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Measuring the Implementation and Effectiveness of Virtual Human Services

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Key Findings

- Human services programs can incorporate measurement strategies at any point in the virtual service delivery process, even after services have already started, to provide funders and administrators with timely information for discussions and decisions about virtual services.

- Studies on telehealth and remote home visiting demonstrate the feasibility of collecting data and rapid learning from virtual services assessments.

- In addition to traditional outcomes of interest, programs can measure novel outcomes specific to the virtual environment, such as provider-participant relationships and comfort with technology, using measurement strategies that are tailored for virtual data collection.

- Exploratory assessments of virtual service delivery in the short term can provide the basis for identifying more nuanced research questions and planning rigorous evaluations.

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Introduction

The COVID-19 pandemic drove a large and rapid transition from in-person human service delivery to virtual approaches. Measuring the effects of virtual human services in a timely way is crucial to understanding the challenges and successes for a variety of participants across programs and services. Initial measurements inform assessments and analysis, which can help federal programs and local providers decide how to tailor service delivery approaches to meet the needs and preferences of program participants. For example, service considerations can center on the needs and experiences of populations with historical barriers to accessing services, such as tribal populations, rural households, people of color, people with disabilities, and others who may sometimes be missed by or excluded from human services programs. Measurement-informed assessments can also help programs and providers make long-term decisions about whether, when, how, and to whom to offer in-person, virtual, or hybrid services. In particular, comparing the effects of virtual and in-person service delivery, as well as understanding which populations and services are best suited to virtual approaches, will provide crucial information for decision-makers.

Robustly measuring and analyzing effectiveness requires qualitative and quantitative data on participant and provider experiences and outcomes. However, emergency circumstances during

the COVID-19 pandemic largely prevented adequate planning, and many programs lack precedent for administering and assessing virtual human services. Drawing on studies and assessments of telehealth and remote home visiting compiled by the Institute for Research on Poverty, this brief provides considerations for programs to measure the effects of virtual human services.

The literature from telehealth and remote home visiting provides an initial basis for identifying measures and designing virtual human service assessments. This research base offers some examples of outcomes of interest and data sources, as well as potential strategies to overcome challenges and limitations in measuring service outcomes in virtual environments to generate timely program assessments to inform program decisions. These tools and considerations can help federal programs begin the assessment process and respond to challenges identified in exploratory studies. The exploratory findings can then inform appropriate measurement designs.

Considerations for Measuring Effectiveness

Emergency circumstances largely prevented the planning and data collection necessary for structured, rigorous evaluations. Programs can still compare outcomes from virtual and in-person service delivery by systematically gathering and analyzing data during or after virtual service delivery, using baseline and administrative data for comparison when available to inform program assessments. This initial and exploratory investigation can provide timely information for immediate program performance management in an environment with many constraints. Short-term collection and assessment of data does not replace more rigorous evaluations, but it can represent an important, and perhaps easier, first step to undertake in the short term. Initial assessments can analyze information and deepen understandings of the current context within a longer process of continuous and rigorous evaluation. These initial assessments can help programs quickly identify some of the relative opportunities and challenges of virtual services and ensure efforts address equitable access to and benefits from service delivery.

Study Highlight: Descriptive Implementation Study

Citation: Jablow, P. (2012). Using telehealth for mental health. Princeton, NJ: Robert Wood Johnson Foundation.

Participants: 3,247 youth in Galveston County, Texas.

Method: Interviews with project staff and reports to funders; parent/guardian survey on program satisfaction.

Treatment: Mental health clinics in nine middle schools and high schools across four school districts and a clinic at the Galveston County Juvenile Justice facility providing videoconferencing counseling.

Study Design: Descriptive, observational.

Outcomes tracked: Number of clinics established; processes for operating the clinics; services provided; demographics of those served; parent/guardian satisfaction survey; descriptions of programs established; project director impressions of program success.

