Building a Telepsychiatry Service

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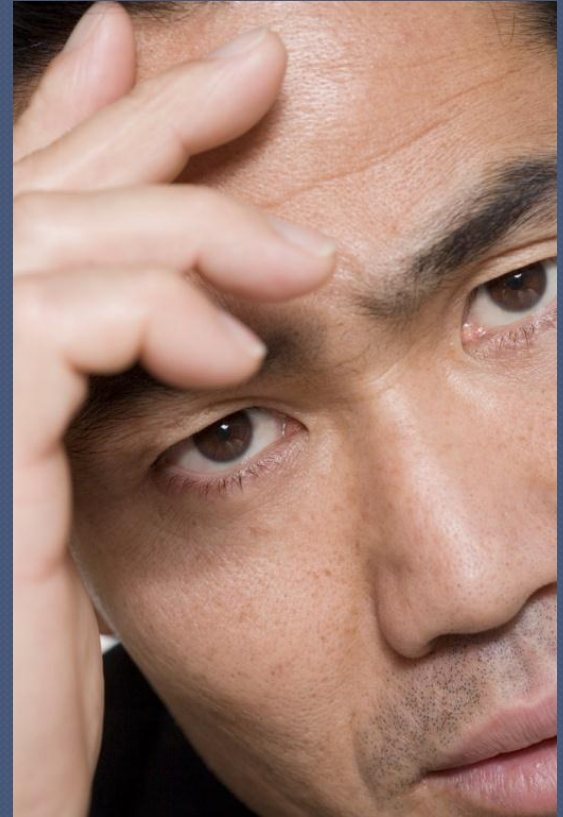 - Kate Perkins
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Background

Mental Health Problems and Unmet Needs

For Example, Depression

The *leading* cause of disability and the fourth leading contributor to the global burden of disease

- Depression is common
  - Affects about 121 million worldwide
    - May have profound effects on personal safety, quality of life, and co-occurring non-psychiatric conditions...

Depression Facts

- Of the estimated 17.5 million Americans who are affected by some form of depression, 9.2 million have major or clinical depression

- Two-thirds of people with depression do not seek necessary treatment

- The economic cost of depression is estimated at $30.4 billion a year
  - Cannot estimate the cost of human suffering

- Women experience depression about twice as often as men

- By 2020, WHO estimates that depression will be the number two cause of "lost years of healthy life" worldwide

- According to the Centers for Disease Control and Prevention (CDC), suicide was the ninth leading cause of death in the US

- About 15% of those with major depression go on to suicide despite some receiving "gold standard" care

[adapted from: http://www.psychiatry.wustl.edu/depression/depression_facts.htm]

Life Domains Affected by Depression

All of Them

Living in the Country

- People in rural areas of the US have much less access to medical care of all types compared to those in urban areas

- Some medical conditions may make it difficult or impossible for affected individuals to receive necessary services because they may be unable to come for appointments or to participate in their care as required

- Few providers are willing/able to spend uncompensated time in travel and few patients with significant medical comorbidity are able to make long trips without costly assistance and a significant investment in time

There are higher proportions of rural men who smoke, have hypertension, and impaired renal function, and of rural women with obesity, hypertension, diabetes, and renal impairment, compared to their urban counterparts

More to the Point

While the prevalence and incidence of mental disorders is similar between rural and urban residents, compared to their urban counterparts, rural residents are an underserved and vulnerable population

Rural Folks

- Are far less likely to have access to mental health care providers or services or to have mental health benefits

- Have lower rates of use of psychiatry services

- Have higher suicide rates

Rural Elders & Late-Life Depression

It's even worse for them

Overview

- Leads to significant individual and family burden

- More use of health care resources

- Increased mortality from comorbid medical illness *and* from suicide

- Underrecognized and undertreated
  - Especially in hospitals and nursing homes

- Often missed or taken as a normal part of aging
  - "You're old, you should be depressed."

