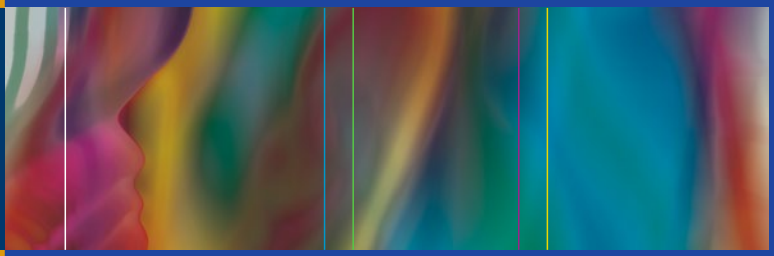
Shilpa Srinivasan · Juliet Glover
James G. Bouknight *Editors*



Geriatric Telepsychiatry

A Clinician's Guide

Springer

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Editors
Shilpa Srinivasan, MD
Department of Neuropsychiatry and Behavioral Science
University of South Carolina School of Medicine
Columbia, SC, USA

James G. Bouknight, MD
Department of Neuropsychiatry and Behavioral Science
University of South Carolina School of Medicine
Columbia, SC, USA

Juliet Glover, MD
Department of Neuropsychiatry and Behavioral Science
University of South Carolina School of Medicine
Columbia, SC, USA

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Preface

As the American, and indeed worldwide, population continues to age, innovative methods of addressing healthcare needs are critical. From a practical perspective, older adults with mental illness and/or substance use disorders often present in primary care settings, which are under-resourced. In such settings, managing healthcare needs of individuals with complicated age-related medical and mental health conditions are challenged by limited time and limited provider training. Stigma, lack of information about services, and limited transportation to services remain major barriers to mental healthcare access and utilization among older adults. However, the volume of the current geriatric psychiatry workforce is insufficient to meet the mental healthcare needs of the aging population. The growing older adult demographic and the concomitant increase in older adults with mental illness highlight the critical need for expanding access to mental healthcare in this population. One way to meet this growing need is geriatric telepsychiatry.

Telepsychiatry has the potential to not only increase access to mental healthcare for underserved older adults but also decrease cost of providing care. Furthermore, outcomes are equivalent to in-person care with regard to symptom improvement and treatment adherence. Patient and provider satisfaction is generally high even in geriatric populations. Through their own clinical experience and research, the editors and chapter authors have reviewed the body of extant literature showing that clinical care, education, and research through

telepsychiatry have the potential to improve access to care and train future workforce in geriatric psychiatry. This is certainly timely given the increase in our aging population, prevalence of Alzheimer's disease, and dearth of geriatric psychiatry providers.

This book is divided into three parts (background, clinical applications, and practical considerations) encompassing eight chapters:

Chapter 1 *Introduction*: A Primer and Overview of the Telepsychiatry Consultative Process
Chapter 2 *Overview of Telepsychiatry in Geriatrics*: Application of Telepsychiatry in Geriatric Mental Healthcare
Chapter 3 *The Economics of Geriatric Telepsychiatry:* Focus on Costs and Benefits of a Geriatric Telepsychiatry Service
Chapter 4 *Geriatric Telepsychiatry in Academic Settings:* Academic Implications of Geriatric Telepsychiatry Within Graduate Medical Education Programs
Chapter 5 *Administration of New Telepsychiatry Programs in Public Psychiatry:* Highlights Exemplar State Programs Utilizing Telepsychiatry in Rural Healthcare Settings
Chapter 6 *Telemental Health in VA Systems:* Summarizes VHA Telepsychiatry Contributions to Veterans Mental Health
Chapter 7 *Scope of Telepsychiatry in Clinical Settings:* Comprehensive Review of Reliability and Cost-Effectiveness of Telepsychiatry in Geriatrics
Chapter 8 *Technology Applications and Implications for Implementation:* Technical Overview to Successfully Implement a Geriatric Telepsychiatry Program

Geriatric Telepsychiatry: A Clinician's Guide endeavors to provide healthcare providers with an overview of telepsychiatry and its application and cost-effectiveness in the field of geriatric psychiatry. Public and federal programs using telepsychiatry are presented, and technological implications are highlighted. Recognizing the impact of training the

clinical workforce to meet the mental healthcare needs of the older adult population, this book also includes application of geriatric telepsychiatry in academic training programs. The editors hope that readers will be able to utilize this book as a resource either to develop telepsychiatry programs within their institutions/practice settings or bolster existing services through learning about applications across diverse settings showcased by chapter authors.

The editors are sincerely grateful to all our chapter authors who provide mental healthcare to older adults across diverse and interdisciplinary clinical settings. Most importantly, this book is dedicated to our patients and their families, who inspire and motivate us daily.

Columbia, SC, USA

Shilpa Srinivasan
Juliet Glover
James G. Bouknight

Contents

Contributors

James G. Bouknight Department of Neuropsychiatry and Behavioral Science, University of South Carolina School of Medicine, Columbia, SC, USA

Juliet Glover Department of Neuropsychiatry and Behavioral Science, University of South Carolina School of Medicine, Columbia, SC, USA

Suzanne M. Hardeman Department of Neuropsychiatry and Behavioral Science, University of South Carolina School of Medicine, Columbia, SC, USA

Donald Hilty Department of Psychiatry, Keck School of Medicine, Los Angeles, CA, USA

Ashley Blackmon Jones Department of Neuropsychiatry and Behavioral Science, University of South Carolina School of Medicine, Columbia, SC, USA

Paul Kirwin Integrated Care, VA Connecticut Healthcare System, Department of Psychiatry, Yale University School of Medicine, New Haven, CT, USA

Mridul Mazumder Department of Behavioral Health, Tallahassee Memorial Hospital, Tallahassee, FL, USA

Meera Narasimhan Department of Neuropsychiatry and Behavioral Science, University of South Carolina School of Medicine, Columbia, SC, USA

Brenda Ratliff Aiken Barnwell Mental Health Center, Aiken, SC, USA

Shilpa Srinivasan Department of Neuropsychiatry and Behavioral Science, University of South Carolina School of Medicine, Columbia, SC, USA

Alexander Threlfall Brookwood Health Center, Santa Rosa Community Health Centers, University of California, San Francisco, CA, USA

Taya Varteresian Los Angeles County Department of Mental Health, University of California Irvine, Los Angeles, CA, USA

Part I
Background

Chapter 1
Introduction to Telepsychiatry

Juliet Glover, Shilpa Srinivasan, and James G. Bouknight

1.1 Introduction

Technology is ever present in today's society. It penetrates multiple aspects of daily life. There has been a rise in technological applications to the practice of medicine, and telepsychiatry represents one aspect of this growth. It carries the possibility of increasing access to mental healthcare for the underserved. It holds the potential to erase geographic barriers while allowing for greater time efficiency. This chapter will provide background information on telepsychiatry, its history, and the telepsychiatry consultative process.

J. Glover, MD (✉) • S. Srinivasan, MD • J.G. Bouknight, MD
Department of Neuropsychiatry and Behavioral Science,
University of South Carolina School of Medicine,
Columbia, SC, USA
e-mail: Juliet.Glover@uscmed.sc.edu;
Shilpa.srinivasan@uscmed.sc.edu; jbouk@aol.com

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1.2 Defining Telepsychiatry

In order to understand the origin and application of telepsychiatry, it is important to become familiar with the following nomenclature:

- Telemedicine
- Telehealth
- Telemental health/Telepsychiatry.

The American Telemedicine Association (ATA) defines telemedicine as "..the use of medical information exchanged from one site to another via electronic communications to improve a patient's clinical health status." Services provided via telemedicine range from primary care, specialist referral services, and remote patient monitoring to consumer medical and health information and continuing medical/health professional education. Benefits of telemedicine include improved access to care, cost efficiency, improved quality of care and, as a rapidly growing modality, is driven by patient demand [1].

While sometimes used interchangeably, telehealth is the broader application of technology to deliver virtual health, medical, and education services. Definitions of telehealth vary from state and federal perspectives. As defined by the federal Health Resources and Services Administration (HRSA), telehealth is "*The use of electronic information and telecommunications technologies to support long-distance clinical health care, patient and professional health-related education, public health and health administration*" [2].

Telehealth has four areas of application:

1. Live video (synchronous):

Also referred to as "real-time," this modality involves live, two-way interaction between a patient and a healthcare provider using audiovisual telecommunications technology and may serve as a substitute for an in-person encounter when the latter is not feasible.

2. Asynchronous (Store-and-forward):

Recorded patient health history (for example, pre-recorded videos and digital images such as X-rays and photos) is

relayed through a secure electronic communications system to a healthcare practitioner, usually a specialist, who uses the information to evaluate the case or render a service asynchronously, or outside of a real-time/live encounter. In contrast to a real-time interaction, this service provides access to data after it has been collected, and involves communication tools such as secure email. Store-and-forward technologies are commonly used in certain medical specialties including radiology, pathology, dermatology, and ophthalmology. Medicare and Medicaid reimbursement for telehealth services using asynchronous technologies are restricted to certain states [3].

3. Remote patient monitoring (RPM):

Personal health and medical data is collected in one location via electronic communication technologies and transmitted to a healthcare provider in a different location. Healthcare data for a patient can be longitudinally tracked once care is transferred (e.g., upon discharge or placement) with the potential to reduce readmission rates.

4. Mobile health (mHealth):

Mobile health includes healthcare, public health practices, and education supported by mobile communication devices such as cell phones, tablet computers, and other mobile devices. Applications can include messaging that promotes healthy behavior, for example, wide-scale alerts about disease outbreaks.

As illustrated in Fig. 1.1, telemedicine falls under the overarching umbrella of telehealth. Similarly, within telemedicine, telemental health refers to the use of telemedicine to provide mental health and substance abuse services remotely [4]. By specifically applying telemedicine to the field of psychiatry, telepsychiatry utilizes live interactive videoconferencing technology to provide psychiatric assessment and treatment at a distance [5].

1.3 Brief History of Telepsychiatry

The application of two-way interactive videoconferencing to psychiatry dates back to the 1950s. In 1956, Wittson and Dutton described their experience at the Nebraska Psychiatric

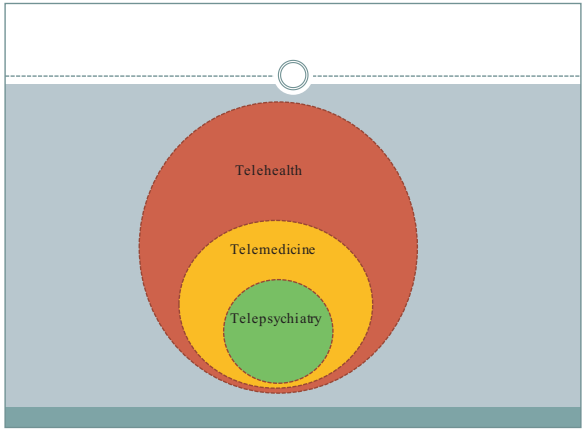

Fig. 1.1 This figure gives a pictorial representation of the relationship between telepsychiatry, telemedicine, and telehealth. Telepsychiatry represents the application of telemedicine to psychiatric care while telemedicine sits under the umbrella term of telehealth

Institute where closed-circuit television was utilized primarily as a teaching tool. The equipment employed included an audiovisual system consisting of three cameras, three 17-inch monitor-receivers in a control room, a receiver-projector in an auditorium, and a six-by-seven foot projection screen also in an auditorium. The entire system costs approximately $18,000 and in order to function, required a full-time electronics technician, a part-time television programming coordinator, and a part-time medical electronics consultant. The equipment was used mainly to provide demonstrations to trainees in psychiatry but also served other purposes including allowing nursing staff to monitor patients remotely [6].

In 1961, this same system was applied to providing group psychotherapy at the Nebraska Psychiatric Institute. Patients were gathered in a group room and arranged in a V formation to allow unencumbered view of the television by all patients. A camera was mounted atop the television providing the therapist a fixed view of the group. The authors report

that participants appeared interested and voiced no major concerns. They demonstrated successful use of this medium to provide group psychotherapy with one exception; one group containing three individuals with anti-social behavior resorted to whispering in an attempt to exclude the therapist from group discussions [7].

In 1971, Solow et al. described their experience with two-way closed circuit television at Dartmouth Medical School in Hanover, New Hampshire. Here, psychiatrists at the academic medical center provided psychiatric consultations to residents of Claremont, New Hampshire, a town of approximately 13,000 residents located in a rural county 26 miles from the academic center. This program was designed to provide access to psychiatric care as there were no psychiatrists and only 21 family physicians in the entire county. Almost 200 remote consultations were successfully completed, each lasting about 50 min [8].

Despite application of two-way television to psychiatric care as far back as the 1950s, the term telepsychiatry was not coined until 1973. At this time, Dwyer employed this term to describe the use of interactive television at Massachusetts General Hospital to provide psychiatric consultations to Logan International Airport Medical Station. One of the benefits of this assessment and treatment modality was elimination of travel time, allowing increased access to a greater number of patients. Patients from a variety of settings were assessed including consultations with probation officers charged with care of troubled youth, junior high school students, and inmates in correctional settings. The system also facilitated staff meetings between the two locations [9].

From the 1980s onward, technological advancements allowed for continued growth of telepsychiatry. These advancements included improvements in image and sound quality. Communication lag time between the provider and patient diminished and allowed for greater ease in rapport development. Freestanding encrypted videoconferencing units and software were developed, with continued decrease in cost over time. Advancements were made in high speed

telecommunication and internet connections [10]. The American Telemedicine Association, an international organization dedicated to promoting the use of telemedicine services, was established in 1993 and continues to advocate for the integration of telemedicine in the modern healthcare system [1]. By 1999, Medicare began to reimburse for telemedicine services, albeit with some limitations [11]. Moving into the twenty-first century, telepsychiatry and telemedicine in general continue to grow. Current data on the exact number of telepsychiatry programs in the USA is limited. A 2005 survey identified 116 telemedicine programs while a 1995 survey identified 50 programs specifically offering telepsychiatry services [12].

Telepsychiatry is currently being used to successfully provide care to patients in a variety of settings. This treatment modality can be applied to the care of children and adolescents, geriatric patients, veterans, and prisoners. It has been employed in various settings to include outpatient primary care offices, emergency departments, nursing homes, schools, and forensic institutions. It can facilitate and help coordinate patient care when used for treatment team meetings, involuntary commitment hearings, and other staff meetings. Beyond patient care, it can also serve educational purposes including allowing for supervision of trainees, patient/family education, and education of other mental health and primary care providers [13, 14].

1.4 Conclusion

Telepsychiatry holds a specific niche within the broader field of telemedicine. Its use dates back almost 60 years and has continued to grow. Various aspects must be considered in implementing a telepsychiatry program including equipment choice, assessment setting, and overall consultative process. Irrespective of these details, this treatment modality can be applied to the care of various types of patients in a multitude of settings. The remainder of this text will focus primarily on the application of telepsychiatry to the care of geriatric patients.

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Chapter 2
Overview of Telepsychiatry in Geriatrics

Juliet Glover

2.1 Introduction

Telepsychiatry, the application of two-way interactive video-conferencing to patient care, is a burgeoning aspect of the practice of modern medicine. The manner in which healthcare is delivered in the twenty-first century continues to evolve. Similarly, the demographics of the USA is changing and nowhere are these changes more evident than in the continued increase in the aging population. In order to meet the growing healthcare needs of the geriatric population, novel healthcare delivery modalities need to be explored and implemented. Telepsychiatry is a unique service delivery method that can be employed to meet the mental health care needs of older adults.

2.2 Demographic Changes and Telepsychiatry

The American population is aging. In 2014, there were over 46 million Americans age 65 and over, representing 14.5% of the US population. This number is projected to increase to

J. Glover, MD (✉)
Department of Neuropsychiatry and Behavioral Science, University of South Carolina, School of Medicine, Columbia, SC, USA
e-mail: Juliet.Glover@uscmed.sc.edu

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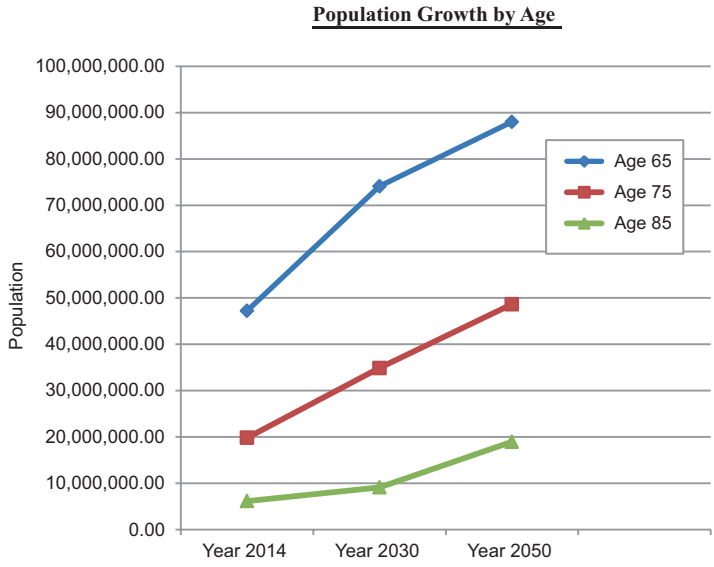

Fig. 2.1 Graph depicting geriatric population growth by age group. Source: www.census.gov

88 million by the year 2050, increasing the proportion of older Americans to 22% [1] (Fig. 2.1). In addition, not only is the geriatric population as whole increasing, but the proportion of individuals classified as the oldest old, age 85 years and over, is also growing. By the year 2050, 4.8% of the US population will be over the age of 85, more than double the population in 2014 [1].

As the population continues to age, more healthcare professionals will be required. Mental illness is prevalent in this population. Depression symptoms are present in up to 25% [2] and anxiety in over 50% [3] of individuals age 60 and over. An estimated 5.2 million Americans suffer from major neurocognitive disorder due to Alzheimer Disease [4] with up to 60% exhibiting associated psychiatric and behavioral symptoms [5]. These mental health disorders often require the expertise of geriatric psychiatrists. In 2010, there were approximately 1700 geriatric psychiatrists in the USA, roughly 1 per

10,000 adults age 75 and older (www.americangeriatrics.org). Geriatric telepsychiatry represents one avenue to increasing access to specialized geriatric psychiatry care.

Access to care can be a significant barrier to obtaining mental healthcare for many Americans. Access can be further limited for those individuals residing in less populated or rural areas. The United States Office of Management and Budget defines a metropolitan area as an area with a population of 50,000 or more residents. A micropolitan area consists of 10,000–50,000 residents [1]. The 2010 US Census Brief on older Americans found 3.4 million individuals age 65 and over reside in non-metropolitan or micropolitan areas, representing 17.2% of the total rural population. In comparison, older adults make up 12.8% of the metropolitan and micropolitan population [6]. Although a majority of the geriatric population resides in more populated areas, a significant number are in geographical areas that are often plagued with limited resources, and lack of access to specialized health care. This geographic distribution further highlights the need for innovative methods to improve access to care for the elderly.

Another potential barrier to mental healthcare access can be residence in a long term care facility. Of the 40.3 million individuals comprising the geriatric population in 2010, 1.3 million or 3.1% resided in skilled nursing facilities. The proportion of nursing home residents increases with age from 0.9% for individuals age 65–74 years to 10.4% for those age 85–94 [7]. As the proportion of the oldest-old continues to increase, the nursing home population is predicted to increase as well. This increase is likely to lead to increased demand for mental health care. Current estimates of the prevalence of mental health disorders in nursing home settings vary with diagnosis (Table 2.1). Data from the National Nursing Home Survey (NNHS) estimates approximately 50% of nursing home residents have a chronic mental illness or dementia [7]. Furthermore, it is estimated that up to 80% of nursing home residents with mental illness do not receive necessary mental health care compared to 58% of community dwelling older adults [7]. Geriatric telepsychiatry is one way to address this unmet healthcare need of the nursing home population.

Table 2.1 Prevalence estimates of psychiatric disorders in nursing homes

Diagnosis	Prevalence (%)
Behavioral and psychological symptoms of dementia	78
Neurocognitive disorder	58
Anxiety symptoms	30
Depressive symptoms	29
Schizophrenia[a]	17
Major depressive disorder	10
Posttraumatic stress disorder[a]	10
Alcohol use disorder[a]	10
Drug use disorder[a]	6
Anxiety disorders[b]	6

This table summarizes the prevalence of psychiatric disorders in nursing home residents

[a]2006 prevalence estimates from Department of Veterans Affairs nursing home residents (N = 11,150)

[b]Anxiety disorders include generalized anxiety disorder, panic disorder, and phobic disorders

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2.3 Cost Considerations

The need for increased access to mental health care for the aging population is evident. In attempting to meet this need, potential solutions must be cost effective in order to be sustainable. There are several factors that affect the cost of providing care by telepsychiatry. While economic considerations

will be examined in greater detail in later chapters, a brief overview is provided here.

In order to be sustainable, the cost of providing telepsychiatric care must be offset by savings. Direct costs include cost of audiovisual conferencing hardware and software technologies, installation/setup fess, and other supply costs. (Technological requirements will be reviewed in a later chapter.) Fixed costs factor in staff salaries and wages as well as other administrative expenses. There are also variable expenses to include data transmission fees and costs associated with equipment maintenance [8]. Due to these expenses, earlier studies found telepsychiatry to be cost ineffective. In 1998, Werner et al. compared the cost of a face-to-face community mental health medication management visit to remote care. Two remote care options were examined—(1) university based telepsychiatry consultation to a rural community mental health clinic and (2) other rural site based telepsychiatry consultation to rural community mental health clinic. Results revealed two to three fold higher costs per visit for telepsychiatric care ($244/visit for other rural site based telepsychiatry visit, $179 for university based telepsychiatry visit, and $78.50 for in-person community mental health center visit) [9].

In contrast to these earlier findings, more recent studies have found that care by telepsychiatry leads to overall decrease in total costs due mainly to savings in travel costs. Compared to telepsychiatry, face-to-face psychiatric evaluations to remote sites require not only travel and accommodation expenses for the physician, but often times, higher compensation due to travel requirements. In 2007, O'Reilly et al. found that the average cost of telepsychiatric care was 10% less per patient and 16% less per visit compared to in-person care [10]. In 2010, Rabinowitz et al. examined the cost associated with 278 nursing home telepsychiatry consultations and found personnel cost savings of over $30,000 and physician savings of over $80,000 when compared to face-to-face care [11]. One potential explanation for the differences between earlier and recent findings with regard to cost is an overall decrease in cost of technology and remote communication. In fact, in 2011

Doolittle et al. found that since 1995, there has been a 70% decrease in cost per patient in providing telemedicine care. This decrease was attributed to both decreased technology costs and increased number of patient visits [12]. These figures support the notion of telepsychiatry as cost effective method of meeting the increasing mental health care demands of the growing geriatric population.

2.4 Clinical Applications of Telepsychiatry to Geriatric Mental Health Care

Telepsychiatry has the potential to increase access to specialized mental health care while decreasing costs. Equally important are its accuracy and effectiveness in providing a means by which patients can be evaluated and treated. Telepsychiatry has been applied to patients in multiple different settings to include outpatient general medical clinics, hospital emergency departments, nursing and group homes, hospice facilities, rural facilities, and forensics/correctional settings. Several models of consultative services can be employed and may vary based on the clinical setting.

