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# **Mental Health Services for California Native Americans – Usual Service Options and a Description of Telepsychiatric Consultation to Select Sites**

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Additional information is available at the end of the chapter

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## **1. Introduction**

### **1.1. Culture and health disparities for Native Americans**

The culture of the patient refers to a set of beliefs, norms, and values (Surgeon General Report (SGR) 2001). This affects symptoms, presentation, meaning, understanding, family issues, coping styles, treatment seeking, trust, stigma, and overall health status. A clinic and its clinicians also have a culture that affects communication and care. Native Americans continue to suffer disproportionately from a variety of illnesses and diseases, despite the funds for health care services, resulting in higher death rates (age 71, nearly 5 years below average) than the rest of the U.S. population (Office General Council 2004). Some of these disparities are directly related to, or significantly affected by individual behavior and lifestyle choices (Office General Council 2004).

The Office of the General Counsel and IHS outlined the causes of the disparities for Native Americans. Racial discrimination, which introduces unique emotional variables, has been noted (NIH 2001), and the Institute of Medicine established that whites are more likely to receive more thorough, diagnostic work and better treatment and care than people of color, even when controlling for income, education, and insurance (Vernellia Randall Institute of Racism 2002). Current research indicates that there are five, non-mutually exclusive, primary contributors to disparities in health status and outcomes for Native Americans. For example, a person may arrive at a health facility only to find a lack of necessary services

or that there is an extended waiting period before services will be available (e.g., the Oglala Sioux has one of the best rehabilitation centers, but it does not have sufficient funding to staff the facility properly).

The five primary contributors to disparities in health status and outcomes for Native Americans are:

1. Limited access to appropriate health facilities.
2. Poor access to health insurance, including Medicaid, Medicare, and private insurance.
3. Insufficient federal funding.
4. Quality of care issues.
5. Disproportionate poverty and poor education.

The Indian Health Service (IHS) has been given primary responsibility to decrease disparities, as the primary source of biomedical services in many reservation communities, but is dramatically underfunded (Manson 2000), particularly with respect to mental health services (Nelson et al 1992). The IHS but Native Americans continue to experience significant rates of diabetes, mental health disorders, cardiovascular disease, and injuries. Native Americans are 770% more likely to die from alcoholism, 650% more likely to die from tuberculosis, 420% more likely to die from diabetes, and 280% more likely to die from accidents (Indian Health Care Improvement Act Amendments of 2003).

## 2. Mental health disparities for Native Americans: U.S., California and rural trends

**General issues.** The SGR of 2001 offered general definitions of mental health, mental illness, and mental health problems. It described mental health as important for personal well-being, family and interpersonal relationships, and successful contributions to community or society. These elements are jeopardized by mental health problems and mental illnesses. While these elements of mental health may be identifiable, mental health itself is not easy to define more precisely because any definition is rooted in value judgments that may vary across individuals and cultures. The Report outlines risks and protective factors (e.g., community or social factors are schools, availability of health and social services, and social cohesion).

The SGR of 2001, found that racial and ethnic minorities bear a greater burden from unmet mental health needs, ranking second only to cardiovascular disease in their impact on disability (Murray and Lopez 1996; Manson, 1996a). The foremost barriers include the cost of care, societal stigma, and the fragmented organization of services. Additional barriers include clinicians' lack of awareness of cultural issues, bias, or inability to speak the client's language, and the client's fear and mistrust of treatment. More broadly, disparities also stem from minorities' struggles with racism and discrimination, which affect their mental health and contribute to their lower economic, social, and political status.

**U.S. Native Americans.** Most Native Americans live in Western States, including California, Arizona, New Mexico, South Dakota, Alaska, and Montana, with 42% residing in rural areas, compared to 23% of whites (Rural Policy Research Institute, 1999). The number of Native Americans who live on reservations and trust lands has decreased substantially in the past few decades. Some events affecting Native American families parallel trends of other populations. Native American families maintained by a single female increased by 27% between 1980 and 1990, compared to the national figure of 17%. In addition, the removal of Native Americans from their lands, as well as other policies summarized above, has resulted in the high rates of poverty that characterize this ethnic minority group.

The Native American Service Utilization, Psychiatric Epidemiology, Risk and Protective Factors Project (AI-SUPERPPF) was designed to compare findings with the results of the baseline National Comorbidity Survey (NCS). It determined the lifetime prevalence of common mental disorders to be 35.7% for Southwest women to near 50% for men (Beals et al 2005a; Beals et al 2005b). Alcohol abuse and dependence were the most common disorders for men, with posttraumatic stress disorder most prevalent for women, with cultural and perhaps regional variations (Spicer et al 2003). A current study of lifetime and current physical and sexual abuse among Native American women found: 1) a significant relationship between childhood abuse, substance abuse/dependence, and adult re-victimization; and 2) a significant relationship between cumulative lifetime abuse events, substance abuse/dependence, and depression (Bohn 2003). Older Native Americans report that over 30% of older Native American adults visiting one urban IHS outpatient medical facility reported significant depressive symptoms; this rate is higher than most published estimates of the prevalence of depression among older whites with chronic illnesses (9%- 31%) (Manson 1992).

Two studies have assessed children and adolescents. The Great Smoky Mountain Study assessed psychiatric disorders among 431 youth ages 9 to 13 (Costello et al 1997). Overall, Native American children were found to have fairly similar rates of disorder (17%) in comparison to white children from surrounding counties (19%) (SGR 2001). The second study reported a follow-up of a school-based psychiatric epidemiological study involving Northern Plains youth, 13 to 17 years of age (Beals et al 1997). Altogether, more than 15% of the students qualified for a single diagnosis; 13% met criteria for multiple diagnoses. In terms of the broad diagnostic categories, 6% of the sample met criteria for an anxiety disorder, 5% for a mood disorder (either major depressive disorder or dysthymia), 14% for one or more of the disruptive behavior disorders, and 18% for substance abuse disorders.

**California Native Americans.** There are over 100 federally recognized tribes in California with 69,238 active health service users, defined as a visit in the last year (U.S. Census Bureau 2000). Native Americans constitute approximately 1% of the California population, 1.9% when the definition includes Native American/Alaskan Native in combination with other race, and are considered among the nation's most vulnerable populations due to high rates of psychiatric, medical, and substance use disorders (U.S. Census Bureau 2000). One study with a 20-year follow-up found the lifetime prevalence of mental disorders to be 70% (U.S. Department HHS, SAMSHA 2004).

