

# Moving Assistive Technology From Lab -> To User

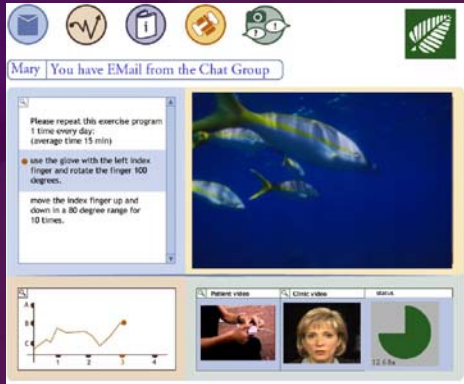
*or*

If it was easy,  
everyone would be doing it...

Walter Greenleaf, PhD

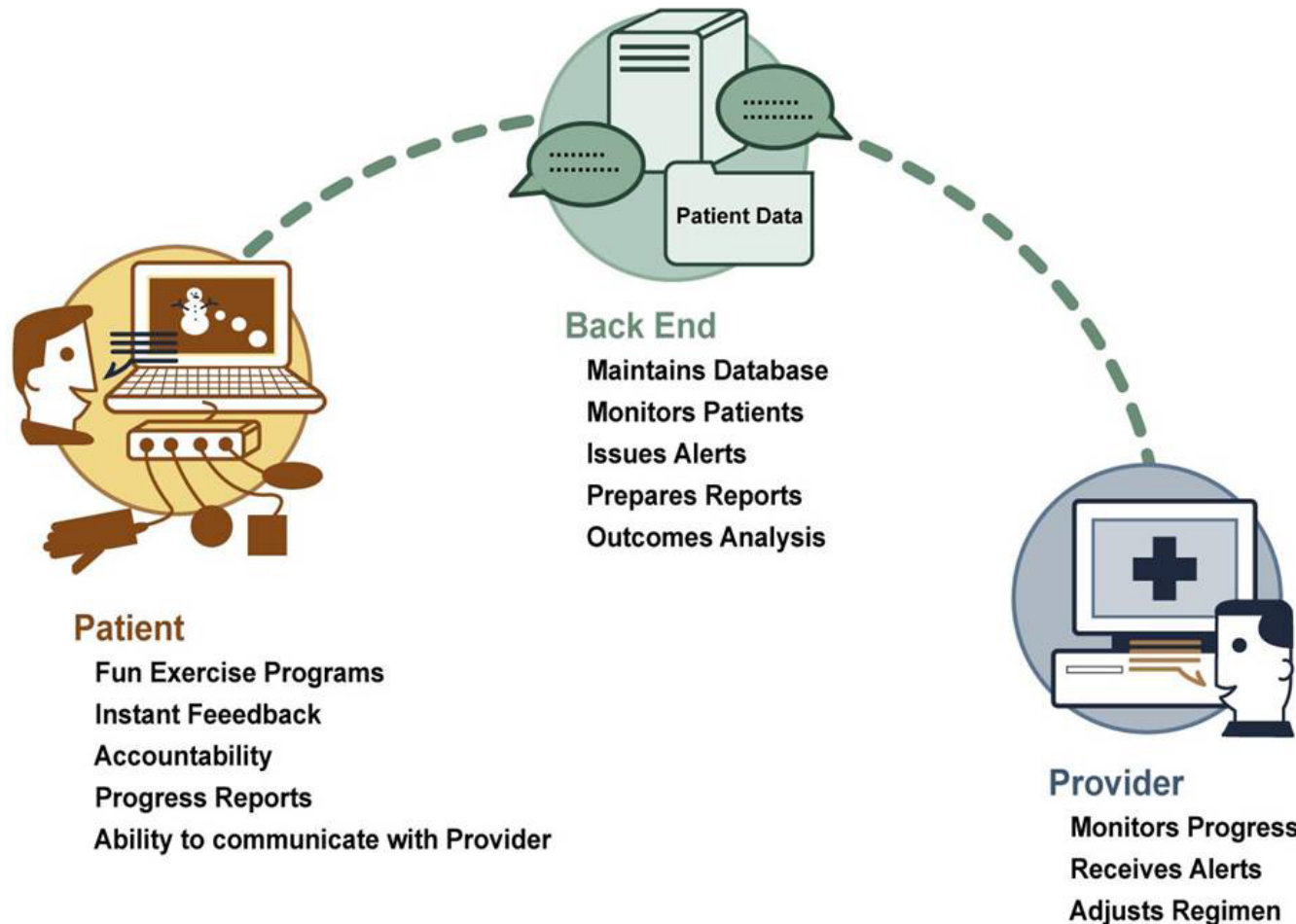


## Computer Technology for Evaluation and Rehabilitation



Cognitive & Physical Therapy  
Facilitated by Interactive Media Technology

# Integrated Telerehabilitation Program



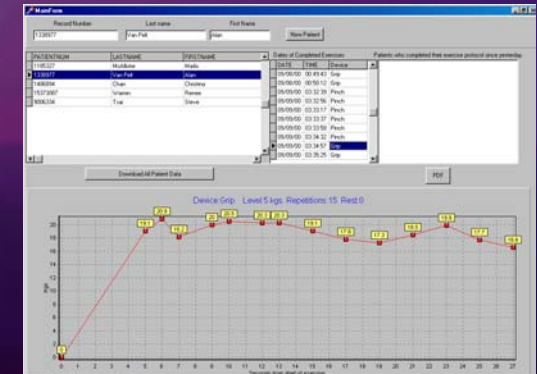
# Computer Assisted TeleRehabilitation

Treatment approaches designed to generate optimal recovery:

- Guarded rehabilitation activities
- Graduated short term milestones and goals
- Real-time visual feedback of rehab progress
- Cognitive distracters (from pain, fear, boredom)
- Daily clinical oversight and therapist-provided feedback
- Collaborative Rehabilitation



A screenshot of the tele-rehabilitation software interface. At the top, there are several icons representing different functions. Below the icons, a message box says "Mary | You have EMail from the Chat Group". The main area contains text instructions: "Please repeat this exercise program 1 time every