BRIEF RESEARCH REPORT

Implementation of remote support services: Pre-COVID-19

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Abstract

In this national survey of departments of developmental disabilities services across the United States, we attempted to establish the number of the states that made remote support services available as an authorized service in some state Medicaid funded developmental disabilities waiver programs. Remote support services were defined as a service that uses technology to support an individual with developmental disabilities and is provided from a location outside of the person's home. Remote support services involve the use of technology to provide real-time assistance from a direct support professional from a remote location. We found that 18 of the 49 states (37%) that responded to our telephone survey reported offering some form of remote support services. This survey was conducted pre-COVID-19 and the implications of the availability of remote support services are discussed especially in light of COVID-19.

KEYWORDS

developmental disabilities, independent living, intellectual disability, remote support services, technology

This study surveyed state departments of developmental disabilities in the United States (US) regarding the prevalence of a service often referred to as remote monitoring or remote support services. There exists several approaches to the organization of state services. With regard to human services, these may be broken down into specific departments such as a department of mental health, department of aging, as well as a department of developmental disabilities. However, in some US states, one department may oversee a number of these services (e.g., Department of mental health, substance abuse, and developmental disabilities). In this manuscript, we use the term "state department of developmental disabilities" to refer to the state governmental entity that oversees services for people with developmental disabilities. A nationwide program of funding from the Centers for Medicare and Medicaid Services (CMS) provides funds to support community-based services and supports for individuals with developmental disabilities to provide an alternative to institutional care (Social Security Act, Section 1915c; Duckett & Guy, 2000). Alternatives to institution-based services are referred to nationally as Medicaid Home and Community-Based Services (HCBS) for people with developmental disabilities, of which

remote support services is an example of one type of service provided under this funding mechanism.

BACKGROUND

In 2018, Ohio governor John Kasich signed an executive order declaring Ohio a "Technology First" state in the United States, placing the consideration of technology supports as a priority in delivering services through the Ohio Department of Developmental Disabilities (DODD) (Executive Order No. 2018-06k, 2018; Ohio Department of Developmental Disabilities, 2018, p. 12). This executive order mandated all state developmental disabilities agencies to consider technology solutions as an option of first consideration during individual support planning procedures for Ohioans with intellectual disability and developmental disabilities (ID/DD). Since then, more states have identified themselves as Technology First states, enacting similar orders that reflect this major perspective shift among state departments of developmental disabilities (Tanis, 2021). Today, it is becoming more widely accepted that remote support services and technologies for individuals with ID/DD are an effective type of support to independent living and self-determination. Remote support services and technologies present a promising avenue through which comprehensive and high-quality care can be delivered while addressing the growing challenge of providing direct, in-person supports. This reality has never been true, since the onset of the world-wide coronavirus/COVID-19 pandemic.

INCREASED DEMAND FOR HOME AND COMMUNITY-BASED SERVICES

In the US like elsewhere, we have seen a deinstitutionalization movement of people with ID/DD over the last several decades and studies following this movement have reported on the uncontested overwhelming benefits of living in the community (Chowdhury & Benson, 2011; Kozma et al., 2009; O'Brien et al., 2001). As Intermediate Care Facilities for individuals with Intellectual Disability (ICF-ID) and other congregate care settings have continued to reduce the number of people served, the number of people with ID/DD seeking HCBS has increased exponentially. Across the US, the total number of people served in congregate care settings of 16 or more individuals has *decreased* by 33 519 people since 2007. In contrast, the number of people served in community-based settings of six individuals or less has *increased* by 191 496 people (Tanis et al., 2020). During the COVID-19 pandemic, people with ID/DD were more vulnerable to experiencing more severe symptoms, hospitalizations, and death as a result of COVID-19 (Henderson et al., 2021; Turk et al., 2020). Generally, people living in congregate settings, including ICF-ID settings, were reporting COVID-19 infection rates that were alarmingly higher than for people living in smaller community settings (Doody & Keenan, 2021). The CMS had encouraged service recipients to explore alternative options as noted by this statement, "The COVID-19 crisis has shone a harsh light on the human costs of a long-term care system that relies too heavily on institutional services like nursing homes. Too often, they are seen as the default option, even for those who may not require round-the-clock care" (Centers for Medicare & Medicaid Services, 2020, para. 2). This increased demand placed an unprecedented burden on the Home Health Aides workforce, including direct support professionals (DSP), to support individuals with ID/DD. Home Health Aides are among the most in-demand occupations in the US. In fact, the Bureau of Labor Statistics has estimated that between 2019 and 2029, the demand for Home Health Aides would see an increase in demand that is "much faster than average" (34%; Bureau of Labor Statistics, U.S. Department of Labor, Bureau of Labor Statistics, 2020).

