

What is the evidence on remote service delivery programs and strategies to inform DOL's efforts to provide remote employment services?

The COVID-19 pandemic has caused an unprecedented disruption to labor markets in the United States and abroad. The unemployment rate in the United States, according to the U.S. Bureau of Labor Statistics, jumped from a decade-low of 3.5 percent in February 2020 to 14.7 percent in April 2020, far exceeding the level of unemployment experienced during the Great Recession. In addition, the introduction of many states' lockdown and shelter-in-place orders in March 2020 forced the closure of public agencies, including employment service providers. As of December 2020, many employment agencies and American Job Centers (AJC) remain physically closed or offer limited in-person services. Evidence from existing research on remote service delivery across a variety of sectors can be helpful as workforce development agencies determine how best to provide services during the COVID-19 pandemic and beyond.

The Clearinghouse for Labor Evaluation and Research ([CLEAR](#))² conducted this rapid review to describe the evidence on four topics related to remote service delivery. It first summarizes the ways in which some American Job Centers (AJCs) and other workforce agencies have provided employment services remotely since the start of the COVID-19 pandemic in the United States. Drawing on findings from the research on employment and training and other fields with analogous approaches to service delivery, including electronic government (e-government), parenting, and health, the review then summarizes evidence on two types of remote service delivery: (1) distance one-on-one interactions that occur by telephone or videoconference and (2) self-service and group-based resources.³ In addition, the review presents evidence on equity considerations related to remote service delivery. The review concludes with a summary of the gaps in the evidence.

The evidence presented here is based on CLEAR's rapid review of 45 publications. Across the 45 publications, 10 were classified as causal, 17 were classified as descriptive (these include implementation studies, case studies, and descriptive quantitative analysis), and 18 were other types of studies (these include literature reviews, opinion pieces from subject matter experts, websites, and memoranda). Figure 1 shows the number of studies, classified by topics and type of research.⁴ A supplement to this rapid evidence review synthesis provides citations with links to the publications, further information about study findings, and details about how this rapid review was conducted.

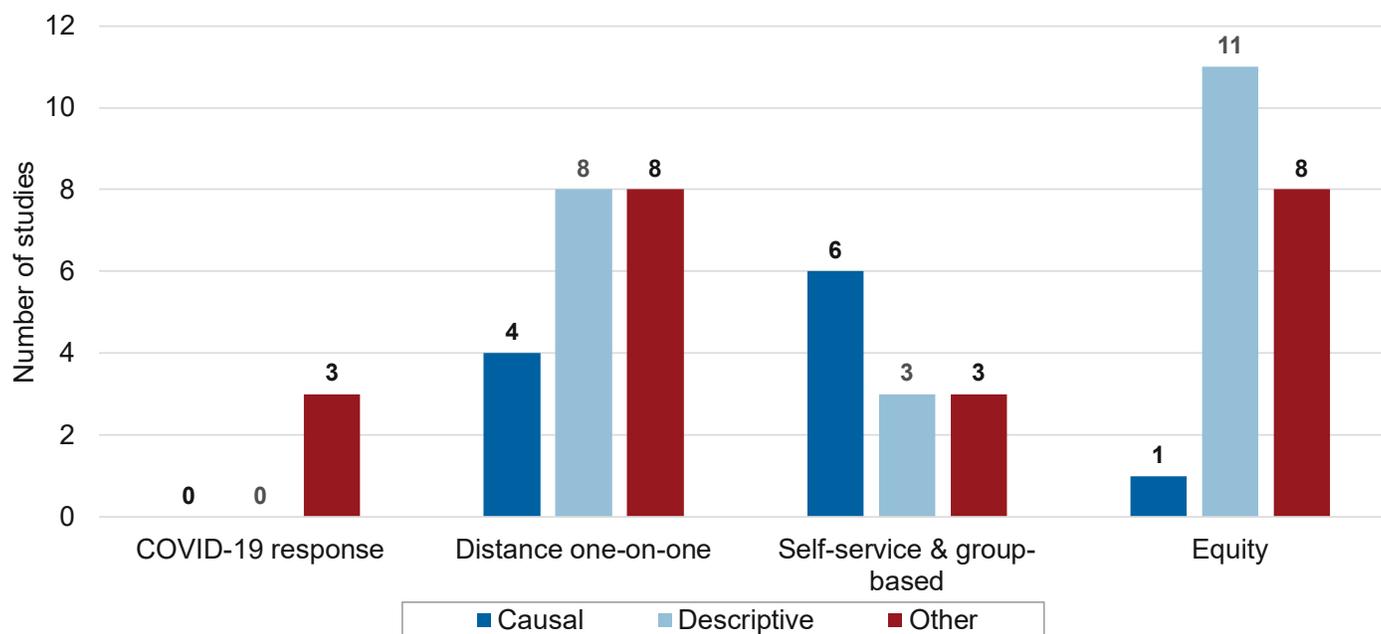
¹ This version includes literature published between January 1, 2007 and June 30, 2020. CLEAR continues to search for relevant literature and may update this synthesis as new research emerges.

² CLEAR is the U.S. Department of Labor's Clearinghouse for Labor Evaluation and Research. Its mission is to make research on labor topics more accessible to practitioners, policymakers, researchers, and the public to support evidence-informed decision making. CLEAR does this by conducting systematic evidence reviews, summarizing individual studies of programs, and synthesizing research across individual evidence bases. To date, CLEAR has summarized more than 1,000 studies.

³ The literature on distance learning is examined in an upcoming rapid evidence review on providing career and technical education remotely. We therefore do not include the distance learning literature in this review.

⁴ The total number of studies was 45, but some studies addressed more than one topic.

Figure 1. Types of studies by topic



Note: The total number of studies was 45, but some studies addressed more than one topic.

1. COVID-19 response

► **In the context of COVID-19, AJCs and other workforce agencies are expanding existing practices and implementing new strategies to provide remote employment services.** In response to the COVID-19 pandemic and resulting stay-at-home orders, AJCs, Workforce Development Boards (WDBs), and youth programs across the country have implemented strategies to continue providing services to customers (National Association of Workforce Boards, 2020; National Governors Association, 2020). Some of these strategies are expanded or adapted versions of techniques and resources previously used to engage customers remotely, while others are new initiatives in response to COVID-19. Strategies from a sample of states include:

- Online workshops and orientations to services, conducted in real time or posted as videos to be watched at any time (for example, Connecticut, Illinois, Kentucky, Washington)
- Public-private partnerships to expand access to online learning (for example, Connecticut, Minnesota) and online resource platforms such as OnwardUS (at least 10 states with more expected)
- Virtual job fairs (for example, Colorado, Connecticut, Indiana, Michigan, Texas, Washington)
- One-on-one services provided via telephone or live chat, including assistance with filing unemployment claims, resume reviews, mock interviews, and job search assistance (for example, Colorado, Connecticut, Kentucky, Massachusetts, Mississippi, Texas, Washington)
- Engaging with youth through telephone calls and Zoom meetings, email, and Facebook (for example, Michigan)

- Improving access to online services through fuel vouchers for travel to public Wi-Fi access points and provision of computers and Wi-Fi hotspots (for example, Colorado)

Across the United States, workforce development staff at all levels have transitioned to teleworking. In some states, AJCs have increased their hours and hired or transferred staff from other departments in response to increased demand for services (Workforce Innovation Technical Assistance Center, 2020).

2. Distance one-on-one interactions

► Remote case management shows promise as a replacement for in-person case management.