day (average time 15 min)", "use the glove with the left index finger and rotate the finger 100 degrees", and "move the index finger up and down in a 90 degree range for 10 times." To the right of the text is a video window showing a hand performing the exercise. At the bottom, there are three small windows: a line graph showing progress, a video of a hand being held, and a circular progress indicator.







Daily evaluation of rehabilitation progress

Feedback loop closed

Quantitative and qualitative assessment

Improved *compliance* with home programs



## Mary You have EMail from the Chat Group



Please repeat this exercise program  
1 time every day:  
(average time 15 min)

- use the glove with the left index finger and rotate the finger 100 degrees.

move the index finger up and down in a 80 degree range for 10 times.



Search Patient video



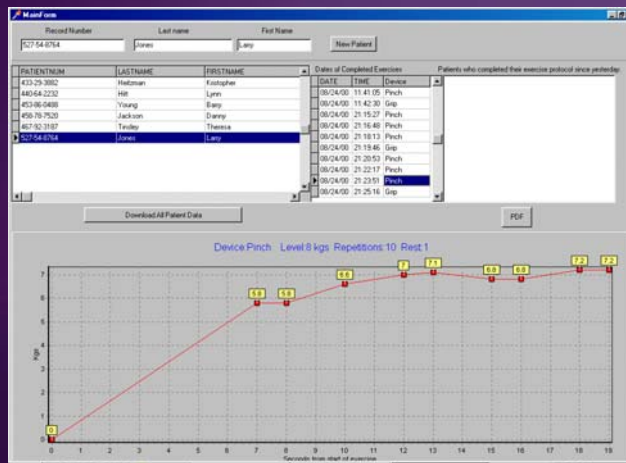
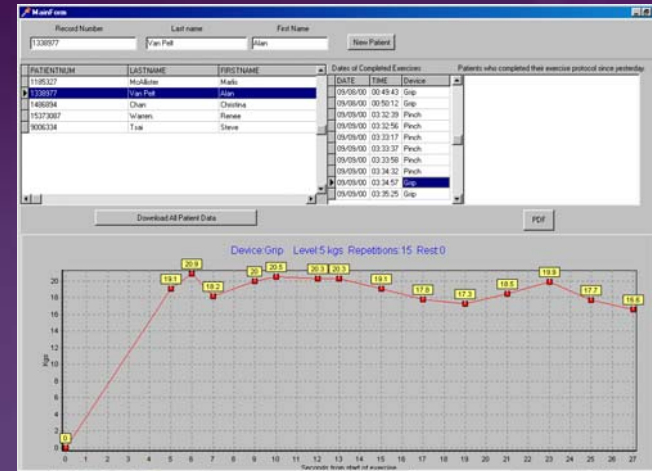
Search Clinic video



status



# Guarded rehabilitation activities





# Patient Benefits

## Technology-assisted program

Improved compliance, leading to:

