Update on Telemedicine Outreach for PTSD

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Outline

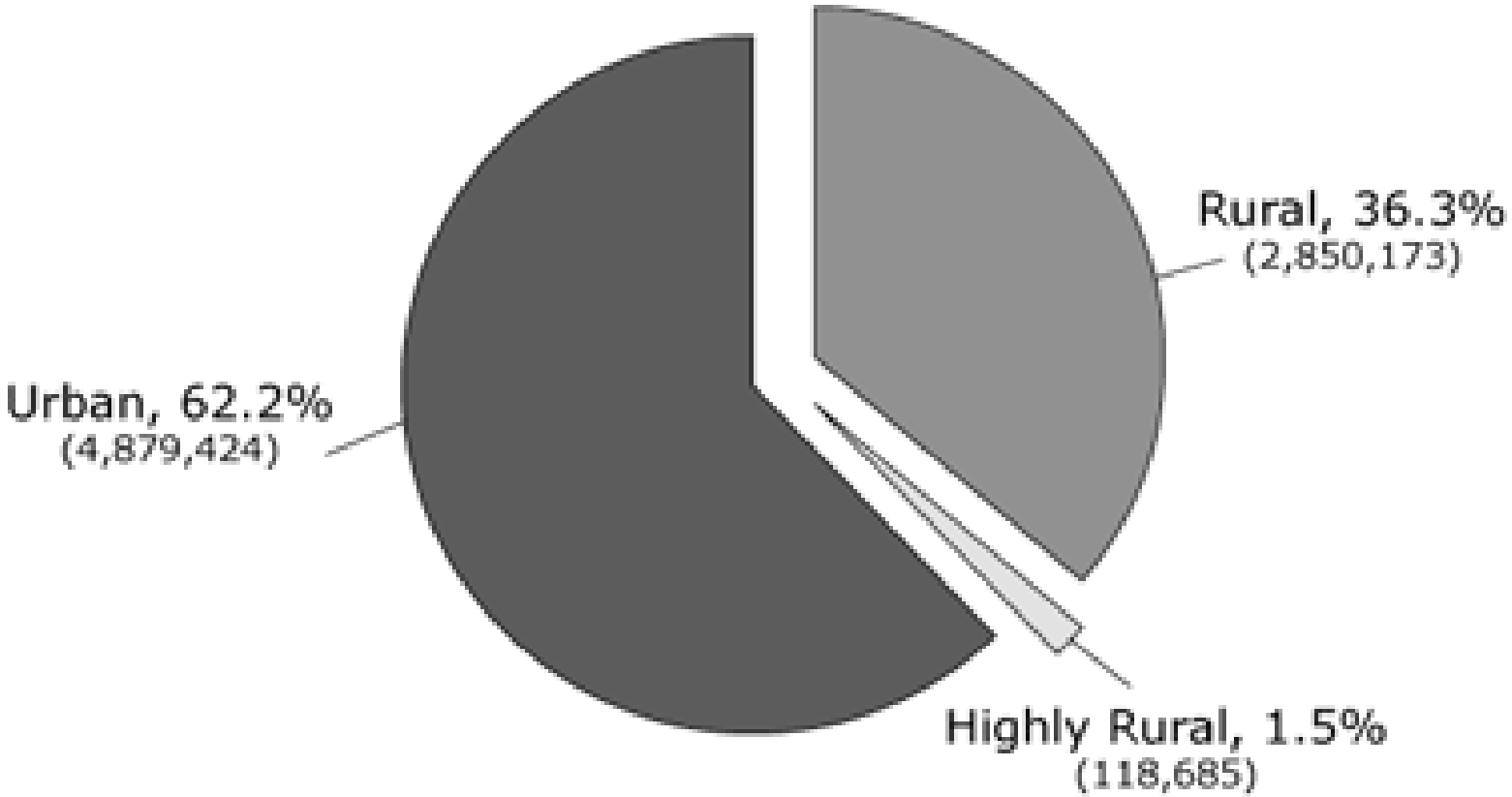
* The Challenges of MH Outreach
* Description of Two New Telemedicine Grants
* Is Telemedicine Cost Effective ?
* Lessons Learned – Tech Challenges, Enrollment Challenges, Therapist Concerns

Highly Rural, Rural and Census Defined Urban Areas

VISN
Rural
Highly Rural Counties
Census Urban Area

Map generated by VHA Planning Systems Support Group, field unit for the VHA Office of Assistant Deputy Under Secretary for Health for Policy & Planning, April 6, 2007

Demographics of VA Enrollees (FY06)



VHA Office of Rural Health

Rural Challenges

- Rural veterans are poorer and have higher disease burdens, worse health outcomes, less likely to have alternative health insurance[1]
- Veterans in rural settings report lower health-related (physical and mental) quality-of-life scores[2]
- Rural veterans make up a disproportionately high share of returning Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF) veterans[3]

VHA Office of Rural Health

[1]Wallace et al., 2006; [2]Weeks et al., 2004; [3]National Priorities Project

VHA Handbook defines minimum clinical requirements for VHA Mental Health Services.

It delineates the essential components of the mental health program that is to be implemented nationally, to ensure that all veterans, *wherever they obtain care in VHA,* have access to needed mental health services.

(VHA Handbook, 116.01 p. 1).

Telemental Health (TMH)

* TMH refers to behavioral health services that are provided using communication technology[1]
* Psychoeducation or psychotherapy skills by telephone
* interactive monitoring equipment
* web based
* video conferencing

[1]National Center for PTSD Fact Sheet: “PTSD and Telemental Health”

Video Teleconferencing

Uniformed Service Package: PTSD

"Evidence-based Psychotherapy for PTSD. All veterans with PTSD must have access to Cognitive Processing Therapy (CPT) or Prolonged Exposure (PE) Therapy. Medical Centers and very large CBOCs must provide adequate staff capacity to allow the delivery of evidence-based psychotherapy to their patients. Large and mid-sized CBOCs may provide these services through telemental health when necessary." (VHA Handbook, 1160.01 p. 29).