Population dispersion of tribal groups in California makes it unlikely that a hospital-based service program will develop or support the members, meaning many rural and even some urban clinics depend on specialists outside the IHS. High costs associated with distance, time, and a shortage of primary care physicians in rural areas put Native Americans at high risk for suicide, trauma, and diabetes. Native Americans often do not obtain treatment due to barriers to care, differences in help-seeking behaviors, and higher dropout rate for mental health outpatient services than Caucasians (Weinick et al 2000).

### **2.1. Substance, rural health and Native Americans**

A few studies have been completed regarding substance issues in Native Americans. A previously mentioned study that examined the relationship of substance abuse and psychiatric disorders among family members (Robin et al 1997) also considered their use of mental health services. Of those with a mental disorder, only 32% had received mental health or substance abuse services. The AI-SUPERPFPP showed that Native American men were more likely than those in NCS to seek help for substance use problems from specialty providers; Native American women were less likely to talk to nonspecialty providers about emotional problems (Beals et al 2005b). Help-seeking from traditional healers was common in both Native American populations and was especially common in the Southwest.

There are many serious manifestations of untreated mental illness in Native Americans, particularly in rural areas. The prevalence rate of suicide for Native Americans is 1.5 times the national rate, particularly higher rates for males aged 15-24 and women aged 25-44 (U.S. HHS 2004; National Women's Health Information Center 2006). More Native Americans live in rural areas compared to Caucasians (42% to 23%) (U.S. HHS 2004). These areas have a shortage of mental health services and inadequate treatment (e.g., 70% of patients have an inadequate antidepressant dose for depression) (Unutzer et al 2002), and rural depressed patients have three times more hospitalizations and higher suicide rates than suburban patients (Rost et al 1999; Rost et al 1998). On the whole, rural communities are experiencing an acute shortage of adult, adolescent, and child psychiatric providers and those skilled in culturally appropriate care (Am Acad Child Adol Psychiatry 2004; Martinez 1993).

## **3. Primary care, mental health and telemedicine**

### **3.1. Mental health services in primary care**

Primary care medicine is crucial to mental health care delivery in the United States, for over half of those suffering from mental disorders (Regier et al 1978), particularly in rural areas where access to specialists is a greater problem. This lack of mental health services leads to poor outcomes, such as higher rates of homicide and suicide, as well as increased use of emergency services, hospitalizations, and placement in mental health institutions (Lishner et al 1995; Health Data Summaries 2000). Primary Care Providers (PCPs) in rural areas also report having inadequate skills to manage mental health issues, and they would benefit from

assistance (Geller and Muus 2002; Geller 1999). However, rural areas inherently have provider shortages, particularly with regard to consultation-liaison psychiatrists.

Health providers use a number of psychiatric, health service and disease management models to reach primary care patients, predominantly in suburban and urban locales (Katon et al 1995; Pincus 1987; Strathdee 1987). The traditional referral or replacement model uses the psychiatrist as the principal provider of mental health services. The consultation care model includes the PCP as the principal provider of mental health services, after a psychiatric consultation. The collaborative care model involves mental health services jointly provided by the PCP and psychiatrist, including frequent communication between providers. Variations on these models also include use of mental health extenders and a stepped care to judiciously use scarce psychiatric resources (Katon et al 1997). Quality improvement programs also improve treatment rates and outcomes for depressed patients with comorbid medical illness in primary care (Koike et al 2002) and are cost-effective, too (Wells et al 2001).

These models have been evaluated both in the United States and Great Britain. In Great Britain, the majority of psychiatrists function in the traditional referral model (Strathdee 1987). The majority of PCPs, though, favored the collaborative care model, as having the psychiatrist located in the primary care clinic setting versus an offsite mental health clinic greatly improved the consultation process (Katon et al 1995; Bailey et al 1994). Such research shows that those PCPs patients are more likely to receive adequate doses of antidepressants and recover from depression (Simon et al 2000). But in rural areas, there is a dearth of specialists (Off Tech Assessment 1990), resulting in travel for patients or providers. In addition, some rural sites have unique needs and issues (e.g., high rates of substance disorders and few treatment options at an Native American reservation; enmeshed small communities, wherein patients want an objective person from the outside).

### **3.2. Telemedicine history**

Telemedicine, defined as the use of technology to deliver health care (usually through videoconferencing), is one strategy to improve the accessibility of mental health care, particularly to areas underserved by physicians (Preston et al 1992; Hilty et al 2004a; Hilty et al 2013a). Telecommunications technology has been used to link specialists at academic health centers with health care professionals in rural areas for the management of patients (Hilty et al 1999). Videoconferencing, telephone and computer-based (e.g., e-mail) connect specialists with PCPs for patient care (Nesbitt et al 2000; Levine and Gorman 1999; Dick et al 1999; Hilty et al 2004b).

Medical home, home health and other mobile technology methods are in development and need to be better studied, although costs are dramatically decreasing. The patient-centered medical home (PCMH) is a concept founded on the presence of inadequate treatment in primary care and/or an inability to access needed services (Rosenthal 2008). PCMH allows telepsychiatric input at home, still under the general purview of the primary care provider, and it has been shown to improve patient care and health (Hollingsworth et al 2011). Desk-mounted video systems offer great convenience for therapy to cancer patients to avoid travel, but the cost used to be prohibitive for most consumers (Cluvey et al 2005). Internet-based video

technology via personal computers and mobile devices must be HIPAA-adherent. Use of these technologies is increasingly becoming available, and will support the move of telepsychiatry to the home, such as programs that are now being implemented by the Veteran's Health Administration (Shore 2011).

Telemedicine was first used for medical purposes for psychiatric consultation (i.e. telepsychiatry) in the 1950's and 1960's to help the Nebraska Psychiatric Institute provide education, patient care, and consultation to a variety of sites (Wittson et al 1961). In the 1960s, telemedicine was also used to connect academic centers with urban populations (Straker et al 1976). Over the past several decades, academic health systems consisting solely of the medical center, are reaching out with telemedicine to rural clinics by using a consultation model of care. The University of California Davis Health System (UCDHS) connects the Medical Center with approximately 50 suburban and rural primary care clinics, up to 300 miles away, with telepsychiatric care (Nesbitt et al 2013; Hilty et al 2004a).

Telepsychiatry, in the form of consultation to primary care, and psychiatric management, has been well-received, enables valid and reliable evaluations, has good (preliminary) outcomes, and empowers parties using it (Hilty et al 2004a). PCPs in rural areas also have reported inadequate skills to manage mental health issues, and benefit from assistance (Geller 1999; Geller and Muus 2002). Telemedicine has been shown to improve medication adherence, depression severity, mental health status, health-related quality of life, and satisfaction for patients being treated for mental illnesses in primary care practices lacking on-site psychiatrists (Hilty et al 2006a; Hilty et al 2007a). The American Telemedicine Association has published telemental health practice guidelines (Yellowlees et al 2010) as has the American Association of Child and Adolescent Psychiatry (AACAP 2007).

