CoLab

Community & Behavioral Health Policy

Telemental Health State Networks

Rapid Review

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Summary

Focus of Review: We searched for published articles describing distributed networks for state telemental health systems. We found no single article that met this stringent criteria. Our review summarizes findings from forty articles that describe other types of state networks, primarily hub and spoke models, or distributed models for non mental health areas.

Primary recommendations: 1. Create a centralized administrative and billing service to allow local agency and private providers to register in the network. 2. Create a governance team to oversee interoperability with local electronic health systems. 3. Start with high acuity, specialty behavioral health services first to maximize cost effectiveness.

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Introduction

Telehealth has emerged as a key component of expanding access to mental health care and is widely expected to transform the healthcare environment over the coming decades. While telehealth has long been utilized to deliver specialized healthcare to populations with limited access, its adoption has increased dramatically in the past decade, spurred by technological advancements, familiarity and acceptability of use, and changes in care delivery models accelerated by the pandemic.

The use of telehealth resolves several barriers to health care, including transportation costs, commute time, workday or school disruptions, and skewed distribution of resources (i.e., more limited services in rural locations). However, accessibility to high quality telehealth care is not currently distributed equally between private and public healthcare clients. The rapid expansion of telehealth services has outpaced the establishment of sustainable and effective telemental health care delivery models in the public sector.

Currently there are five primary models for telemental health delivery in the Medicaid environment, which involve either in-house or vendor telemental health services, either of which can be accessed through primary or specialty care. In-house telemental health tends to follow one of two models: 1) Healthcare agencies who use telehealth within their geographical

scope to supplement in-person services (e.g., city or county) or 2) Hub and spoke models delivered from hospitals or large healthcare organizations serving widely distributed populations (e.g., state). Vendor telemental health services are services contracted or accessed by healthcare organizations in which the clinicians performing services are not employees of the organization. This can include services that are: (1) outsourced to a private company, (2) delivered through a state-managed (or state-contracted) telemental health network, or (3) delivered through a Managed Care Organization telemental health provider network. This policy analysis seeks to address the question: What are the challenges and benefits of different telemental health business strategies in Medicaid services?

Review

Procedure

To address this question, we performed a narrative review to inform and delineate the scope of the policy analysis. As part of the review, we engaged stakeholders and clinical experts to inform search aims, which guided the search terms and analysis.

Narrative Review

We used a narrative review approach to identify and interpret the available literature on public telemental health services. Narrative reviews are a systematic approach to capturing and synthesizing published reports and articles on a topic of interest. We followed Joanna Briggs guidelines for conducting a narrative review. This included 1. Conducting an exploratory review of the academic and gray literature to inform search terms; 2. Confirming search terms and conducting the review across multiple databases; 3. Screening titles and abstracts to exclude non-related documents; 4.Coding included documents using a standard coding framework. More details on search strategy and terms are included in the appendix.

The search yielded 40 articles and 25 unique telehealth network descriptions that met criteria. The majority of telehealth network arrangements described in the research literature were hub and spoke models (15, (60%) in which a sponsoring organization (typically a hospital) provided telemental health services across a large region, followed by networks that could not be clearly classified (7, 28%), and a smaller number of fully distributed models (3, 20%) defined as non-organizationally bound networks in which clinicians from multiple provider organizations or from private practice participated in a telemental health hub.

The 25 networks varied widely in terms of the type of clinical services provided, including specialty medical care (8), multiple healthcare services (6), outpatient mental healthcare (4), Emergency Department telepsychiatry (2), and COVID-19

services (2). Telehealth networks typically offered a range of healthcare-related activities spanning three primary domains: direct patient care, specialized consultation services, and education/training opportunities. The majority (16) provided more than one of these services (all 16 involved specialized consultation services, nine provided direct patient care, and nine provided education/training). Of primary interest in this analysis were statewide networks. We identify nine examples of statewide networks.

Literature Limitations

The skew of the literature toward hub and spoke models reflects the dominance of this model in the early telehealth landscape, particularly in the late 1990s and early 2000s. At that time, technology limitations such as cost, equipment, and network/bandwidth necessitated the development of a centralized model for telehealth delivery. Relatedly, much of the literature emphasizes technological considerations that were important in the development and operation of networks in the early stages but have since been replaced with new, nimbler technologies.