The increase in people seeking alternative options additionally places a burden on state departments of developmental disabilities to provide funding for programs that are alternative to ICF-IDs. In the majority of states, the result has been to relegate people with developmental disabilities to wait lists for services. Though some states have avoided the need for a wait list, 36 states have not had that same success. A total of 473 000 individuals with ID/DD from these states are awaiting for services. Additionally, the average time spent on a wait list before being receiving state Medicaid funded HCBS developmental disabilities waiver services is five and a half years (Musumeci et al., 2019). It is possible that technology could be one solution to the growing problem of the waitlist.

In FY2017, $12.285 billion federal-state HCBS waiver funds were spent, accounting for 65% of total spending. Only 20 years prior, in 1997, less than a total of 5 billion dollars were spent, including federal-state HCBS waiver and non-waiver spending (Tanis et al., 2020). The expense of HCBS is a barrier that keeps many from being able to use self-directed services. It is apparent that in order to reduce the people on the wait list, alternative and less costly services that continue to meet the needs of individuals with developmental disabilities must be considered.

Remote support services

Remote support services are a relatively new and emerging form of support/service that uses technology to assist

individuals with ID/DD who receive long-term support and services (e.g., Medicaid HCBS waiver services) in the community. The number of states that include services that are similar in nature to remote support services are fewer than half, with only 18 states currently offering these types of services (based on a survey response from 48 states and the District of Columbia).

Between 2020 and 2021, several journals published articles regarding remote services which were offered in response to concerns about the spread of the highly contagious COVID-19 virus. Some of these services fit in our definition of remote support:

> a service that uses technology to support an individual with developmental disabilities from a location outside of the home. Remote monitoring/support involves the use of technology to provide live assistance from an engaged staff member from a remote location, outside of the home. This service is a billable service that typically cannot occur during the times that a direct support professional is working in the home.

However, many of these remote services are defined broadly—often using a virtual conferencing platform such as Zoom, FaceTime, or Microsoft Teams, among others, to continue conducting services for people who previously received homemaker personal care (HPC) services. This created opportunities to engage with Direct Support Professionals remotely. While some who use remote support services may only need this basic level of support, our interest was in supports that can meet a wide range of needs. While engaged remote support staff must be available, they often rely on passive monitoring solutions that notify the staff of when certain parameters are met that indicate when interaction is needed.

It is important to distinguish remote support services from telehealth services. Telehealth services are generally focused on the virtual delivery of healthcare consultations and services with a licensed healthcare or mental healthcare professional (Chike-Harris et al., 2021), whereas remote support services involve, as aforementioned, the use of a variety of technologies that permit the monitoring and communication for supports in lieu of the physical presence of a DSP. Research on the subject has shown that the use of remote support services has been used instead of having on-site staff providing supports in areas including safety, privacy, and independent task completion (Brewer et al., 2010; Taber-Doughty et al., 2010; Tassé et al., 2020). One statewide study conducted in Ohio found that safety and independence were the two most frequently endorsed benefits of remote support services by individuals with

ID/DD who used remote support services and their family members (Tassé et al., 2020).