Only two causal studies discussed remote case management for workforce development but both suggest the approach is promising. A randomized controlled trial (RCT)⁵ in Sweden compared employment outcomes for newly unemployed job seekers receiving one of three types of services: intensive case management delivered face to face, intensive case management delivered through distance meetings, and business as usual. The study found that job seekers who received face-to-face or remote case management in the first quarter after becoming unemployed were more likely to find a job and spent fewer days unemployed than those who received services as usual (Cheung et al., 2019). The impacts were similar across the two groups that received case management, suggesting that remote case management was as effective as in-person case management. Evidence from an RCT in the United States also suggests that telephone-delivered case management and coaching, combined with self-guided modules and assignments, increased employment by almost 50 percent for new, uninsured recipients of Social Security Disability Insurance (Weathers & Bailey, 2014).

Case management refers to a form of service delivery in the health and human services sector in which an individual service provider coordinates and provides direct care or assistance to clients with the goal of improving client well-being.

In the health sector, strong evidence indicates that using videoconferencing for managing and treating a wide variety of conditions—such as diabetes, osteoporosis, depression, and anxiety—results in health outcomes and customer satisfaction levels similar to in-person treatment (Banbury et al., 2014; McLendon, 2017; Steel et al., 2011; Sutherland et al., 2020). Although more limited, the evidence on remote parenting programs⁶ similarly shows the promise of remote service delivery to effectively replace in-person delivery. For example, an RCT of a parenting program delivered by videoconference in the United States found that improvements in children’s symptoms, positive engagement, treatment retention, and satisfaction were comparable across Internet-based services and in-person services (Comer et al., 2017). In addition, parents who received training via videoconference reported fewer barriers to treatment than those who received training in person. An RCT of a self-guided, online

⁵ In an RCT, study participants are randomly assigned to a treatment group that receives the intervention or to a control group that does not. When conducted well, RCTs are considered to produce the strongest possible evidence of effectiveness because the random assignment ensures that no systematic differences existed between the study groups before the intervention. This means that the estimated impacts can be attributed to the effect of the intervention, rather than some other factor.

⁶ Parenting programs are designed to promote positive parenting practices through education, training, or both.

Positive Parenting Program in Australia found improved parent and child outcomes compared to the control (no services) group (Day & Sanders, 2018). Parents who received practitioner support via telephone in addition to online resources had greater improvements in negative parenting styles and intensity of difficult child behaviors, as compared with both the online-only group and the control (no services) group. Another descriptive study of a parenting program in the United States similarly found that telephone-based coaching combined with online educational content resulted in high levels of parent satisfaction with the program and confidence in dealing with their child's behavior (Taylor et al., 2008).

► **Evidence suggests that staff attitudes about remote service delivery and difficulty in building rapport with customers are common challenges for organizations transitioning to remote case management.**

Studies across sectors have shown that service providers often assume customers do not want to or cannot use online services, when in fact multiple studies have found that customers report higher levels of satisfaction with telehealth services than the service providers (Hodge et al., 2017; McLendon, 2017; Steel et al., 2011; Speyer et al., 2018). Other documented concerns about remote service delivery among service providers include potential changes to the customer-provider dynamic (McLendon, 2017), technological challenges (Hodge et al., 2017; Speyer et al., 2018; Sutherland et al., 2020), and privacy and security (Nemec & Chan, 2017). At the same time, studies have shown that interpersonal interaction and trust are key components of customer satisfaction in any setting (Administration for Children and Families [ACF], 2018; Chamberlain et al., 2017) and affect customers' decision to use online services (Reddick & Anthopoulos, 2014). As a result, it is important for staff to know how to effectively communicate with customers via telephone or email (Green, 2017; Hodge et al. 2017). Synchronous communication (in real time via telephone or videoconferencing) may result in a better service provider experience, improved customer satisfaction, and fewer instances of miscommunication between service providers and customers than asynchronous communication (for example, by email or recorded video) (Ipsen et al., 2012; Traube et al., 2020).

► **Organizational flexibility, ownership, and investment in staff training are key to successful implementation.**

Remote service delivery has the potential to reduce costs but requires up-front investments to install adequate and secure technology (Bradford et al., 2016; McLendon, 2017; Nemec & Chan, 2017) and to train staff on the skills necessary to effectively provide services remotely (Green, 2017; Hodge et al., 2017; Nemec & Chan, 2017). Studies have shown that staff ownership and adaptability are important factors of success (Bradford et al., 2016) and that effective telehealth programs involve approaches and content that are tailored to an online format and customer needs (Bradford et al., 2016; Hodge et al., 2017; Nemec & Chan, 2017). Staff training has been shown to reduce technological challenges (Sutherland et al., 2020) and ensure that staff can adapt their approach to distance service provision (ACF, 2018). For vocational rehabilitation counselors, training in distance communication may be particularly important, especially when working with consumers with mental or cognitive impairments (Ipsen et al., 2012, 2013).

3. Self-service and group-based resources

► **Workforce development agencies in the United States and globally offer numerous online services to customers.** In many countries, the shift to using alternative modes of service delivery has been driven by both new technology and reduced workforce services budgets. In the United States, following the Great Recession, some workforce areas responded to reductions in the numbers of AJCs and staff by employing mobile centers and offering computer-based job seeking resources without staff assistance (Wandner, 2015). AJCs in the United States now offer a number of online resources that can be accessed on-site in resource rooms or from another location. These services can include Unemployment Insurance eligibility reviews, job matching systems, information about community services, labor market information, job search tools, career exploration tools, online skills instruction, and basic skills assessments (D’Amico et al., 2015; Wandner, 2015). In the Netherlands, the transition to providing online services was accelerated by budget cuts that significantly reduced the number of employment offices (Murray, 2011). To adapt, the Dutch public employment service implemented new regulations requiring job seekers to use the Internet to access employment services unless they could not do so (in which case they received in-person services). France (which rates in the top 10 on the United Nations’ E-government Development Index⁷) offers a variety of employment services online, including professional social networks, online job search groups and meetings, and a 24/7 online recruitment platform featuring a virtual job fair (Chyzhmar et al., 2019).

► **The limited causal evidence has provided mixed results on the effects of online services on employment.** In Australia, an RCT found that job seekers who had access to a self-help website with tailored job application resources were slightly more likely (3.5 percentage points) than the control group, who did not have access to the website, to have found a job by the third month after exposure (Briscese et al., 2020). Effects were strongest among women ages 35 to 50; for these job seekers, the difference in the job-finding rate was large: 9 to 10 percentage points higher in the intervention group than in the control group throughout the first year after exposure. But other research suggests more limited effects. In Scotland, researchers conducted an RCT and found that access to tailored online labor market information (accessed at a central location) increased the number of job interviews for participants but samples sizes were insufficient to detect a difference in the job-finding rate (Belot et al., 2019). In Sweden, an RCT of an online job club found that those who participated in the job club in addition to receiving regular services were no more likely to be employed during the six-month follow-up period than those who received only regular services (Hägglund, 2006). In the United States, a descriptive study of self-services at AJCs found that customers who used only self-services appeared to have worse employment outcomes than those who received staff assistance through the Workforce Investment Act Adult Program (D’Amico et al., 2009).

► **Findings on demand for online services and customer satisfaction are mixed and highly dependent on the services offered.** Descriptive studies of AJCs in the United States have documented substantial demand for self-services available on-site at an AJC’s resource room (D’Amico et al., 2009,

⁷ The E-government Development Index is a composite measure of three dimensions: provision of online services, telecommunication connectivity, and human capacity.

2015). However, nearly half of the customers who later found a job reported that resource room services were not at all helpful in finding that job (D'Amico et al., 2009). Likewise, a study in Sweden found much lower interest in online job clubs than anticipated (Hägglund, 2006). The literature on electronic government (e-government, or the provision of government services online) suggests that customers' preferred mode of communication with public services can be influenced by access to the Internet and the nature of the interaction (seeking information versus needing to solve a problem). Moreover, even when online services are available, citizens continue to use traditional services in addition to online services (Pieterse, 2010; Reddick & Anthopoulos, 2014). Digital skills do not appear to influence mode choice, but people with more-developed digital skills have higher levels of satisfaction with online government services (Ebbers et al., 2016).