Notably, nearly all the telehealth networks in this dataset predated the COVID-19 pandemic – a period that spurred rapid, widespread innovation and implementation of telehealth initiatives that have yet to be characterized in the academic literature. This past decade has also seen a swift rise in the delivery of telehealth services to and from the home setting – hastened by changes in legislation and insurance regulations – whereas nearly all the models characterized in the literature entail telehealth delivery to patients at a local/regional clinic (i.e., a "spoke" site) from clinicians in the hub setting (often a tertiary care or academic medical center). Last, many of the networks were developed to increase access to specialized medical consultation for a single episode of care (e.g., for management of acute medical conditions such as strokes), rather than to deliver care to a broad population on an ongoing, outpatient basis as would a state-wide telemental health network.

Analytic Framework

We drew from telemental health expert guidance and relevant literature to generate an analytic framework with which to evaluate telemental health business models. While the limited scope of the literature precludes us from providing evidence-informed policy recommendations, we identified key factors and potential innovations to consider in the development and implementation of a state-managed telemental health model.

1. Governance and management

Studies emphasized the importance of creating a multi-tiered and multifactorial governance structure as the first step in building and maintaining a successful telehealth network. For example, Bagot et al. and Campbell et al. noted that creating an advisory committee comprised of multidisciplinary stakeholders (e.g., care providers, telehealth experts, health care

organizations, payors, government officials, and consumers/patients) was crucial to the development and sustainability of regional telehealth networks in Australia and Canada, respectively (Bagot et al., 2017; Campbell & Martel, 1999). Bagot further identified that "early and ongoing co-design [with stakeholders] was vital" in this process. In studies, the advisory or steering committee guided the activities of the program management, which in turn oversaw various program branches such as regional directors, technical support, clinical care, financing, program evaluation.

Several studies underscored the value of a decentralized management structure which allowed for greater regional flexibility and adaptation to local needs (e.g., Bediang et al., 2014). Numerous studies indicated that having a local or site "champion" of the telehealth network was helpful in promoting adoption (Bagot et al., 2017; Campbell & Martel, 1999; Lesher et al., 2020).

While some telehealth networks provided the clinical care directly, the networks that were more distributed (i.e., network of networks) typically served to facilitate and coordinate care delivery but did not directly provide care (Bediang et al., 2014; Brown, 2013; Mcneill et al., 1998). For example, participating providers and sites in these models signed up for network membership, which offered a range of services that supported them in utilizing telehealth to provide clinical care. One study recommended the creation of a central 'clearing house' model, which would register all sites and providers and create a database through which cases and care distribution could be coordinated (Wootton & Mcgoey, 2012). In this model, the network coordinators could "match" cases to appropriate clinical resources or specialists. The model was proposed to connect existing networks that were working in parallel but not interfacing. However, we did not identify any examples of this type of model in active development or implementation.

2. Administrative and Operational

The literature consistently emphasized the need for robust administrative support to manage networks' operational needs. This may include but is not limited to the following functions: employee-related (human resources, training and education, technical assistance), technology-related (information technology (IT) support, data security, equipment maintenance), patient-related (management of referrals, scheduling), and other operational functions such as creation and maintenance of protocols, site coordination, legal/regulatory, and accounting/billing. The Arizona Telemedicine Program built administrative functions in order to incentivize public and private healthcare organizations and providers to participate in its network (Mcneill et al., 1998). As their network has demonstrated, strong operational support can reduce or eliminate barriers for individuals or small organizations to deliver telehealth. Studies also highlight the role of telehealth networks in providing regular trainings and educational materials and resources to members, both to enhance skillsets and to foster the sense of a peer community.

3. Technology and Data Security

Studies also pointed to the role a telehealth network can play in ensuring the ease of interoperability of devices and software applications (on both the provider and consumer end), rapid access to IT services, and data security and privacy, including HIPAA compliance. One telehealth network in particular, North Carolina Statewide Telepsychiatry Program (NC-STeP), pursued an innovative technological approach (Saeed, 2018). They created a novel telepsychiatry web-based portal that included referral management, visit scheduling, data exchange for clinical care, and encounter data for billing, research, and program evaluation purposes. This statewide portal enhanced care collaboration and facilitated documentation requirements while maintaining privacy of patient data with a secure and encrypted system.

4. Network Reach

Multiple studies pointed to the value of telehealth networks as a strategy to increase access to specialty medical care for those who faced geographic barriers to accessing care. However, key challenges emerged from the literature. For example, one study noted difficulties in recruiting and maintaining a telehealth clinician roster, as clinicians were reluctant to disrupt their clinic workflow to accommodate telemedicine patients (Lesher et al., 2020). We did not identify any studies that specifically focused on overcoming workflow challenges but we note it as an important design consideration.