1. In the traditional or replacement model, the psychiatrist serves as the primary provider of mental health care with limited communication with the referring primary care provider.
2. In the consultation care model, the primary care provider retains the primary role even as it pertains to mental health care but seeks consultations from the psychiatrist.
3. The third model, the collaborative care model, consists of joint provision of mental health care by the primary care physician and the psychiatrist with frequent communication between both providers [13].

Furthermore, the telepsychiatry interaction can be either synchronous or asynchronous. Synchronous evaluations involve communication between the patient and the psychiatrist that occurs at the same time, typically via two-way video-

conferencing, chat, or telephone. Asynchronous encounters, also known as store-and-forward, consist of the psychiatrist reviewing pre-recorded interactions between the patient and primary care provider. The psychiatrist then formulates a diagnosis, treatment plan, and provides the primary care provider with treatment recommendations. Irrespective of the clinical setting or the consultation model employed, telepsychiatry has been demonstrated to be feasible, reliable, and equivalent to face-to-face care [8].

In 2013, Conn et al. described a 7-year experience of utilizing a university based telepsychiatry program to provide consultations to six rural communities in Canada. Almost 300 patients were evaluated and treated with the most common conditions encountered being dementia, depression, and mild cognitive impairment [14]. In 2001, Johnston and Jones reported on successful utilization of telepsychiatry to provide 71 consultations to 40 rural nursing home patients age 60–95. Again, the most frequently encountered diagnoses were dementia related behavioral disturbances and depressive disorders. The authors cited increased contact with patients and staff at the rural nursing facility, improved follow through of recommendations, and elimination of psychiatrist's travel as the major advantages of the program [15].

Geriatric telepsychiatry is not only feasible, but also diagnostically reliable. Telepsychiatry can be used to reliably diagnose various mental health disorders including mood disorders, panic disorder, and alcohol dependence [16]. Grob et al. conducted a study with residents of a Veterans Affairs nursing home examining in-person versus remote administration of three screening tools—the Mini Mental State Examination (MMSE), Geriatric Depression Scale (GDS), and the Brief Psychiatric Rating Scale (BPRS). Results showed no significant differences between groups [17]. In 2004, Shores et al. found 100% agreement in initial diagnosis of dementia in residential care veterans who were assessed in-person versus by telepsychiatry [18]. Cullum et al. demonstrated that a battery of neuropsychological tests can be successfully administered to patients with cognitive impairment

via videoconferencing [19]. These findings demonstrate telepsychiatry as an effective modality by which patients can be accurately assessed and diagnosed.

Furthermore, telepsychiatric care produces outcomes equivalent to in-person care. O'Reilly et al. examined reduction in Brief Symptom Inventory scores in a general adult population assessed in-person versus remotely. Outcomes were equivalent for both groups [10]. Similar results were found when comparing treatment of depressed veterans in-person versus remotely, with comparable reductions in scores on the Hamilton Depression Rating Scale and Beck Depression Inventory. In addition, there is equivalent compliance in keeping appointments and adhering to medications [20].

Another outcome of interest when telepsychiatry is employed is its potential impact on overall resource utilization. The application of telemedicine to the care of geriatric nursing home patients can allow for more patients to be served with shorter follow-up intervals [21]. This can lead to downstream effects on the healthcare system as a whole including up to 10% decrease in emergency department visits and acute hospitalizations [21]. This benefit to the healthcare system holds true for telepsychiatry as well. Lyketsos et al. found approximately 50% decrease in acute hospitalizations with overall fewer days in the hospital when geriatric nursing home patients with dementia had access to telepsychiatric assessment and treatment [22]. As the aging population continues to grow, efficient use of limited resources must remain a priority.

2.5 Telepsychiatry and Patient/Provider Satisfaction

Patient satisfaction with medical care is often examined as one marker of quality care. Equally important is the satisfaction level of clinical staff to include the referring clinician and the psychiatrist providing telepsychiatric care. Careful attention to factors affecting satisfaction levels can reveal potential areas for future growth and improvement.

2.5.1 Patient Satisfaction

Patient satisfaction with telemedicine in general and specifically with telepsychiatry has been examined in the literature. A systematic review of 32 studies found teleconsultations to be generally acceptable to patients [23]. In comparing telepsychiatric consultations to telemedicine consultations in other specialties, Callahan et al. examined four aspects of patient satisfaction: ability to speak freely, probability of utilizing telemedicine in the future, perceived experience of telemedicine staff, and preference for telemedicine visit versus in-person visit. Results showed no significant differences in patient satisfaction for mental health compared to non-mental health telemedicine care. More importantly, a majority of patients rated telemedicine care superior to in-person care [24]. Other studies focusing on telepsychiatry have found similar results with high patient satisfaction as well as appointment adherence [13, 25].

The acceptability of telepsychiatry by geriatric patients warrants special attention. One may expect older patients who may be less familiar with audiovisual technology to be apprehensive about utilizing this technology to receive psychiatric care. In 2000, Rohland et al. examined the acceptability of telepsychiatry to a rural population and found older adults and those enrolled in Medicare to be less willing to endorse telepsychiatric care [26]. Rowe et al. examined this further and found patients age 50 and over had higher preference for in-person visits compared to their younger adult counterparts. Despite this finding, 67% of patients age 60 and above still reported no preference between telepsychiatric and in-person visits and cited no difference in quality [27].

There are several potential determinants of patient satisfaction with telepsychiatric services. These include demographic factors, state dependent factors, technological factors, and social/environmental factors [13]. Demographic determinants of patient satisfaction include age and gender. While older patients may prefer in-person visits, increased exposure to telepsychiatry can serve as a mitigating factor. Patients

with a greater number of telepsychiatric sessions are more likely to have positive views of their experience. Gender may also play a role with one study showing females to be more accepting of remote care than males [27]. State dependent factors take into account the patient's current health status. Patients who perceive themselves to be in good health are more accepting of telepsychiatry than those with perceived fair or poor health (79% vs 21%) [26]. Technological issues such as poor image quality and interruptions in transmission can negatively impact patient satisfaction. Lastly, social/environmental factors such as the effects of telepsychiatric services in decreasing costs, travel time, and wait time for patients can lead to higher satisfaction and more positive perception of telepsychiatry [13].

2.5.2 Provider Satisfaction

Provider satisfaction with telepsychiatry has been evaluated to a lesser degree than patient satisfaction. Some studies suggest high satisfaction from referring primary care physicians [13, 14]. Rural primary care providers tend to self-report higher satisfaction than urban or suburban providers, likely due to limited access to in-person psychiatric consultations [13]. Less is known regarding satisfaction of telepyschiatrists. Factors reported to negatively influence psychiatrists' views of remote care include poor image and sound quality, unexpected transmission interruptions, and other technological issues. In addition, some have expressed concerns over the ability to develop meaningful rapport and relationships with patients [13, 28, 29]. In a randomized study consisting of 40 patients, Stevens et al. examined patient and psychiatrist satisfaction with the rapport/therapeutic alliance developed during the interview process. Patients were randomized to either in-person or remote care and two scales were employed to assess satisfaction: the California Psychotherapy Alliance Scale and the Interview Satisfaction Scale. Results showed no difference in patient satisfaction for in-person and remote care on both

assessment tools. However, there was a statistically significant difference in favor of face-to-face care with the psychiatrists' version of the Interview Satisfaction Scale. Despite this difference and preference for in-person care, psychiatrists were overall satisfied with telepsychiatric care [30]. Future studies in this area may help elucidate factors that can be addressed to further increase provider satisfaction.

2.6 Challenges in Geriatric Telepsychiatry Implementation

There are various challenges associated with geriatric telepsychiatry of which one must be cognizant. These can be categorized as patient related and administrative challenges. It is important to recognize and anticipate these so that they can be appropriately addressed to allow seamless provision of care.

2.6.1 Patient Related Challenges

Patient related issues include normal physiological changes that occur with age that may make care via videoconferencing more difficult. Loss of visual acuity and hearing impairment are two aspects of aging that can interfere with patient–physician communication and limit the ability to provide care by telepsychiatry. These factors can be anticipated and addressed in several ways. Ensuring that patients have/use corrective lenses and hearing aids during the psychiatric assessment is vital. The assessment setting should be well lit with either plain or non-distracting background. Ambient and extraneous noises should be minimized as much as possible. If these measures are insufficient to overcome hearing impairment, amplified microphones may be utilized [28, 31, 32].

A second patient related factor to consider is the presence of cognitive impairment that can affect the reliability of the

history obtained. In providing care to older adults, a collateral informant is often necessary [31]. Collateral informants can be spouses, adult children, home caregivers, or nursing staff in cases where the patient resides in a facility. The presence of an additional person during the telepsychiatry visit not only aids the psychiatrist in obtaining an accurate history but can also help patients feel more comfortable. Rowe et al. found that a majority of patients (56%) age 60 and above felt more at ease during the telepsychiatry assessment when an additional clinician (nurse, therapist, or case manager) was present [27]. Furthermore, an additional clinician present with the patient can assist with operation of videoconferencing equipment and any technical difficulties that may occur at the remote site. Remote site clinicians can subsequently ensure that psychiatric recommendations are appropriately implemented [31].

Lastly, as is the case with face-to-face patient encounters, psychiatrists may be faced with unanticipated or emergency situations during a telepsychiatry visit. Examples of this might include patients who are suicidal or violent, acutely psychotic, intoxicated, or require involuntary inpatient hospitalization. Emergency protocols should be in place to address these issues. Clinicians familiar with these protocols must be present at the remote site to assist the consulting telepsychiatrist in implementing the necessary procedures. These situations may be anxiety provoking for the consulting psychiatrists due to potential for perceived lack of control resulting from providing care from a distance. Familiarity with safety protocols can help ease this anxiety and ensure patient and staff safety [32].

2.6.2 Administrative Challenges

Administrative and reimbursement issues can be complex and have been addressed in more detail elsewhere in this book. Telepsychiatrists must ensure that they hold the appropriate medical licenses and privileges to evaluate patients at the remote site. This may require obtaining out-of-state

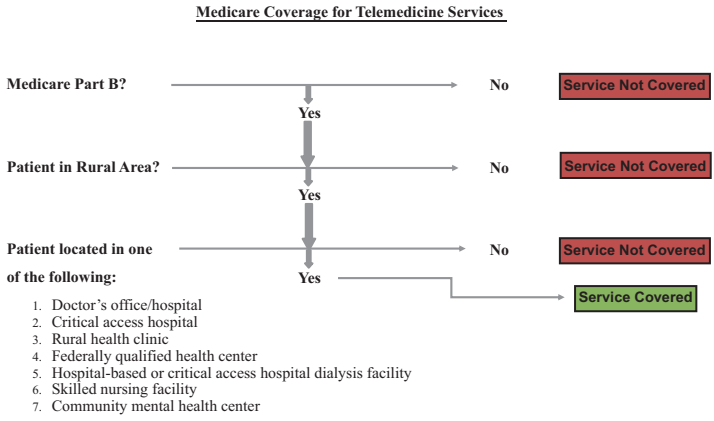

FIG. 2.2 This figure demonstrates eligibility requirements for Medicare coverage of telemedicine services. Source: www.medicare.gov

medical licenses if patients are located in states different from that of the treating psychiatrist. In addition, the psychiatrist must ensure proper credentialing in all remote sites where patients will be evaluated. This process can be cumbersome. The psychiatrist also needs to be mindful of confidentiality issues with regard to videoconferencing encryption requirements as well as medical record ownership and storage regulations [32]. Reimbursement for services rendered can pose further challenges. Medicaid reimbursement for telepsychiatric services varies by state. While Medicare Part B reimburses for telepsychiatric services, there are some limitations (Fig. 2.2) [33]. These administrative issues will be reviewed in further details in subsequent chapters.

2.7 Conclusion

In summary, as the US aging population continues to increase, geriatric telepsychiatry remains one avenue to meet the mental health care needs of older adults. It has the potential to increase access to specialized mental health care as well as

decrease overall healthcare costs. It has been demonstrated to be feasible and diagnostically reliable. Furthermore, outcomes are equivalent to in-person care. While some patients and physicians alike may be apprehensive about utilizing telepsychiatric services, the literature has shown overall high levels of satisfaction. While these favorable aspects of implementing geriatric telepsychiatry are encouraging, challenges unique to serving geriatric patients from a distance remain. They require diligent awareness and preparation in order to allow for successful application of this innovative treatment modality to the care of older adults.

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Chapter 3
The Economics of Geriatric Telepsychiatry

James G. Bouknight

3.1 Introduction

While the advantages of offering medical treatment via videoconferencing remotely may be multiple, sustainability cannot occur unless a program can show financial advantages. Geriatric telepsychiatry shows promise for the elderly because of the characteristics of aged patients including problems with ambulation, transportation, crowded schedules for medical appointments, and difficulty in adapting to a typical office setting. The elderly patients that will be treated by psychiatrists in the next 30–40 years vary dramatically from the elderly in the twentieth century. The Baby Boomer geriatric patient is more likely to lack family support, have issues with substance abuse, live longer, and have a higher rate of incarceration in jails and penal institutions [1]. These changing characteristics of the elderly make geriatric telepsychiatry an economically viable option for the delivery of psychiatric care to the elderly. This chapter will focus on the benefits and costs of a geriatric telepsychiatry service.

J.G. Bouknight, MD (✉)
Department of Neuropsychiatry and Behavioral Science,
University of South Carolina School of Medicine,
Columbia, SC, USA
e-mail: jbouk@aol.com

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3.2 Legal Requirements

Medicare has specific requirements for telepsychiatry which include the originating site of the service, the practitioners who are allowed to offer telepsychiatry services, the type of services offered, and the Current Procedural Terminology (CPT) codes used to bill for the services (DHHS). Most private insurers use Medicare as a guide for reimbursement. The originating sites of telepsychiatry services must be one of the following:

- Physician or practitioner's office
- Hospital
- Critical Access Hospital (a designation given to certain rural hospitals)
- Rural Health Clinic
- Federally Qualified Health Center
- Hospital-based renal dialysis center
- Skilled nursing facility
- Community mental health center.

From a reimbursement perspective, Medicare also specifies which practitioner may offer telepsychiatry services. These include:

- Physicians
- Nurse practitioners
- Physician's assistants
- Nurse-midwives
- Clinical nurse specialists
- Certified registered nurse anesthetists
- Clinical psychologist
- Social workers (with some exceptions)
- Registered dietitians or nutrition professionals.

With few exceptions, the services offered must permit real-time interaction between the patient and the practitioner. There are a number of CPT Codes (Current Procedural Terminology Codes) that can be used to bill for telepsychiatry services [2]. Table 3.1 details those presently used.

Table 3.1 Telehealth CPT codes [2]

CY 2016 Medicare Telehealth Services	Healthcare Common Procedure Coding System (HCPCS)/CPT code
Telehealth consultations, emergency department, or initial inpatient	HCPCS codes G0425–G0427
Follow-up inpatient telehealth consultations furnished to beneficiaries in hospitals or SNFs	HCPCS codes G0406–G0408
Office or other outpatient visits	CPT codes 99201–99215
Subsequent hospital care services, with the limitation of one telehealth visit every 3 days	CPT codes 99231–99233
Subsequent nursing facility care services, with the limitation of one telehealth visit every 30 days	CPT codes 99307–99310
Individual and group kidney disease education services	HCPCS codes G0420 and G0421
Individual and group diabetes self-management training services, with a minimum of 1 h of in-person instruction to be furnished in the initial year training period to ensure effective injection training	HCPCS codes G0108 and G0109
Individual and group health and behavior assessment and intervention	CPT codes 96150–96154
Individual psychotherapy	CPT codes 90832–90834 and 90836–90838
Telehealth pharmacologic management	HCPCS code G0459
Psychiatric diagnostic interview examination	CPT codes 90791 and 90792
End-Stage Renal Disease (ESRD)-related services included in the monthly capitation payment	CPT codes 90951, 90952, 90954, 90955, 90957, 90958, 90960, and 90961

(continued)

Table 3.1 (continued)

CY 2016 Medicare Telehealth Services	Healthcare Common Procedure Coding System (HCPCS)/CPT code
End-Stage Renal Disease (ESRD)-related services for home dialysis per full month, for patients younger than 2 years of age to include monitoring for the adequacy of nutrition, assessment of growth and development, and counseling of parents (effective for services furnished on and after January 1, 2016)	CPT code 90963
End-Stage Renal Disease (ESRD)-related services for home dialysis per full month, for patients 2–11 years of age to include monitoring for the adequacy of nutrition, assessment of growth and development, and counseling of parents (effective for services furnished on and after January 1, 2016)	CPT code 90964
End-Stage Renal Disease (ESRD)-related services for home dialysis per full month, for patients 12–19 years of age to include monitoring for the adequacy of nutrition, assessment of growth and development, and counseling of parents (effective for services furnished on and after January 1, 2016)	CPT code 90965
End-Stage Renal Disease (ESRD)-related services for home dialysis per full month, for patients 20 years of age and older (effective for services furnished on and after January 1, 2016)	CPT code 90966
Individual and group medical nutrition therapy	HCPCS code G0270 and CPT codes 97802–97804

(continued)

Table 3.1 (continued)

CY 2016 Medicare Telehealth Services	Healthcare Common Procedure Coding System (HCPCS)/CPT code
Neurobehavioral status examination	CPT code 96116
Smoking cessation services	HCPCS codes G0436 and G0437 and CPT codes 99406 and 99407
Alcohol and/or substance (other than tobacco) abuse structured assessment and intervention services	HCPCS codes G0396 and G0397
Annual alcohol misuse screening, 15 min	HCPCS code G0442
Brief face-to-face behavioral counseling for alcohol misuse, 15 min	HCPCS code G0443
Annual depression screening, 15 min	HCPCS code G0444
High-intensity behavioral counseling to prevent sexually transmitted infection; face-to-face, individual, includes: education, skills training, and guidance on how to change sexual behavior; performed semi-annually, 30 min	HCPCS code G0445
Annual, face-to-face intensive behavioral therapy for cardiovascular disease, individual, 15 min	HCPCS code G0446
Face-to-face behavioral counseling for obesity, 15 min	HCPCS code G0447
Transitional care management services with moderate medical decision complexity (face-to-face visit within 14 days of discharge)	CPT code 99495
Transitional care management services with high medical decision complexity (face-to-face visit within 7 days of discharge)	CPT code 99496

(continued)

Table 3.1 (continued)

CY 2016 Medicare Telehealth Services	Healthcare Common Procedure Coding System (HCPCS)/CPT code
Psychoanalysis	CPT codes 90845
Family psychotherapy (without the patient present)	CPT code 90846
Family psychotherapy (conjoint psychotherapy) (with patient present)	CPT code 90847
Prolonged service in the office or other outpatient setting requiring direct patient contact beyond the usual service; first hour	CPT code 99354
Prolonged service in the office or other outpatient setting requiring direct patient contact beyond the usual service; each additional 30 min	CPT code 99355
Prolonged service in the inpatient or observation setting requiring unit/floor time beyond the usual service; first hour (list separately in addition to code for inpatient evaluation and management service) (effective for services furnished on and after January 1, 2016)	CPT code 99356
Prolonged service in the inpatient or observation setting requiring unit/floor time beyond the usual service; each additional 30 min (list separately in addition to code for prolonged service) (effective for services furnished on and after January 1, 2016)	CPT code 99357
Annual Wellness Visit, includes a personalized prevention plan of service (PPPS) first visit	HCPCS code G0438
Annual Wellness Visit, includes a personalized prevention plan of service (PPPS) subsequent visit	HCPCS code G0439

Unless the services provided meet the requirements of Centers for Medicare and Medicaid Services (CMS) and third party payers, there can be no economic justification for offering telepsychiatry services to the geriatric population. The most expensive method of offering services would be one which does not meet all of the requirements of appropriate care. It is important to remember that "Utilizing telemedicine does not alter the standard of care to which the physician will be held – it is the same standard of care that would apply if the patient was in the physician's office or facility" [3]. The physicians who participate in the program must also be certain that they are meeting the requirements of their state medical boards. Many healthcare systems cross state lines and in sparsely populated states there may be an inadequate population in one state to support a geriatric telepsychiatry program. It is, however, important to remember that most state medical boards expect practitioners offering services within a state to possess a license from that state. The Veterans Administration (VA) hospitals and clinics are an exception since VA physicians need to be licensed in only one state to practice throughout the VA system. If the physician is offering services within a healthcare system whether for inpatients, outpatients, or patients in the emergency room, the psychiatrist will need to be credentialed by not only the organization providing the service but also the organization in which the patient is being served. This can be an enormously time-consuming process since each organization needs separate documentation which is usually repetitive. One option available in some locations is "privileging by proxy." This system which has been approved by CMS allows the healthcare system receiving telepsychiatry services to credential the psychiatrist by relying on the credentialing process of the healthcare system from which the services originate [4]. Utilizing this credentialing system significantly decreases the time, effort, and cost involved in applying for credentials in multiple healthcare systems. Note that this system does not negate the need for the psychiatrist to acquire and maintain a license in each state in which he or she

practices telepsychiatry. There is growing acceptance of telemedicine and telepsychiatry including an endorsement by the American Medical Association (AMA) which supported the bipartisan Creating Opportunities Now for Necessary and Effective Care Technologies (CONNECT) for Health Act to expand the use of telemedicine to achieve quality care for patients. The bill reflects the AMA's belief that the appropriate use of telemedicine can greatly improve access to quality care while maintaining patient safety.

As noted by AMA President, Steven J. Stack, MD, "this legislation has the potential to remove barriers to new health care delivery models that promote coordinated and patient-centered care. Importantly, the bill aims to maintain high standards whether a patient is seeing a physician in an office or via telemedicine" (www.ama-assn.org [5]).

3.3 Benefits

The benefits of a geriatric telepsychiatry program include economic benefits and intangible benefits that do not lend themselves to valuation in dollars. At present there are about 40,000 psychiatrists in the USA but there is a shortage of at least 10,000 psychiatrists with even a more serious shortage of geriatric psychiatrists. To compound the problem, the average age for currently practicing psychiatrist is around 56 years old so our nation is headed for an even more profound shortage of psychiatrists just as the Baby Boomer Generation reaches retirement age. Due to the shortage of geriatric psychiatrists in the USA, the options available to patients are often telepsychiatry or no care at all. Those patients who receive psychiatric care from their primary care providers face significant problems: up to about 50% of patients are under-diagnosed and under-treated by primary care providers [6].

There are no accurate estimates of the costs to the nation and to mentally ill patients for inadequate treatment or forgoing treatment for mental illness. Simply having the availability of psychiatric care constitutes an intangible benefit to

patients. Because the patient and the physician do not need to be present at the same location, situations in which transporting either the patient or the physician is difficult make geriatric telepsychiatry more economically viable.

Patients who live in rural areas or are geographically isolated do present viable opportunities for cost savings by telepsychiatry. Patients with debilitating physical illnesses may also be difficult and expensive to transport to a physician's office or clinic. Rehabilitation facility patients face pain and the possibility of injury during transport. Likewise, nursing home and assisted living facilities who care for patients with Neurocognitive Disorders find transport a challenging proposition. A patient with cognitive and behavioral issues could wander away from the transport personnel or become combative. Ambulance rides for physician appointments are expensive and can be difficult to schedule. Other geriatric patient populations make interactions challenging. A larger number of geriatric patients are incarcerated for a variety of reasons explored later in this chapter. Although deinstitutionalization has decimated the long term psychiatric inpatient population, some patients remain in long term psychiatric facilities either because of their mental illness or, in some cases, because they are considered dangerous sex offenders.