Barriers to effective use of online services include security and privacy concerns, limited digital proficiency, inability to find resources, uncertainty about which tools or content meet the user's needs, and high rates of discontinuation among users (D'Amico et al., 2009; Reddick & Anthopoulos, 2014). Some evidence suggests that strategies such as initial one-on-one orientation sessions (in-person or remotely) with a service provider and text message reminders might alleviate some of these challenges and increase service use (Bigelow et al., 2018; Ipsen et al., 2012; Murray et al., 2015; Van Winkle et al., 2017).

4. Equity considerations

► **Some population groups struggle to use online resources.** Descriptive studies and customer surveys have shown that, in general, workforce development customers have greater access to and comfort with technology than might be expected, especially through mobile devices (ACF, 2018). However, evidence also shows that digital skills and access vary across settings and groups of potential users (this variation is sometimes referred to as the digital divide). Age, level of education, disability, socio-economic status, and language are all well-documented barriers to the use of online services (D'Amico et al., 2009; Hodge et al. 2017; Ipsen et al., 2013; Reddick & Anthopoulos, 2014; Salemink et al., 2017). Descriptive studies of AJCs have found that some customers need substantial assistance from resource room staff to successfully use self-services due to their limited computer skills or low literacy levels (D'Amico et al., 2009). In an RCT evaluating a self-help website with tailored job search resources, the authors found positive impacts of website access on the job-finding rate for adults ages 35 to 50 but temporary negative impacts on the job-finding rate for participants older than 50. These findings suggest that introducing online resources put older job seekers at a disadvantage in relation to their younger peers (Briscese et al., 2020). In low-income rural areas, workforce development customers tend to have lower levels of education and skill, impeding their ability to effectively use online resources (Salemink et al., 2017). Although online resources may improve access for some individuals with disabilities, those with cognitive or mental health disabilities may face substantial barriers to use (Ipsen et al., 2012).

► **Limited Internet access poses a barrier to remote service delivery.** Black and Hispanic adults are less likely than White adults, and rural adults are less likely than urban adults, to have high-speed Internet at home or own a computer (Perrin, 2019; Perrin & Turner, 2019). Disabled adults in the United

States are also less likely to own a computer, tablet, or smartphone and are more likely to say they never go online (23 percent versus 8 percent for adults with no disability) (Anderson & Perrin, 2017). Research has shown that older adults are also less likely to have access to technology, but that gap is primarily due to adults older than 75, who are likely to be out of the workforce (Hodge et al., 2017). Individuals in rural and low-income areas may face additional challenges given gaps in broadband Internet coverage and higher Internet costs (although rural AJCs may also experience slow Internet connections) (Betesh, 2018; Hodge et al., 2017; Weiner & Puniello, 2014). Nevertheless, recent research on access to technology has shown that smartphones are helping to close the digital divide (Perrin, 2019; Perrin & Turner, 2019).

► **Remote service delivery may increase access to resources for some population groups, particularly in rural areas.** Access to AJCs, especially in rural areas and for individuals with disabilities, can be a challenge because of location, transportation options, and hours of operation (Betesh, 2018; D’Amico et al., 2009). AJC staff in rural areas are often overstretched and sometimes travel long distances between centers (Betesh, 2018). Remote service delivery provides an opportunity to reach customers who might otherwise have no or limited access to services while reducing travel time for service providers (ACF, 2018). Similarly, the telehealth literature demonstrates a variety of benefits to remote services for patients, including reduced travel costs (Banbury et al., 2014; Bradford et al., 2016; McLendon, 2017; Speyer et al., 2018), reduced physical and practical transportation challenges (Banbury et al., 2014; McLendon, 2017), increased contact between patients and providers (Banbury et al., 2014; Bradford et al., 2016), increased access to specialized services (Bradford et al., 2016; McLendon, 2017), and improved confidence in illness self-management (Banbury et al., 2014).

► **Potential strategies to overcome equity challenges are varied, but causal evidence is lacking.** The research literature suggests a wide range of potential strategies for improving customer access to and ability to use digital services. Strategies to improve customer ability to use technology include assistance from family or friends (Hodge et al., 2017), digital literacy training (Hodge et al., 2017; Van Winkle et al., 2017), and initial face-to-face meetings with a trained staff member to set up the required technology (Ipsen et al., 2012; Van Winkle et al., 2017). Research also suggests that, to improve accessibility, service providers should design applications and platforms for online service delivery with input from individuals with low digital literacy (Van Winkle et al., 2017). Strategies to increase access to remote service delivery include provision of Internet and/or devices (Chandler, 2019; Sheon et al., 2017) and dedicated telephone lines for clients without Internet access (Ramsetty & Adams, 2020). In some cases, a hybrid model of remote and in-person services may be necessary, particularly for the most disadvantaged populations (Ramsetty & Adams, 2020). However, there is little or no causal research on these strategies.

Where are the gaps in the research on remote employment services?

- **Lack of causal studies testing remote service delivery for employment services.** We identified only a handful of causal studies, some of which were over 10 years old. Each study examined a different online service in different locations and with different populations. This limited evidence makes it impossible to draw more general conclusions about whether online employment services

have the same effect on employment outcomes as in-person services and about which model of online service delivery is most effective.

- **Relevance to COVID-19 context.** There are several reasons why existing literature on remote service delivery may have limited applicability to the current context of stay-at-home orders and workforce agencies operating with a limited physical office presence. By forcing individuals and organizations to adapt their normal behaviors, the COVID-19 pandemic may be changing both customer and service provider perceptions about and willingness to use digital means of interacting. Some of the barriers highlighted above, particularly related to service provider reluctance to provide online services, may be less of an issue moving forward. In addition, the studies described above compare online service delivery to “business as usual.” However, under the current conditions, “business as usual” is not possible.
- **More research is needed on today’s approaches.** The types of technology available and access to Internet and mobile devices change quickly. The findings from studies conducted even a few years ago may not be generalizable to today’s environment. In particular, many of the studies on e-government and some of the causal employment studies used data from over 10 years ago.

Rapid Evidence Review Supplement: Citations and Further Information

This supplement to the rapid review, “What is the evidence on remote service delivery programs and strategies to inform DOL’s efforts to provide remote employment services?” provides citations and brief summaries of the studies discussed in the rapid review. The final section describes the approach used to create the rapid review.

CITATIONS AND STUDY SUMMARIES

This supplement organizes the citations and summaries in the same manner as the rapid review. Each citation is included in each section in which it was referenced (which could be more than one), though the study is summarized only on first appearance. The subsections are as follows:

1. COVID-19 response
2. Distance one-on-one interactions
3. Self-service and group-based resources
4. Equity considerations

1. COVID-19 response

National Association of Workforce Boards. (2020). *COVID-19: Workforce stories*.

<https://www.nawb.org/covid-19-response-stories>

- Type of research: Other (website)
- Summary: Operated by the National Association of Workforce Boards in the **United States**, this website compiles and shares state and local workforce board success stories during the COVID-19 pandemic to help spread innovation, awareness, and positivity.

National Governors Association. (2020, June 10). *Delivering workforce system employment and training services remotely*. <https://www.nga.org/wp-content/uploads/2020/06/Delivering-Workforce-System-Employment-and-Training-Services-Remotely.pdf>

<https://www.nga.org/wp-content/uploads/2020/06/Delivering-Workforce-System-Employment-and-Training-Services-Remotely.pdf>

- Type of research: Other (memorandum)
- Summary: This memorandum issued by the National Governors Association in the **United States** in June 2020 presents strategies governors and states can implement to deliver workforce system employment and training services remotely. Suggestions include (1) governors supporting public-private partnerships; (2) governors leveraging Coronavirus Aid, Relief, and Economic Security (CARES) Act-funded Dislocated Worker Grants; (3) states directing participants to online resources for continued virtual services; (4) states providing virtual services for job seekers under the Workforce Innovation and Opportunity Act; and (5) states providing virtual service for employers.

