|---|
| **Gender** | **n (%)** | **n (%)** | **n (%)** | **n (%)** | **n (%)** | **n (%)** | **n (%)** | **n (%)** |
| Male | 20 (19.0) | 2 (20.0) | 1 (8.3) | 10 (30.3) | 7 (17.5) | 6 (27.2) | 9 (30.0) | 4 (16.0) |
| Female | 80 (75.0) | 8 (80.0) | 10 (83.3) | 19 (57.6) | 27 (67.5) | 13 (60.0) | 16 (53.3) | 18 (72.0) |
| Transgender (Female to male) | 2 (2.0) | - | - | 1 (3.0) | 2 (5.0) | - | 1 (3.3) | - |
| Transgender (male to female) | - | - | - | - | - | - | - | - |
| Gender non-conforming | 3 (3.0) | - | - | 2 (6.1) | 3 (7.5) | 2 (9.1) | 3 (10.0) | 2 (8.0) |
| Other | 1 (1.0) | - | 1 (8. 3) | 1 (3.0) | 1 (2.5) | 1 (4.5) | 1 (3.3) | 1 (4.0) |
| **Total** | **106** | **10 (9.4)** | **12 (11.3)** | **33 (31.1)** | **40 (37.7)** | **22 (20.8)** | **30 (28.3)** | **25 (23.6)** |
| **Race** | **n (%)** | **n (%)** | **n (%)** | **n (%)** | **n (%)** | **n (%)** | **n (%)** | **n (%)** |
| White | 90 (84.9) | 7 (70.0) | 9 (75.0) | 28 (82.4) | 37 (92.5) | 19 (86.4) | 27 (90.0) | 23 (92.0) |
| Black or African American | 8 (7.5) | 1 (10.0) | 1 (8.3) | 1 (3.0) | - | - | - | - |
| Asian Indian | 1 (1.0) | - | - | 1 (3.0) | 1 (2.5) | - | - | - |
| Other Asian | 1 (1.0) | - | 1 (8.3) | - | | - | - | - |
| Two or more races | 6 (5.7) | 2 (20.0) | 1 (8.3) | 4 (11.8) | 2 (5.0) | 3 (13.6) | 3 (10.0) | 2 (8.0) |
| **Total** | **106** | **10 (9.4)** | **12 (11.3)** | **34 (32.1)** | **40 (37.7)** | **22 (20.8)** | **30 (28.3)** | **25 (23.6)** |

Figure 1: Number of Respondents by Ohio County

| County | n (%) |
|---|---|
| Auglaize | 1 (1.0) |
| Champaign | 1 (1.0) |
| Clark | 2 (2.0) |
| Crawford | 2 (2.0) |
| Cuyahoga | 6 (6.0) |
| Darke | 2 (2.0) |
| Delaware | 1 (1.0) |
| Fairfield | 3 (3.0) |
| Franklin | 11 (11.0) |
| Geauga | 1 (1.0) |
| Greene | 5 (5.0) |
| Knox | 2 (2.0) |
| Lake | 1 (1.0) |
| Licking | 1 (1.0) |
| Lucas | 1 (1.0) |
| Medina | 1 (1.0) |
| Mercer | 2 (2.0) |
| Miami | 5 (5.0) |
| Montgomery | 33 (33.0) |
| Ottawa | 1 (1.0) |
| Portage | 3 (3.0) |
| Preble | 4 (4.0) |
| Shelby | 4 (4.0) |
| Summit | 3 (3.0) |
| Trumbull | 2 (2.0) |
| Union | 1 (1.0) |
| Washington | 1 (1.0) |
| **Total** | **100** |

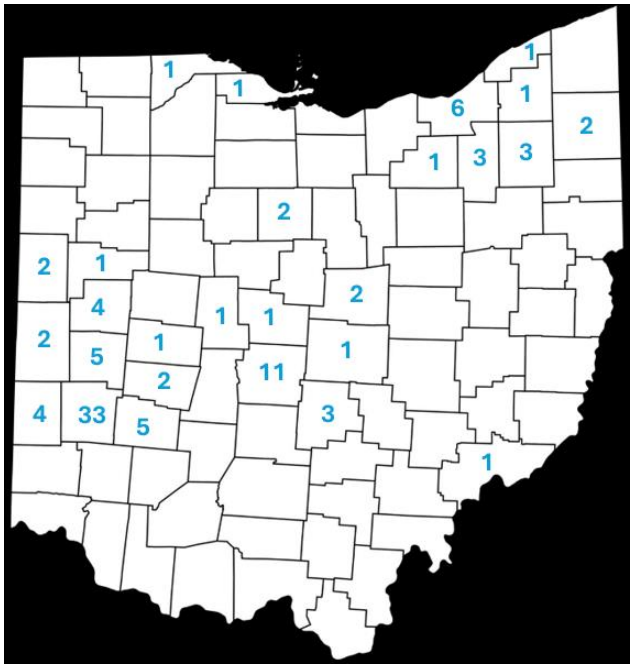
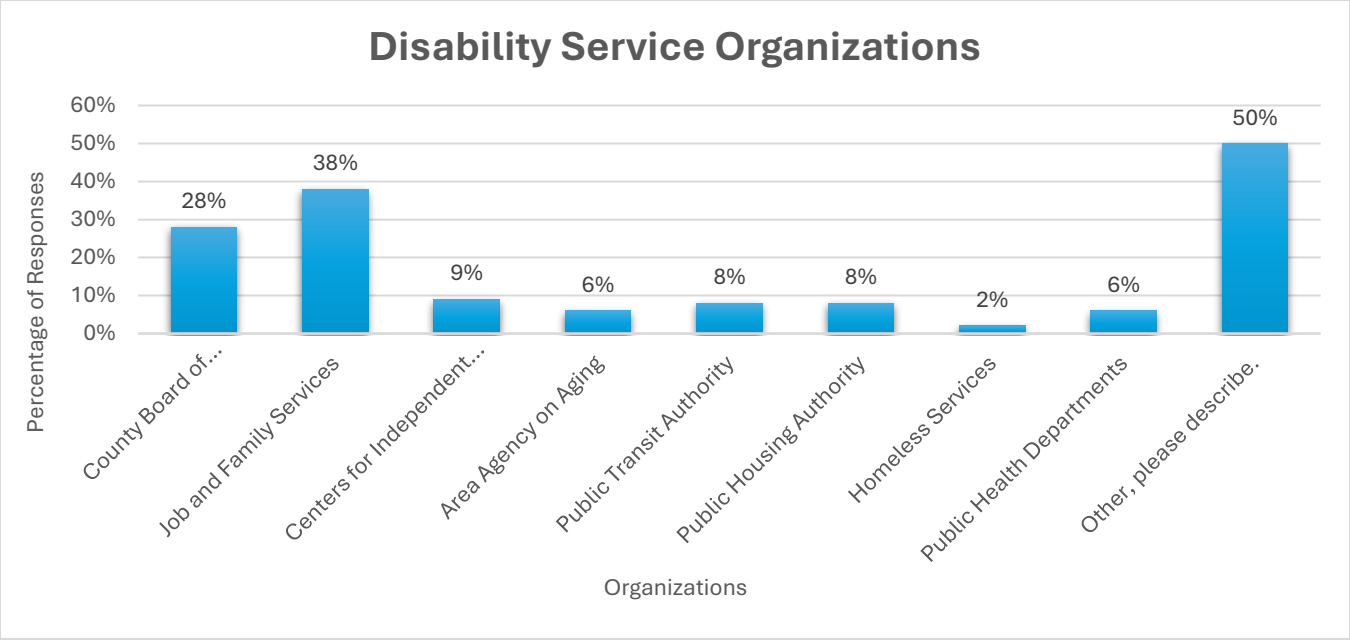


