ON-LINE COURSE # 1:

TeleMental Health: A Guide to Understanding It, Knowing When and How to Use It, and Using It Ethically

*6 CE/Clock hours for LPC's, SW's, and LMFT's. In Georgia, this on-line course is 6 core hrs. for LPC's and SW's and 6 related hrs. for LMFT's**.** $7.00.

Approvals: NBCC ACEP # 6489; TX PAP LPC # 1482; TX PAP SW #

5915 The certificate will indicate this course was taken on-line.

*Please note that the following is from the Georgia Composite Board for Licensed Professional Counselors, Social Workers, and Marriage and Family Therapists, Rule 135-11-.01: Prior to the delivery of clinical TeleMental Health, the licensee shall have obtained a minimum of six (6) continuing education hours.

This on-line course provides the above mentioned 6 CE hrs.

This course may not be used to meet the Ethics requirement in GA. Check the rules in your state to determine if you may use this course to meet your Ethics requirement.

COURSE DESCRIPTION:

This course discusses and explains the origins and beginnings of TeleMental Health. It provides an overview of these areas as well as giving thorough and pertinent information on the history of TeleMental Health, where TeleMental Health has been used, and in what capacities; how it has and is used; the most effective places and ways and populations to use it with; what it has to offer; how to implement its uses in the most appropriate and effective and ethical manner.

TARGET AUDIENCE:

Licensed mental health care providers, especially licensed social workers, counselors, and marriage and family therapists whose actions and services regarding providing client care is influenced and impacted by the use of any or all of the various methods of delivering TeleMental Health services.

COURSE OBJECTIVES:

Upon successful completion of this on-line course, the mental health professional will be able to:

-name a minimum of 4 types of TeleMental Health delivery systems

-identify the 3 of the populations most helped by the use of TeleMental Health services

-recognize 3 ways the misguided and inappropriate and unethical uses of TeleMental Health services negatively impacts the client

-list 3 populations least likely to benefit from the use of TeleMental Health services -complete the course quiz with a score of 80% or higher.

Note:
At first reading, this course may seem like a ‘mashup’ of TMH information. It is. Sort of. But not really. As I researched material I could use to pull this information together, it became impossible to share valuable pieces of information without ‘repeating’ previously provided information. If you look closely, however, there are some slight differences among researchers and information around the technology (and many other areas) of TMH. For example, one study might indicate a particular gaze angle of .23 and another might indicate a gaze angle of 1.34. Some information may seem to be redundant but upon closer examination, it isn’t; it just varies in its suggestions. Some information could not be ‘teased’ out and moved to another section without losing its meaning within a particular context so I chose to keep the context intact. Overall, I believe you will find this information helpful. Please read it with the best interest of the client forefront in your mind. That has always helped me as I studied new information. If I were taking this course, here’s what my bottom line question would be: Will the information in this course help me be a better therapist and be more effective with my clients? For me, the answer is yes. I hope that is the answer you come to, as well.
One more thing: a course with over 24,000 words can be difficult to edit well. Please keep that in mind as you read the course material.

Thanks so much for choosing my OLC. I really appreciate it.

Karen

TeleMental Health: A Guide to Understanding It, Knowing When and How to Use It, and Using It Ethically

NOTE: 1. The terms Telemental Health, Telemedicine, Telepsychiatry may be used interchangeably within this course. The reader carries the responsibility to discern the most appropriate use of the term within the context of the course material. 2. Telemental Health and Telemental Health are used interchangeably within this course.

Telemental health, a use of telemedicine to provide mental health assessment and treatment at a distance, enters its sixth decade as a well-known practice in the medical field—it has increased access to care, and patients and providers are very satisfied with it for a wide variety of services. The term “telemental health” to refer to telepsychiatry and other psychological services, as the term has been used in social science and other fields as well. The American Telemedicine Association (ATA) has published telemental health practice guidelines, as has the American Association of Child and Adolescent Psychiatry. Effectiveness needs to be considered from the perspective of the patient, provider, program, community, and society as a whole. The only previous review of telemental health's effectiveness considered it effective in terms of providing access, improving basic outcomes, and being well-accepted. Telemental health was judged to have broad utility for clinical disorders, facilitated empowerment of patients, and had good educational outcomes. Many studies supporting this contemporary view have examined the effectiveness of telemental health to answer the question “Is telemental health effective?

Effectiveness needs to be considered from the perspective of the patient, provider, program, community, and society as a whole. Reviews of telemental health's effectiveness considered it effective in terms of providing access, improving basic

outcomes, and being well-accepted. Telemental health was judged to have broad utility for clinical disorders, facilitated empowerment of patients, and had good educational outcomes.

Considerations:

Access to telemental health care appears to have been greatly increased, based on the recent decade's research—with a few exceptions. Patients may have less travel, absence from work, and time waiting, more clinical choice and control, and better outcomes, as summarized previously. Satisfaction, generally, with services is very high. Rarely do patients report a less satisfactory interaction by videoconferencing than in-person. A few access-to-care issues remain unresolved for patients: (1) privacy and confidentiality where some patients prefer services delivered from elsewhere (e.g., living on a reservation or wanting total anonymity for personal reasons), (2) cultural and language nuances related to telemental healthcare, and (3) inadequate payment for indigent, rural, and other underserved patients, (4) PCPs and communities are generally happy to “keep” their patients locally for continuity of care.

Ideally, costs should be considered for patients, clinics, providers, and society at large—with both direct and indirect costs accounted for. Direct costs include equipment, installation of lines, and other supplies. Fixed costs also include the rental cost of lines, salary and wages, and administrative expenses. Variable costs include data transmission costs, fees for service, and maintenance and upgrades of equipment. Costs may also include projections for travel, transfers in emergencies, waiting times, and more “appropriate” use of other services or, more globally, by rural towns retaining dollars that would have been otherwise lost to suburban centers upon referral.

With regard to cost, there is benefit to delineate between differing types of cost analyses. The cost-offset model, which implies treating mental conditions may reduce other health costs, is widely used. Cost-minimization analysis implies the same effectiveness model, but different (lower) costs. Cost-effectiveness assesses intervention costs versus alternative expenditures; a subtype is cost-utility analysis, which includes data on health-related quality-of-life measures (i.e., quality-adjusted life-years). Cost-benefit analysis values all outcomes by translating them into economic terms to the degree possible and is particularly important when an intervention appears far too expensive at face value (or cross section) but not longitudinally (e.g., a transplant helps someone live and work an additional 50 years; this calculation gets into quality of life-years analysis).

Videoconferencing may be cost-effective if someone does not have to travel or transfers as “expensive” services are avoided. Savings may be shown versus in-person with high consultation rates (e.g., 1,500 consultations total), “break-even” or other thresholds used (e.g., number of consultations/year), or when the patient's travel, time, and food are included. A break-even analysis is highly specific to a program, with a range of consultations needed, from 7 to 774 depending on methods of calculation. A comparison of ATP, video, and in-person showed fixed costs were $7,000 for ATP and $20,000 for regular video, and the cost per consultation was $68.18 for ATP, $107.50 for videoconferencing, and $96.36 in-person; this means ATP is most cost-effective at 249 consultations a year. Governments have been tabulating savings, too, and an economic evaluation of telehealth data collection with rural populations has been completed.

Today, telemental health services are unquestionably effective in most regards, although more analysis is needed. They are effective for diagnosis and assessment, across many populations (adult, child, geriatric, and ethnic), and in disorders in

many settings (emergency, home health), are comparable to in-person care, and complement other services in primary care. Overall, better evaluation with formal measures (i.e., randomized trials, lack of inferiority designs) and analysis of variance to predictors of outcomes are necessary. Studies need to be focused on areas where there is currently a relative paucity of information, such as anxiety, substance use, and psychotic and other disorders.

A key area the integration of telepsychiatric models like collaborative care into services in primary care settings. The fact that it worked better than usual models is a key step—it may change decision-making about how to best do things in the future. Web-based data management will facilitate services, as can stepped models of care. For example, a new stepped model might have low tier physician-to-provider phone or e-mail consultation followed by ATP, then therapies, and finally videoconferencing.

Telemental health is one of the most active applications of telehealth rendered in the United States. Mental health is particularly suited to the use of advanced communication technologies and the internet for delivery of care. By using advanced communication technologies, mental health professionals are able to widen their reach to patients in a cost-effective manner, ameliorating the maldistribution of specialty care. The following guidelines are designed to aid in the development and practice of coherent, effective, safe and sustainable telemental health practices. Establishing guidelines for telemental health improves clinical outcomes and promotes informed and reasonable patient expectations.

Telemental health, like telemedicine, is an intentionally broad term referring to the provision of mental health and substance abuse services from a distance. The information focuses on two-way, interactive videoconferencing as the modality by which telemental health services are provided. Information is shared to address the

use of the internet and other asynchronous or social relationship environments for interactions between mental health professionals and their patients and families.

APPLICATIONS FOR THE PRACTICE OF TELEMEDICINE

Currently, the point of delivery for telemental health services is as varied as the type of services that are being provided. Sites include hospitals, emergency rooms, community mental health centers, clinics, physician offices, nursing homes, assisted living facilities, prisons, schools, and patient homes. With careful planning, telemental health services can significantly impact the quality, timeliness, and availability of services in almost any mental health care delivery system.

Clinical applications of telemedicine encompass diagnostic, therapeutic, and forensic modalities across the lifespan. Common applications include pre-hospitalization assessment and post-hospital follow-up care, scheduled and urgent outpatient visits, medication management, psychotherapy and consultation.

Telemental health interviews may be conducted between physicians in consultation, between a physician and another health care provider (e.g., a case manager, clinical nurse practitioner or physician assistant), or between mental health professionals and a patient. Other persons, such as another health care provider or family member, may also be present in a patient interview. The telemental health interview may be an adjunct to periodic face-to-face contact or may be the only contact; and is typically supported by additional communications technologies such as faxed or emailed consultation information or transmission of an electronic medical record.

Many programs across the United States provide emergency evaluations by telemedicine successfully with minimal support staff and standards in place at the

patient site. Emergency evaluations for psychiatric hospitalization can be conducted via telemedicine, and usually will require additional personnel to provide physical control of the environment and possibly the patient, for patient safety. Situations such as a patient who is suicidal, homicidal, or suffering from dementia or acute psychosis may require additional personnel in the room in addition to family members. In general, adequate support staff or responsible family members should be present at the remote site in order to safely care for the patient. If other alternatives are immediately available to meet the patient's needs without transfer, services are preferred to be provided on-site and in-person. In the event that support staff and family members are not present, the telemental health provider must make a determination whether immediate intervention is deemed necessary for patient safety. Special attention shall be paid to the enhanced need for privacy and confidentiality and every attempt to preserve the patient's right to privacy shall be employed.

In large distributed systems where multi-provider case management is needed, videoconferencing allows collaboration between all the involved clinical participants regardless of distance. Clinical treatment plans can be developed with input from experts who would not otherwise be available.

Supervision of trainees (residents or interns) at a distant site can facilitate both training and patient care. Supervision may be done either in real-time with the supervisor present via videoconferencing, or, when appropriate, by the use of store and forward technology. Supervising practitioners shall comply with state and federal requirements for in-person supervision for residents and other practitioners whose positions are federally or state funded. Videoconferencing technologies for education encompass a broad range of applications. These include, but are not limited to, point-to-point applications, such as physician-to-physician, physician-

to-patient, or multipoint sessions such as a classroom setting where a teacher is at one site and the “pupils” are at other multiple remote sites. Distance learning modalities can be used for off-site mentoring to teach new techniques, or multi-site transmission of “grand rounds” conferences and continuing medical education (CME) events. These can be streamed via the internet or transmitted a number of ways including point-to-point circuits and the public.

If using the internet to transmit protected health information or other sensitive information via the public internet, AES encryption or a virtual private network (VPN) should be used to secure the transmission.

Distance education modalities can also be used for clinical care of patients, e.g. patient teaching regarding medications, therapies, or compliance with treatment plans. Telemedicine has been applied as an effective and reliable means of gathering research data from clinical populations. Attention should be paid to issues of confidentiality and informed consent, ensuring that patients who are involved in research trials via telemedicine understand consent is for the purposes of research and not for receiving care via telemental health. Efforts should be made to ensure that patients receiving telemental health services are aware that telemedicine conversations will be recorded only with their consent.

Interactive two-way audio-visual communication between distant hospitals, clinics, schools, and justice centers is an effective means of providing administrative services and support and helps organizations to achieve cost savings in large or geographically dispersed systems. Any discussion of protected health information should be secured through use of a private, point-to-point circuit, an ISDN connection, or AES encryption or a virtual private network (VPN) should be used for transmissions via the public internet.

Any organization or provider considering the use of telecommunications equipment for the purpose of providing mental health or substance abuse care to a remote should have in place prior to initiating such a service a set of Standard Operating Procedures or Protocols that should include administrative, clinical and technical specifications. The guidelines should specifically describe roles, responsibilities (i.e., daytime and after-hours coverage), communication, and procedures around emergency issues. The degree of involvement of the telemental health provider will vary greatly between remote sites and be determined by legal issues, local resources, and staffing available to the clinic.

The standard operating procedures/protocols for telemental health organizations and providers should ensure that appropriate staff is available to meet patient and provider needs before, during, and after telemental health encounters of all types. Organizations and practitioners should have agreements in place to assure licensing, credentialing, training, and authentication of patients and practitioners as appropriate and according to local, state, and national requirements. Telemental health organizations and practitioners must be aware of the enhanced requirements for privacy and confidentiality that is afforded to patients receiving mental health care. In the United States, additional state regulations for privacy, confidentiality and patient rights apply above and beyond requirements in place for general health care interactions. Telemental health organizations and practitioners should have billing and coding processes in place that share information across systems for the purposes of payment that do not risk exposure of mental health patients' personal health information. Telemental health organizations and practitioners should determine processes for documentation, storage, and retrieval of telemental health records. Specific descriptions should be in place that address who can have access to the records. Most organizations institute a higher level of security on mental

health patients' records than on other patients' records. Patients receiving mental health and substance abuse services are afforded a higher degree of patients' rights as well as organizational responsibilities. Telemental health organizations should be aware of these additional responsibilities and ensure that they are achieved. Telemental health organizations and practitioners should have in place policies and procedures that address all aspects of administrative, clinical, and technical components regarding the provision of telemental health and should keep the policies and procedures updated on an annual basis or more often as needed. Telemental health organizations and practitioners should have in place a systematic quality improvement and performance management process that complies with any organizational, regulatory, or accrediting, requirements for outcomes management. The quality improvement indicators should address the critical components of providing telemental health services and should be used to make programmatic and clinical changes. Telemental health organizations and practitioners should comply with the specific consents to treat and for medication administration that apply to the area of mental health. Although no special consents are needed to use telemental health to serve patients, additional layers of consent are required during the course of treatment of persons with mental health conditions. Procedures must be in place between organizations and telemental health practitioners for the purposes of obtaining and sharing consents for mental health treatment and services. Telemental health professionals should be aware of who has regulatory authority and any and all requirements (including those for liability insurance) that apply when practicing telehealth in another jurisdiction (eg. across state lines), with particular attention to the additional responsibility that might apply in mental health encounters.