Workforce Innovation Technical Assistance Center. (2020). *Resources for distance service delivery*.

<http://www.wintac.org/content/resources-distance-service-delivery#vrrresponse>

- Type of research: Other (website)
- Summary: Operated by the Workforce Innovation Technical Assistance Center in the **United States**, this website provides resources on distance service delivery for Vocation Rehabilitation (VR) agencies responding to COVID-19.

2. Distance one-on-one interactions

Administration for Children and Families, Office of Family Assistance. (2018). *Technology initiatives that support employment outcomes. Colorado: Web-based technology for coaching TANF participants*. Emerging Practice Series.

https://peerta.acf.hhs.gov/sites/default/files/public/uploaded_files/IIIESS%20Emerging%20Practice_Colorado_Final_508_updated.pdf

- Type of research: Descriptive (implementation report)
- Summary: This brief describes how the Larimer County Works Program in **Colorado** implemented a remote coaching model for Temporary Assistance for Needy Families (TANF) participants. The model used a technology-based, goal-oriented coaching platform, TuaPath. The implementers found that the program had an adoption rate of more than 95 percent, led to trust between staff and job seekers, and freed up time for coaches to focus on case management and the coach-participant relationship.

Banbury, A., Roots, A., & Nancarrow, S. (2014). Rapid review of applications of e-health and remote monitoring for rural residents. *Australian Journal of Rural Health, 22*, 211–222.

<https://onlinelibrary.wiley.com/doi/abs/10.1111/ajr.12127>

- Type of research: Other (literature review)
- Summary: This study seeks to find evidence that e-health can have an impact on people in rural and remote areas. The authors conducted a systematic literature review of **multiple databases**, yielding 19 articles examining the effectiveness of e-health. The study reported that e-health can potentially increase access to services in rural and remote areas, and can be as effective as traditional methods of care while allowing people to remain in their communities.

Bradford, N. K., Caffery, L. J., & Smith, A. C. (2016). Telehealth services in rural and remote Australia: A systematic review of models of care and factors influencing success and sustainability. *Rural and Remote Health, 16*, 1–23. <https://www.rrh.org.au/journal/article/3808>

- Type of research: Other (literature review)
- Summary: This study examines the factors that influence the effectiveness of telehealth programs. Using a **systematic literature review** of 116 articles (72 of which explicitly described telehealth services), the authors highlighted six factors—Vision, Ownership, Adaptability, Economics, Efficiency, and Equipment—that are most closely linked with the success and sustainability of telehealth services.

Chamberlain, A., Bertane, C., Cadima, J., IMPAQ International, Darling, M., Kenrick, A., Lefkowitz, J., & ideas42. (2017). Study of the American Job Center customer experience. *IMPAQ International*. <https://www.dol.gov/sites/dolgov/files/OASP/legacy/files/Customer-Experience-Summary-Report.pdf>

- Type of research: Descriptive (exploratory study)
- Summary: This report examines the customer experience with AJCs in the **United States**. Using **surveys, focus groups, and discussions with customers**, the study reports on experiences in nine AJCs in 2016, with the goal of highlighting encouraging research and developing empirically based strategies that will improve customer experience. The authors found that most AJC users had positive experiences with their centers. However, many users were unaware of the extent of their center's services and how to use them to get a job. Many users reported that signing up for programs (along with the job-hunting process itself) is emotionally overwhelming, and that quality staff interactions are crucial to ensuring motivation and success in their job hunt; in fact, many reported having a trusted AJC contact that knew their needs and reduced their burdens.

Cheung, M., Egebark, J., Forslund, A., Laun, L., Rödin, M., & Vikström, J. (2019). *Does job search assistance reduce unemployment? Experimental evidence on displacement effects and mechanisms* (No. 1307). IFN Working Paper. Research Institute of Industrial Economics. <https://www.econstor.eu/bitstream/10419/210948/1/1685476988.pdf>

- Type of research: Causal (randomized controlled trial)
- Summary: This study examines the effects of job search assistance on unemployment in **Sweden**. The authors conducted a **randomized controlled trial** over six months in 2015 that involved newly unemployed job seekers at 72 Public Employment Service offices. Overall, the authors' findings suggest that the assistance reduced unemployment but also led to higher unemployment among job seekers in the control group. The paper also explores the mechanisms for these impacts and finds that individual face-to-face and distance meetings between caseworkers and job seekers are more effective than group meetings.

Comer, J. S., Furr, J. M., Miguel, E. M., Cooper-Vince, C. E., Carpenter, A. L., Elkins, R. M., Kerns, C. E., Cornacchio, D., Chou, T., Coxe, S., DeSerisy, M., Sanchez, A. L., Golik, A., Martin, J., Myers, K. M., & Chase, R. (2017). Remotely delivering real-time parent training to the home: An initial randomized trial of Internet-delivered parent-child interaction therapy (I-PCIT). *Journal of Consulting and Clinical Psychology, 85*(9), 909–917.

- Type of research: Causal (randomized controlled trial)
- Summary: This study, conducted in **Florida** and **Massachusetts**, examines the effects of parent-child interaction therapy delivered via videoconference on child behavioral outcomes and parent satisfaction. The authors **randomly assigned** children with disruptive behaviors and their caregivers to a treatment group that received treatment by videoconference or an alternative group that received treatment in person. Using **clinician- and parent-reported data**, the study

found that improvements in children’s symptoms, positive engagement, treatment retention, and satisfaction were comparable across Internet-based services and in-person services.

Day, J. J., & Sanders, M. R. (2018). Do parents benefit from help when completing a self-guided parenting program online? A randomized controlled trial comparing Triple P Online with and without telephone support. *Behavior Therapy, 49*(6), 1020–1038.

- Type of research: Causal (randomized controlled trial)
- Summary: In this **randomized controlled trial**, the authors examined the effect of a self-led parenting program, with and without telephone support, on parenting styles and child behavior. Participants in **Australia** were randomly assigned to a treatment group that received the self-directed parenting program, a treatment group that received the program plus telephone support, or a control group that did not participate in the program. The study found that the supported program group reduced negative parenting techniques and disruptive child behaviors and increased program completion rates and program satisfaction compared to the self-directed program.

Green, A. E. (2017). Implications of technological change and austerity for employability in urban labour markets. *Urban Studies, 54*(7), 1638–1654.

<https://journals.sagepub.com/doi/full/10.1177/0042098016631906>

- Type of research: Other (literature review)
- Summary: This article examines the effects of information and communications technologies (ICT) on employability. The authors used a **systematic literature review** to learn about ICT’s effects on employability. The authors found that ICT, in certain circumstances, can have negative consequences for job applicants.

Hodge, H., Carson, D., Carson, D., Newman, L., & Garrett, J. (2017). Using Internet technologies in rural communities to access services: The views of older people and service providers. *Journal of Rural Studies, 54*, 469–478. <https://www.sciencedirect.com/science/article/pii/S0743016716301024>

- Type of research: Descriptive (case study)
- Summary: This qualitative case study describes the experiences of older residents and local service providers trying to use the Internet for service delivery in **Clare, Australia**. The authors conducted two sets of **in-depth interviews**. One set of interviews was with 10 service providers from the health, financial, information, and education sectors as well as local government, sporting, and recreational groups, and local volunteer organizations. The other set of interviews was with six participants age 65 or older with at least some level of existing digital participation. The authors found that older participants were interested in learning how to use the Internet to access services and desired support from their social networks or third-party facilitators. Service provider attempts to engage older participants were found to be limited due to persistent stereotypes of older participants’ limited digital ability. The authors recommend that both viewpoints be considered when designing online engagement strategies.

