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e-health summit

Telehealth For Behavioral Health

September 17, 2014

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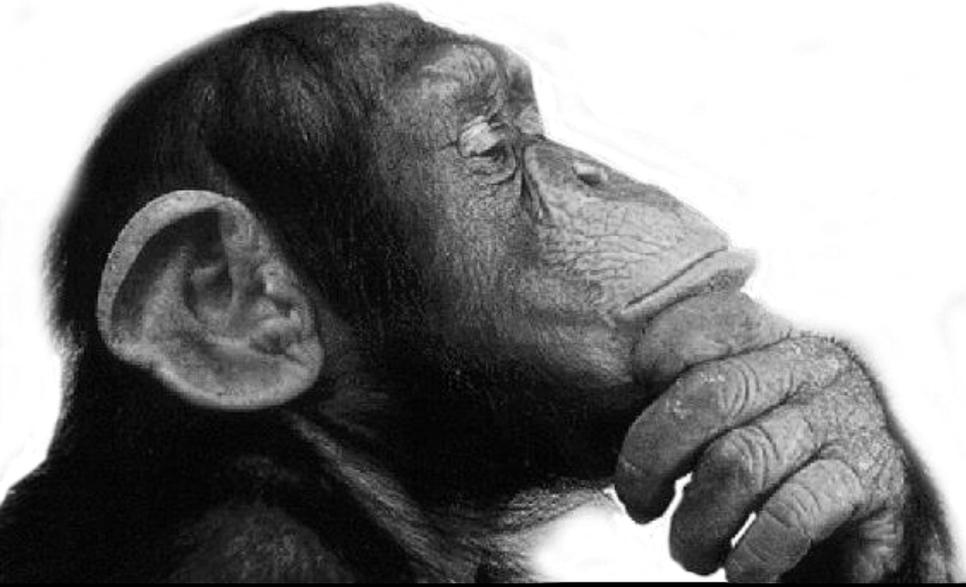
University of Louisville School of Medicine

Department of Psychiatry and Behavioral Sciences

Who are We?

- Academic Mission
 - Education
 - Clinical Service
 - Research

- My background:
 - Parents from eastern Kentucky (brother still lives there).
 - Born in Owensboro.
 - Grew up in Louisville
 - Undergraduate in Bowling Green



Who's on the team?

Tech Savvy

- Geeks
- nerds
- Hackers
- super-users
- metausers
- Power-users



People skills

- Touchy-feelies
- Psychobabblers
- Squishes
- Bleeding heart
- empathic

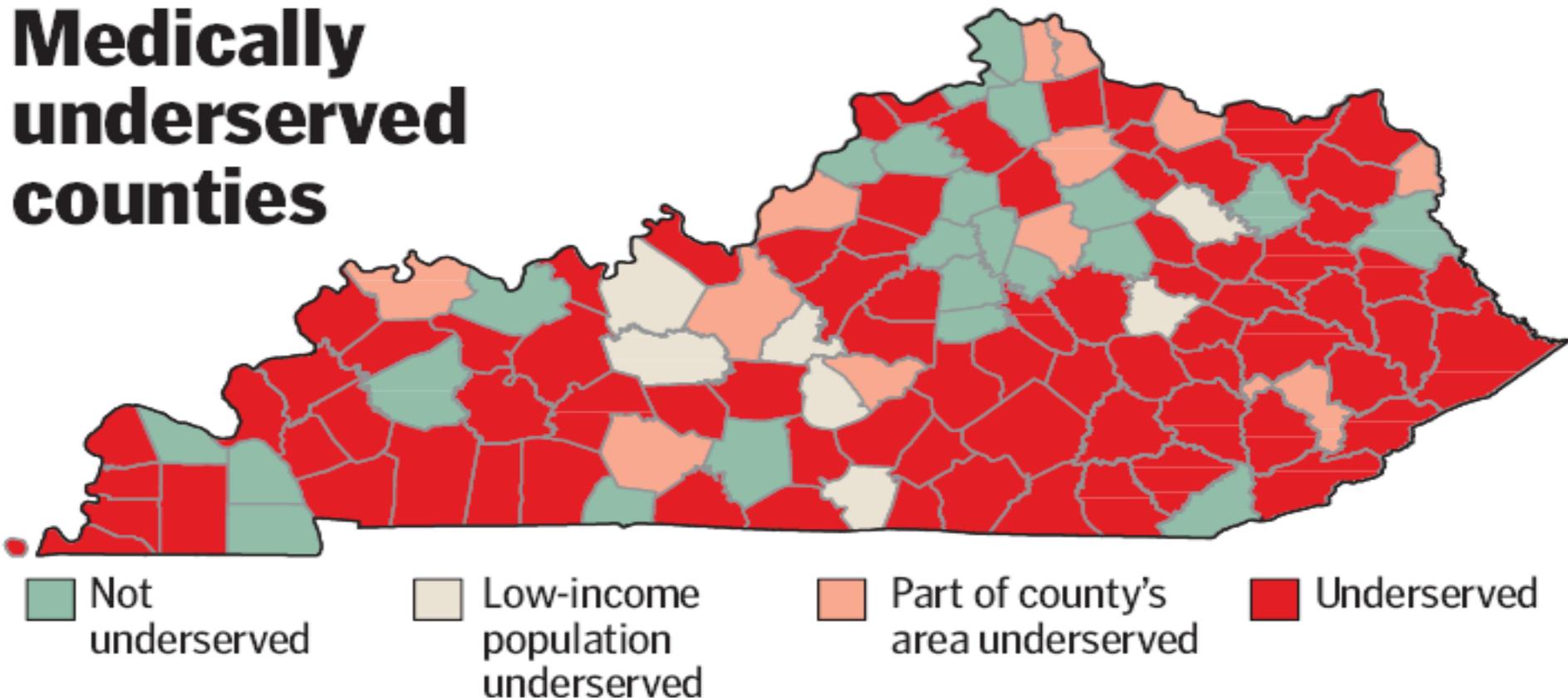
Who's on the team?