Per the state of Ohio's definition of remote support, individuals have the ability to connect with on-duty DSPs remotely via video chat or phone calls from their home. Once connected, the remote support staff is able to assist the patient themselves or dispatch backup support (e.g., a family member, friend, or an on-call DSP) to provide hands-on assistance. Though each state is unique in their incorporation of remote support, the technology setup is always designed to respond to the needs of the individual using the service. Generally, remote support technology can include home-based sensors, automated medication dispensers, two-way communication systems, video cameras, and other technologies that allow a remotely located caregiver to monitor the health and safety of individuals with ID/DD living independently. Some states have relaxed limitations to better accommodate unique situations in which technologies, including many off the shelf technologies, help to meet a specific need that may not be applicable for all who use remote support (e.g., incorporating the use of a decibel meter to notify someone when their volume reaches an inappropriate level while in their apartment; a sensor on the front and back door to monitor when someone enters or exits the home—potentially a reason to call the user of remote support services if they are not home by a certain time, alert a caregiver of an elopement, or in some cases monitor for untrustworthy guests).

While in-person caregivers will always be a necessary resource for in-home health care, adoption of remote support enables provider agencies to serve more individuals without increasing personnel or overtime hours for their staff. The expansion of remote support services means that available staff members can be distributed to those other situations that need hands-on support while reducing the overall need for a physically available staff presence. For adults with ID/DD and other disabilities who want to reduce the physical presence of staff in their home, remote support technologies can meet a wide range of support needs, including those of people with the most severe health care needs.

This study is a novel investigation into the nationwide trend toward the provision, implementation, and use of remote support services and related technologies to support people with ID/DD.

METHODS

Procedure

Between May 30, 2018 and February 20, 2019 (9 months), surveyors contacted state departments of developmental

disabilities to conduct a telephone interview and inquire about the various remote support services being offered in each state. If a state has a service similar to remote support services, the state department that oversees services was contacted (similar services may be known by different names). Additionally, the staff who would know most about similar services have different titles and have varying job responsibilities. Though "Direct Support" is common nomenclature among state departments of developmental disabilities, "Remote Support Services" is known by many titles by those we surveyed. Therefore, surveyors asked to speak with the Director of the State Department of Developmental Disabilities, or to someone delegated by the Director who would also have knowledge about the state's provisions of remote support services. Our methodology of contacting states about their ID/DD services is similar to that employed by Braddock et al. (2017).

Directors of state departments of developmental disabilities oversee all state programs related to the state department of developmental disabilities and have the greatest overall knowledge of services available in each state. State directors were capable of identifying someone who could respond to our questions. Contact information for directors of state department of developmental disabilities are available publicly at the website for the National Association of State Directors of Developmental Disabilities Services (NASDDDS). If the director or their delegate was unavailable, a voice message was left and an email was sent to the identified point of contact requesting a follow-up phone call. The email included a brief introduction; information about the research topic, including a link to a video that explains remote support services in Ohio; a PDF document with questions; and a request to review questions prior to a phone interview. A modified version of this email was also sent after having scheduled a phone interview that included questions. During the initial telephone contact, a description of the research was provided and a longer, more detailed telephone interview was scheduled. It is during these telephone interviews that a series of survey questions were asked of the state representative who could also invite or consult with additional state employees to provide input