Epidemiology

- Prevalence rates in men and women become comparable after the age of 55-65 (men increase, women level off)

- The frequency with which people with depression seek treatment declines sharply after age 55

Elders Not Seeking Help

- Symptoms inappropriately attributed to declining physical health

- Embarrassment about having psychological complaints

- Assumption that depression is a normal part of aging

- Trouble distinguishing between grief and "real" depression

Depression in Elders: Prevalence in Special Populations

- ⦿ Ambulatory Medical Care Setting
  - 30-50% will have significant depressive symptoms

- ⦿ Long-Term Care (i.e., NH) Setting
  - 25% of the best functioning residents have symptoms consistent with a major depression

US Nursing Home Facts

- Number of nursing homes: 16,100

- Number of beds: 1.7 million

- Occupancy rate: 86%

- Number of current residents: 1.5 million

- Average length of time since admission (current residents): 835 days

Of more than 1.5 million residents of US nursing homes:

- 80+% have psychiatric disorders or conditions
  - Depression, dementia and associated behavioral symptoms, delirium, anxiety, psychosis, sleep disorders
    - In addition, many have comorbid non-psychiatric conditions that create a "vicious cycle"

Depression prevalence

- > 20% meet DSM-IV criteria for major depression
- > 44% have important subsyndromal depression

Delirium prevalence

- 25% upon admission to PAC units
- 12% LTC units

Associated Problems

- High rates of functional, cognitive, and behavioral impairment

- Worse health outcomes

- Increased hospital use

- High mortality (illness; suicide)

- NH caregivers often can't/don't recognize or treat depression, delirium, disruptive behaviors, etc.

  - Myths
    - Depression = "normal" in old age
    - More confusion = worsening dementia

  - Lack of training; poor staffing patterns; high staff turnover

  - High prevalence of dementia

  - Medical comorbidity

- Only 20% of residents with mental health symptoms are evaluated by a MH specialist
  - Limited availability of psychiatrists
  - Worse in rural areas

- Although best practice guidelines are available, they are often difficult to implement in NHs

How Might We Address This Discrepancy?

Telemedicine!

Telemedicine

- The use of medical information exchanged from one site to another via electronic communications to improve patients' health status.

  - Videoconferencing, transmission of still images, e-health including patient portals, remote monitoring of vital signs, continuing medical education and nursing call centers are all considered part of telemedicine and telehealth…

Telepsychiatry

The use of telemedicine to deliver psychiatric care or education across distances using any available technologies. Other equivalent or related descriptors include *tele-psychiatry, telemental health, tele-mental health, telepsychology, and tele-psychology.*

A Little Telepsychiatry Background

- Cecil Wittson (psychiatrist) in 1961
  - Interested in two-way video technology
    - Compared effectiveness of FTF psychotherapy with that delivered via two-way television

Wittson et al

- Found choice of therapist and selection of group members more important than how therapy was delivered

- First published application of telemedicine

Benschoter et al

- In 1965, used two-way television system between Nebraska Psychiatric Institute and Norfolk State Mental Hospital, 112 miles apart, for several joint conferences

Pluses

- Lessening the need for travel

- Increased number of staff members for consultation at State hospital

- Improved interpersonal and institutional relations

Minuses

- Initial hesitance to use system

- Technical problems such as sound pick-up and camera operation

- High cost of transmission

- First reports of psychiatric consultations using telemedicine began to appear in the 70s
  - In general, described consultations for patients of community primary care providers or to various *satellite* locations by psychiatrists at academic medical centers using two-way interactive television.

e.g.

Solow et al (1971) used a psychiatry consultative model that comprised a referring provider briefly describing a patient to a consulting psychiatrist (CP), interview of the patient by the CP, and CP discussion of findings and recommendations with the referring provider

- Dwyer (1973) reported the successful use of TP to provide psychiatric consultations from Massachusetts General Hospital (the *hub* site) to a medical station (the *satellite* site) in Boston
  - About 30 psychiatrists and 30 psychiatry residents and medical students responded positively to TP and suggested that, for some patients, this modality might be preferable or superior to a FTF approach

- Lack of reliability compared to FTF

- *Technophobia*, an irrational fear and avoidance of new technologies

But it's Getting Better!

- Beginning in the 1980s, affordable videoconferencing allowed for widespread

  - Early videoconference costs were prohibitive and picture and sound quality was not always satisfactory

  - With the use of digitized audio and video data, it is now possible to expect and obtain acceptable high quality transmissions (even for images that require very accurate reproduction) at lower costs.