VHA TMH Initiatives

- In 2005, VA Office of Care Coordination developed several initiatives that prioritized the role of TMH for increasing access to care for veterans.
- In 2007, TMH services were identified as one of the first five priority areas for future development by the VA.
- Right now, VHA searching for Director of the National Telemental Health Center ($125,000/year)

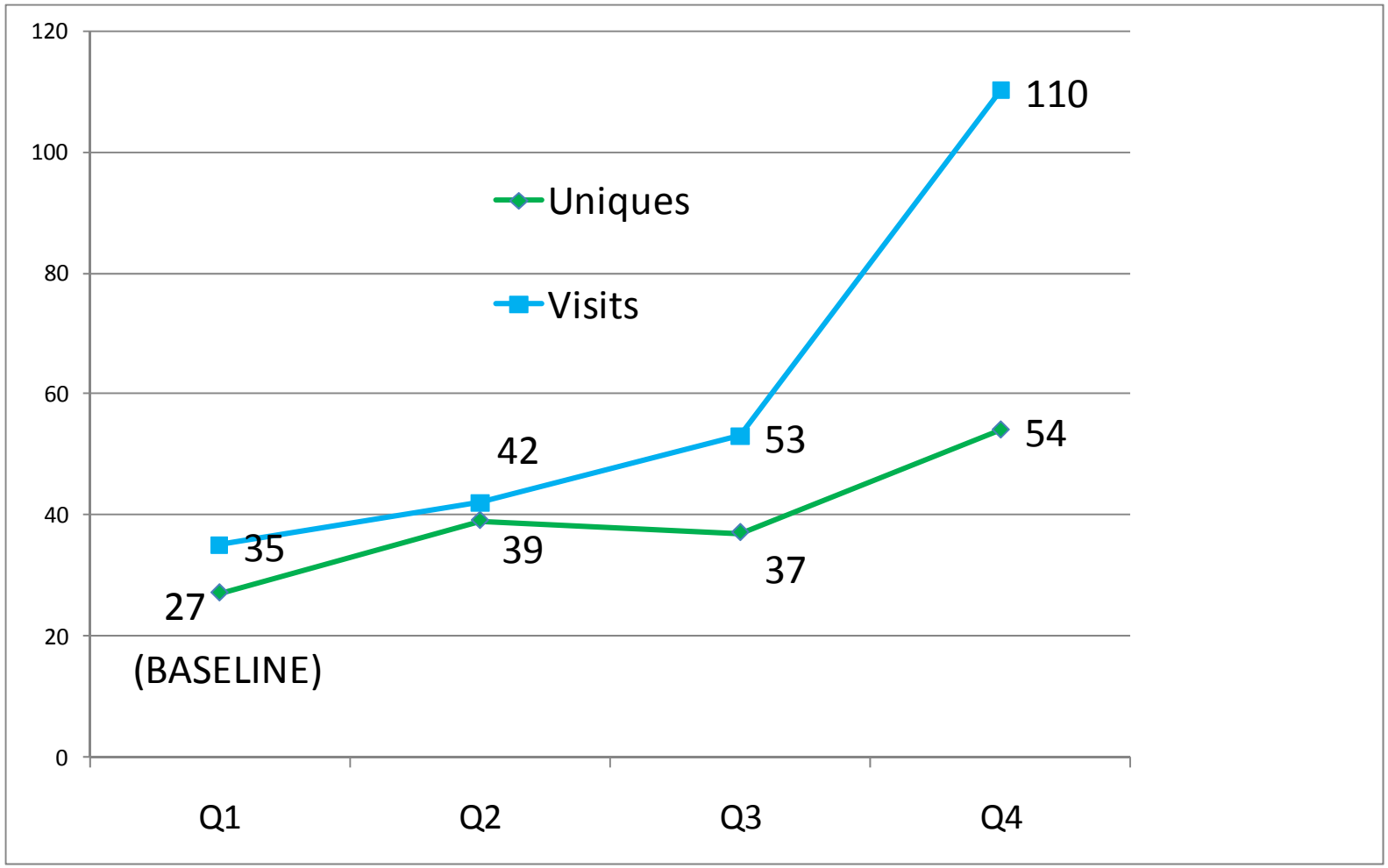
Psychotherapy via TMH

- Moreland et al study of PTSD coping skills: More in TMH completed the study (89%) vs. those in-person (50%)[1]

- Cuevas et al study for CBT and medication management for substance abuse, mood disorders, and schizophrenia: Equal efficacy for TMH and in-person

- Bouchard et al study of CBT for patients with agoraphobia and panic disorders: TMH as effective as in-person, and Working Alliance Inventory similar for groups

Telemedicine in San Diego (Past Year)



Thorp et al. (2009): Performance Improvement

Two Telemedicine Grants

* (1) “Veterans Telemedicine Outreach for PTSD Services” (VTOPS) A Investigator-Initiated Research Grant funded by VA HSR&D

* (2) “Telemedicine for Improved Delivery of Psychosocial Treatments for Post-Traumatic Stress Disorder”. A DoD funded grant.

Background and Rationale

* Many veterans who live in rural settings do not have access to empirically supported psychotherapies
* Veterans with PTSD may also avoid driving, crowds, and government institutions for treatment
* Veterans may be more comfortable and have better access with treatment via video link

Shared and Different Design Features

* The two studies have similar methodology in terms of timeline, recruitment, assessment, and the primary objective

* The studies differ by secondary aims, treatments, therapists, and locations

Objective and Timeline

- The primary aim of these projects is to compare psychotherapy in usual format (in person therapy) to psychotherapy in a video telemedicine format
- Each grant is for 4 years, and data collection for each started in May 2009

Equipment

* Tandberg and Lifesize Teleconferencing Units, behind VA firewall

* Tandberg IPVCR Digital Video Recorders to record sessions

Design and Recruitment

- Randomized controlled trials of 250 adult veterans with PTSD, receiving treatment via either face-to-face meetings or videoconference meetings
- Veterans are referred by providers in primary care and specialty mental health clinics or self-referred from brochures in waiting rooms

Eligibility

- Inclusion criteria: Men and women aged 18 or older; chronic PTSD (primary, all trauma types); English literacy

- Exclusion criteria:
  - concurrent PTSD or exposure treatment
  - psychotropic med changes in past two months
  - unmanaged psychosis or manic episodes in past year
  - substance or alcohol dependence in past year