The telemedicine operation and its health professionals should ensure that the standard of care delivered via telemedicine is equivalent to any other type of care that can be delivered to the patient/client, considering the specific context, location and timing, and relative availability of in-person care. Health professionals should be responsible for maintaining professional discipline and clinical practice guidelines in the delivery of care in the telemedicine setting, recognizing that certain modifications may need to be made to accommodate specific circumstances. Any modifications to specialty specific clinical practice standards for the telemedicine setting should ensure that clinical requirements specific to the discipline are maintained. Health professionals providing telemedicine services should have the necessary education, training/orientation, and continuing education/professional development to insure they possess the necessary competencies for the provision of quality health services.

The inclusion of cases for a telemental health consult is at the discretion of the referring and consulting clinicians. There are no absolute contraindications to patients being assessed using telemental health.

Information should be available to the consulting practitioner that meets legal and regulatory requirements for referral and that provides supportive and data to the practitioner in preparation for evaluating the telemental health patient, and for on-going patient management. Procedures should be in place between organizations and practitioners for sharing patient mental health information.

The clinician practicing telemental health should have cultural competency in the population he or she is serving at a distance. Cultural influences may be different between the patient and the practitioner sites and means of assessing the difference and notifying the practitioner should be in place.

Cognitive testing may be provided via telemedicine but may need to be modified for use via video. Organizations administrating cognitive testing via videoconferencing must be aware of the properties of the individual test instrument, how it may be impacted by videoconferencing, and potential needed modifications. Computer-based testing may be provided at the patient location and results securely transmitted to the telemental health practitioner for scoring and interpretation. On-site testers are appropriate to be used for cognitive testing and telemental health organizations shall have in place arrangements for the use of ancillary staff to administer cognitive testing and the sharing of results with the telemental health provider. With regard to videoteleconferencing (VTC), the paramount concern is to ensure the safety of patients and also accurate diagnosis, appropriate intervention, and supportive ongoing care. All persons in the exam room at both sites must be identified to all participants prior to the consultation room. Disclosing persons who are attending the consultation will be done by panning each end of the consultation with the video camera or at a minimum, announcing the presence of individuals present and asking the patient's permission for additional persons to be in the room. Permission from the patient is not required if safety concerns mandate the presence of another individual or if the patient is being legally detained, but should be encouraged by the practitioner.

The sharing of clinical history and results must comply with established legal and regulatory requirements. Telemental health organizations and practitioners will have agreements in place that outline the procedure for securely sharing such clinical history and results. Laboratory procedure results should be reviewed by the telemental health consultant via remote health record access or facsimile. Telemental health consultants need to have access to relevant clinical data as if the

patient were being seen in person. Electronic prescribing should be used where available.

As with any consultation, there has to be a traceable record of the teleconsultation at both the referring and consulting sites. The practitioner at a minimum should have documentation including pertinent and required aspects of the clinical encounter, and the patient site should have documentation that a telemental health visit occurred with the patient. The consultant's opinion and any services that were ordered or performed should also be documented in the patient's medical record and communicated by written report to the requesting physician or other appropriate source (e.g., physician assistant, nurse practitioner, doctor of chiropractics, physical therapist, occupational therapist, speech-language therapist, psychologist, counselor, social worker, lawyer, insurance company) as required by professional conduct, legal, or regulatory requirements. Recommended language for how the consultant write the report includes "Based on the video images and history provided, my impression is as follows." Verbal communication with referring practitioners, or other pertinent entities may be given and written records of the interaction shall be kept according to legal and regulatory requirements at least at one site (referring and/or consulting). Reports may be faxed, mailed or electronically sent after the interaction has ended and should be done using secure methods. A consultant report will include at a minimum the diagnosis and/or differential diagnoses, a summary of the findings, and recommended management.

Standard practice guidelines for therapy should direct psychotherapy services within the telemedicine setting. Evidence-based practice and empirically supported treatments must be followed and adapted by the telemental health practitioner as appropriate for videoconferencing. Persons engaged in providing psychotherapy services should be aware of their professional organizations positions on

telemental health and incorporate the professional association standards whenever possible. Expert pharmacotherapy is the most frequently requested telemental health services and various methods have been employed, including the telepsychiatrist consults to the referring primary care or managing physician (PCP) who prescribes the medications; the telepsychiatrist works with a mid-level professional at the patient site who writes the prescriptions; and the telepsychiatrist directly prescribes. In this last scenario, clear procedures shall be established and communicated to all parties regarding the method for obtaining initial prescriptions and refills and reporting adverse effects.

Psychiatric emergencies can be experienced in a telehealth visit similar to an in-person visit. Provisions for routine or emergent local medical management must be included in any local operating procedure or protocol. Administrative issues that must be addressed include patient site assessment that includes obtaining information on local regulations and emergency resources, identification of potential local collaborators to help with emergency management. Emergency protocols should be created for all telepsychiatry clinics with clear explanation of roles and responsibilities in emergency situations, determination of outside clinic hours emergency coverage, and guidelines for determining at what point other staff and resources should be brought in to help manage emergency situations.

Clinicians shall be familiar with local civil commitment regulations and have arrangements where possible to work with local staff to initiate/assist with civil commitments.

Regarding general clinical issues, clinicians have to be aware of the impact of telepsychiatry on the provider's perception of control over the clinical interaction, and how this might impact provider's management. Clinicians must be aware of

safety issues with patients displaying strong affective or behavioral states upon conclusion of a session, and how patients may then interact with remote site staff.

Special groups require specific considerations in using VTC.

*Children: Children generally respond very positively to videoconferencing consultations. VTC procedures for the evaluation and treatment of youth will follow the same guidelines presented for adult with modifications to consider the developmental status of youth, such as motor functioning, speech and language capabilities, and relatedness. When legally required, families will be informed when a telehealth appointment is scheduled for their child, in order to prepare their child for a VTC appointment. The room at the originating site (patient site) should be large enough to include the youth and a parent, and one to two other individuals and to allow the camera to scan an area large enough to adequately observe children's motor skills as they move about the room, play, and separate from their parents. A table should be available to provide a surface for the child to draw or play while the parent relates the history, but the table should not interfere with communication or viewing the youth's motor skills. Some simple toys should be provided both to occupy the child and to allow assessment of skills and should be selected based on age appropriateness and child safety standards. The care and the clinical procedures used with children should follow the practice parameters developed by the American Academy of Child and Adolescent Psychiatry.

*Elderly populations: Sensory deficits, especially visual and auditory, can impair the ability to interact over a videoconference connection. Clinics must consider the use of technologies that can help with visual or auditory impairment. The geriatric patient often has multiple medical problems, many of which affect cognitive/behavioral state, require appropriate laboratory, radiologic, and other diagnostic procedures. The inclusion of family members should be undertaken as

clinically appropriate and with the permission of the patient. Interviewing techniques will be appropriate for a patient who may be cognitively impaired, or find it difficult to adapt to the technology.

*Rural populations: Clinicians working with patients from rural or frontier issues have to be aware of issues unique to working with rural populations via telehealth. Clinicians must discuss firearm ownership, safety, sanctioned use of firearms and meaning of firearms to patients in rural areas. Clinicians must be prepared to negotiate with patients over firearm disposition, and consider involvement of patients' families as appropriate. Clinicians have to be sensitive of impact of disclosures made during emergency management on patient confidentiality and relationships in small communities. Clinicians should consider including families in emergency treatment situations where possible and clinically appropriate, while also assessing and be attentive to exacerbation of family tensions in small communities. Clinicians must assess substance issues, be familiar with local resources for substance use assessment and treatment and be prepared to play a more active role in substance use treatment.

There are numerous ethical considerations. Although telemedicine is not a practice in and of itself, practicing at a distance creates a unique relationship with the patient that requires attention to and adherence to professional ethical principles. An organization or health professional that adheres to ethical telemedicine principles will incorporate organizational values and ethics statements into the administrative policies and procedures for telemedicine, be aware of medical and other professional discipline codes of ethics when using telemedicine, inform the patient of their rights and responsibilities when receiving care at a distance (through telemedicine) including the right to refuse to use telemedicine, provide patients and providers with a formal process for resolving ethical questions and issues that might arise as a

result of a telemedicine encounter, eliminate any conflict of interest to influence decisions made about, for, or with patients who receive care via telemedicine.

A communications tool called Technical Specifications Videoconferencing has made possible the recreation of clinical, consultative, and educational settings regardless of the geographic location of participants. A wide array of equipment and standards-based software is available that can greatly enhance the capabilities and usefulness of the videoconferencing system. Telemental health users should be able to, when cost-effective: Display static pictures, diagrams, or objects, view and share a computer desktop or applications, play videos or CDs so people at other locations can see and hear them, record meetings when clinically appropriate and with patient permission, share information on a common white board or via computer files. Other desirable features of a videoconferencing system include ease of use with minimum operator training, having remote camera control so that a clinician can pan, tilt, and zoom (PTZ) the camera on the patient end for close-ups, easy-to-understand visual cues to give user feedback on features selected, on screen messages to notify the user of such conditions as loss of far end video, incomplete or dropped connections, mute/unmute etc., option to view the picture sent as well as the picture received simultaneously (known as 'picture-in-picture' or PIP), audio at 7 kHz full duplex with echo cancellation (capable of eliminating room return audio echo), with easy-to-use mute function and volume adjustment, standard computer and peripheral ports for transmission of data, ability to operate at a bandwidth of 384 Kbps or higher, capacity for software upgrades as improvements become available.

Currently, most videoconferencing takes place via Integrated Services Digital Network (ISDN) or over TCP/IP (utilizing a local area network (LAN), wide area

network (WAN), or broadband Internet connection). Low bandwidth videophones are often found in home care programs, or in situations or areas where higher bandwidth connections are either unavailable or cost prohibitive. Satellite communications are increasingly being used in remote areas, whether for Internet connectivity, or direct satellite telephony. Conferencing can be established between just two locations (called point-to-point) or among a number of sites simultaneously (called multi-point). High quality microphones and speakers ensure effective aural communication and should be used in telemental health consultations to ensure accurate interpretation of the patient's and provider's spoken communication. High-quality audio is essential to the success of telemental health services, capturing the nuances of conversation that are often vital in making appropriate diagnoses. Microphone type and placement are extremely important, as are the acoustical properties of the room used. Most flat "conference-style" microphones are adequate to pick up sounds around a table or in a room, as long as the microphones are placed on a hard, flat surface at desk or table-top level. Many will also work well if placed on a flat wall at about head level for a seated person. If no flat surface is available, or if patients may be active or agitated, an omni-directional microphone can be hung from the center of the ceiling. "Quiet" rooms (those with carpeting, soft furniture, acoustical treatments, or other sound absorbing characteristics) allow for better intelligibility of transmitted speech. Most telemental health programs use systems that transmit data at a minimum of 384 Kbps. Transmission speed has to be the minimum necessary to allow the smooth and natural communication pace necessary for clinical encounters. Research into the quality of data transmission has shown that viewers perceive a marked difference in quality between 128 and 384 Kbps, but report less noticeable difference between 384 and 768 Kbps, although the proportionate cost increase is often much larger at the higher transmission speed. The use of lower bandwidths is

necessary in some locations due to lack of or expense of broadband access and the need to provide services to disparate and/or remote populations. The use of the internet has gained popularity in recent years as a medium by which providers and patients can bridge the digital gap and remain connected.

Regarding image storage, retrieval and transmission for telemental services provided within the United States, the United States Health Insurance Portability & Accountability Act (HIPAA) and state privacy requirements must be followed at all times to protect patient privacy. Privacy requirements in other countries will be followed for telemental services provided in those countries. Telemental health services being provided across political boundaries are to be in conformance with privacy requirements in both locations. Network and software security protocols to protect privacy and confidentiality will be provided as well as appropriate user accessibility and authentication protocols. Measures to safeguard data against intentional and unintentional corruption are to be in place during both storage and transmission. Within the United States, HIPAA requires that encryption (128 bit) of Electronic Protected Health Information shall be addressed. Consistent with HIPAA and good practice, video sessions must be secured to the greatest practical extent. The resolution of the display monitor should match as closely as possible the resolution of the acquired image being displayed, or the originally acquired image resolution should be accessible using zoom and pan functions. Interoperability of videoconferencing equipment has improved significantly in the past few years through a number of standards that have arisen in the industry. Most telecommunications standards are established by the International Telecommunications Union (ITU), an agency of the United Nations. Equipment shall be based on the standards which allow successful conferencing regardless of

platform or manufacturer. The ITU standards that will be used comprise the H (video), G (audio) and T (data) series.

Regarding videoconferencing with personal computers, computers utilized for VTC are to comply with all facility, state, and federal regulations.

There are continuing innovations in software protocols designed to assure consistently high quality signals (called “quality of service” or QOS) for videoconferencing systems using IP networks. The use of these protocols (which are usually implemented in the videoconferencing system itself) can significantly improve the quality of transmission over an IP network. Videoconferencing over ISDN (Integrated Services Digital Network) is governed by the H.320 ITU standard, which includes a number of associated standards to control video, audio, and data flow. ISDN connections usually use a multiplexer (MUX) to aggregate 2-6 individual phone lines into a single highbandwidth connection. As each line transmits at 64 kbps, a minimum of 6 lines should be used to ensure transmission at least at 384 kbps.

The following regards the physical location and room requirements. During a telemental health session, both locations are to be considered a patient examination room regardless of a room’s intended use. Both sites must be appropriately designed with audio and visual privacy and additionally the originating site shall have the ability to accommodate posture and movement visualization by the provider. The ability to view written or drawn material should also be available. Rooms must be designated private for the duration of the VTC and no unauthorized access will be permitted. The organization will take every precaution to ensure the privacy of the consult and the confidentiality of the patient. All persons in the exam room at both sites shall be identified to all participants prior to

the consultation and the patient's permission must be obtained for any visitors or clinicians to be present during the session.