- Kldiashvili and Schrader (2011) reported that digital images are appropriate substitutes for glass slides for telecytology applications, particularly when used for quality assurance programs

- Urness et al (2006) reported generally high levels of patient satisfaction (equivalent to those for FTF) using TP

- Doolittle et al (2011) found a steady decrease in per visit costs and increase in use of a teleoncology service from 1995 (103 visits at $812 per visit) to 2005 (235 visits at $251 per visit)

Some Telemedicine Terms

To better understand how telemedicine applications are described, evaluated, and implemented

Bandwidth or Digital Bandwidth

- A rate of data transfer, bit rate or throughput, measured in bits (bps), kilobits (10^3 bits; kbps) or megabits (10^6 bits; mbps) per second

  - Typical free-standing telemedicine apparatuses may function reasonably well at bandwidths as low as 128 kbps but generally work better at rates of 364 kbps and higher

Typical Operating Bandwidths of Different Communication Equipment	
Apparatus	**Approximate Bandwidth**
Typical Dial-up Telephone	28kbps
Faster Dial-up Telephone	56kbps
Telemedicine Minimum	128kbps
Basic DSL (Digital Subscriber Line)	768kbps
T-1 / DS1	1.5mbps
3G	2.4mbps
T-3	44mbps
Maximum FiOS (Fiber Optic Service)	50mbps
4G (long-range)/WiFi (Wireless Fidelity) (short-range)	>100mbps

- Think of different bandwidths as different pipe diameters

  - Larger pipes allow greater flow rates

    - More data transferred per second

- Conversion of data into a form called a *ciphertext* that cannot be easily understood by unauthorized persons

  - *Decryption* is the process of converting encrypted data back into its original form, so it can be understood

Caution!

Some or all videoconference data may be encrypted, potentially enhancing its security, but encryption itself is no guarantee these data are completely safe

Safe?

- Not all encryption methods are equally effective

- Some software applications used for videoconferencing may not be HIPAA-compliant even though data is encrypted

- Some software producers may neither fully disclose the limitations of their encryption technology nor what data might be accessed or made available to third parties during or after a videoconference session

- When in doubt, consultation with appropriate (e.g., Risk Management, Information Technology) services is recommend before a telepsychiatry consultation is performed

- There are no universally accepted or mandated standards or guidelines for telepsychiatry but…

  - *Practice Guidelines for Videoconferencing-Based Telemental Health* was published in 2009 by the ATA

    - http://www.americantelemed.org/i4a/pages/index.cfm?pageid=3311

Some Basic Requirements for Telepsychiatry Encounters

Parameter	Requirement/Goal	Action
Safety	Ensure safety of a suicidal or otherwise unsafe patient	Establish a reliable and rapid system of communication other than the TP apparatus (e.g., cellular or other telephone, pager) to contact an onsite person in case assistance is needed
Usability	Conditions and apparatuses must be user-friendly and reliable	Take time to learn about equipment by having a few practice sessions with technical assistance available; make sure venues are well-lighted, quiet, secure, and easily accessible; have back-up plan for communication (e.g., cellular or other telephone) in case of equipment malfunction; know how to access technical staff during any time a telemedicine encounter might occur— 24/7 if necessary
Acceptability	Increased likelihood that TP will be used	Provider must be comfortable with equipment; acknowledge to patient and/or staff at distant site limitations/benefits of approach (e.g., saves travel time and money, there will be a slight delay in audio portion of signal); assistance may be needed to position patient or to physically examine for some conditions such as EPS; headphones may be useful for some patients with hearing problems
Education	To better understand how TP can be used	Record Encounters: These can be used to show others how TP works, for second opinions, and for provider education

How to be Successful with TP

Grady (2002) identifies the importance of the "seven A's" when implementing and maintaining a telepsychiatry service and to assure its success…

- *Alliance* is the consultant's relationship with the remote site's administrative, support, and provider staff

- *Assessment* includes identifying needs and resources of the satellite site, capabilities and resources of the hub site, and the interest/investment of both sites

- *Approach* describes how to get the "telepsychiatry word" out to others. Grady recommends that clinicians be the individuals contacted (i.e., approached) first as they will have the greatest insights into the needs of consultees and patients at the satellite sites

- Improved *access* for patients may be the single most important reason for telepsychiatry. This also refers to where the teleconferencing equipment is located…

- Putting it where it is most easily accessed at the distant site (e.g., a community mental health clinic, a primary care provider's office) and the hub (e.g., within a telemedicine department, within the consultation-liaison/psychosomatic medicine division) will increase the likelihood that it will be used