Figure 2: Organizations Respondents Utilize Services Related to Their Disabilities.




**Unmet and Met Prominent Needs**

Table 2 provides insights to Research Question 1, which shows the level of daily life changes those individuals with disabilities experienced during the COVID-19 pandemic and the severity of these impacts which many individuals determined was moderate challenges to personal life. Individuals noted that the most significant challenges included physical and mental healthcare needs.

Table 2: Unmet and Met Prominent Needs during the COVID-19 Pandemic

| | **15 - How much did the COVID-19 pandemic impact your personal life?** | **17 - Did you face any challenges to childcare and schooling issues due to the COVID-19 pandemic?** | **18 - Did you experience any changes to access proper healthcare for your physical and or mental health needs in any capacity during the COVID-19 pandemic?** | **19 - Did the COVID-19 pandemic affect your ability to find and secure necessary caregivers?** |
|---|---|---|---|---|
| | **n (%)** | **n (%)** | **n (%)** | **n (%)** |
| No Change/Challenges | 15 (16.0) | 8 (9.0) | 21 (23.0) | 14 (16.0) |
| Mild Change/Challenges | 14 (15.0) | 3 (3.0) | 31 (34.0) | 3 (3.0) |
| Moderate Change/Challenges | 40 (42.0) | 7 (8.0) | 23 (25.0) | 6 (7.0) |
| Severe Change/Challenges | 26 (27.0) | 6 (7.0) | 16 (18.0) | 15 (17.0) |
| Not applicable | - | 67 (74) | - | 52 (57.0) |
| **Total** | 95 | 91 | 91 | 90 |

Figure 3 reveals the different areas of need respondents indicated were their top needs during the COVID-19 pandemic. Respondents were able to select all the answers that applied to them with social interaction, mental health support, and PPE as the most frequently requested needs.

Figure 3: Respondents Greatest Needs during the COVID-19 Pandemic

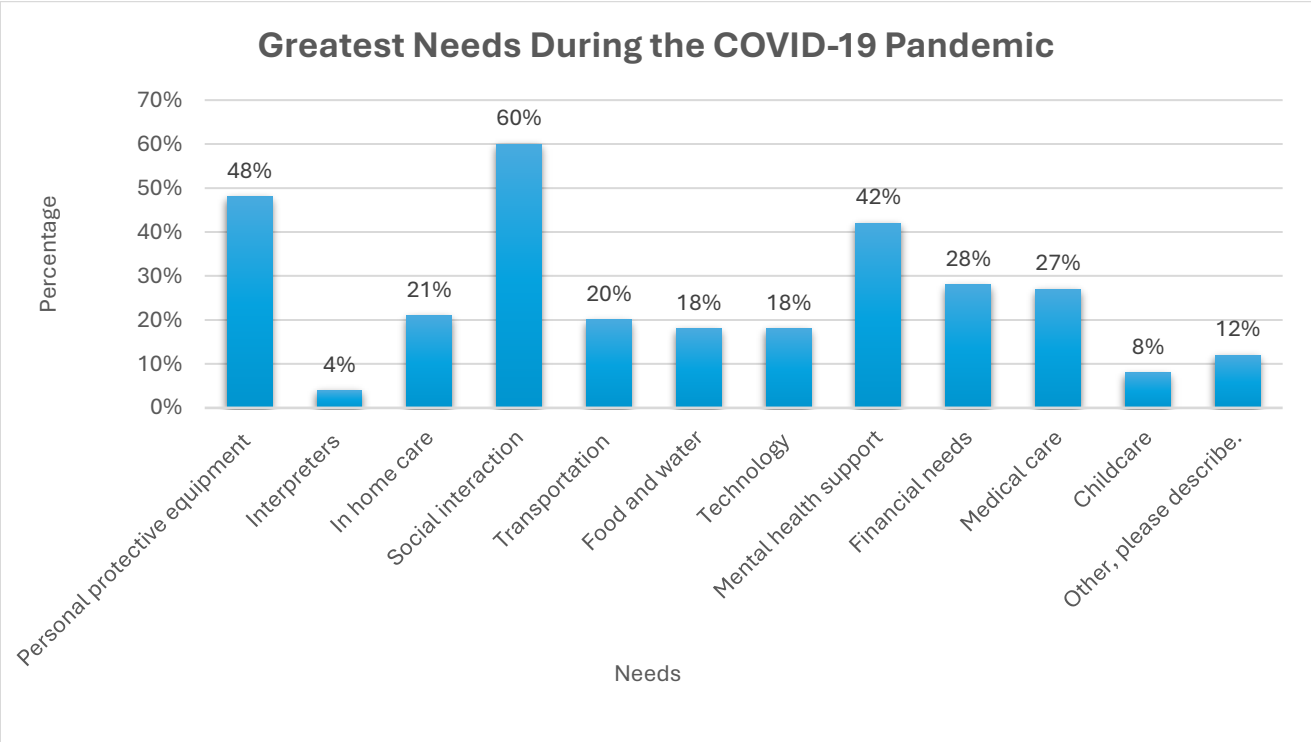
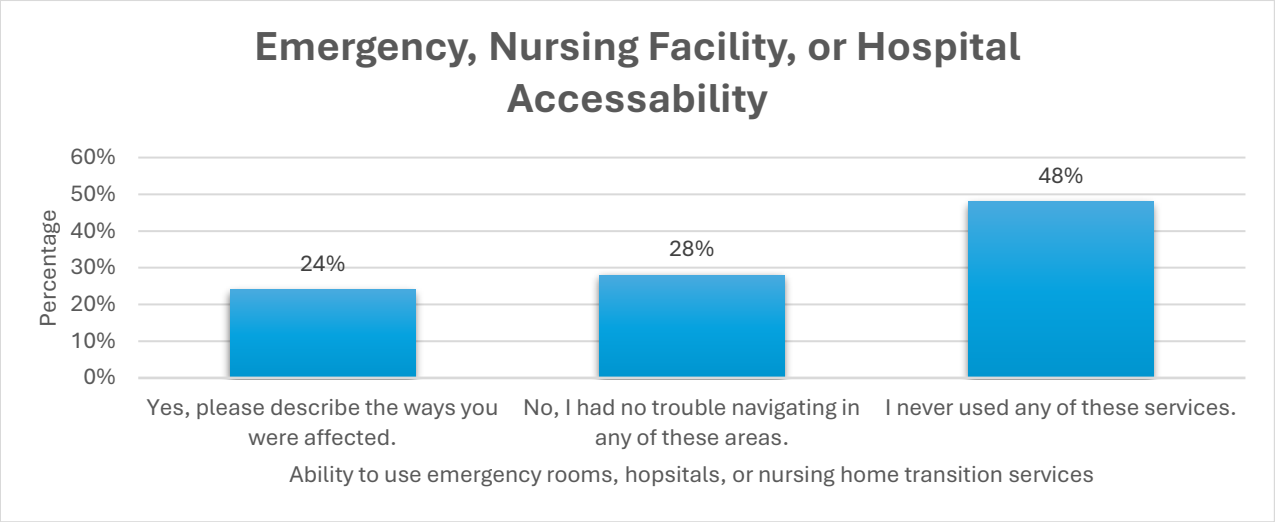