With consideration as to the room lighting, the room in which videoconferencing is used is to be well lit (150 ft candles at the patient is recommended), preferably using light sources as close to day light as possible (i.e., fluorescent day-light or full spectrum bulbs rather than incandescent). The room is to be comfortably lit for the patient and lit well enough for the provider to see the patient without shadows falling on the patient's face or other areas where clinical data is being displayed (such as lower extremities, hands, etc.). The lighting of the provider's space needs to meet the same requirements in that the patient must be able to see the face of the provider with no shadowing. Daylight is often the softest and more comfortable light for the patient to view the clinician. The backdrops behind the patient and provider should be clean and plain in color and not full of distractions such as office papers, book shelves, etc. Blue is an optimum color for backdrops as blue neither reflects or absorbs light, is a calming color, and helps to accentuate the area of interest.

Additionally, there are ergonomic considerations. The comfort of the mental health professional undertaking the consultations should be considered to prevent fatigue and computer vision syndrome problems common with increased computer interactions. Gaze angle is the angle between the near participant's camera and where the near participant looks at the onscreen far participant (eye contact). The vertical location of the far participant on the screen will affect gaze angle. Gaze angles of approximately 5 to 7 degrees are imperceptible to most persons. Gaze angle should be as small as practical. Organizations shall ensure the technical readiness of the telehealth equipment and the clinical environment. Organizations providing telehealth services shall have processes in place to ensure the safety and

effectiveness of equipment through on-going support and maintenance. Organizations providing telehealth services are required to have policies and procedures in place to ensure the physical security of telehealth equipment and the electronic security of data. Organizations shall have appropriate redundant systems and appropriate recovery procedures in place that ensure availability of the network for critical connectivity. Organizations must ensure compliance with all relevant safety laws, regulations, and codes for technology and technical safety. Organizations are to have infection control policies and procedures in place for the use of telehealth equipment and patient peripherals.

Related to steps to optimize telemental health practices, it is critical to develop policies and procedures to ensure consistent implementation of telemental health program functions. Key policies that have to be addressed are a release of information and informed consent, identifying all required patient information for a referral/consultation, and a reliable process for communicating findings after consults. Ensuring privacy and confidentiality during intake procedures and screening is critical. Staff roles and responsibilities include transmission of patient data. Great care must be taken when using electronic means and methods for medical records, appointment scheduling, and synchronizing schedules at all sites, as with transmission of prescriptions, lab orders and progress notes.

Since the re-emergence of telemedicine programs in the late 1980's, telemental health services have consistently been one of the top three most frequently provided health services using telehealth technologies. In 1998-99, over 61 programs in 35 states were delivering telemental health services. Telemental health services are bridging the health services access gap not only for those who traditionally have had limited access to mental health services, in particular those in rural and frontier areas, but also for those who because of mobility problems,

poverty, or incarceration have limited access to health care services. Telemental health services are being delivered in a range of settings -- rural primary care clinics, hospital emergency rooms, community mental health centers, schools, and nursing homes. They are also being delivered directly into homes as well as on board Navy ships and in jails, and state and federal prisons. Telemental health technologies are being utilized to provide the full range of mental health services, including pre-admission and discharge planning, assessments and evaluations, case management, medication management, family visits, pyschotherapy, court commitment hearings, and family and consumer support groups. These technologies also provide a means to train mental health providers for rural practice. In some states, the one-year clinical internship of master's level prepared social workers is supervised via telehealth technologies. The use of these technologies for continuing education and in-service sessions is also providing access to educational opportunities that have been limited in rural areas. Increasingly, state and local agencies responsible for mental health services are exploring the use of telehealth technologies to assist them in delivering services to rural and frontier populations and meeting their mandates. Some have begun to invest in telehealth technologies or provide payment for services delivered via telehealth. Mental health professionals and consumers must learn how to effectively utilize these technologies, integrate the technologies into their practices, or advocate for their use to enhance access to services.

For mental health care providers and consumers in rural and frontier America, the future is now. Interactive telecommunication and information technologies make it possible for mental health providers to literally be in two places at once, extending scarce resources to individuals, and to entire regions, that are medically underserved. Recent growth telecommunication technologies have been used for

some 40 years to provide limited mental health interventions, mostly on an experimental basis. Beginning in the 1990s, however, the use of interactive telecommunication technologies flourished. The number of telemedicine programs in the United States grew from nine in 1993 to over 100 in 1997, and most of them provide mental health services. There are substantial benefits associated with using a range of mental health services provided to rural consumers over a telemental health network are virtually limitless. At the present time, it appears that all traditional mental health services, which do not involve direct physical contact with the client, can be provided by telemental health. Telemental health networks are also used for education and training for mental health staff, and to bring consumers and family members together for information and support. In some situations, telemental health services may be superior to face-to-face services. For example, telemental health allows a psychiatrist to observe a patient close up, without invading his or her personal space. This makes it easier to examine a patient for side effects of psychotropic medications. Telemental health applications also enhance continuity of care for consumers in rural areas. With telemental health, a "virtual treatment team" can be formed between the community and the inpatient psychiatric facility staffs. Consumers can be followed in the community by the same physician who treats them in the hospital, and family members can be involved in treatment and discharge planning.

There are numerous positive outcomes from this approach. Much of what is known about the impact of telemental health comes from the combined experience of staff and consumers who operate and participate in these networks. Though no rigorous outcome studies have been done to date, informal findings suggest that telemental health improves continuity of care for rural consumers, increases family and consumer involvement in treatment, and reduces lengths of stays and readmission

rates to state psychiatric facilities. Participant satisfaction surveys reveal that consumers perceive telemental health services as worthwhile, of high quality, and worth continuing. The introduction of telemedicine into a rural mental health care program requires leadership, vision, and authority. Typically, there is a consortium of member sites, comprised of decision-making personnel, that meets on a regular basis to oversee the development, management, and growth of the network. This group identifies the consumers to be served, designs the clinical system, determines staffing levels, creates informed consent and confidentiality procedures, and researches technological issues. Front-line staff meet to share practical knowledge and suggestions. Technology needs start-up costs for a telemental health network are becoming more affordable due to decreasing equipment costs, and are therefore now within reach of most rural mental health programs. Indeed, in many cases, providers will find it more cost-effective to join a network than to purchase an automobile to transport mental health consumers to distant service providers. However, the single biggest limitation on the use, expansion, and long term sustainability of telemental health systems is often the ongoing telecommunication costs. The type of telecommunication service(s) available from telephone companies will dictate network design and cost. In many rural areas, advanced transmission technologies or services, such as Integrated Services Digital Network (ISDN), are not yet available. Also, transmission charges are often more expensive in rural areas because many transmission rates are distance-based. The more advanced the transmission technology, the greater the bandwidth a telecommunications system will have available. Bandwidth refers to the information-carrying capacity of the telecommunications channel (i.e., the size of the pipeline that carries the video and audio signals). At higher bandwidths, picture and sound are transmitted more quickly and with better quality. Lower bandwidth systems are more affordable, but they create noticeable lags in video

and audio transmission that may negatively impact the service applications. Ongoing expenses often prove to be a barrier to continued operation of a telemental health network. In response, many programs form alliances to gain a broader base of support, and network members share the costs for equipment, maintenance, personnel, and transmission systems. Federal, State, and private funds, and third-party reimbursement and service contracts help sustain these vital efforts. Meeting the challenge of telemedicine, and in particular, telemental health networks, has the potential to diminish the disparity of mental health care based on population density characteristics. However, additional funding is needed to support research into the effectiveness of telemental health programs, and to enable additional areas of the country to benefit from this new tool for mental health service provision.

For mental health care providers and consumers in rural and frontier America, the potential for providing help is practically unlimited. Telecommunication technologies have been used for some 40 years in limited mental health interventions, mostly on an experimental basis. Beginning in the 1990s, however, the use of interactive telecommunications technologies moved past the demonstration and experimental phase into routine mental health service integration. It’s not an exaggeration to say that one mental health treatment specialist can now be in two or more places at the same time. The rural characteristics telemedicine, and in particular, telemental health networks, have the potential to diminish the disparity of mental health care based on population density characteristics. Rural and frontier communities typically are the last areas to receive advances in mental health care, such as newer antipsychotic medications or specialized treatment programs. Funding of the public mental health care system is often based on population size, which limits the amount of money available to

develop an adequate continuum of care in less populated areas. Further, psychiatrists are usually located in urban areas, leading to a scarcity of services for people with serious mental illnesses in rural communities. The use of telecommunication technologies to provide rural mental health services offers the following benefits: • extending scarce resources into geographic areas of service need, • improving existing services, and • creating new services and applications that are unique products of the use of this technology. Today, not only is it possible to access a mental health care provider located in an urban center, but within a rural and frontier region. A telemental health network can unite groups and organizations that have common goals and interests. These networks can be used to attract additional resources from outside the region, as well as to expand the boundaries of the rural/frontier mental health care village.

A review of several definitions is worth mentioning at this point. In particular, the term “telemedicine” which refers to the use of modern telecommunication and information technologies to deliver health care services at a distance. “Telepsychiatry” is the specific application of telemedicine to psychiatry. A “telemedicine system or network” is an integrated health care network that uses modern telecommunication and information technologies to provide comprehensive health care services to a specific group. When the system-wide influence of these approaches is considered, the term “telemental health” is used. Telemental health has a broader mental health care systems meaning, and includes nonclinical applications, such as family and consumer support meetings, civil commitment hearings, case conferences, and prevention and education. A telemental health system uses interactive telecommunication technologies to integrate, within a region, a comprehensive array of mental health care services of related organizations.

The number of telemedicine programs has grown from only nine in 1993 to over 100 in 1997. Almost all telemedicine programs provide mental health services. In 1996, these services accounted for nearly a quarter of all telemedicine consultations or sessions conducted. This report was produced primarily from the collective experiences of seven of the most active telemental health projects in the nation. These projects are the Appal-Link Network of Virginia, The Menninger Center for Telepsychiatry (Kansas), the Eastern Montana Telemedicine Network, the University of Kansas Medical Center Telemedicine Services, RODEO NET (Oregon), VideoLink of St. Peter's (Montana), and the Northern Arizona Regional Behavioral Health Authority. These seven projects carried out approximately 70% of all of the clinician/patient telemental health service contacts reported by the 50 most active telemedicine projects in 1996. The applications, accomplishments, and benefits of telemental health systems, particularly as they impact service delivery to people with serious mental illnesses in rural and frontier areas are numerous.

Regarding history and recent developments, for the past 40 years, telemental health projects have increased access to needed services for consumers in rural and remote regions of this country. Though early telemental health efforts used less advanced technologies and had limited applications, these projects paved the way for later advancements by establishing several important principles. The first documented use of telecommunications technology to provide health care at a distance occurred in 1920 at Haukeland Hospital in Norway, where radio links were established to provide health care support services to ships at sea. It wasn't until the 1950s, however, under the pioneering efforts of Dr. Cecil Wittson and his staff at the Nebraska Psychiatric Institute (NPI), that telemedicine was used in the field of mental health. The technology used by these early projects would be considered primitive by today's standards. The University of Nebraska designed a

simple one-way closed circuit system using small black and white televisions for lectures and instructional purposes. More than 1,000 students at the Medical College of Nebraska received instruction via this network in the 1954-55 academic year. The following year, the National Institute of Mental Health (NIMH) funded an interactive audio link connecting Nebraska Psychiatric Institute to seven hospitals in Nebraska, Iowa, and North and South Dakota. The Institute broadcast its weekly visiting lecturer series to the rest of the network and participants could ask questions to the lecturer in Omaha, allowing audience interaction with the site of origin for the first time. With continued Federal funding, the University of Nebraska program expanded throughout the late 1950s and 1960s. Milestones included the first audio-visual interactive system in 1959, and the use of microwave technology to open a link in 1964 with Norfolk State Hospital, which was 112 miles away. This latter development meant that picture and sound could originate from multiple locations at either site. In the late 1960s, the Nebraska project linked the Veteran's Administration hospitals in Omaha, Lincoln, and Grand Island into the existing network. In 1968, NIMH funded a project to develop a closed circuit link using two microwave relay stations between the Department of Psychiatry at Dartmouth Medical School and a rural hospital in Claremont, New Hampshire. The technology allowed for timely mental health consultation without moving the patient from his or her home environment. Also, for the first time highly trained technicians were not needed. Program staff, with limited technical training, could now operate these more "user-friendly" systems, eliminating the problem of down time due to technical difficulties. In 1968, Dr. Thomas Dwyer expanded an existing telemedicine project at Massachusetts General Hospital to provide emergency psychiatric consults to staff at Logan Airport Medical Station in Boston, some 2.7 miles away. This project used a bi-directional television transmission system equipped with remote camera control that allowed the

consulting psychiatrist at the hospital to pan, zoom, and focus the camera located at the remote site. This capability helped psychiatrists observe physical and emotional nuances without invading an individual's personal space. In particular, doctors reported that communication with adolescents, children, and certain patients with schizophrenia was easier than the conventional face-to-face interview process. For the first time, the technology was said to be more effective with these groups than the established "best practice" model.

Several important lessons emerged from the early telepsychiatry projects. Most important, consumers and physicians found the new technology both useful and comfortable. Further, these early projects tested some new applications that were found to be effective, such as psychiatric evaluations, family member visitations, and pre-discharge planning. They also addressed potential roadblocks to widespread acceptance of telepsychiatry, including initial hesitancy of staff members to use the technology, technical problems such as sound pick-up and camera operations in larger groups, and the high costs of equipment and transmission time. Without continued external funding, however, these projects could not maintain the high costs of transmission and network support expenses. When Federal funding for these projects ended by the early 1970s, and third-party reimbursement options were not available, the programs were forced to close.