- The University of Louisville Healthcare Outpatient Center (ULHCOC) psychiatry clinic is the primary teaching site for outpatient care and the origination site for the department's telemedicine programs.



Medically underserved counties



Determining if a county is medically underserved

The federal government's Health Resources and Services Administration designates areas as “medically underserved” for primary care based on several criteria, including: primary care physicians per 1,000 population, infant mortality rates and percentages of poor and elderly residents.

For more information on how government determines if an area is medically underserved, go to: bhpr.hrsa.gov/shortage/muaguide.htm

What kind of patient/clinical service has been successful using telehealth?



*What kind of patient/clinical service
has been successful using telehealth?*

Telepsychiatry

“The low hanging fruit of telemedicine.”

- Telepsychiatry
- Telemental Health
- Behavioral Telemedicine
- e-psychiatry



Have you found patients/clinical conditions that were not appropriate for telehealth?

Are there contraindications to Telepsychiatry?

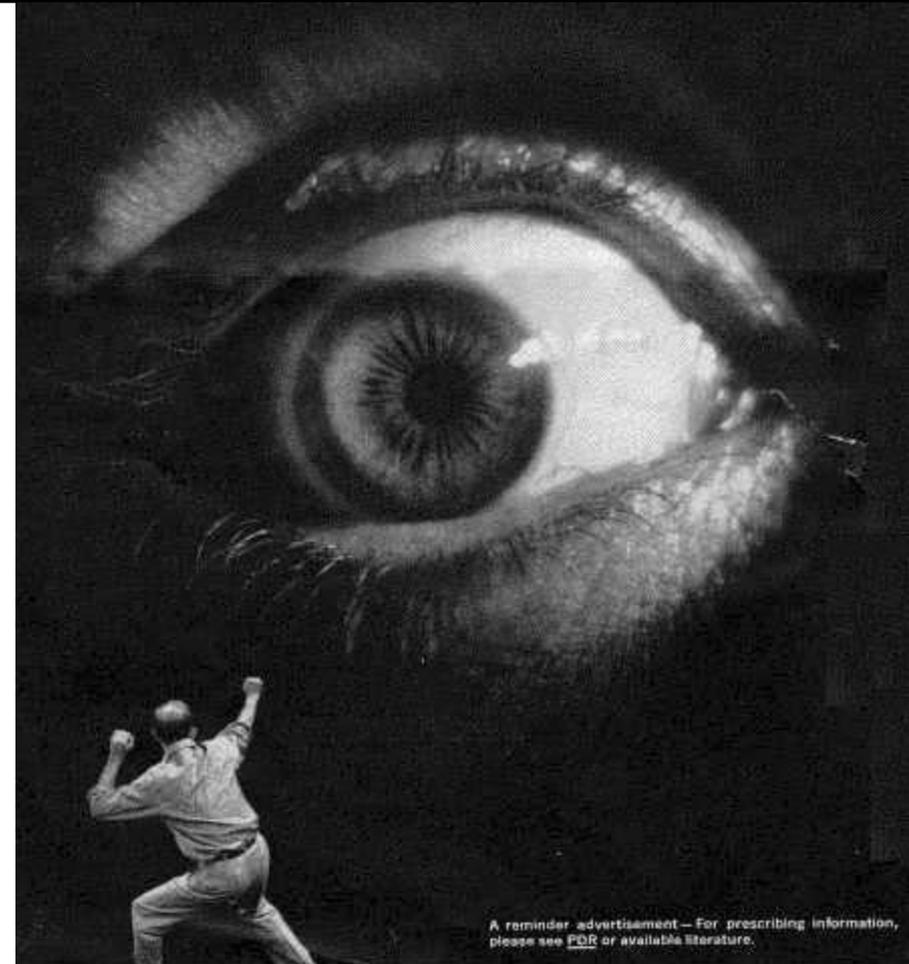


the belief that casual events, people's remarks, etc. are referring to oneself when, in fact, they are not.

- No known risk factors for any population.
- Psychiatrists have treated patients with:
 - ideas of reference
 - delusions involving technology, video, or televisions
 - **several case discussions have documented successful telepsychiatric treatment of such cases.**
- Key appears to be working with patients with intact reality testing and the ability to separate delusions from clinical interactions.

Have you found patients/clinical conditions that were not appropriate for telehealth?

- Concerns raised about working with patients with cognitive impairments or sensory deficits
- These are addressed as during in-person encounters through the inclusion of caregivers in sessions, as well as the use of technologies to aid with visual or auditory impairments.



A reminder advertisement – For prescribing information, please see [PDR](#) or available literature.

*How about cases where telehealth might be
the preferred mode of treatment?*

• Adolescents?



- Rural settings?



