

# Bridging the Gap Between Consumer and Products in Rehabilitation Medicine

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**REACH**



# How is assistive technology used?

- Mental and / or Physical Activities of Daily Living (ADL)
  - Improve functioning
  - Overcome disorder or impairment
  - Prevent worsening of a condition
  - Strengthen a weakness

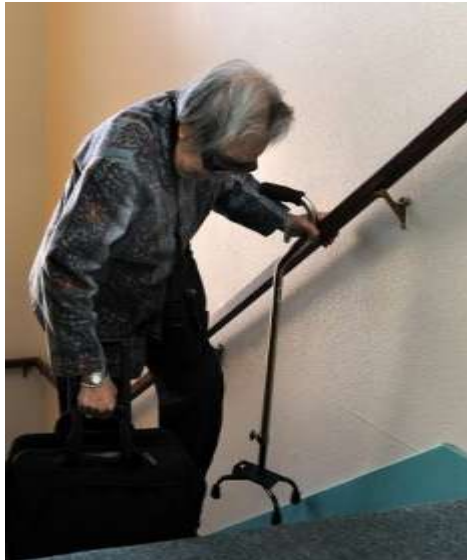
# ADLs

- Self Care
  - Dressing



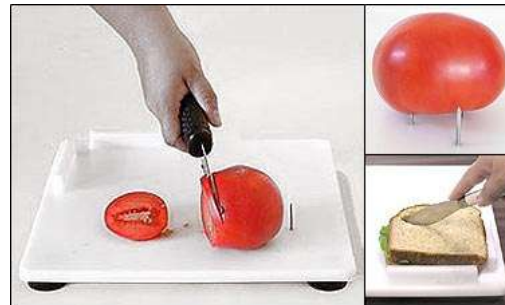
# ADLs

- Self Care
  - Mobility



# ADLs

- Self Care
  - Eating and Meal Preparation



# ADLs

- Self Care
  - Eating



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# ADLs

- Self Care
  - Hygiene



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# ADLs

- Communication





# ADLs

- Leisure
  - Hobbies, sports, travel, etc.

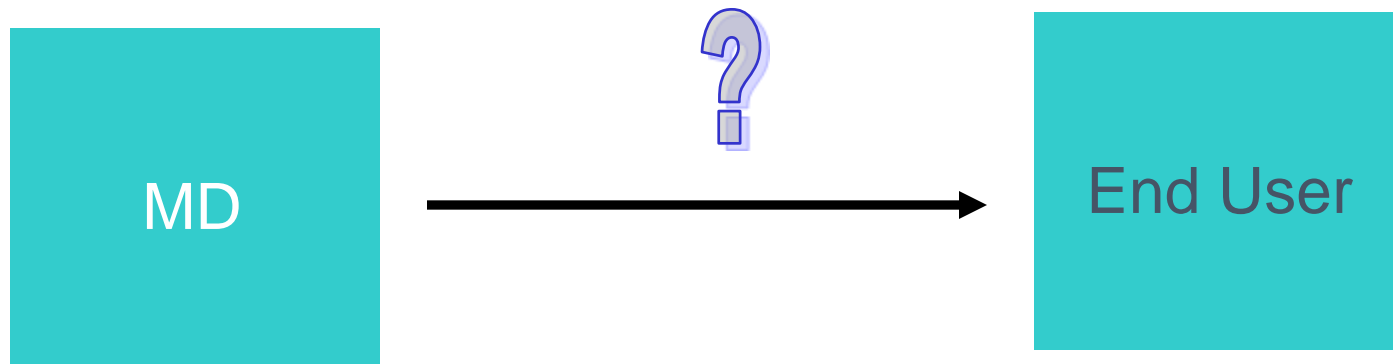


# ADLs

- Vocation and Education



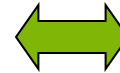
# Prescribing Rehabilitation Equipment



# The Transdisciplinary Team

**Physiatrist**

Computer Engineer  
Family / Tutor / Caregiver  
Rehabilitation Counselor  
Assistive Technology Specialist  
Service Coordinator  
Fabrication / Adaptation Tech  
Training Coordinator  
Audiologists  
Nurse Practitioners