- Faster recovery
- More complete recovery

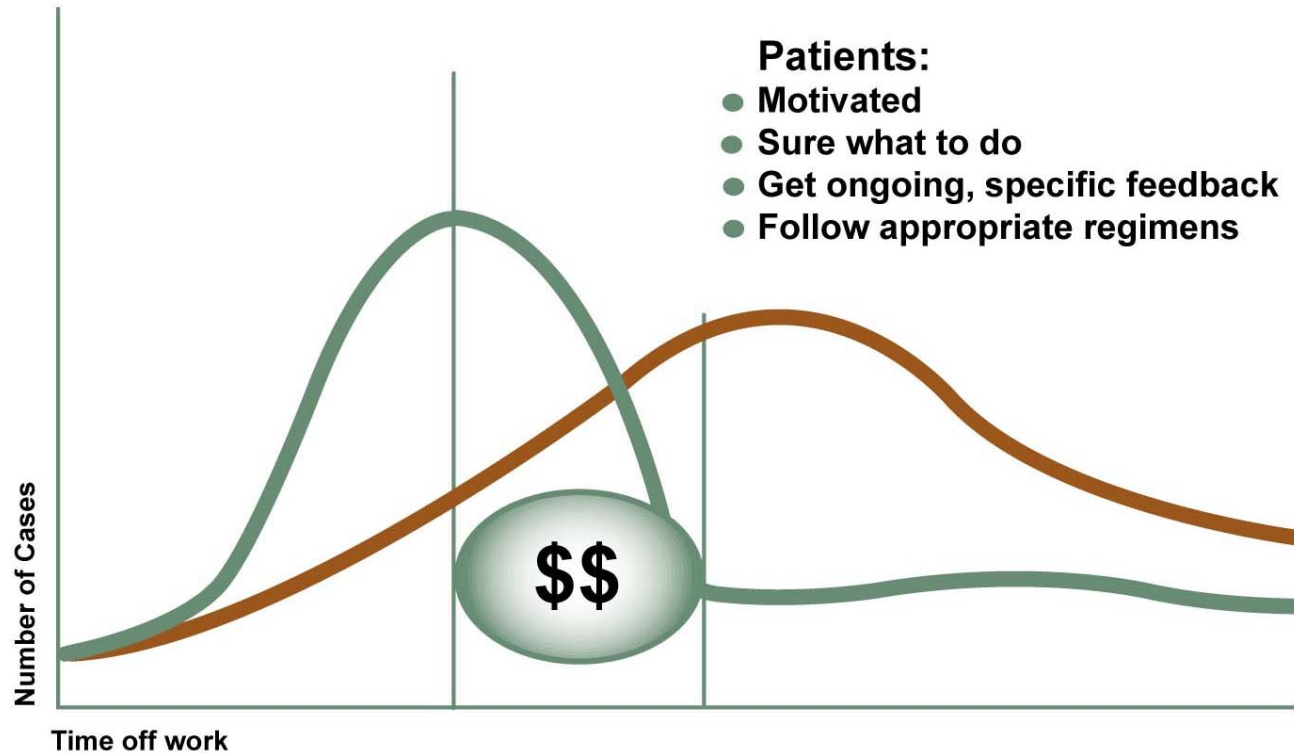


## Traditional program

Typically poor patient compliance:

- Slower recovery
- Potential for permanently lost function

## Benefits of Dynamic Rehab



# An Electronic Scrapbook for Patients With Progressive Memory Loss, Such As Alzheimer's Disease



# Nature of the Assistive Technologies Market

**AAOS** *AMERICAN ACADEMY OF ORTHOPAEDIC SURGEONS*  
*AMERICAN ASSOCIATION OF ORTHOPAEDIC SURGEONS*



**Closing The Gap**

Assistive Technology Resources for  
Children and Adults with Special Needs

# Nature of the Assistive Technologies Market





# Ways to get a product to market

Do it yourself:

Finance  
Design  
Develop  
Validate  
Manufacture  
Regulatory Approvals  
Distribute  
Support

Do it part of it yourself:

Finance  
Design  
Develop  
Validate  
-----  
Manufacture  
Regulatory Approvals  
Distribute  
Support

# The Challenge of the Assistive Technology Market

- Few large companies addressing the market
- Difficult to raise investment capital
  - Market is viewed as small
  - Not many examples of ROI
- Competition from other investment opportunities

These barriers to entry are not insurmountable, but must be factored into your design and business plans.

# The Challenge

Getting assistive technology to the user requires a different approach than standard commercialization strategies.

The situation will improve, with the passage of time and the aging of the population.

In the meantime:

Design with the *complete process* in mind;  
from concept to commercialization.

Reverse engineer from “the exit”.

# The Challenge

Getting assistive technology to the user requires a different approach than standard commercialization strategies.

The situation will improve, with the passage of time and the aging of the population.

One approach is to leverage existing distribution channels.

Direct to consumer may be a viable option for distribution; but how to finance development, validation, manufacturing, regulatory approvals etc...



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<http://www.greenleafmed.com>