The inauguration of telemedicine's third generation began in the late 1980s. With renewed federal funding, the rapid advancement of telecommunication and computer technologies, and the introduction of managed care created opportunities to further investigate potential applications of this still-emerging technology. Seven current projects, and their key components, are outlined below. Current Projects Oregon's RODEO NET. The first of these third generation projects in the field of mental health was Oregon's RODEO NET. The Eastern Oregon Human

Services Consortium in La Grande received a three-year Rural Health Outreach grant in 1991 from the Federal Office of Rural Health Policy (ORHP), Health Resources and Services Administration (HRSA), DHHS. The grant enabled the Consortium to use a new statewide telecommunications system (Oregon 4 ED-NET)--which offered the capability of video-conferencing via satellite and dial-up access to the Internet--for the delivery of mental health services, training, and information. By providing scheduling, protocols, procedures, evaluation and training, RODEO Net became the interface for providers to make use of the systems of the Oregon ED-NET. Because there are many locations throughout Oregon with limited telephone transmission technology and access to the satellite network, RODEO NET broadened its reach by incorporating a mixture of satellite, microwave, and POTS (plain old telephone service)-based technologies. By using this combination of technologies, RODEO NET has been able to expand its services, which include psychiatric consultation, case management, and medication management, to a larger number of rural Oregonians. The University of Kansas and the Menninger Center for Telepsychiatry. A study of rural health care needs at the University of Kansas Medical Center led to the implementation in 1992 of a state-wide interactive telemedicine network providing clinical and educational services for residents throughout the state of Kansas. Residents at more than 20 sites throughout Kansas-- from group homes to hospitals and jails--have access to more than 200 specialists at the Medical Center. The Menninger Center for Telepsychiatry in Topeka provides specialty consultation services via this interactive network and manages the adult and child/adolescent units at Providence Medical Center in Kansas City, Kansas, some 80 miles from the Menninger campus. The Menninger Center is also involved in distance learning and continuing education to other psychiatric and medical facilities across the nation. The Eastern Montana Telemedicine Network. The Eastern Montana Telemedicine

Network (EMTN) began as a cooperative effort among health care providers to research the potential of using two-way, interactive video conferencing technology to provide medical and mental health services throughout their region. Begun in 1993, EMTN has continued to expand its 11-site network providing a variety of clinical, educational, administrative, and community development services to the region. A grant from the U.S. Department of Agriculture's Rural Electrification Administration (REA), now the Rural Utilities Service (RUS), funded the equipment for the original five sites. A three-year rural telemedicine grant in 1994 from the Federal Office of Rural Health Policy, HRSA allowed EMTN to expand. Telemental health services are the leading medical application from a wide array of other specialty areas that make EMTN one of the more comprehensive networks in the nation.

Northern Arizona Regional Behavioral Health Authority. In 1996, the Northern Arizona Regional Behavioral Health Authority (NARBHA) received funding from the Arizona Department of Health Services to develop a telemedicine system to enhance the delivery of behavioral health services throughout northern Arizona. NARBHA contracts with a network of community-based agencies that provide behavioral health services to adults, children, families, and people with serious mental illnesses in a 62,000-square-mile rural area with a population of 440,000. 5 The system, NARBHA NET, uses advanced technology capable of delivering two-way interactive video and audio, tape recordings, and numerous computer applications. Twelve video conferencing sites, including the Arizona State Hospital in Phoenix, participate, with at least four additional sites planned. Video Link of St. Peter's (Montana). In 1994, the Federal Office of Rural Health Policy awarded a three-year Rural Health Outreach grant to St. Peter's Hospital Foundation in Helena, Montana, to develop an interactive telecommunications system within the

region. VideoLink of St. Peter's (formerly Southwest Montana Telepsychiatry Network) serves a 12- county, 28,509-square-mile area with a population of 190,000. VideoLink uses two-way, interactive compressed video technology within the project's six-site network, which includes Montana State Hospital in Warm Springs and Montana Developmental Center in Boulder. Collaboration with other existing networks has expanded access to 25 communities in Montana.

The Appal-Link Network was created to improve access to psychiatric care in rural and remote areas of southwest Virginia. Funded as a three-year Rural Health Outreach demonstration project by the Federal Office of Rural Health Policy, Appal-Link began operations in 1995. Appal-Link is the first telepsychiatry network in Virginia and one of only six telemedicine networks in the nation dedicated exclusively to testing telecommunications technology to deliver mental health services at a distance. Originally, the program served clients of the Cumberland Mountain Community Services Board in Cedar Bluff who were hospitalized at the Southwest Virginia Mental Health Institute in Marion. Within two years, all of the community service boards in the Institute's service area joined the network. The telemental health system uses compressed video and audio transmission over high-speed, enhanced telephone lines.

Though each telemental health project was developed to meet the specific needs of its area, they all were created to address a lack of mental health services, in general, and psychiatric care, in particular, to rural areas. Some, such as the Kansas University Medical Center and the Eastern Montana Telemedicine Network, offer a wide range of medical services, with telemental health being the primary application. Others, like Video-Link of St. Peter's and Appal-Link, are dedicated to mental health services and were developed to reach underserved populations.

The range of mental health services provided to rural consumers over a telemental health network is virtually limitless and includes all of the same services that can be provided in-person. These include the following: • patient evaluations, • case management, • medication management, • crisis response, • pre-admission and pre-discharge planning, • treatment planning, • individual and group therapy, • family therapy, • mental status evaluations, • court commitment hearings, • case conferences, • family visits, • family and consumer support groups, • staff training, and • administrative activities.

The benefits of telemental health programs are substantial. Many patients in remote regions, who are now being seen via a network, would otherwise have gone unserved, or they would have had to leave their home communities to receive care, often at great cost to themselves or their families. In addition, telemental health networks provide continuity of care for rural clients by allowing the community treatment team to monitor their progress in the hospital and to be involved in discharge planning. Also, the same psychiatrist who treats the patient while hospitalized can more effectively monitor his or her medication in the community. Telemental health networks have enabled family members to speak with and see their loved ones who are receiving treatment in distant locations and to participate in treatment planning. Families also provide valuable support to one another over a telemental health network, creating a "virtual support group." A wide range of applications exists in that telemental health networks have enormous potential to provide a large array of mental health services, provider education, and administrative functions.

Telecommunication technologies have the potential not only to extend scarce mental health services into geographic areas of need, but also to improve existing service delivery and to create programs and services that meet unique needs.

Telemental health also has broad application as an education and training tool and as a way to bring special interest groups together for information and support. This section highlights a broad array of services that are, or could be, delivered to rural areas using modern telecommunication and information tools.

In traditional mental health services, the types of telemental health services most frequently provided are those that replicate traditional mental health care. When scarce mental health care is delivered into remote areas of need, telemental health is "the next best thing to being there." In some situations, telemental health may be superior to face-to-face contact. For example, telemental health allows a psychiatrist to observe a patient close up, without invading his or her personal space. This makes it easier to examine a patient for side effects of psychotropic medications. Also, in clinical interventions that focus on confronting an individual's destructive behaviors, or on revealing past abuse, telemental health creates a comfort zone for some consumers. There is no mental health service currently being offered face-to-face that can't be delivered via telemental health. Some specific examples follow. However, like traditional mental health services, telemental health services may not be effective for every consumer. For example, a consumer with serious mental illness such as paranoid delusions focused on electronic monitoring, will need to be observed closely for his/her reaction to the use of this new tool. Intake and assessment professional staff at distant service locations can use a telemental health network to take social histories, conduct mental status examinations, and determine an individual's eligibility for ongoing services. The individual need only travel to a local site connected to the network. Psychotherapy and counseling rural service sites that do not have local therapists available can offer individual, marital, family, and group psychotherapy and counseling over a telemental health network. This is especially useful when

individuals need a therapist who serves special needs, such as those of adult survivors of childhood sexual abuse or Vietnam veterans.

Crisis intervention telemental health can bring the psychiatric emergency room to the consumer. A rural mental health consumer in crisis can be examined by a distant psychiatrist over a telemental health network. The psychiatrist can assess the need for medication changes and inpatient care. Community mental health staff and family members can participate, as well. Medication management telemental health has enormous potential in the area of medication management. Most notably, the same psychiatrist who treats an individual as an inpatient, or initially on an in-person outpatient basis, can provide long-term follow-up in the client's home community. The ongoing psychiatrist/consumer bond, maintained through telemental health, can eliminate unnecessary medication changes, reduce the need for readmission, and shorten the length of inpatient stays. Also, the treating psychiatrist can monitor a client's use of a new atypical antipsychotic medication, thereby ensuring equal access in rural areas to the most effective treatments. Finally, telemental health extends the service range of nurse practitioners, physician assistants, and psychiatric clinical nurse specialists who serve rural areas and practice in consultation with psychiatrists to provide medication review clinics and manage difficult cases.

The Eastern Montana Telemedicine Network at the Deaconess Billings Clinic has contracted to provide an Employee Assistance Program to personnel of one of the network's participating hospitals. Strict policies govern confidentiality for counseling sessions. Tele-EAP services to private businesses and industries may be a potential source of revenue for telemental health networks. Enhanced service delivery of telemental health applications can also improve existing service delivery by enhancing continuity of care for consumers in rural and remote areas.

With telemental health, a “virtual treatment team” is formed between the community and inpatient psychiatric facility staffs. Community and hospital staffs meet more frequently, have a closer working relationship, and understand the resources and limitations of each system. Family members can be involved in every step of the treatment and discharge planning process. In addition, such collateral services as vocational rehabilitation, social services, and health care can be provided as part of a consumer’s overall case management plan. Community providers can begin working with consumers even while they are hospitalized. Telemental health can also support individuals living at home and in community residential programs. Some specific examples follow. With regard to family visits telemental health removes cost and travel barriers for rural families. Family members can visit their loved ones who are hospitalized and make plans for their return home. These personal visits take place outside of more formal treatment and discharge planning conferences. Using in-home services, The Menninger Center for Telepsychiatry in Kansas is using low-cost, “plain old telephone service” (POTS)-based video conferencing technology to provide medication management and case management services directly into the homes of people with serious mental illnesses. Daily “tele-home visits” help these individuals remain independent and avoid group home settings. The PACT (Programs of Assertive Community Treatment) model of intensive, wrap-around community services for people with serious mental illnesses is in the forefront of many advanced mental health service systems. Central State Hospital in Petersburg, Virginia, and District 19 Community Services are experimenting with the use of telemental health to form a PACT team between community staff and the state psychiatric facility. Telemental health supports assistance to residential programs/group homes individuals leaving state hospitals after many years. These individuals may be difficult to place in private residential facilities. Locating telecommunications

technology in a community home (e.g., a group home) provides round-the-clock support from staff at the inpatient facility and training and continuing education for the community-based staff offers one solution, although there are many more. Ultimately, this allows the consumer to remain in the community. With regard to commitment hearings, all states have involuntary commitment statutes that allow them to detain people with serious mental illnesses believed to be a danger to themselves or others. In rural areas, this often means that an individual has to be transported to a distant psychiatric facility for temporary detention pending a civil commitment hearing. The hearing may be held at the facility, or the patient may be returned to the local community for the commitment proceedings. With the use of telemental health, a commitment hearing can take place over the network. The judge can either be at the distant facility, when there is no judge available in the community, or located in the community when state laws so require. Community staff, family members, and other necessary participants are able to participate in the commitment hearing.

Specialized services are expensive to provide in rural areas to small numbers of individuals. However, using telemental health networks, providers can more economically offer a wide range of specialty services, such as forensic status evaluations, to rural clients. Programs for special needs include services for consumers who are deaf and hard-of-hearing. The Appal-Link Network in Virginia provides interpreting services and case consultation to people with serious mental illnesses who are deaf and hard-of-hearing. Also, community staff receive training in how to work with these individuals. Previously, the specialist who provides these services covered an area of 15,000 square miles in her car.

There is a need for psychiatric services to rural nursing homes. By some estimates, as many as 70% of nursing home residents have a psychiatric disorder. Many of

these patients are diagnosed with dementia, or with dementia concurrent with depression. By providing specialty psychiatric services via telemental health systems, the Menninger Center for Telepsychiatry in Kansas helps nursing home staff provide early intervention for behavioral problems, closer medication management, and continuity of care between inpatient and outpatient settings. Telemental health can provide services to individuals with mental retardation. Many states still maintain residential institutions for long-term care of people with severe and profound mental retardation. As these facilities begin to downsize, telemental health systems can help facility staff, community providers, and family members plan for an individual's successful return home.

The uses of telemental health in substance abuse services are legion. A regional substance abuse detoxification and residential treatment program (The Laurels of Southwest Virginia) screens potential individuals for admission over the Appal-Link Network. The program also uses the network to conduct treatment and discharge planning conferences, relapse prevention programs, and civil commitment hearings.

With regard to services to infants and children with special needs, in rural and frontier areas, children with developmental delays and their parents have to travel great distances to consult with physical and occupational therapists, neurologists, and pediatricians. Telemedicine networks enable these services to be delivered to network sites closer to a family's home community. Programs in Iowa, Texas, Georgia and Missouri are currently providing services using such networks. Also, when a child has to be hospitalized away from home, parents can visit by using a portable, video-conferencing system in the child's hospital room. School-based telemental health has two telemedicine programs -- East Carolina University and the University of Kentucky - - have established rural school-based telehealth

programs, and the University of Kansas Medical Center has established an inner-city school-based telehealth program. These programs enable children in medically underserved areas to access health and mental health services from the school nurse's office. In Kansas, Kansas Medicaid and Blue Cross/Blue Shield reimburse for services provided in the Tele-Kidcare program.

In addition to traditional and specialized mental health services, telemental health has broad application in the areas of education, prevention, and staff training. For example: • Education and prevention programs on such topics as fetal alcohol syndrome, AIDS awareness, or parenting can be presented by an educator at a central location to one or more sites in the network. Interactive technology allows the audience to participate in the program. • Graduate and specialized training courses, and continuing education programs, can be provided by distant universities or large medical centers. Often, universities are willing to pay the network usage expense in order to broaden their student market. In Montana, VideoLink of St. Peters provided a psychiatric nursing continuing education program to over 100 participants at 13 different sites simultaneously. • Professionals preparing for state certification or licensure can be supervised by a distant clinician. The Eastern Montana Telemedicine Network provides supervision of Ph.D. candidates over the network. At the University of North Carolina, social work students living in distant rural communities receive field placement supervision.

Finally, in areas of the nation where population centers are separated by great distances and travel may be difficult, telemental health networks allow health and consumer interest groups to participate in regional and statewide planning meetings. For example, the Montana State Mental Health Association and the Montana Chapter of the National Alliance for the Mentally Ill hold their meetings

via this technology. Within the Appal-Link Network, support groups have formed for individuals who have a family member with a mental illness. Some of the groups may have only a few members, but telecommunications technology allows them to form a larger "virtual" group for mutual education, advocacy, and support. In the same way, consumer groups can become part of a larger, common interest community that eliminates geographic barriers. When evaluating outcomes, consumers, providers, and family members all stand to benefit from the use of telecommunications technology to provide needed mental health services in rural areas.