### **3.3. Models of care for rural populations (Hilty et al 2006b)**

**Model 1:** Randomized controlled trial (RCT) for depression in adults. A RCT recruited depression patients through self-report and structured psychiatric interviews (Hilty et al 2007b). Subjects were randomized to: 1) usual care with a disease management module (DMM) using telephone and self-report questionnaires; or 2) a DMM using telephone, questionnaires, and repeated televideo psychiatric consultation coupled with training of the PCP. Subjects' depressive symptoms, health status, and satisfaction with care were tabulated at 3, 6, and 12 months after study entry. There was significant clinical improvement for depression in both groups, with a trend toward significance in the more intensive module. Satisfaction and retention were statistically superior in the intensive group; there was no change in overall health functioning.

**Model 2:** Formal, multi-specialty phone and email physician-to-physician consultation. The UCDHS and California Department of Developmental Services (CDDS) developed the Physician Assistance, Consultation and Training Network (PACT Net) to assist PCPs in the treatment of patients with developmental disabilities in rural California (Hilty et al 2004b). PACT Net was a 24-hour warm-line in design and was funded from CDDS at approximately \$450,000 over three years. Thirty consultations were completed: 28 by telephone and 2 by e-mail; 24 of those consultations were able to be responded to within one business day of the

referral. The average duration of consultation was 47 minutes, and the consultation was accompanied with a 4-page summary/case for the referring physician. The top three services requested for consultation were psychiatry (e.g., management of behavioral disturbance), medical genetics (e.g., diagnosis), and gastroenterology. PCPs rated items baseline satisfaction on a 7-point Likert scale: 1) pre-existing local services at 3.37; 2) timeliness of the PACT Net consultation at 5.45; 3) quality of the communication at 6.3; and 4) overall quality and utility of the consultation at 6.2. Specialists rated the quality of the communication at 6.45, and the ease of the service at 6.46. While phone and e-mail consultation was effective, it was not used as much as expected.

**Model 3:** An integrated program of mental health screening, therapy on site, and telepsychiatric (video, phone, e-mail) consultation to rural primary care. The UCDHS and Northern Sierra Rural Health Network collaborated to develop a program for rural Northeastern California, funded by the California Endowment. Over a three-year period, 10 rural sites learned how to utilize screening instruments for multiple disorders (e.g., depression, alcoholism, and anxiety disorders), and collect basic outcome measures for depression at regular intervals, in concert with telepsychiatric consultations and on site therapy visits. The number of consultations per year increased by 120%. Continuing medical education (CME) was provided annually for PCPs and other providers. Services included a telepsychiatric consultant / therapist on site 25% for specific brief therapy and integrated planning meetings between rural primary and mental health care staff. Outcomes were that most children were seen only once, but a statistically significant improvement between initial evaluation and three-month follow-up in the convenience sample was seen in the Affect and Oppositional domains of the Child Behavioral Checklist (CBCL) for girls and boys, respectively; incorporating standardized checklists, may assist in diagnosis and treatment of rural children (Neufeld et al 2007).

**Model 4:** Cultural consultation to rural primary care using telemedicine. Early in the telepsychiatry service of UC Davis Department of Psychiatry and Behavioral Sciences in 1996, culturally informed consultation became incorporated into the telemedicine rural primary care collaboration. Some rural patients faced language and cultural barriers to seeking and receiving care from their local primary care physician. For example, a 56 year-old Mexican American female who became depressed following the sudden death of her husband of thirty years, was diagnosed with major depression, and started on an antidepressant but did not improve despite 4 months of treatment (Cerda et al 1999). She did not take medication as recommended and did not communicate concerns to the PCP because of the stigma and cultural reasons. A 60-minute telepsychiatric evaluation was conducted by a Mexican American psychiatrist, who met with the PCP and patient. At follow-up the patient reported daily compliance with medication thereafter, the depression had remitted and the frequency of medical visits decreased from one-to-two times per month over a one-year period to only a single visit in the six months since the consultation.

**Model 5:** Collaborative care via telepsychiatry. This model is co-provision of medication for primary care patients by the telepsychiatrist and primary care provider in rural communities, based on the earlier models of in-person care to achieve national standards of antidepressant prescriptions (Fortney et al 2013; Katon et al 1997). This model is often integrated with stepped

models of care, which similar to above use ‘less intensive or expensive interventions’ first then if patients fail to improve, ‘step it up’ to more intensive services, and

**Model 6:** Asynchronous telepsychiatry. Traditionally, there have been two main types of telemedicine: *synchronous*, which typically relies on live, two-way interactive video to a remote area, and *asynchronous* (store-and-forward), which transmits clinical information via email or web applications for later review by a specialist. Broadly speaking, synchronous communication by phone or with video allows synthesis of information and easy exchange of information, with in-the-moment questions by PCPs. *Asynchronous* telemedicine has been commonly used and well-received for pathology, cardiology, radiology, dermatology and other fields. A study of synchronous telepsychiatry, including Native American patients, revealed that PCPs are highly satisfied with the service, with 100% of the respondents noting the consultation as fast as from a regular face-to-face visit, was able to meet their patient’s needs and lead to an improvement in the management of their patient; 64% thought the ATP consultant was able to completely meet their patient’s needs and the feedback they received over ATP was as good as from a regular face-to-face visit (Yellowlees et al 2010; Butler and Yellowlees 2012).

### 3.4. Telepsychiatry and cultural populations

Ethnicity, culture and language issues affect health (Office of Surgeon General, 2001) and there is often inadequate access to specialists (Moreno et al 2012) —inroads to patient needs and preferences that can be met by telemental health are progressing. A recent study of nearly 40 rural health clinics compared impressions of 25 primary care providers and 32 staff impressions of factors important to care: using providers who value differences (5.4/7.0), quality of the provider’s care (4.9/7.0), access to care in general (4.5/7.0) and availability of trained interpreters for use with patients (4.4/7.0) (Hilty et al 2013). Others are studying the specific needs of Hispanics/Latinos (Moreno et al 2012; Nieves et al 2007, Chong et al 2012), Asians (Ye et al 2011), Native Americans (Weiner et al 2005, Shore et al 2007, Shore et al 2008), Eastern Europeans (Mucic, 2004), and those using sign language (Lopez et al 2004) —all using telepsychiatry for service provision. With patients of different cultural backgrounds, using the patients’ primary language allows for a more comfortable atmosphere where they may express their genuine feelings and emotions.