Technological accommodations: Students and parents use high-quality videoconferencing equipment at the clinics. Case managers schedule the sessions, coordinate services, remind participants of appointments, and arrange transportation. Treatment team members consult with one another through electronic medical records.

Analysis: Descriptive and high level.

Measurement strategies can be incorporated at any point in the virtual service delivery process, even when services are already underway.

Even with limited advance time and resources to plan data collection and assessment strategies, programs can rely on existing data sources and methods to provide administrative or other types of baseline data. These data can serve as a basis for comparing new information collected after virtual service delivery starts or is scaled. For example, programs can look first at existing program goals and measures, such as participant satisfaction and service utilization. If necessary, programs can then adapt existing data collection methods from in-person to virtual approaches to continue gathering relevant and timely information.

Programs without existing relevant administrative or other baseline data, as well as those interested in supplementing existing data sources with new types of measures, can identify new outcomes of interest to track, such as staff and participant comfort and skill in using technology. Programs can use these newly-identified outcomes of interest in selecting specific metrics to help inform assessments about the relative success of virtual service delivery. Real-time data on virtual services, regardless of the availability of baseline data, can provide valuable information for program analysis and action.

Programs can adapt their tools to collect timely data in virtual environments.

Many programs already collect and assess data remotely, using methods ranging from conducting virtual surveys to processing and analyzing data stored in online systems.

However, the shift to virtual services may impact other data collection strategies previously employed in person, such as participant interviews. Changes in measurement mediums can also limit a program's ability to compare data collected pre and post virtual intervention. Despite this shift, programs can typically adapt these tools to virtual settings. For example, programs can administer surveys and focus groups online that were previously offered in person, and staff can use digital platforms to conduct direct observations of, for example, parent-child interactions. Access to and comfort with technology as well as strong internet connectivity can facilitate virtual data reporting for both program staff and participants.

Examples from telehealth and remote home visiting can provide a basis for measurement and assessment of virtual services.

Initial administrative data and qualitative perceptions can supplement and inform additional—perhaps more rigorous—research design methods. The growing research base on strategies to measure and analyze the effects and experiences of telehealth and remote home visiting programs can inform how to measure and assess virtual human service delivery. The study highlight above provides an

Types of Research Methods

Descriptive studies (e.g., case studies, surveys) are observational and do not include any presumptions about cause and effect relationships.[a]

Qualitative research (e.g., interviews, focus groups) produces non-numerical data on people's experiences, attitudes, and other qualities or perceptions.[b]

Pre/post studies measure outcomes before and after an intervention began (e.g., shifting from in-person services to virtual services).[c]

Quasi-experimental designs compare intervention outcomes when randomly assigning participants to groups is not possible or ethical.[d]

Randomized controlled trials (RCTs) randomly divide similar participants into two groups. One group receives the treatment or intervention, and the other does not.[c]

[a] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6371702/
[b] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3757586/
[c] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4083571/
[d] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1380192/

example from a Texas telehealth program of one of many existing methods to track virtual service delivery outcomes.

The table on page 5, based on a larger sample of studies from telehealth and remote home visiting, provides more examples of outcomes of interest and potential corresponding data sources. For each sample data source, the table identifies one or more corresponding example design methods from a telehealth or remote home visiting study. Programs can consider a wide range of strategies when collecting and assessing initial data on virtual human services and can build capacity to employ a variety of evaluation and measurement designs. Using the options in the table, among others, programs can begin to answer key research questions.

Key outcomes may include quantitative measurements, such as service utilization and cost-effectiveness, and qualitative measurements, such as participant satisfaction and participant-provider relationships. The table includes a variety of measurement strategies to capture information on each of these outcomes of interest, using existing data sources and new ones.