TABLE 1   Questions asked to state directors of developmental disabilities

1. What state are you answering questions on behalf of?
2. Remote monitoring or remote supports is a service that uses technology to support an individual with developmental disabilities from a location outside of the home. Remote monitoring/supports involves the use of technology to provide live assistance from an engaged staff member from a remote location; outside of the home. This service is a billable service that typically cannot occur during the times that a direct support professional is working in the home. Does your state have any service like this?
   a. If answered NO to question 2: Does your state plan on adding services for remote support services?
      i. If YES to question 2a: In what year is your state considering adding remote support services?
3. How does your state pay/reimburse for remote support services?
4. Can you send us or direct us to your state remote support services rule?
5. How many individuals in your state currently bill for remote support services?
6. How did you get stakeholder (e.g., families, providers) buy-in to rollout remote support services?
7. In what year did your state begin offering remote support services?
8. Has your state experienced any problems with remote support services?
9. Does your HCBS DD Waiver have a CAP on the total annual costs for remote supports equipment that can be billed/reimbursed?
10. In Fiscal Year 2017, what was the amount your state DD waiver system paid for the purchase or rental of remote support equipment?
11. Does your HCBS DD Waiver have a CAP on the total annual costs for remote support services that can be billed/reimbursed?
12. Does your state require two-way communication at all times for someone/an agency to bill for remote support service?
13. In Fiscal Year 2017, in what increments were remote monitoring/supports services billed for (e.g., 15 minute units, 1 hour units, daily units, per activity)
14. What is the cost per unit listed above?
15. In Fiscal Year 2017, what was the total cost your state spent/reimbursed on billable units for remote support services?
16. In what types of living situations does your state pay/reimburse for remote monitoring/supports services?
    a. Options:
       i. 16+ Nursing facility/state institution/ICF-IDD
       ii. 7–15 person group home
       iii. 7–15 person private/public ICF-IDD
       iv. <6 person group homes/supported living home
       v. <6 person private/public ICF-IDD
       vi. Family home
       vii. Person's own home
       viii. Other living setting, specify: _____
17. Would you be a good contact person in your state to discuss remote support services in the future?

in formulating their responses. Between telephone calls, the interview questions (see Table 1) were shared with the representative. This provided an opportunity for the respondent to find and consider information in advance of the more in-depth phone call. Conversations were scheduled for 15–30 minutes, though many phone calls did not require the entire 30 minutes. In this brief report, we will focus only on a selected number of responses to our list of questions. However, the reader may review Table 1 to see all questions asked.

The Institutional Review Board approval had been obtained for this study from the Ohio State University Behavioral Sciences Committee.

Special circumstances

In the event that someone emailed their responses to the first author rather than engaging in our structured telephone interview, we would accept their responses but still attempt to schedule a telephone interview to confirm and clarify emailed responses. In situations in which a state representative indicated that they did not offer remote support services, they were thanked for their time and sent an email with resources regarding remote support services in Ohio.

Analysis

During telephone interviews, responses were recorded in an digital survey platform called Survey Monkey. If open-ended responses did not fit into any categories already included, a new category was created and added to the survey, which would then carry over for future phone conversations with other states. At points when survey responses were too specific, responses with similarities were organized into more broad categories. For example, when asked "has your state experienced any problems with remote support services," the responses indicating concerns about hacking and concerns about being watched were both categorized under privacy concerns. The majority of questions were fairly straight-forward (e.g., yes/no or short response) and did not require any coding or further interpretation. Some responses were, however, more elaborate and sometimes difficult to tabulate due to differences in ways that states recorded these types of services and their associated costs (see discussion).

Definition of remote support services

Due to the differences in terminology from one state to the next, conversations with state representatives always

began with the establishment of an operational definition of remote support. Key to this data collection was an operational definition specific enough to avoid irrelevant information and broad enough that varying approaches to providing these services could be captured. In this study, remote support was verbally defined to state representatives as "a service that uses technology to support an individual with developmental disabilities from a location outside of the home. Remote monitoring/support involves the use of technology to provide live assistance from an engaged staff member from a remote location, outside of the home. This service is a billable service that typically cannot occur during the times that a direct support professional is working in the home."

Respondents commonly identified Personal Emergency Response Systems (PERS) as a variation of remote support. For the purposes of our analyses, states that used PERS but not other forms of remote support were *not* considered to be within the scope of remote support services. This is because remote support services should help to meet needs that extend beyond just responses to emergency situations.

> **Example 1.** A sensor in a bed has been disengaged three times between 12:00 am and 3:00 am, an indication that the individual has left the bed multiple times. If this is unusual, it may indicate that the individual using remote support is feeling sick. A remote support worker would call the individual to make sure they feel okay or need help.