### 3.5. Telepsychiatry to Native Americans

Northern Plains Native Americans were very satisfied and comfortable with telepsychiatric treatment for post traumatic stress disorder (Shore and Manson 2004a; Shore and Manson 2004b; Shore et al 2006). In fact, location, communication, trust, and confidentiality were equally satisfactory for treatment in-person versus videoconferencing. Even Native American children and families are receptive to telepsychiatric consultation (Savin et al 2006).

#### U. Colorado.

Over the past decade the University of Colorado’s Center for American Indian and Alaska Native Health (CAIANH) has collaborated on multiple telepsychiatry services targeted at American Indian and Alaska Native populations (Shore et al 2006; Savin et al 2006; Shore et al

2012a). These services have occurred in a number of Western States (Alaska, Colorado, Montana, New Mexico, South Dakota, Wyoming), involved both consultative and direct service models in a range of settings (community clinics, hospitals) and spanned age ranges from children and adolescents to geriatric population. These services have helped to demonstrate the feasibility of telepsychiatry with native populations, various models of clinical structure and integration and the importance of cultural adaptation.

A recent review (Shore et al 2012a) summarizes 10 years of CAIANH work with rural Native Veterans, of rural American Indian Veterans who serve at the highest rate per capita in the military, and who have the highest rates of posttraumatic stress disorder and substance abuse related to their military service. These clinics represent a unique multi-organizational collaboration between the Department of Veterans Affairs, the Indian Health Service, the University of Colorado and Tribal partners. Outcomes provide strong evidence of the positive impact of improved access and quality of care to rural Native veterans. For example a recent published report described the increase in service utilization and appropriate medications for patient in these clinics (Shore et al 2012b). The clinics utilize a model that includes culturally knowledgeable providers, onsite clinic tribal outreach workers and collaboration with local services including as appropriate traditional medicine. This work strongly suggests the importance of the development and use of an appropriate telepsychiatry clinic model for Native patients that accommodates cultural issues, maintains overall fidelity of approach but can be adapted to best fit local services and culture.

## **4. UC Davis telepsychiatric Native American study**

### **4.1. Overview**

This article is a description of the patients seen from three California Native American IHS sites using a telepsychiatric consultation program from the academic medical center. Its objectives were to: a) describe the population's demographics and illnesses, b) identify needs of patients and physicians, c) report the services delivered to this patient population, and d) examine the quality of psychopharmacologic services. Patient, clinic, and system factors related to telepsychiatric consultation, which have important implications for federal health policy toward Native Americans, will be noted (Dixon 2001).

### **4.2. Methods**

The University of California Davis Health System (UCDHS) is based in Sacramento, California, and serves a 33-county area to the Oregon state border. Since 1995, UCDHS has provided telemedical consultations since 1995 in 28 specialties to 42 clinics (26 rural, 16 prisons) between 100 and 350 miles away (Nesbitt et al 2013). The telepsychiatry service has provided over 4,000 consultations, using a variety of models (Hilty et al 2006b).

### 4.3. Technology

UCDMC and remote sites use dial-up integrated service digital network (ISDN) lines, transmission speeds of 384 Kbps and a CODEC (COder-DECoder). The hourly rate for lines ranges from \$30-\$60 depending on the distance and long-distance carrier, for each hourly consultation. Round Valley and K'ima:w use Internet Protocol (IP) with transmissions speeds of 384 Kbps, carried over a dedicated link (either Frame Relay or a T-1 connection) into the UC Davis network. The monthly cost is approximately \$500/clinic, but there is no per-use charge as with ISDN. The total capital cost of these units is approximately \$8,000 at all sites.

### 4.4. IHS clinics and patients

K'ima:w Medical Center (Hoopa, Karuk, and Yurok tribes), Round Valley Indian Health Center, Inc. (Round Valley Indian Tribes) and Pit River Health Service, Inc. (Big Bend, Montgomery Creek, Pit River Tribe, Roaring Creek, Smith Camp) receive specialty services from UC Davis Medical Center (UCDMC) and are officially rural areas as defined by non-metropolitan statistical criteria (Off Tech Assessment 1990). All have a population under 500 and patients travel 3-6 hours for specialty service on roads that are hard to access or treacherous to travel. Each city has an IHS primary care clinic. Most of these clinics have part-time substance abuse/dependence counseling and groups; none have a full-time psychotherapist and there are no mental health clinics or day treatment programs; psychiatric hospitalization is 3-6 hours away. California IHS has used telepsychiatric, tele-endocrinology and tele-ophthalmology since 1999. They use a specialist consulting by video to a primary care provider at the IHS site, who provides the actual care. Consecutive initial and follow-up telepsychiatric consultation from UCDMC to the IHS sites from January 2004 to December 2004 were reviewed. Data from IHS patients around the state, rural Northern California telepsychiatry sites and the California census were used as comparisons (Tables 1 and 2).

Characteristic	Study CA IHS Patients	IHS Community			Rural Northern CA (eMH) <sup>5</sup>	CA (via US Census)
		Total CA IHS patients	Native American IHS Pts.	Non-AI CA IHS Pts.		
N	45	7472	4071	3401	122	24,621,819 <sup>1</sup>
Age						
18-30	35.5%	30.1%	36.3%	22.7%	27.9%	26.4%
31-45	37.0%	26.6%	28.7%	24.1%	29.5%	32.5%
46-65	20.0%	29.8%	24.7%	35.8%	36.9%	27.2%
> 65	6.6%	13.5%	10.3%	17.4%	4.1%	13.8%
Ethnicity						33,871,648 <sup>2</sup>
Caucasian	17.8%	19.5%	0%	42.8%	96.7%	63.4%

Characteristic	Study CA IHS Patients	IHS Community			Rural Northern CA (eMH) <sup>5</sup>	CA (via US Census)
		Total CA IHS patients	Native American IHS Pts.	Non-AI CA IHS Pts.		
Amer. Indian	80.0%	52.5%	100%	0%	0.8%	0.7%
Latino	2.2%	1.4%	0%	3.0%	0.8%	32.4%
Afr. Amer.	0%	.2%	0%	0.5%	1.6%	7.4%
Asian	0%	0%	0%	0%	0%	12.3%
Other	0%	26.4%	0%	53.6%	0%	20.1%
Gender: % Female	66.7	51.9%	52.9%	50.6%	58.2%	49.3% <sup>1</sup>
Marital Status						26,076,163 <sup>3</sup>
Married	40.0				39.3%	54.9%
Single	28.9				41.8%	30.1%
Divorced	17.8				9.0%	9.5%
Widowed	4.4				3.3%	5.6%
Not Noted	8.9				6.6%	
Unemployed	53.3%					15,829,202 <sup>4</sup>
Not Noted	24.4%					7.0%
Prev. attempted suicide (1+)	28.8%					
Prev. hospitalized						
Current nicotine users	35.5%					

<sup>1</sup>Source: U.S. Census Bureau (USCB), Census 2000 Summary File 1, 100-% Data, DP-1. Profile of General Demographic Characteristics: 2000.