Social Workers  
Occupational Therapist  
Speech-Language Pathologist  
Prosthetists  
Medical Consultants  
Teachers / Special Educators  
AT Equipment Vendors  
Hearing Device Specialists  
Physical Therapists

**Patient**



# Occupational Therapist

- Assisting people who are unable to function independently or are not functioning as independently as possible in the areas of daily living, work, play, and leisure.
- Independence is increased through functional activities that are meaningful to the individual.
- Occupational Therapists treat the whole person!

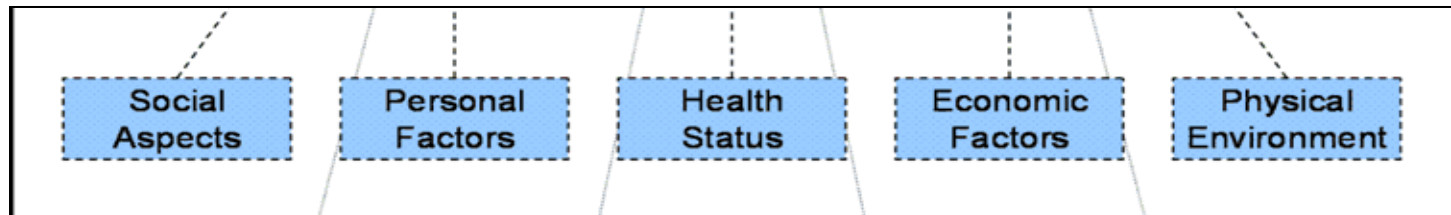
# Steps Needed to Issue an Assistive Device

- Prescription from a MD
- Equipment suitability
- Site and method of instruction
- Time to introduce device during hospitalization
- Reinforcement of its use
- Written justification to insurance company

# Who pays?

- User
- Insurance
- Private
- Managed care
- Fee-for-services
- Medicare
- Medicaid
- VA
- Grants / Loans

# Equipment Suitability



Culture

Support

Motivation

Perception of Self

Age

Gender

Education

Diagnosis

Chronic

Changing

Acute

Cost

Rural City

Rent / Own

Stairs



# Different Levels of Assistive Technology Require Different Amount of Training

## **Low Technology Adaptation**

- Easy to use and does not require electrical power. May require a short training period.

## **Elementary Technology Devices**

- Includes most battery-operated devices. User requires a moderate training period. Usually off-the-shelf or inexpensive.

## **High Technology Devices**

- Includes complex and programmable equipment. User requires specific training in order for the user to take full advantage of their capabilities. Expensive

