



# D2

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# Acknowledgements

National Institute of Disability and  
Rehabilitation Research  
Department of Education



**RERC on Telerehabilitation** at



**RST**

Department of Rehabilitation Science and Technology  
at School of Health and Rehabilitation Sciences, University of Pittsburgh



# Plan for D2 and Advisory Board

- SOS Paper Content on Technology Matching on following slides
- Screenshots from our TR-Web Tool on following slides
- Preliminary FAQ topics for commentary
- Interactive Discussion with Advisory Committee on suggestions and modifications for both





# Choosing TR Technology: Specific Issues

## Goals of the Activity:

- Assessment
- Training
- Intervention
- Follow-up
- Staff or family education





# Choosing TR Technology: Specific Issues

## Interaction typically used

- Instruction or communication to client
  - Verbal
  - Visual
  - Hands-on
  - Combination
- Client communication issues?
  - Speech production
  - Feasibility of repetition
  - Importance of nonverbal communication
  - Desire to “show” therapist





# Choosing TR Technology: Specific Issues

- Number of people typically involved and how you interact with them
- Need for data exchange
  - Verbal/auditory
  - Sharing of written paperwork or reports
  - Review of films or other visual data
- Feedback required
  - Real-time vs. delayed
  - Unique to client vs. predictable/plannable





# Example 1: Psychiatric Interviewing

- One time assessment task
- Both verbal and nonverbal responses of client very important
- Close up of faces important
- Real-time and highly modifiable interaction

Technology preference: High quality video-conferencing with onsite support from local clinician





## Example 2: Client Staffing Rehab Progress Meeting

- Regularly scheduled education and communication meeting
- Verbal exchange among multiple professionals
- Useful to involve experts who may be elsewhere or traveling away from site
- Data to share: written progress reports from other facilities or test data from team members

Technology preference: Tele-conference supported by web-based portal that allows posting PDF of documents







## Example 3: Home-based Motor Rehabilitation

- Intervention conducted 3-5 times per week
- Tracking motor movement of impaired limb
- Visual or auditory feedback to client about task “success” from computer
- Therapist must be able to review progress and modify task difficulty weekly

Technology preference: Virtual reality based system using 2 webcams and LED devices on glove worn by client; no onsite assistance needed - data uploaded electronically to therapist





# Choosing TR Technology: General Principles

- Start with clinical practice first to determine necessary parameters
- Evaluate details that may impose specific requirements on the TR activity
- Consider necessity and role of onsite (remote) facilitator





# Other SOS Technology Issues

- Understanding technology and it's application in telerehabilitation
- How can you match technology?
  - with individuals
  - with the type of service delivery
- Keeping up with new and changing technologies





# FAQ Page on TR

- The next several slides provide examples of Categories and specific example questions to include on a TR FAQ page. Please think of additional topics or questions that should be included to share at our meeting.





# FAQ Page: Categories

- General TR Issues
- Clinician Topics
- Consumers and Caregivers
- ?Others?





# FAQ Questions: General Questions

- What is telerehabilitation?
- Who uses telerehabilitation?
- Why is telerehabilitation needed?
- Is telerehabilitation effective?
- Will TR eventually replace existing clinicians?





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# FAQ Questions: Clinicians

- How can I protect my practice and minimize liability when using TR?
- How will HIPAA handle TR?
- How will reimbursement work compared to traditional face to face work?







# FAQ Questions: Consumers

- Will using TR make my rehab process shorter?
- Will TR cost more than visiting a clinic?
- How can I protect my personal information if TR is on the web?





# Screenshots of our Web-based Tool

- The next several slides show the current status of our web-based tool. We'll demonstrate it at the meeting, but please review for any changes in style, design, or content.



[Home](#) [Population/Diagnosis](#) [TR Applications](#) [Technology](#) [Policy](#) [FAQ](#) [RERC-TR](#)

## TR-Web

Welcome to the University of Pittsburgh RERC on Telerehabilitation's Web-Based Tool on Telerehabilitation Resources!

This tool provides a database of information on current uses of technology to provide remote rehabilitation services rather than traditional face to face service provision. The database is accessible via the Web without any specific software required. Data includes summaries of telerehabilitation (TR) described in peer reviewed journals, government and organizational manuals, and popular literature such as newspapers, as well as government regulations on the use of telerehabilitation.

Our goal is to facilitate use of telerehabilitation by making access to current practices more easily available, giving anyone on the web the ability to get ideas from other clinicians and researchers already using telerehabilitation.