<sup>2</sup>These numbers reflect total population, inclusive of those under the age of 18.

<sup>3</sup>Source: USCB, Census 2000 Summary File 3, Matrices PCT1, PCT7, and PCT8.

<sup>4</sup>Source: USCB, Census 2000 Summary File 3, Matrices P43 and PCT35.

<sup>5</sup>Rural comparison sample of adult patients over same period of time from 10 northern rural clinics.

Source: USCB, Current Population Survey, 2004 Annual Social and Economic Supplement. Table HI05. Health Insurance Coverage Status and Type of Coverage by State and Age for All People: 2003.

@ (Numbers in thousands)

**Table 1.** A Comparison of Patient Characteristics: Study CA IHS vs. All IHS vs. Rural CA vs. General CA.

	N	Current CA IHS	N	Rural CA <sup>1</sup>	Chi Square Analysis	Significance
Total Axis I Diagnoses	92	45 patients 2.04 dx/pt.	203	122 patients 1.66 dx/pt.		
Mood	31	69%	100	82%	(1, N = 167) = 3.92	p < 0.05
Depression	22	49%	56	45.9%		
Bipolar Disorder	9	20.0%	44	36.1%		
Anxiety <sup>2</sup>	25	55.5%	45	36.9%	(1, N = 167) = 4.71	p < 0.05
Impulse	5	11.1%	0	0%	(1, N = 167) = 13.97	p < 0.001
Substance (abuse/ dependence)	25	55.5%	22	18.0%	(1, N = 167) = 14.79	p < 0.001
Alcohol	10	22.2%	11	9.0%	(1, N = 167) = 5.21	p < 0.05
Drug	15	33.3%	11	9.0%	(1, N = 167) = 14.79	p < 0.001
Cognitive/ Dementia	1	2.2%	5	4.1%		
Psychosis	5	11.1%	11	9.0%		
Childhood	0	0%	8	6.6%		
Somatoform d/o	0	0%	5	4.1%		
Eating	0		7	5.7%		
Unknowns	0	0%	0	0%		
Total Axis II <sup>3</sup> Diagnoses	5	11.1%	11	9.0%		
Total Axis V - GAF		Mean = 60.71; SD = 5.040; Range 50-70		Mean = 60.10; SD = 8.756; Range 35-85		

<sup>1</sup>Rural comparison sample of adult patients over same period of time from 10 northern rural clinics.

<sup>2</sup> PTSD nearly 2/3 of all disorders.

<sup>3</sup> Provisional

**Table 2.** Primary Diagnosis for Native American Telepsychiatry Consultations.

#### 4.5. Teleconsultation procedures

Consultations started with a PCP referral, with an assistant faxing a one-page consultation request and, when available, information on the patient's history, medication log, and medical disorders one week prior to the consultation. All consultations were performed by psychiatric

faculty in English. A consultation care model was used, in which the PCP was the provider of mental health services. Patients signed a consent form that described the nature of the consultation, personnel involved, and their option to see someone in person. Patients who presented with a medical emergency (e.g., suicidal or homicidal ideation or acute psychoses) were referred to local mental health services in lieu of telemedicine consultation, unless the presence of a staff member was sufficient to stabilize them for the appointment. If an emergency developed, the UCDMC clinic called the IHS clinic to have staff and law enforcement assist. An appointment consisted of 45 minutes for the psychiatrist to conduct the patient evaluation and 5-10 minutes for the PCP to join at the end of the evaluation to discuss options for treatment.

Diagnosis was made by a semi-structured interview, using the mood, anxiety and substance sections of the Structured Clinical Interview for DSM-IV-TR, and supplemented with the following: screening questions for other psychiatric diagnosis(es); history of abuse or domestic violence; hospitalizations; past suicide attempts and present suicidal or homicidal ideation; current and past medication; 1<sup>st</sup> and 2<sup>nd</sup>-degree family member history of psychiatric disorders; and the PCP reasons for referring for consultations (diagnostic assessment, medication management, psychological assessment or triage); this is the PCPs' understanding for the referral rather than what turned out to be true by psychiatric evaluation. On the day of the consultation, a one-page fax was sent from the psychiatrist to the rural site to summarize findings and present three treatment options per problem. The PCP would choose what he/she thought was the best option; the others automatically served as back-up plans. A dictation was sent one week thereafter.

#### **4.6. Data collection**

Data were collected on each consultation from telemedicine staff at the rural site (RPMS above), the patient, the PCP, and the psychiatrist. The IHS community data were retrieved from the IHS Resource and Patient Management System (RPMS). RPMS is a decentralized automated information system of over 50 integrated software applications that supports the provision of healthcare at Indian Health facilities. RPMS is a repository of patient data that can be manipulated by applications to support healthcare planning, delivery, management, and research. At UCDMC, paper protocols steered research assistants to collect information from patient registration forms, the electronic medical record and additional paper forms to log any data not usually included in a standard interview; the information was de-identified. Patient sociodemographic information included age, ethnicity, gender, marriage status, education, and employment. Comments by patients and staff were logged for informal analysis of themes that arose, in a qualitative sense, in case future evaluation might be indicated.

#### **4.7. Diagnostic clustering**

Due to numbers, mood disorders were spelled out, but otherwise, broad grouping of diagnostic categories was done due to small numbers and general clustering of the diagnoses, following DSM-IV-TR categorization (e.g., anxiety, psychotic and impulse control disorders). Substance use disorders were differentiated into either alcohol or drug, regardless of abuse or

dependence. Provisional Axis II diagnoses were grouped together due to the fact that few were confirmed on one-time evaluation. Family members' diagnoses were not confirmed; report was considered positive if they had medication treatment, hospitalization or a long history known to family (e.g., social disturbance by alcohol).

#### **4.8. Quality of medication trial**

Dosing was assessed by chart review and in line with national guidelines, with adjustments made for projected age, culture and drug interactions (Depression in Primary Care. Volume 2 1993; APA Practice Guideline 2002; APA Practice Guideline 2006). The criteria vary on dosage vary according to disorder (e.g., depression, paroxetine, initial 10-20mg bedtime, initial 4-week trial, dose increase and so on). The chart was checked for a disorder in which the medication would be used, to determine if it was "Not needed" or "Needed"; since therapy is available in some sites and not others, and if available, usually used no more than one time per month, medication is more needed than not. Ancillary use of medications at low dose (e.g., for sleep) was excluded. Dosage and duration were reviewed per chart and per patient interview of how it was prescribed, in the event that the dosage was changed or new medications were not reflected in the chart. Medication was categorized as adequate, partially adequate (e.g., adequate dosage or too short of a period) or inadequate (e.g., none given, too little given to affect change). Non-adherence with medication, by self-report and by questioning by the telepsychiatrist, was excluded as a confounder.