# Instruction in the Use of the Assistive Device

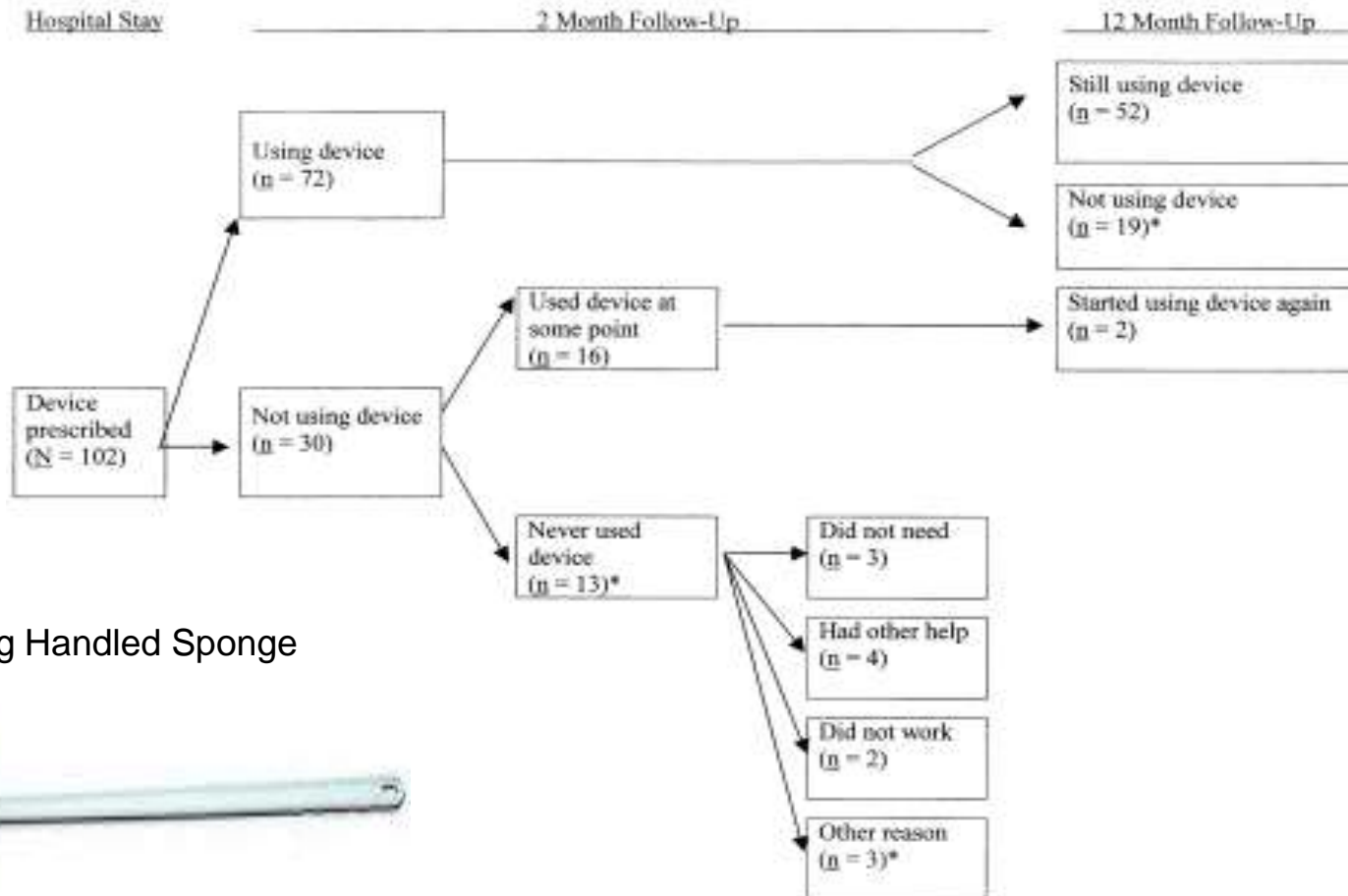
- Repetition is key
- Types of instruction:
  - ❖ demonstration
  - ❖ practicing actual skills in hospital environment
  - ❖ written
  - ❖ video
  - ❖ in-home training

# Reinforcement

- Transition of skills to community / home environment
- Follow-up
- Support groups
- Refresher training may be necessary