The database can be entered and searched based on:

- 1) Population or Diagnosis that you would like to serve with TR
- 2) TR Applications – the purpose you are trying to meet, such as education, assessment, or therapy
- 3) Technology that you may have access to or would consider a primary mode of providing TR services

There are drop down menus for each of these entry points. All records are cross referenced and include each of these data fields, along with access to photos or other information on the technology, and citations about use of the technology.

In addition, the TR-Web Tool also includes a database on TR policy by state and a FAQ page on TR.

We welcome additions and contributions to the database, recognizing that many clinicians and facilities are using TR but do not disseminate their TR activities.

Thank you.

### Select a category:

#### Specific Population / Diagnosis

TR-Web will produce a range of technologies and applications that can be used for remote services.

#### TR Applications

TR-Web will produce a range of technologies that can be used to provide remote service delivery.

#### Technology

TR-Web will provide you with a variety of potential applications for your technology.

#### Policy

Shows your state policy is on Telerehabilitation.

#### Frequently Asked Questions

Do you have a question? Please check out our FAQ page.

#### The RERC on Telerehabilitation

The University of Pittsburgh RERC on Telerehabilitation home page.

[Click here to email your comments](#)

[Home](#) [Population/Diagnosis](#) [TR Applications](#) [Technology](#) [Policy](#) [FAQ](#) [RERC-TR](#)



Step 1: [Click here to select a population/diagnosis](#)

Step 2:

enter a desired population or diagnosis, or choose one from the drop-down list.

- None
- Health Management
- Autism
- Cancer
- Speech and Language Disability
- Traumatic Brain Injury
- Cognitive Impairment
- Stroke
- Spinal Cord
- Mental Illness
- Motor Disability
- Multiple Sclerosis
- Chronic Pain

Reference

Reference search area with dashed border.

Population/Diagnosis

<input type="text"/>	0-2 Infants	18-41 Young Adult
	3-5 Toddlers	42-64 Older Adult
	6-11 Children	65+ Elderly
	12-17 Adolescents	All ages

Application

Application search area with dashed border.

Technology

Technology search area with dashed border.

You have viewed result #1, scroll down for more results or search again.

[Home](#) [Population/Diagnosis](#) [TR Applications](#) [Technology](#) [Policy](#) [FAQ](#) [RERC-TR](#)

TR-Web  
TR-Web

Step 1: [Click here to select a population/diagnosis](#)

Step 2:

[Find Selection](#)

[Browse all records](#)

enter a desired population or diagnosis, or choose one from the drop down list.

#### Reference

Illman, J. (2004, December 1, 2004). Switching onto cognitive therapy. *Nursing Standard*, 19, 16-17.

Journal article stating that people with mental illnesses that have a bad stigma towards receiving mental health help are more likely to be open to computer or telephone therapy; helps increase the amount of people able to receive help, especially with the shortage of Cognitive Behavioral Therapists. Therapy time is shortened from one hour session to fifteen minutes.

#### Population/Diagnosis

Mental illness

0-2 Infants                      18-41 Young Adu  
3-5 Toddlers                    42-64 Older Adult  
6-11 Children                    65 + Elderly  
12-17 Adolescents              X All ages

#### Application

People with mental illness receiving cognitive behavioral therapy (CBT) through telecounseling

#### Technology

Computer



A desktop computer is an independent personal computer that is made especially for use on a desk in an office or home. Desktops are currently the more affordable and most common computers, and are frequently used by businesses, schools, households and other organizations. Nearly all modern desktop computers are modular, meaning that the components can easily be replaced or upgraded.

You have viewed result #3, scroll down for more results or search again.

[Home](#) [Population/Diagnosis](#) [TR Applications](#) [Technology](#) [Policy](#) [FAQ](#) [RERC-TR](#)

[Home](#) [Population/Diagnosis](#) [TR Applications](#) [Technology](#) [Policy](#) [FAQ](#) [RERC-TR](#)

TR-Web  
TR-Web

Step 1:

[Click here to select an application](#)

Step 2:

ADL

[Find Selection](#)

[Browse all records](#)

Enter a desired objective or application, or choose one from the drop down list.

#### Reference

Brooking, R. (2001, November 4, 2001). Trooper endorses therapy which helped him recover. The Sunday Constitution, p. 6B.

Home-based computer system used to help young trooper recover from traumatic brain injury. Trooper spent sufficient time using a computer and becoming familiar with technology. The computer helped the Trooper's organizational skills, motor skills (typing and mouse clicking), and also improving his senses such as color vision and hearing. Recovery was very tedious because Trooper's attention span was very short but improved throughout the test.