#### **4.9. Data analysis**

Descriptive statistics and chi-square tests were run for the following: a) IHS vs. other socio-demographics; b) IHS vs. others' diagnoses; c) past and present diagnoses; d) present diagnoses (if more than one); e) present diagnoses and family member diagnoses; and f) dosing adequacy and ethnicity, gender, and presence of a diagnosis of substance abuse/dependence.

#### **4.10. IRB approval**

This project was approved by the Committee on the Protection of Human Subjects at UCDMC.

#### **4.11. Results**

Over the one-year period, 45 different IHS patients were seen; 80% were Native American, and 67% were female. Initial evaluations were done for 32 and 13 had follow-up visits from prior initial telepsychiatry consultations. The mean age was 39.71 (SD = 14.83). For comparison, other samples were of similar ages, though the California rural comparison sample was 97% Caucasian and 58% female; overall, Californians were 63.4% Caucasian, 49.3% female (see Table 1).

PCP reasons for consultations were consistent with primary care practice, and included depression and anxiety (40%), general medication evaluation (38%), mood disorders (11%), disability evaluation (4%), and gastric bypass psych evaluation (7%). The most common

services provided were medication management (96%), diagnostic clarification (89%), psychological assessment (36%), and patient triage (18%).

The total number of Axis I diagnoses was 92 (range, 0-4), with an average of 2.04 per patient (SD = 1.06) (see Table 2). A total of 31 patients were diagnosed with mood disorders (9 bipolar/22 depression); 13 (42%) of those individuals had 1<sup>st</sup> and 2<sup>nd</sup>-degree family members with a mood disorder. Fifteen (48.3%) of the patients with mood disorders had comorbid anxiety disorders. Notably, 55% of the patients seen had a current substance abuse/dependence diagnosis, mainly methamphetamine (42% of the 55%) and marijuana (40% of the 55%). Chi-square tests revealed the IHS sample to have higher rates of anxiety, impulse, alcohol abuse/dependence, and drug abuse/dependence disorders than the rural California samples (Table 2). The average Global Assessment of Function (GAF) was 60.71 (SD 5.040).

There appeared to be a significant relationship of diagnoses to past personal and family history. High rates of disorders were found between mood, abuse/trauma, and substances. The overall sexual abuse rate at 22% (10/45) and these patients had high rates of other disorders (see Table 3). Data suggested a relationship between 1<sup>st</sup> and 2<sup>nd</sup>-degree family members using substances and patients using alcohol, as well as between mental and emotional abuse and a diagnosis of depression, but statistical differences were not found. Patients with bipolar or substance disorders commonly had a family member with bipolar disorder. As shown in Table 4, the IHS subgroup with mental and emotional abuse also showed higher of depression rates than the overall sample.

In terms of dosing and dosing adequacy, of the 45 patients, 73% had a medication indicated for their primary disorder; 60% of those were at an adequate dose. When it was looked at per group and medication, antidepressants were given adequately 50.0% of the time and sub-adequately for 63.3% of patients (Table 5). This was in stark contrast to mood stabilizers and antipsychotics adequately used 23.1% and 25.0%, respectively, mainly being under-dosed more than antidepressants; they were not erroneously prescribed, though. A chi-square analysis found a significant relationship between inadequate dosing of antipsychotics and gender (women) ( $p < 0.01$ ). No other biases were found with inadequate dosing.

Qualitative analysis revealed that patients reported comments in several theme areas: a) gratitude for the availability of care in general, and care without the stigma of mental health services, in particular, as many do not have transportation to urban centers; b) preference for telepsychiatric consultation, since they fear stigma locally and are unsure if confidentiality can be maintained in small rural centers; c) appreciation of their clinics' initiative in helping them; and 4) initial anxiety about using the technology and surprise that it seemed to work. Staff at IHS sites felt positive about care being available, high patient satisfaction, and some frustration about making the clinic schedule "fit" the rural and cultural environment. Staff at the UCDMC Center for Health and Technology reported that IHS sites seemed to value the service as much or more than other rural sites.

#### 4.12. Discussion of findings

These clinics of the IHS found more patients to be female and Native American than in other populations, and to have 2+ psychiatric disorders (mainly depression and anxiety). The main services conducted for IHS patients by telepsychiatry are medication management and diagnostic clarification. The adequacy of medication treatment was better for disorders requiring antidepressants than for those requiring mood stabilizers or antipsychotics. Patients with a personal or family history of trauma, mood or substance disorders, had higher rates of psychiatric and specifically substance disorders. As found in a previous study, relationships appear to exist between trauma history, substance abuse/dependence, mental illness, and higher rates of suicide attempts and hospitalizations (Bohn 2003). The sexual abuse rate that we found in our IHS sample—22%—is consistent with national rates estimating that 15-33% of females have experienced sexual abuse (Bohn 2003). Based on national studies, higher rates of substance abuse/dependence in the Native American sample vs. rural California were not unexpected, though this did not generalize into more overall pathology based on GAF scores.

There are many clinical implications of these data, particularly the high rates of comorbidity between mood, anxiety, substance, and other disorders. In particular, bipolar disorder and substance disorders quite commonly co-exist, and a positive family history may be helpful in diagnosis (APA Practice Guideline 2002). Clinicians may need to evaluate Native American patients differently than other rural populations. Treatment plans with a strong biopsychosocial approach are indicated in light of stress and trauma, but therapy resources are limited. Best practices and Treatment Intervention Protocols to identify and treat comorbidities are available through the Substance Abuse and Mental Health Services Administration (SAMSHA) Center for Substance Abuse Treatment (SAMSHA Subst Treatment 2002), but these protocols are complex and require more resources than many rural sites have available, or the specialist services are again not available.

Rates of medication dosing adequacy upon referral indicate that PCPs are more likely to *not* prescribe than to inaccurately prescribe psychiatric medications, which is consistent with national trends (Hilty and Servis 1999). From a programmatic point of view, if medication dosing is falling short for bipolar and psychotic disorders, disease management interventions may be indicated (Hilty et al 2007b). No major ethnic biases or gender biases were found regarding dosing, except inadequate dosing of antipsychotics in females; numbers were small and should only be interpreted as a trend.

### 5. Discussion and conclusions

Native Americans have significant needs for health care and are at significant risk for many health and mental health problems. Without attention to both health and mental health needs, patients and their families face compounded problems of health, money, access and other social problems.