Based on previous research, the table below identifies potential virtual human services outcomes of interest to programs. Programs may wish to consider measuring and analyzing a wide array of other outcomes as well to generate assessments and inform decisions. For example, programs may wish to explore, among other concepts: ease and user-friendliness of technology, the extent to which services reach the target population or achieve intended program effects, outcomes for specific target populations (including those who face historical barriers to accessing services), and impacts on the larger service delivery infrastructure in the community. Additional metrics can help inform a nuanced understanding of the wide-ranging effects of virtual services.

Outcomes of Interest	Example Data Sources	Example Design Methods
Service utilization	**Administrative data** on usage of services when services were only or mostly in person and when at least some services were virtual.	Pre/post (Darkins et al., 2008)
Technology skills and comfort	**Periodic surveys** of participant and/or provider comfort with each step of using virtual systems. **Staff reports** of the number and length of interactions with participants; staff assessments of participant progress toward goals.	Quasi-experimental design (Olsen et al., 2012) RCT (Sheeber et al., 2012)
Participant satisfaction	**Participant surveys** at each visit or interaction and/or after program or service completion.	Pre/post (Darkins et al., 2008; Jablow, 2012; Stewart et al., 2017) Quasi-experimental design (Olsen et al., 2012) RCT (Bigelow et al., 2020; King et al., 2014; Sanders et al., 2014; Taylor et al., 2008; Yuen et al., 2015)
Provider satisfaction	**Provider surveys** after sessions with participants. **Interviews with staff** (e.g., information technology [IT] staff, administrators, case managers).	Quasi-experimental design (Olsen et al., 2012) Qualitative (Broderick, 2013; Jablow, 2012; RTI International, 2017; Uscher-Pines et al., 2019)
Provider-participant relationship	**Surveys** of provider and or participant after virtual services. **Enrollment data** for participants.	RCT (King et al., 2014; Sheeber et al., 2012) Pre/post (Darkins et al., 2008)
Program design and implementation	**Focus groups** with private and public stakeholders, including participants, providers, IT staff, federal agencies, and other stakeholders. **Reports and documentation** programs on the ground prepare for the funding agency.	Qualitative (Bobinet & Petito, 2015) Qualitative (Jablow, 2012)
Cost-effectiveness	**Savings per interaction** (e.g., average time, personnel, mileage) compared with in-person services. **Annual costs per person** for virtual programs compared with in-person services.	Quasi-experimental design (Olsen et al., 2012) Pre/post (Darkins et al., 2008)
Parent or adult participant outcomes (e.g., employment, income, parent-child communication, mental health, coping skills)	**Direct observation** in which trained staff record and code observations (e.g., of coping skills, parent-child interactions). **Participant surveys** conducted during and/or after services. **Participant self-reports**, including through standardized survey measures (e.g., housing stability, income, anxiety) conducted during and/or after service delivery.	RCT (Bigelow et al., 2020; Lefever et al., 2017; Sheeber et al., 2012) RCT (Kaplan et al., 2014; Sanders et al., 2014; Sheeber et al., 2012; Taylor et al., 2008) RCT (Carta et al., 2013; Lefever et al., 2017; Maieritsch et al., 2015; Sanders et al., 2014; Sheeber et al., 2012; Strachan et al., 2012; Yuen et al., 2015)
Child outcomes (e.g., developmental milestones, expressive communication, supportive relationships, positive engagement, adaptive behavior, mental health)	**Parent or adult reports** of child outcomes on surveys conducted during and/or after services. **Staff direct observations** of child behavior and parent-child interactions, using standardized measures. **Surveys** (perhaps administered by a case manager) of staff and families on child outcomes during and after services.	RCT (Carta et al., 2013; Lefever et al., 2017; Sanders et al., 2014) Pre/post (Stewart et al., 2017) RCT (Bigelow et al., 2020; Carta et al., 2013; Lefever et al., 2017) Quasi-experimental design (Olsen et al., 2012)

Considerations for Moving Forward

After identifying the outcomes of interest, federal and local programs can adapt existing data collection strategies to assess virtual services and inform program decisions now and in the future.