Ipsen, C., Rigles, B., Arnold, N., & Seekins, T. (2012). The use of telecommunication to deliver services to rural and urban vocational rehabilitation clients. *Rehabilitation Counseling Bulletin*, 55(3), 144–155. <https://journals.sagepub.com/doi/full/10.1177/0034355211432892>

- Type of research: Descriptive (summary statistics)
- Summary: This study examines the use of telecommunication by counselors delivering vocational rehabilitation (VR) services. Using data gathered from **online surveys** of VR counselors from 13 participating VR agencies across the **United States**, the authors used statistical tests to describe which counselor and agency characteristics promote telecommunication use, which client characteristics impede or facilitate the successful use of telecommunication in VR, and counselor opinions on the use of telecommunication for VR. This study found that agencies support the use of telecommunication for delivering VR, client access to technology and technical literacy can be a barrier to the use of telecommunication for VR, and counselors view telecommunication as beneficial for delivering VR services.

Ipsen, C., Rigles, B., Arnold, N., & Seekins, T. (2013). Access to, use of, and attitudes toward telecommunication among rural VR clients. *Rehabilitation Counseling Bulletin*, 56(3), 172–181. <https://journals.sagepub.com/doi/full/10.1177/0034355212466270>

- Type of research: Descriptive (summary statistics and paired t-tests)
- Summary: This study examines the use of telecommunication by clients receiving VR services. Using data gathered from a **survey** of VR clients at seven VR agencies across the **United States**, the authors describe client access to, use of, and attitudes toward telecommunication for VR services. The study found that although clients reported some access to and comfort with using telecommunication modes such as email, few reported using this mode of communication with their counselor. The study suggests that telecommunication modes such as email could be better utilized to provide VR services.

McLendon, S. F. (2017). Interactive video telehealth models to improve access to diabetes specialty care and education in the rural setting: A systematic review. *Diabetes Spectrum*, 30(2), 124–136. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5439356/>

- Type of research: Other (literature review)
- Summary: This study examines the ability of telehealth models to provide specialized diabetes care and diabetes self-management education. Using a **systematic literature review** conducted under Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines, the authors analyzed the effectiveness, costs, and benefits of interactive video telehealth strategies. Interactive video telehealth was reported to have a number of benefits, including improved access to quality care, patient empowerment, and self-care management. In addition, the authors reported that video telehealth was able to provide a number of services comparable to conventional health care methods, including lab monitoring, medication adjustment, and extensive physical exams. Patients

and health care centers reported high satisfaction with video telehealth services, especially their ability to provide quality care at reduced costs.

Nemec, P.B., & Chan, S. (2017). Behavioral health workforce development challenges in the digital health era. *Psychiatric Rehabilitation Journal*, 40(3), 339–341.

<https://pubmed.ncbi.nlm.nih.gov/28891661/>

- Type of research: Other (subject matter expert [SME] opinion piece and literature review)
- Summary: This article describes the challenges of onboarding psychiatric rehabilitation service providers for positions that use digital health technology. Based on their professional experience and available literature, the authors discuss broader considerations for U.S. policymakers, funders, and service agency administrators when adopting and implementing new technology. The authors suggest that adopting and successfully implementing technology requires training and other supports to ensure that users have the knowledge and that the workplace supports its use. The authors recommend considering the attitudes and skills needed to use the technology when hiring service providers, providing on-the-job training, and monitoring implementation.

Reddick, C., & Anthopoulos, L. (2014). Interactions with e-government, new digital media and traditional channel choices: Citizen-initiated factors. *Transforming Government: People, Process and Policy*. <https://www.emerald.com/insight/content/doi/10.1108/TG-01-2014-0001/full/html>

- Type of research: Descriptive (summary statistics)
- Summary: This article examines factors that predict citizen-initiated contact with e-government services focusing on users' different service channel selections. The authors conducted a literature review and analysis using data from a Canadian national public opinion survey in 2012. The authors concluded that the e-government channel (including text messages, apps, and social media) is more suited for information collection, while traditional services channels (including a website and email) are more likely to support individual problem solving. In addition, technological literacy influenced users' channel choice, and users, although satisfied with new digital media experience, were not satisfied with traditional contact experiences.

Speyer, R., Denman, D., Wilkes-Gillan, S., Chen, Y. W., Bogaardt, H., Kim, J. H., Heckathorn, D. E., & Cordier, R. (2018). Effects of telehealth by allied health professionals and nurses in rural and remote areas: A systematic review and meta-analysis. *Journal of Rehabilitation Medicine*, 50, 225–235. <https://www.medicaljournals.se/jrm/content/html/10.2340/16501977-2297>

- Type of research: Other (literature review)
- Summary: This study highlights telehealth interventions used by allied health professionals and nurses in remote and rural areas, comparing their effects with conventional care methods. Using a **systematic literature review of multiple databases**, the authors reported no significant differences between the effects of telehealth and conventional services, while moderately favorable results were found for telehealth services using a combination of cognitive and physical approaches. Although bias may have been introduced into the data, the results suggest that

telehealth and conventional services are equally effective in providing quality health care to rural areas.

Steel, K., Cox, D., & Garry, H. (2011). Therapeutic videoconferencing interventions for the treatment of long-term conditions. *Journal of Telemedicine and Telecare*, 17(3), 109–117.

<https://pubmed.ncbi.nlm.nih.gov/21339304/>

- Type of research: Other (literature review)
- Summary: This study examines the effectiveness of videoconferencing in providing quality care to patients with chronic conditions, as compared to conventional health care appointments. The authors conducted a **systematic literature review**, yielding 35 relevant articles (including 8 on randomized controlled trials). The results indicate that videoconferencing produces outcomes similar to conventional health care appointments. The authors also found high levels of patient satisfaction with videoconferencing and evidence that forming quality patient–caregiver relationships is possible, even as staff reported lower levels of satisfaction with using videoconferencing.

Sutherland, A. E., Stickland, J., & Wee, B. (2020). Can video consultations replace face-to-face interviews? Palliative medicine and the Covid-19 pandemic: Rapid review. *BMJ Supportive & Palliative Care*, 10, 271–275. <https://spcare.bmj.com/content/bmjspcare/10/3/271.full.pdf>

- Type of research: Other (literature review)
- Summary: This study analyzes the effectiveness of video health care visits as a suitable replacement for face-to-face visits in the wake of the COVID-19 pandemic. Using a **systematic global literature review** of relevant articles published within the last 18 months, the results suggest that although not an exact replacement for face-to-face visits, video visits may be an effective way to provide quality care while reducing the spread of COVID-19. However, the authors suggest that telecommunication equipment and security must be effective, and standard operating procedures must be in place to ensure quality care is provided to everyone regardless of background.

Taylor, T. K., Webster-Stratton, C., Feil, E. G., Broadbent, B., Widdop, C. S., & Severson, H. H. (2008). Computer-based intervention with coaching: An example using the Incredible Years program. *Cognitive Behaviour Therapy*, 37(4), 233–246.

- Type of research: Descriptive (implementation report)
- Summary: This study describes implementation of parenting program in the **United States** that combined computer and web-based content with coaching via telephone, email, and home visits. Using **program monitoring data** and results from **parent surveys**, the authors found that 76 percent of participants completed the program and 89 percent reported feeling “very positive” or “positive” about the program.

Traube, D. E., Hsiao, H. Y., Rau, A., Hunt-O'Brien, D., Lu, L., & Islam, N. (2020). Advancing home based parenting programs through the use of telehealth technology. *Journal of Child and Family Studies*, 29(1), 44–53.