Figure 4 illustrates the respondent's ability to navigate through and use different healthcare facilities during the COVID-19 pandemic. Many of the respondents indicated that they never had a need for those services while about 25% of the respondents' indicated difficulties in using these services.

Figure 4: Navigating Healthcare Services




**Qualitative Results**

Respondents identified several key needs, including access barriers, mental health, long-term care, specialized care, home health care, emergency care, and systemic issues. Within access barriers, common codes included healthcare access, communication, and discrimination, with challenges in obtaining timely medical attention, especially for routine care. Mental health concerns, particularly increased stress, and anxiety due to COVID-19 uncertainties, were frequently mentioned. Respondents reported challenges in all types of care—long-term, specialized, home health, and emergency—highlighting long wait times, insufficient home health aides, and a lack of available PPE. Systemic issues also emerged, including staffing shortages, discrimination against individuals with disabilities, and gaps in healthcare for disabled populations (see Table 3).

Table 3: Qualitative Results for Research Question 1

| Theme | Codes | Excerpts |
|---|---|---|
| Access Barriers | HC Access, Communication, Discrimination | "I was unable to receive the medical attention I needed prior to an undiagnosed condition getting to the point of almost needing to seek emergency medical care." |
| | | “It was difficult to obtain telehealth appointments.” |
| | | “I had to learn how to engage with my physician via telehealth.” |
| | | “My dentist appointment was cancelled and I didn't return for 4 years." |
| | | “Certain services like dental and vision I was behind on annual screenings and care.” |
| Mental Health | Mental Health | "My mental health also deteriorated, making him a bit of an insomniac, which effected my sleep patterns." |
| | | “My son, then 4yo, developed mental health issues such as anxiety and mood swings that got him expelled from preschool and developed long-term difficulties.” |

| | | |
|---|---|---|
| | | “I became homeless and my mental health went out of control which lead me to start using drugs excessive I had a hard time...” |
| Long-Term Care | Long Term | "During the Covid pandemic, I was living in a long-term care facility/nursing home." |
| | | “I was unable to visit my daughter in the hospital NICU when she was born disabled due to testing positive for COVID.” |
| | | “I was planning, to potentially go to one to potentially die.” |
| Specialized Care | Specialized Care | "I have severe allergy and sinus issues." |
| | | "I was unable to obtain the medical attention I needed prior to an undiagnosed condition getting to the point of almost needing to seek emergency medical care.” |
| Home Health | Home Health | "I had to stop using a home health aid and haven't been able to bathe or have my laundry washed for over a year." |
| | | "Caregivers working under Ohio Medicaid delivering in-home waivers were not provided with any PPE." |
| Emergency Care | Emergency Care | "The emergency room was much slower than usual, which caused me to be in the ER for 8 hours before getting admitted." |
| | | “I was unable to receive the medical attention I needed prior to an undiagnosed condition getting to the point of almost needing to seek emergency medical care.” |
| | | “ER waiting rooms are extremely stressful and anxiety inducing due to unmitigated disease spread.” |
| Systemic Issues | Systemic Issues | "The pandemic exposed systemic problems in the healthcare system, such as inadequate staffing, lack of resources, and discrimination, which made it difficult for individuals with disabilities to access necessary care." |
| | | "The pandemic exacerbated existing systemic issues, leading to severe consequences for individuals with disabilities." |
| | | "It's clear that the pandemic exposed significant gaps in our healthcare system and the need for urgent reforms." |

**Personal Protective Equipment**

Table 4 indicates most respondents had limited challenges related to obtaining, using, and understanding PPE. Very few respondents indicated moderate or severe challenges related to these themes. While general PPE posed minimal challenges, adaptable PPE showed differing results: 50.0% reported no challenges, 16.0% found it not applicable or were unaware of its availability, while 34% faced some level of challenge.

Table 4: Accessibility and Understanding of Use of PPE

| | **21 - Were you able to obtain COVID-19 personal protective equipment?** | **22 - Were you able to understand how to use COVID-19 personal protective equipment?** | **23 - Were you able to use COVID-19 personal protective equipment?** | **24 - Did you face any barriers to obtaining adaptable COVID-19 personal protective equipment? Including but not limited to masks with a clear mouth window for lip reading, face shields as an alternative to masks for lipreading, latex free gloves, respirators, headbands for holding masks in place, and isolation gowns.** |
|---|---|---|---|---|
| | **n (%)** | **n (%)** | **n (%)** | **n (%)** |
| No challenges | 37 (43.0) | 65 (77.0) | 62 (74.0) | 41 (50.0) |
| Mild challenges | 27 (31.0) | 12 (14.0) | 13 (15.0) | 15 (18.0) |
| Moderate challenges | 14 (16.0) | 2 (2.0) | 3 (4.0) | 4 (5.0) |
| Severe challenges | 9 (10.0) | 5 (6.0) | 6 (7.0) | 9 (11.0) |
| Not Aware of Availability or N/A | - | - | - | 13 (16.0) |
| **Total** | 87 | 84 | 84 | 82 |

**Qualitative Results**

Many respondents (see Table 5) reported that understanding PPE use was less of an issue than the ability to use and obtain it. Some expressed confusion about mask policies and best practices for self-protection. Using PPE was challenging for several, who indicated they needed assistance. Additionally, respondents struggled to regularly find and obtain PPE supplies.