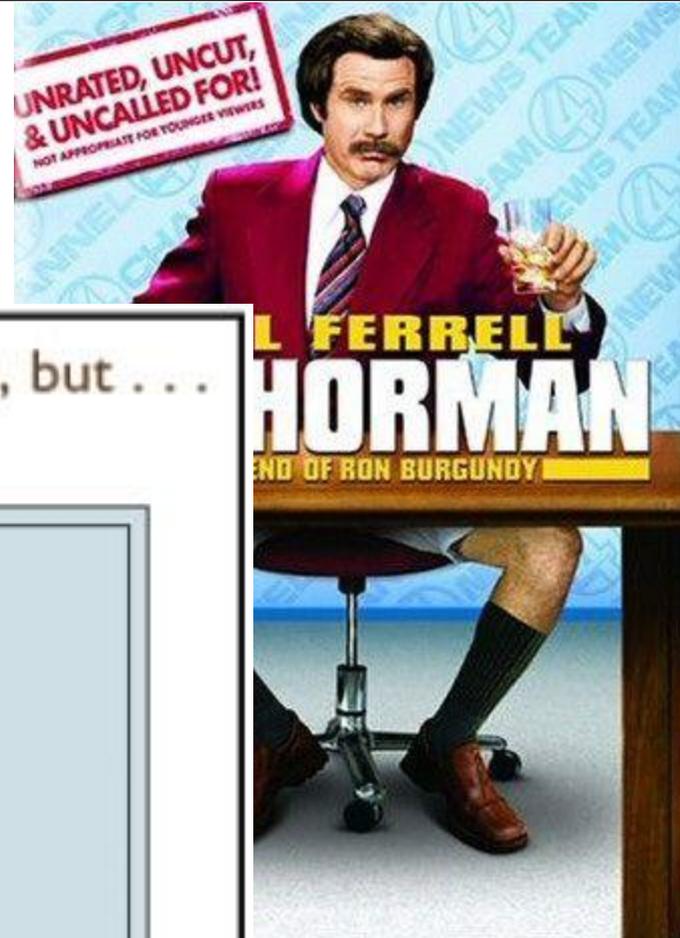
How about cases where telehealth might be the preferred mode of treatment?

• Rural integrative primary care ?

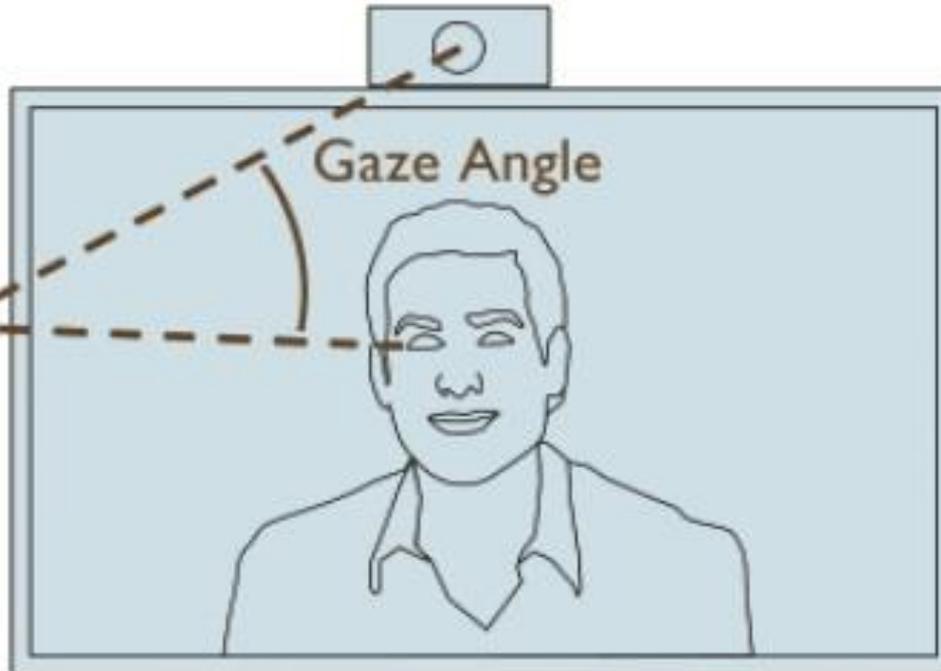


How have you adapted your clinical practice to telehealth?

- *Yes -- learning a new skill set – “On Camera”*



Participants should be looking into the camera, but . . .