Assessment Protocol

* Phone Screen (providing information, assessing interest, and checking initial eligibility)
* Diagnostic Interviews
* Questionnaire Packet
* Neuropsychological Testing
* Weekly Questionnaires During Treatment

Diagnostic Interviews

* Clinician Administered PTSD Scale (CAPS): Diagnosis and Severity of PTSD (pre-treatment, post-treatment, and follow-up)

* Structured Clinical Interview for DSM-IV (SCID-I): Mood Disorders, Anxiety Disorders, and Substance Use Disorders (pre-treatment)

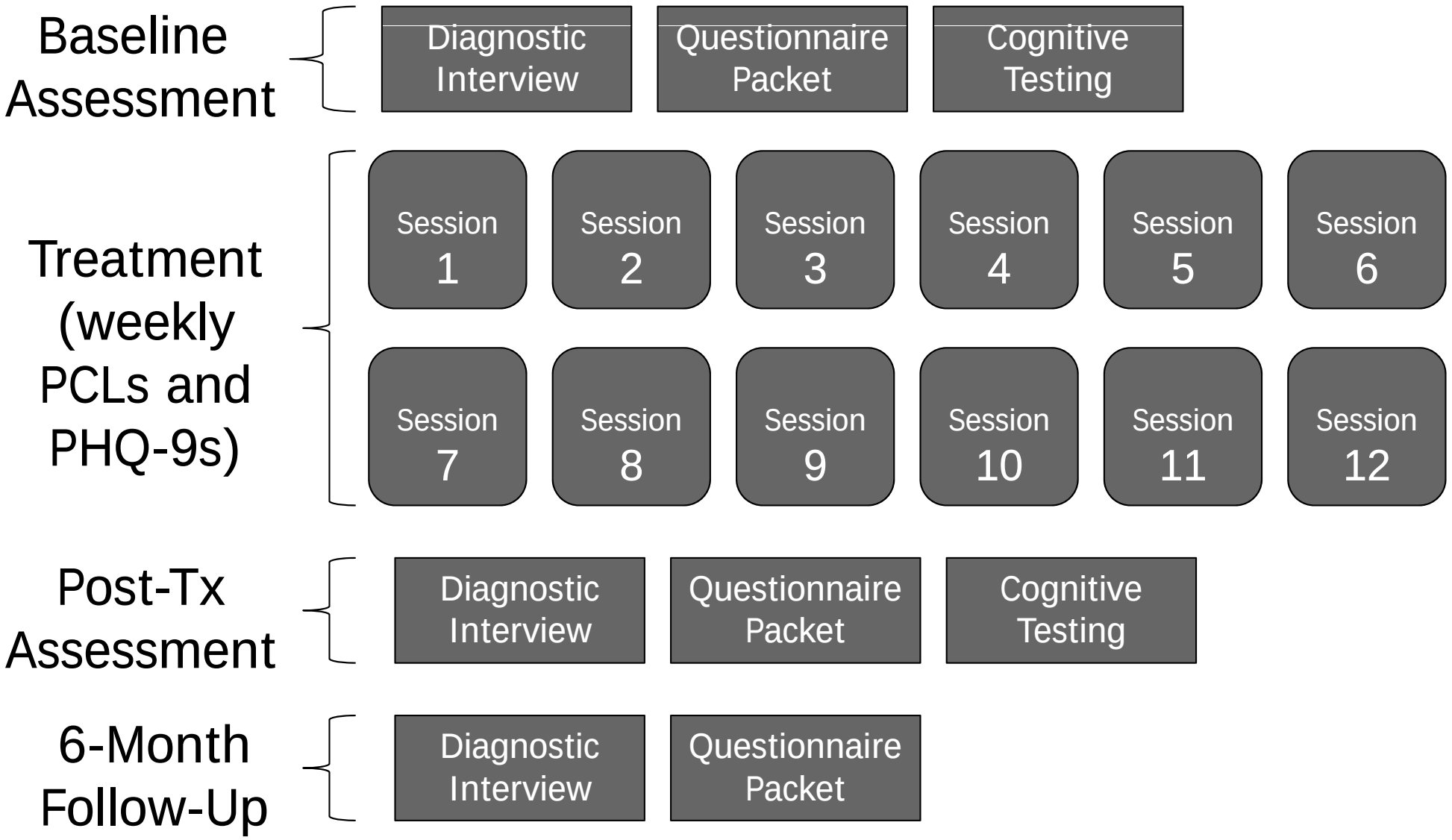
Questionnaire Packet

- PTSD Checklist – Specific (PCL-S): PTSD symptoms
- PHQ-9: Depressive symptoms
- State-Trait Anxiety Inventory – State Anxiety
- Sleep
- Dissociative Symptoms
- Mindfulness
- Guilt
- Anger
- Negative Cognitions
- Posttraumatic Growth
- Idiographic Goals
- Quality of Life/Functioning

Neuropsychological Testing

* Wechsler Test of Adult Reading (WTAR)
* Rey-O Complex Figure
* WAIS Digit Span
* D-KEFS: Verbal Fluency, Color-Word Interference, and Trails
* CVLT
* WCST

Assessment and Treatment Sequence



The DoD Study
Unique Study Aspects

Hypotheses

1. Telemedicine is non-inferior to In-person treatment for a given non-inferiority margin (effect sizes 0.2 - 0.3) for CAPS score change (pre to post treatment)

1. Cognitive functioning will influence treatment outcomes for all veterans, such that those with lower cognitive functioning scores will have a poorer response to treatment

Treatment

* Prolonged Exposure therapy (PE) involves 12 sessions of individual therapy based on exposure

* PE helps treat PTSD by inviting people to face situations they have avoided since a traumatic event and to repeatedly talk about the memory of the event

Foa, Hembree, and Rothbaum (2007)

Study Therapists

* Over 50 therapists from the community were screened and 9 licensed therapists (Ph.D.s and MFTs) were selected
* Only one identified as a CBT therapist; None had experience with manualized treatments
* Therapists are new to the VA
* Therapists are paid for participation
* All therapists attended a 4-day PE training and receive weekly consultation

Locations

Remote Site
(Vista)

Remote Site
(Escondido)

Hub Site
(La Jolla)

Remote Site
(Chula Vista)

Therapist always at hub site, and subject joins them there for in-person therapy or calls from remote site for video telemedicine

VTOPS
Unique Study Aspects

VTOPS Treatment

- Cognitive Processing Therapy (CPT) involves 12 sessions of individual therapy based on cognitive restructuring:
  - Challenging unhelpful thoughts: “I’m an idiot,” “I should never try to make friends,” “It’s my fault that it happened,” “I will always be this way.”
  - Replacing with helpful thoughts: “That was challenging, but I did it!” “I did the best I could in that awful situation,” “Things are improving slowly, but I know that I’m much better at handling things than I used to be.”