Table 5: Qualitative Results for Research Question 1

| **Themes** | **Codes** | **Excerpts** |
|---|---|---|
| Access and Understanding | PPE Access, PPE Understanding | “It was difficult to find suppliers to get PPE from on a regular basis.” |
| | | "There seemed to be conflicting instruction about masking...when it was needed, what type of mask was best, how masks should be worn, etc." |
| | | "It was difficult to find suppliers to get PPE from on a regular basis." |
| | | "Many places were out of masks and hand sanitizer. Had to make our own at times." |

| | | |
|---|---|---|
| Disability Barriers | Disability Challenges, Assistance Needed | "As I said previously due to my disability, I cannot put on personal protective equipment myself." |
| | | "Need caregiver's physical assistance to use any PPE." |
| | | “Someone gave me a N-95 mask but I could not figure out how to put it on me." |
| Information Challenges | Confusion Guidelines | "Misinformation caused confusion and frustration on which kind of masks are safe to use" |
| | | "There seemed to be conflicting instruction about masking...when it was needed, what type of mask was best, how masks should be worn, etc." |

**COVID-19 Testing and Vaccines**

Table 6 provides results for Research Question 3, which indicates most respondents had limited challenges related to understanding the COVID-19 testing and vaccine processes. Few respondents indicated moderate or severe challenges, and several respondents indicated this was not necessary for them. However, several chose to not disclose this information.

Table 6: COVID-19 Testing and Vaccine Understanding

| | **26- Did you face any challenges to understanding the COVID-19 testing process?** | **28 - Did you face any challenges related to understanding the process of receiving a COVID-19 vaccine at any point, if desired?** |
|---|---|---|
| | **n (%)** | **n (%)** |
| No challenges | 57 (69.0) | 58 (71.0) |
| Mild challenges | 10 (12.0) | 8 (10.0) |
| Moderate challenges | 3 (4.0) | 4 (5.0) |
| Severe challenges | 1 (1.0) | - |
| I never needed to get tested or vaccinated for COVID-19 | 8 (9.6) | 5 (6.0) |
| I do not wish to disclose. | 4 (4.8) | 7 (9.0) |
| **Total** | 83 | 82 |

**Qualitative Results**

Several respondents highlighted confusion regarding COVID-19 testing and vaccination processes (see Table 7). Common themes included unclear information, accessibility issues, and complex logistics. Challenges also arose from the need for manual dexterity in self-testing and transportation for drive-up options.

Table 7: COVID-19 Testing and Vaccine Understanding Qualitative Results

| Themes | Codes | Excerpts |
|---|---|---|
| Information and Accessibility | Information Unclear, Access Difficult, Complex Logistics | "Well information wasn't simple to understand lot of people wouldn't let do it yourself had put your hands on person sucks I don't want be touched" |
| | | "Unethical ass advice Had wheel miles in the freezing cold to get tested." |
| | | "Drive up testing built on expectation everyone has access to a ride. If I got sick I was told to take an Uber, potentially exposing someone else." |
| | | "It's hard to understand the vaccine booster and dosage dates honestly. I never really know when I should get one or which kind and the CDC website is literally no help when it comes to thay" |
| Testing Process | Complex Logistics, Testing Chaotic | "None of it was intuitive. The rapid tests are the most difficult... They require manual dexterity, maintenance in memory, and flexibility in instructions between tests that PCR's in the drive through didn't have" |
| | | "It was a mess" |

**Barriers to Obtaining Services**

Table 8 presents findings on the challenges respondents faced in obtaining medical services during the COVID-19 pandemic. Regarding COVID-19 testing, 20.0% experienced mild challenges, 16.0% moderate, and 10.0% severe, with 56.0% encountering no challenges and 15.0% deeming it not applicable. For COVID-19 vaccinations, challenges were noted by 11.0% with mild, 12.0% with moderate, and 6.0% with severe challenges.

Table 8: Barriers to Obtaining Medical Needs

| | **25 - Did you face any challenges to access COVID-19 testing when necessary?** | **27 - Did you face any challenges in your ability to access COVID-19 vaccines, if desired.** |
|---|---|---|
| | **n (%)** | **n (%)** |
| No challenges | 33 (40.0) | 45 (56.0) |
| Mild challenges | 17 (20.0) | 9 (11.0) |
| Moderate challenges | 13 (16.0) | 10 (12.0) |
| Severe challenges | 8 (10.0) | 5 (6.0) |
| Not Applicable/Unknown | 12 (14.0) | 12 (15.0) |
| **Totals** | 83 | 81 |

Table 9 explains respondents' reasons for not receiving the COVID-19 vaccine. The most common response indicated that there were no barriers faced to being able to receive a COVID-

19 vaccine at 59%. Individuals did also commonly respond with indications about not wishing to receive a vaccine and being concerned about the potential side effects at 17% for each response.

Table 9: Barriers indicated for respondents not receiving a COVID-19 vaccine.

| **Response** | **n (%)** |
|---|---|
| I faced no barriers. | 42 (59) |
| I did not wish to be vaccinated. | 12 (17) |
| I do not wish to disclose. | 5 (7) |
| I was not eligible at the time and did not pursue it further. | 1 (1) |
| I don't believe a COVID-19 vaccine is necessary. | 6 (8) |
| My doctor has not recommended it. | 1 (1) |
| I already had COVID-19. | 9 (13) |
| I don't know if a COVID-19 vaccine will protect me. | 5 (7) |
| I am not required to get a COVID-19 vaccine (by my work or school). | 5 (7) |
| I experienced side effects from my previous dose(s) of the COVID-19 vaccine. | 2 (3) |
| It's hard for me to get a COVID-19 vaccine because I do not have transportation. | 1 (1) |
| I am concerned about possible side effects of a COVID-19 vaccine. | 12 (17) |
| I plan to wait and see if it is safe and may get it later. | 3 (4) |
| I am concerned about the cost of a COVID-19 vaccine. | 1 (1) |
| I don't trust COVID-19 vaccines. | 11 (15) |
| I don't trust the government. | 7 (10) |
| I don't think COVID-19 is that big of a threat. | 3 (4) |
| I believe one dose is enough to protect me. | 2 (3) |
| I did not have anyone to go with me. | 1 (1) |
| Other: please specify. | 10 (14) |

Table 10 indicates respondent's reasons for not receiving COVID-19 boosters. The most common responses indicated that respondents faced no barriers to receiving either COVID-19 boosters. Side effect concerns were another large reason for not getting a COVID-19 booster shot at 15%.