In general, physician home visits are prohibitively expensive so when face-to-face time with the physician is arranged, most psychiatry clinics insist that the patients travel. The costs to the patient are not trivial. Many geriatric patients either cannot drive because of mental or physical issues or lack modes of transport. Some geriatric patients are immunocompromised so that travel to a healthcare provider and being exposed to others in a waiting room would place them in danger. Although some patients may qualify for Medicaid transport, many do not, so alternative means of transport would need to be arranged. Some patients are not safe to travel alone so the costs to serve these patients would include either a hired escort or a family member who would be unable to work during that time. Many families simply cannot afford to miss work to provide for their loved one.

Extremely remote areas offer the best example of the benefits of telepsychiatry to the elderly. In a study published in the *Journal of Telemedicine and Telecare* in 2006, Jacqueline Harley described the provision of telepsychiatry services to the island of Jersey, which is a part of the United Kingdom but lies 160 km south of the British coast. The island had primary and secondary mental health services but no access to specialist psychiatrists for either patient care or for educational presentations to the island medical community. In this study, a monitor was placed on a "rollabout system" on the island connected with equipment in a conference room at Bethlem Royal Hospital in South London. Of note, this is Europe's oldest institution to specialize in the treatment of mental illness (established 1330) and is the origin of the term "bedlam." In a 6-month period there were five patient consultations and six presentations carried out. The cost of these 11 services was £3483.06 which included the capital costs of the equipment, call charges, and line rental. The estimate for offering the same services by transporting the patient to the mainland with an escort was £12,975.00. "The threshold at which videoconferencing became cheaper than travel was between five and six telemedicine episodes per year…" [7]. Another pilot telepsychiatry project in rural Alberta, Canada found that the average cost savings per consultation was $210 per patient for patients who would otherwise need to travel. Based on this pilot project, the Alberta Mental Health Board expanded the telepsychiatry network to cover the province with 21 receiver sites [8].

A path breaking use of telepsychiatry services was employed in a war zone to treat service men and women with Acute Stress Disorder and Posttraumatic Stress Disorder. Few places are more remote than the terrain surrounding the Taliban strongholds in Afghanistan. Pelton et al. used Prolonged Exposure (PE) therapy to treat service members who had been involved in combat. Their approach included therapy sessions, the first half of which were traditional face-to-face with the second half composed of therapy via videoconferencing. The treatment protocol consisted of 8–12 90-min sessions focusing on psychoeducation about common

emotional reactions to trauma and treatment rationale; repeated visualization of traumatic memories (imaginal exposure); in-vivo exposure to avoided situations; and therapeutic processing and discussion [9]. This study demonstrates the usefulness of telepsychiatry in even the most difficult situations where treatment would otherwise be unavailable. The economic benefits of rapid treatment of Acute Stress Disorder within a combat zone would include decreased "downtime" for the soldier, decreased incidence of Posttraumatic Stress Disorder (PTSD) and, potentially, decreased future treatment and disability costs.

Emphasizing the economic benefits of telehealth services is the Northern Periphery Programme (NPP). The NPP is composed of Greenland, Iceland, Faroe Islands, Ireland, Northern Ireland, Scotland, Norway, Sweden, and Finland. While most of the countries have urban centers with ready access to psychiatric and other health services, there are also very remote areas of all of these countries that are subject to harsh weather conditions. Currently there is a project called the Transnational Telemedicine Solutions which has as its goal the provision of telehealth services to the NP. Among the projects proposed is the provision of emergency psychiatric services for adults and children in these regions [10].

Savings in office space are also an important savings offered by telepsychiatry. For the provider, little other than a chair and a monitor with audio capabilities is needed. If the care is offered to a patient's home, the office cost would be minimized but there may be added equipment and staff costs. Our experience is that most geriatric telepsychiatry services are offered in the primary care setting with no extra space devoted to telepsychiatry because the equipment takes little space. The provision of a safe environment for the interviewing psychiatrist may also be a benefit of remote treatment. A patient who may be too violent to interview face-to-face may be safely evaluated by telepsychiatry. Gun ownership is a controversial topic in American politics but the treating psychiatrist must always be cognizant of the need to evaluate for

risks. The attitudes of rural residents toward gun ownership may vary significantly from those of urban providers of telepsychiatry services. The telepsychiatrist must be cognizant of this difference in attitudes and avoid imposing their values on patients who may possess firearms while always keeping the patient's safety a top priority [11].

Another potential advantage of telepsychiatry is that patients with easily communicable diseases could be evaluated without the need for the physician to take precautions. The recent Ebola outbreak in Africa and cases in the USA demonstrate the need for strict precautions to prevent infection [12]. In South America, there has been an outbreak of the Zika virus which would place the children of female psychiatrists at risk if they were exposed during pregnancy. The savings in the time and equipment spent to ensure the safety of the psychiatrist is obvious but the emotional benefit of being able to evaluate a patient without fear is less easy to measure.

Geriatric telepsychiatry can increase the frequency and duration of psychiatric treatment over that offered by traditional face-to-face treatment. For some patients, telepsychiatry may be the only way in which they can receive treatment. In a 2013 publication, Morland et al. examined the cost effectiveness of clinical video-teleconferencing (CVT) to a population of Veterans suffering from posttraumatic stress disorder (PTSD). Of the approximately eight million Veterans who use the Veterans Affairs healthcare system in the USA, 3.3 million reside in rural areas where mental healthcare is not readily available. In this study of 74 male Veterans on the Hawaiian Islands of Maui and the Big Island of Hawaii, the geographic distances are significant and travel costs (by air) are sizeable. The study concluded that the mean cost of a treatment session by telepsychiatry was $79 while the mean cost for an in-person encounter was $792. Results indicated CVT was superior to in-person care especially when considering challenges to Veterans accessing mental health services, making CVT a "cost-reducing" modality of mental health service delivery [13].

Among the complications of determining the cost effectiveness of delivering mental health services by telepsychiatry is that more patients are likely to be served. While this increases the cost of service provision which is easily determined, the societal benefits of improved mental health can be more difficult to measure. Estimating the added cost of delaying mental health services is a daunting task. In the most severe cases, patients may harm themselves or others due to untreated mental illness. While placing an economic value on the loss of life is impossible, human lives have value that does not easily lend itself to dollar estimations. Crudely stated, patients who die because of mental illness no longer cost society but a civil society certainly places value on the life and well being of its citizens.

3.4 The Implications of an Aging Population

As the Baby Boomer generation ages, the number of frail elderly in nursing homes and other long term care facilities can be expected to rise dramatically (Fig. 3.1). Because transporting the frail elderly can be physically stressful to the patient, expensive and difficult to arrange logistically, geriatric telepsychiatry services seem an ideal solution. The older the population, the more likely they are to require services of either a skilled nursing facility or an intensive assisted living residence.

The older the individual, the more likely that nursing home placement will be necessary to supply their care needs. Many assisted living facilities offer comprehensive services but there are legal limitations on the patients who are appropriate for assisted living. In most situations, patients must be able to leave a facility unassisted if there is a fire or other emergency. This does not necessarily mean that the patient must be able to ambulate but they must be able to propel themselves using assistive devices if necessary (wheel chairs, walkers, and canes). Figure 3.2 illustrates the relationship of

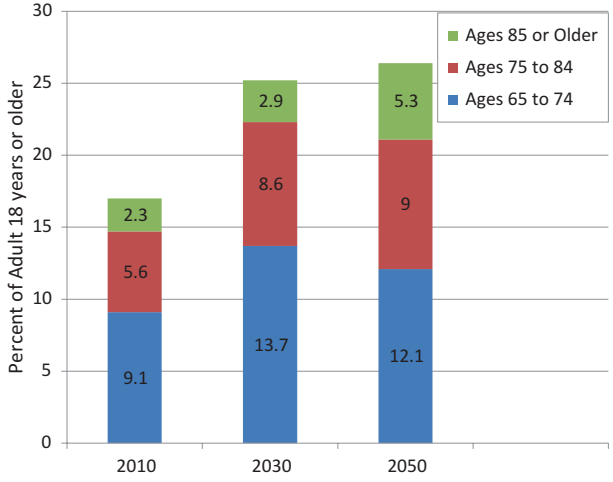

Fig. 3.1 Elderly adults as a share of all adults age 18 or older, 2010–2050. Source: Congressional Budget Office tabulations based on population projections reported in The 2012 Long-Term Budget Outlook (June 2012) [14], www.cbo.gov/publication/43288

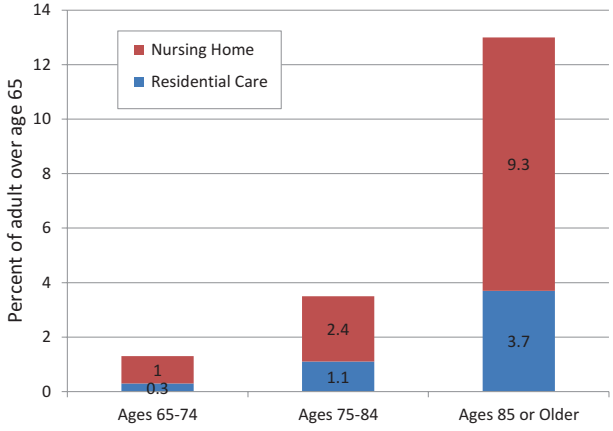

Fig. 3.2 Rates of institutionalization among elderly people, by age, 2010. Source: Congressional Budget Office based on data from Medicare Current Beneficiary Survey, Access to Care 2010 [15]

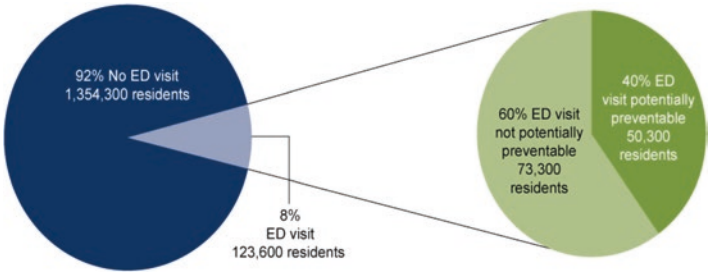

Fig. 3.3 Emergency room visits among nursing home residents, 2004. Source: CDC/NCHS, Nursing Home Survey, 2004

age with residential needs for the elderly. Many facilities offer primary care but relatively few offer geriatric psychiatry services in the nursing home or assisted living facility.

Each day over 500,000 individuals with mental illnesses are housed in skilled nursing facilities. Prior to the deinstitutionalization of the mentally ill, these patients were cared for in state mental hospitals. Nursing homes were not designed to treat mental illness so some of the specialized needs of the elderly mentally ill likely go unmet. Using results of the 2004 National Nursing Home Survey, Grabowski et al. highlighted challenges such as limited staff training in skills to manage mentally ill patients, many facilities use hospital emergency rooms when a mentally ill patient decompensates, refuses medications, or becomes agitated (Fig. 3.3) [16, 17].

3.5 Implications for Older Adults and the Criminal Justice System

The opportunity to provide psychiatric services to the elderly incarcerated population may be the most effective use of telepsychiatry services [18]. In the USA about half of the inmates in correctional institutions have a mental illness. “Inmates in correctional facilities have long received substandard health care, including mental health care” [19].

Prison facilities are often located in rural areas without mental health providers. Many psychiatrists are reluctant to participate in prison work because of the potential danger involved. Physicians have been attacked and taken hostage in these institutions. In addition, the time involved to provide for security in these institutions takes away from the productive time of physicians. Passing through metal detectors, emptying pockets, and allowing possessions and bodies to be searched is a tedious process. Most prisons will not allow any type of communication device within the prison which puts the physician out of touch in emergency situations involving patients not imprisoned. In fact, having no emergency communication available may violate some state laws and hospital bylaws. Evaluating and treating convicted felons brings with it contact with patients who have personality disorders that can make treatment a challenge. Manipulation and fabrication are regular in this environment. The goal of many incarcerated individuals is release and they may see the physician as a pathway to release either through an escape or by feigning a medical illness. While many inmates find ways to manipulate the treatment relationship to their benefit, telepsychiatry can provide some useful barriers.

The scope of the geriatric prison population reflects the general population trends of the Western world: the geriatric segment of the population is the fastest growing. Between 2007 and 2010 the number of sentenced state and federal prisoners who are 65 or older increased by 63 percent, while the sentenced prison population grew by 0.7%. This trend in the over 65 prison population will continue because the growth in state and federal prisoners 55 or older grew by 282 percent from 1995 to 2010 while the total number of prisoners grew by 42% during the same period [1]. Figure 3.4 illustrates similar trends from 2009 to 2013.

Some reasons for the growing number of older inmates are:

1. Long sentences. Prisoners with long sentences are more likely to grow old behind bars than prisoners serving short sentences. A significant percentage of prisoners age 55 or older were incarcerated with long sentences.

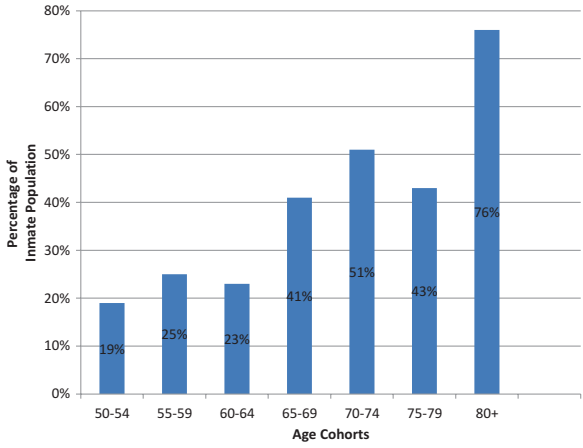

FIG. 3.4 Percentage change in population of aging inmates from FY2009 to FY 2013. BOP population snapshots from "The Impact of an Aging Inmate Population on the Federal Bureau of Prisons," Evaluation and Inspections Division, Bureau of Prisons, May 2015 [20]

2. Life sentences. The imposition of life sentences, a particularly extreme form of long sentence, has increased.
3. Older age of offenders. More people are entering prison for crimes committed after age 55 than in years past.
4. Early release. Correctional and parole officials often have little legal authority to release old and infirm prisoners before their sentence expires and such authority as exists is exercised infrequently.

While the "Three Strikes" law was enacted to ensure that repeat felons are not released, it also resulted in an increase in the geriatric population within the US prison system. For example, in California, the average age of a "third-strike" offender entering the prison system is 36 years. These offenders have a minimum of 25 years to serve their sentence before the possibility of their release, which effectively creates a situation of aging in place within the prison system [21]. Several states have laws that prohibit parole for any life sentences. Adding to the imprisoned elderly is that the number of older

persons arrested is rising, likely because of the aging of the US population [1].

The prevalence of mental illnesses including substance abuse in inmates within correctional facilities in the USA has been estimated at greater than 50%. There is considerable variation in estimates depending on the database and the assumptions made. There seems to be no accurate estimate of those convicted of crimes who are hospitalized for their mental illness which likely biases the estimates to under reflect the prevalence mental illness among the incarcerated population [22]. The reason for the high number of mentally ill is in part the unintended consequence of the last act signed by President Kennedy, a well-known advocate for the mentally ill. The Community Mental Health Act of 1963 accelerated the movement of "deinstitutionalization," a move to discharge the mentally ill from state mental institutions and return them to their communities. The changes that resulted from this act were dramatic. From 1955 to 1998 the number of occupants of state and county mental hospitals dropped from about 558,000 to less than 60,000. Where did the mentally ill go? The original plan was to shift funding to community outpatient mental health centers which were funded by the Mental Health Systems Act of 1980 but this act was repealed early in the Reagan administration. Many of the mentally ill became homeless. Others became involved in the corrections system which is why a 2015 *The Atlantic* magazine article referred to Chicago's Cook County jail as "America's largest mental hospital" [23]. As the aged prison population grows, the incidence of dementia will likewise increase. Although there are no reliable estimates of dementia in the incarcerated population, about 13% of individuals older than 65 have some degree of dementia which may be their primary psychiatric diagnosis or dementia may be comorbid with other mental illnesses [24]. The number of prisoners with Major Neurocognitive Disorders is expected to increase more rapidly than in the general population because of the "health and environmental risk factors associated with prolonged imprisonment" [25]. Inmates with dementia place other strains on the system in addition to their medical costs.

Incarcerated individuals with neurocognitive disorders, by definition, have poor judgment and are vulnerable to exploitation by other inmates. They need a special observation level to prevent harm to themselves and harm from others. Patients with neurocognitive disorders also need special accommodations for dietary needs since these patients may eat or drink nonfood materials. Transportation can be a particular challenge since careful supervision is essential to guard the health of inmates with neurocognitive disorders.

The costs of providing medical care to aging inmates are substantially higher than for younger ones. In an issue paper completed for the Michigan State Senate, Angelotti and Wycoff used data from 34 states to estimate the per capita cost of medical care for inmates. As expected, the costs are directly proportional to the age of the inmate. An inmate younger than 20 was projected to have an annual health care cost of $2200 while an inmate over 80 had an estimated annual health care cost of $40,000 (all in 2009 dollars) [26]. In general, the prisons are responsible for providing medical care for inmates. Medicare and Medicaid (except in very limited circumstances) do not cover medical expenses for prison inmates [1]. All penal institutions must provide medical care to all prisoners. This was established when the US Supreme Court ruled in *Estelle v. Gamble* that ignoring a prisoner's serious medical needs can amount to cruel and unusual punishment, noting that "[a]n inmate must rely on prison authorities to treat his medical needs; if the authorities fail to do so, those needs will not be met. In the worst cases, such a failure may actually produce physical torture or a lingering death [.] … In less serious cases, denial of medical care may result in pain and suffering which no one suggests would serve any penological purpose" [27].

In summary, the geriatric population in state and local prisons and in jails presents a special opportunity for geriatric telepsychiatry to provide needed medical care for these elderly prisoners without compromising the safety of providers or placing undue costs upon an already overburdened prison and jail system. Telepsychiatry systems are safe,

effective, and easily accessible. Most telepsychiatry operations involve either governmental bodies or established healthcare systems but there is also a growing commercial sector that offers telepsychiatry services. This new delivery system provides mental health treatment from psychiatrists and psychologists at rates roughly comparable to office visit costs [28].

3.6 Costs

In order to maintain an ongoing system of geriatric telepsychiatry care, the costs of the system must be covered. There are many determinants of the costs of the geriatric telepsychiatry system of care. Other variables influencing the economics of telepsychiatry include hardware/equipment, infrastructure, healthcare provider remuneration, and other costs. These factors are explored in the following section.

3.7 Equipment

The technologies which can provide geriatric telepsychiatry services are varied. The key quality of all telepsychiatry technologies is security. Patient data must be kept secure not only because of the patient–physician relationship but also to conform to federal and state laws. The equipment may be either purchased or leased. With the rapidly changing technological environment, many providers find that leasing allows them to upgrade more frequently so that they can provide state-of-the-art care. Likewise, there are a variety of methods to achieve connectivity from encrypted internet access to dedicated phone lines. All costs are subject to the carrier involved. Telepsychiatry services can be transmitted in a number of different ways. These include encrypted internet connections, major broadband networks, high-speed telecommunications lines which allow dedicated secure connections, patient monitoring centers which receive transmissions from at-home devices, and single-line telephone and video lines [29].

Just as there are a variety of methods to transmit patient—physician interactions, there is also a variety of equipment that can be utilized. The equipment can range from a simple, encrypted internet connection through a computer to equipment that establishes a dedicated communication from one site to another. The cost of the equipment and software varies with the sophistication of the connection and with the competitive nature of the market in the areas in which telepsychiatry services are offered. With encrypted internet connections, the desktop computer used in providing geriatric telepsychiatry services can also be utilized for other needs offsetting the cost. Due to the rapidly changing economic environment, dollar estimates for equipment continue to vary.

3.7.1 Infrastructure

A geriatric telepsychiatry practice requires little space. Most telepsychiatry is offered in a clinic, emergency room, or primary care provider's office without the need to construct a special room to accommodate these services. The patients simply need to have a camera, display, microphone, and speaker available which take relatively little space and can easily be mounted on a mobile unit so that it can be stored when not in use and easily moved from room to room if needed.

3.7.2 Physician Salaries

In general, physicians are paid on an hourly rate or per patient seen. Because there is no office overhead for the physician and most of the other costs are paid by the hiring entity, per hour payments are typically much lower than typical psychiatry office rates. Malpractice insurance is usually also provided by the hiring entity. The physician is typically responsible for maintaining his state license and certifications

to allow for the prescribing of medications. Payment of as low as $150 per hour for a board certified psychiatrist is offered by some organizations (www.e-psychiatry.com [30]).

3.8 Conclusion

The economic benefits of telepsychiatry will be the driving force in offering these valuable services to the geriatric population. The current technological, regulatory, and reimbursement environment is rapidly changing making concrete projections of the benefits of geriatric telepsychiatry difficult to estimate. Several generalities appear to determine the economic benefit of this method of offering psychiatric care to the geriatric population:

1. The more debilitated the patient, the more it will cost to transport them to a psychiatrist. This makes offering psychiatric care in a nursing home or assisted living facility much more beneficial.
2. The further the distance either the patient or the provider must travel to receive/provide care, the more cost effective geriatric telepsychiatry becomes. This is particularly evident in remote parts of the planet.
3. Because a geriatric telepsychiatry program requires there be an investment in equipment, support staff, and some form of data transmission service, the larger the volume of patients receiving the care, the more cost effective [31]. This is because the fixed costs of the program are spread over a larger volume of patients thereby decreasing the fixed cost per patient.
4. Certain populations may be particularly appropriate for care that is not face-to-face. These would include the jail and prison population and those who might be infectious.
5. While the geriatric population is growing, the number of geriatric psychiatrists is not commensurately expanding.

Telepsychiatry makes it possible for providers to render care to a larger number of patients which may ease the shortage

of geriatric psychiatrists over the next few decades. This approach to providing care is effective and economic. It takes advantage of the technological advances of the twenty-first century and applies them to care for the older adult.

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Part II
Clinical Applications

Chapter 4
Geriatric Telepsychiatry in Academic Settings

Shilpa Srinivasan, Ashley Blackmon Jones, and Donald Hilty

4.1 Introduction

As the population of older adults in the USA continues to burgeon, with a projected increase from 40.3 million individuals over age 65 in the year 2010 to 72.1 million by the year 2030 and over 80 million by the year 2050, the number of older adults with mental illness is also projected to rise commensurately (US Census Bureau; [1, 71]). The Institute of Medicine (IOM) report, *Retooling for an Aging America: Building the Health Care Workforce*, released in 2008 [2], cast

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S. Srinivasan, MD (✉)
Department of Neuropsychiatry and Behavioral Science, University of South Carolina School of Medicine, Columbia, SC, USA
e-mail: Shilpa.srinivasan@uscmed.sc.edu

A.B. Jones, MD
Department of Neuropsychiatry and Behavioral Science, University of South Carolina School of Medicine, Columbia, SC, USA
e-mail: Ashley.jones@uscmed.sc.edu

D. Hilty, MD
Department of Psychiatry, Keck School of Medicine, Los Angeles, CA, USA
e-mail: donh032612@gmail.com

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a spotlight on the pressing need to expand and fortify the health care workforce to meet critical needs of the aging population. Following a congressional mandate in 2009, the IOM committee on the Mental Health Workforce for Geriatric Populations was assembled and generated the 2012 report—*The Mental Health and Substance Use Workforce for Older Adults*: *In Whose Hands*? [3]. These reports highlight the mental health and substance use (MH/SU) conditions in older adults, with prevalence estimates ranging from 14 to 20% of the overall population. While serious mental illness (SMI) such as schizophrenia and bipolar disorder is less prevalent, depressive disorders and major neurocognitive disorder (dementia)- and related behavioral and psychiatric symptoms are increasingly common in older adults. Given the prevalence of chronic physical health conditions in the elderly, the MH/SU needs are often first encountered in the context of primary care settings, which are under-resourced, both in terms of time and professional training. Stigma in seeking mental health care, lack of information about services, and limited transportation to services remain major barriers to mental health care access and utilization among older adults. [4–6].