- Type of research: Descriptive (pilot feasibility study)
- Summary: In this study, the authors tested the feasibility of implementing an evidence-based home visiting program via a telehealth platform. Home visitors from the Suzanne Dworak-Peck School of Social Work at the University of Southern **California** conducted visits via videoconference, and the authors tracked program participation and conducted a **parent satisfaction survey**. The study found that parents reported high satisfaction with the services provided remotely and high rates of rapport with their home visitor.

Weathers, R. R., & Bailey, M. S. (2014). The impact of rehabilitation and counseling services on the labor market activity of Social Security Disability Insurance (SSDI) beneficiaries. *Journal of Policy Analysis and Management*, 33, 623–648. <https://pubmed.ncbi.nlm.nih.gov/24988653/>

- Type of research: Causal (randomized controlled trial)
- Summary: The authors used a **randomized control trial** to examine up to 36 months of employment and earnings impacts of the Accelerated Benefits Demonstration, an effort to provide immediate health insurance and employment and benefits counseling to new, uninsured Social Security Disability Insurance (SSDI) recipients in the **United States** during the 24-month Medicare eligibility waiting period. The target group was beneficiaries who did not have insurance, had 18 months or more before becoming entitled to Medicare, were ages 18 to 54, and did not have a representative payee. The intervention group received a health care package and additional services that assisted with managing health care and future work activities during the Medicare waiting period. Compared with the control group, the intervention resulted in a 5.6 percentage point increase in employment two years after random assignment. In addition, the intervention increased average annual earnings by \$736 in the first year and \$1,024 in the second year, though differences were no longer statistically significant by the third year.

3. Self-service and group-based resources

Belot, M., Kircher, P., & Muller, P. (2019). Providing advice to jobseekers at low cost: An experimental study on online advice. *The Review of Economic Studies*, 86(4), 1411–1447.

<https://academic.oup.com/restud/article/86/4/1411/5115940>

- Type of research: Causal (randomized controlled trial)
- Summary: This study evaluates an online job search tool developed by the authors in collaboration with the IT department at the University of Edinburgh in **Scotland**. The tool's goal is to cost-effectively enable a direct link to potential jobs by providing a tailored list of possible alternative occupations for job seekers. The authors conducted a **randomized controlled trial** using two cohorts of about 150 job seekers each, who searched for jobs using the tool for 12 weeks or until they found a job. The authors found that the tool widened the set of jobs that job seekers

considered and increased the number of job interviews, in particular for participants who had been unemployed for several months and had been conducting relatively narrow job searches.

Bigelow, K. M., Walker, D., Jia, F., Irvin, D., & Turcotte, A. (2020). Text messaging as an enhancement to home visiting: Building parents' capacity to improve child language-learning environments. *Early Childhood Research Quarterly, 51*, 416–429.

- Type of research: Causal (randomized controlled trial)
- Summary: In this study the authors conducted a **randomized controlled trial** to test whether text messages increased parent engagement and child language outcomes among families participating in home visiting or early intervention services in the **United States**. Both treatment and control group participants received an intervention package to promote child language acquisition, administered during home visits. The treatment group also received text messages focused on language strategies. The study found that the text messages had no significant impact on parent engagement or child language outcomes. However, descriptive analyses did show a positive correlation between number of text messages received and parent engagement and adherence to the intervention.

Briscese, G., Zanella, G., & Quinn, V. (2020). *Improving job search skills: A field experiment on online employment assistance* (IZA Discussion Paper No. 13170). Institute of Labor Economics.
<https://www.econstor.eu/handle/10419/216482>

- Type of research: Causal (randomized controlled trial)
- Summary: In this study the authors conducted a **randomized controlled trial** to test the effect of an **Australian** website offering job search tools on job-finding rates and job matches. The website provided editable resume and cover letter templates and tips on how to look and apply for jobs. Exposure to the website was randomly assigned for 2,700 Australian job seekers. The authors found that exposure to the website increased job-finding rates, with larger effects for job seekers ages 35 to 50 (8 percentage point impact) and for women in this age group (10 percentage point impact). Exposure to the website also improved job match quality.

Chyzhmar, Y., Rezvorovich, K., Orlovskiy, R., Kysylova, K., & Buhaichuk, K. (2019). State employment service: European approaches to providing electronic services. *Journal of Legal, Ethical and Regulatory Issues, 22*(6). <https://www.abacademies.org/articles/state-employment-service-european-approaches-to-providing-electronic-services-8891.html>

- Type of research: Other (literature review)
- Summary: In this article, the authors review literature on current approaches to providing e-services by employment agencies in **Germany, France, and Spain**. The authors present the approaches through the lens of advising Ukraine on its e-government strategy. The authors identify some key approaches to providing e-services, including creating (1) a professional social network, (2) online job search services, (3) a service for virtual interviews, (4) an electronic service for sharing information about employees, and (5) the ability to sign contracts online.

D'Amico, R., Dunham, K., Chavoya-Perez, V., Kogan, D., Mack, M., Negoita, M., Paprocki, A., McConnell, S., & Rosenberg, L. (2015). *Providing public workforce services to job seekers: Implementation findings on the WIA adult and dislocated worker programs*. Mathematica Policy Research.

<https://www.mathematica.org/-/media/publications/pdfs/labor/2016/wia-implementation-report.pdf>

- Type of research: Descriptive (implementation study)
- Summary: This report from the Workforce Investment Act Adult and Dislocated Worker Programs Gold Standard Evaluation describes the services provided by the adult and dislocated worker programs at 102 AJCs in 19 states in the **United States**. Based on **site visits** and **interviews with staff and customers**, the report describes in-person services as well as online services that customers may access through the resource rooms at AJCs or at home.

D'Amico, R., Dunham, K., Goger, A., Lea, C., Rigg, N., Ude, S., & Wiegand, A. (2009). *Findings from a study of one-stop self-services: A case study approach*. Social Policy Research Associates.

<https://www.spra.com/wordpress2/wp-content/uploads/2016/07/Findings-from-a-Study-of-One-Stop-Self-Services.pdf>

- Type of research: Causal and descriptive (quasi-experimental and implementation study)
- Summary: This study examines on-site use of self-services provided at One-Stop Career Centers across the **United States**. The evaluation included **a survey** of local workforce investment areas (LWIAs), **sites visits** to 22 LWIAs in 11 states, **surveys** of One-Stop Career Center self-service customers, and a **quantitative analysis** of data from 9 **LWIA's tracking systems** and **Unemployment Insurance wage/claimant data** from 2 states. Through case studies, the report describes the types of services provided, the degree of staff assistance, and the characteristics and behaviors of customers who use self-services. Findings suggest that self-service customers record somewhat lower employment outcomes than those who receive Workforce Investment Act staff-assisted services. In addition, most customers who obtained a job after using the services did not attribute success to self-services and rated them only somewhat more favorable than neutral.

Ebbers, W. E., Jansen, M. G., & van Deursen, A. J. (2016). Impact of the digital divide on e-government: Expanding from channel choice to channel usage. *Government Information Quarterly*, 33(4), 685–692.

<https://www.sciencedirect.com/science/article/pii/S0740624X16301460>

- Type of research: Descriptive (correlation analysis)
- Summary: This study examines how digital literacy skills relate to the channel used to communicate with a government agency in the Netherlands. Using data gathered from an **online survey** in 2015 of citizens in **Hague, Netherlands** who had been in touch with their municipality in the past two years, the authors tested if reported technological literacy skills affected the mode of citizens' communication with their municipality. The study found that the nature of the interaction, rather than digital literacy, was related to the choice in the communication channel with the government agency. Digital literacy did, however, predict reported satisfaction with digital interactions.

Hägglund, P. (2006). Job-search assistance using the internet: Experiences from a Swedish randomised experiment. *International Journal of Manpower*, 27(5), 434–451.