> **Example 2.** Someone whose liver is prone to infection may be asked to take their temperature multiple times each day and show the results to a remote support worker via camera to make sure that there is no fever (an indication that an infection has started and the individual may need antibiotics).

RESULTS

Representatives from all 50 states and the District of Columbia were contacted. In all, 49 survey responses were collected and of the responding states, 31 (63%) reported not offering remote support services as a HCBS waiver service. In all, 18 states (37%) offered remote support as an alternative option to direct support services (see Figure 1). Although less than half of the responding states confirmed the provision of remote support services, the rate of adoption has markedly increased in the past decade (see Figure 2). Four states that did not already include remote support as a service option identified that
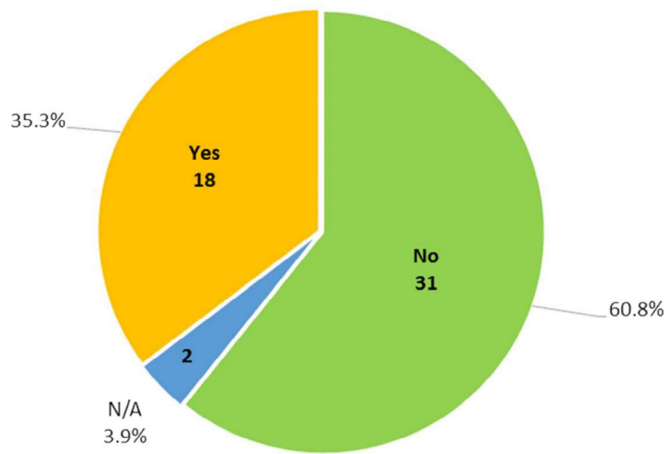
FIGURE 1 Number of US states offering remote support services in 2018–2019
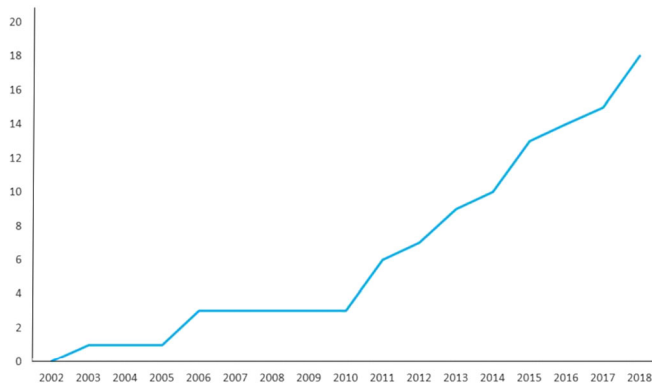

FIGURE 2 Number of US states that offered remote support services by calendar year

remote support would be added in 2019. Of these four, only one state confirmed they have added this service at the time of submission of this article.

While some states had multiple forms of financial support, such as state/county dollars or grants for families, 15 of the 18 states that offer remote support identified HCBS Waiver dollars as the primary funding source for remote support services. However, two states exclusively used state or county dollars to fund these services. Another difference between states' implementation of remote support was the limitations of settings in which states would pay/bill for remote support (see Figure 3).

When asked "Has your state experienced any problems with remote support services?", only four states reported experiencing no difficulties at their stage of remote support services implementation while 11 states that had implemented remote support services endorsed difficulties with its implementation (three states that offered remote support services did not respond to this question). The five most common barriers to widespread implementation of remote support services included: fears of danger ($n = 4$), privacy concerns ($n = 4$), difficulty obtaining user buy-in ($n = 4$), the perception that these services were cost-prohibitive ($n = 4$), and technology failures ($n = 3$).