<b>Subgroups Current / Past Drug Usage</b>	<b>Family N = 11 %</b>	<b>Sexual Abuse N = 10 %</b>	<b>Non-Physical, Emotional Abuse N = 4 %</b>	<b>Physical Abuse N = 11 %</b>	<b>Overall Sample N = 45 %</b>
Alcohol	100	90.0	25.0	81.1	<b>64.4</b>
Amphetamines	36.4	50.0	0	27.2	<b>42.2</b>
Cocaine	18.2	10.0	0	18.3	<b>8.9</b>
Opioids	36.7	20.0	25.0	27.2	<b>22.2</b>
Marijuana	45.5	50.0	75.0	50.0	<b>40.0</b>
Suicide attempts	27.3	30.0	75.0	36.3	<b>28.8</b>
? Hospitalizations	27.3	30.0	75.0	28.8	<b>28.8</b>
<b>Diagnoses</b>					
Bipolar	27.3	20.0	0	9.1	<b>20.0</b>
Depression	63.6	60.0	100	54.5	<b>49.0</b>
Anxiety	63.6	60.0	25.0	63.6	<b>55.5</b>
Substance	54.5	30.0	25.0	54.5	<b>55.5</b>
Alcohol	18.1	30.0	0	18.1	<b>22.2</b>
Cognitive	0	0	0	0	<b>2.2</b>
Psychosis	0	20.0	0	2	<b>11.1</b>
<b>Primary Family Members</b>					
Bipolar	36.7	20.0	25.0	18.1	<b>13.3</b>
Depression	18.2	10.0	75.0	9.1	<b>20.0</b>
Anxiety	9.1	30.0	25.0	27.2	<b>11.1</b>
Substance Abuse/ Dependence	100.0	30.0	25.0	45.4	<b>24.4</b>
Cognitive	9.1	0	0	0	<b>6.6</b>
Psychosis	9.1	10.0	0	0	<b>8.8</b>
Childhood	9.1	10.0	0	18.1	<b>6.6</b>
Unknown	0	10.0	0	0	<b>8.8</b>

<sup>1</sup> Family defined as 1<sup>st</sup> and 2<sup>nd</sup>-degree members.

**Table 3.** Relationship of Patient Psychiatric Diagnoses with Personal and Family<sup>1</sup> Histories.

Subgroups	Bipolar	Depression	Anxiety	Psychosis	Etoh	Drug	Overall
<b>Current / Past</b>	<b>(n = 9)</b>	<b>(n = 22)</b>	<b>(n = 21)</b>	<b>(n = 4)</b>	<b>(n = 10)</b>	<b>(n = 14)</b>	<b>(N =45)</b>
<b>Drug Use</b>	<b>%</b>	<b>%</b>	<b>%</b>	<b>%</b>	<b>%</b>	<b>%</b>	<b>%</b>
Alcohol	77.8	59.1	28.6	0	100.0	78.6	<b>64.4</b>
Amphetamines	88.9	22.7	23.8	75.0	60.0	71.4	<b>42.2</b>
Cocaine	11.1	9.1	4.7	25.0	20.0	21.4	<b>8.9</b>
Opioids	33.3	18.2	19.0	50.0	40.0	42.8	<b>22.2</b>
Marijuana	44.4	45.4	23.8	50.0	60.0	64.3	<b>40.0</b>
Suicide attempts	33.3	27.3	23.8	75.0	40.0	21.4	<b>28.8</b>
?Hospitalizations	11.1	31.8	23.8	75.0	40.0	35.7	<b>28.8</b>
<b>Cormorbidity</b>							
Bipolar	-	0	14.3	0	20.0	35.7	<b>20.0</b>
Depression	0	-	57.1	0	50.0	35.7	<b>49.0</b>
Anxiety	30.0	54.5	-	25.0	50.0	35.7	<b>55.5</b>
Psychosis	0	0	4.8	-	20.0	14.3	<b>11.1</b>
Alcohol	22.2	22.7	23.8	50.0	-	28.6	<b>22.2</b>
Drug	55.5	41.7	23.8	50.0	40.0	-	<b>33.3</b>
Cognitive	0	0	0	0	0	0	<b>2.2</b>
<b>Primary Family</b>							
<b>Members</b>							
Bipolar	33.3	4.5	0	0	0	35.7	<b>13.3</b>
Depression	22.2	27.3	14.3	0	20.0	14.3	<b>20.0</b>
Anxiety	4.5	9.1	19.0	25.0	10.0	7.1	<b>11.1</b>
Substance	33.3	31.8	33.3	0	20.0	35.7	<b>24.4</b>
Cognitive	11.1	9.1	9.5	0	0	0	<b>6.6</b>
Psychosis	22.2	9.1	14.3	0	10.0	14.3	<b>8.8</b>
Childhood	0	13.6	4.7	0	0	0	<b>6.6</b>
Unknown	33.3	0	4.8	25.0	20.0	14.3	<b>8.8</b>

**Table 4.** Drug Usage and Comorbidity by Diagnostic Category.

Native Americans in rural settings have significant need for psychiatric care, but have trouble accessing such care. Traditional models of accessing healthcare—often simply what is available locally, in nearby small cities or by travelling to metropolitan areas—have significant limitations. New models of service delivery like telepsychiatry appear to be suitable. Many clinical,

Class	Inadequate Treatment			Adequate Treatment		Appropriate Non- Treatment	Total
	Needed, None given	Needed, dosage low	Needed, time short	Needed, given	% of total	None needed or given	
Antidepressants	11	1	3	15	15/30 50.0%	15	45
Mood Stabilizers	4	3	3	3	3/13 23.1%	32	45
Antipsychotics	3	2	1	2	2/8 25.0%	37	45
Total	18	6	7	20	20/41 48.7%	N/A	

**Table 5.** Adequacy of Medication Care Upon Consultation per Drug Class.

technical, administrative, evaluation, and cultural factors affect telepsychiatric patient care. Research is indicated with regard to help-seeking, diagnosis, treatment, and outcomes of IHS populations, preferably via randomized controlled trials.

A delicate issue in dealing with culture and language of patients is the tension between a goal generalizing an approach or the search for “standard” nuances of specific tribes, with the difficulty of stereotyping groups and making clinical errors (Yellowlees et al 2008, Yellowlees et al 2013). Meeting with members of the community, including the health clinic, in advance is recommended to understand cultural issues. In addition, some nuances are best learned “in vivo” (e.g. during a consultation with “real” patients). Ethnocentrism refers to the attitude that one’s own culture is the “correct” one, while the relativist approach compares other cultures to one’s own in a less punitive way. Adopting a relativist approach to providing e-mental healthcare to individuals from diverse backgrounds is a minimal, essential step toward culturally appropriate care.