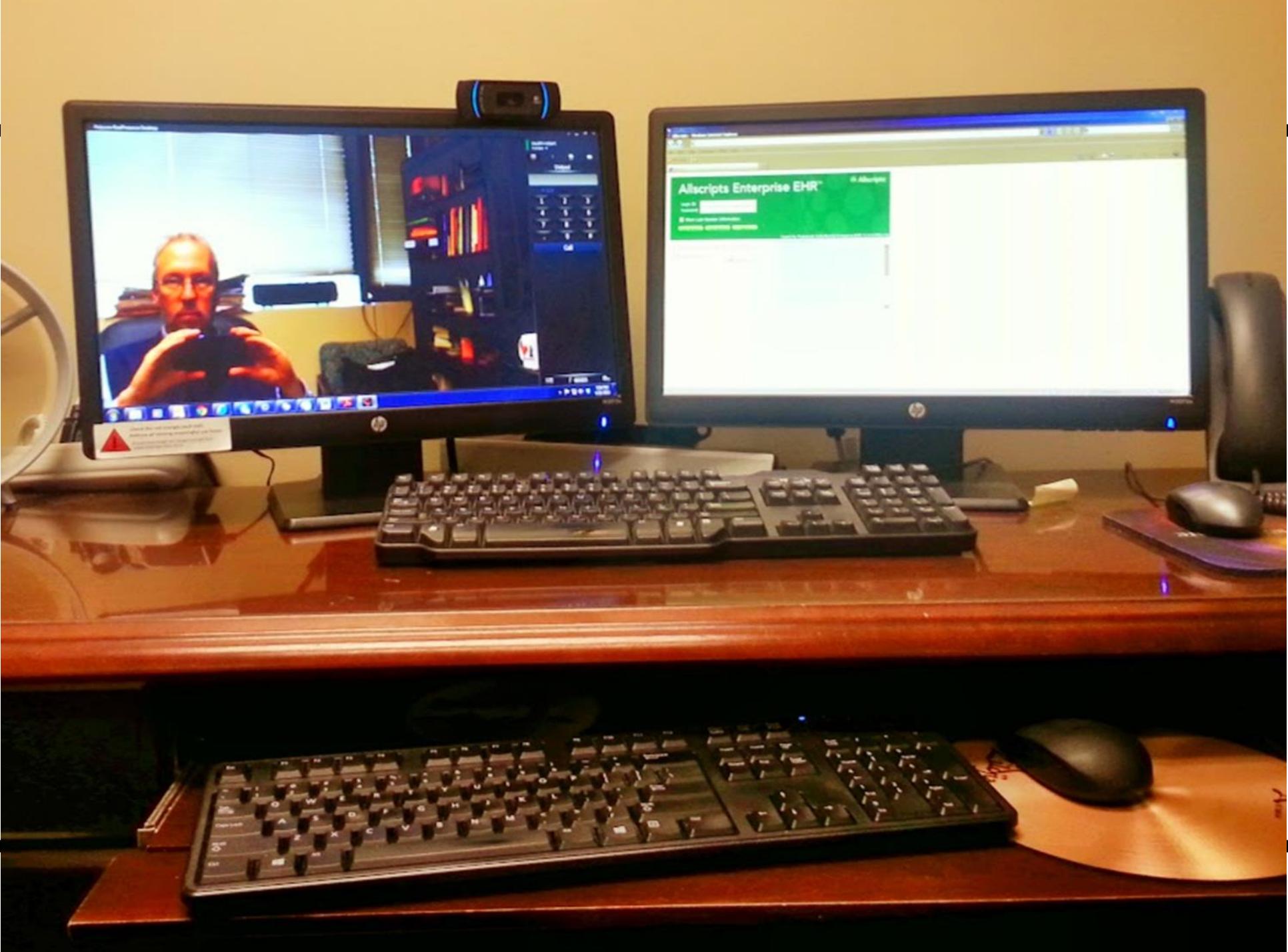


naturally look at the eyes on the display.

How have you adapted your clinical practice to telehealth?

- *Almost Nothing is easier*
 - *EHR though may be easier to incorporate*





How has the technology impacted the interaction between patient and provider?

- **QUESTION:** *A mental/behavioral health encounter is very personal. How are you able to replicate the personal connection in a traditional face-to-face (in person) encounter?*
- **ANSWER:** *I don't. Equivalent – but different.*

How has the technology impacted the interaction between patient and provider?

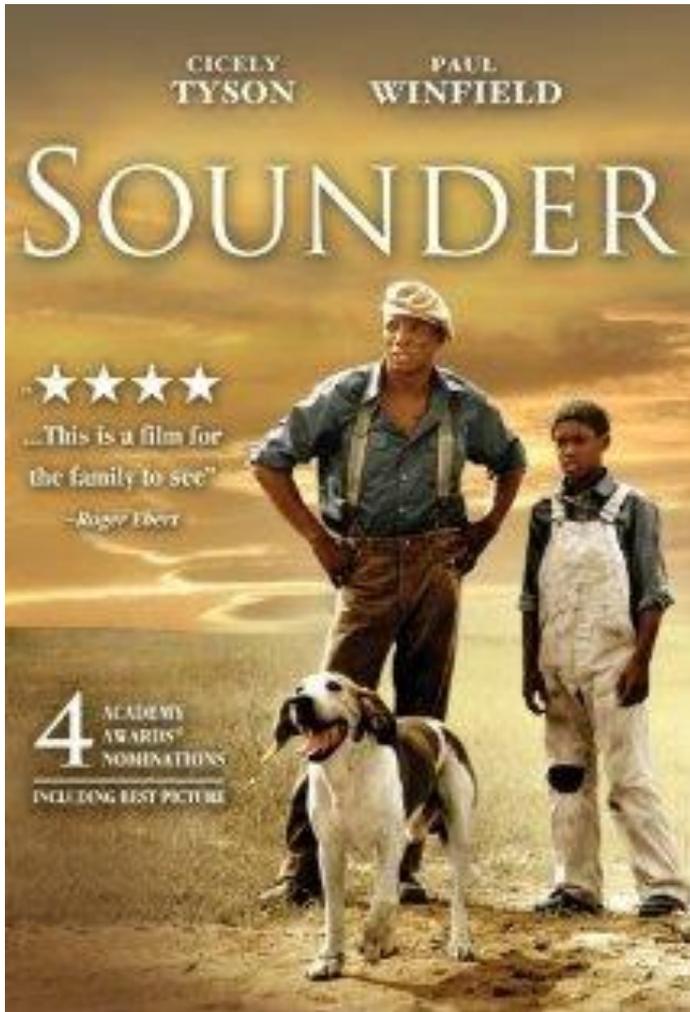
VISITING CARDS



LEAVING CARDS AFTER A CALL

- *Uncharted territory, evolving social etiquette and conventions.*

How has the technology impacted the interaction between patient and provider?



- *Can emotions survive data compression algorithms?*

*Without this technology, what would patients
have to do to receive care?*

- *Travel?*
 - *Patient travel*
 - *Professional travel*
- *Wait time?*
 - *You wait a long time for something that doesn't exist.*
- *Lost time from work?*
 - *Patient lost time*
 - *professional lost time*
- *Family members travelling with them?*
 - *Additional lost productivity to society.*

Without this technology, what would patients have to do to receive care?

- **QUESTION:** If patients must travel for care in a traditional face-to-face encounter, how is their care impacted? Does a long trip in the car impact their clinical presentation?



- **ANSWER** – [NOTE - This is a question we never used to bother to answer]
 - *The answer however is "of course."*

*Can you describe the financial implications
of using telehealth?*

- *Control group becomes those who experience consequences of "no care."*
 - *If you can't get to it or it can't get to you, the price is irrelevant.*
- *Quality vs. Quantity equations*
 - *Quality irrelevant when quantity = ZERO*
 - *Quality of our programs – extremely high.*
 - *Potential for subspecialty tertiary care*

*Can you describe the financial implications
of using telehealth?*

- *All contracts are voluntary.*
- *Remote clinics benefit from increased availability and high quality.*
- *Academic programs find a program that complements their mission which can also provide a revenue stream.*
- *It's about as "WIN/WIN" a proposition as can be created.*

Describe how telehealth impacts:

- Patient/patient's family?
 - Often time, loved one gets care vs. doesn't get care
 - plain and simple
 - multiplier effect
 - Possible counter to socio-economic drift
 - Allows patients to receive care in their community.