Monson et al. (2006); Resick et al. (2002); Resick et al. (2007)

Non-inferiority study Hypotheses

1. Telemedicine is non-inferior to In-person treatment for a given non-inferiority margin (effect sizes 0.2 -0.3) for CAPS score change (pre to post treatment)

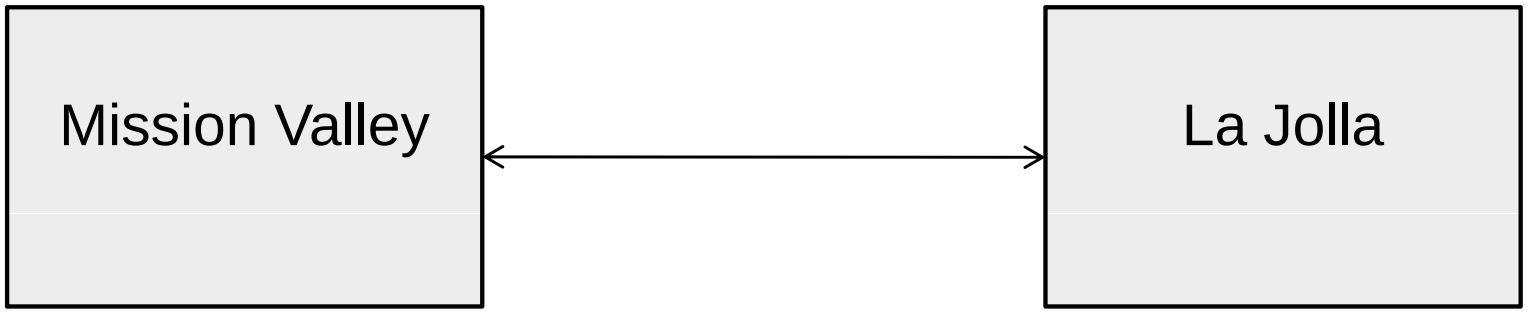
2. Telemedicine is non-inferior to In-person treatment for a given non-inferiority margin (effect sizes 0.2 -0.3) in terms of therapist-patient communication as coded by Roter Interaction Analyses

Study Therapists

* The 11 licensed therapists are from the VA and have strong prior CBT training and experience with manualized protocols

* All therapists attended a 2-day CPT training and receive weekly consultation

Locations

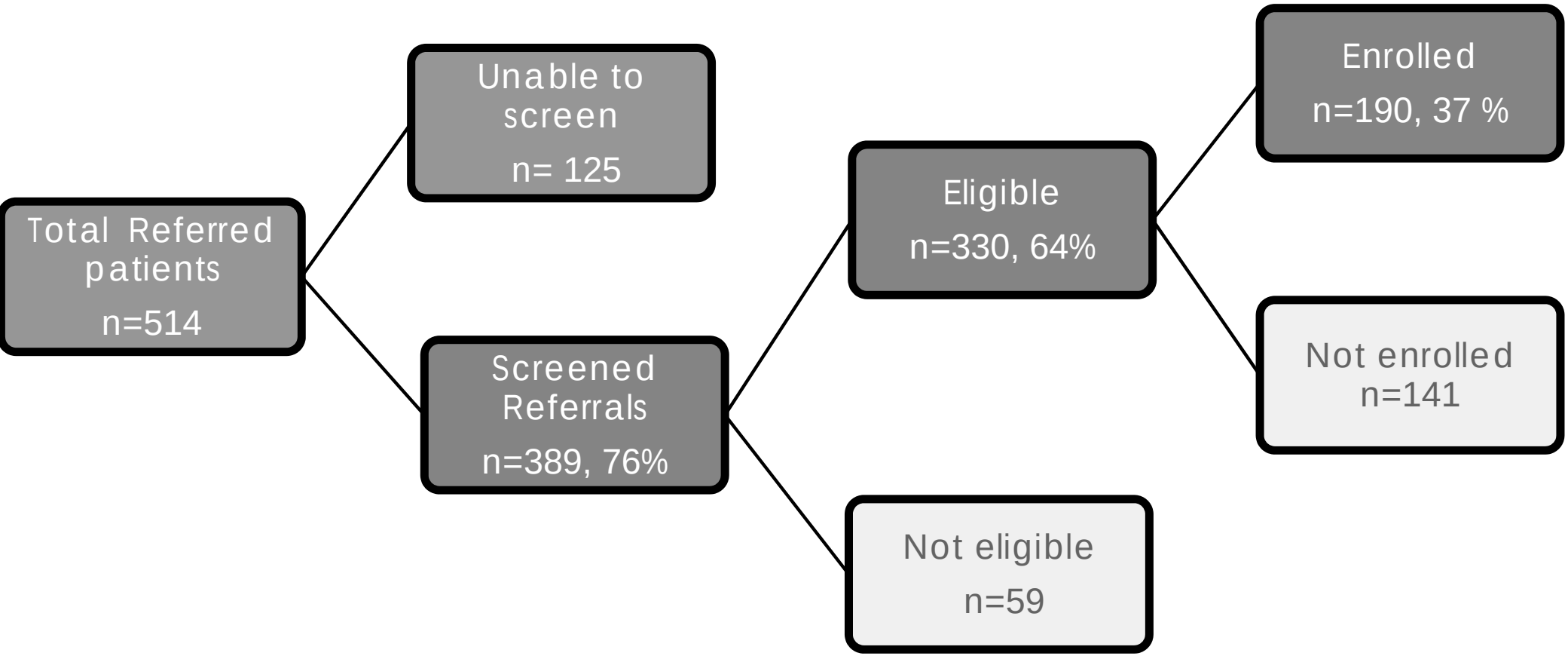


Challenges

* Therapist Enrollment and Retention
  * VA therapist (13 enrolled and 2 have dropped out)
  * Community therapist (10 enrolled)

* Patient Enrollment / clinical workload
  * Each study aims to enroll 250 patients ..500 total !
  * Combined clinical workload = 8500 hours of therapy !