Figure 4 illustrates the heatmap depicting the number of individuals reportedly using remote support services across the US. Missouri and Ohio were national leaders; Missouri identified a total of 115 people and Ohio identified a total of 277 people. Ohio and Missouri were also the first states to adopt a statewide "Technology First" approach to service provision. The states that offer
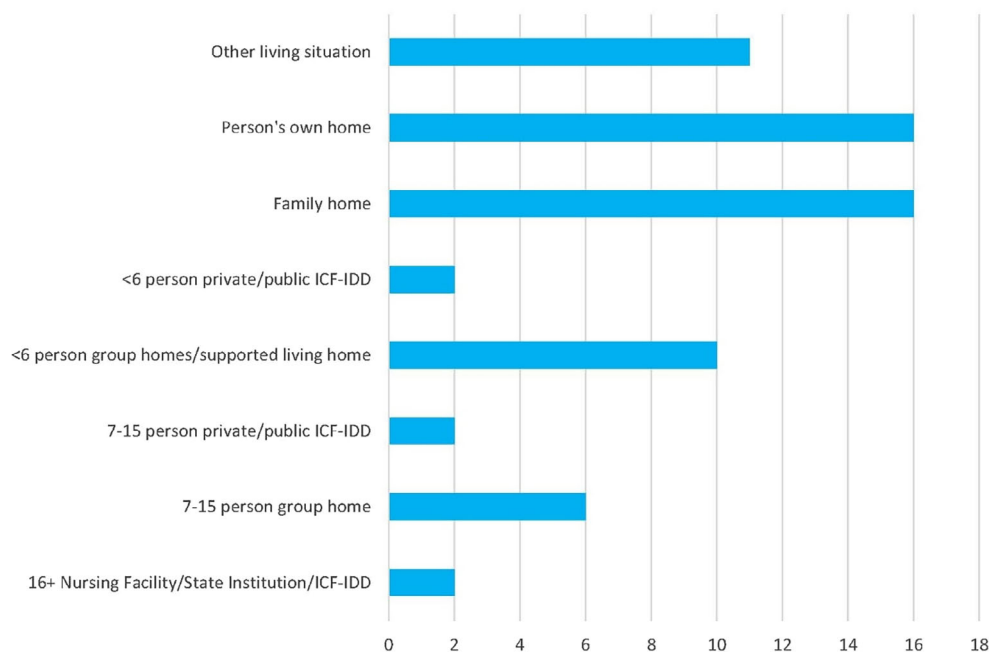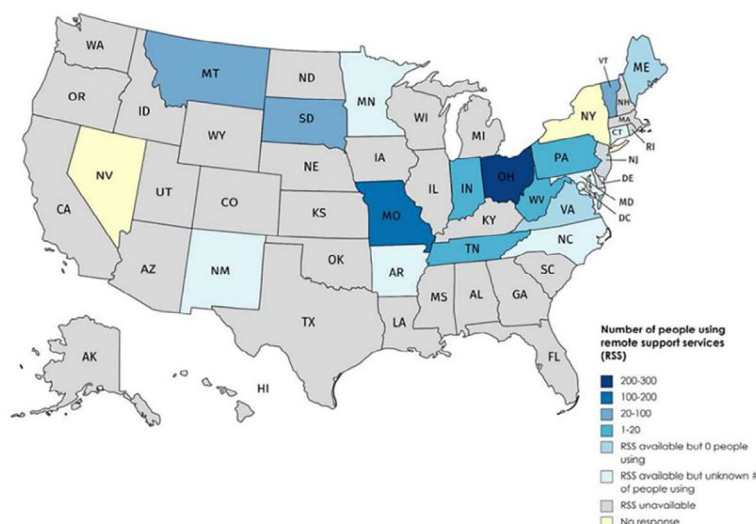