In light of the demographic transitions of a growing older adult population and the critical need to meet their mental health needs, healthcare providers with geriatric training and/or expertise have come under scrutiny. Both allopathic and osteopathic psychiatry residency program governing bodies stipulate the inclusion of exposure to geriatric psychiatry clinical experiences as part of residency training. The former requires "*one month FTE (Full Time Equivalent) of organized experience focused on the specific competencies in areas that are unique to the care of the elderly*" [7], whereas this timeframe is not specified for osteopathic psychiatry programs [8].

Since its inception and recognition as an accredited subspecialty by the American Board of Medical Specialties (ABMS) in 1991, additional post-residency training in geriatric psychiatry has been offered, which entails the completion of a one-year fellowship where the focus is on the diagnosis

and treatment of mental health conditions in older adults. Despite the availability of fellowship positions, the number of fellowship trained physicians has declined over the years. The 10-year period between 2001 and 2011 saw a 50% reduction in the number of general psychiatry graduates pursuing subspecialty geriatric psychiatry fellowship training. Similarly, the number of geriatric psychiatrists maintaining specialty certification has decreased over time, with only 47% of geriatric psychiatrists in 2011 maintaining or recertifying in geriatric psychiatry [9, 10]. Of note, during the same ten-year period, medical student interest in pursuing psychiatry residency training increased by almost 20% [11].

To put it in another perspective, Figs. 4.1 and 4.2 illustrate the number (and projected number) of geriatric psychiatrists per 10,000 older adults (age 75 and above) in the USA. These numbers clearly delineate the inadequate volume of the current geriatric psychiatry workforce to meet the mental healthcare needs of the aging population. As a consequence, there is an unequivocal requirement for improved access to specialized psychiatric care for this patient population.

Telepsychiatry, the provision of mental health/psychiatric care via live-two way videoconferencing, is one way to bridge the looming gap between available specialty trained providers

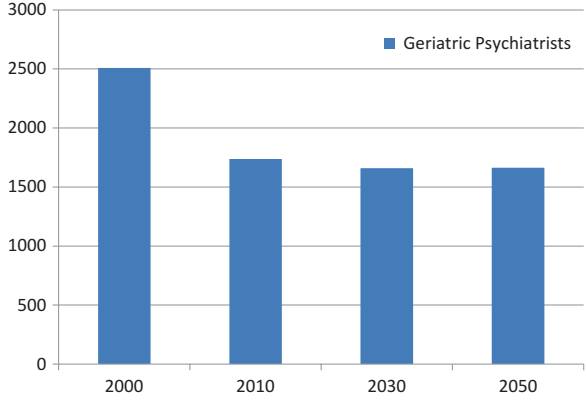

Fig. 4.1 Projected numbers of geriatric psychiatrists in the united states. Source (Adapted from [12])

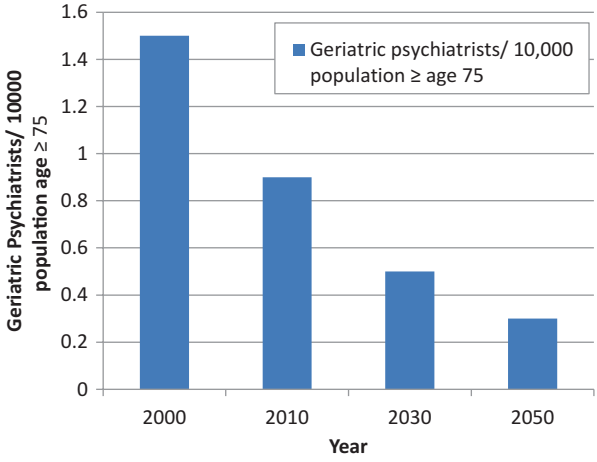

Fig. 4.2 Geriatric psychiatrists/10,000 population ≥age 75. Source (Adapted from [12])

and the population in need of services. The foundation and history of telepsychiatry has been extensively covered in Chaps. 1 and 2 and includes the effectiveness of telepsychiatry in geriatric populations. However, training future psychiatrists and geriatric psychiatrists via a structured, well-defined evidence-based curriculum in telepsychiatry remains an area of development. This chapter will review the extant literature describing the prevalence of telepsychiatry in psychiatry training programs; discuss factors promoting telepsychiatry incorporation in clinical curricula and implementation, as well as barriers to effective implementation. This chapter will also inform discussion of telepsychiatry in light of ACGME milestones and competency-based assessments. Lastly, a summary of geriatric telepsychiatry outcome studies from the current literature will be provided which can be used as reference material when developing a geriatric telepsychiatry curricular experience for psychiatry training programs.

4.2 Approach to Training: Adding to Residency Education Foundation and Putting Telepsychiatry in Context

Telepsychiatry has been integrated into clinical care with educational components being facilitated by the release of telepsychiatric competencies [70] including the first telemedicine competencies based on Accreditation Council of Graduate Medical Education milestones movement [13] and the Royal College of Physicians and Surgeons of Canada clinician competency movement [14]. The competencies provide outcomes mainly in the form of skills, with suggested teaching, supervisory, and program evaluation steps. As has been outlined in several publications, few programs have a formal telepsychiatry curriculum, while others feature an informal telepsychiatry experience, including telepsychiatry approaches to child and adolescent care [15–17]. While it has been shown that residents and training directors have an interest in telepsychiatry, certain misconceptions are evident. In a survey of training directors and residents conducted by Hilty et al., 39% of respondents felt that certain cultures will be less accepting of telepsychiatry care. 36% expressed concern that non-verbal cues are missed, and 33% of respondents noted privacy is a problem. Furthermore, over a third of respondents felt telepsychiatry is not as effective as in-person care [18]. It is therefore evident that training should address competencies that are:

1. Technical
2. Collaborative/interprofessional
3. Administrative [19, 20].

4.3 Telepsychiatry in Residency Training Programs: Considerations for Curriculum Development

As has been discussed elsewhere in this book, given the increasing popularity of telepsychiatry initiatives, more emphasis is likely to be placed on exposure and training

during residency. Currently the Accreditation Council for Graduate Medical Education (ACGME) does not require residents to train in telepsychiatry, nor do the accrediting bodies in Canada, Australia, New Zealand, and the United Kingdom [19]. Though telepsychiatry experiences are not presently an ACGME requirement, there are several studies that investigate the prevalence of telepsychiatry exposure in training programs, resident and program interest in telepsychiatry, and model curricula. A 2015 article by Hoffman and Kane published data from surveyed psychiatry residency programs, with 46 respondents. Twelve programs (26.1%) reported having telepsychiatry curricula and 21 (45.7%) programs involved their residents either formally or informally in telepsychiatry experiences. 84.4% of the responding programs reported an interest in receiving a sample telepsychiatry curriculum [16]. In a national survey of psychiatry trainees published in 2013, 19% reported direct patient care experiences in telepsychiatry and 21% were offered didactic exposure. Only 18% of psychiatry residents and fellows reported providing direct patient care through telepsychiatry. However, 72% of the respondents were "interested" or "very interested" in telepsychiatry [15]. This data suggests a significant difference between interest (from residents and programs) and actual clinical exposure to telepsychiatry for residents.

The ability to create a telepsychiatry experience may vary by program, given the support provided by the institution, availability of knowledgeable faculty, and the organizational framework of the training program [19]. Just as other facets of training programs evolve, telepsychiatry experiences will likely change, especially with technological advancements [19]. Given the scope of telepsychiatry to meet the ongoing mental health needs of the aging population and continued interest in clinical and educational exposure to telepsychiatry in psychiatric training programs, expansion of the number of programs offering telepsychiatry exposure and increasing the number of residents trained in telepsychiatry is a logical next step.

4.3.1 *Learning and Demonstration of Competency*

There are a few publications that detail residency program telepsychiatry curricula, which are variable between programs [19, 21]. An experience in telepsychiatry offers several benefits for trainees within a psychiatric residency program. The practice of telepsychiatry provides the opportunity for residents to learn and demonstrate competency in all of the ACGME competencies (which are common across psychiatry subspecialties) and many of the milestones (Table 4.1).

Most of the competencies are broad-based skills, applicable to all rotations and experiences in psychiatric residency training, including geriatric psychiatry. There has been an increase in dialogue geared towards creating specific objectives and competencies related to telepsychiatry. Both the American Medical Association and American Telemedicine Association have established guidelines and recommendations for telehealth [22]. In a 2015 article, Sunderji and colleagues presented three areas of skill development for residents using telepsychiatry: technical skills, administrative skills, and collaborative skills [19]. A 2016 study by Crawford and colleagues gathered data from interviews of faculty and residents to recommend telepsychiatry-specific skills for competency and presented recommendations for teaching and learning methods. They identified "technical skills; assessment skills; relational skills and communication; collaborative and interprofessional skills; administrative skills; medico-legal skills; community psychiatry and community-specific knowledge; cultural psychiatry skills, including knowledge of indigenous culture; and, knowledge of health systems" [23]. In the current system, most residents will be able to demonstrate all of the ACGME competencies when being evaluated by a supervisor on a telepsychiatry rotation. The creation of telepsychiatry-specific, evidence-based competencies may be an important future direction, particularly in geriatric psychiatry training.

Table 4.1 ACGME core competencies

ACGME competencies	
Patient care	"Residents must be able to provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health."
Medical knowledge	"Residents must demonstrate knowledge of established and evolving biomedical, clinical, epidemiological and social-behavioral sciences, as well as the application of this knowledge to patient care."
Practice-based learning and improvement	"Residents must demonstrate the ability to investigate and evaluate their care of patients, to appraise and assimilate scientific evidence, and to continuously improve patient care based on constant self-evaluation and life-long learning."
Systems-based practice	"Residents must demonstrate an awareness of and responsiveness to the larger context and system of health care, as well as the ability to call effectively on other resources in the system to provide optimal health care."
Interpersonal and communication skills	"Residents must demonstrate interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, their families, and health professionals."
Professionalism	"Residents must demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles."

ACGME.org Common Program Requirements for Psychiatry

4.3.2 *Enhancement of Diversity in Patient Care and Learning*

For trainees, telepsychiatry can provide diversity in case exposure by treating patients who are not directly located in the community of their program. Telepsychiatry has

applications across a wide array of patient populations including adults, children and adolescents, geriatrics, veterans, college students, nursing home residents, and patients with developmental disabilities [19, 21, 24, 68]. Experience in the core competency of systems-based practice (SBP) is obtained by working in a different system of care outside of the home institution and through utilization of community resources unique to the specific geographical area of the patient. Telepsychiatry has been employed to provide consultations to patients in diverse locations including emergency rooms, outpatient settings (public and private), inpatient hospitals (psychiatric and non-psychiatric), forensic facilities, primary care offices, nursing homes, rural areas, residential centers, and more [15, 19, 21, 24, 25, 58]. ACGME further expands the goals of systems-based practice to include delivering health care services in various settings, advocating for quality care, and working in a team to improve patient assessment, care, and safety (ACGME.org). Psychiatry residents are involved in consultation and collaboration with other providers and staff and documenting the care they provide, which affords the opportunity to display competency in Interpersonal and Communication Skills. Practice-based learning and improvement also incorporates a goal for learning from the use of information technology, which residents develop by not just documenting encounters, but utilizing the telepsychiatry equipment. Patient care and professionalism are important competencies to assess throughout training experiences, and telepsychiatry is no exception. Residents may also learn ethical and medicolegal issues that are unique to telepsychiatry [19, 21].

Telepsychiatry offers an opportunity for attending psychiatrists to work with residents when they are not physically located in the same area, which diversifies teaching faculty. This is particularly important for programs in which geriatric psychiatry faculty may be under-represented. This not only provides the resident an opportunity to observe and learn skills from the teaching psychiatrist, but also provides the faculty an opportunity to teach, which may not be available

where they are located. Residents learn new technological skills, are exposed to different psychiatric practice models, gain the flexibility in navigating systems, and a greater understanding of the applicability of a biological–psychological–social/spiritual/cultural model across treatment venues.

4.3.2.1 Increased Interest and Recruitment in Telepsychiatry

An additional significant benefit for patients, residents, and employers is the potential for clinical experiences in telepsychiatry to positively influence career selection. This results in having more psychiatrists providing care via telehealth and therefore increases access to care for patients. Given the shortage of geriatric psychiatrists discussed in the introduction, telepsychiatry has the potential to make a significant impact on access to mental health care for older adults. If residents have a model for utilizing telepsychiatry as part of their practice, receive mentorship in this arena, and experience the positive benefits of telepsychiatry, it could impact resident decisions regarding future career and practice. Reports in the literature highlight that clinical rotations are one of the influential factors on geriatric psychiatry subspecialty choice [26, 27]. After curriculum exposure to telepsychiatry, many residents reported increased overall interest and an increased interest in participating in telepsychiatry in the future [15, 21]. In one study, 90% of the residents agreed with a statement about their telepsychiatry experience increasing their interest in future participation [21]. Another study found that 72% of residents and fellows were interested in telepsychiatry after having direct clinical exposure, but only 29% reported plans to utilize telepsychiatry after training [15]. A study by Chung-Do and colleagues in Hawaii reported that after a 6–12 month telepsychiatry experience, 73% of the 11 trainees went on to use telepsychiatry in their career and practice in rural areas [25]. Given the evidence, it is reasonable to consider that resident telepsychiatry experiences may at a minimum increase interest and potentially influence career choices.

4.3.2.2. Resident Feedback

When creating a telepsychiatry curriculum, it is important to review feedback provided by residents who have been through a telepsychiatry experience in their training program. There are few telepsychiatry curricula that have been evaluated in the literature, with a paucity of data for geriatric psychiatry specific experiences. However, examples in the literature include a study describing resident feedback after performing telepsychiatry child and adolescent consultations at the University of Toronto. Nearly 100% of residents were in agreement that their telepsychiatry exposure was "enjoyable" and "interesting." Residents reported feeling personally "rewarded" in providing care that improves patient access to mental health services, found benefits in working with a team, and appreciated obtaining insights into other cultures as well as ethical issues that are specific to telepsychiatry. Residents also provided feedback on the involvement of the supervising faculty, reporting that they appreciated being able to discuss the case and literature with attending faculty [21]. Residents participating in a telepsychiatry rotation at the Veterans Administration Medical Center in California provided positive feedback about using instant messaging for communications between the resident, supervising psychiatrist, and a "Telehealth Clinical Technician" [28]. They found it helpful to obtain quick supervision without interrupting the patient care appointment. In this study, a brief elective experience in telepsychiatry received positive feedback and subsequently became incorporated into the rotation requirements [28]. In another survey of residents and fellows, 77% of respondents believed telepsychiatry was an important part of training and 51% felt that direct patient care via telepsychiatry should be required. This survey did not find a correlation between the interest level after exposure to telepsychiatry and the number of patient care hours on a telepsychiatry experience [15]. Taken together, the data suggests that any exposure to telepsychiatry can increase resident interest.

Based on resident feedback in the literature, there are several aspects of a telepsychiatry experience that programs should consider when developing a telepsychiatry curriculum.

1. Introduce unique aspects to telepsychiatry, such as technology and patient care related topics. This could also include discussion about technology support [21].
2. Enhance resident knowledge of current literature describing telepsychiatry studies and outcomes in older adults (Table 4.2) as well as comparative literature on the effectiveness of telepsychiatry vs. in-person care [19, 22, 24]. This is important because, despite the increase in interest from residents after a telepsychiatry clinical experience, one survey found that 40% still did not agree that using telepsychiatry as a treatment modality was equal to an in-person encounter [15].
3. Provide patient background information and/or access to medical records prior to the encounters [21].
4. Include a follow-up discussion at the completion of the session to enhance the learning experience [21].
5. Allow residents to be active participants instead of observers in the clinical encounter [19, 21].
6. Provide opportunities for residents to observe a telepsychiatry-based clinical interview demonstration by teaching faculty [21].

4.4 Implementation: Making It Work

4.4.1 Communication and Presence

A host of factors affect perception of the telepsychiatry visit and communication by participants [47]. This is particularly relevant when considering implementation for geriatric patient care. The presence of others in the room (e.g., family members, nurses, and tele-coordinators) is important. Many patients feel they are being videotaped when they are not—a big deterrent to disclosure and spontaneity. Other important

TABLE 4.2 Summary of telepsychiatric clinical/outcome studies with older adult patients

Study	N	Location	Technology	Description	Comments
Nursing home					
Jones [29]	2	USA	ISDN 128 KBS	Case reports	Able to provide care sooner and staff felt supported
Lee et al. [30]	140	South Korea	T1	Prospective over 2 years: CDR, SBT, BDS	TP = in-person; nurses satisfied; caregiver distress reduced; improved patient behavior
Tang et al. [31]	45	Hong Kong	ISDN 512 KBS	Prospective over 1 year	Satisfaction high with learning curve; some savings in costs
Johnston et al. [32]	40	USA	ISDN 128 KBS	Descriptive study: MMSE	Satisfaction high; efficient use of psychiatrist's time
Lyketsos et al. [33]	–	USA	Standard telephone	Descriptive study	Reduced hospitalization rate compared to past

(continued)

Table 4.2 (continued)

Study	N	Location	Technology	Description	Comments
Rabinowitz et al. [34]	24	USA	ISDN 384 KBS	Pilot study: DCM	Satisfaction high; communication between providers and staff good
Yeung et al. [35]	9	USA	ISDN 384 KBS	Descriptive study: CGI-I	Satisfaction high; significant improvement in 6/9
Rabinowitz et al. [36]	106	USA	ISDN384 KBS	Descriptive study	Cost and time savings exceeded the start-up costs
Other					
Montani et al. [37]	15, medical inpatient	USA	Coaxial cable	TP vs. in-person: MMSE, clock drawing	Nearly equal, with 0.95 correlation; all preferred in-person, though
Menon et al. [38]	24, medical inpatient	USA	Standard telephone	In-person (twice) vs. in-person/video: HDRS, GDS-15	TP as reliable as in-person

Grob et al.[39]	27, veterans home	USA	ISDN 384 KBS	In-person (twice) vs. in-person/video: BPRS, MMSE, GDS	TP as reliable as in-person
Saligari et al. [40]	20, primary care	USA	ISDN 384 KBS	TP vs. in-person: MMSE, GDS	Equal, with MMSE 0.9 and GDS 0.78 correlation
Shores et al. [41]	16, veterans home	USA	T1	TP vs. in-person: DSM-IV, clock drawing	TP equal to in-person
Loh et al. [42]	20, community population	USA	ISDN 384 KBS	TP vs. in-person: MMSE, GDS	Nearly equal with 0.8 correlation for dementia
Cullum et al. [43]	33, primary care	USA	-	TP vs. in-person: MMSE, clock drawing, digit span	High correlations (> 0.60) for all, though only 0.48 for clock drawing
Turvey et al. [44]	118, home	USA	Home monitoring system	Screening for depression with PHQ-2	96.6% completed the screen; helped with triage and treatment

(continued)

Table 4.2 (continued)

Study	N	Location	Technology	Description	Comments
Sheeran et al. [45]	19, home	USA	ISDN 384 KBS	Descriptive: DCM, English, and Spanish	For severe depression, all patients improved to mild depression
Vahia et al. [46]	22, rural community	USA	DSL, 512 KBPS	TP vs. in-person neurocognitive testing in Spanish	No significant differences in TP vs. in-person test performance

Reprinted with permission from [67]
TP Telepsychiatry, *KBS* Kilobits per second, *CDR* Clinical Dementia Rating, *SBT* Short Blessed Test, *BDS* Blessed Dementia Scale, *CGI-I* Clinical Global Impressions-Improvement Scale, *MMSE* Mini-Mental State Examination, *DCM* Depression Care Management module, *PHQ*-2 Patient Health Questionnaire-2, *HDRS* Hamilton depression rating scale, *GDS*-15 Geriatric Depression Scale-15, *BPRS* Brief Psychiatric Rating Scale

clues to the patient's problems are evidenced before they appear on video: the time and behavior of the patient's arrival; conversations and other interactions with the telemedicine coordinator; and initial anxiety and distraction due to the equipment and/or self-conscious seeing oneself on the screen (if that exists).

A critical variable in communication is telemedicine's ability to simulate real-time experiences, at least in terms of image and interaction. A speed of transmission of 384 KBS suffices for most everything; the technology must be adequate for the clinical task at hand (e.g., have staff come for an emergently suicidal patient; use a primary care physician (PCP), nurse, or physician extender to evaluate for tremor). A concept that bears on communication is presence, defined as " … the fact or condition of being at the specified or understood place" [48]. The physical, virtual, and imaginal environments affect presence. In a physical environment, informational cues may be incorporated into conversation without conscious awareness (e.g., a patient walks in a reticent way). Participants in the virtual environment created by telemedicine may not realize all cues in the physical environment—so being observant and listening carefully may be more important [47, 48]. Videoconferencing provides "enough" of the physical environment to facilitate decision-making one-on-one and a "social presence" for participants to share a virtual space, get to know one another, and discuss complex issues [49].

4.4.2 *Adapting Telepsychiatry: The Approach and Specifics Related to Patient Care and Other Competencies*

The challenge of meaningful assessment of learner competence has stimulated interest in the Dreyfus and Dreyfus Model, a framework for assessing skill acquisition that describes developmental stages beginning with novice and progressing through advanced beginner, competent, profi-

cient, expert, and master [50]. Although many educators have adopted this model, a lack of consensus about its adaptation to clinical medicine has been documented [51]. Hilty et al. developed telepsychiatry competencies aligned along ACGME domains of patient care, medical knowledge, practice-based learning and improvement, systems-based practice, professionalism, and interpersonal skills and communication [13, 52]. Key telepsychiatry competencies were defined by using milestone levels with the Dreyfus model:

- Level 1—novice (medical student) --> novice resident
- Level 2—advanced beginner (first-year resident) --> second year resident
- Level 3—competent (senior resident)
- Level 4—proficient (beyond Milestones; above average graduating resident, fellow and/or attending)
- Level 5—expert (beyond Milestones; intuitive problem-solver who exceeds principle-based solutions) [50].

This was further simplified to three levels: Novice or Advanced Beginner (e.g., advanced medical student, early resident, or other trainees); Competent/Proficient (e.g., advanced resident, graduating resident, faculty, attending, or interdisciplinary team member); and Expert (e.g., advanced faculty, attending, or interdisciplinary team member). The following suggestions or examples may be considered to incorporate a competency-based approach to telepsychiatry training (Table 4.3):

- Informed consent: verbal or written, depending on the state; option not to continue with the telepsychiatry evaluation is discussed.
- Contextualized history if less familiar with the location (e.g., aware of geographic and cultural specificity for Native Americans).
- Privacy and confidentiality expectations are similar to in-person but be aware of pitfalls with technologies (e.g., cellular phones are not private; Gmail is not HIPAA compliant).