Patient Enrollment



Top 3 reasons for participation

1. Availability of Individual vs. group therapy (70 % of patients)
2. Flexible hours (17% of patients).
3. PE or CPT protocol (5% of patients)

Top 3 reasons for non-participation

1. Time commitment for 12 weekly sessions (45% of eligible patients)
2. Patients on criteria holds, such as medication, therapy, or personal factors (21% of eligible patients)
3. Not willing to travel if randomized to IP arm (8% of eligible patients).

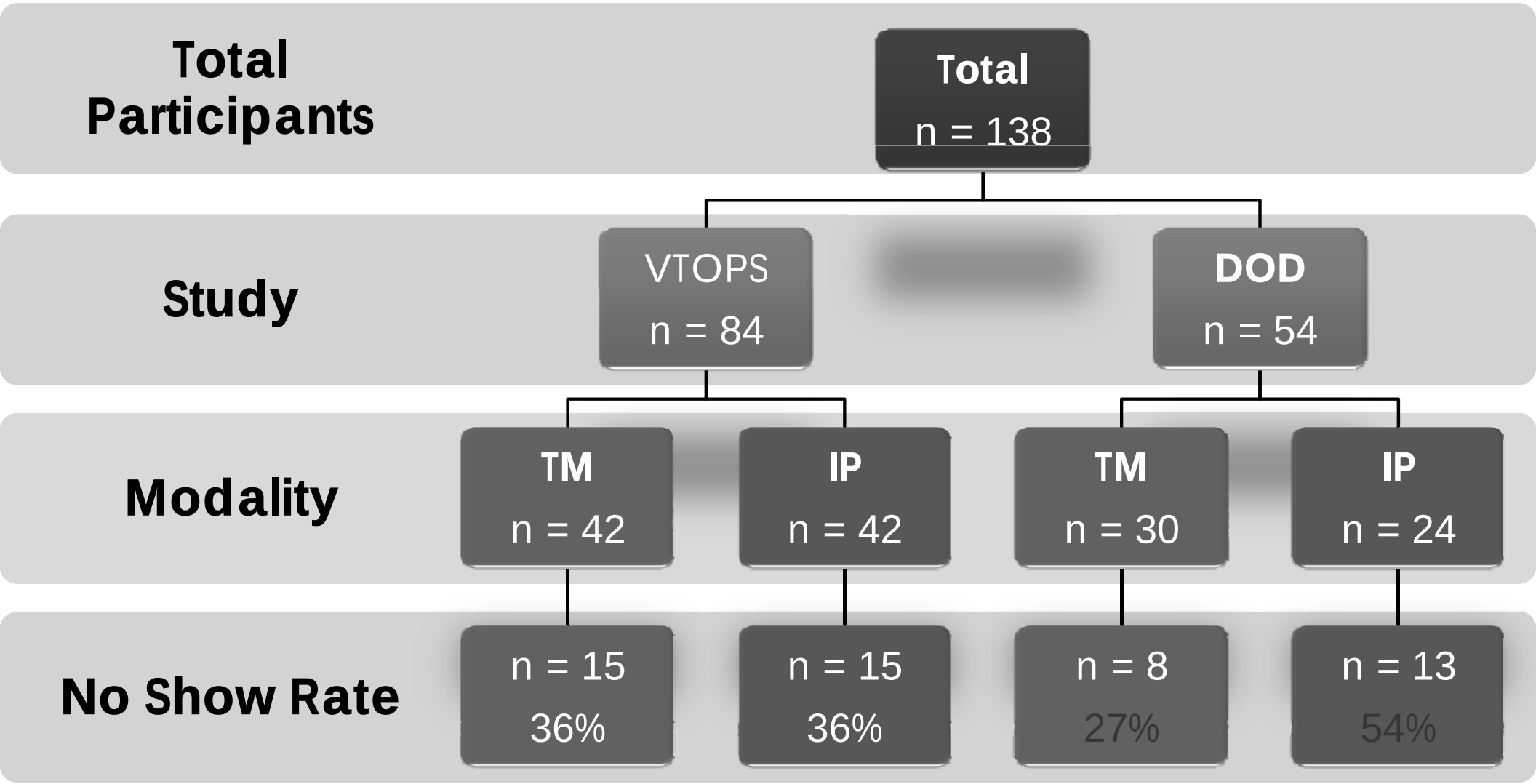
    * Fear for research or the concept of telemedicine (only 4% of eligible patients).

Retention and Therapy Attendance

VTOPS : Both TM and IP have equal access to services.

DOD study: TM provides better access to services as compared to IP.

No Show Distribution for VTOPS and DOD



How to Create Bad Therapists

* To create bad therapists, lower their confidence and take them mentally “out of the room” with distractions so that they’re not fully listening or participating.

Issues with Technology

* Logging in
* Visual artifacts: Frozen image, “ghost” images, tracer images, poor resolution (especially with regard to facial features); Lighting and background
* Audio: Delay, echo, or mechanical sounds
* Sitting close (cameras) and eye contact
* Movement off screen (heavy chairs help)
* Lost calls

Study Monitoring, Equipment, and Space Issues

* Cameras and digital video recording
* Digital recorders (for PE)
* Paperwork and fax machines
* Limited space in VA; Scheduling space for assessments and 6000 therapy appointments

Therapist satisfaction – Focus Groups

* Focus group of 19 study therapist.
* Data were analyzed for themes to provide a deeper understanding of therapists' views as they pertain to PTSD treatment conducted through telemedicine as compared to in-person.