Describe how telehealth impacts:

- Telehealth provider's practice?
 - Harder to say.
 - Competition with a locum model vs. Business as Usual?
 - Changes concept of space, time, service



Describe how telehealth impacts:

- Referring provider's practice?
 - Direct care vs. consultant model?
 - Location, Location, Location vs. Access, Access, Access

HELP IS ON THE WAY!



Describe how telehealth impacts:

- The healthcare system and the community as a whole?
 - The future is here - or at least on the way.
 - We're going to make house calls again.
 - As they say about PTSD - not all scars are visible.
 - You'll never see the disasters and tragedies we prevent.
 - In mental health in 2014 it's likely safe to say more care access is better care.
 - Technology (as usual) way out ahead of legislation or protocols

Robert Caudill

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THE END

Developing a Model Curriculum for Telepsychiatry in a Psychiatric Residency Training Program

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Introduction

Psychiatric practices increasingly incorporate videoteleconferencing (VTC) as a means of providing mental health care to underserved or geographically isolated areas.^{1,2} As the use of this technology has expanded, psychiatry training programs have begun incorporating telemedicine activities into their instructional program. For several reasons, many of these efforts have been limited to observation only.³ Unfortunately, limiting direct participation compromises the potential for maximal learning. Attempts have been made to develop curricula to familiarize trainees with telepsychiatry. The rapid pace of technology development means that curriculum proposals risk becoming outdated by the time of their publication. The work described here involved designing an elective that allows for changes in technology. The program would be interactive for the resident and also provide access to a broader population of patients and cultures. The proposed curriculum that follows is the result of work done during a pilot program at the University of Louisville.

Format for Elective

Pre-session Trainings: Residents are advised to review existing curricula developed for large, existing programs.^{4,5}

Session #1 – The resident observes the attending psychiatrist delivering care to a rural community mental health center at their standard rate of patients flow.

Session #2 and thereafter – The resident interviews and assesses each patient with the attending supervising the experience.

Discussion Topics

- Psychiatric interviewing over telemedicine.
- Interviewing special populations over telemedicine.
- Current technologies in telemedicine and basic troubleshooting.
- Building rapport and insuring confidentiality and privacy over the internet.
- Prescribing medications over telemedicine and e-prescribing
- Billing and coding in telemedicine.



Simulated patient encounter with resident and preceptor.

Materials

Video teleconferencing platforms exist in an extensive range of options - from mobile phone applications to 3-dimensional-image/hologram generating devices. Nevertheless, the standard at the moment appears to be a dedicated system operating at a minimum speed of 384 Kbps.⁵ Applications for encrypted IP addressable communications using a personal computer is increasingly an option but are not yet the norm. The program described here has used Polycom HDX 700 units. Cameras incorporate PTZ features allowing for rooms at both ends of the exchange to be fully viewed. Prescriptions for non-controlled substances are sent via an internet based Allscripts site.⁶ Controlled substances and progress notes are sent to remote clinics via Federal Express.

Core Competencies

1. **Patient Care** –resident accesses different patient populations across Kentucky and aids in their psychiatric care.
2. **Medical Knowledge** –resident encounters a variety of psychiatric conditions in community mental health systems outside the urban academic center.
3. **Professionalism** –resident learns appropriate professional behavior towards patients when using VTC equipment.
4. **Communication** –resident learns how to communicate effectively using VTC equipment.
5. **Systems based knowledge** –resident will experience systems of care beyond the University setting; specifically rural community mental health centers across the state.
6. **Practice based learning** –resident learns by experience directly supervised by attending.

Summary

- Telepsychiatry is becoming a more common practice. Training program need to prepare residents for this new medium of care delivery.
- Rural psychiatry exposure is often difficult to obtain from urban based academic sites. Telepsychiatry offers residents such and experience.
- Curriculum for such instruction must remain fluid so as to incorporate changes in technology and practice.

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6. <https://enxnow.allscripts.com/>

A Role for Telemedicine in the Reduction of Controlled Substance Misuse and Diversion

Robert Caudill, M.D., Lionel Phelps II, Psy.D., James R. Haliburton, M.D., Thuy-Trang T. Nguyen
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Introduction

Misuse and diversion of controlled substances are significant problems for individuals and society^{1,2}. Rural communities face particular challenges in addressing this problem³⁻⁷. Rural Community Mental Health Centers must address both the isolation and scarcity of medical resources. Problems with the recruitment and retention of medical staff often add to the difficulty of dealing with personnel who may have questionable practices involving the prescribing of these agents⁸⁻⁹. Telemedicine has been a partial solution for staffing shortages at many rural CMHCs¹⁰⁻¹¹. RiverValley Behavioral Health, located in the western coal fields area of Kentucky, acted to take a strong position toward addressing this problem. Specifically, benzodiazepines other than Klonopin® (clonazepam) and immediate release psychostimulants were removed from their formulary. Protocols were established for cross-titration and discontinuation of these agents. Psychiatrists from the Telemedicine program at the University of Louisville took part in the execution of this policy. This study retrospectively looked at the results after one year of implementation.

Methods

Psychiatrists from the University of Louisville, Department of Psychiatry and Behavioral Sciences began working collaboratively with the medical staff of RiverValley Behavioral Health in August 2008. The agency was aware of a growing problem with controlled substance misuse and diversion prior to the start of the telemedicine relationship and sought to address it.