- *Accountability* refers to responsibilities of the provider and facility including physical safety of the patient, security of patient records, and a plan for performance evaluation and improvement

- *Apprehension* may be felt by the telepsychiatrist, patient, consultee, or support staff. It is the responsibility of the telepsychiatrist to be sufficiently comfortable and adept with the equipment such that he or she can use it with confidence and allay the concerns of others

- *Anticipation* of equipment malfunctions, patient refusals, staff worries, and other problems will help the provider develop contingency plans

Other Things to Consider

Equipment

- Price
  - How much you can spend vs. how much you need to spend
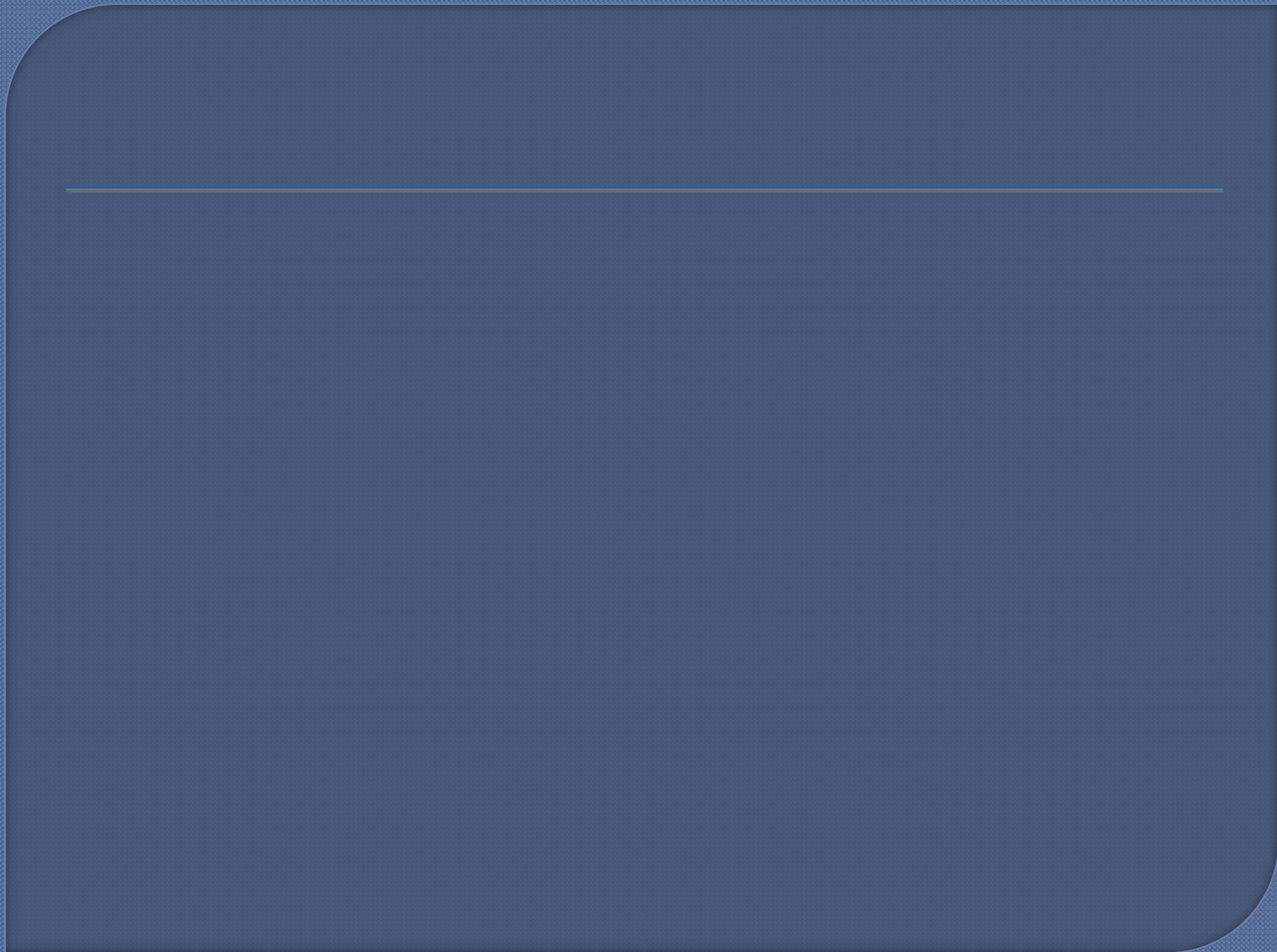 - Who pays?