Summary of Themes and Subcategories

Therapist Reactions to Telemedicine
Therapist Reactions to Telemedicine
• Pre-existing expectations
o Anxiety and Hesitation
o Negative Expectations
• Actual Experience
o Better than Expected
o Unexpected Advantages
o Negative Expectations Confirmed
o There's Something Missing
Provider-Patient Relationship
• Quality of the Provider-Patient Relationship
o Stronger connection than expected
o Development of Rapport Despite Technical Issues
o Less Connected
o Telemedicine Rapport vs. In-Person Rapport
• Team Relationship

Summary of Themes and Subcategories

Themes, Subcategories, and Sub-subcategories
Themes, Subcategories, and Sub-subcategories
Influence of Technology
• Limitations on the Therapeutic Experience
○ Discerning Nonverbal Cues
○ Interventions Requiring Physical Proximity
○ Technical difficulties
○ Technology-Related Considerations
• Manageability of Technology
○ Easier than expected
○ Adjustments effectively managed limitations (Discerning nonverbal cues)
• Positive Influence on the Therapeutic Experience
○ No Interference of Patient Stimulus Value
○ Increased Self-Awareness
○ Easier to Redirect and Set Boundaries
○ Therapeutic Use of Technology
Integration into Future Practice
• Telemedicine as a Viable Alternative
○ Telemedicine as a Close Second
○ Individuals Best Served

Cost Effectiveness

- Design: A decision tree model was developed to conduct cost-effectiveness analyses – cost per pt year.
- Data on cost and effectiveness from the parent RCTs detailed was used.
- Effectiveness data consists of actual number of patients treated in a year.
- Data on QOL not incorporated from RCT in these analyses (to maintain primary study integrity) however will be included in final analyses.
- Sensitivity analyses performed

Cost Framework

- Annual cost of program includes:
  - Direct costs:
    - Capital Costs:
      - TM hardware, software, and ancillary equipment
      - Costs for one-time capital investments were annuitized over a 5yr duration
    - Personnel costs: Therapist $60/hr
    - Travel costs: VA reimbursement of $0.41/mile
    - Overhead cost: Per square foot space cost. ($1.84 / sqft from VA facility DSS data)
  - Indirect costs: cost of lost productivity
    - Average lost productivity cost for work day lost (from Bureau of Labor Statistics)

Results of ANOVA for Distance, Travel Cost, & Time

- Distance and Cost of Travel $F(1, 202)=12.8$, $p< .0001$
  - IP = 602 miles, TM = 334 miles
  - IP = $250, TM = $193
- Time $F(1, 202)= 10.4$, $p= .001$
  - IP = 12hr, TM = 7hr

Results of Cost-Effectiveness Model

Strategy	Cost	Incremental Cost	Effectiveness	Incremental Effectiveness	Incr C/E (ICER)
TeleFup	$93,413		102 Patient/Year		
Face-to-face	$106,001	$12,588	102 Patient/Year	0 Patient/Year	(Dominated)

Sensitivity Analysis

* One-way sensitivity analyses were conducted for all model variables.

