Team Members / Acknowledgements

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Overview

• Background
• Response
• Issues
  – Hardware
  – Software
  – Users
• Solutions

Lymphedema

• Disorder of lymphatic system
  – Excess fluid builds up in tissues
  – Progressive disease
  – Eventually leads to grossly swollen body segments and fibrosis.
Study Program
- Three components
  - TR-PUMPS
  - Hardware
  - Software

Demographics
- 11 Subjects
  - Age: 54.5 yrs +/- 11.9 yrs (36-79)
  - M/F: 3/8
  - Education: ≥12 yrs; 7/11 post-secondary
  - Married Y/N: 8/3
  - Caregiver Y/N: 10/1
  - Urban/Rural: 2/9
  - Employed Y/N: 1/10
IT Familiarity

- TOFHLA 10 adequate; 1 inadequate
- IT Familiarity 1= daily use; 3= never use
  1.74 +/- 0.55 (1-2.63)
TR Usability

- TR Usability: 6.67
  (1= disagree; 7= agree)
  - Usefulness: 6.34
  - Ease of use & learnability: 6.45
  - Interface quality: 6.59
  - Interaction quality: 6.68
  - Reliability: 5.09
  - Satisfaction/Future Use: 6.95

Program Response

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Connections Speeds

• Requirements: 1.5 MBps ↑↓
• Connection errors:
  – Loss of signal
  – Wireless network problems
  – 3G/4G Network
  – Connection hardware errors

Subjects using their own equipment

• Subject TRL01
  – Malware, bloatware, lack of consistent upgrading
• Subject TRL07
  – No problems
Hardware malfunctions

- Unplug/Replug errors
- Broken equipment

Software interface for problem solving
Problems that can cause malfunctions

- USB Errors
- Signal Drop
- Time

User Familiarity of Tech

- Subjects with high technical skills had little to no problem with the protocols
  - Age
  - Cognitive Impairment
Mobility Issues

- Manual dexterity
  - An inability to grasp most objects leads to a difficulty in manipulating cameras and other objects.
  - Sometimes, cameras, computers, and other tech need to be moved.

Mobility Issues

- Manueverability Issues
  - Inability to maneuver with equipment
  - Inability to maneuver in tight spaces

- Home Layout

Caregivers

- Subjects lost due to caregiver inadequacy
  - Changes in caregiver schedules
  - Refusal of caregivers to comply with treatment

Timing and Scheduling

- Best time to do telemedicine?
  - Whenever the patient is available!
  - Whenever the caregiver is available!
  - Whenever the clinician is available!
Confounding Issues

- Theft of equipment
- Advanced Pneumatic Compression

Technology Solutions

- Documentation
  - Detailed written documentation
  - Troubleshooting guides
Other Options

• Other Internet Platforms
  – GetAbbey
  – Skype
• Smartphones
• Telephone

Technical Support

• To be implemented, this system will require full time technical support personnel.
User Solutions

• This type of therapy is not for everyone!
  – Need patients/subjects with some advantage to using the technology
• Improved screening procedures
• A therapy is only effective if you can get people to use it.

Conclusions

• Subjects were happy with the technology and the interaction
• We were able to monitor subjects effectively.
• There is room for improvement in the system.
Thank You!

Questions?