This information addresses organizational changes, cost/benefit analyses, and changes in mental health service use as a result of telecommunications technology. The integration of interactive telecommunication technology into a mental health care system changes established roles and relationship styles among psychiatric hospital staff, community providers, consumers, and family members. These changes are common to most telemental health projects. In most public mental health systems, professional working relationships between community providers and hospital staff are courteous but superficial, and in some cases strained. Often, neither sector is aware of the other's resources, strengths, and limitations, which leads to duplication of effort, confusion for the consumer and gaps in care. Telemental health brings staffs closer together. When hospital and community staffs work as colleagues over the network, they become more supportive of one another and more familiar with each other's roles. They are more willing and able to cooperate not only for the success of the telemental health network, but ultimately for the success of individual consumers. Improvements in the mental health service system, and in consumer outcomes, are likely to result.

Telemental health networks have clearly demonstrated improvements in continuity of care. Consumers have been followed by the same psychiatrist for more than three years in some projects. Hospital and community providers, as well as family members, are connected in an ongoing, coordinated treatment approach. Some specific examples follow. More than two thirds of nursing home patients have psychiatric disorders, particularly dementia, and admission to inpatient facilities is common. The Menninger Center for Telepsychiatry in Kansas is exploring the use of telepsychiatry to provide the follow-up care rural nursing home residents need following discharge from Menninger Center. Preliminary results are promising. The same psychiatrist who cares for the patient in the hospital provides follow-up care in the nursing home via telepsychiatry. Follow-up visits, which may have been few and far between because of the distance involved, are now conducted as needed. Also, the psychiatrist gets a more accurate picture of the patient's psychiatric condition, which can be negatively affected by the stress of travel between the nursing home and the hospital. Though no formal outcome studies have been done, nursing home staff and psychiatrists believe that telemental health has increased their patients' stability.

In rural Virginia, people with serious mental illnesses see general practitioners in the community and facility-based psychiatrists in the hospital. The Appal-Link Network has bridged this fragmented system of care. More than 400 people with serious mental illnesses who were treated at the Southwestern Virginia Mental Health Institute have maintained contact with hospital psychiatrists over the network. Consumers involved in the telepsychiatry clinic show improved self-esteem, resulting in greater motivation to participate in treatment. They are more likely to keep appointments and take prescribed medication as a result. Conversely, there are circumstances in which the locus of care is more effective if it remains

with the community-based psychiatrist. The telemental health network can work "in reverse" to allow community practitioners to maintain involvement with clients who need to be hospitalized.

Many families living in frontier and rural communities do not have the ability to travel to visit loved ones hospitalized hundreds of miles away. Telemental health services increase the likelihood that individuals will have their family's support during inpatient stays, and that family members will be included in commitment hearings, development of a treatment plan, and discharge planning. Appropriate uses of telemental health include on-going support for consumers and families. Consumer and family groups, including local chapters of the National Alliance for the Mentally Ill and the National Mental Health Association, use telemental health services to support one another and to reach out to patients. For example, some consumer groups have used the Appal-Link Network to provide community outreach to hospitalized patients detained on forensic status. In addition, with a grant from the Southwest Virginia Mental Health Board, the AppalLink Network connects family support groups in rural Appalachian communities. Family groups from two or more locations hold interactive support group meetings. Seventy-one percent of group members surveyed believe the support they received helped them keep their loved ones out of the hospital.

More research needs to be done in the area of client outcomes as a result of telemental health services. However, some earlier studies and current observations indicate that interactive telecommunication technologies can be a reliable assessment tool, have a positive impact on service use, and are well accepted by both consumers and providers.

Validity of the assessment tools helps to empirically validate the use of telemental health systems found that these technologies can be reliably used to administer

certain psychiatric assessment tools. In one study, English investigators administering the Mini-Mental Status Exam to 11 psychiatric patients found a correlation of .89 between video-based and face-to-face conditions. This result was identical to the test-retest reliability for the instrument in the original normative sample. In the second study, researchers tested the reliability of two raters in both videoconferencing and live interview sessions. Twenty-six patients with obsessive-compulsive disorder were divided into two groups: 16 participated in face-to-face interviews and 10 took part in video-mediated interviews. Investigators found near perfect reliability in the video sessions on three scales -- the YaleBrown Obsessive-Compulsive Scale, the Hamilton Depression Scale, and the Hamilton Anxiety Scale.

Addressing the concern of using reliability as a function of bandwidth, an important study of video assessment reliability conducted in the mid-1990s by Zarate addressed two major research questions: whether video assessments of patients with schizophrenia are comparable to live assessments, and whether video quality effects the ability to assess subtle negative symptoms. Forty-five individuals with schizophrenia were divided into three groups. Fifteen were used to establish reliability for the Brief Psychiatric Rating Scale (BPRS), the Scale for the Assessment of Positive Symptoms (SAPS), and the Scale for the Assessment of Negative Symptoms (SANS). Fifteen individuals were tested at the two different transmission bandwidths. [Bandwidth refers to the size of the pipeline that carries the video and audio signals and at higher bandwidths, picture and sound are transmitted more quickly and with better quality.] Results of Zarate's study established equal reliability for global severity of schizophrenia and a summary score of positive symptoms among the three assessment methods: in-person, remote 128 kbps video, and remote 384 kbps video. Because positive symptoms of schizophrenia are more tied to verbal cues, they can be more reliably assessed at the slower speeds. However, at the lower bandwidth,

negative symptoms of schizophrenia were more difficult to assess. In a similar vein, an unpublished 1997 study by the Southeastern Rural Mental Health Research Center and the Appal-Link Network addressed reliability of psychiatric assessments at different bandwidths. A high visual dependency measure, the Abnormal Involuntary Movement Scale (AIMS), and a low visual dependency measure, the Brief Symptom Inventory (BSI), were administered to 84 people with serious mental illness, both in-person and using video conferencing. Video-conferencing was done using three different transmission rates (112 kbps, 384 kbps, and 762 kbps). Results indicate high reliability for the low visual dependency test (BSI) at all transmission rates, but greater reliability for the high visual dependency assessment (AIMS) at higher transmission rates. In fact, the AIMS assessment was actually most reliable when conducted at a distance using the highest bandwidth. That is, it was more reliable when conducted using video-conferencing at 762 kbps than when conducted in-person. This may be explained by the fact that facial and tongue movements can be examined more closely over the video system without violating social space.

Changes in service use by consumers using telemental health care can be measured by frequency of services, types of services received, and the quality or clinical value of these telemental health services as compared to traditional face-to-face services. Though little rigorous research has been done, there are some emerging studies in this area. VideoLink of St. Peter's in southwest Montana attempted to determine whether telemental health services such as family visits and discharge planning, provided while the individual was hospitalized, reduced lengths of stay at the state psychiatric hospital. Fifteen psychiatric patients with a history of multiple

inpatient admissions who participated in interactive sessions were matched with a comparison group of 30 individuals of similar ages, sex, diagnoses, and number of admissions. The mean length of stay for the telemental health group was shorter than that of the comparison group (58 days compared to 74 days). Though the results were not statistically significant, in part because the experimental group was too small, investigators feel this question warrants further research. In 1996, the Appal-Link Network of southwest Virginia conducted a retrospective records review of 54 cases to compare service use six months prior to participation in telemental health services to service use during the six months after participation. Results indicate that telemental health clients have more frequent and lengthier contacts with their psychiatrist, which leads to greater stability and medication compliance. Reviewers looked for possible service changes in five areas: psychosocial rehabilitation, outpatient therapy, case management, medication management, and medication compliance. Psychosocial rehabilitation, outpatient therapy, and case management were all provided face-to-face in the community, while medication management was offered via the network. Reviewers found a significant increase in the frequency of medication management sessions and a corresponding decrease in face-to-face case management contacts. Consumers took part in fewer than two medication consultations, on average, in the six months prior to using the Appal-Link Network. In the six months after they began using the network, the mean number of medication consultations rose to 7.5. A separate analysis revealed that the average length of the tele-medication review session is 24 minutes, with a range of 12 to 45 minutes. This compares to 15-to-20-minute sessions conducted face-to-face. Investigators speculate that the hospital-based psychiatrists, who have worked with consumers as in-patients, develop a closer therapeutic relationship that carries over into the telemental health setting. In addition, a hospital-based psychiatrist using videoconferencing may have a

smaller number of patients to see than does a traveling community psychiatrist, and is therefore able to participate in lengthier sessions.

There are many reports in the literature of surveys assessing consumer and provider satisfaction with interactive telecommunications approaches. Though such surveys are often seen as questionable research instruments, it is worthwhile to note that every telemental health participant satisfaction survey available reports that consumers perceive these services as beneficial, of high quality, and worth continuing. There appears to be a universally high level of acceptance by both providers and consumers. For example, VideoLink of St. Peter's asked 878 consumers to rate the project on a scale of 1 to 5, with 5 indicating complete satisfaction. Survey participants gave the system a 4.5 rating for successfully meeting their individual service needs. They rated overall satisfaction of the technology at 4.3. A sample of 81 consumer satisfaction surveys completed by individuals who use the Appal-Link Network for medication review sessions reveals that all consumers report being "very satisfied" with the service. The Northern Arizona Regional Behavioral Health Authority (NARBHA) also has conducted client, staff, and family satisfaction surveys, as well as a cost/benefit analysis of the technology. Looking at the satisfaction with the NARBHA NET PROGRAM , the number of clients who: (n=284) were comfortable with the technology was 92% and they believed the treatment they received via the network was as good or better than face-to-face contact. 70% reported they would use the system again and 88% believed they would not have received services without the system. 76% percent of staff (n=286) were comfortable with the technology. 91% would not have been able to attend meetings without the network. 49% believed the equipment saved time. 83% believed they saw a net savings compared to projected staff time and travel costs for the second quarter of 1997.

The need for future research is indisputable. A growing number of studies and reports validate the usefulness of interactive telecommunication technologies as an important mental health service tool. However, funding is needed to support rigorous research studies. Some of the questions worth examining include the effect of telemental health services on the average length of inpatient stays, recidivism rates, and length of time in the community between hospitalizations. Though it is clear that consumers are satisfied with this service, research needs to examine what difference telemental health makes in their lives.

As clinicians continue to fit the pieces together, establishing an effective telemental health system requires an understanding of clinical and organizational factors, the technology and costs involved, and how staff are likely to respond.

There are numerous things to consider in establishing a telemental health system. The usefulness of telecommunications technology to enhance a mental health care system is in direct relationship to the extent that it is integrated as another tool within the array of service approaches. Ideally, the goal of an effective telemental health network is to have a transparent vehicle--the technology--to carry out the established mental health services mission. The personnel considerations, organizational and clinical characteristics, technology needs, and financing strategies for establishing a successful telemental health care program must be explored. The introduction of telemedicine into a rural mental health care program requires leadership, vision, and authority. Though most mental health professionals already know everything necessary to use telemental health effectively--including the use of television, computer, and telephone technologies--there may be some initial resistance on the part of staff. In particular, some staff may be anxious about being “on television.” Also, because broadcast television is a passive medium, the interactive nature of telecommunications technology may be unfamiliar and uncomfortable at the outset. Allowing staff, consumers, and family members time to experiment with the new

technology increases their level of comfort with seeing their image on the screen and participating in a two-way dialogue. Other staff may fear either increased workloads or staff reductions as a result of the new technology. Their fears can be allayed with the knowledge that this is a new tool to provide established services, not a new field of practice. The equipment enhances staff effectiveness, but it does not replace the need for their involvement. Fear of outsiders may cause some rural providers to resist, initially, formation of a telemental health network. In particular, they may be apprehensive that the consulting specialists at a large hospital or medical center may be critical of work, training, and lack of resources. Preliminary face-to-face meetings between local providers and the distant consultants can be used to establish protocols and develop working relationships. In general, rural providers respond to the fact that telecommunication technologies can help them support people with serious mental illnesses in their home communities. Programs that initiate a telemental health network need telehealth proponents in key positions, including technical, service, and administrative staff. Support from the highest levels in the organization is critical. The level of success of remote sites is a direct reflection of the degree of leadership and enthusiasm of the person responsible for that site's inclusion in the network.

In many ways the development of the network is like starting a small business, with the same types of issues involved. To be successful at this venture, there must be some ongoing, collective group process that oversees the development, management, and growth of the network. For example, many projects establish a consortium, comprised of decision-making personnel from member sites, which meets on a regular basis. The consortium addresses network management issues,

funding, public relations and marketing, service applications, time usage, scheduling conflicts, staff assignments, and troubleshooting of technical or human resource problems. In addition, it monitors the progress of new sites that join the network.

A second type of ongoing work group consists of front-line service staff who meet to share practical knowledge and suggestions. In some telemental health networks, this group stimulates development of service applications. For example, at the Appal-Link Network in southwest Virginia, staff involved in discharge planning meet to discuss scheduling, telepsychiatry clinic referrals, and network usage. This group also trains staff at new sites as they join the network. The consortium and the service groups can hold their meetings over the network. However, for large networks with numerous sites, a so-called "bridged meeting" over the network may be very expensive if every site is included in the teleconference. It may be more economical in some networks, where distances are not too great, for staff to travel to two or three sites that rotate holding the teleconferences.

A successful telemental health network needs one person responsible for scheduling all activities across the network. Many telemental health programs are part of a larger telemedicine project where medical applications compete with each other, and with remote telemental health sites, for network access. Even within a dedicated mental health network, multiple sites pose scheduling difficulties. Scheduling software programs are now available, some which allow the coordinator to manage a single calendar to which each site has access. Before the telepsychiatry clinic begins services, the network consortium should identify the specific target population(s). Typically, telemental health services are focused on groups that have no access, or restricted access, to traditional mental health services or for whom travel to such services is difficult, including children, adults

with serious mental illnesses, and elderly individuals. Some programs restrict services to individuals who are known to them. For example, only consumers who have been treated at the Southwest Virginia Mental Health Institute are followed in the Appal-Link Network's telepsychiatry clinic, and crisis intervention services are restricted to established telepsychiatry consumers. Other networks, such as the Northern Arizona Regional Behavioral Health Authority, work with consumers who may never be seen in person. The consortium should also develop referral criteria and train staff at all sites to make appropriate admissions to the clinic. These guidelines should be consolidated within the network's telepsychiatry clinic protocol.