Table 10: Barriers indicated for respondents not receiving a COVID-19 booster dose.

| **Response** | **n (%)** |
|---|---|
| I faced no barriers. | 36 (50) |
| I did not wish to be vaccinated. | 17 (24) |
| I do not wish to disclose. | 3 (4) |
| I plan to get a booster but haven't made an appointment or had time to do it. | 4 (6) |
| I don't believe a COVID-19 booster is necessary. | 10 (14) |

| | |
|---|---|
| I am concerned about possible side effects of a COVID-19 booster. | 11 (15) |
| My doctor has not recommended it. | 3 (4) |
| I already had COVID-19. | 9 (13) |
| I am not required to get a COVID-19 booster (by my work or school). | 4 (6) |
| I experienced side effects from my previous dose(s) of the COVID-19 vaccine. | 8 (11) |
| It's hard for me to get a COVID-19 booster dose because I do not have transportation. | 2 (3) |
| It’s hard for me to get a COVID-19 booster because I cannot get an appointment. | 1 (1) |
| I did not have anyone to go with me. | 1 (1) |
| Other: please specify. | 7 (10) |

**Qualitative Results**

Respondents identified several barriers to obtaining PPE, COVID-19 testing, vaccines, and boosters. Key themes included accessibility, cost, communication, and healthcare systems. Issues with the affordability and fit of both adaptable and regular PPE were raised. Deaf and hard of hearing individuals experienced stress and anxiety due to healthcare providers' lack of preparedness and the absence of clear mask options. Overall, the pandemic intensified existing systemic challenges faced by individuals with disabilities, highlighting the adverse impact of COVID-19 policies. These results are displayed in Table 11.

Table 11: Barriers indicated for respondents for COVID-19 Vaccines, Testing, and PPE

| Themes | Codes | Excerpts |
|---|---|---|
| Accessibility | Testing Site, Accessibility, Transportation, Vaccine Availability, Appointments | "It was hard to find a good mask that properly fit my face," |
| | | “There were healthcare providers that discouraged testing” |
| | | “The vaccine was not readily available when first released.” |
| Cost | PPE Cost, Affordability, Testing Cost | "Early on I invested in cloth and paper face masks but ran out of money," |
| | | “Testing is no longer free and is less available and accessible." |
| | | "I still don't have access to masks with clear mouth windows that have the filters I need. They exist but we don't have the money anymore. My current important PPE (a high filter respirator needs several parts replaced and I don't have the money) is deteriorating" |
| Communication | Testing Procedure, Communication, Healthcare | "The public was not disability aware in terms of communicating with individuals who are deaf or hard of hearing," |
| | | “Some healthcare providers were not adequately prepared to accommodate the needs of deaf and hard of hearing patients.” |

| | | |
|---|---|---|
| | Provider, Attitudes, Accommodation | "Yes, at the drive-thru testing site where I could not understand the procedure of how to be tested while the tester was wearing a mask; I was frustrated and anxious, which affected my mental health." |
| Healthcare System | Healthcare Provider, Attitudes, Accommodation, Healthcare System | "The early hours days or weeks Not only was it time-consuming to sit in lines you also did not get your results back in a timely manner," |
| | | “The dogmatic 'pro-vaxxers' also made it a nightmare.” |
| | | "Everything was drive up and can’t do that if you take any transportation and wouldn’t ship testing kits to P.O. Box" |
| Impact | Impact, Effects, Consequences | "The pandemic had a significant economic impact on many individuals," |
| | | "The pandemic had a significant impact on the mental health of many individuals." |
| | | "It all boils down to trust. Its broken and its not going to be repaired that easily. I knew it twenty years ago, watching how vaccine discourse deterioriated on all sides, but people want to at like "its just the uneducated' and "anti-vaxxers". I knew that there would be problems if we every had something like this happen, because public health systems do not weight the impact of historical damage on marginalized people the way it needs to and are very dismissive. And here is the reality. Post-Covid 19, when another problem comes around again, and it will, you will have even fewer people willing to trust. It only gets worse from here if the medical community and public health don't take responsibility for their gaslighting and dismissiveness" |

## Discussion

The results in this report are a preliminary data analysis. The results examined all responses to the survey, both individuals with disabilities and their support people to gain a better understanding of how individuals with disabilities were impacted by the pandemic. For clarity, the discussion of this report is organized to mirror the results section and the corresponding research questions are indicated within each topic.

### Demographics

Respondents of the second iteration of the ACIL unmet needs survey were required to be from the State of Ohio and over 18 years of age. Table 1 shows the demographic makeups of the respondents that fit these classifications as their self-identified disability group. Most respondents, at 28.3%, were aged 18-29 years old. Many respondents identified as female and identified as being white. The most common disability self-identification statuses were related to difficulties remembering, concentrating, or making decisions because of a mental, physical, or emotional condition at 31.5%. Most respondents were from Montgomery County (33.0%). Compared to the US Census, Ohio’s population of individuals with disabilities is approximately 52% female and 48% male, which is not represented within the results of this study (U.S. Census Bureau, n.d.). In addition, most respondents identified as being white, which is representative of Ohio’s disability population with most individuals with disabilities being white (U.S. Census

Bureau, n.d.). In Ohio, individuals with disabilities aged 35-64 represent the second most common response in this study (U.S. Census Bureau, n.d.). The most common disability type in Ohio is an ambulatory disability, followed by a cognitive disability, which is like this study's results (U.S. Census Bureau, n.d.). These results, while not generalizable to the limitations of this study, provide a general overview on the impact of the COVID-19 pandemic on the population of Ohioans with disabilities.

**Unmet and Met Prominent Needs**

The first research question aimed to identify the key needs of individuals with disabilities during the COVID-19 pandemic, which included PPE, schooling, childcare, vaccinations, transportation, medical care, and social interactions. A significant 69.0% of respondents reported moderate to severe personal life changes due to the pandemic, highlighting its profound impact. One study indicated that mental health and access to healthcare services were disproportionately affected for this group (Kavanagh et al., 2022). Specifically, 60.0% of respondents expressed a need for social interactions, 48.0% for PPE, and 42.0% for mental health support, echoing findings of social grief and isolation as major stressors (Lund et al., 2020). In this study, access to healthcare services saw mild, moderate, and severe changes for 34.0%, 25.0%, and 18.0% of respondents, respectively. Literature indicates that the pandemic also posed severe challenges for 39.5% of those needing caregivers in terms of availability and safety, supported by findings of significant care disruptions (Kowanda et al., 2021). In the current study, regarding healthcare services, 48.0% of respondents never needed emergency services during the pandemic, while 24.0% said their navigation of these services was affected. Among caregivers, 32.7% reported needing emergency services for those they assisted during this time (Kowanda et al., 2021).