- Durability

- Size/Portability

- Usability

Location

- Ease of access for patients/providers

- Safety
  - Safety plan
  - Who/how to call for emergencies

- Who covers costs

Licensure/Credentialing

- What is requirement at your home institution?

- What is requirement at distant site?

- What about privileges?

- What about malpractice coverage/requirements?

More Help?

Telehealth Resource Centers

Office for the Advancement of Telehealth (OAT)

…provides support for the establishment and development of Telehealth Resource Centers (TRCs). These centers are to assist health care organizations, health care networks, and health care providers in the implementation of cost-effective telehealth programs to serve rural and medically underserved areas and populations.
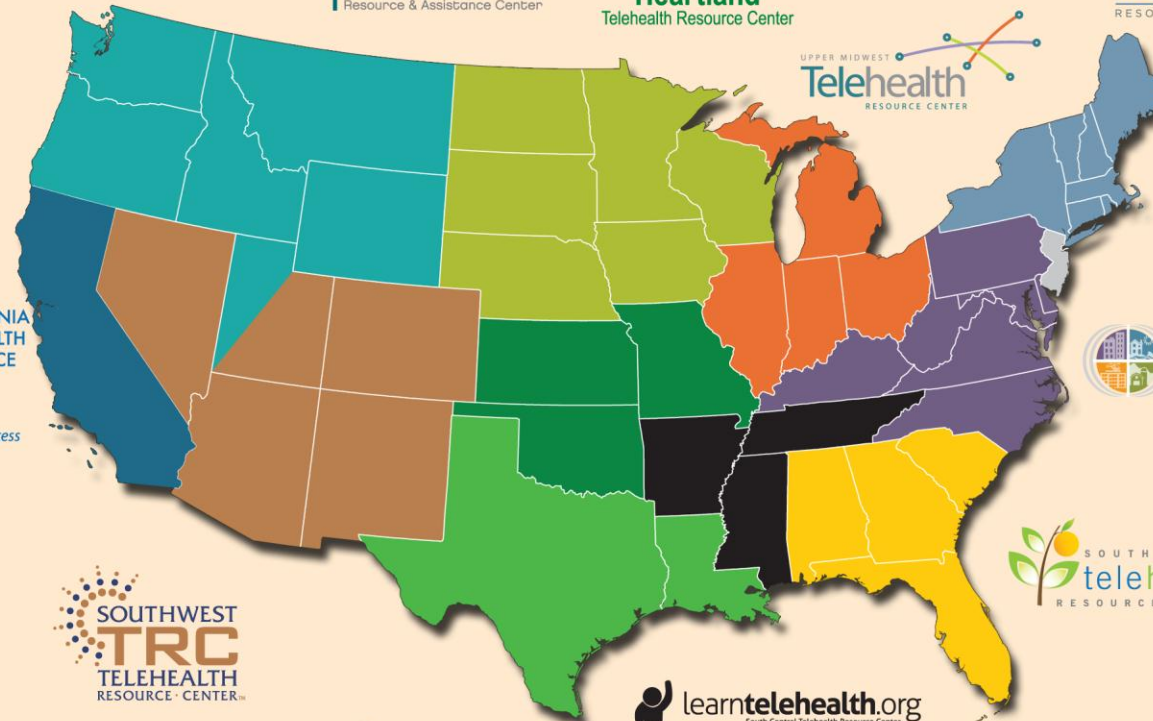
Bragging

We (FAHC/MCD/RMCL) competed for and were awarded a 3-year grant from OAT to develop and implement the Northeast Telehealth Resource Center (NETRC)

NETRC Partners

- **FAHC/UVM**
  - Co-Investigator
  - Clinical, applications, and implementation expertise

- **Medical Care Development, Augusta, ME**
  - Program and Fiscal Management
  - Outreach and Marketing
  - Business Plan Development

- **Regional Medical Center at Lubec, ME**
  - Enhance the capacity of rural providers
  - Support a favorable policy environment
  - Conduct innovative projects that explore new technologies and contexts for use
  - Outcomes analysis

More Information

- The best source for general information about telemedicine is the American Telemedicine Association (ATA): http://www.americantelemed.org

  - Take a few clicks to the Telemental Health Special Interest Group (SIG)

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Thanks!