TABLE 4.3 Telepsychiatry (TP) competencies related to patient care, system- and practice-based learning, professionalism, communication, knowledge, and technology

Area/topic	Novice or advanced beginner	Competent/proficient	Expert
	(e.g., advanced medical student, early resident, other trainees)	(e.g., advanced resident/graduating resident/faculty/attending/ interdisciplinary team member)	(e.g., advanced faculty/attending/ interdisciplinary team member)
Patient care			
History-taking	Obtains standard history	Obtains informed consent for telehealth (checks state regulations to see if form needed; discusses option not to perform telepsychiatry encounter) Obtains contextualized history (e.g., is aware of geographic and cultural specificity)	Recognizes potential informed consent problems (e.g., lack of capacity) and seeks collateral information Conducts in-depth, well-paced, and concise interview; adapts interview to patient age
Engagement and interpersonal skills	Establishes therapeutic alliance Builds trust and rapport	Identifies and manages problem(s) with alliance/trust/rapport Adjusts interview to technological and patient needs/preferences Requests devices to augment hearing	Assesses devices for functionality Determines best appropriate assessment adjustments based on the setting (in-person vs. TP) Readily utilizes nursing and/ or ancillary staff or family as historian when relevant

(continued)

Table 4.3 (continued)

Area/topic	Novice or advanced beginner	Competent/proficient	Expert
Assessment and physical examination	Stratifies risk and protective factors based on epidemiology (e.g., suicide, homicide risk) Administers screening tools (e.g., MMSE) remotely[CM] Ascertains need for in-person physical exam (PE)/neurologic exam	Assesses risks for suicide/harm to others Ensures identification of significant exam findings (e.g., movement disorders; intoxication/withdrawal) Examines and administers tools with adjustments (e.g., uses remote site staff to complete or do part of PE/neurologic exam)	Synthesizes information (including risk vs. protective factors and obtains key collateral information) Administers tools contextually (e.g., substitutes score item for non-reproducible task at distance) Teaches staff/others how to do parts of PE/neurologic exam and trouble-shoot PE/neurologic exam problems at the remote end

Management and Treatment Planning	Formulates Biopsychosocial (BPS) outline Participates in providing summary and recommendations Demonstrates medical decision-making on safety, need for treatment, and other interventions Follows up with PCP or TP by documentation	Formulates in-depth BPS outline with attention to medical and behavioral issues Provides summary to patient and family Demonstrates awareness of treatment continuum (levels of care) Follows in-person medication recommendations (i.e., reviews options, side effects, and alternatives if applicable, provides specific instructions for PCP to initiate, titrate, and augment) Formulates plan for calls and prescriptions Follows up with PCP by TP or phone	Formulates BPS outline with prioritization and anticipates barriers to treatment plan implementation Tailors recommendations to available resources for older adults, cultural specificity, and patient preference Engages patient, referring doctor or other providers succinctly Provides succinct summary to interdisciplinary team and other providers Selects "best" mode: e-mail, telephone, or other (and if it changes the process); terminates video if disruptive to patient care For medication recommendations: considers safety and adherence factors; plan for follow-up and monitoring; aware of legal and jurisdictional issues related to prescribing

(continued)

TABLE 4.3 (continued)

Area/topic	Novice or advanced beginner	Competent/proficient	Expert
Documentation	Drafts TP note hard copy or rudimentary Electronic Health Record (EHR)	Generates initial/revised draft for primary or other specialty care with modification for TP consultation Complex EHR (e.g., Cerner, Epic)	Provides sufficient detail to allow implementation of plan over time and within local context/resources Utilizes phone, e-mail, and asynchronous notes
Billing	Learns why billing is important and how it is configured	Identifies diagnoses for billing	Documents final time spent, diagnosis, and codes Considers health advocacy issues related to billing; access to care
Privacy and confidentiality (medico-legal issues[CM])	Learns in-person basic regulations	Is aware of regulations and learns translation of principles to video and adjunct regulations, if applicable Is aware that technologies are encrypted differently	Practices within in-person and telemedicine standards Is aware of pitfalls with technologies (e.g., cellular phones are not private; Gmail is not HIPAA compliant)

Communication[MS-IPSC]

Cultural, diversity, and social determinants of health	Considers diversity of patients, families, and communities: language fluency, customs Considers one's culture, values, behaviors, and preferences[CM] Learns how social determinants affect in-person care[CM]	Adjusts interview based on patient culture and preference Demonstrates language fluency: double checks/confirms Elicits cultural meaning of illness/ wellness Demonstrates awareness of social determinants that may affect interest in, use of, and experience with telepsychiatry	Follows cultural formulation frameworks Ascertains and inquires if culture affects using TP (general exploration) or explanation of illness Considers patient–doctor relationship in context of culture, values, behaviors, and preferences Adjusts interview, assessment, and treatment per social determinants; considers in-person care if critical need
Language/ interpreter ability	Uses the interpreter	Demonstrates time management when using an interpreter and incorporates patient preference (e.g., professional/ medical interpreter > family)	Assesses verbal and non-verbal dimensions during interpreted encounter
Communication	Clearly communi cates with patient, family, and healthcare professionals	Clarifies and amplifies communication	Trouble-shoots communication difficulties

(continued)

Table 4.3 (continued)

Area/topic	Novice or advanced beginner	Competent/proficient	Expert
Systems-based practice[MS-SBP]			
Outreach to community	Participates and engages	Visits community in-person before TP (if applicable) Identifies relevant resources and needs within community	Establishes and maintains relationships with communities Demonstrates thoughtful integration of in-person and TP care, if applicable
Inter-professional[MS-IPSC,CM] education (IPE) and team work	Participates and experiences different roles; works effectively	Works with interprofessional team and demonstrates familiarity with IPE Begins to teach within IPE	Serves as IPE provider and teacher Supports interdisciplinary team care (e.g., care coordinators—MA—RN—PA/PCP/NP—therapists)
Collaborative primary care	Considers consultation from perspective of referring provider's perspectives/needs	Understands the referring provider's needs and adapts consult and note appropriately	Engages providers with unclear needs Uses individual consult as an opportunity for building ongoing relationship Integrates indirect care (e.g., case or chart review) into practice

Rural health	Demonstrates knowledge of rural health basics	Learns about rural access, epidemiology, finances, and other	Practices and serves as role model
Special populations	Demonstrates knowledge of differences among special populations (e.g., veterans/ community-dwelling/ institutionalized elderly)	Recognizes differences and adapts assessment and management approaches accordingly	Practices and serves as role model
Safety	Demonstrates knowledge of systematic assessment	Identifies problems and stratifies risk	Adjusts risk and its management to TP system practice
Care models	Demonstrates knowledge of in-person, TP care, and consulting TP care are	Demonstrates facility with traditional referral to psychiatry, consultation care, and TP Begins to demonstrate understanding of collaborative care	Demonstrates facility with models of consultation, integrated, stepped, and hybrid care Demonstrates flexibility to structure practices style with context

(continued)

TABLE 4.3 (continued)

Area/topic	Novice or advanced beginner	Competent/proficient	Expert
Licensure regulations as applied to telemedicine care model (medico-legal issues[CM])	Demonstrates knowledge of in-person regulations and differences between states	Demonstrates awareness of similarities/differences between in-person and telemedicine regulations	Practices within telemedicine regulations either from state-to-state or within unique systems (e.g., veterans affairs)
Evaluation	Understands patient satisfaction	Demonstrates knowledge of basic evaluation strategies for TP outcomes	Considers range of evaluation approaches and uses results for QI or to inform practice
Health advocacy	Identifies issues related to access and health equity	Considers how technology can address and also contribute to health equity gaps	Considers ways that the physician role can impact policy and advocacy through technology
Professionalism[MS-P]			
Attitude	Demonstrates receptiveness to using technology	Engages within interprofessional clinical practice and teaching/learning	Demonstrates leadership in groups/teams
Integrity and ethical behavior	Demonstrates behavior consistent with	Serves as role model	Serves as role model and gives feedback

Scope	Becomes aware of scope issues of in-person, TP care, and TP consultation	Practices within scope(s)	Provides feedback on scope and boundary issues; trouble-shoots problems
Practice-based learning[MS-PrBLI]			
Administration	Demonstrates knowledge of basics of in-person care	Demonstrates awareness that in-person and telepsychiatric care have differences	Practices with adjustments and customization to telepsychiatric care
QI	Learns how to participate in QI	Applies QI information to cases and system	Analyzes QI options, selects, and evaluates
Teaching and learning	Participates and contributes	Organizes and furthers	Provides context and next steps
Knowledge			
	Covers relevance and history	Covers relevance, history, and evidence-based	Covers history, evidence-based, and incorporates clinical guidelines

(continued)

TABLE 4.3 (continued)

Area/topic	Novice or advanced beginner	Competent/proficient	Expert
Technology			
Adapt to technology	Identifies differences between TP and in-person care Tries to project 15% more (voice/animation) Recognizes non-verbal limitations (e.g., offering a tissue, handshake)	Takes steps to actively engage and put patient at ease Expects and plans for differences in ease of establishing rapport Identifies barriers and implements replacement behavior Considers incorporating third party by phone	Uses humor to actively engage and put patient at ease with TP encounter Analyzes outcome of each visit and customizes adjustments for subsequent TP encounters Demonstrates ways to express empathy
Remote site design	Acts as observer	Identifies remote site layout problems and possible solutions to optimize viewing Modification: hearing aid/amplification devices	Demonstrates pre-visit planning and continuous, iterative improvement Modification: assesses if non-sensory barriers exist (e.g., room layout)

Technology operation[CM]	Demonstrates familiarity with microphone, camera, and prn 2nd camera Observes how multiple technologies (e.g., primary and secondary camera) are used simultaneously	Operates hardware, software, and accessories Performs basic trouble-shooting (e.g., re-boot system; call for assistance) Operates use of multiple technologies	Optimizes hardware, software, and accessories based on context (for enhancement and avoiding distraction) Manages all trouble-shooting operations on near end and advice on far end prn Optimizes use of multiple technologies

Abbreviations: *TP* Telepsychiatry, *CM* based on submission for CanMEDS TP competencies, *MS* US Milestones; consistent with non-TP, regular competencies of the Accreditation Council of Graduate Medical Education (ACGME) (*PC* patient care, *K* medical knowledge, *PrBLI* practice-based learning and improvement, *SBP* systems-based practice, *P* professionalism, *IPSC* interpersonal skills and communication, *MS-PC* milestones patient care), *PE* physical examination, *PCP* primary care provider, *QI* quality improvement

- Language/interpreter ability is more of an issue with telepsychiatry, as inputting a professional (rather than a convenient family member) is easier [53].
- Adapting to the technology involves several dimensions: project self 15% more (voice/animation) and use replacement behaviors for offering a tissue or shaking hands on greeting.
- Familiarity with microphone, camera and when needed, a 2nd camera is helpful. Pursuant to the technical skill level of the clinician further optimization of hardware, software, and accessories may be based on context (rather than depending on technical assistance or coordinators). Far end control of cameras and equipment minimizes dependence on remote site patient and staff.
- A geriatric patient evaluation by telepsychiatry could further include a spouse, an adult child, or caregiver who participates in the evaluation in-person or via telephone.

4.4.3 Teaching and Supervision

The following case example illustrates a competency-based approach to training learners in geriatric telepsychiatry.

John Smith, a 71-year-old widowed man, lives with his daughter and son-in-law in the rural Southwest. Mr. Smith's daughter asked his primary care physician (PCP) for a psychiatry referral because she was concerned that Mr. Smith had expressed suicidal thoughts. Given the limited access to mental health services in their region, Mr. Smith's PCP sought geriatric telepsychiatry services provided via the affiliated regional medical center. More recently Mr. Smith has withdrawn socially and spends much of his time in his room. His daughter notes he has not participated in family activities, and has told family members he is a "burden to everyone" and that they would be "better off without him." During the telepsychiatry evaluation, Mr. Smith is in a room alone, wearing a hat that obscures his face from view, and avoids looking directly at the monitor.

Questions to facilitate the teaching of competencies before starting or early on:

1. What is the referral source asking the telepsychiatrist to do? What is needed? What might they need from the telepsychiatrist that they are not aware of?
2. What protocols need to be established before the telepsychiatry assessment, given that the patient might present with acute safety risks at the time of the assessment? Who will need to be informed/engaged at that time? What legal mechanisms are needed to ensure the patient's safety? What local resources/services are available in the event of acute safety issues?
3. What can be done to engage him, given that he may be a somewhat reluctant participant?
4. What can the telepsychiatrist do to improve his/her ability to see the patient on screen?

At the mid-point, Mr. Smith has warmed to the encounter, having taken his hat off, is looking more directly into the camera, and answering questions more readily. He said that he began feeling down 3 years prior, shortly after the death of his wife, following which he moved in with his daughter and son-in-law for financial reasons. He endorsed most symptoms of depression, but specifically denied ever thinking about suicide.

Questions further into the clinical assessment might include:

1. What can the telepsychiatrist do further to assess Mr. Smith's suicide risk? Competencies relate to patient care (assessment and physical examination) and systems-based practice (safety).
2. In what ways does Mr. Smith's cultural background affect: The assessment of his suicidal risk? The assessment of his mental status? The assessment of issues in his personal history that relate to why he has developed depression? What can be done to incorporate this understanding of diversity into the assessment? Competences relate to systems-based practice (special populations) and communication (cultural, diversity, and social determinants of health).

4.4.4 Geriatric Telepsychiatry Specifics

A good geriatric mental health history not only includes the patient's point-of-view, but also collateral information from all other stakeholders and medical providers—largely dependent on where the patient generally resides and is cared for (e.g., home, family and caregiver, nursing home, staff, and others). Cognition, pain severity, physical/other limitations, and environmental factors that may affect assessment are important to understand. Screening of geriatric patients via self-report questionnaires or clinician rated instruments is virtually the same as for in-person assessments, e.g., Patient Health Questionnaire—9 items, Geriatric Depression Scale—30 items [54, 55].

As part of providing telepsychiatry training, the logistics of conducting a geriatric psychiatry evaluation via telepsychiatry should be covered. There are some important additional items to keep in mind when using telepsychiatry with older adults, including:

- Pre-visit event summary: An accounting of general events and the patient's attitude, comments, complaints, sources of information, and clinician observations (e.g., olfactory/vision/hearing limitations, gait/balance problems, other) need to be communicated before the patient enters the room.
- The clinical examination, in general: this may require staff assistance (often a nurse facilitator) to complete, particularly if a patient is delirious, combative, or agitated, has a low level of formal education, or suffers from aphasia, poor hearing, or vision impairment.
- Cognitive examination: may require item substitution if clock drawing or sentence writing cannot be uploaded to see or held visually in the camera; again staff are better in assisting here so as to not answer questions for the patient.
- Physical examination: camera control at the far end enables easy wide angle, close-up, and focused viewing to detect tremors, micrographia, and other abnormalities but

staff may need to be trained to check for extrapyramidal side effects (EPS) like cogwheel rigidity.

- Encouraging family member(s) to attend in general and when there is significant cognitive impairment can promote patient acceptance. Families are very welcoming of telepsychiatry interventions and are grateful for the extra time and effort put forth to facilitate a telepsychiatry encounter [36].
- It is recommended that most or all telepsychiatry encounters for nursing home residents or elders in similar environments include a member of the social work staff to give input on family of origin, family dynamics, and past family and social history [36].

4.5 Geriatric Telepsychiatry Program Options: Potential Prototypes for Academic Engagement

Example 1.

Resident and fellow learners may be incorporated into existing academic geriatric telepsychiatry programs and/or gain clinical experience in geriatric telepsychiatry through community psychiatry rotations. One such experience offered at the University of South Carolina School of Medicine is a geriatric telepsychiatry consultative evaluation model wherein consultations are provided to a rural PACE (Program for All-Inclusive Care of the Elderly). In this model, residents and fellows review records from the requesting facility, obtain a clinical history from patients and collaterals (family members, PACE staff including nursing and social work, and referring PCP), conduct psychiatric evaluations of geriatric patients, review laboratory and neuroimaging results via real-time access to the remote facility's electronic medical record, and formulate diagnostic impressions followed by development of a clinical plan of care, all under the supervision of geriatric psychiatry faculty.

Example 2.

Geriatric telepsychiatry services can combine low and high intensity models. The following clinical vignette is an example highlighting teaching aspects to clinical telepsychiatry care. The telepsychiatric competencies that are pertinent are patient care (PC), interpersonal skills and communication (IPSC), practice-based learning (PBL), system-based practice (SBP) and, although not an official ACGME competency per se, technology (T). The vignette below highlights two particular dimensions: (1) Days 1 and 3 show the consultation role to the PCP—a SBP competency and (2) Day 30 is the assessment of the patient (the other competencies mentioned above).

Day 0, A PCP called a hospital from a skilled nursing facility about a 71-year-old Caucasian woman, with depression, dyslipidemia, and new onset psychosis (i.e., auditory and visual hallucinations). Current medications were venlafaxine extended release (ER) 75 mg in the morning and temazepam 15 mg at bedtime.

The PCP was considering a psychiatric admission. An alternative would be taking the patient by ambulance to a facility nearby that had a synchronous telepsychiatry unit, but there would be a one-month delay for an opening in the schedule. There were no local psychiatrists in the city of 25,000 and the nearest in-person option was 2 h away but with a greater delay in appointment time.

Day 1, Telephone consultation with an academic telepsychiatrist. The telepsychiatrist and general psychiatry resident received the consultation request. The psychiatry resident obtained preliminary information from the PCP who was unaware of any recent acute medical problems. The resident pursued inquiry to establish a differential diagnosis. While the PCP was initially unsure of the potential for bipolar disorder, not having considered or inquired about it; he did not recall severe persisting insomnia and mood swings. After case discussion with the supervising attending telepsychiatrist, a preliminary treatment plan was developed, entailing the following:

1. Continue venlafaxine
2. Replace temazepam with olanzapine (Zyprexa Zydis) 5 mg HS

3. Hold off on the psychiatric admission (it was unclear if beds were available)
4. Exclude medical etiologies by work-up (e.g., a metabolic panel, Complete Blood Count (CBC), Thyroid Stimulating Hormone (TSH) level, Vitamin B12 level, and Rapid Plasma Reagin (RPR))
5. Schedule a follow-up appointment in the PCP's office within the week.

Day 3, PCP office: The PCP noted that there were no waxing and waning mental status changes. The patient and his wife denied racing thoughts, restlessness, decreased need for sleep, and impulsivity such as spending sprees associated with mood elevations of a week's duration. The auditory hallucinations were diminished, but the depression, ruminations, and hopelessness persisted in the absence of suicidal ideation. Initial laboratory work-up was unremarkable. A 5-minute reconsultation by phone to the telepsychiatrist and psychiatry resident led to the following recommendations:

1. Raising the venlafaxine extended release dose to 150 mg
2. Continuing the olanzapine, and/or
3. Follow-up telepsychiatry visit in 2 weeks for a consultative evaluation.

It was recommended that a nurse from the PCP's office be present during the telepsychiatry consultation.

Day 30, Telepsychiatry 60-minute evaluation: At this time, the telepsychiatrist and the resident who was still on service saw the patient. The resident obtained an interim clinical history as well as past psychiatric histories. The patient was about "two-thirds" better in terms of his mood, but he was still not "back to normal" and his enjoyment, drive, and energy remained low; the latter had not changed with olanzapine. The resident directed the PCP's nurse to perform an AIMS evaluation during the consultation visit to assess extrapyramidal symptoms as a side effect of olanzapine, and observed this assessment being performed. Consultation suggestions included:

1. Raise the venlafaxine to 225 mg; or
2. Add bupropion sustained release 150 mg in the morning for residual depressive symptoms
3. Continue olanzapine.

Analysis: The telephone consultation prevented an unnecessary medical or psychiatric hospitalization, used a low intensity intervention, and helped the PCP increase self-efficacy in decision-making (e.g., prescribing antipsychotic medications). The PCP gained trust in the consultant and that type of relationship. Models of telepsychiatry care may be combined with models of in-person care to forge intensity of care interventions, based on technology complexity, specialist time, and service delivery model care [56, 57, 69, 70].

Example 3. Telepsychiatry utility for collaborative, stepped and integrated care.

Academic health centers are uniquely positioned to use the consultation care model to primary care or nursing homes, as one end of a continuum of increasing access and providing case-based PCP education and technical assistance to PCPs (e.g., prescribing medication). Videoconferencing, secure e-mail, and telephone interventions have been used to link psychiatric specialists at academic health centers with rural underserved areas [58]. Indeed, provider knowledge, skills, and complexity of questions improve over time [59], particularly in rural PCPs [60].

More robust models are disease management for depression by telepsychiatry [61], collaborative care for Post-Traumatic Stress Disorder (PTSD) and depression [62, 63], and potentially stepped care [18]. In the disease management study, geriatric patients stayed enrolled longer than another demographic group—this discounts the presumption that older patients may not like to use technology. Integrated care models are increasingly being adopted [18, 62] and competencies have been spelled out for residents and the psychiatric consultant for integrated care [64–66]. These focused on knowledge, individualized treatment plans mental and medical illness, oral/written communication, training/supervision, collaboration, and leadership within clinical teams [66].

4.6 Conclusions

Psychiatry training programs, trainees, faculty, and patients have the potential to benefit greatly from implementation of an effective and appropriately designed telepsychiatry curriculum. Not all institutions currently have infrastructure to be able to implement such programs, but the extant literature suggests that there is a large interest in gaining exposure to telepsychiatry particularly among trainees [15, 16]. Creation of a new telepsychiatry program should focus on providing quality care and assuring sustainability [47]. Whether a telepsychiatry program is being established with the plan for trainee involvement or residents are incorporated into an existing opportunity, there are several facets to consider. For the residency training program, striking a balance between obligations for service and education can be difficult at times. Finding a way for the resident to maintain autonomy and be an active provider in the patient's care as well as receive support in the form of medical information, technology support, and case discussion may be a way to begin balancing clinical and educational demands [21]. Providing necessary support for residents to be able to deliver excellent evidence-based patient care via telepsychiatry is an important part of curriculum development [19]. Currently, most of the literature focuses on telepsychiatry program evaluations based on resident experience or satisfaction, and not on the learning needs of the resident [19]. In the future it would be beneficial to fortify this volume of information by including other outcomes or effects of resident training in telepsychiatry. Based on recent publications, there is an additional need to expand literature regarding specific objectives and competencies for telepsychiatry, particularly in geriatric patient care settings [19, 23]. These possibilities make it an exciting time to be a psychiatrist!

Key Points

1. A psychiatry resident or geriatric fellow involved in providing direct patient care with telepsychiatry can be evalu-

ated on all of the ACGME core competencies, and many of the milestones.
2. Possible benefits to the resident from participation in a telepsychiatry curriculum:
   - Exposure to unique systems of care and patient populations
   - Exposure to additional teaching faculty
   - Learn unique ethical and medico-legal issues related to telepsychiatry
   - Opportunity to work within a treatment team and collaborate in care
   - Enhanced telepsychiatry and technical skills
3. Data suggests the existence of a gap between resident interest in telepsychiatry and exposure to telepsychiatry in training.
4. Residents may be more likely to participate in telepsychiatry as a part of their career, if they have clinical experience during residency training.
5. Residents have provided positive feedback regarding their participation in existing telepsychiatry curricula.