In the short term, programs can quickly begin to study virtual service implementation and outcomes.

Even without available baseline data, methods such as focus groups with participants and providers can provide initial exploratory data for assessment.

Programs can adapt in-person data collection tools to virtual settings. For example, programs can use online surveys and virtual observation of participants. However, these tools require participants to have access to technology and be comfortable using it. Insufficient access to and confidence in technology can exacerbate long-standing digital divides and other inequities. Without adequate resources and training, participants with historical barriers to service delivery may both struggle to receive services and meaningfully participate in feedback loops. As circumstances allow, programs can adjust their methods to collect accurate data and capture the full diversity of experiences to the greatest extent possible to best inform the assessments which influence program decisions.

Initial data collection and information gathering can help inform immediate decisions about virtual service delivery. This exploratory investigation represents a first step in the process of refining measurement strategies, setting the foundation for future evaluation designs.

Initial exploratory assessments can provide the basis for later rigorous evaluations.

Collecting data and assessing it now can produce immediate valuable information and analysis to improve program design and outcomes. This initial information is not a substitute for formal evaluations and more rigorous research designs, where appropriate. While providing timely initial findings, these short-term assessments of the effects of virtual human services can influence program decisions and also create a groundwork for later studies using pre/post, quasi-experimental, and RCT designs, among other rigorous evaluation types. Although constraints in the current environment may limit data collection strategies, programs can design future evaluations to answer research questions identified in initial assessments.

Federal agencies and other organizations can begin to build capacity for more rigorous evaluations.

Informed by initial assessments of collected data, federal programs and intermediaries, such as philanthropy and technical assistance providers, can prepare for future studies to continue informing program decisions. In consultation with stakeholders, they can further explore goals, data collection strategies, methodologies, and study designs for use in future evaluations.

Rigorous evaluation requires strong and clear data collection, expectations, and reporting mechanisms. Federal programs and intermediaries can help increase local programs' performance measurement and evaluation capacity and effectiveness by establishing policies, providing resources and tools, and setting expectations of consistent, relevant, and accurate data collection.[1]

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[1] These strategies are largely informed by recommendations from a 2018 technical expert panel on the ECHO telehealth program hosted by RAND Corporation and the Department of Health and Human Services Office of the Assistant Secretary for Planning and Evaluation with representatives from ECHO and similar programs, researchers who had studied these programs, evaluation methodologists, and relevant federal staff.

- **Establishing policies:** Efforts to support sustained evaluation at the local level include consistent and sufficient research support, clear tools for measurement and evaluation, and flexibility to meet local circumstances and needs where relevant. These efforts can help programs collect data whenever possible, ideally comparing new information with previous data on in-person service delivery and helping to inform more rigorous future research designs.

- **Providing tools and technical assistance:** Developing and disseminating ready-to-use evaluation tools and strategies for sites can standardize evaluations across sites, prevent unintended or uneven study implementation, and reduce burdens on local staff. A resource center or other training and technical assistance offering consultation and guidance for staff can also benefit programs on the ground.

- **Setting expectations:** Building evaluation components into grant funding and technical assistance opportunities can set expectations for program staff, help programs to adequately plan and structure analyses, and provide a consistent stream of reviewable data and outcomes.

Conclusion

As programs adapt to new realities and make decisions about the extent to which services will be provided virtually, gathering and analyzing data and feedback can help generate assessments of the outcomes of virtual service delivery, which can – in turn – influence program decisions. In particular, the unique tradeoffs and novelty of wide-scale virtual services require careful consideration and analysis of the impacts on populations, including those with historical barriers to accessing services. Virtual human service programs can draw on lessons from research on telehealth and remote home visiting to identify initial outcomes of interest and corresponding data sources. These strategies can help overcome current limitations and produce timely data and subsequent assessments to inform program and policy decisions and adjustments in the short term. In turn, exploratory information gathering can provide a basis for subsequent research design and rigorous evaluation.

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