FIGURE 3 Settings in which states pay/bill for remote support services

Alabama	AL		Kentucky	KY		North Dakota	ND	
Alaska	AK		Louisiana	LA		Ohio	OH	*
Arizona	AZ		Maine	ME	*	Oklahoma	OK	
Arkansas	AR	*	Maryland	MD	*	Oregon	OR	
California	CA		Massachusetts	MA		Pennsylvania	PA	*
Colorado	CO		Michigan	MI		Rhode Island	RI	
Connecticut	CT	*	Minnesota	MN	*	South Carolina	SC	
Delaware	DE		Mississippi	MS		South Dakota	SD	*
District of Columbia	DC	*	Missouri	MO	*	Tennessee	TN	*
Florida	FL		Montana	MT	*	Texas	TX	
Georgia	GA		Nebraska	NE		Utah	UT	
Hawaii	HI		Nevada	NV		Vermont	VT	*
Idaho	ID		New Hampshire	NH		Virginia	VA	*
Illinois	IL		New Jersey	NJ		Washington	WA	
Indiana	IN	*	New Mexico	NM	*	West Virginia	WV	*
Iowa	IA		New York	NY		Wisconsin	WI	
Kansas	KS		North Carolina	NC	*	Wyoming	WY	

FIGURE 4   Number of people using remote support services by state during FY2017

Note. * = The states that were offering remote support services

remote support services are highlighted by an asterisk (*) in Figure 4.[1]

Six states (Alaska, Arizona, Delaware, Rhode Island, Wisconsin, and Wyoming) indicated that while they do not currently offer remote support, they have a plan to add the service by 2022 (within 3–4 years of having taken the survey). Wyoming indicated that they would add the service during 2019 and, after following up, informed us that remote support services were added in 2019. As states continue to expand their support of respective ID/DD populations through the provision of remote support services, it will be critical to follow up with these states, as well as those that identified themselves as offering remote support.

DISCUSSION

Though adoption of remote support by states has increased over the past decade, the movement toward standardizing the provision and utilization of remote support services across the United States is still nascent. In the coming years, as these types of services become increasingly more common, several additional avenues of research must be explored. If remote support services are widely implemented as a substitute for 24/7 on-site assistance from a DSP, analyses must be conducted to understand the impact that this transformation has on wait lists for services, the availability of DSPs for those who need on-site support and cost savings. At this time, it

seems promising that remote support service packages provide a safe support option that enables someone to live with greater independence and reduce the burden on on-site services.

Remote support services are one way that people with developmental disabilities can receive necessary services and supports while also implementing strategies that have been practised globally to mitigate the spread of COVID-19, namely physical distancing. By utilizing remote support services instead of the physical presence of a caregiver, someone can receive services and supports without ever being in danger of contact with the COVID-19. During the global pandemic, many have incorporated technology solutions to communicate with friends and family, purchase goods and services, get routine healthcare services, and accomplish their duties. Some reports show that services that support people with ID/DD at home and in the community turned to online solutions, frequently using video conferencing platforms such as Zoom (Bailey & Frattarola-Saulino, 2020). Exposure to technology solutions may ease many of the concerns that people have with technology and its ability to provide safe care while also promoting autonomy. People with ID/DD, their family members, and related professionals may be more willing than ever before to try customized technology solutions to meet an individual's specific needs in the form of remote support.

Research

As of May 2020, Ohio had identified more than 740 people enrolled in remote support (an increase of 463 people since last surveyed in 2018; DATA Ohio, 2021). Increasingly, people are turning to smart home technologies and remote support services to increase independence and promote in-home safety for people with disabilities (Mohammed El Basioni et al., 2014; Tassé et al., 2020). As more use-data become available with increased adoption of these services, gaps in the research can be addressed to understand the full effect of remote support services. We found a number of factors that continue to impede progress toward greater uptake of remote support services and technologies: (a) best practices for service implementation; (b) for users of remote support, the multifaceted impact on increasing independence and autonomy; (c) the potential benefits for people who live in regions with limited service options, such as more rural areas; (d) cost-savings analyses; and (e) cost-effective funding strategies, including methods of redistribution of cost savings back into services for people with developmental disabilities. These barriers are consistent with findings reported by Ding et al. (2021), who identified the need for additional research on how to best deliver these in-

home technologies as well as the needed training to ensure that they are used to their fullest potential.