Execution of the policy described above began in March 2009. The initial implementation group included 4 psychiatrists and a nurse practitioner from RVBH plus 1 UofL psychiatrist. In March 2010, the guidelines were finalized and sent to the agency CEO and in-house legal counsel in preparation for final implementation. The policy became effective March 10, 2010. The remaining group of prescribers then implemented the policy. The prescribing group was evenly divided between 6 University of Louisville based psychiatrists and 6 RVBH prescribers (5 psychiatrists and an APRN).

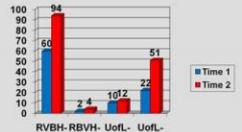
From a clinic population of 9500 open cases, 500 charts were randomly selected. A penetration rate by medical services was estimated to be 72%. From the 500 patients, 158 had not seen a prescriber during the review period. 342 data sets remained constituting approximately a 5% sample. The relevant clinical pool was set at 6840. The minority not under the care of a prescriber included those with a condition not warranting pharmacological intervention or seen only for substance abuse. Charts of patients seen by the 6 prescribers from each organization were examined. The remaining prescribers were studied over the course of the first year following official adoption of the new policy from 03/16/2010 through 03/16/2011. Demographics of the sample group were recorded (age, sex, DSM IV Axis I diagnoses). Charts were further assayed regarding prescriber and prescriber affiliation at Visit #1 (defined as the first prescriber visit after "intention to implement" policy change)[Chart #2] and Visit #2 (defined as the first prescriber

Results

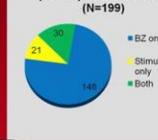
1 Project Timeline



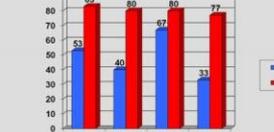
4 Raw Numbers of Patients Conforming to Policy



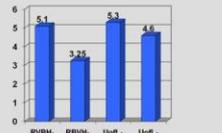
2 Controlled Substances prescriptions at visit #1 (N=199)



5 Percentage of Patients Conforming to Policy



6 Average Number of Interval Visits



Methods - continued

visit 12 months after Visit #1).

The presence of an agency prescribed controlled substance (benzodiazepine or psychostimulants being the only relevant classes in this clinic population) was documented for each visit. Those on a controlled substance at visit #1 were divided into subgroups of benzodiazepines, psychostimulants, or both. The number of prescriber visits during the interval between Visit #1 and Visit #2 was recorded. Finally, a determination was made regarding the regimen's conformation to the new agency policy at the two visits.

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Analysis/Discussion

From 342 meetings with a prescriber during the study period, 4 combinations were possible (Visit #1 relative to Visit #2): RVBH/RVBH, RVBH/UofL, UofL/RVBH, UofL/UofL. Most patients were seen by either the same prescriber or a prescriber with the same organizational affiliation at both reviewed visits [Chart 3].

This data indicates that both prescriber groups were effective in bringing patients into conformation with new agency policy. The movement of patients into conformation was similar with both groups. The locally based prescriber group began with a population that conformed to policy to a higher degree (53%) than did the telemedicine (33%) sample. The percentage change in both groups were sizable (RVBH 30%, UofL 44%). Full statistical analysis on these differences is pending at this time. The telemedicine group had fewer interval visits on average. As a result, a higher movement toward policy conformation per visit was found in that group suggesting a relative advantage of telemedicine in implementation.

Several hypotheses have been proposed to account for this effect. Implementing of policies lacking appeal to the affected patient group can be difficult for clinicians. There may be advantages yet to be fully elucidated when this exchange occurs remotely via telemedicine. The prescriber populations, while similar, are not identical. Those differences in prescriber demographic could be further explored. The composition of the early adopting group was predominantly agency based. The majority of the telemedicine prescribers did not implement until the official policy was in place. The early adopting group self-selected themselves to be in that category. The majority of the telemedicine prescribers were evaluated on implementation of a mandatory policy.

Some of those on the local team charged with implementation of the new policy may have been present at the time when the conditions came about that precipitated creation of the more restrictive policy. This experience may have inspired some in their efforts to implement policy while others may have been more resistant to change of the status quo. The telemedicine group, by virtue of having more recently entered into treatment relationships with the patient population would not have had this background. A more fully constructed study perhaps could also have created additional cells to measure the confirmation rates of the telemedicine clinicians implementing policy in a face to face environment and the agency clinicians working via videoconferencing technology. Logistics alone make such a study immensely impractical.

Implementation of challenging policy is an arduous task. Maintenance benzodiazepines use is a controversial area. Immediate release psychostimulants can be targets for diversion into unlawful use. Law enforcement data (showing diversion) and public health records (showing overdoses and other outcomes of misuse) provide indirect measures of the results occurring in communities where such problems exist. Community mental health agencies that opt to deal with this problem face many obstacles. Effective policies must be carefully designed and implemented in a sensitive yet thorough fashion. This study suggests that implementation of a policy designed to reduce controlled substance misuse and diversion can be done equally (and possibly more effectively) by telemedicine clinicians.

U OF L

Teaching Telepsychiatry in a University Ambulatory Care Setting

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Introduction

Telepsychiatry uses videoteleconferencing (VTC) technology to remotely deliver psychiatric services. The use and acceptance of this medium is growing, and future psychiatrists will have increased opportunities to employ these technologies in their careers. Development of the relevant skills for such a practice can be incorporated into the resident education experience. However, opportunities for trainee participation have often been limited by multiple logistical challenges.

The Ambulatory Care Building (ACB) Psychiatry Clinic of the Department of Psychiatry and Behavioral Sciences at the University of Louisville School of Medicine is the primary outpatient teaching site for residents and the hub for the department's telemedicine programs (picture 1). A second telemedicine suite is located nearby in the University of Louisville Healthcare Outpatient Center (ULHCOC) faculty practice facility (picture 2). The buildings are adjacently located and connected by sidewalks (picture 3). Faculty members at both sites provide extensive levels of telepsychiatry to outlying community mental health centers which greatly enhances the quality of care in these communities. Until the creation of this experiential program, residents participated in the telepsychiatry activities only as passive observers. By utilizing creative scheduling, residents on their PGY-3 outpatient rotation were allowed to provide telepsychiatry services directly.