Figure 1: Sensitivity Analysis

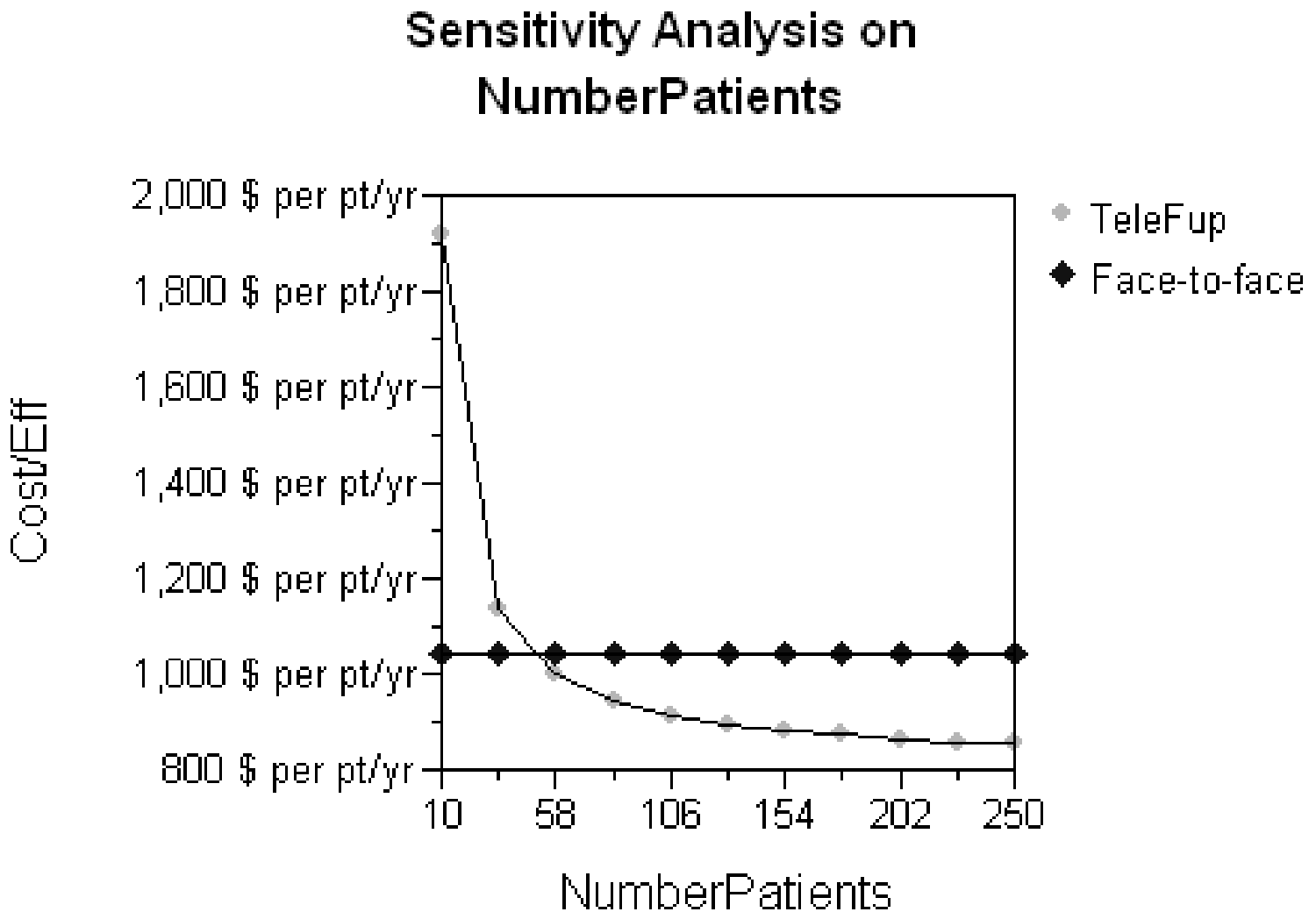


Figure 2: Sensitivity Analysis

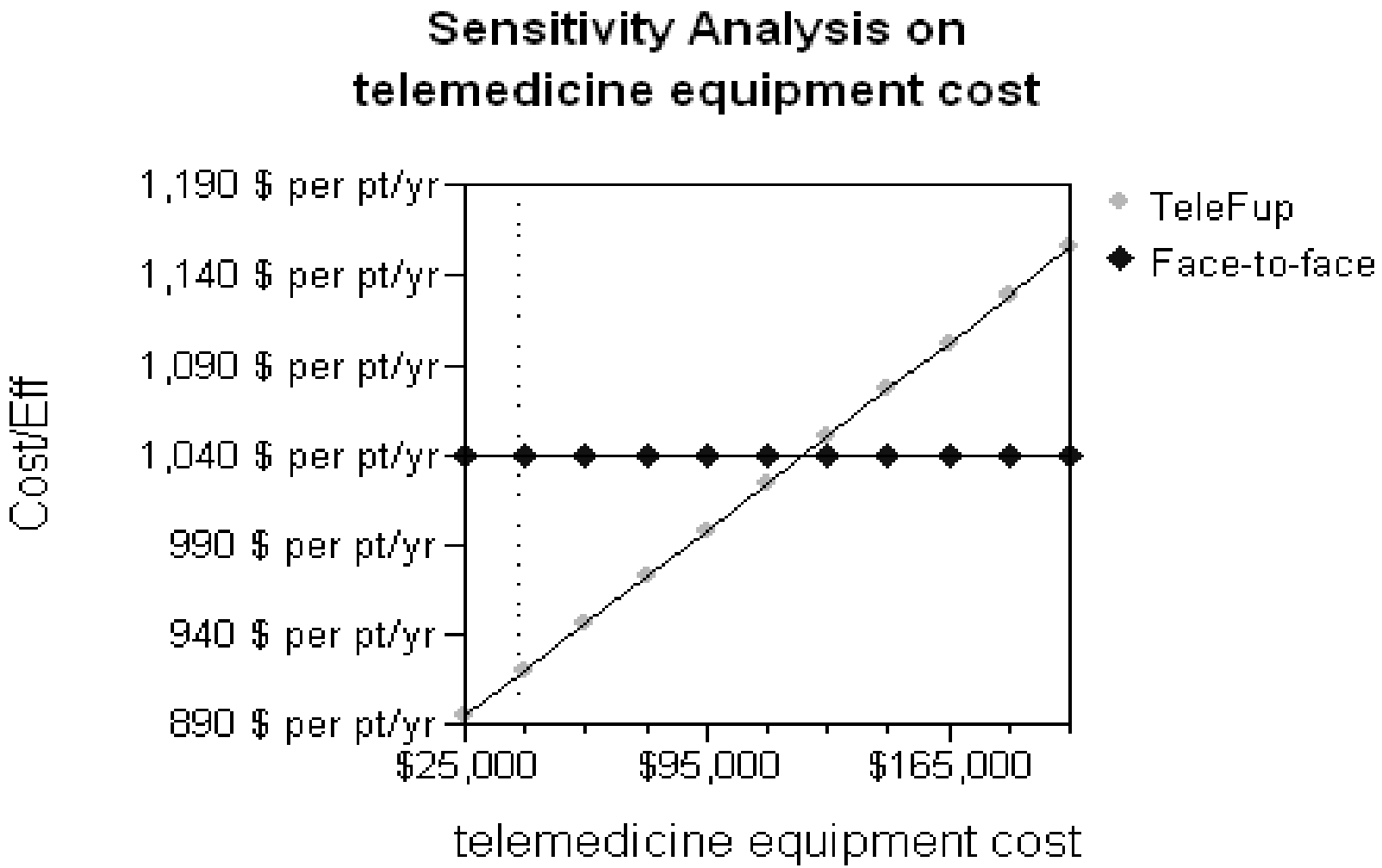


Figure 3: Sensitivity Analysis

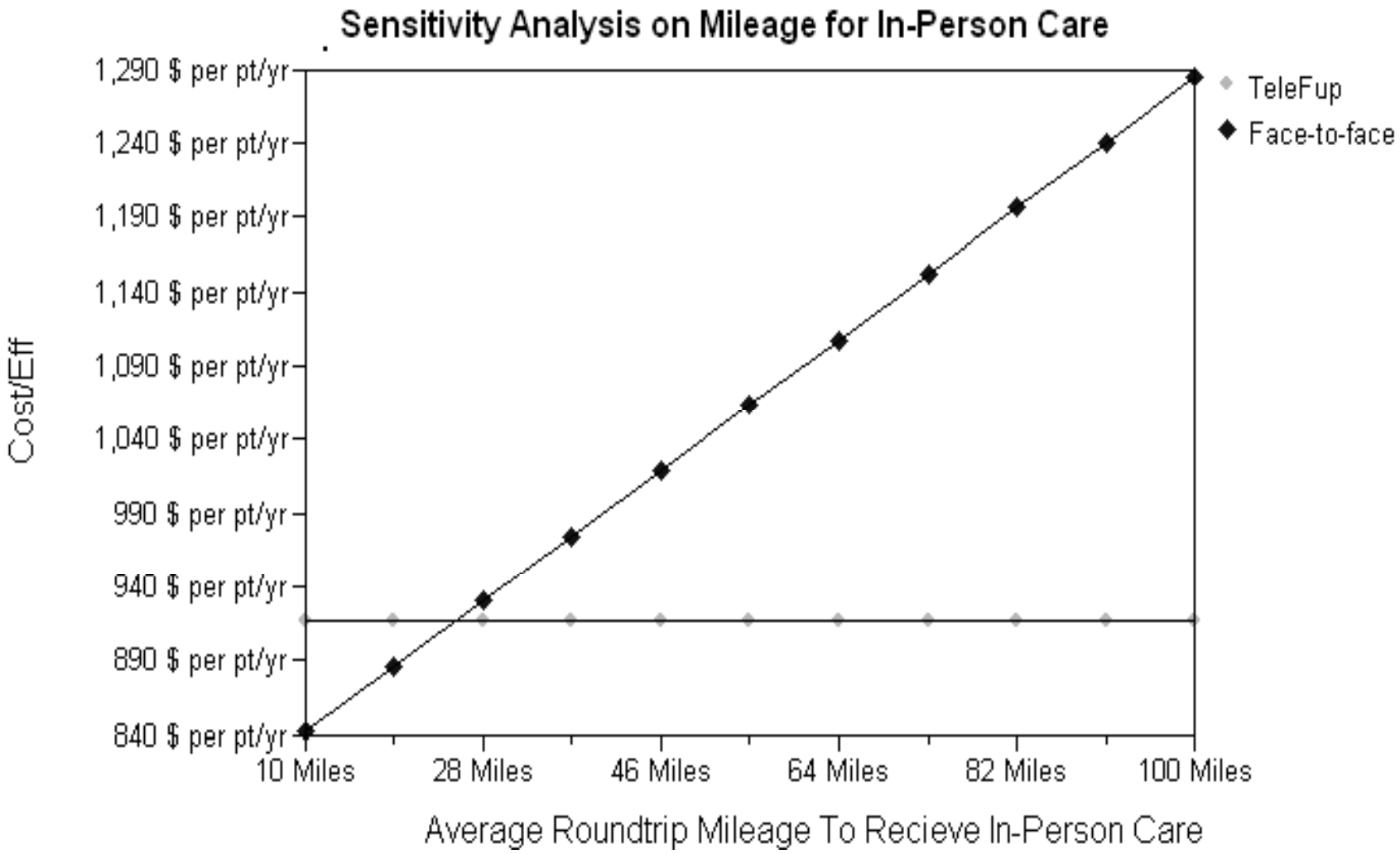
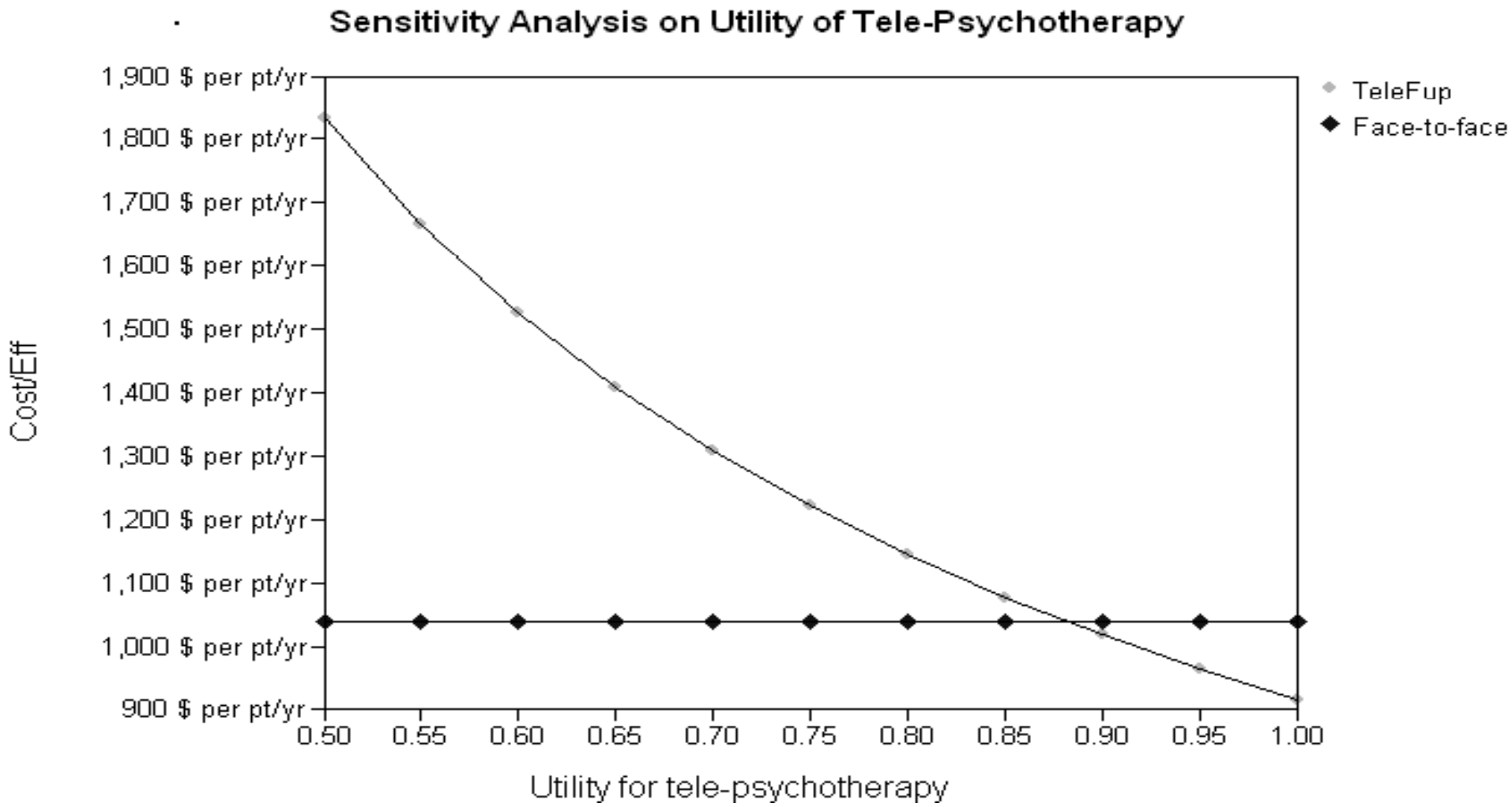


Figure 5: Sensitivity Analysis



Is TM cost effective ?

- Depends on following:
  - Utilization
  - Travel time and cost
  - Improved access = improved outcomes ?
  - Other medical resource use

Expectations / Hopes

- These projects directly address the needs of veterans with PTSD and test a newer technology to demonstrate whether it can improve access to care for veterans

- Quantitative and qualitative data analyses are expected to provide powerful comparisons between telemedicine and in-person therapy for clinical (CAPS), functional (QOL), neuro-psychiatric, communication, and cost effectiveness.

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