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Chapter 5
Administration of New Telepsychiatry Programs in Public Psychiatry and Applications in Geriatrics

Mridul Mazumder and Brenda Ratliff

5.1 Introduction

Older adults (especially those living in rural areas) face challenges in accessing health care that can include transportation, financial difficulty, and provider shortages. Seventy percent of older adults with anxiety and depression do not seek care. Barriers to care include the following [1]:

1. Practical reasons
    a. Cost (58.4%)
    b. Don't know where to go (49.6%).

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M. Mazumder, MD (✉)
Department of Behavioral Health, Tallahassee Memorial Hospital, Tallahassee, FL, USA
e-mail: Mridul.mazumder@tmh.org

B. Ratliff, MD
Aiken Barnwell Mental Health Center, Aiken, SC, USA
e-mail: Brenda.ratliff@scdmh.org

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2. Personal beliefs
    a. Should not need help (80%)
    b. Mistrust of mental health providers (41.9%).
3. Stigma
    a. Embarrassed to talk about the problem (39.8%)
    b. What will others think (39.8%).

The physical and mental health of patients suffers when these barriers are not circumvented. Unnecessary hospitalizations, increased mortality and morbidity, and reduced quality of life are the likely outcomes [2]. Furthermore, communication issues and limited collateral information can result in suboptimal outcomes whether in person or by telemedicine.

Telemedicine is rapidly growing as a vehicle to provide clinical services. The number of telemedicine programs in the USA grew over 200% between 1995 and 2005, increasing from 50 to 116 programs [3]. The first step in implementing a geriatric telepsychiatry program is conducting a needs assessment to determine the specific clinical needs of the community, and then develop mission statements/goals for the project. Providers and administrators should be comfortable describing the scope of the program and specifically how telepsychiatry will be incorporated into existing service delivery systems. Brief presentations to clinicians and organizations who will interact with the proposed telepsychiatry program can aid in providing a clear description of the role this technological initiative will play in the community in addressing the mental healthcare needs of older adults [4]. Engagement of healthcare providers and potential referral sources can help build momentum and excitement regarding the possibilities of a new telepsychiatry service. From a patient perspective, it is important to identify the appropriateness of patients for videoconferencing applications, which can minimize patient, families, and provider frustration. Poor experiences increase reluctance for future telepsychiatric care [5].

5.1.1 Establishing a New Telepsychiatry Service

Several factors must be considered when developing a new geriatric telepsychiatry service. These include:

- Funding
- Certification
- Staffing

These specific areas are examined in more detail below.

5.1.1.1 Funding

Prior to the implementation of any clinical service, funding must be secured. Model telepsychiatry programs in the USA are funded by a variety of sources. In the public psychiatry sector, some examples include the Burke Center Mental Health Emergency Center (MHEC) in rural eastern Texas, an emergency telepsychiatry program funded by a combination of state funds, local matching funds from regional hospitals, and other sources [19]. Another is the South Carolina Department of Mental Health (SCDMH) Telepsychiatry Consultation Program, which commenced in 2009 with initial funding from the Duke Endowment [6].

Federal grants are another potential funding source . A description of the planned service and expected outcomes must be prepared. Answers to the following questions will be a large part of the funding request and will define the project:

1. Will this be a new freestanding program, a new service within an existing outpatient program or a new service in a hospital, nursing home, rehabilitation, or residential facility?
2. Who will comprise the population to be served (community-dwelling elderly vs. institutionalized)?
3. What specific services will be offered (consultative evaluations vs. longitudinal management)?
4. Where will the providers be located?

5. Where will patients receiving the services be located?
6. What specific outcomes will be used to measure success?
7. Will the services being provided be billed?

5.1.1.2 Certification

Adding a new service to an existing facility such as an outpatient clinic, rehabilitation facility, hospital, or nursing home requires written policies/guidelines specific to the new services. Policies already in existence may require revision to ensure there are no conflicts. New policies should not only address issues related to clinical services, but also how service delivery and technology will interface. Health Insurance Portability and Accountability Act (HIPAA) compliance, patient confidentiality, encryption, and informed consent are examples of aspects of telepsychiatric care that require specific policies that may differ from those used for face-to-face care. In developing these new guidelines, some areas to address will be evident early on while others surface as implementation occurs including equipment selection, information technology (IT) services, electronic medical record (EMR) availability, and service delivery site requirements. Allowing flexibility for future modifications can prevent these new policies from limiting necessary changes as the program matures.

Certifying agencies can provide some insight in developing program policies and guidelines. Two certifying agencies are The Joint Commission and the Commission on Accreditation of Rehabilitation Facilities (CARF). The Joint Commission is an independent non-profit organization that accredits healthcare organizations by providing specific standards that must be met in order to obtain certification [7]. CARF is another independent non-profit organization that accredits entities providing human services including aging services, behavioral health, and medical rehabilitation [8]. Both of these certifying organizations provide guides that can be used in the process of developing administrative policies for a new telepsychiatry program.

For freestanding projects, the federal and state government guidelines must be followed to ensure compliance with HIPPA and other laws [9]. After these requirements are met, decisions must be made regarding whether certification will be sought and if so, which certifying entity will be used. Familiarity with the requirements of the selected certifying entity is essential from program inception. If the decision is made not to seek certification initially, it may be helpful still to use guidelines from a certifying entity to facilitate implementation. Certification status may affect whether services are billable to third party payers thereby significantly influencing viability of new programs.

5.1.1.3 Staffing

Staffing needs require administrative forethought and oversight. Provision of trained staff represents a significant amount of initial and on-going cost of providing telepsychiatric care. Staffing cost can vary by level of training, relative amount of patient contact time by highly trained staff versus other support staff, and the telepsychiatry model employed. In 2012, Butler and Yellowlees compared cost of asynchronous versus synchronous telepsychiatric care and found staff marginal cost of US$68.18 and $107.50, respectively [10]. Outlining program function and determination of staffing needs helps not only with managing the budget but reduces service delivery frustration that may occur if one area is over-staffed and another under-staffed. The following are staffing positions essential to successful delivery of geriatric telepsychiatry services.

Program Director

An experienced program director is vital. The role of director includes setting timelines, developing organizational and work flow guidelines, and spearheading staffing requirements. A hiring plan should be developed early including identifying necessary staffing needs by job title, advertising, interviewing, salary offers, and hiring schedules. Staffing

qualities important in providing telepsychiatric care include openness to new methods of service delivery; desire to learn new skills, and attitudes regarding the effectiveness and quality of care that can be provided remotely. Once the program is operational, a director is necessary for typical duties such as hiring, training and supervising staff, managing the budget, ensuring that data needed for outcome measures are generated and maintaining adherence to program policies. These program director duties occur in the context of rapidly changing technology, requiring an effective director to support the staff and keep the program competitive.

Clinical Staff

Clinical staff may include the psychiatrist, psychotherapist, or nurse. Providing care remotely may require more time than the same service delivered in person. Butler and Yellowlees found that telepsychiatric care took 94–110 min of total staff (psychiatrist and other support staff) time versus 80 min for in-person care [10]. The Mental Health Emergency Care-Rural Access Program in Australia investigated the time efficiency of providing remote care and found mean time for telephone triage along with video assessment was 126 min, with 47 min spent in clinical care [11]. Assessment of older adults may require more time due to sensory or cognitive impairments that necessitate additional time to interview collateral informants. Allowing extra time for patient evaluations, especially at program inception, allows staff and patients alike to become familiar with new technologies and procedures.

Support Staff

Support staff including social workers, case managers, and others in administrative roles are important irrespective of the setting of care. For facilities already in operation, sharing telepsychiatry positions with employees providing in-person care may be feasible. However, careful consideration of duties and time constraints is necessary in order to allot

adequate time to the telepsychiatry program. Inclusion of support staff in planning meetings and technical training will facilitate knowledge about telepsychiatry and the concept of remote service delivery. As support staff are often at the frontline of initial patient encounters, it is important that they are knowledgeable and comfortable communicating with patients and families regarding telehealth service provision.

Transport and Other Staff

Additional personnel may be required to provide remote care to geriatric patients or those in facilities such as rehabilitation or long-term care facilities. Staff may be required to transport the patient or to assist the patient to an appropriate visual position for the telepsychiatric evaluation. Patients must be positioned to be able to best see and hear the service provider on a monitor. When care is provided to patients in facilities, roommates if present, may need to be moved to another location to ensure confidentiality. Patient transportation requires additional support staff. Geriatric patients may have vision or hearing impairments that may further increase staffing needs to ensure successful clinical encounters.

Information Technology and Electronic Medical Record Support

IT and EMR support dedicated to the telepsychiatry program are essential. If telepsychiatry is being added to a facility where IT and EMR personnel are already in place and additional staff will not be hired, having a small number of technicians assigned specifically to the telepsychiatry program will facilitate resolution of technical issues unique to the program. Prompt availability of technicians is critical to address technical difficulties during the clinical encounter that if not addressed, may require additional staffing time to set the patient up for services later. For example, a patient in a long-term care facility may have to be moved back to his/her room then transported back at a later time if technical difficulties are not able to be resolved quickly. This requires

additional transport staff and may be disruptive to patients leading to increased agitation or pain in debilitated patients. If clinical services are available after regular business hours, IT and EMR coverage must be arranged. Decisions as to whether the parent agency maintains IT and EMR staff in the building around the clock or if technicians will be on call for issues that arise after-hours must be considered. If on-call, factors such as time to respond, working from home to identify/address problems, and reimbursement for on-call coverage must be delineated.

Most staffing positions will require training prior to program implementation to include general training about telepsychiatry, technology, program policies, safety, and confidentiality. Technology allows staff to be located in individual work areas located some distance away from each other and from where the service is being delivered to a patient. Mental health providers are generally used to working within a treatment team framework. Telepsychiatry can be isolating, causing a sense of detachment from the program as a whole. One way to combat this is to foster staff engagement via joint meetings and trainings. Encouraging staff to communicate and consult with each other using the technology at hand, setting up meetings that allow employees to attend from multiple locations interacting with each other in real time, and arranging interdisciplinary treatment teams can be useful techniques [12].

5.1.2 Logistics of New Geriatric Telepsychiatry Programming: Technologic and Other Considerations

Beginning in the 1950s, pioneering work in telepsychiatry began at Nebraska's Psychiatric Institute [13]. Subsequent to their work, other thoughtful implementations helped to expand access to patients of all ages and backgrounds. While technology can broaden access and improve efficiency, it cannot compensate for all obstacles public psychiatry patients

face including affordability, compliance, and availability of the support system to implement a treatment plan.

The following technical factors should be considered when implementing a telepsychiatry service in public settings:

5.1.2.1 Hardware

There are a range of offerings, and thought in selecting platforms with compatibility, ease of use, reliability, availability of vendor/other support, and cost are among the metrics for consideration. IBM, Cisco, iRobot, and other companies are vying for market share of an industry projected to be US$30 billion dollar plus by 2020 [14]. SCDMH's telepsychiatry program funded by The Duke Endowment (TDE) has standardized connections between the remote providers and the emergency departments with equipment from Polycom [22]. Minimizing the variety of equipment (each usually has its own interface and control schema) lessens learning time enhancing ease of utilization significantly for users and support staff.

5.1.2.2 Reliable Data Connections

Poor connection quality and delays can add to the frustrations of patients, especially those in crisis, and this can decrease willingness towards telepsychiatric use in the future [5]. Dedicated connections can offer stable bandwidth versus other connection offerings when traffic volume is high. Furthermore, guaranteed bandwidth escapes the penchant of providers throttling connections thereby reducing call dropouts or disruptions in quality that can distract both provider and patient, compromise rapport, and interrupt interview flow. High quality connections allow providers to visualize subtle movements (e.g., extrapyramidal symptoms) or lesions on the skin (e.g., evidence of self-injury).

5.1.2.3 Security

Although firewalls and direct (non-internet) connections can be part of excellent first line security measures, they are not invulnerable. In general, vigilance towards privacy, encryption, network monitoring, and other precautions are paramount in protecting consumers. HIPAA compliance, federal, and state based regulations are among the security and integrity standards, which can help guide implementation.

In some cases, mental health visits and records are treated with security beyond that employed for other health care encounters. For example, not all health care staff can access psychiatric documents in the electronic medical record, especially due to the sensitive material comprising psychiatric interviews. Advanced Encryption Standard (AES) is an NIST (National Institutes of Standards and Technology) encryption cipher and H323 is a standard that addresses the control and connection of video sessions. H323 allows for standardization of information flow and control through different types of packet networks [22].

5.1.2.4 Resources and Protocol for Emergencies

Examples of emergency protocols include a process for involuntary commitment and/or duty to warn or protect. These may include mobilizing onsite staff at the patient's location and/or incorporating family members for emergency plans. A program may handle this situation by placing the onus on the emergency department (ED) to arrange for these, maintaining the telepsychiatry service in a classic consultation role. Often the ED physician, case manager, nurse, or other staff will complete commitment papers and if indicated contact or warn other parties. Part of the evaluation may consist of asking the patient if family can be contacted to collect collateral information and/or help establish a safety plan. Other situations, such as providing services to patients in their homes or in facilities without established emergency protocols, may be

important areas to address during the planning process prior to implementation.

5.1.2.5 Support Staff

Persons familiar with videoconferencing equipment set up, establishing the proper connection, troubleshooting equipment, and calling network providers to maintain appropriate upgrade of service are necessary. Staff, both onsite and remote, should be familiar with equipment operation, as well as when to contact telecom service providers. Technological issues can compromise patient care, as well as frustrate the psychiatrist and the emergency department staff. In some rural settings, these telepsychiatry services may not be regularly used. This can lead to training problems in having staff from the various shifts trained to set up the equipment. Subsequently, there could be reduced productivity and patient contact time as the provider is guiding someone on equipment use rather than seeing patients. One potential way to address staff training is to employ the videoconferencing equipment for training purposes.

5.1.2.6 Documentation of Services

Many healthcare organizations now operate with an electronic medical record. When adding on telepsychiatry services, required elements of documentation must be established then reviewed against the existing EMR to determine if modifications are required. For example, documentation for every service should identify that the service was provided via telemedicine and indicate that the patient provided informed consent specific to the service delivery method. Information for informed consent may be provided by the clinician or by administrative staff. Some geriatric patients may not be able to consent and mechanisms to address this issue should be discussed with legal advisors in formulating informed consent policies. In many situations, verbal consent by either the patient or the power of attorney/family member

may be sufficient. When remote services are provided on an on-going basis such as a geriatric psychiatry outpatient program, a written consent may be obtained at the first encounter [15]. The EMR should contain elements that allow for time efficient documentation of these aspects of the patient encounter.

Local IT support and equipment provider support are imperative to troubleshoot technical issues. Existing facilities may have plans in place on how to handle documentation when EMR is unavailable. However, these may not meet the needs of a telepsychiatry program, which relies more heavily on technology. Careful review of contingency plans for documentation when EMR is unavailable will allow for development of alternative means of documentation that is applicable to a telepsychiatry program. One option is to have paper forms similar to the EMR that can be completed, signed, dated, timed, and then faxed to the remote location awaiting psychiatric recommendations.

5.1.2.7 Consent

Providers should be aware of proper informed consent and differences between traditional face-to-face versus via telemental health. There are several approaches towards informed consent. These include giving patients the choice of non-participation, addressing doctor–patient confidentiality, and assuring the session will not be recorded and will be carried over secure communications connections.

5.1.2.8 Staff Privileges

Addition of telepsychiatry care to an existing institution will require establishment of criteria for privileges in telepsychiatry. Each proposed service to be provided remotely will require clear descriptions of the services and locations to which services will be rendered. Psychiatrists that provide care to patients in multiple remote sites are required to have privileges at each site where the patient is located. An alter-

native is privileging by proxy, an option that allows the psychiatrist to be credentialed at multiple remote sites if appropriate privileges are granted by the organization in which the telepsychiatry service originates [16]. Familiarization with the process of adding new privileges can expedite the implementation process.

5.1.2.9 Peer Review and Professional Practice Reporting

Certified healthcare organizations may be required by the certifying entity to undergo professional practice evaluation and reporting [7]. This typically incorporates peer review, which serves to monitor clinical performance. Decisions to be made related to implementing a peer review program include:

- Who will develop/set questions for a tool by which records will be peer reviewed?
- Will peer review contain both clinical questions and questions related to telepsychiatry?
- Will existing tools be appropriate for use by a telepsychiatry service?
- How often will peer review be conducted?
- Who will conduct the peer review—someone of similar training or another professional?
- What kind of relationship will the reviewer have with the telepsychiatry program?
- How will records for review be selected?
- What is the allowable threshold for number of charts not meeting predetermined standards?
- What is the remediation process for clinician not meeting predetermined standards?
- Who is responsible for ensuring that peer review is conducted according to program guidelines?
- Who can access peer review results?
- Who reviews results of the peer review and completes practice evaluation forms?

Attention to these aspects of peer review and professional practice reporting can aid in retaining certification. Peer

review can also serve to ensure that older adults are receiving quality care remotely that meets similar standards as in-person care.

5.1.2.10 Tracking

Satisfaction Surveys

Many programs examine the satisfaction levels of those who are served and those who interface with the program to identify potential issues and growth areas. There are several groups with differing exposure to a telepsychiatry program, and each can provide unique perspectives in evaluating the program. Table 5.1 summarizes sample survey questions that can be posed to staff that interface with a telepsychiatry program.

Patient satisfaction can be difficult to obtain. Patients who are involuntarily committed to an inpatient facility due to safety concerns may report low satisfaction. Patients with

Table 5.1 Sample satisfaction survey questions

Role	Sample survey questions
Referring physicians	1. Was your consultation question adequately addressed? 2. Were treatment recommendations clear? 3. Were interactions with remote staff positive and efficient?
Technical staff	1. Was adequate time allotted for equipment setup? 2. Was the set up process complicated or confusing? 3. Was IT support readily available?
Administrative staff	1. Were interactions with remote providers pleasant? 2. Were responsibilities clearly identified? 3. Were administrative steps for requesting consultations and receiving recommendations efficient?

neurocognitive disorders, delirium, agitation, or psychosis may not be able to appropriately answer satisfaction survey questions. Furthermore, surveying only those patients who are cognitively intact enough to understand the service and those who willingly accept treatment recommendations skews results. One alternative is to have nursing staff answer questions such as whether the patient displayed understanding of the remote nature of the evaluation, interacted adequately with the provider, and demonstrated understanding of recommendations [17].

5.1.2.11 Other Factors

These include environmental and patient-specific factors. Environmental factors include ambient lighting, noise, session privacy, and room set up. Patient-specific factors such as vision or hearing impairment may affect suitability for telepsychiatry based evaluation and management. In emergencies, glasses and/or hearing aids may not accompany the patient. To compensate, increased volume on the equipment's speakers can exceed the typical sound attenuation (materials like walls/doors and the distance between other patients) of the evaluation area. These factors can compromise privacy. Emergency departments also often have very high levels of background noise, which can further obscure communication. When the vision-impaired patient cannot see the provider well, they may also lose non-verbal communication such as gestures (e.g., nods) facilitating continued discussion or rapport building. This may also make verbal communication more difficult as the provider's lips cannot be read. In such circumstances, enhanced efforts on the part of the telepsychiatrist to clarify and encourage verbal response to questions may be necessary to compensate for these barriers.

Program Outcomes

Various outcome measures can be gathered to assess the success of a geriatric telepsychiatry program. These may include:

- Number of patient encounters by a provider over a given time period
- Time from consultation request to patient evaluation
- Number of patient transfers to higher level of care pre- and post-implementation of telepsychiatry services.

Outcome measure data can be easily accessible and gathered from the EMR. Statisticians then analyze and generate outcome reports that can inform future directions of the program.

5.2 Ethical Considerations

Sabin and Skimming identified the following challenges to telepsychiatry services, particularly from an ethical perspective [23].

1. Providing competent, safe care
2. Ensuring informed consent
3. Promoting privacy and confidentiality
4. Managing boundaries
5. Encouraging continuity of care
6. Addressing health equity.

No matter how robust the technology, patient encounters and resulting outcomes require well-trained and diligent providers.

As there are varieties of mental illnesses faced by the elderly, as well as different settings and levels of care, so there are numerous opportunities for implementation and intervention via conventional, telemedicine, or combinations thereof. Yellowlees mentions the only contraindications from the patient's perspective are "a refusal to take part, or current actual physical violence towards the self or others" [18]. There are some varieties of psychotic symptoms including referential thinking, which may limit or perhaps even make videoconferencing counter-therapeutic. Patients reluctant to engage in face-to-face encounters may refuse telepsychiatric

assessment. An example is a patient on a psychiatric unit who was chronically concerned that she was being filmed. This inpatient refused to appear before a camera and feared there were hidden cameras continuously surveilling her actions. She required in-person assessment for these reasons.

Occasionally individuals express chagrin at not having face-to-face encounters; however, some may later become cooperative and allow evaluation when it is explained that they may not be able to leave the emergency department without an interview. Other patients view telepsychiatry from a more positive perspective. Apart from timesavings, increased access, and many benefits addressed elsewhere in this book, there are additional advantages. As noted by Yellowlees, during telepsychiatry connections, patients "feel more in control during video consultations, and can, if they wish, literally switch off the doctor at their end and leave the consultation without any physical embarrassment or loss of face." Further, "the online relationship, in most situations, tends to be more egalitarian than that which occurs in-person" [18].

5.3 Hybrid Care

Traditional healthcare with its commute, waiting room, and *de rigueur* interaction can be viewed as "outmoded and inconvenient" [18]. Telehealth solutions mirror the ease and immediacy of other goods and services of the present day, particularly in the developed world.

The hybrid model often has one component at the primary care provider's (PCP) office. Initially the patient (and sometimes family) are interviewed followed by a joint feedback session with the PCP. At the time with PCP present, the telepsychiatrist instructs the patient to tell the PCP "what their diagnosis is, and what the proposed treatment plans are." "This is a powerful approach that shifts the locus of care away from the telepsychiatrist, as the distant expert, and back fully to patient and the PCP. It also ensures the patient understood the consultation findings" [18].

5.3.1 Telepsychiatry in Emergency Departments

Patients seeking mental health services in emergency departments (particularly in rural areas) often do not receive care from psychiatrists. Telemedicine is an elegant way to bring specialist access to remote areas and improve support and collaboration with emergency department (ED) staff. Some of these implementations have been successful and attained American Psychiatric Association (APA) Achievement Awards. Two such programs, one in Texas and the other in South Carolina, will be described.

Lufkin County Texas's Burke Center received the 2011 APA Gold Achievement Award for its psychiatric receiving facility featuring a comprehensive range of services not usually available in rural settings. Burke Center Mental Health Emergency Center (MHEC) serves 12 East Texas counties and utilizes telemedicine. Staff onsite include mental health technicians, nurses, caseworkers, and counselors, while psychiatrists are available by either video or phone. Typically, psychiatric consultation is available via video (within 30 minutes) or via phone (usually in 5 minutes). In addition to emergency services and outpatient services, both crisis and voluntary beds are available. In contrast to needing medical clearance via all-purpose emergency departments as a gateway step preceding emergency psychiatric services, MHEC's services can directly be accessed and if necessary, a medically unstable patient can be redirected to a local emergency department. The psychiatrists of the MHEC treat many common medical comorbidities (including asthma, "moderate" infections, diabetes, and hypertension) while simultaneously addressing the mental health component(s).