**Qualitative Results**

The qualitative analysis, regarding research questions 1, 5 and 6, indicated themes of access barriers, mental health, long term care, specialized care, home health, emergency care, and systemic issues. The most prominent health needs for individuals with disabilities noted during this survey were related to social isolation and a need for social interaction and mental health support, a need for increased accessibility to all services for individuals with disabilities including emergency care, routine services, and supplies for individuals with disabilities that fit their needs adequately. Individuals with disabilities are considered more likely to have barriers to accessing healthcare, including home health and mental healthcare, which can be exacerbated during a pandemic (Armitage & Nellums, 2020).

Qualitative responses consistently highlighted physical and mental health impacts, including worsened existing conditions, new COVID-19-related health issues, and increased stress and anxiety due to pandemic-related uncertainties. Severe disruptions to access and availability to healthcare and mental health support can disproportionately affect individuals with disabilities (Lund et al., 2020). The analysis revealed a lack of government support and resources for individuals with disabilities, coupled with a failure to hold accountable those responsible for these shortcomings.

**Personal Protective Equipment**

Personal protective equipment was an additional major need for individuals with disabilities during the COVID-19 pandemic (research question 2). Over 40% of respondents indicated they faced no challenges in this area; however, 31.0% indicated that they faced mild challenges related to obtaining PPE. This indicates that local governments such as public health departments, local organizations, and stores that offered PPE did well at maintaining these supplies throughout the pandemic.

Respondents reported access to PPE but emphasized the importance of understanding its use. Information on PPE from various sources—health departments, doctors, hospitals, social media, and news—strengthens this understanding. Without proper knowledge, PPE is ineffective. Notably, 77.0% of respondents encountered no challenges in understanding how to use PPE, indicating effective communication and education on the topic. Additionally, 74.0% faced no difficulties in using COVID-19 PPE, highlighting its accessibility for individuals with disabilities.

Individuals with disabilities faced widespread challenges during the COVID-19 pandemic related to PPE, vaccinations, and testing services. While general PPE was not a significant issue, 34% of respondents encountered difficulties with adaptable PPE, suggesting a need for better access and education about its availability. Communication barriers, such as difficulties in reading body language and hearing in virtual settings, further complicated adherence to COVID-19 regulations.

**Qualitative Results**

These results addressed research questions 2, 5, and 6. Several respondents reported standard supply issues, including difficulties obtaining N-95 masks and respirators due to transportation, financial barriers, or unavailability. Although only 26% faced moderate to severe challenges in acquiring PPE, more significant issues were noted early in the pandemic by respondents. Confusion about masking guidelines, including when to wear masks, which types to use, and proper wearing techniques, was prevalent.

Some individuals struggled to use specific PPE independently, requiring assistance to put on or remove masks. Additionally, certain types of PPE triggered illnesses or allergies, limiting their use. Those with hearing loss faced communication barriers due to mask-wearing, which obstructed lip reading and muffled speech, complicating interactions with others. Clear face shields or masks with a clear window also posed challenges by distorting facial expressions and muffling speech, despite being more adaptable (Moreland et al., 2021). Individuals with vision loss reported difficulty wearing gloves, which hindered braille reading and touch navigation. Social distancing recommendations further restricted their ability to interact with their environment, disproportionately impacting those with visual disabilities (Senjam, 2020).

Individuals facing challenges during the COVID-19 pandemic frequently reported issues with hearing loss and difficulty finding clear-window masks for lip reading. They also struggled with the general supply and cost of these masks, feeling torn between understanding others or risking exposure to COVID-19 by removing masks, even in healthcare settings. Shortages of

medical and PPE disproportionately affected people with disabilities due to rationing and access limitations (Andrews et al., 2021). PPE was generally accessible, its lack of accessibility increased barriers for individuals with disabilities, reducing their understanding, social access, and raising public awareness issues.

### COVID-19 Testing and Vaccines

COVID-19 testing and vaccinations did not have significant impact for individuals with disabilities (research question 3). While 69.0% of respondents reported no challenges with the testing process and 14.4% either did not need testing or chose not to respond, a small portion did face difficulties. Similarly, 71.0% reported no challenges with the vaccination process. Addressing these challenges by providing accessible information about testing and vaccinations is essential to reduce stress and anxiety (Rotenberg et al., 2021).

### Qualitative Results

These results addressed research questions 3, 5, and 6. Respondents reported challenges in understanding complex information, emphasizing the need for clear, concise communication in multiple formats which mirrors another research (Rotenberg et al., 2021). During Ontario's COVID-19 vaccination studies, only 32% of public health units had accessible websites, and just 9% offered sign language interpretation (Rotenberg et al., 2021). Individuals cited confusion over vaccination schedules, types, and availability, highlighting issues of unclear and inaccessible information. Although Ontario's study incorporated accessible clinics for individuals with disabilities, addressing these challenges through dedicated accessible vaccine clinics could effectively meet the needs identified by respondents (Rotenberg et al., 2021).

### Barriers to Obtaining Services

Barriers to obtaining services addressed research question 4. Access to COVID-19 testing was another obstacle, with 40% of respondents reporting no challenges. However, testing rates among individuals with disabilities were notably low (Martin et al., 2024). Regarding vaccinations, 56% of respondents experienced no barriers, yet inconsistencies in information and accessibility created significant challenges for many (Epstein et al., 2021).

Reasons for vaccine hesitancy included distrust (41.1%), perceptions of the vaccine as unnecessary (19.1%), concerns about side effects (25.0%), and previous protections (11.8%). Distrust was the most significant barrier, fueled by misinformation and fluctuating guidelines throughout the pandemic, as shown in Appendix B. Studies indicated that individuals with sensory disabilities also exhibited feelings of distrust toward the vaccine (Hinson-Enslin & Espinoza, 2024).When respondents were asked about barriers to COVID-19 booster doses, themes of distrust, unnecessary, side effects, and previous protections emerged as illustrated in Appendix C. Concerns about side effects were more pronounced for boosters, reflecting the impact of initial vaccination experiences and changing requirements over time.

### Qualitative Results

Respondents also encountered various barriers to COVID-19 testing, including long wait times, challenges with obtaining tests, and transportation issues that hindered access to drive-up

testing. Many individuals had to risk exposure to COVID-19 or travel long distances for testing, highlighting transportation as a significant barrier early in the pandemic (Kavanagh et al., 2021).