<https://www.emerald.com/insight/content/doi/10.1108/01437720610683949/full/html>

- Type of research: Causal (randomized controlled trial)
- Summary: This study examines the impact of a voluntary Internet-based job-search assistance program offered by **Swedish** public employment offices in 2002 on employment. Three full-time case workers provided the services. The program required participants to register at their local employment office and to have access to a computer with email and Internet away from that office. Daily use of the program was recommended. Program applicants tended to be younger, educated, and living in big cities. The author designed a **randomized controlled trial** using data on 636 experiment and control group members from a database administered by the Swedish Labour Market Board. The author's analysis found some signs of small positive short-term effects of the program, but the author was unable to reject the hypothesis of a zero program effect on employment. He cited low registration and compliance issues among participants as the reason for the limited effects.

Murray, E. (2011). *Support for transfer visit: PES and E-services*. The European Commission Mutual Learning Programme for Public Employment Services.

<https://ec.europa.eu/social/BlobServlet?docId=14060&langId=en>

- Type of research: Descriptive (case study)
- Summary: This report describes findings from a **site visit** to the Dutch Public Employment Services (PES). It describes the state of e-services for job seekers and employers in the **Netherlands** and the strategies and tools that the Dutch government put in place to provide digital employment services. The study found that, in response to severe budget cuts, the Dutch PES aimed to have 90 percent of interactions take place online, while still serving vulnerable groups face to face. The shift to online services required new legal regulation, new tools to improve the transparency of the labor market, national standards for automatic matching, and the development of online communities.

Murray, K. W., Woodruff, K., Moon, C., & Finney, C. (2015). Using text messaging to improve attendance and completion in a parent training program. *Journal of Child and Family Studies*, 24(10), 3107–3116.

- Type of research: Causal (randomized controlled trial)
- Summary: In this study, the authors conducted a **randomized controlled trial** to determine whether text message reminders increased attendance and completion among parents participating in a 10-week parenting program in the **United States**. The authors found that parents who received text message reminders had similar attendance rates and higher program completion rates than parents who did not receive the reminders.

Pieterse, W. (2010). Citizens and service channels: Channel choice and channel management implications. *International Journal of Electronic Government Research*, 6(2), 37–53.

<https://www.semanticscholar.org/paper/Citizens-and-Service-Channels%3A-Channel-Choice-and-Pieterse/29ab26d234e4010795a6094ddba2e3bf5b535f5be>

- Type of research: Other (SME opinion piece)
- Summary: In this article, the author presents his opinion that government service providers should apply an integrated strategy that connects multiple channels of service delivery. The author discusses the channels participants use to access government services and how they have evolved over time in the **Netherlands**. He argues that an integrated strategy responds to the unpredictable behavior of potential participants and uses the strengths of different channels.

Reddick & Anthopoulos. (2014). See description in section 2.

Wandner, S. A. (2015). The future of the public workforce system in a time of dwindling resources. In C. Van Horn, T. Edwards, & T. Greene (Eds.), *Transforming US workforce development policies for the 21st century* (pp. 129–166). <https://community-wealth.org/sites/clone.community-wealth.org/files/downloads/book-horne-edwards-greene.pdf#page=144>

- Type of research: Other (SME opinion piece)
- Summary: This chapter examines the U.S. public workforce system’s long-term federal funding and program trends, and considered strategies for the future. The author argues that as funding has declined, the demand for public workforce services has increased, forcing state workforce agencies to make fundamental changes to service provision. The author also describes ways in which workforce agencies have increased self-service and alternative delivery systems, including online training and services. The author concludes that reduction of one-on-one assistance and the increase in automated services will have a negative impact on outcomes for less educated and older workers who have greater trouble using automated tools than educated, younger workers.

4. Equity considerations

ACF. (2018). See description in section 2.

Anderson, M., & Perrin, A. (2017, April 7). *Disabled Americans are less likely to use technology*. Pew Research Center. <https://www.pewresearch.org/fact-tank/2017/04/07/disabled-americans-are-less-likely-to-use-technology/>

- Type of research: Descriptive (summary statistics)
- Summary: This article summarizes **2016 survey data** from the Pew Research Center on access to computers, mobile devices, and broadband Internet for individuals with a disability in the **United States**.

Banbury et al. (2014). See description in section 2.

Betesh, H. (2018). *An institutional analysis of American Job Centers: AJC service delivery in rural areas*. Mathematica Policy Research and Social Policy Research Associates.

<https://www.dol.gov/sites/dolgov/files/OASP/legacy/files/RuralServices-AJCs.pdf>

- Type of research: Descriptive (qualitative)
- Summary: This brief presents findings from an institutional analysis of AJCs on how the geography and population features of rural areas in the **United States** can affect service delivery and describes implications for rural areas' implementation of the 2014 Workforce Innovation and Opportunity Act (WIOA). The study team conducted **site visits** from July to December 2016 with 40 AJCs, interviewing the local board administrators, One-Stop Operator entity staff, the AJC manager, AJC partner managers, and frontline staff providing services to AJC job seekers and employers. AJC partners in 17 sites also completed a **survey** between January and June 2017 to further explore partnerships through a network analysis. Challenges specific to rural areas include long distances between AJCs, job seekers, and employers; lack of consistent broadband Internet access; lower funding for AJCs; and additional barriers to employment such as the opioid epidemic.

Bradford, Caffery, & Smith. (2016). See description in section 2.

Briscese, Zanella, & Quinn. (2020). See description in section 3.

Chandler, J. J. (2019). Surveying vocational rehabilitation applicants online: A feasibility study. *Journal of Disability Policy Studies*, 30(3), 164–173.

<https://journals.sagepub.com/doi/full/10.1177/1044207319835188>

- Type of research: Descriptive (summary statistics)
- Summary: This study examines the use of web surveys for studying VR applicants, a population that may lack Internet access. Using data gathered by **telephone** and **web surveys**, the study found that VR applicants in the **United States** who lacked Internet access but were provided Internet access, equipment, and instructions for the purpose of the completing the survey were as likely to complete a survey online (rather than by telephone) as VR applicants who previously had Internet access. Those completing the telephone version of the survey had lower educational attainment than those who completed the web survey.

D'Amico et al. (2009). See description in section 3.

Hodge et al. (2017). See description in section 2.

Ipsen et al. (2012). See description in section 2.

McLendon. (2017). See description in section 2.

Perrin, A. (2019, May 31). *Digital gap between rural and nonrural America persists*. Pew Research Center.

<https://www.pewresearch.org/fact-tank/2019/05/31/digital-gap-between-rural-and-nonrural-america-persists/>

- Type of research: Descriptive

- Summary: This article summarizes 2019 **survey data** from the Pew Research Center on access to computers, mobile devices, and broadband Internet access across rural, suburban, and urban populations in the **United States**.

Perrin, A., & Turner, E. (2019, August 20). *Smartphones help blacks, Hispanics bridge some – but not all – digital gaps with whites*. Pew Research Center. <https://www.pewresearch.org/fact-tank/2019/08/20/smartphones-help-blacks-hispanics-bridge-some-but-not-all-digital-gaps-with-whites/>

- Type of research: Descriptive (summary statistics)
- Summary: This article summarizes 2019 **survey data** from the Pew Research Center on access to computers, mobile devices, and broadband Internet access across racial and ethnic groups in the **United States**.

Ramsetty, A., & Adams, C. (2020). Impact of the digital divide in the age of COVID-19. *Journal of the American Medical Informatics Association*, 27(7), 1147–1148.

- Type of research: Other (implementation summary and literature review)
- Summary: This article describes lessons learned from the provision of remote services at two free clinics in **South Carolina** in response to the COVID-19 pandemic. The directors of the two clinics describe how the clinics provided a combination of remote and in-person services and care to vulnerable populations who lacked Internet access. The article also includes a brief **summary of relevant literature** about the digital divide and the adoption and use of telehealth.

Reddick & Anthopoulos. (2014). See description in section 2.