Different cultural and ethnic groups value the role and perspective of the individual differently (Yellowlees et al 2008). Certain cultural groups are highly individualistic, such as many individuals in the United States and in many western European countries. Other cultural groups, such as many Asian societies, value instead the goals and needs of the group/society as a whole. With regard to their mental healthcare, they may not see mental health problems as individual challenges that can be successfully treated, but as shameful or burdensome to themselves or to their families. The value of the individual should be a consideration when planning e-mental health interventions.

Another issue for rural Native Americans is confidentiality in dealing with life’s stresses or steps, as well as mental/substance illness/disorders (Yellowlees et al 2008). Our previous work noted that Native Americans had different frameworks for labeling traumas, and in addition,

were worried about seeking services due to concern that in small communities that “everyone would know”. Certainly trained professionals do their best on these concerns, but the introduction of telemedicine facilitated a more open framework for discussing past events. Providers outside the reservation were seen as neutral parties. Attention was paid, of course, to what was disclosed to the local providers, particularly when one covered for another.

Telepsychiatric consultation may help provide psychiatric services with primary care in Native American communities, which is important because substance abuse/dependence, mental health, and medical treatments are often not integrated and communication between clinicians may be rare (Manson 2000). Patients’ comments about their preference for telepsychiatric consultation, because of community stigma and uncertainty about confidentiality, may be significant and require further evaluation. The preliminary high satisfaction rates for patients and staff are encouraging, considering rural and cultural factors that may affect service delivery.

An “effective” program considers clinical, technical, administrative, evaluation, and cultural factors, based on conversations with patients, staff, clinicians, administrators and technicians of this project and according to the literature (Table 6) (Hilty et al 2013; Hilty et al 2004a; Darkins 2001). A developmental model of rural telepsychiatry emphasized stages of needs identification, infrastructure survey, partnership organization, structure configuration, pilot implementation, and solidification (Shore 2005). In particular, cultural factors that affect help-seeking, diagnosis, treatment, and outcomes need to be measured and explored. In the clinical/educational realm, it is important to remember the most complex referrals come first. It is important to be patient with these and the process, in building the relationship with the rural team and using them as opportunities to learn about rural patients’ needs, or the “holes” in the rural service delivery system (that can be filled as in the case above).

While technology is certainly reported as being highly beneficial in enhancing mental health outcomes, actual access to information technology is extremely variable and such technologies themselves may also be viewed and understood differently by individuals of different ethnic and cultural backgrounds. The issue of disparate access to technology by individuals of different ethnic and cultural backgrounds reveals that access to information technology differs significantly, depending not only on an individual's race or ethnicity, but also their income, their education level, and their geographical location (Mossberger et al 2006). African American and Hispanic/Latino individuals tend to report more affinity for information technology than whites do, but tended to have lower access to this type of technology, and poorer skills to use it effectively. When poverty and low socioeconomic status were taken into account, only the Hispanic/Latino group in Mossberger and colleagues' study actually had significantly poorer access to technology than the other two groups.

More concerted research on intersecting issues of culture, language, social class, ethnicity, geography, and e-mental health (Yellowlees et al 2008). Scientific and policy recommendations from this discussion include:

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*Clinical/Educational*

1. Obtain a telepsychiatric champion and provide adequate training for others with regard to the technology, adapt clinical practice to fit its use, and identifying its limitations.
2. Coordinate timing of consults (i.e., patient is there at the right time, telepsychiatrist has adequate time, and/or referring providers or staff stop in if desired).
3. Adequately train all site coordinators in the technical and procedural aspects of the service, including referral guidelines and transfer of patient medical information to the specialist and back to the referral site.
4. Documentation: appropriate policy and procedures for consent, forwarding pertinent information in advance (e.g., medications, illnesses).
5. Remember, with new services, the most complex of cases often are tried first (i.e., be patient).
6. Integrate telepsychiatric service with spoke on-site care: therapy, substance or cultural.
7. Match the type of service (e.g., consultation to spoke physician, triage, psychological testing, management) to the goal and/or request, as well as standard and reasonable practice (e.g., may be hard to manage from afar, who handles emergencies).

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*Technical*

8. Use clinically proven technology.
9. For each consult, be certain that the technical quality equipment is appropriately matched to the service and needs of the patient and their condition.
10. Provide regular technical maintenance and prompt trouble-shooting.
11. Have a back-up coordinator at spoke sites for unexpected times the primary coordinator is out.
12. Match the type of technology to the goal and/or service: video for patient evaluation; secure e-mail or telephone for physician-to-physician consultation.

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*Administrative*

13. Do a site visit to spokes to build relationships and trust.
14. Do a thorough needs assessment in the region that the program is planning to serve
15. Obtain overall and financial support of the program from senior leadership of the organization; ensure telemedicine and outreach is aligned with spoke's overall mission of the organization
16. Develop financial stability after start-up funds with grants and/or contracts.

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*Evaluation: hub and spoke*

17. Patients' data: sociodemographics, medical and psychiatric diagnoses and satisfaction.
18. Outcomes: disorder-specific (e.g., symptoms), adherence and functional (e.g., SF-12).
19. Services: type preferred and used; adherence; boundary with other system's services; holes.
20. Sites: physicians (e.g., education, skill, performance), staff and clinic system.
21. Costs: patient, hub and spoke.

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*Culture*

22. Obtain consultation from spoke and/or hub specialist on Indian culture, history and illness, as indicated.
  23. Include a section on documentation (e.g., brief note the day of, the dictation) re: cultural and/or spiritual issues.
- 

**Table 6.** Key Issues in Telepsychiatric Consultation to CA Indian Health Sites.

- What kind of assessment tools, methods, and measures are needed to assess the patients, providers, systems, technology, and other important issues?
- What are the intersections of culture, class, geography, and technology in our current mental health system, and how do these intersections vary across differing racial/ethnic and class subculture groups?

- To what extent can technology be used to increase access to high-quality mental health services, and how will confounding/mediating) variables such as geography, poverty, education, and socioeconomic status prevent effective care?
- Will patients' disorder, racial/ethnic identity, socioeconomic status, and geographic characteristics determine whether e-mental health or face-to-face care is more effective, and should electronic services be used in concert with face-to face services?
- Should policymakers downplay the influence of culture on the use of technology, and pay more attention to factors such as poverty and socioeconomic status when planning the provision of e-mental health services?
- What is the most cost-effective and logistically feasible way to provide language and interpreting support for e-mental health programs (and where...interpreters at which end and who)?
- What new approaches to care, that take into account cultural and ethnic issues, can we create using technologies (e.g. using store-and-forward technologies)?

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