#### Population/Diagnosis

Traumatic Brain Injury

0-2 Infants  18-41 Young Adu  
3-5 Toddlers 42-64 Older Adult  
6-11 Children 65 + Elderly  
12-17 Adolescents All ages

#### Application

ADL  
Exercise

#### Technology

Computer



A desktop computer is an independent personal computer that is made especially for use on a desk in an office or home. Desktops are currently the more affordable and most common computers, and are frequently used by businesses, schools, households and other organizations. Nearly all modern desktop computers are modular, meaning that the components can easily be replaced or upgraded.

You have viewed result #1, scroll down for more results or search again.

[Home](#) [Population/Diagnosis](#) [TR Applications](#) [Technology](#) [Policy](#) [FAQ](#) [RERC-TR](#)



Step 1:

[Click here to select a technology](#)

Step 2:

Virtual Reality

[Find Selection](#)

[Browse all records](#)

enter a desired technology, or choose one from the drop down list.

#### Reference

<http://www.goodshepherdrehab.org/rehabilitation-technology/index.asp>

Virtual Reality Augmented Therapy (IREX) is a system that superimposes an image of the patient on a computer-generated environment that allows the patient to perform exercises focusing on single joints to full body function. The patient stands in front of a green screen and a camera captures his or her image on a monitor. There they can see their image and interact with virtual objects while performing exercises. The exercises incorporate numerous movements and promote balance, hand-eye coordination, flexion, abduction, and rotation. This system is primarily used to focus on trunk control, balance, and coordination. Virtual Reality Therapy allows the patient to work on improving function while

#### Population/Diagnosis

Cognitive Impairment

0-2	Infants	18-41	Young Adu
3-5	Toddlers	42-64	Older Adult
6-11	Children	65 +	Elderly
12-17	Adolescents	X	All ages

#### Application

Exercise

#### Technology

Virtual Reality



-Glove and Mask connected to PC to provide virtual environment.

You have viewed result #5, scroll down for more results or search again.

[Click here to Submit a Question](#)

## GENERAL QUESTIONS

What is telerehabilitation?

Telerehabilitation is rehab services or consulting done through means of communication devices such as the internet or by phone. Audio, Visual, and Auditory output delivered from one remote site to another via mass communication devices such as phones, cameras, and computers are the tools used in telerehabilitation.

Who uses telerehabilitation?

Anyone can use TR as long as technology skill is up to date in both the patient and clinician. Also, The rehab clinic must offer TR as a practice.

Why is telerehabilitation needed?

Patients with limited abilities may not be able to show up for appointments. Disabilities often limit the patient to their home and they must rely on family or friends to transport them to the clinic. TR allows the patient can stay at home and meet with the clinician through a communication device such as a computer. Many rural clinics lack rehab service areas, therapists and doctors are limited and the specialist located in the nearest city can be many miles away from the hospital.

Is telerehabilitation effective?

So far, TR in practice is limited because of the tech devices such as computers and large cost of TR. Most states do not have guidelines stating

What type of people use TR?

For instance, is this available for people with disabilities used by anyone that can operate the technology needed for the clinician and patient to interact. People with disabilities will have a harder time using TR if they do not possess.

Why is TR so important for clinicians and health care providers?  
Telerehabilitation saves time and money for both the clinician and patients in less time and charge less per patient. Often times getting to the hospital or clinic requires a long drive and parking garages. Using TR could relieve

Will TR eventually replace existing clinicians?  
No, the clinicians will still be needed for know. There is a large shortage of health care professionals. It will not be seen each hour of every day. Clinics will be busy for hours for hours to see the busy doctor.

## CLINICIANS

How can I protect my practice and minimize liability when using TR?

What safety precautions must be made when using TR?  
Be sure to be professional at all times while using TR.

How will HIPAA handle TR?

HIPAA will work with the state and federal governments to assure patients that the information via the web is always safe and secure.

How can I keep my patients personal information safe through TR?

How will the pay compare to practice in a clinic?

Reimbursement may be an issue with TR. Pay should not decrease for the practitioner. Pay should stay the same or increase. Check your state policy for reimbursement for TR. Check our policy database online.

Will TR eventually decrease the amount of practicing clinicians?

Seeing how there is a major shortage of health professionals in the US, no. Clinicians are needed more than ever and with TR more people who are put on hold to get in the clinic will now be seen at an earlier date.

## PATIENTS AND CAREGIVERS

Will using TR make my rehab process shorter?

Yes. TR will save you all the time of making the trip to the clinic, sitting in the waiting room, and seeing the clinician.

Will the TR process be simple?

Depending on what technology you may need to use throughout the rehab process. TR will be simpler and easier for you. Check with your therapist what technologies fit your needs.

Will anyone be able to figure out the process of TR?

At first, TR will be challenging for everyone but advances in technology should gradually reduce the complications associated with learning how to operate new devices.