Salemink, K., Strijker, D., & Bosworth, G. (2017). Rural development in the digital age: A systematic literature review on unequal ICT availability, adoption, and use in rural areas. *Journal of Rural Studies*, 54, 360–371.

<https://www.sciencedirect.com/science/article/pii/S0743016715300176?via%3Dihub>

- Type of research: Other (literature review)
- Summary: This article presents a systematic literature review of 157 papers on technology developments and rural development in advanced countries. The authors found two major themes within the research—connectivity and inclusion. For connectivity, the authors concluded that there are persistent and widening differences in data infrastructure quality between rural and urban areas. For inclusion, the authors found that the lower levels of education and skills, as well as slower spread of technologies in rural areas, negatively impact adoption and use of technology.

Sheon, A. R., Bolen, S. D., Callahan, B., Shick, S., & Perzynski, A. T. (2017). Addressing disparities in diabetes management through novel approaches to encourage technology adoption and use. *JMIR Diabetes*, 2(2), e16.

https://diabetes.jmir.org/2017/2/e16/?utm_source=TrendMD&utm_medium=cpc&utm_campaign=JMIR_Publications_TrendMD_1

- Type of research: Other (literature review)

- Summary: In this **literature review**, the authors summarize the barriers to use of health information technology and propose possible solutions and areas for further research. Some of the barriers identified include lack of digital literacy skills, poor connectivity, health provider disincentives, and inadequate training for both patients and providers. The authors suggest additional research in partnership with community organizations that focus on digital inclusion.

Speyer et al. (2018). See description in section 2.

Van Winkle, B., Carpenter, N., & Moscucci, M. (2017). Why aren't our digital solutions working for everyone?. *AMA Journal of Ethics*, 19(11), 1116–1124. <https://journalofethics.ama-assn.org/article/why-arent-our-digital-solutions-working-everyone/2017-11>

- Type of research: Other (SME opinion piece)
- Summary: In this article, the authors use the story of one individual's experience with health care technology in the **United States** and evidence from the literature to argue that digital solutions designed to increase health care access and quality are leaving underserved populations behind. The authors describe the barriers to digital health solutions and suggest several solutions to address those barriers, including providing e-health education, designing technology for underserved communities, using tech-enabled community workers, connecting patients with the right resources, and developing programs to incentivize clinicians.

Weiner, M. D., & Puniello, O. T. (2014). The effect of poverty on the propensity to adopt broadband: Household-level evidence from the broadband technology opportunities program. *Journal of Poverty*, 18(4), 427–452. <https://www.tandfonline.com/doi/pdf/10.1080/10875549.2014.951983>

- Type of research: Descriptive (regression analysis)
- Summary: In this study, the authors explore household decision making about the adoption and use of broadband Internet. Using data from a **telephone survey** conducted in **New Jersey**, the authors found that poverty is the most important barrier to household adoption of broadband Internet. They also found that households in poverty with broadband access were less likely to use the Internet for social, educational, government, and commercial transactions than households not in poverty who had broadband access.

ABOUT THE RAPID REVIEW

CLEAR’s rapid review of evidence on programs or strategies related to providing remote service delivery was created by Mathematica under the CLEAR contract with the U.S. Department of Labor (DOL), Chief Evaluation Office (CEO). The contents of the review do not represent the views or policies of DOL.

Due to the rapid turnaround for this review, the evidence scan did not follow CLEAR’s documented systematic approach. The evidence scan for this review had four components. First, CLEAR conducted a literature search using the Scopus database and Google Scholar covering the dates since 2000. The search terms used for each strategy are provided in Table 1. Second, CLEAR reached out to four experts in labor, health, and government-related fields to seek input on programs and studies to include in the review. Third, citations from relevant studies were used to identify additional studies for review. Finally, CLEAR has conducted weekly searches to identify additional research released since the initial drafting. This version of the brief was last updated with literature published before July 31, 2020.

Table 1. Keywords used in database searches by remote service delivery topic

Topic	Topic search terms ^a	Search location
Workforce development	("Job search*" OR "job-search" OR "career counsel*" OR "job coach*" OR "job club" OR "job development" OR "job placement" OR "American Job Center*" OR "One-Stop Operator*" OR "Public workforce services" OR "Employment service*" OR "workforce development" OR "workforce system" OR reemployment OR "service delivery") w/4 (Virtual OR online OR remote OR internet OR telephone OR digital OR "technology-based" OR web OR "self-service" OR automated OR rural OR distance) AND (Workforce OR "Job seeker*" OR jobseeker OR employee OR Worker OR unemployed OR jobless)	Scopus
	("american job center" OR "american job centers" OR "one-stop career center") AND (remote OR online OR self-service OR rural OR automated OR virtual) AND "service delivery"	Google Scholar
	"online employment services" OR "online job search assistance" OR "online reemployment" OR "remote employment services" OR "remote job search assistance" OR "remote reemployment" OR "virtual employment services" OR "virtual job search assistance" OR "virtual reemployment"	Google Scholar
Vocational rehabilitation	"vocational rehabilitation" w/4 (Virtual OR online OR remote OR internet OR telephone OR digital OR "technology-based" OR web OR "self-service" OR automated OR rural OR distance)	Scopus
COVID-19 response	N/A (Reviewed full list of states’ responses to COVID-19 challenges).	National Association of Workforce Boards
	N/A (Reviewed list of distance service delivery resources)	Workforce Innovation Technical Assistance Center

Topic	Topic search terms ^a	Search location
	N/A (Reviewed full list of resources about virtual service delivery)	National Association of State Workforce Agencies
	Covid OR coronavirus	WorkforceGPS
Government services	("E-service delivery" OR "online service delivery" OR ("e-government" AND "service delivery")) AND (satisfaction OR outcome* OR evaluation OR analys* OR equity OR "digital divide" OR rural OR "*" with disabilities" OR accessibility)	Scopus
Telehealth	(telehealth OR telerehabilitation OR telemedicine OR telepractice OR tele-intervention OR "virtual consultation" OR "virtual appointment" OR "virtual case management" OR "telebehavioral health" OR "telemental health" OR "telephone-based counseling" OR "video consultation") AND (equity OR "digital divide" OR rural OR accessibility OR low-income) AND ("systematic review*" OR "literature review*" OR "meta-analysis")	Scopus

^aTopic search terms are searched in title, abstract, subject, and keyword fields in the Scopus searches.

CLEAR screened the abstracts of all studies to identify studies that examined the effectiveness of remote service delivery interventions or related equity considerations in OECD countries. CLEAR also reviewed websites for current information on workforce agencies' responses to COVID-19. Thirty-eight studies, online articles, and websites passed the screening and were summarized.

Due to the rapid nature of this review, studies identified for review were not assessed according to CLEAR's causal evidence guidelines. Instead, reviewers used a short rubric to summarize information for each study. Each citation is classified by study type: causal, descriptive, or other. **Causal** research can assess the effectiveness of a strategy—in other words, whether there is a cause-and-effect relationship between the strategy and the results or impacts. High quality causal research (impact studies) can produce the most credible type of evidence. **Descriptive** research does not determine cause-and-effect relationships but uses quantitative methods to identify trends, correlations, projections, and costs and benefits of actions taken. CLEAR also categorized qualitative studies under the descriptive category for the purposes of this rapid review. CLEAR's rapid reviews also summarize **other** types of evidence and research that describe how, where, and why strategies are implemented, and includes opinion pieces by subject matter experts (SMEs). This type of research does not aim to identify cause-and-effect relationships or use quantitative or qualitative methods but can be useful to identify emerging strategies potentially worthy of future replication and additional study. For more information on how CLEAR reviews and rates different types of studies, see CLEAR's reference documents at <https://clear.dol.gov/about>.

More information about CLEAR can be found here: <https://clear.dol.gov/about>.

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