# Assistive Technology

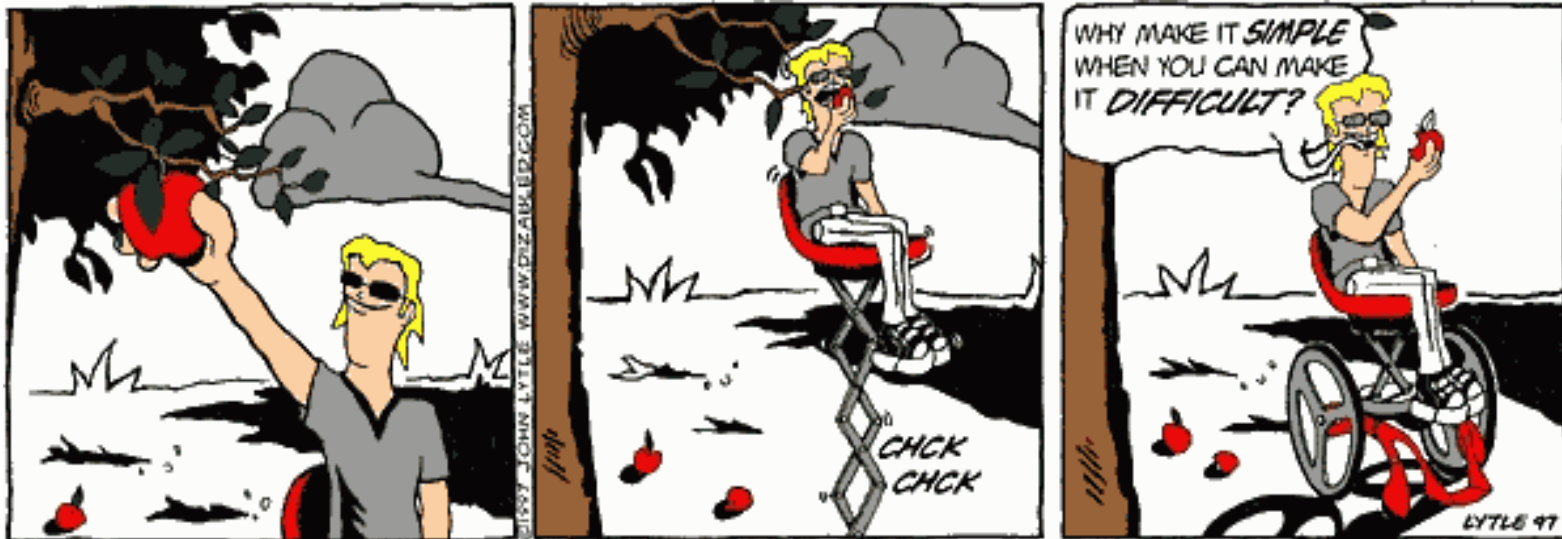
## One Size Doesn't Fit All



Long Handled Sponge



# How this all relates to product development



# How this all relates to product development

- Take an iterative, multi-criteria approach that considers:
  - ❖ Functionality
  - ❖ Acceptability
  - ❖ Ease and intuitiveness of use
  - ❖ Accessibility
  - ❖ Performance
  - ❖ Robust Design
  - ❖ Safety

# How this all relates to product development

- Involve all stakeholders early on and throughout the design process:
  - ❖ End users
  - ❖ Rehab team / therapist
  - ❖ Family members

# Practicing Subject and Caregiver interviews

- ❖ Which of the following assistive technologies do our panelists use?
- ❖ Rules of the interview:
  - ❖ Explore social aspects, personal factors, economic and physical environments of the panelists
  - ❖ Find out what motivates these panelists
  - ❖ You may not ask directly if they use the AT in question or not



# Example of a Low Tech Device: Rocker Knife



\$8.95

\$26.50



# Example of an Elementary & High Tech Device: Saebostretch & Saeboflex



\$349



\$1690

# Example of a High Tech Device: Bioness Hand FES

\$6200



# Example of a High Tech Device: Bioness Hand FES



# Other Resources

- Shah and Robinson (2007) Benefits of and barriers to involving users in medical technology development and evaluation. [Int J Technol Assess Health Care.](#) 2007 Winter;23(1):131-7.
- Trish Wielandt et al., Factors that predict the post-discharge use of recommended assistive technology. *Disability and Rehabilitation: Assistive Technology*, January-June 2006; 1(1-2): 29 – 40

# Other Resources

- **The Design and Evaluation of Assistive Technology Products and Devices Part 1: Design.** Marion A. Hersh. International Encyclopedia of Rehabilitation. Web source:  
<http://cirrie.buffalo.edu/encyclopedia/en/article/309/>

# Website Links

Abledata

<http://www.abledata.com/>

North Coast Medical

<http://www.ncmedical.com/>

Sunrise Medical

<http://www.sunrisemedical.com/>

Alimed

<http://www.alimed.com/>