Benefits of this program are noteworthy. Patients evaluated at the Burke Center often avoid lengthy stays in emergency departments after medical clearance. The average time in the emergency department has decreased to 3.9 hours. Most of the medical illnesses are addressed in-house, and about 10% of patients are directed to emergency departments for acute conditions requiring that level of care [19].

The burden on law enforcement is likewise eased with lower number of ED visits and shorter time spent waiting with patients.

South Carolina Department of Mental Health (SCDMH) began a project funded by the Duke Endowment grant to provide psychiatric consultation to patients presenting to rural emergency departments [24]. While numerous consultations are generated from the non-geriatric adult population, evaluations requested for the geriatric population were rare in the SCDMH telepsychiatry program. SCDMH telepsychiatry process starts after the emergency physician initiates a consultation and then notes, labs, contact information for families/guardians/nursing homes, and other information are uploaded for review by the psychiatrist operating remotely. Typically, these documents are reviewed and nursing staff called prior to setting up the equipment to connect with the patient.

After the patient interview and contact with collateral sources, the psychiatrist provides a consultation report to the emergency department. The report does not initiate orders and serves in the manner of the classic consultation model providing recommendations. These may include commitment for danger to self or others due to mental illness or substance use disorders. Other consultation recommendations would include therapy and/or medication changes for either inpatient or outpatient settings. Recommendations for additional labs/medical workup may be another component of the consult. At times, the emergency department is asked to warn a potential victim and/or for the police to be contacted. In cases of suspected child or elder abuse, the primary provider is given direction to contact the appropriate social services department.

Obtaining adequate collateral information (at times, geriatric and other patients are poor historians) is frequently difficult. Sometimes nursing home staff or family member(s) will bring the patient to the emergency department and then leave. Thus, in the emergency department, medically fragile and/or delirious patients may be interviewed alone. At times,

a staff member serves as an "interpreter" to help convey the message/question from the remote provide to a hearing or other sensory impaired patient. Sometimes it may help if there is a staff member gently touching or otherwise providing cues to awaken a sleepy or otherwise unfocused patient. The telepsychiatry provider often must contact the nursing home after the interview (especially in cases with poor historians) and try to find a staff member familiar with the patient, and/or contact a family member as well. Family and/or nursing home staff may be harder to reach, especially when consultations occur at night.

Hearing impairment can be a significant obstacle but loud volume settings on the videoconferencing equipment can violate privacy in the emergency department (ED). Furthermore, even if telepsychiatry equipment cannot adequately amplify sound or be positioned close enough to the patient for adequate contact, nurses or other staff could serve as an "interpreter." In cases with delirious patients, the encounter is often brief with recommendations weighted towards medical workup more so than psychopharmacology or other interventions under the auspices of mental health providers.

Other potentially frustrating issues for the telepsychiatrist include lack of a clear reason for the psychiatric consultation. Sometimes the question might be "does this patient have dementia?" This can be difficult to ascertain as some patients may have overlapping medical illness or other stress, including the chaos of the ED, which can result in a poorer cognitive performance than true baseline.

Though the SCDMH telepsychiatry service averaged 12 consults a day during 2014, there were surprisingly few consultations in the geriatric age bracket. Out of more than 4000 consults, only 102 pertained to elderly patients. Reasons for this discrepancy may be multifactorial- geriatric patients presenting to EDs were medically ill and higher priority may have been given to addressing medical illness as the etiology of the mental health symptoms. Another possibility could be that the psychiatric consultation was postponed to a medical inpatient setting rather than within the ED itself.

SCDMH results may not be representative of other programs. 2009 census data from the Administration on Aging shows South Carolina ranking number 18 nationally for greatest percent of residents aged 65 plus. Despite this ranking, relatively few geriatric ED psychiatric consults were seen in 2014. However, The Duke Endowment (TDE) program partners with rural emergency departments, and fewer patients 65 and older would be seen due to geographic distribution as "Most persons 65+ lived in metropolitan areas in 2014 (80%)" [20].

Of the 102 individuals evaluated in rural South Carolina EDs via telepsychiatry, 20 received outpatient management whereas the remainder received recommendations for further medical workup. The remainder either received a recommendation for involuntary commitment (more commonly) or were admitted voluntarily (infrequently).

Tang et al. examined mental health services provided to older adults at an urban emergency room in Missouri. Of 54,047 patient visits, 3886 of these were elderly and only 95 of this subset were evaluated for a primary mental health issue. Some patients had more than one emergency department presentation leading to a total of 138 patient visits [21]. Patients seen were 42% Caucasian, 52% African-American, and 1% Hispanic. One difference noticed among this small study: Caucasians were much more likely to receive psychiatric consultation (32.1%) versus African-Americans (8.6%). The authors posit that this difference may be partially explained by a lower likelihood of Caucasians to present with delirium perhaps due to better access to medical care. Further, decreased access to health care and greater comorbidity burden in non-Caucasians may lead to more frequent delirium presentations versus other groups.

Gender differences were also noted. 66.3% (of total mental health visits) were by women whose mean age was 75.5 years. Of the elderly patients, 47% came from a nursing home and 45% were from home unaccompanied by family. Sixteen percent of patients were accompanied by family and 3% arrived via police or from jail. The most common presenting diagnoses were delirium (85%), anxiety disorder (23%), and

mood disorders (17%). Psychosis was 6% and dementia was 2%. Though delirium was the most common diagnosis, most patients arriving in the emergency department with delirium did not receive a psychiatric consult. Many of the delirium based presentations (48.2%) were dispositioned to inpatient medicine admission (most not having a prior psychiatric consultation) and only 2.4% of delirium visits received psychiatric admission [21].

Administration of an emergency department based geriatric telepsychiatry program can be complex irrespective of urban or rural setting. The programs in Texas, South Carolina, and Missouri all demonstrate feasibility of telepsychiatry in addressing public sector mental health care needs. While providing care to older adults utilizing this treatment modality may incur additional challenges, these can often be addressed and accommodations made to serve this growing segment of the population.

5.4 Summary

Since the 1950s, teleconferencing health care applications are increasing and serving broader populations. Geriatric patients, including those with severe and persistent mental illness, are a subgroup with great need for expansion to current offerings. Fortunately, the nature of psychiatric assessments allows for utilization and adaptation of technology to provide remote care. Administration of a new telepsychiatry program requires careful planning and coordination with various entities. These include funding sources, certifying agencies, clinical staff, and technical staff. Once a program is operational, administration then further involves steps to ensure not only satisfaction with the service but outcome measures necessary for long-term program viability. Greater awareness, perhaps in part by more exposure in the medical literature, may help increase deployment of such services. Telepsychiatry is a useful technology that can bring services to underserved areas, save time for both provider and patient, and provide quality care that is equivalent to traditional interventions.

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Chapter 6
Geriatric Telemental Health in the United States Department of Veterans Affairs

Taya Varteresian, Alexander Threlfall, and Paul Kirwin

The Veterans Health Administration (VHA) defines telehealth as: "The wider application of care and case management principles to the delivery of health care services using health informatics, disease management and telehealth technologies to facilitate access to care and improve the health of designated individuals and populations with the intent of providing the right care in the right place at the right time" [1]. For well over a decade, the VHA has worked to mitigate deficits in access to care by harnessing advances in technology

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T. Varteresian, DO (✉)
Los Angeles County Department of Mental Health, University of California Irvine, Los Angeles, CA, USA
e-mail: tvarteresian@dmh.lacounty.gov

A. Threlfall, MD
Brookwood Health Center, Santa Rosa Community Health Centers, University of California, San Francisco, CA, USA

P. Kirwin, MD
Integrated Care, VA Connecticut Healthcare System, Department of Psychiatry, Yale University School of Medicine, New Haven, CT, USA

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to provide specialty care to underserved areas, especially those geographically isolated from major medical centers.

The Veterans Health Administration (VHA) has established itself as a national leader in the development of telemental health, which has enabled the VHA to provide access to high quality psychiatric care for rural Veterans. Telemental health is typically delivered from the parent medical center (VAMC) to its Community Based Outpatient Clinics (CBOCs) often nested in rural, hard to reach areas. Since 2003, the VHA has performed close to 1,830,000 telemental health encounters [2].

In 2010 the VHA established a National Telemental Health Center (NTMHC) to provide expert consultation to providers across the national VHA system. Out of the 380,000 telemental health visits to more than 122,000 Veterans in FY15, the NTMHC provided 13,000 consultations to approximately 3,900 Veterans in over 100 sites in 31 states. These NTMHC providers include experts in geriatrics and affective, anxiety, psychotic, and substance abuse disorders [2].

Much of the existing telemental health literature is based primarily on experiences within the VHA, signifying the importance of the VHA model to inform the field on best practices for telemental health. Years of VHA implementation experience have prepared this healthcare system to utilize rapidly advancing technology to create novel ways to improve access to care for the growing elderly Veteran population. Over the next decade, Veterans over age 60 will represent more than 50% of the total Veteran population [3]. Telehealth has special relevance for this geriatric population, as medical and psychiatric care for older adults is often limited due to difficulties with transportation to a medical center or clinic environment.

In FY 2015, the VHA provided 9,700 Veterans telemental health services to their home, reflecting a steady growth in the VHAs efforts to improve access to health care for vulnerable populations, such as frail elderly Veterans [2]. Home-based telemental health care is especially important for homebound older adults who are unable to attend traditional hospital or CBOC clinics due to complex neuropsychiatric

and medical illnesses, which make transportation challenging or impossible. This modality also contributes to provider efficiency reducing the need for time-consuming in-person home visitations [4]. A study of behavioral activation therapy for major depression found that evidence-based psychotherapy can be delivered, without modification, via home-based telemental health, and that this method can overcome barriers to care associated with distance from and difficulty with attendance at in-person sessions in older adults [5].

By providing Veterans access to mental health services through telehealth, the VHA has decreased psychiatric hospitalizations for patients receiving telemental health services by 32% within approximately 6 months of initiating treatment [2]. Similar reductions in hospitalization rates (24.2%) from 2006 to 2010 were observed across *all* age groups, including those ≥65yo (~18.4% or ~18,000 Veterans) in an earlier large, observational, nationwide study [6].

6.1 Applications in Veteran Geriatric Telemental Health

Much of the VHA's research on the effectiveness of telemental health services has centered on providing PTSD treatment to combat Veterans, many of whom are Vietnam Veterans. It is well known that Veterans with PTSD suffer a higher degree of comorbid cardiovascular disease, diabetes, gastrointestinal ulcer disease, dementia, and overall mortality that their age matched cohort [7, 8], thus research in telemental health services for PTSD is ostensibly geriatric in nature given that a large proportion of Veterans enrolled in these studies are 55 years old and older [9, 10]. From 2009 to 2011, the VHA studied the impact of a telemental health-based collaborative care model to rural CBOCs in Arkansas, Louisiana, and California showing a significant increase in referral to evidence-based treatment for PTSD and subsequent improvement in PTSD symptoms compared to care as usual for individuals with a mean age of 52.2 ± 13.8 years [9].

The VHA has also investigated the utility of telemental health services in a variety of diagnostic and/or treatment paradigms related to the treatment of PTSD. In a study with a similar demographic distribution to Fortney et al., researchers investigated the non-inferiority of a 12 week telemental health group for anger management in rural Veterans with PTSD (70% Vietnam Veterans) compared to an equivalent in-person group from 2005 to 2008 and confirmed that both were similarly efficacious in reducing anger symptoms [10]. This study helps validate the efficacy of telehealth treatment to more remote CBOCs to conduct group therapy. Using telemental health, a clinic can create a group via videoteleconferencing, either by combining multiple sites in real time or by referring them to an established group at an affiliated VAMC or CBOC.

Another study of Veterans focused on those over age 60, comparing the efficacy of a more rudimentary form of telemental health, telephone-based therapy, using CBT versus non-directive supportive treatment for GAD. This study confirmed and supported the use of an evidence-based therapy (CBT) for older Veterans using just a telephone call [11], lending credibility to more advanced forms of telemental health technology.

Other studies have shown effective and accurate assessment and management of cognitive impairment via telemental health. A study of older Veterans living in a residential care environment demonstrated telemental health accuracy in the diagnosis of dementia, which compared favorably to in-person evaluations [12]. Several non-VHA studies have examined the utility of telemental health technology to administer neurocognitive assessments. Vahia et al. administered a comprehensive battery of tests to Latino patients via telemental health and showed equivalent results between the telehealth and in-person groups [13]. Cognitive assessment research in China demonstrated comparable results for telemental health and in-person testing for individuals with mild cognitive impairment or mild dementia [14]. Another study showed that brief neurocognitive screening tests in geriatric

psychiatry outpatient clinics compared favorably to face-to-face evaluations [15].

Although multiple studies have validated the delivery of telemental health to individuals suffering from cognitive disorders, cognitive impairment may impact the patient's familiarity and tolerability of the technology creating a higher dependency on the in-person assistance or caregiver help [16]. The application and feasibility of a model that includes onsite help was established in a small pilot by Barton and colleagues [17] where Veterans residing near a CBOC, but over 300 miles from the San Francisco VAMC Memory Disorders Clinic, were offered assessment and treatment recommendations using a traditional multidisciplinary team approach (including social work counseling/education, neuropsychological assessment by a neuropsychologist, and complete medical exam by the geropsychiatrist) via videoteleconferencing, with the assistance of a local clinician (RN) trained to help conduct the examination.

6.2 Benefits of Telemental Health for Veteran Patients

Telemental health helps address psychiatric provider shortages across the VHA system and provides increased access to mental health care for patients in remote areas. VHA national data collection shows that telemental health reduces inpatient hospitalizations and promotes medication adherence. Patients receiving telemental health services had a 32% decrease in psychiatric hospitalization in the first 6 months after initiating telemental health treatment, suggesting that access to telemental health improves the quality and outcomes of mental health treatment [2]. In addition, delivering telemental health to Veterans in their homes is now provided by multiple provider disciplines within the VHA. This shows extraordinary promise for home bound or institutionally bound elder Veterans when transportation to medical facilities is onerous or impossible for routine appointments. Various treatments

are employed, including: individual, group, and family psychotherapy, as well as pharmacotherapy. [2]

Consummate with the VHA's efforts to reach Veterans living in remote areas, the VA has initiated efforts to reach remote Native American and Alaska Native Veteran populations. The Tribal Veterans Representative (TVR) training program has reached numerous Native American populations with very limited access to traditionally supplied medical care [18]. This program underscores the importance of innovative telehealth efforts to reach remote populations devoid of mental health services. In general, VHA providers like using telehealth, and endorse the advantages of reaching remote populations, such as those served in the CBOCs. [12, 14, 19–23].

Patient satisfaction surveys support the use of telehealth for mental health assessment and treatment. VHA patient satisfaction surveys demonstrate impressive overall satisfaction with the telemental health modality: 94% satisfaction with office-based telemental health services and 89% satisfaction for home-based telemental health services [2]. Some patients actually prefer the videoconferencing modality and the increasing availability of health related phone apps for tracking critical health data, such as hours of sleep, blood pressure, or depression scores. A recent study of individuals over the age of 60 years old demonstrated that patients show a strong interest in using smart phones or mobile applications in order to track their mental health symptoms [24]. The VHA has pioneered encrypted software to ensure the protection of Veterans' information to enhance patient trust and satisfaction with this modality of treatment.

6.3 Benefits of Telemental Health for Providers

Many health care professionals are drawn to the VHA out of a sense of service and mission; to serve those who served. Taking care of vulnerable populations is part of that calling.

Telemental health extends that principle to rural populations where access to health care is inadequate or inconsistent at best. Most VHA medical centers are attached to major medical schools, enhancing the VHA core missions of providing clinical care, promoting education, and encouraging research. VHA telehealth is able to draw on the expertise of local medical school faculty to provide expert care and consultation to other mental health and/or primary care providers. Telehealth expands the academic and clinical missions of the VHA and gives providers and trainees novel experiences in providing direct care and expert consultation to underserved populations in remote areas.

6.4 Teaching Telemental Health

The VHA provides significant training stipends for health care providers nationally. In FY 2012, the VHA provided training for 37,104 physician residents; 25,102 medical residents; 32,349 nursing students; 1579 physician associate students; 24,260 "other specialties"; for a total of 116,794 training stipends [25]. The VA already encourages training in telehealth as a central part of physician and allied health professional's curriculum. [26]. In 2003 the VHA medical center in Denver pioneered a telehealth training program for psychiatry residents. [27]. The program provided access to mental health care to underserved rural areas, and novel training opportunities for psychiatry residents. Over four years, the program logged over 1,078 telemental health encounters, primarily for PTSD, but also for a variety of mental health diagnoses. The Denver program developed a full telemental health curriculum for psychiatry residents, including administrative issues in telemental health, managing of psychiatric emergencies, understanding the impact of videoconferencing on clinical interactions, and modification of clinical style for videoconferencing. The Denver program serves as a model curriculum for other psychiatry training programs [27].

US psychiatry residents are eager to learn how to use telehealth, in greater numbers than available training

opportunities. [28]. A study from Toronto, looked at a small sample ($N = 16$) of residents and faculty in attempts to define "core components" in telemental health. The investigators identified eight essential components for telemental health: technical skills, assessment skills, medico-legal practices, communication skills, collaborator, manager, advocate for the community, and advocate for the health system. Perceived benefits for providers included: helping patients in underserved areas, learning about different patient populations, and helping the practitioners in these underserved areas [29]. Telehealth offers unique opportunities to train providers to serve those at the margins of traditional health care. Positive exposure to telemental health in training programs is essential to prepare residents for an emerging, key element in the delivery of mental health care.

6.5 Limitations of Telemental Health

Exam room space for patients and the technological expertise to facilitate the clinical interview remain challenging for the VHA telehealth system. Telemental health is not space neutral. While this modality improves access to care, space and equipment is required for both patient and provider. In most CBOC settings, space is at an absolute premium, so accommodating exam room space for patients presents a constant challenge. Provider-home-based telemental health or "smart" phone app technologies alleviate crushing space needs and facilitate access to care. Device security issues and implementation strategies remain a high priority for VHA where patient privacy and security concerns remain preeminent.

Providers and administrators outside the VHA system have cautioned that having a geographic distance between provider and patient jeopardizes the mental health treatment team approach [30]. Having components of the treatment team present with the patient, i.e., social work and/or nursing, helps mitigate this concern. This approach enhances

communication among members of the treatment team and promotes continuity of care.

Despite VHA's robust telehealth efforts nationally and advancing technological improvements, technical difficulties still arise, such as connection failures or lag times in real time transmissions of the interview process. The VHA has employed a bevy of telehealth technicians to assist with setting up the logistics of the visits and to address technological glitches in when they arise. Provider expertise with the equipment is critical, but easily attainable through formal training. Angle of videoteleconferencing equipment to maximize eye contact is important, as are adequate explanations from telehealth technician and provider about possible technical glitches, such as voice and motion lag times [27].

Implementing telehealth in the world's largest health care organization comes with significant capital investment. The VHA has invested heavily in this technology with the conviction that this form of treatment improves access and decreases more expensive traditional treatment. Enrolled VHA telemental health patients are hospitalized less frequently and utilize less days in the hospital [31]. Some argue that this is simply an elaborate redistribution of clinical resources "telepsychiatry redistributes resources but not necessarily create them" [32]. Any clinical intervention takes time and resources to implement, yet the net savings to the system are promising and improvements in patient access to mental health care are impressive. [2].

In the future, using technology such as mobile apps, may surpass infrastructure space limitations to assist the VHA in delivering more efficient and effective care. These novel mobile applications may improve patient compliance and improve patient engagement in treatment [33]. Home-based technologies, such as encrypted iPads, reach patients where they live, saving on space, and transportation time/costs. Home-based telemedicine is growing within the VHA and can involve a Veteran peer who helps facilitate the applications within the Veteran's home or alternative place of residence, i.e., group home, assisted living facility, or other long

term care facilities. This modality will expand in the future as access to this encrypted technology improves and our public partners in healthcare become more familiar with the value of telemental health in improving outcomes.

6.6 Conclusions

Telemental health is a growing field delivering critical mental health services to rural, isolated, and ethnically diverse populations. The VHA leads the nation in pioneering this novel technology to expand access to vulnerable and remotely located populations. As a leader, the VHA model serves as a blueprint for the design and implementation of telemental health interventions in the private sector.

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Part III
Practical Considerations

Chapter 7
Scope of Telepsychiatry in Clinical Settings

Meera Narasimhan

7.1 Introduction

Mental disorders are a ubiquitous problem, with health systems around the world grappling to address the "Mental Health Gap" created by growing numbers of mentally ill and extremely low numbers of mental health providers. Previous chapters in this book have described how, telepsychiatry has been shown to be a feasible alternative to effectively address the scarcity of mental health services. Mental health disorders are highly prevalent with epidemiological study estimates as high as 49% life time prevalence in the adult population [1]. The aging population across the world is on the rise. In 2006, almost 500 million people worldwide were 65 years of age and older. By 2030, that number is projected to increase to 1 billion or one in every eight of the world's inhabitants, which is a 140% jump in developing countries by 2030 ([2]). This imposes social, economic, and medical challenges to our society at a time when geriatric medical care is not universally available. There is a dearth of geriatric

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M. Narasimhan, MD (✉)
Department of Neuropsychiatry and Behavioral Science,
University of South Carolina School of Medicine,
Columbia, SC, USA
e-mail: meera.narasimhan@uscmed.sc.edu

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medical and psychiatric practitioners. This dearth is further magnified in rural communities resulting in a significant individual and societal burden.

Telepsychiatry offers a unique delivery platform to be able to address some of these challenges by improving access, shortage of providers while reducing costs on several fronts including unwarranted hospital admissions, effective triage, and hand off to outpatient care via expert availability in real-time [3]. It becomes imperative for healthcare providers to become familiar with the challenges in the field of telepsychiatry given the insurmountable mental health gap. This can only be addressed by increasing the number of geriatric psychiatry fellowships, strengthening and growing existing ones, and increasing psychiatric training at the under-graduate level. While many of these solutions have lengthy gestation periods, technological solutions like telepsychiatry can attempt to address the impending problems of unmet needs, scarce resources, provider shortage, and the urban–rural and tertiary–primary care divide. A perfect marriage of technology and mental health services in many settings and more so in the geriatric setting can be the panacea to health care system and to the citizens we serve.

This chapter attempts to provide a comprehensive literature review that supports acceptable, reliable, and cost-effective application of telepsychiatry strategies in geriatrics. Telepsychiatry has proved useful in both clinical and non-clinical applications in geriatric medicine and psychiatry, in clinical care, distance learning, education, and research in various practice settings. Over the years synchronous and asynchronous telehealth has been used for consultation, diagnosis, management, psychotherapy, education, supervision of medical professionals in rural and outreach areas, as well as for research purposes [4]. Clinical care settings can be broadly categorized as hospital work to include emergency department, inpatient care and consultation liaison psychiatry, community work that includes chronic disease management and disability management, office practice, integrated clinics, nursing home visits, home visits, and care planning.

7.2 Inpatient and Emergency Room Management

Given the magnitude of mental illness in our communities, there is tremendous demand for geriatric care in clinical setting including inpatient, outpatient, and consultation liaison psychiatry. Consultation via telepsychiatry for hospital patients is becoming more acceptable in these settings and has been shown to improve clinical outcomes. Given the need for geriatric providers, it has been a focus of more recent telehealth efforts. Offsite consultation for nursing home residents has been reported by geriatric teams since consultation work is a major component of hospital geriatric practice [4, 5]. Evidence from other specialties including radiology, neurology, neurosurgery, geriatrics for effectively triaging admission using telehealth [6–8, 9] to nursing homes or inpatient beds has been reported, demonstrating that a larger proportion of patients can be managed without transfer- associated unnecessary costs. The likelihood of telepsychiatry use increases when the distances or potential for transfer is greater.