In most telemental health projects, the system design resembles a hub-and-spoke model, often with a regional medical center or state psychiatric hospital serving as the hub and community-based programs as the system's spokes. Much of the information is transmitted from the central site or hub to the community providers. In some projects, spoke sites are also able to directly connect to each other. There is a developing trend toward free-standing sites, capable of connecting to any site within a network or alliance of networks.

In addition to the psychiatrist at the hub site, telepsychiatry clinic sessions typically include, at the spoke site, a community mental health staff member who provides case management, information, and support. For example, at the Appal-Link Network, a registered nurse is always present with the consumer to arrange medication orders and to provide vital signs, if warranted. In addition to the nurse, a case manager or mental health therapist may attend the session as needed. This is the same arrangement as traditional face-to-face care. Although it is technically possible for the psychiatrist to conduct the session with no staff support at the community site, this is not desirable for several reasons. Unpredictable consumer

reactions place the equipment at risk. Unknown stresses, which may be revealed during the session, place the consumer at risk. Equipment or transmission failures, though infrequent, can leave the consumer literally cut off from support and in a high state of anxiety. The presence of the community staff provides emotional support to the consumer and essential treatment information.

The appropriate and proper use of a well developed informed consent and confidentiality document is crucial. An informed consent process provides information to the potential consumer and explains the limitations and alternatives to the telepsychiatry service. If the consumer is opposed to the telepsychiatry service, he or she should be offered optional services, even though these may be less accessible. A consumer satisfaction survey form, to be completed after each session, should also be reviewed with the consumer. Consumers who are inpatients can be introduced to the technology before they are discharged. This allows them to gain a level of comfort with the technology and to meet community staff who will be part of their treatment team after discharge.

How can confidentiality concerns be resolved? Depending upon the type of video-conferencing transmission technology used, a video-conference may be more private and secure than a telephone call. For example, the coding and compression of analog signals by a codec for transmission as digital data adds a measure of security, as does the use of transmission technologies such as ISDN. Encrypting the signals provides the highest level of security. To protect confidentiality within a telepsychiatry clinic, rooms should be sound proofed and doors kept closed. Windows, which can expose service participants, should be covered. The audio on the monitor should be adjusted so that speakers at the distant site cannot be heard outside the room. These needs are no different than a face-to-face session. One area of possible concern is at the “bridge service,” which connects multiple

meeting sites, typically for administration and training sessions. Some networks may purchase this service from a national telephone company or a contracted systems integrator. The company providing the bridge service can see and record all activity on the network. Providers can require the company that provides the bridge service to sign a written agreement demonstrating their efforts to protect confidentiality. Initially, most telemedicine and telemental health networks have been stand-alone networks and configured in a hub-and-spoke design. Other networks have been designed to enable connections to a variety of sites within the network, with no one particular site serving as the primary service provider or hub. At some point however, most telemedicine and telemental health networks encounter situations in which they want to connect to specialized providers not in their respective network. When compatibility of equipment and transmission systems permit, these needs can be met by entering into agreements with other established networks or telemedicine sites. An example of progressive networking, whereby various independent networks collaborate to enhance access to services in a broad region, is the Montana Healthcare Telecommunications Alliance. Members include VideoLink of St. Peter's, the Eastern Montana Telemedicine Network, and METNET, the state's educational network. Currently, communities in Montana are able to connect with one another to support the delivery of mental health care statewide. Given the high costs of sustaining networks, projects generally seek innovative ways to remain viable, such as forming agreements or alliances to share scarce resources, extend service boundaries, and reduce costs. Some telemental health projects have found that sharing their telecommunications network with the general medical, educational, human services, and business communities helps sustain the network by creating a broad base of support. This concept has been referred to as creating a "televillage."

The technology needs must be thoroughly addressed. There are as many possible variations of video-conferencing equipment and transmission systems as there are telemental health applications. Telemental health technologies vary based on available resources and technical expertise, as well as on the services to be provided. What follows are some general considerations for all telemental health projects. The concept of "presence"--the illusion that a mediated experience is real--is at the heart of an interactive telecommunications exchange. Unlike earlier one-way, closed-circuit systems, two-way interaction enhances the concept of presence, making participants feel they are experiencing an in-person encounter. The degree of presence required for a particular service or interaction will help determine the type of equipment and transmission service a program needs. For example, lower bandwidth systems create noticeable lags in video and audio transmission, causing jerky or blurred video and poor audio which may make participants feel disconnected from one another. However, lower bandwidth systems may still produce an acceptable level of presence for simple conversations between two individuals, particularly when the participants limit their movements. Higher bandwidth systems, which create a greater degree of presence by responding in "real time" to participants' input, are better suited to applications that include motion or that require close and accurate observation of neurological indicators or subtle changes in affect. Assessing an involuntary movement disorder, for example, requires a higher bandwidth system.

The telecommunications equipment used by telemental health projects varies from inexpensive, low bandwidth desktop systems to large boardroom setups that feature dual monitors. Boardroom systems allow a group of participants to comfortably see and be seen in an interactive meeting. The cost of these systems also varies from less than $2,000 at the low end to nearly $50,000 at the high end.

However, equipment prices have been declining, making it possible to purchase a large monitor desktop system, capable of transmitting at 384 kbps, for about $8,000- $10,000. Indeed, in many cases, a mental health service provider may find it more cost-effective to join a telemental health network than to purchase an automobile to transport mental health consumers to distant service providers. However, like an automobile, telemental health costs go beyond the initial purchase price. By far, the single biggest limitation on the use and expansion of telemental health is the transmission costs.

One must think of transmission as being in two places at one time. Elecommunications signals are transmitted using a variety of tranmission technologies, including telephone lines (both POTS and fiber optic), microwave, cable and wireless. The type of transmission service available from telephone, cable and cellular phone companies will dictate the network design and cost. The advances in transmission technologies have made the current growth in telemental health networks possible. More advanced transmission technologies typically have greater bandwidth available and are able to transmit digital signals. For example, an Integrated Services Digital Network (ISDN) is an advanced telephone line-based transmission system that, because it is digital, allows voice, data, and video to be sent over the same line simultaneously. An ISDN circuit is 128 kbps (referred to as a Basic Rate Interface). The greater the number of ISDN circuits available, the higher the bandwidth. ISDN service at 1.544 Mbps is referred to as a Primary Rate Interface (PRI). A T-1 telephone line circuit carries 24 64-kbps channels [23 for audio, video and data; 1 for signaling and 8kbps for framing] for a total of 1,544 kbps (1.544 Mbps). Generally, highend boardroom systems are capable of transmitting at a full T-1 bandwidth. A T-1 circuit can either be dedicated, i.e., fixed between two points for full-time operation, or provided as a dialup service.

Although many of the current telemedicine systems in the United States are capable of transmitting at T-1 rates, many transmit at less than a full T-1 (e.g., at 384kbps) for telemedicine sessions. In many rural areas, advanced transmission technologies such as ISDN services are not yet available. Also, long-distance telephone rates and network transmission charges vary greatly across the country and are frequently more expensive in rural, less populated areas. Transmission Costs. There are three types of ongoing costs associated with network transmission: the monthly cost of long-distance service access, the varying cost of long-distance service usage, and the cost of bridging service. For ISDN, monthly access costs can range from $30 per ISDN circuit to as much as $100 per circuit. With ISDN, networks must also pay usage charges, which are typically based on distance and the type of connection. For example, at 384 kbps, rates can vary from $35 to $60 per hour. For a dedicated long-distance T-1 line, costs can range from $400 to $8,000 a month. However, with this type of service, there is often no usage charge. Bridging service is necessary to connect three or more sites in a multi-site meeting. Bridging services can be obtained from long-distance telephone companies and private providers, with costs ranging from $45 to $60 per hour per site connected. Some networks with frequent needs for multi-site conferences choose to purchase their own bridge. However, equipment costs range from $50,000 to $100,000, and staff are required to operate the bridge service during meetings. Networks with only a few monthly multi-site meetings are better off purchasing bridging services.

Bandwidth? More or less? In telemental health debates, the question frequently arises as to whether it is better to provide services at a lower bandwidth, which some may consider “poorer quality” telemental health care, or to offer no care at all. The advantage of low bandwidth systems is that they can be installed in areas

of low technology at affordable cost, thereby providing much needed care to people who had no previous access to services. Most current telemental health projects have resolved the dilemma of low cost/lower quality versus high cost/higher quality by compromising at a bandwideth mid-point of 384 kbps. In a 1997 survey conducted by the Association of Telemedicine Service Providers, 384 kbps or higher was the bandwidth used for mental health specialties at 11 of 15 projects surveyed. Interestingly, participants tend to notice a difference in quality between 128 kbps and 384 kbps, but there is a less noticeable difference in quality between 384 kbps and 762 kbps. The cost difference between these three transmission rates is significant, however. Also, because participants first exposed to video-conferences are used to the full motion transmission of broadcast television, they tend to complain about the poor image quality, even if the transmission is at a moderately high bandwidth of 384 kbps or more. However, continued exposure to video-conferences at any consistent bandwidth tends to train the "mind's eye" to be less aware of distractions.

Having easy access to technical support is not negotiable. Most mental health service organizations have little technical experience with the equipment and transmission systems needed to maintain an interactive telecommunications network. Larger medical centers and university-based projects may have staff support to integrate the technology, but smaller rural organizations will need to go outside their agency for equipment and system integration support. Often, the equipment manufacturer can provide ongoing support; this may be part of the first year's warranty on the equipment. For example, the Appal-Link Network contracts with a "Help Desk" service, provided by a telecommunications systems integrator. The service permits staff from any site to receive immediate technical support. Most importantly, the system integrator can troubleshoot network transmission

difficulties. Most often, failure of the network is a telephone company transmission problem rather than an equipment failure. Beyond the first year, extended warranties can be expensive. To help reduce these costs, the Eastern Montana Telemedicine Network paid a one-time fee to the equipment manufacturer to train a staff member as a "certified technician." This individual provides technical support for all network sites. Also, rather than a full-service extended warranty, some networks choose a lower cost "parts replacement, fix it yourself" option. The system integrator for the Appal-Link Network helps network technical staff repair hardware and fix software problems. The Help Desk can dial into the malfunctioning system to troubleshoot problems at a distance. Financing Strategies: As with the early telemental health efforts described ongoing costs continue to be a problem for the current projects profiled in this report. In response to their concerns, a number of projects have developed some innovative funding strategies, such as sharing resources. The greater the number of users a telemental health system has, the more financially viable it will be. However, less populated areas have fewer potential providers and consumers. In these areas, telemental health networks can increase usage and realize economies of scale by creating alliances that broaden the base of participating organizations and applications. Sharing network expenses is another common way to sustain a telemental health network. Network members have greater purchasing power when they share costs for equipment, maintenance, personnel, and network transmission. Transmission expenses for monthly recurring access, usage, and bridging service can be prorated based on each site's monthly activity. Even smaller agencies with infrequent needs may be willing to share in the network's operating expenses to obtain needed services. Federal and State funds have been critical in initiating telemental health networks and State funds have been critical in sustaining them. Almost all telemental health networks were developed with Federal grant funding. Between

1994 and 1997, a total of 191 telemedicine projects received $110.5 million from seven agencies. Three of these--the Office of Rural Health Policy, HRSA, DHHS, the National Library of Medicine, NIH, DHHS, and the Rural Utilities Service, USDA--provided $70 million to 163 projects, many of which included mental health services as a primary application. A new telecommunications subsidy program, the Universal Service Program for Rural Health Providers, will be critical to sustaining telemental health networks. Under the Telecommunications Act of 1996, Universal Service telecommunication provisions were extended to include advanced telecommunication services, and special provisions were made for public and non-profit rural health providers. Under these latter provisions, public and non-profit rural health providers are eligible for subsidized telecommunication services up to 1.544 Mbps. The subsidy or discount a rural provider receives is the difference between what it must pay for a telecommunication service and the cost of the service in the nearest urban areas. Once a network has been established and demonstrates successful outcomes and benefits, state departments of mental health may be willing to help support and expand the telemental health network. In addition, special taxes or awards from state lotteries or other programs may be available. For example, the Northern Arizona Regional Behavioral Health Authority's (NARBHA) telepsychiatry project is funded in large part through an allocation of state tobacco tax revenues. Other telemedicine projects, such as in Georgia, were funded by a return of telephone company overcharges.

Taking third-party payments must be addressed. In some states, such as Montana, Virginia, and Kansas, Medicaid reimburses for telepsychiatry services. This may be a significant source of revenue depending on the number of Medicaid consumers served and the specific types of services covered. Managed care systems also provide opportunities for coverage of services or third-party

payments. For example, in the mid-1990s, RODEO NET of Oregon entered into contracts with Greater Oregon Behavioral Health, Inc. (GOBHI), a private, nonprofit managed behavioral health care organization, and with the Eastern Oregon Human Services Consortium. Under these arrangements, mental health providers may pay for services rendered to GOBHI or consortium clients via the network from the previously established capitation rate. Both GOBHI and the consortium pay for the transmission costs associated with the delivery of these services. Network costs associated with service provision are also part of the negotiated capitation rate for NARBHA NET providers. Combined Funding Sources Telemental health projects often must rely on multiple funding streams. For example, multi-source funding has allowed the Eastern Montana Telemedicine Network (EMTN) to plan for organized growth. In addition to two Federal grants, a private foundation funded the site that serves as the project hub. By working collaboratively with third-party payers in Montana, EMTN was one of the first telemedicine networks in the nation to receive reimbursement from both public and private payers.

The challenges, and the rewards, of establishing a telemental health system are great. When rural health care providers come together--sharing ideas, resources, and needs--consumers reap significant benefits. Some of the key points discussed throughout this report are highlighted in the conclusion.