5. Financing

Telehealth networks' financing and economic structures vary widely as a function of their business models and funding sources. Many networks charged their members (sites or individual providers) an annual fee. Subscription models included flat fees for a bundle of network services or a variable fee based on the services used. In the early stages of telehealth, the membership fee primarily covered access to the site equipment and network bandwidth, which otherwise posed an insurmountable barrier for small organizations or independent providers.

For networks, most models described in our review were funded by multiple revenue streams, typically a combination of government (federal and/or state) and philanthropic funding, with a smaller portion of revenue from membership fees. Financial sustainability was identified as a concern in networks that had less access to government funding. Cost savings to patients were consistently demonstrated, primarily related to lower travel costs and less time away from work (Brewer et al., 2010; Horn et al., 2016; Kothadia et al., 2020; Lesher et al., 2020; Yilmaz et al., 2019). Several studies documented cost savings to hospitals or payors (e.g., through decreased length of hospitalization, reduced need for outside hospital transfers), although this was more difficult to analyze for outpatient-focused models given the complexity of systems factors involved (Barker et al., 2005; Brown, 2013; Hilt et al., 2015; Narasimhan et al., 2015).

6. Program Evaluation and Quality Improvement

Multiple studies identified the need for continuous program evaluation and improvement. Quality improvement efforts in the literature included ongoing collection of quantitative data (e.g., timeliness of care, clinical outcomes, appointment metrics) and repeated qualitative measurements to assess factors such as acceptability and satisfaction, including perspectives of providers, patients, payors, and other stakeholders (Bagot et al., 2017; Cheng et al., 2021; Lesher et al., 2020). One study advised that such data are not only fundamental for adapting and refining the network, but that positive interim findings should also be disseminated to promote early successes and gain momentum (Bagot et al., 2017). No studies described clear processes for evaluating the clinical quality of care provided by telehealth network clinicians, although one proposed mechanism is to record and review telehealth sessions (with consent of all parties) to assess evidence-based treatment fidelity where relevant (Cheng et al., 2021). In addition to internal quality improvement processes, some studies strongly advocated for telehealth networks to offer transparency and accountability to stakeholders and communities through publicly available formats such as quarterly progress reports (e.g., as the NC-STeP has published since the network's inception) (Saeed et al., 2022).

Recommendations and Future Directions

Although our review did not identify a statewide, fully distributed network serving Medicaid clients, the available literature on telemental networks provides a number of useful considerations for designing such a model. We summarize these recommendations below.

1. Establish a central hub that manages billing and administrative functions in order to allow distributed providers from Medicaid-contracted agencies and private practice to join the hub while maintaining local organizational affiliations. The North Carolina Telepsychiatry Program is a valuable example of a centralized hub providing multiple internal services to streamline referral and billing.

2. Establish a governance team representing state and distributed provider organizations to design the internal functions of the hub as well as interoperability with provider billing and encounter data requirements.

3. Focus on specialty behavioral health services first as the most cost-effective strategy. Identify regionally distributed provider organizations with specialty designations (e.g., eating disorders, adolescent disruptive, self-harm, adolescent SUD) that can take on high-needs cases from other areas in the state and deliver stopgap or full treatment services through telemental health.

Review Approach

The literature review involved searching academic databases (Academic Search Complete and PubMed) to identify relevant articles. A total of 473 abstracts were identified from initial search terms. Two separate reviewers assessed the abstracts for relevance based on criteria for inclusion (network in United States or comparable country, described process of setting up a network, scope was statewide or comparable service area, described state-managed telehealth network OR business model) and exclusion (network in non-comparable country, study unrelated to telemental health unless it described state-managed telehealth, included only survey/opinions, or did not include implementation details), which yielded 40 full-text articles. We aimed to determine which articles to code through application of similar but more rigorous inclusion/exclusion criteria; specifically, included studies had to (1) describe a distributed or other similarly structured network and (2) have a statewide or equivalent (e.g., province) service area, and excluded studies were those that (1) focused exclusively on telehealth use during acute Covid-related restructuring or pandemic response, (2) described hub and spoke model, (3) were limited to Emergency Department or hospital specialty consultation (i.e., acute care settings), (4) had minimal or insufficient detail about network structure or operation, or (5) described technology used prior to 2012 with no descriptions of updated or ongoing efforts. Ultimately, none of the 40 articles met these stringent criteria, though a minority of articles contained pertinent lessons or insights for the policy analysis.

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