7.3 Emergency Evaluations

Telepsychiatry evaluations in emergency departments are offered across several programs in the United States of America (USA). These emergency evaluations require additional personnel both for physical control of the environment and for patient safety. Managing psychiatric emergencies including suicidal/homicidal patients, or those suffering from dementia, agitation or acute psychosis by using experts who can provide recommendation to the ED teams has been shown to promote cost-effectiveness, timely assessment, improvement in access to specialty and subspecialty services [10, 11]. In a study by Pallawala and Lun, telehealth services used to manage geriatric patients at a remote site led to rapid decision making in the presence of acute emergencies, reducing unnecessary

admissions and improving nursing skills in geriatric care [8]. This study also demonstrated that telehealth can result in efficient management, while contributing to professional development for nurses. Telehealth helps converge experts where there are multi providers providing case management in complex chronic disease management models. This allows for clinical treatment plans that include expert advice and a well-rounded patient care experience for the patient.

Telehealth services can improve the quality of life for elders with physical and mental impairments. Other studies evaluating the effectiveness of home telemonitoring have demonstrated reduction in the number of hospitalization and emergency department visits of elderly patients with mixed chronic disease [12]. Another study of homebound elderly provided videophone nursing care to measure changes in their functioning and demonstrated it to be an effective and alternative care model that could be integrated into existing home-care services [13].

7.4 Nursing Home

Elderly in nursing homes, especially in rural communities, are an underserved population, at greater risk of isolation and suicides. This risk is further magnified by under recognition and under diagnosis due to lack of specialized mental health services including provider access [14, 15]. Non-urgent consultations and advice from allied health practitioners have been reported from Australia where videoconference links to nursing homes were used [16]. The outcomes from five disciplines were reported in terms of user satisfaction and also adequacy of assessment. This enables clinical relationships between teams with clinicians from several disciplines working with hospital and nursing home staff resulting in enhanced clinical interaction and support for the nursing home and hospital staff. The geriatric provider can work closely with nursing staff to help provide specialty service, interact, educate, train, and support nurses who often have very little mental health training. Elders

appear to benefit from telehealth services and seem to be more accepting and satisfied by technology driven solutions to address some of their healthcare needs [17, 18].

7.5 Therapeutic Applications of Telepsychiatry in Geriatric Ambulatory Care Settings

The practice of telepsychiatry in geriatrics is gaining popularity given the scarcity of geriatric psychiatrists. A consultative role that allows for clinical assessment and recommendation without ongoing management may be more practical to address the mental health gap given the enormous need and burden. There have been several studies and clinics that have successfully embedded specialists via telehealth. These studies have reported improved outcomes, cost, and patient satisfaction levels [19, 20]. Telepsychiatry is an effective tool that has been used in those with mild cognitive impairment and dementias while it may have less of a utility in those with severe dementia and sensory impairments. Standardized rating scales can be used via telehealth services both in clinical practice and research use of [21]. While a comprehensive geriatric assessment, including assessment of cognitive function would offer valuable information for treatment planning, severely impaired cognition may pose a risk for patients who are unfamiliar with technology and may need skilled staff to help navigate the healthcare delivery via telehealth [21].

Telepsychiatry can be used for ongoing psychotherapy sessions either between the clinician and patient from the comfort of their homes or in group sessions with the treating clinician and many participants [5].

Given the complexity of medical issues in the geriatric population and an emphasis on value-based care there is a need to manage chronic disease states in an efficient, integrated fashion that would help address the fragmentation that currently exists in the health care environment. This

would provide improved satisfaction and health outcomes monitoring [22, 23] such as vital signs and blood glucose. These approaches could result in improvements in both physical and mental health parameters while resulting in cost-effective care and in chronic disease management. Video link to augment usual home care has been shown to be well accepted and cost-effective [24, 25], and can complement existing outreach and case management services.

Telepsychiatry has been utilized to deliver various modalities of psychotherapy including cognitive-behavior therapy, supportive therapy, group therapy for depression and anxiety disorders, and trauma focused therapy ([26, 27, 28]). Internet-based CBTs with online lessons and homework assignments have been conducted in patients with neurotic disorders [29, 30]. Neuropsychological assessments for cognitive evaluation and neurological tests such as abnormal involuntary movements have been carried out using telehealth [31, 32].

7.6 Education and Research

Telemedicine for distance learning purposes can occur between physicians, physician and patient, or physician trainee. It may also take place in a classroom setting where a preceptor is at one site and students are at other, multiple remote end user sites. It could be used for supervision, mentoring, continuing medical education programs for individuals within psychiatry, and across medical specialties [33]. A number of training programs across the nation include telepsychiatry experiences for residents in various clinical settings [34]. Supervision can occur in real-time with the supervisor present via videoconferencing, or by the use of store and forward technology (asynchronous transmission of clinical information).

Telemedicine particularly lends itself to procuring effective and reliable research data from clinical populations. It allows for remote acquisition of assessment information, direct observation, checking for inter-rater reliability, and scoring. It also allows for storing or archiving of data for later scoring and evaluation. This can occur in clinics, hospitals, nursing homes,

home-based setting, schools, and forensic settings. Studies have demonstrated a high inter-rater reliability of the diagnostic assessment using telehealth [35, 36]. Telepsychiatry has been found to be a reliable alternative for diagnosis in geriatric population where studies [36, 37] found that subjective verbal reports were more reliable than visual observations when videoconferencing was compared to face-to-face evaluation of geriatric patients. A meta-analysis found that agreement between in-person assessment and high-bandwidth telepsychiatry evaluation was excellent while that of in-person with low-bandwidth telepsychiatric assessment showed adequate, but somewhat lower agreement than the former [38].

Studies have shown telepsychiatry to be a cost-effective delivery tool by minimizing travel time, reducing emergency room visits, hospitalization, time taken off from work [10, 39]. A number of factors need to be considered while determining cost-effectiveness, including health outcomes, utilization, accessibility, quality, and needs for such services in the specific population studied [40]. An increase in volume of telepsychiatry can bring down costs especially of capital investment at the beginning and of continued maintenance costs. Some studies have demonstrated that to get to a "break-even" cost analysis, an average of seven consultations per week are required [41, 42]. Many studies do not calculate the cost benefits for the individual, their families, referring physicians, and health systems. In forensic settings it appears that clinical and educational applications of telepsychiatry are cost-effective in minimizing unnecessary transfers and hospitalization in management of the cases [39, 43]. Butler et al. found a 10% reduction in cost for those who had telepsychiatry services compared to those who did not have it [44]. Further systematic studies are needed to evaluate the cost-effectiveness of telepsychiatry projects especially as it pertains to the elderly population.

Psychiatry is a specialty that relies on human interaction and observation of human behavior which warrants an important question: how does teleconsultations compare to face-to-face interviews. Systematic reviews have not shown significant differences in patient satisfaction with telehealth

as a modality to deliver mental health services compared to face-to-face health care [43, 45, 46]. Shore et al. examined "usability of the technology," "patient/provider interaction," "cultural competence," and overall satisfaction, which failed to demonstrate statistical difference on these measures compared to "in-person interview" [47].

Telepsychiatry applications in the elderly bring up legal and ethical issues including their role in emergency situations, privacy and confidentiality, primary responsibility, and security of data. As with telepsychiatry psychiatry application in other age groups, defining the duties and role of the specialist consultant, the primary care nurse practitioner or physician assuming the primary responsibility in emergency situations while providing support to the primary care providers, and developing administrative and emergency protocols is a critical element [48]. Cloud-based secure connections both for the telepresence and the electronic medical records ensure privacy and confidentiality which are extremely important with necessary emphasis on data security, appropriate collection and handling of user data, the protection of data from unauthorized access, and the safe storage of data [49, 50]. Most healthcare systems, especially in the USA, have comprehensive data security protocols, use secure lines and servers, encrypted software that deals with unauthorized tampering or interception and takes every measure to protect confidentiality and privacy [49]. Clear guidelines and recommendations covering ethical issues such as informed consent and confidentiality, use of technology, and procedures for conducting assessments are necessary.

7.7 Conclusions

Telepsychiatry service has enormous scope in geriatric settings to address clinical, educational, and research needs and objectives. Telepsychiatry holds tremendous potential to solve the problems of under recognition, access to care, and lack of trained manpower at the level of local communities especially in addressing the mental healthcare needs of the

elderly population. In areas where there is dearth of and a need for geriatric expertise, telepsychiatry has the capacity to allow remote consultation allowing for a more comprehensive geriatric assessment and follow-up. It has been a challenge to recruit geriatric psychiatrists in rural and communities. Telepsychiatry may help circumvent that problem. It is generally well accepted by patients and allows for effectively establishing therapeutic alliances. Telepsychiatry has greatly empowered patients, providers, programs, and communities. Educational use including didactics, case-based consultation, and supervisory initiatives are becoming more of the norm in today's academic settings. Training more psychiatrists and primary care physicians also empowers them to deliver mental health services directly to the underserved elderly populations, while providing support and supervision by specialists. These models also demonstrate that participating primary care physicians effectively transition from requesting assistance in diagnostic process to increased requests for assistance with developing or modifying management plans [16]. This allows for prudent use of human capital that is cost-effective both in the short term and more so in the long term to address the mental health needs in the elderly. Given the paucity of research studies using telepsychiatry in the elderly, there is an urgent need to have well-planned comparative studies assessing diagnostic reliability and cost-effectiveness in the geriatric population. Telepsychiatry can provide the same quality of face-to-face medical care and consultation among specialties while erasing distances, addressing shortage of expert providers, and can prove to be a cost-effective tool. Telehealth in geriatric population can lend itself to medical consultation within various clinical settings including home-based care, benefitting the overall health of patients while allowing for a rapid exchange of information and techniques in an integrated fashion while reducing fragmentation of care. It addresses issues pertaining to access to healthcare services, ensures continuity of care and optimal use of available health resources. It behooves public, private academic health systems to work in partnership given the costs and benefits and the opportunities to optimize their resources.

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Chapter 8
Technology Applications in Geriatric Telepsychiatry and Implications for Implementation

Suzanne M. Hardeman

8.1 Introduction

Video teleconferencing (VTC) is a communication technology that allows people at different locations to simultaneously see and hear each other on a computer or television screen [1]. This capability has allowed healthcare to expand its reach to most any place around the world, creating the field of telemedicine. Advances in VTC technology and an expanding market of equipment and service providers have made telemedicine services both accessible and reasonably priced. Psychiatry has embraced telemedicine creating a growing telepsychiatry practice for both consultation and treatment across all ages. This chapter outlines basic information required for implementing a telepsychiatry program as well as specific needs of a geriatric telepsychiatry setup. Additional resources

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S.M. Hardeman, MRC, MSN, APRN-BC (✉)
Department of Neuropsychiatry and Behavioral Science,
University of South Carolina School of Medicine,
Columbia, SC, USA
e-mail: Suzanne.Hardeman@uscmed.sc.edu

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for detailed technical requirements, platform options, and product information are provided at the end of the chapter.

VTC can be used to join groups of people at different sites or as a point-to-point service limited to only two persons. This point-to-point service is ideal for telepsychiatry. Telepsychiatry, in basic terms, is a videoconference between a patient and healthcare provider in which both use a computer or tablet, a camera, a microphone, and secure high-bandwidth internet network access. This basic equipment is a far cry from the expensive videoconferencing technology (VTC) equipment of days-gone-by. Today's providers can craft a reliable telepsychiatry practice with minimal investment.

8.2 Technical Overview

There are two types of VTC: dedicated and desktop/laptop. These may also be distinguished as standards-based (organizational-based) and consumer-based. Dedicated standards-based systems are fixed in one location such as an auditorium or conference room and are usually supported by an organization. These systems, most often used for large group conferencing, are increasingly used for telemedicine consultations. Desktop/Laptop/Tablet systems (consumer-based) simply add VTC software programs and equipment (camera and microphone) to existing desktop/laptop setups. While desktops and laptops can be added to the standards-based organizational systems, these consumer-grade products are not always compatible with standards-based systems and organizations may limit consumer product access. This will be a basic consideration when planning telepsychiatry [2]. VTC is delivered over one of the three networks: H.320, H323, or SIP (Session Initiation Protocol). Voice and video signals are then compressed with a CODEC (coder-decoder) allowing the signals to be delivered in analog or digital formats. A CODEC is either a device or a computer software program that encodes the audio and video data on the user side, packages it for transmission (streaming), and then decodes that audio and video data stream converting into the voice and images we see and hear on the receiving side.

8.3 Support

While the equipment is basic and familiar to most users, the behind-the-scene requirements are well beyond the expertise of most providers. For this reason, Information Technology (IT) and Health Information Technology (HIT) support are essential at every step of the setup and operation of a telepsychiatry program. IT and HIT not only provide support and troubleshooting, they ensure security, which is the highest priority in patient care delivery. Each endpoint (the VTC equipment) and end-user (the providers and patients) will require IT support for equipment, applications (software), and security. Dedicated IT support should be available during telepsychiatry sessions to troubleshoot problems and assist staff members. HIT specialists will be essential in supporting provider access to medical records. In smaller settings, IT, HIT, and security may be handled by a single department but in larger organizations, IT and HIT may be separate departments. For those wishing to begin a telepsychiatric practice and are not part of a larger organization with IT and HIT support, it will be essential to choose a service provider which offers IT support. Finally, manufacturer support for the equipment may also be required and can be negotiated at the time of purchase.

8.4 Internet Connections

Telepsychiatry can be delivered through several different VTC methods: Internet Protocol lines called IP lines or via Integrated Services Digital Networks (ISDN) lines. IP lines utilize the worldwide web and ISDN lines utilize standard telephone lines. The majority of telemedicine is done over an IP line due to the cost associated with ISDN delivery. Information in this chapter is presented for IP delivery.

Telepsychiatry technology utilizes industry standard bandwidth networking. The American Telemedicine Association (ATA) recommends a minimum bandwidth of 384 Kbps in

both directions with a screen resolution set at a minimum of 640×360, and speed at 30 frames per second [3]. Equipment should never be connected to the internet without a firewall. Reliable connectivity, dependable bandwidth, and dedicated personnel to troubleshoot problems are central to successful telepsychiatry. Consultation with IT and HIT personnel is essential when planning and purchasing equipment since there is much behind the scene that users may have no knowledge of, especially security related.

8.5 Security Concerns

Security for telemedicine connections requires sophisticated network connections and firewall allowances as well as specific software and network configurations to ensure clinical risk-management and is thus best handled by IT personnel skilled in network security. In larger organizations security is usually supported via videoconferencing services such as Polycom, Cisco, Vimeo or Jabber, or fee-for-service companies which provide secure, high definition, Health Insurance Portability and Accountability Act (HIPAA) compliant, services, and support. Fee-for-service companies are viable options for smaller practices which may not be affiliated with larger organizations because most offer setup, secure connections, and support. Security and encryption are required by all end-users. Please note that consumer services for the general population such as Skype© and FaceTime© do not offer the security levels needed for HIPAA compliance and should not be used for telemedicine.

8.5.1 Encryption, Firewalls, Gatekeepers

Encryption scrambles the videoconference transmission and can only be unscrambled at the receiving end with the appropriate embedded software key. As an example, Polycom offers a 128-bit AES encryption. Gatekeeper units are used to manage VTC traffic by recognizing outside video systems

and routing incoming calls to their desirable destinations. Firewalls are used to block unauthorized communications between computers. Firewalls at each location must be configured to identify the incoming video traffic and allow that traffic to pass through the organizational firewall. Firewalls without gatekeepers must manually open designated ports to allow the video traffic to pass through. More detailed information on these and other security essentials can be found in the Resource Section.

8.6 Selecting a Videoteleconferencing Vendor

8.6.1 Vendors

With the rapid advances in technology and hence a wide range of videoconferencing capabilities, most any size organization has feasible options for providing secure, HIPPA compliant telepsychiatry. Many larger organizations are already utilizing Polycom, Cisco, Vimeo or Jabber as VTC platforms making establishment of telepsychiatry a seamless process. For smaller organizations or private practitioner, there are a number of reputable providers with complete services for both monthly and hourly charges. Most require a joining fee and credentialing. Some companies are set up to charge patients prior to the visit making payment (minus fees) available to the provider at the end of the session. Both the American Telemedicine Association and the National Telehealth Technology Assessment Resource Center offer information and reviews on such services and links to these sites are provided in the chapter resource section.

8.6.2 Collaboration Features

Most platforms have the capability for additional collaboration via text messaging, screen sharing, and document sharing, although some of these functions may not be operable on

tablets or other mobile devices. When choosing a platform, it is important to determine whether these functions might be helpful when consulting with the geriatric patient. Screen sharing can be used for patient teaching just as document sharing could be used to provide patient or family teaching materials.

8.6.3 Licenses

A licensing fee is usually associated with VTC software. Standards-based systems provide licenses at a cost determined by the organization. Consumer-based technology often offers lower cost licenses, but providers should be always mindful of the security offered by lesser costs services.

8.7 Interoperability of Systems

Endpoints refer to the equipment used at each VTC site. End-user refers to the people using the technology. Endpoints utilizing different VTC setups can be connected through a bridge provided by a gateway service. Gateways are essentially translation devices between differing audio and video formats. The bridge provides a secure connection for any user who has the bridge number and password. The bridge requires encryption but does not ensure complete security for the system outside the bridge [4]. As an example, the Cisco Telepresence 4505 MCU (Multi-Conferencing Unit) allows up to 12 High definition (720p) calls to participate in a single virtual video meeting. These calls can also connect at various speeds and video formats as long as the calls are SIP or H323 Standards based.

8.8 Equipment

The American Telemedicine Association outlines guidelines for best practices in telemedicine. The guidelines highlight the importance of device management software to provide

oversight of both devices and security software. The guidelines require that a backup plan that provides for alternate means of communication should a failure occur at the primary VTC site be in place and be communicated to both the patient and the referring site.

8.8.1 Computers

Telepsychiatry can be successfully delivered with basic desktop, laptop, or even tablet equipment. The VTC equipment supplier or individual service provider will provide information on computer requirements. Connectivity does not require highly sophisticated computers, but computers with current cameras, processors, and cameras will perform better in day-to-day practice. Whether the personal computer is used by provider or patient, ensure that a firewall and antivirus software are installed. Maintaining the computer and completing operating systems and VTC software updates will ensure compatibility across all connections.

8.8.1.1 A Special Note about Mobile Devices

While mobile devices are growing in popularity and becoming ever more reliable as a means of VTC there are several essential considerations before using. First the devises need to be authenticated for access. Second, devices will need to have set timeout thresholds and third, they will need to have locator and wipe clean software in the event they are lost or stolen. Additionally, it is recommended that users be required to log off after each session to prevent unauthorized users from accessing an open session [5].

8.8.2 Cameras

Video cameras may be built into the desktop/laptop monitor. If there is no camera, a USB camera is easily added to the monitor. While many USB cameras are advertised as high

FIG. 8.1 Double monitor setup for computer

definition (HD), the computer must have the capability to maximize this function. Before selecting a camera, one is advised to speak with the platform or computer support personnel to ensure that the selected camera will give the highest quality video within the specifications of the desktop or laptop.

Some organizational standards-based telemedicine VTC setups allow the provider to pan and zoom the far-end camera to view patients and the room's surroundings. Desktop, laptop, and tablet devices generally do not have this capability (see Fig. 8.1).

8.8.3 Software

Software will be dependent on the chosen platform and will be provided as part of the service purchase. In some cases, providers may be asked to download software from the internet. Caution must be exercised here to ensure that software is downloaded from reputable company sites and not alternate sites which may offer the download. Business or professional

editions of software are generally safer and more reliable. While these versions will carry a cost, they often offer additional features including additional security features. The videoconferencing software should be able to adapt to changing bandwidth environments without losing/dropping the connection.

8.9 Facilities Setup

Just as consideration is given to the facilities in which live office visits take place, consideration should be given to the telemedicine delivery setting. In addition to providing comfort and privacy, the room should provide optimal lighting and acoustics and be able to accommodate the equipment. Supplementary lighting may be necessary, particularly in rooms that have fluorescent overhead lighting. Supplemental lighting, preferably incandescent, should be placed behind and above the computer screen to add light to the provider's and patient's faces. In rooms where light comes in through the window, the patient–provider should be situated facing the window and computers and cameras should be facing away from the window with natural light coming in over the computer monitor or screen if at all possible. Lighting coming directly over or behind the provider or patient casts shadows making it difficult to see the person. The background should be free of pictures and other items such as water bottles, books, and charts, which can distract attention from the interaction. Soft grey tone backgrounds offer the best lighting options [6]. See Fig. 8.2.

8.10 Ready-Set-Launch

- Rehearse
- Telemedicine is a complex network of people and technology that need to work together in a seamless fashion. Rehearsals bring providers and technologies together to

Fig. 8.2 Consideration should be given to the telemedicine delivery setting, including background and lighting

determine compatibility, test protocols, and work out staff procedures. Rehearsals will identify procedural and technology issues so that they can be addressed before patients are involved. During these sessions cameras and lighting will be adjusted to maximize quality of each. All personnel involved should participate in the rehearsal. Finally, several rehearsals may be required to solve all issues before the "go-live" patient encounter [7]. The checklist provided in section 8.12 provides a comprehensive list of the equipment and support needed to set up and launce a telemedicine program.

- Have a backup plan
- As noted above, the ATA guidelines outline the requirements for a backup plan for those times when equipment failure is inevitable. Backup equipment that is not used on a regular basis should be on a periodic testing plan with regularly scheduled maintenance to ensure that all software is up to date.

8.11 Checklist

- ☐ Internet capacity
- ☐ Computer (desktop)
- ☐ Computer laptop
- ☐ Tablet computer
- ☐ Camera
- ☐ Microphone
- ☐ Mouse
- ☐ IT support contact
- ☐ Connectivity ports all open
- ☐ Appropriate firewalls activated
- ☐ Encryption in place
- ☐ HIT support information
- ☐ EMR access
- ☐ VTC software and/or equipment
- ☐ List of participant phone numbers
- ☐ List of participant emails
- ☐ Equipment operations instruction sheet
- ☐ Equipment trouble Shooting Guide
- ☐ Backup plan instructions

8.12 Essential Online Resources

The *American Telemedicine Association* offers information on all aspects of telemedicine and provides guidelines for technical aspects of telemedicine. Guidelines for tele-mental health practice and technology standards are provided. Buyer's guides are also available.

http://www.americantelemed.org/

Telehealth Resource Centers exist across the USA and serve to provide education and assistance to active telemedicine providers. Their services are generally free.

http://www.telehealthresourcecenter.org/

The *National Telehealth Technology Assessment Resource Center* offers a wide variety of information on technology and telehealth programs for both the novice and the IT

expert."Toolkits" provide telehealth technology reviews, help users understand product uses, and offer technical guidelines for the IT expert.

http://www.telehealthtechnology.org/

Behavioral Health Innovations provides information and comparisons of services, vendors, and technology used in the provision of online behavioral health. The site contains reviews of HIPPA compliant platforms and up-to-date reviews of other mental health technologies. Staff is available to provide introductory webinars and guidance on technologies that best suit the intended practice.

https://www.telementalhealthcomparisons.com/

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ERRATUM

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