Although more individuals faced no challenges with COVID-19 vaccines compared to testing, those who did expressed concerns about accessibility and convenience, including vaccine availability and travel distance. The CDC's disability information and access line helped some overcome these barriers, but challenges remained (Rattay et al., 2024). Personal health issues, such as allergies and pre-existing conditions, also affected vaccine access for some respondents.

Key themes surrounding barriers faced by individuals with disabilities included accessibility, healthcare system limitations, and communication difficulties. Many struggled to understand masked speakers and found healthcare providers inadequately prepared for communicating with those who are hard of hearing. Responses also indicated frustrations with the healthcare system, such as long wait times for test results and the inaccessibility of drive-up testing. Attitudinal barriers regarding vaccines and testing hindered empathetic interactions, reflecting broader impacts on economic stability, mental health, and trust in government and public health entities during the pandemic. These results addressed research questions 4, 5, and 6.

### Summary

The second iteration of the ACIL unmet needs survey for Ohioans with disabilities revealed significant barriers in the COVID-19 pandemic's aftermath, highlighting areas for future emergency planning and response. While disparities existed, respondents demonstrated a good understanding of PPE, testing, and vaccinations, suggesting effective information dissemination and equitable access in these areas. Key needs identified included mental health, socialization, and accessible PPE, indicating that overall, public health responses were successful for many. The pandemic exposed gaps in mental healthcare and social support for individuals with disabilities, alongside a notable lack of trust in policy and government, which must be addressed in future emergency preparedness. Accessible healthcare and awareness of the needs of this population were emphasized throughout the research. Further research is needed to assess the pandemic's true impact on the disability community. This study documented perceived barriers, but ongoing assessment will reveal lasting effects. Addressing highlighted challenges is crucial for improving public health emergency responses, ensuring that the disability community is adequately represented and has equal access in planning and response efforts.

## Limitations

This study's interpretation of the data should consider its limitations. As a cross-sectional design, it cannot establish causal relationships. It is susceptible to biases such as response, recall, and self-selection bias. The convenience sample was not randomized, and the survey, primarily distributed online and through select channels, may not represent all Ohioans with disabilities. Although the sample size was large (146 respondents), the results may not be generalizable due to its distribution methods and the nature of online surveys. Respondents might have skewed opinions regarding COVID-19 policies that do not reflect the broader population. Additionally, the survey's self-identification questions may lead to recall and self-selection biases. Responses

to the survey were allowed for individuals with disabilities and their support people; therefore, there may be instances of support people whose filling out the survey on behalf of an individual with a disability. This could limit the results of the study. The qualitative analysis, conducted using Google Gemini, raises concerns as AI can misinterpret data, potentially leading to inaccurate results (Le et al. 2024). A thorough review was conducted by the primary investigator to ensure the themes identified matched respondent consensus.

## Public Health Implications

The survey results highlight critical public health implications for future emergency planning and response, emphasizing the issues of distrust and misinformation. These factors pose significant challenges during emergencies, such as pandemics, especially as social media and politicized news can influence public behavior. Addressing misinformation is essential to mitigate fear and ensure compliance, while also focusing on those most vulnerable to false information (Chowdhury et al., 2023).

Moreover, accessible information for individuals with disabilities is vital. Existing policies, like the Americans with Disabilities Act (ADA), mandate that emergency communication services are equally accessible. To improve communication, agencies should implement readable captions, unobstructed interpreters, and various formats that ensure equal access (LaForce & Bright, 2024). While PPE is available for individuals with disabilities, adaptable options remain limited. Ensuring access to adaptable PPE is crucial for inclusivity. Further research to determine the most appropriate and effective types of PPE for individuals with disabilities could be paramount in addressing these barriers.

With the increasing population of individuals with disabilities, educating health professionals and the public about disability-related challenges is vital (Iezzoni & Long-Bellil, 2012). Training on disability etiquette, resources, and ADA policies can enhance understanding and improve services, such as providing masks with clear windows for better communication for the deaf or hard of hearing. The COVID-19 pandemic exposed significant access gaps for individuals with disabilities, underscoring the need to address these barriers proactively to enhance access during emergencies. Partnering with disability community members is crucial, as their insights are invaluable for effective planning. The principle “Nothing about us, without us” serves as a critical reminder for public health professionals in emergency preparedness (Iezzoni & Long-Bellil, 2012).

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**Appendix A: Qualitative Themes for Not Receiving COVID-19 Vaccinations**

| **Multiple Responses** | **Overlapping Themes** | | | |
|---|---|---|---|---|
| | **Distrust**<br>*Wait for safety, government distrust, vaccine distrust* | **Unnecessary/ Unneeded**<br>*Not needed, not required by work or school, not recommended by Dr* | **Side Effects**<br>*Possible side effects, past side effects* | **Previous Protections**<br>*One dose is enough, already had COVID-19* |
| I faced no barriers and | | | | |
| I already had COVID-19, I plan to wait and see if it is safe and may get it later, I don't trust COVID-19 vaccines, I don't trust the government. | 3 | - | - | 1 |
| I did not wish to be vaccinated, I don't know if a COVID-19 vaccine will protect me, I am not required to get a COVID-19 vaccine (by my work or school), I am concerned about possible side effects of a COVID-19 vaccine, I don't trust the government. | 2 | 1 | 1 | - |
| I did not wish to be vaccinated and | | | | |
| I already had COVID-19, I am concerned about possible side effects of a COVID-19 vaccine, I plan to wait and see if it is safe and may get it later. | 1 | - | 1 | 1 |
| I don't believe a COVID-19 vaccine is necessary, I already had COVID-19, I am concerned about possible side effects of a COVID-19 vaccine, I don't trust COVID-19 vaccine, I don't think COVID-19 is that big of a threat, Other: please specify. | 1 | 1 | 1 | 1 |
| I don't believe a COVID-19 vaccine is necessary, I already had COVID-19, I don't know if a COVID-19 vaccine will protect me, I am not required to get a COVID-19 vaccine (by my work or school), I am concerned about possible side effects of a COVID-19 vaccine, I don't trust COVID-19 vaccines, Other: please specify. | 2 | 2 | 1 | 1 |