Telemedicine at FAHC

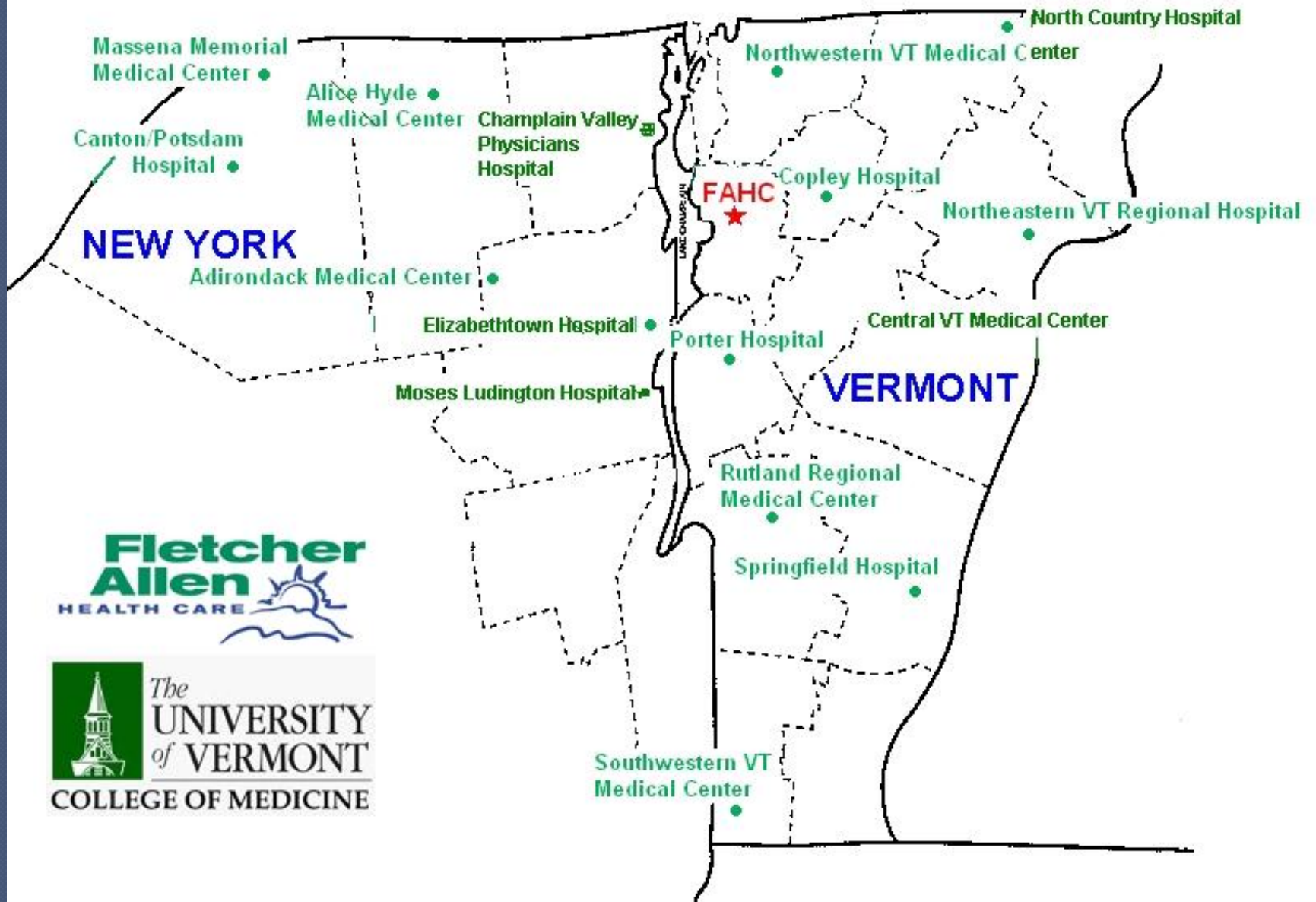# History of Telemedicine at FAHC

- Began mid-90s

- Mike Ricci, first Medical Director

- TR succeeds MR in 2005
  - Two OAT grants to develop Northeast Telehealth Resource Center (NETRC)
  - Continued growth of pediatric critical care and NH telepsychiatry; implementation of palliative care, MFM, critical care collaboration with CVMC
  - Research collaborations with Brown and Cornell