The future of mental health care is now in rural and frontier America. Interactive telecommunication technologies make it possible for mental health providers to literally be in two places at once, extending scarce resources to individuals, and to entire regions, that are medically underserved. Without these technologies, mental health consumers in rural communities would have to leave home to receive care, or they might not receive services at all. The range of mental health services

provided to rural consumers over a telemental health network is virtually limitless and includes all of the same services that can be provided in person. Telemental health also has broad application as an education and training tool for mental health staff, and as a way to bring special interest groups, including consumers and family members, together for information and support. Though no rigorous outcome studies have been done to date, practitioner experience and findings from program evaluations suggest that telemental health improves continuity of care for rural consumers, increases family and consumer involvement in treatment, and reduces lengths of stays and re-admission rates to state psychiatric facilities. Participant satisfaction surveys reveal that consumers perceive telemental health services as worthwhile, of high quality, and worth continuing. Initial start-up costs of a telemental health network are becoming within reach of more programs, but ongoing expenses, such as telecommunication costs, often prove to be a barrier to long-term network sustainability. To enhance sustainability, programs form alliances to gain a broader base of support, and network members share the costs for equipment, maintenance, personnel, and transmission systems. Federal, State, and private funds, and third-party reimbursement and mental health service contracts, help sustain these vital efforts. Telemedicine, and in particular, telemental health networks, have the potential to diminish the disparity of mental health care based on population density characteristics. Sound telehealth policies are needed at the Federal, State, and local level to foster the deployment of these technologies and ensure the quality of care provided using them. In addition, more funding is needed to support research into the effectiveness of telemental health programs and to enable underserved areas of the country to benefit from this new tool for mental health service provision.

The following information addresses the already established mandate that providers be culturally competent. Here is a look at two primary groups: American Indian (Native Americans) and veterans and a combination of both. An increasing amount of evidence shows that American Indian Veterans have the highest rate of PTSD of any ethnic group and face significant barriers to care. One of the biggest barriers is geography, such as living on reservations in rural and remote areas at great distances from medical facilities. The Telemental Health Clinics for Native Veterans with Post Traumatic Stress Disorder (PTSD) were implemented due to these barriers.

These clinics provide ongoing mental health care, including medication management, case management, and individual, group and family psychotherapy to Northern Plains Veterans living on or near rural American Indian reservations in Montana, Wyoming and South Dakota.

This unique service within the VA system demonstrates an innovative model to provide greatly needed mental health services to an underserved rural minority. The general model and processes of care represented by these clinics hold promises of improved care and treatment for rural Veterans in general, as well as other underserved rural populations. Studies suggest that telemental health is as effective as face-to-face services and patient attitudes towards this delivery mechanism are positive.

The American Indian Telemental Health video (Length 19:58) presents an overview of a series of Telemental Health Clinics that use videoconferencing to provide remote mental health treatment to Native Veterans living on or near rural reservations in the Northern Plains. This video is highly, highly recommended. This population has unique health care needs and faces numerous barriers to accessing health care services. These clinics provide a way to reach this vulnerable

population and increase access to culturally specific care through collaborative efforts and partnerships.

Tribal Outreach Workers (TOW) are generally military Veterans and members of the tribes for which they serve and are employed by the VA. Their background enables them to foster trust and rapport with Native Veterans and reduces cultural barriers of the Telehealth Clinics. Their duties vary from assisting Native Veterans with determining their VA services eligibility, assisting with enrollment, scheduling intakes and appointments, orienting the patient on how to use the videoconferencing equipment, troubleshooting the technical aspects of running the telecommunications equipment in the clinics, to coordinating emergency crisis management. The TOW also works closely with the remote clinicians and provides guidance on cultural and community issues that may be relevant to a patient's treatment or care.

Telemental health, a use of telemedicine to provide mental health assessment and treatment at a distance, has increased access to care, and patients and providers are very satisfied with it for a wide variety of services. The term "telemental health" to refer to telepsychiatry and other psychological services, as the term has been used in social science and other fields as well. A new generation of studies on telemedicine has replaced the "primary" view of telemental health as a new and different way of providing health services to a contemporary view that it is a vehicle for providing care that is here to stay. The studies supporting this contemporary view have examined the effectiveness of telemental health to answer the question "Is telemental health 'effective' to do 'what' for 'whom' and 'when' at this point in time, based on its evolution?"

Effectiveness implies that telemental health works. In telemedicine and telemental health, few authors have explicitly addressed effectiveness; however,

research appears to be changing this. The underlying premise of being "effective" is the assurance that the chosen technology is specific to the objective of the service being offered.

Effectiveness needs to be considered from the perspective of the patient, provider, program, community, and society as a whole. The only previous review of telemental health's effectiveness considered it effective in terms of providing access, improving basic outcomes, and being well-accepted. Telemental health was judged to have broad utility for clinical disorders, facilitated empowerment of patients, and had good educational outcomes. Today, its effectiveness is better described in terms of the model of telepsychiatry used and the population being served (e.g., rural, underserved, children).

Telemental health's effectiveness related to clinical care:

There is a review of diagnostic (reliability/validity) or assessment processes, populations (child, geriatric, and ethnic), new models, settings (e.g., collaborative care, asynchronous, emergency, home health), mental health disorders, and cost-related and other outcomes.

Emergency room telepsychiatry

Telepsychiatry emergency services have been slow to develop in psychiatry compared with neurology (e.g., stroke), obstetrics (e.g., fetal monitoring), and other clinical areas. This is surprising despite the consultation models used and the long delays before mental health evaluation may occur on site. The effectiveness of emergency telepsychiatric consultations has rarely been studied; however, one study of patients with mainly depression, bipolar disorder, and schizophrenia revealed that 65% were discharged, 16% were admitted, and 19% were transferred. This study, which examined eight programs, found that most rated

themselves as moderately successful (3/5 or 4/5, with 5 best) and patients and emergency physicians rated services at 4.4/5. The same was found in another study. Guidelines on how to be effective in providing emergency telepsychiatry need to be evaluated.

Medical home, home health, and other mobile technology methods

These services are in development and need to be better studied, although costs are dramatically decreasing. The patient-centered medical home is a concept founded on the presence of inadequate treatment in primary care and/or an inability to access needed services. The patient-centered medical home allows telepsychiatric input at home, still under the general purview of the PCP, and it has been shown to improve patient care and health. Desk-mounted video systems offer great convenience for therapy to cancer patients to avoid travel, but the cost used to be prohibitive for most consumers. **Internet-based video technology via personal computers and mobile devices must be HIPAA-adherent. Use of these technologies is increasingly becoming available and will support the move of telepsychiatry to the home, such as programs that are now being implemented by the Veterans Health Administration**.

Access to Care

Access appears to have been greatly increased, based on the recent decade's research—with a few exceptions. Patients may have less travel, absence from work, and time waiting, more clinical choice and control, and better outcomes, as summarized previously. Satisfaction, generally, with services is very high. Rarely do patients report a less satisfactory interaction by videoconferencing than in-person. A few access-to-care issues remain unresolved for patients: (1) privacy and confidentiality where some patients prefer services delivered from elsewhere (e.g.,

living on a reservation or wanting total anonymity for personal reasons), (2) cultural and language nuances related to telemental healthcare, and (3) inadequate payment for indigent, rural, and other underserved patients. PCPs and communities are generally happy to "keep" their patients locally for continuity of care.

Cost Issues and Implications

Ideally, costs should be considered for patients, clinics, providers, and society at large—with both direct and indirect costs accounted for. Direct costs include equipment, installation of lines, and other supplies. Fixed costs also include the rental cost of lines, salary and wages, and administrative expenses. Variable costs include data transmission costs, fees for service, and maintenance and upgrades of equipment. Costs may also include projections for travel, transfers in emergencies, waiting times, and more "appropriate" use of other services or, more globally, by rural towns retaining dollars that would have been otherwise lost to suburban centers upon referral.

With regard to cost, there is benefit to delineate between differing types of cost analyses. The cost-offset model, which implies treating mental conditions may reduce other health costs, is widely used. Cost-minimization analysis implies the same effectiveness model, but different (lower) costs. Cost-effectiveness assesses intervention costs versus alternative expenditures; a subtype is cost-utility analysis, which includes data on health-related quality-of-life measures (i.e., quality-adjusted life-years). Cost-benefit analysis values all outcomes by translating them into economic terms to the degree possible and is particularly important when an intervention appears far too expensive at face value (or cross section) but not longitudinally (e.g., a transplant helps someone live and work an additional 50 years; this calculation gets into quality of life-years analysis).

Videoconferencing may be cost-effective if someone does not have to travel or transfers as “expensive” services are avoided. Savings may be shown versus in-person with high consultation rates (e.g., 1,500 consultations total), “break-even” or other thresholds used (e.g., number of consultations/year), or when the patient's travel, time, and food are included. A break-even analysis is highly specific to a program, with a range of consultations needed, from 7 to 774 depending on methods of calculation. A comparison of ATP, video, and in-person showed fixed costs were $7,000 for ATP and $20,000 for regular video, and the cost per consultation was $68.18 for ATP, $107.50 for videoconferencing, and $96.36 in-person; this means ATP is most cost-effective at 249
consultations/year. Governments have been tabulating savings, too, and an economic evaluation of telehealth data collection with rural populations has been completed.

Today, telemental health services are unquestionably effective in most regards, although more analysis is needed. They are effective for diagnosis and assessment, across many populations (adult, child, geriatric, and ethnic), and in disorders in many settings (emergency, home health), are comparable to in-person care, and complement other services in primary care. Overall, better evaluation with formal measures (i.e., randomized trials, lack of inferiority designs) and analysis of variance to predictors of outcomes are necessary. Studies need to be focused on areas where there is currently a relative paucity of information, such as anxiety, substance use, and psychotic and other disorders.

A key area the integration of telepsychiatric models like collaborative care into services in primary care settings. The fact that it worked better than usual models is a key step—it may change our decision-making about how to best do things in the future. Web-based data management will facilitate services, as can stepped models

of care. For example, a new stepped model might have low tier physician-to-provider phone or e-mail consultation followed by ATP, then therapies, and finally videoconferencing.

A plan for assessment and care for patients with ethnic, cultural, and language issues is essential. Scientific and policy questions from this discussion include:

- What tools, methods, and measures are needed to assess the patients, providers, and health systems?
- What are the intersections of culture, sociodemographic, geography, and technology in health?
- Will patients' disorder, racial or ethnic identity, or other factors determine whether e-mental health or in-person care is more effective?

Child and Adolescent Telepsychiatry

The President’s New Freedom Commission on Mental Health has recommended the use of telecommunications technologies to address the health care needs of underserved communities and populations. An example of this which will be discussed in this section is children with ADHD. When telecommunications uses interactive videoconferencing between a patient and health care provider to render care in real time that is usually conducted in person, it is termed telemedicine. When telemedicine services are provided for psychiatric care, they are termed telepsychiatry, or telemental health when such care involves more general mental health and behavioral health services such as psychotherapy or behavioral training.

As most mental health and behavioral health services rendered through videoconferencing have involved psychiatric care, we use the term telepsychiatry to encompass all telemental health applications unless specifically noted otherwise. This venue for health service delivery offers an innovative approach to building collaborative models of evidence-based mental health care by redistributing the workforce of child and adolescent mental health specialists.

Technological Aspects

The technology underlying telepsychiatry is inherently interesting and complicated, but a comprehensive understanding is not critical to its use. Multiple technologies of varying sophistication and cost are available to establish connectivity between sites. Most often used are digital systems, such as ISDN (integrated service digital networks) and T1 lines. These means of connectivity provide bandwidth sufficient to approximate an in-person clinical experience, and their secure point-to-point connectivity ensures compliance with regulations established by the Health Insurance Portability and Accountability Act (HIPAA). However, they are expensive for widespread use outside major institutions. Broadband connectivity is becoming popular, as it provides rapid transmission with high resolution at lower connectivity costs. However, encryption protocols are needed to ensure confidentiality. This may be provided through mechanisms such as virtual private networks. Increasingly, entrepreneurial psychiatrists have explored the use of lower-end technologies, such as webcams. Controversy persists regarding the ability of their encryption protocols to comply with HIPAA standards. Another concern in using the public airways is that sufficient bandwidth for clinical work may not be available on demand.

The main point in using this or any health care technology is that it is a vehicle for reaching the large number of children with ADHD who do not receive expert services. The technology now provides high bandwidth (386 kilobyte/s to ≥1 MB/s), with synchronized video and audio transmission, and excellent resolution that approximates an in-person visit. As psychiatry relies predominantly on conversation and observational skills, telepsychiatry provides a reasonable alternative to an office visit for patients who cannot readily access care. Furthermore, the increasing availability of videoconferencing capability in multiple settings allows telepsychiatrists to reach youth in naturalistic settings. For example, schools have networks that can bring psychiatrists and teachers together to collaborate in developing individualized education plans, behavioral management plans, and other services for ADHD youth, who make up a large proportion of students receiving special services. Similarly, specialty settings such as correctional facilities also have videoconferencing equipment that allows telepsychiatrists to reach ADHD youth who are overrepresented among incarcerated populations. In addition, telepsychiatry can be combined with other electronic and computer-based technologies to provide innovative approaches to treatment. For example, secure patient portals can be used to provide educational materials or to communicate with patients and thus involve them in their care.

The skill set needed to practice telepsychiatry includes familiarity with the equipment and ability to troubleshoot minor difficulties, as well as development of a clinical style that maximizes communication through this medium (also known as videoconferencing etiquette). Rapport in telepsychiatry is established within a space that does not physically exist and in which participants do not have access to all the surrounding stimuli or to the nuances of the others' presentation. Preliminary work on how the lack of physical presence affects the relationship

suggests that a more casual clinical style optimizes rapport. Therefore, in general, communication is more deliberate and animated to overcome impediments to perception that might occur over the telemonitor. For example, hand gestures should be broader than in usual practice to ensure that the youth accurately detects the telepsychiatrist's communications. Motor gestures should not be too rapid, or they will produce pixilation of the image. Verbalizations must be more deliberate than in person, as the slight delay in the visual and auditory signal may compromise the fluidity of conversation. Youth will not be able to see the telepsychiatrist's space at a glance, and it is helpful to scan the room for youth to get a sense of the telepsychiatrist as a real person in a real setting. It is important to adjust communication style to optimally ascertain a patient's status.

As noted in the "Practice parameter for telepsychiatry with children and adolescents," there are some challenges to assessing the mental status examination through videoconferencing. In particular, eye contact may be difficult to discern due to camera placement, which may make participants appear to be looking to the side or looking down or up. Thus, the telepsychiatrist may obtain a skewed perception of the child's ability to make eye contact and must query the caregiver and child regarding the child's relatedness.

Care provided through telepsychiatry to youth diagnosed with ADHD should comply with the American Academy of Child and Adolescent Psychiatry's "Practice parameter for the psychiatric assessment of children and adolescents with attention-deficit/hyperactivity disorder". To adhere to the parameter's guidelines for obtaining behavior rating scales from parents and teachers, the telepsychiatrist may personally send the indicated forms to these adults; have staff at the patient site provide this service; or may develop a website with patient portals to obtain, complete, score, and submit these forms. Behavioral training and other non-

pharmacologic interventions may be provided through videoconferencing or by collaborating with local therapists.