PICTURE 1. UofL Health Care Ambulatory Care Building (ACB)



PICTURE 2. UofL Health Care Outpatient Center (ULHCOC)



PICTURE 3. Google Earth view showing proximity of ULHCOC to ACB buildings

This training exercise began during the 2010-11 academic year. Initially, residents were instructed to review practice guidelines on telepsychiatry procedures. Then residents observed sessions conducted by faculty experienced in providing telepsychiatry services. The service most often delivered was CPT 90862 (psychiatric medication management)

During the first year of the program, residents were assigned times to be located in the ULHCOC telemedicine suite. Faculty located in the ACB would greet the scheduled patient and escort them to the ACB telepsychiatry suite. Both suites were furnished with a Polycom® HDX® 7000 Series VTC unit. The purpose of the educational experience was explained to the patient, and patients were given the opportunity to opt out of the exercise. Few did. The attending faculty would introduce the patient to the on-screen resident and exit the room. Residents would not typically meet physically with the patient on the day of the VTC training exercise.

Residents would conduct the patient session using VTC technology, and have the case precepted by the attending faculty on-site at the ACB while the resident-facing-VTC-camera and microphone were muted. Supervision was conducted over a separate PC-based "back-channel" program (Skype™, AIM-Pro, VID™, Tandberg MOVI, Polycom® PVX™, LifeSize® Desktop™).

The session would conclude when the attending entered the ACB patient room with prescriptions and rescheduling documents. A brief summary session would then occur between the attending faculty and the patient with the resident participating via VTC.

In the 2011-12 academic year, the Department established multiple telemedicine nodes within the ACB. This eliminated the need for use of the adjacent ULHCOC facility for this training experience. The nodes were established using a Polycom® m-100 equipped personal computers with a Logitech® C910 camera. Precepting faculty were then able to be physically present (though off camera) in the office from which the resident worked. The private precepting discussion occurred face-to-face (FTF) with the resident-facing-VTC-camera and microphone again muted. Sessions were concluded in the fashion previously noted.

Residents completed the extended version of the Technology Acceptance Model (TAM2) survey before their first patient interaction and following their second patient interaction. The TAM2 assesses perceptions on the efficacy and ease of new technology on a 7 level Likert scale.

Five residents were included in each year's survey (Total N=10). The accumulated results are as graphed.

Discussion

As might be expected, with limited direct pre-exposure to telepsychiatry practice, residents showed higher level of agreement on 7 of the 9 domains after completing the requisite sessions. Reassuringly, the greatest change from baseline was increased agreement in the area of *perceived ease of use*. This was unsurprising given the increased familiarity with the equipment. While the sample size has been small by necessity, there have been 2 unanticipated results in the domains of *subjective norm* and *image*. Both domains showed modest movement in the direction of greater disagreement with increased experience. This observation held true in both groups studied and will perhaps merit follow up individual questioning of participants to gain better understanding. That this observation has been present in the samples from both years is worthy of further review. One interpretation is that residents come to see this as more normative and less of an exclusive/specialized type of practice after first-hand experience. Whether this translates over time into greater willingness to utilize such technology in their own practices will be an observation for a later time.

Challenges encountered in developing this training experience are largely logistical. Given the need for some basic level of instruction on the use of the equipment, slightly more time is required to conduct such a routine clinical activity. Demands on faculty time and revenue obligations must be addressed. Residents vary in their enthusiasm for such novel offerings, though we found high levels of subjective interest for our program. Technological advances continue to render that issue less of a barrier over time. We have already been able to move from a relatively unwieldy system involving two locations and large VTC units to an almost ubiquitous PC-based platform where the entire program can be delivered within our teaching clinic. The challenge of back-channel communications and issues related to security are resolved when precepting discussions can take place FTF. Ultimately, it is believed that this and other innovative ways will allow residents and other trainees to gain meaningful experience using VTC and incorporate these skills to manage patient care at a distance into their future practices.

Materials and Methods

Perceived usefulness (PU) - the degree to which a person believes that using a particular system would enhance his or her job performance.

Perceived ease-of-use (PEOU) - the degree to which a person believes that using a particular system would be free from effort.

The TAM2 explains perceived usefulness and usage intentions in terms of **Social Influence and Cognitive Instrumental Processes**.

Other Domains of the TAM2 Include:

Social influence processes

subjective norm, voluntariness, image

Cognitive instrumental processes

job relevance, output quality, threat/discrepancy, perceived ease of use

Nine domains are measured via 26 questions

Intention to use

Assuming I have access to the system, I intend to use it.

Given that I have access to the system, I expect that I would use it.

Perceived usefulness

Using the system improves my performance in my job.

Using the system in my job increases my productivity.

Using the system enhances my effectiveness in my job.

I find the system to be useful in my job.

Perceived ease-of-use

My interaction with the system is clear and understandable.

Interacting with the system does not require a lot of my mental effort.

I find the system to be easy to use.

I find it easy to get the system to do what I want it to do.

Subjective norm

People who influence my behavior think that I should use the system.

People who are important to me think that I should use the system.

Voluntariness

My use of the system is voluntary.

My supervisor does not require me to use the system.

Although it might be helpful, using the system is certainly not compulsory in my job.

Image

People in my organization who use the system have more prestige than those who do not.

People in my organization who use the system have a high profile.

Having the system is a status symbol in my organization.

Job relevance

In my job, usage of the system is important.

In my job, usage of this system is relevant.