Telemedicine Team

- Judy Amour, Projects and Grants Administrator
- Harry Clark, Telemedicine Coordinator
- Tara Pacy, Director
- Terry Rabinowitz, Medical Director
- Steve Taylor, Telemedicine Technician
- Mike Wehner, Manager

TELEMEDICINE AFFILIATED SITES

Telemedicine at FAHC/UVM

- Network links 16 hospitals and three nursing homes in VT and NY

- Delivers distance education (e.g., Grand Rounds), facilitates administrative contacts, and delivers tele-consultations in pediatric critical care, psychiatry (NH, child and adolescent), palliative care, maternal and fetal medicine, wound care, and other areas as requested/needed

- Research collaboration
  - Nursing home telepsychiatry, PTSD treatment for veterans and trauma responders, palliative care, homebound elders

- Various administrative and other meetings as needed

- www.fahc.org/Telemedicine/

TM Activities: Past, Present, & Future

- Wound care

- Teledermatology

- Tele-ambulance

- Pediatric critical care

- Tele-neurosurgery

- Nursing home telepsychiatry

- Critical care telemedicine consultations

- MFM consultations

- Distance evaluations for dialysis

- Oncogenetics consultations for patients/families at cancer risk

- Vascular surgery follow-ups

- Pediatric Neurology teleconsultations for seizure, headaches

- ? Telestroke

- ? More teledermatology

- Tumor board

Telemedicine Bill Enacted in VT!

An act relating to telemedicine

It is hereby enacted by the General Assembly of the State of Vermont:

Sec. 1. 8 V.S.A. chapter 107, subchapter 14 is added to read:

Subchapter 14. Telemedicine

§ 4100k. COVERAGE FOR TELEMEDICINE SERVICES

(a) All health insurance plans in this state shall provide coverage for telemedicine services delivered to a patient in a health care facility to the same extent that the services would be covered if they were provided through in-person consultation.

Results From Almost 300 Nursing Home Telepsychiatry Encounters

Characteristics

- Average age 77.5 ± 13.6 years

- 60% female

- Depression, dementia, and delirium each comprised 21% of diagnoses

- Behavioral disturbances in 17%
  - Exacerbated by vision and hearing problems

Patient, Nursing Home, Encounter and Charge Characteristics

Patients

Sex

F	63 (59.4%)
M	43 (40.6%)

Age (yrs)

Mean (SD)	77.5 (13.6)
Range	44-100
Median	81

Nursing Homes

Distance (mi)/Travel time (min) (round trip)

NY	208/240
VT	70/88

Encounters

Total	278
Mean encounters per patient (SD)/Range	2.6 (2.0)/1-10

Per year (last 7 years)

Mean	45.6 (12.8)
Range	29-64

Per Site

NY	172
VT	106

Charges (USD)

Total	65,982
Mean (SD)	237 (99)
Range	100-517

Cost (USD) and Time Estimates for Face-to-Face and Telepsychiatry Services for 278 Encounters for 106 Nursing Home Residents

	Year						
	2002	2003	2004	2005	2006	2007	2008
Travel Time (hr)							
Yearly	28	106	154	177	133	134	111
Total	843 (35.1 days)						
Travel Distance (mi)							
Yearly	1456	5480	7976	9034	6806	6812	5632
Total	43,196						
Fuel costs							
Yearly	73	286	526	709	691	684	778
Total	3,747						
Range of personnel costs							
Patient-to-physician travel	33,739-67,477						
Physician-to-patient travel	84,347-253,040						
Telepsychiatry costs							
Videoconference unit, line charges, hardware, service contract							
NY	14,045						
VT	10,381						
Total	24,426						
Range of total potential cost savings							
Patient-to-physician travel	13,060-46,798						
Physician-to-patient travel	63,668-232,361						

Nice Outcomes!

- You can diagnose and treat delirium, depression, and disruptive behaviors from a distance!
  - …and these conditions improve!

- Residents, many of whom are demented, accept the modality and understand it
  - "It's pretty cool." "It saves you a trip, Doctor."

- Family and staff really like it

Telepsychiatry consultations for nursing home residents save time, money, and provide a service that might not otherwise be available