Practice

Although over one-third of all US states has begun offering remote support services, the overall in-state adoption of these services as a substitute for on-site support remains sluggish as a result of several factors. To this point, responses to the question "Has your state experienced any problems with remote support services?", indicated that the majority of states experienced some difficulty. Some of the most common responses included fears of danger, privacy concerns, difficulty obtaining user buy-in, the perception that these services were cost-prohibitive, and technology failures. Many fears of increased danger with the implementation of remote support services stem from concerns about the unknown consequences of removing the physical presence of DSPs, which is especially relevant for individuals who have never had the opportunity to live independently before. Privacy concerns were commonly based on the notion that remote support professionals (or someone who hacked into the technology) could be operating the technology outside the scope of providing remote support services or that the individual being served could be seen by someone when they do not want to be. Often this has resulted from a misunderstanding that cameras are always present and include the ability to peer inside private areas of the home such as the restroom or one's bedroom. Both Vermont and Minnesota reported having regulations that limit or prohibit the use of cameras in certain areas of the home (e.g., bedroom or bathroom) and, often, cameras are not used to support individuals at all because alternative technologies suffice. Regarding these services being viewed as cost prohibitive from various standpoints, four state DD agencies (Maine, New Mexico, Pennsylvania, and Virginia) reported that currently their Medicaid rule included a cap of $5000–$6000 USD on remote support equipment and/or remote support services, reportedly making it difficult to pay for regular service or equipment. The state of Montana reported a cap of $300 on the purchase of technology equipment but does not have an annual cap on the purchase of remote monitoring services. Slow uptake was also repeatedly identified as a common barrier to implementing remote support services, which stemmed from a multitude of factors including technological difficulties, confusion regarding the interpretation of remote support regulations, and inadequate dedicated staff time for service promotion. Because only a minority of state DD agency employees reported that achieving stakeholder

buy-in for remote support service provision did not require additional effort from the state, it is clear that some of these major gaps in understanding must be systematically addressed if these services are going to become more widely used over the next decade and incorporate additional dedicated staff time.

Limitations

This investigation and its findings, while distinctly informative, should be interpreted within the context of its limitations. Most pressing among the challenges in collecting information from various state representatives was the lack of consistent responses. Oftentimes, state respondents did not and often could not obtain requested information, such as frequency of people enrolled in remote support or average amount spent on remote support equipment or services, which resulted in a significant amount of missing data that was highly inconsistent across states. Furthermore, due to the highly variable definition of remote support services across states in terms of their funding and reimbursement rules, ensuring we were collecting focused data strictly within the scope of the investigation was a challenge. Despite these limitations, this study is the first to offer a complete picture of the current state of remote support service provision in the United States.

CONCLUSION

In conclusion, there holds a lot of promise for the use of remove support services and other technology solutions, including "smart home" technologies that are sold out-of-the-box, in playing a critical role in promoting independent living, autonomy, health, safety, and self-determination (Wehmeyer et al., 2020). However, the use of these technologies must be tailored to the person's individual support needs and ongoing supports. The effective use and monitoring of these technologies are key elements to promoting their continued success and use in the home (Jamwal et al., 2020).

We are excited to see that more US states are incorporating remote support services as an allowable service for which individuals receiving publicly funded community supports and services through state Medicaid HCBS waiver services and other programs. We expect that these technologies will contribute significantly beyond the COVID-19 pandemic to facilitating increased independent community living and personal autonomy while providing enhanced home safety, communication, and offering an effective alternative to the reliance on in-person direct support professionals in the home (Tassé et al., 2020).

A number of important issues remain to be studied and addressed. Some of these remaining unanswered questions include the following: the educational needs to promote technology awareness and reduce attitudinal barriers; availability and utility of these technologies across geographic regions; and reducing barriers that impede the availability and use of technology solutions - including lack of access to broadband or high-speed Internet.

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ENDNOTE

[1] The states of New York and Nevada did not respond to our repeated inquiries.

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