| | | | | |
|---|---|---|---|---|
| I don’t believe a COVID-19 vaccine is necessary, I am concerned about possible side effects of a COVID-19 vaccine, I don’t trust COVID-19 vaccines. | 1 | 1 | 1 | - |
| I don’t believe a COVID-19 vaccine is necessary, I am concerned about possible side effects of a COVID-19 vaccine, I don’t trust COVID-19 vaccines, I don’t trust the government, I don't think COVID-19 is that big of a threat. | 2 | 1 | 1 | - |
| I don’t believe a COVID-19 vaccine is necessary, I don’t trust COVID-19 vaccines, I don’t trust the government, I don't think COVID-19 is that big of a threat. | 2 | 1 | - | - |
| I don’t believe a COVID-19 vaccine is necessary, I plan to wait and see if it is safe and may get it later, I don’t trust COVID-19 vaccines. | 2 | 1 | - | - |
| I don’t know if a COVID-19 vaccine will protect me, I am not required to get a COVID-19 vaccine (by my work or school), I am concerned about possible side effects of a COVID-19 vaccine, I don’t trust COVID-19 vaccines, I don’t trust the government. | 3 | 1 | 1 | - |
| I was not eligible at the time and did not pursue it further, I don’t know if a COVID-19 vaccine will protect me, I am not required to get a COVID-19 vaccine (by my work or school), I am concerned about possible side effects of a COVID-19 vaccine, I am concerned about the cost of a COVID-19 vaccine, I don’t trust COVID-19 vaccines. | 2 | 1 | 1 | - |
| Others | | | | |
| I already had COVID-19, I don’t know if a COVID-19 vaccine will protect me, I am concerned about possible side effects of a COVID-19 vaccine. | 1 | - | 1 | 1 |
| I do not wish to disclose, I already had COVID-19, I am not required to get a COVID-19 vaccine (by my work or school). | | 1 | - | 1 |

| | | | | |
|---|---|---|---|---|
| I don't trust COVID-19 vaccines, I don't trust the government, I believe one dose is enough to protect me. | 2 | - | - | 1 |
| I don't trust COVID-19 vaccines, I don't trust the government, I believe one dose is enough to protect me | 2 | - | - | 1 |
| I experienced side effects from my previous dose(s) of the COVID-19 vaccine, it's hard for me to get a COVID-19 vaccine because I do not have transportation, I am concerned about possible side effects of a COVID-19 vaccine, I don't trust COVID-19 vaccines, I don't trust the government, Other: please specify. | 2 | - | 2 | - |
| I experienced side effects from my previous dose(s) of the COVID-19 vaccine, it's hard for me to get a COVID-19 vaccine because I do not have transportation, I am concerned about possible side effects of a COVID-19 vaccine, I don't trust COVID-19 vaccines, I don't trust the government, Other: please specify. | 2 | - | 2 | - |
| My doctor has not recommended it, I already had COVID-19, I experienced side effects from my previous dose(s) of the COVID-19 vaccine, I am concerned about possible side effects of a COVID-19 vaccine, Other: please specify. | - | 1 | 2 | - |
| My doctor has not recommended it, I already had COVID-19, I experienced side effects from my previous dose(s) of the COVID-19 vaccine, I am concerned about possible side effects of a COVID-19 vaccine, Other: please specify. | - | 1 | 2 | - |
| **Totals**<br>*19 responses with 68 sorted theme options* | **n (%)** | **n (%)** | **n (%)** | **n (%)** |
| | 30 (44.1) | 13 (19.1) | 17 (25.0) | 8 (11.8) |

**Appendix B: Qualitative Themes for Not Receiving COVID-19 Boosters**

| **Multiple Responses** | **Overlapping Themes** | | | |
|---|---|---|---|---|
| | **Distrust**<br>*Wait for safety, government distrust, vaccine distrust* | **Unnecessary/ Unneeded**<br>*Not needed, not required by work or school, not recommended by Dr* | **Side Effects**<br>*Possible side effects, past side effects* | **Previous Protections**<br>*One dose is enough, already had COVID-19* |
| I did not wish to be vaccinated and | | | | |
| I am concerned about possible side effects of a COVID-19 booster, I am not required to get a COVID-19 booster (by my work or school). | - | 1 | 1 | - |
| I am concerned about possible side effects of a COVID-19 booster, I experienced side effects from my previous dose(s) of the COVID-19 vaccine, it's hard for me to get a COVID-19 booster dose because I do not have transportation, Other: please specify. | - | | 2 | |
| I don't believe a COVID-19 booster is necessary. | - | 1 | - | - |
| I don't believe a COVID-19 booster is necessary, I already had COVID-19. | - | 1 | - | 1 |
| I don't believe a COVID-19 booster is necessary, I already had COVID-19, I am not required to get a COVID-19 booster (by my work or school). | - | 2 | - | 1 |
| I don't believe a COVID-19 booster is necessary, I am concerned about possible side effects of a COVID-19 booster, I already had COVID-19, I am not required to get a COVID-19 booster (by my work or school), Other: please specify. | - | 2 | 1 | 1 |
| I faced no barriers and | | | | |

| | | | | |
|---|---|---|---|---|
| I don't believe a COVID-19 booster is necessary, I already had COVID-19. | - | 1 | - | 1 |
| I experienced side effects from my previous dose(s) of the COVID-19 vaccine. | - | - | 1 | - |
| I Plan to Get a Booster but Haven't Made and Appointment or Had Time and | | | | |
| I am concerned about possible side effects of a COVID-19 booster, Other: please specify. | - | - | 1 | - |
| I experienced side effects from my previous dose(s) of the COVID-19 vaccine. | - | - | 1 | - |
| It's hard for me to get a COVID-19 booster dose because I do not have transportation. | - | - | | - |
| Others | | | | |
| I already had COVID-19, I experienced side effects from my previous dose(s) of the COVID-19 vaccine. | - | - | 1 | 1 |
| I am concerned about possible side effects of a COVID-19 booster, I already had COVID-19. | - | - | 1 | 1 |
| I am concerned about possible side effects of a COVID-19 booster, I already had COVID-19, I experienced side effects from my previous dose(s) of the COVID-19 vaccine. | - | - | 2 | 1 |
| I am concerned about possible side effects of a COVID-19 booster, my doctor has not recommended it. | - | 1 | 1 | - |
| I don't believe a COVID-19 booster is necessary, I am concerned about possible side effects of a COVID-19 booster, I am not required to get a COVID-19 booster (by my work or school), I experienced side effects from my previous dose(s) of the COVID-19 vaccine. | - | 2 | 2 | - |
| I don't believe a COVID-19 booster is necessary, I am concerned about possible side effects of a COVID-19 booster, my | - | 2 | 1 | 1 |

| | | | | |
|---|---|---|---|---|
| doctor has not recommended it, I already had COVID-19. | | | | |
| I don't believe a COVID-19 booster is necessary, my doctor has not recommended it, I already had COVID-19. | - | 2 | - | 1 |
| **Total** | **n (%)** | **n (%)** | **n (%)** | **n (%)** |
| 18 responses- 39 sorted theme options | 0 (0) | 15 (38.5) | 15 (38.5) | 9 (23.0) |