Output quality

The quality of the output I get from this system is high.

I have no problem with the quality of the system's output.

Result demonstrability

I have no difficulty telling others about the results of using the system.

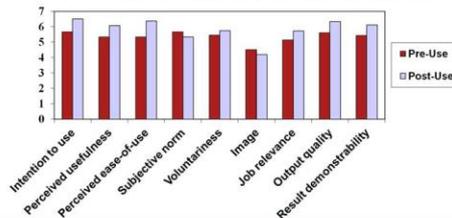
I believe I could communicate to others the consequences of using the system.

The result of using the system are apparent to me.

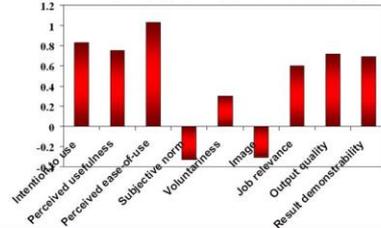
I would have difficulty explaining why using the system may or may not be beneficial.

Results

TAM2 Scores Pre-use and Post-use



TAM2 Change from Pre-use to Post-use



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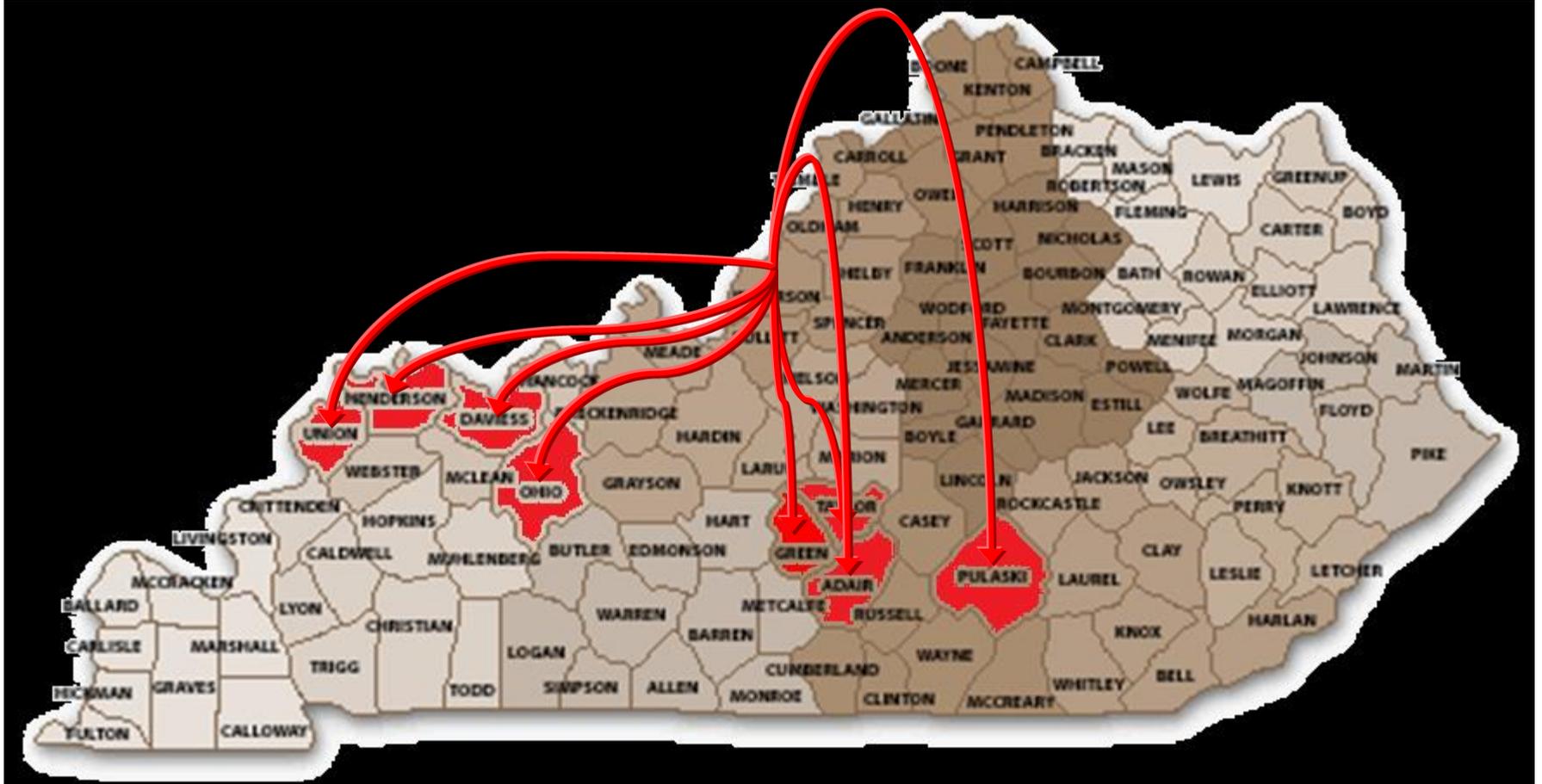


UNIVERSITY OF
LOUISVILLE
It's Happening Here.

Kentucky's 14 Community Mental Health Centers (CMHC's)



Clinical service





- Current programs
 - No grants – ever, *not that there's anything wrong with that*
 - Institution to Institution – University to CMHC
 - Program model – displaces locum tenens
 - Credentials
 - Scalability
 - “Buy Local”
 - “micro-cultural” understanding
 - Fixed hourly rate negotiated
 - Agreed upon parameters

- Programs in development (largely awaiting payer solutions)
 - Emergency Department coverage
 - Inpatient protocols
 - Medical/Surgical hospital consultation
 - Asynchronous services
 - Home based clinicians
 - Home based patients - Direct to Consumer (DTC)
 - Other institutional care opportunities
 - Nursing homes
 - Day treatment programs