Similarly, the American Academy of Child and Adolescent Psychiatry's "Practice parameter on the use of psychotropic medication in children and adolescents" notes the requirement for assessing side effects. This is readily accomplished over the telemonitor, as bandwidth used in most clinical work (≥386 kilobytes/s) is excellent for assessing mental status, including motor activity, affect, tics, and thinking. Staff at the patient site may provide vital signs, or the psychiatrist can collaborate with the PCP to obtain these parameters and any laboratory studies.

Prescribing medications, particularly stimulants for ADHD, may be accomplished in several ways. The telepsychiatrist may make recommendations to the referring PCP, who then will prescribe. In other situations in which the telepsychiatrist works with a nurse practitioner at the patient site, the nurse practitioner writes the prescriptions. This approach will depend on state regulations regarding nurse practitioners' privileges to prescribe stimulants. In a third model, the telepsychiatrist prescribes. Prescriptions for stimulants will then have to be mailed to the family or pharmacy. Clear procedures should be established regarding methods for obtaining initial and subsequent prescriptions. Telepsychiatry sites located in nonmedical or non-mental health sites such as schools require individualized approaches.

Financial and Billing Issues

Although child and adolescent telepsychiatry offers one approach to rectifying the disparities in access to care for ADHD, this approach to service delivery creates a new set of financial and billing issues that are only gradually being resolved on a state-by-state basis. One issue is that many—perhaps most—rural and underserved

patients are uninsured or are covered by Medicaid-related programs. As Medicaid programs usually do not contract with private practitioners for mental health services, a psychiatrist seeking to establish a telepsychiatry service within a private practice must be diligent in conducting a needs assessment and in developing a financially sustainable model. A fee-for-service model may not be sustainable with a rural or otherwise underserved site.

Medicaid-related programs usually contract for services with a local county-designated organization. That organization may not reimburse for services outside its purview (eg, a telepsychiatry program in another county offered through a university or a children's hospital), thus curtailing the telepsychiatry program's ability to reach the very population that it seeks to serve. If a Medicaid-related program does reimburse across counties, reimbursement may be insufficient to sustain a program. However, unlike a private practitioner, some medical facilities may be willing to accept such adverse reimbursement to make inroads into a community with other health care services.

Better reimbursement is generally available for commercially insured patients. The reimbursement rate for a commercially insured patient obtaining services through telepsychiatry was the same as the reimbursement rate for an on-site visit. However, the overall collection rate for telepsychiatry was lower due to the higher proportion of patients who were insured by Medicaid-related programs. An organization must determine its level of tolerability for an adverse case mix.

Other billing issues include the fact that many commercial insurers will not pay for telepsychiatry; others state that they will not but then do so when the case is contested. Finally, many insurers are uninformed regarding the nature of telepsychiatry care, believing that authorization is being sought for treatment over

the telephone. It is important that the individual seeking authorization for telepsychiatry be well-educated in navigating these issues.

Currently, financially sustainable telepsychiatry programs, especially those in the private sector, are contractually based. They contract for a specified block of time that an agency uses according to mutually agreed upon services (eg, medication management, psychotherapy, community meetings, or staff training and supervision). A particularly appealing model has been developed by Zia Behavioral Health in New Mexico. Zia offers its 20 partner community mental health centers two contractual, shared-risk options. In both options, an hourly rate for the psychiatrist is established. Then, in the first option, the partner site bills for the facility/overhead costs and the professional fee for the psychiatrist and recoups from third-party payers any possible reimbursement. In the second option, the partner site bills for the facility fee, and Zia bills for the psychiatrist's time directly, assuming the risk for any nonreimbursed professional fees. Other models should be individualized to meet the needs of the community, the partner site, and the telepsychiatry practice.

Traditionally, Veterans seeking health care traveled to the VA hospital or medical center. In order to increase Veterans' access to health care, VA has so far created over 700 hundred of community-based outpatient clinics to bring VA care closer to home for veterans. However, the nearby clinics may not have all of the specialty services and staff found at the regional medical center. For example, if specialty care is needed from a cardiologist (heart physician), neurologist (nervous diseases specialist), surgeon for follow-up after surgery, or psychiatrist for mental health care, the clinic provider may need to refer the veteran to the VA medical center. For many Veterans travel to the medical center can be a very complicated and sometimes arduous task, particularly if the Veteran lives in a very remote or rural

area, an area with sometimes severe weather, or even an urban area where congestion and traffic makes travel difficult. Some injuries such as traumatic brain injury or spinal cord injury further complicate travel. Travel time is time away from the Veteran's work or family.

VA is now recognized as one of the world leaders in this new area of health care. Clinical Video Telehealth (CVT) uses these telehealth technologies to make diagnoses, manage care, perform check-ups, and actually provide care.

A national study of clinical outcomes of nearly 100,000 new telemental health patients treated by the VA was conducted from 2006 to 2010. The study specifically addressed rates of inpatient psychiatric hospitalization among the patients before and after their entry into telemental health services. Its hypothesis was that patients with increased access to mental health services through remote technologies would demonstrate decreased hospital utilization, as evidenced by decreased number of admissions and days of hospitalization.

Between 2006 and 2010, psychiatric admissions of telemental health patients decreased by an average of 24.2% (annual range 16.3%–38.7%), and the patients' days of hospitalization decreased by an average of 26.6% (annual range 16.5%–43.5%). The number of admissions and the days of hospitalization decreased for both men and women and in 83.3% of the age groups. Conclusions: This four-year study, the first large-scale assessment of telemental health services, found that after initiation of such services, patients' hospitalization utilization decreased by an average of approximately 25%.

Telemental health services have revolutionized mental health care delivery in the U.S. Department of Veterans Affairs (VA) by expanding access to mental health services through the use of remote videoconferencing. The VA has taken a

leadership role in telemental health innovation since the 1960s, when it used telemental health videoconferencing to connect the VA facilities in Omaha, Lincoln, and Grand Island, Nebraska, with the University of Nebraska. Later, in 1970, telemental health videoconferencing was used to connect the VA facility in Bedford, Massachusetts, to Massachusetts General Hospital. With the expansion of telehealth technologies in the past decade, the VA undertook a major initiative to develop existing telemental health services into a nationwide telemental health clinical and technical infrastructure. As a result, from 2003 to 2011, telemental health services in the VA have increased steadily more than tenfold; since 2003 the VA has documented nearly 500,000 telemental health encounters. Feasibility and small-scale randomized controlled studies have demonstrated the equivalence of telemental and face-to-face.

The following information contains information previously addressed in other parts of this course. This particular part is to inform the reader of issues related to treating PTSD.

Telemedicine, also known as telehealth, uses electronic communications and information technology to provide and support healthcare when distance separates patients from the clinician. Telemedicine uses various communication methods to connect clinicians and patients in lieu of their meeting in person.

The term "telemental health services" typically refers to behavioral health services that are provided using communication technology. These services include clinical assessment, individual and group psychotherapy, psycho-educational interventions, cognitive testing, and general psychiatry. The term telemental health describes the overall situation in which a clinician uses various technologies to deliver mental health care to a patient who is miles away.

The major benefit of telemental health is that it eliminates travel that may be disruptive or costly. In addition, telemental health is a useful tool in situations, such as in correctional and forensic settings, where it is difficult to transport the patient to a clinician. Telemental health also allows mental health providers to consult with or provide supervision to one another.

Although telemental health may utilize a variety of technologies, it is closely associated with video teleconferencing (VTC) technology. In VTC, a patient (or group of patients) in one location and a clinician in a different location each look at a computer monitor or television screen in order to see and hear each other in real time. Although many psychiatrists are employing telemental health technology, it is still considered an untapped opportunity for psychologists, social workers, and counselors.

In addition to VTC, telemental health also utilizes other technologies. Telemental health can make use of electronic mail (e-mail), electronic administration of psychological tests, online self-help groups, chat rooms, blogs, and websites. Mental health information on websites is available to anyone with Internet access. Some applications of telemental health, such as psychotherapy through e-mail, have been quite controversial and have not undergone scientific evaluation.

Plain old telephone service (POTS) is often not included in discussions of telehealth. However, telephones may be very useful; they provide a way for clinicians and patients to conduct simple program evaluations and the necessary aftercare. Most recently, virtual reality has been used to augment treatment for a variety of anxiety disorders and pain-management conditions. Virtual reality is a revolutionary computer technology that enables clinicians to immerse their patients in a highly interactive, three-dimensional, computer-generated world. This technology has already demonstrated clinical effectiveness for a variety of psychotherapeutic purposes.

While preliminary research has clearly established that a variety of telemental health modalities are feasible, reliable, and satisfactory for general clinical assessments and care, less is known about the clinical application and general effectiveness of telemental health modalities employed in the assessment or treatment of PTSD as an example.

The first step in getting the necessary treatment for a client diagnosed with PTSD is to have an accurate assessment of psychiatric or psychological symptoms, related problems, and factors influencing functioning.

The VA Pacific Island Healthcare System's Traumatic Stress Recovery Program has successfully provided a variety of telemental health PTSD clinical therapy groups to the neighboring Hawaiian Island Community Based Outpatient Clinics (CBOCs). Findings from pilot data of a PTSD psychoeducation and coping skills group suggest that the Veterans, the clinic staff, and the remote clinician all viewed the VTC treatment as helpful. A comparison of the VTC group to an in-person control group in this study revealed no significant difference between the two groups on measures of satisfaction and information retention.

The clinical effectiveness of a 12-session anger management group delivered via VTC was evidenced in a randomized clinical trial (RCT) that examined the noninferiority of treatment delivered via VTC compared to in-person treatment (.econdary analyses of the outcomes of this trial indicated that the use of VTC does not affect group therapy process or therapist adherence to a manualized cognitive behavioral therapy (CBT) protocol. Preliminary findings from another RCT comparing in-person and VTC delivery of a group CBT for PTSD with Veterans suggests the clinical effectiveness of delivering a trauma-focused intervention over VTC.

Therapy provided over the Internet has been among the most controversial applications of telemental health services. However, recently published studies

show the results of a controlled trial in which they provided psychoeducation, screening, and a protocol-driven treatment for people suffering from PTSD and grief via the Internet. More than 50 percent of the treated participants in this study showed reliable change and clinically significant improvement. The largest changes were seen in measures of depression and avoidance. Although it is too early to recommend web-based delivery of services, it is likely that the Internet will be increasingly used to supplement face-to-face care.

Most would agree that telemental health presents a more convenient and economical way to provide or supplement specialty care services to patients living remotely. However, research is still needed to determine the quality and clinical effectiveness of these services. There is still a great deal we need to know about how, when, and with what patient populations we can effectively apply this new technology. Based on early pilot studies, telemental health appears to be a promising way to offer skills-training and assessment from a distance to individuals.

Using telemental health for clinical work requires planning and preparation. It is important to consider logistics, such as preparation of the room and equipment, and to be sure there is technological and clinical backup support. It is also important to consider the patient's convenience and privacy. In the case of VTC services, the quality of the video images can be optimized by providing appropriate lighting and using stationary chairs.

One essential key to working with patients is to establish a sense of safety, comfort, and trust. This may seem like an added challenge when the clinician is not physically in the room; however, there are tools and techniques that can be used to achieve these goals. Some helpful tips:

- Administering evidence-based treatments telemental health is not much different from face-to-face therapy. Very few modifications to treatment protocols are necessary.
- Pre-treatment orientation sessions allow for gauging patient understanding of the treatment, introducing the technology, and increasing client motivation.
- Both cognitive processing therapy (CPT) and Prolonged Exposure (PE) require an established electronic exchange protocol for written materials, homework, and questionnaires.
- For CPT, therapists should have copies of patient materials during the session to assist when reviewing or explaining worksheets and handouts.
- For group CPT sessions, a brief, structured check-in at the start of the session assists with containment of the group and orients the therapist to the emotional state of the clients.
- For PE, the client must know how to record the session in the office he or she is in. Having a backup recorder in your office is helpful.
- In-session avoidance and hypervigilance can be more difficult to manage via telemental health, but telehealth appears to pose additional clinical difficulties only for patients with very severe presentations.

Since telemental health is offered (in most cases) because there is not adequate or specialized services at the patient's site, it is not appropriate to open up an individual's traumatic experiences without having the necessary clinical backup available. However, telemental health can be used successfully to provide clinically significant interventions such as basic symptom management, coping-skills training, and stress management. Trauma-focused telemental health interventions may be recommended in the future, following closer clinical and empirical evaluation.

Before deciding to provide a clinical intervention utilizing telemental health, it is important to carefully consider the patient's clinical needs and the potential benefits and costs. As with other remote services, these considerations include what clinical support is available at the patient's site and what availability there may be for follow-up care. A thorough evaluation of needs at a particular site is the first step. Using telemental health to provide treatment can significantly reduce the costs, both in time and money, of having patients or clinicians travel to in-person sessions. Telemental health allows a small community clinic to offer access to specialized interventions and specialists which the clinic would normally not be able to provide. Home-based telemental health has become a way for housebound patients to get the help that they need.

However, telemental health is not without its drawbacks. The equipment, maintenance, and fees for VTC, for example, can be costly. The quality of the equipment ranges widely, with lower-end equipment being quite unreliable. Clinicians need to be properly trained so that they can maximize the benefits of the technology and minimize technical malfunctions. Some technical malfunctions will inevitably occur, so it is recommended that the clinician have a backup technician available.

There are significant clinical challenges when using telemental health. Perhaps the biggest clinical challenge is that the clinician is not physically present to address crises such as suicidal thoughts and aggression. Having a backup clinician on-site with the patient is strongly suggested. Although quality VTC equipment and connections can render extremely clear images, clinicians may find it somewhat challenging to pick up on nonverbal cues such as psychomotor agitation or poor hygiene. There is also a risk that the patient will not pick up on the clinician's warmth and empathy and will perceive the interaction as impersonal.

Since telemental health is still a relatively new phenomenon, it has not been thoroughly empirically validated. Ethical, clinical, and insurance-reimbursement guidelines are still in development. Clinicians must also be careful to follow interstate licensing rules when applicable.

In summary, telemental health is here to stay. Research points to the use of all aspects of it being used in more and more treatments and in more and more locations. All clinicians must accept the responsibility of providing telemental health services in the most ethical manner possible. As more information is gathered and more research is conducted, the uses of telemental health will grow, hopefully providing care to those who otherwise would not receive it.