

Bridging the Gap Between Consumer and Products in Rehabilitation Medicine

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Assistive Technology: A Practical, Working Definition

“Any object or tool that maximizes a person’s independence in activities of daily living.”

(Jacobs, K. 1997)

ADLs

- Self Care
 - Eating, bathing, dressing, toileting, meal preparation, etc.
- Leisure
 - Hobbies, sports, travel, etc.
- Work

Expectations of Assistive Technology

- Will allow the individual to:
 - Discharge to home
 - Return to independence or prevent further decline

Expectations of Assistive Technology

- Will allow the individual to:
 - Discharge to home
 - Return to independence or prevent further decline
 - Mobility



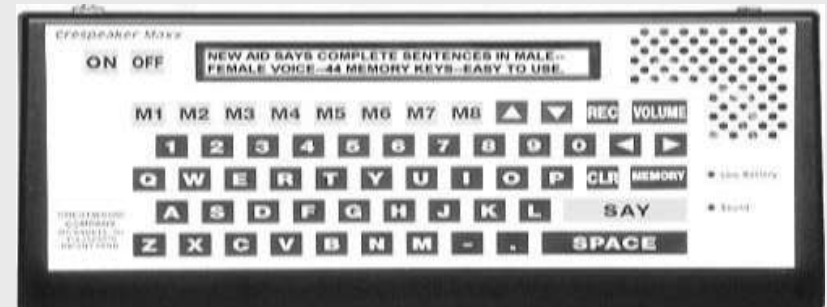
Expectations of Assistive Technology

- Will allow the individual to:
 - Discharge to home
 - Return to independence or prevent further decline
 - Mobility
 - Self care



Expectations of Assistive Technology

- Will allow the individual to:
 - Discharge to home
 - Return to independence or prevent further decline
 - Mobility
 - Self care
 - Communication



Expectations of Assistive Technology

- Will allow the individual to:
 - Discharge to home
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 - Mobility
 - Self care
 - Communication
 - Leisure



Expectations of Assistive Technology

- Will allow the individual to:
 - Discharge to home
 - Return to independence or prevent further decline
 - Mobility
 - Self care
 - Communication
 - Leisure
 - Vocation



Levels of Assistive Technology



Levels of Assistive Technology: Some Practical, Working Concepts

Low Technology Adaptation

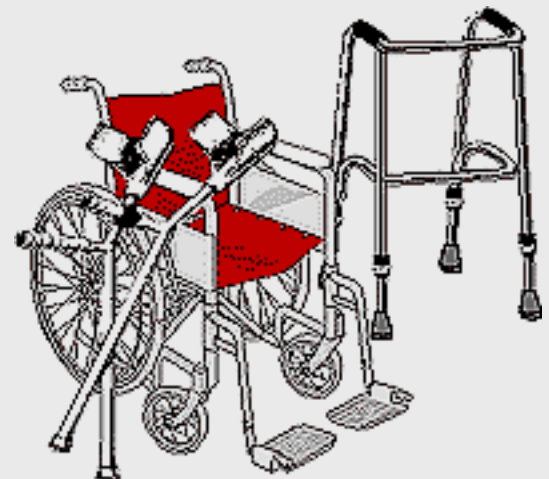
- Equipment that is easy to use and do not require electrical power. May require a short training period.
 - ❖ Finger spelling
 - ❖ Scooting up and down stairs
 - ❖ Velcro



Levels of Assistive Technology: Some Practical, Working Concepts

Elementary Technology Devices

- Includes most battery-operated devices. User requires a moderate training period.
- Off-the-shelf or inexpensive.
 - ❖ Basic wheelchair / walker
 - ❖ Built-up pen
 - ❖ Modified eating utensils



Levels of Assistive Technology: Some Practical, Working Concepts

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.

- ❖ Voice operated ECU
- ❖ Electric lifts
- ❖ Modified car / van controls
- ❖ Motorized wheelchair



A Continuum of Considerations for Assistive Technology for the Mechanics of Writing



Regular pen or pencil

Pencil or pen with adapted grip

Adapted paper (e.g. raised line, highlighted lines)

Slant board to create slanted writing surface

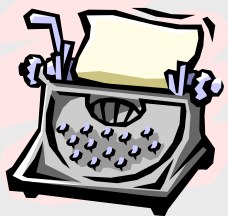
Typewriter

Portable note taker that interfaces with computer

Computer with word processing software

Word prediction / abbreviation expansion software for efficiency

Voice recognition software

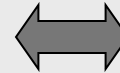


(Adapted by ATTO from WATI, 1998)

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

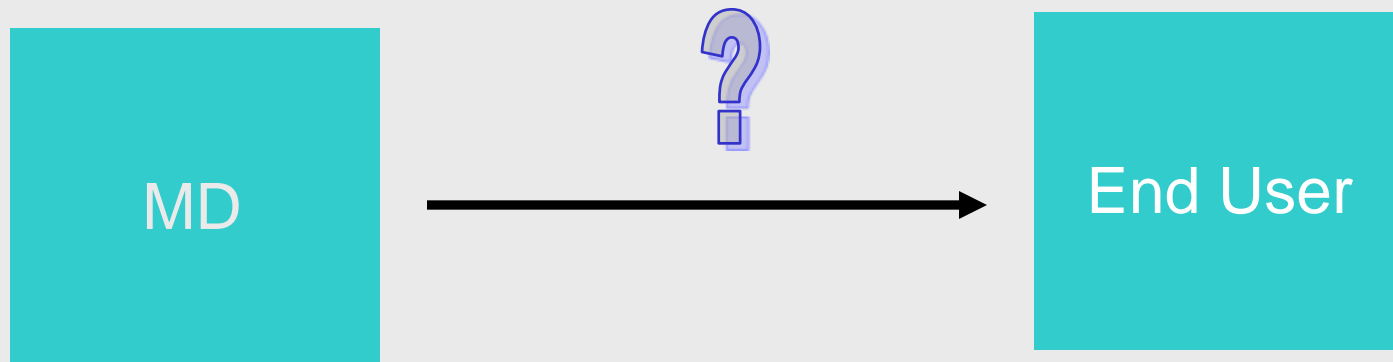


Patient

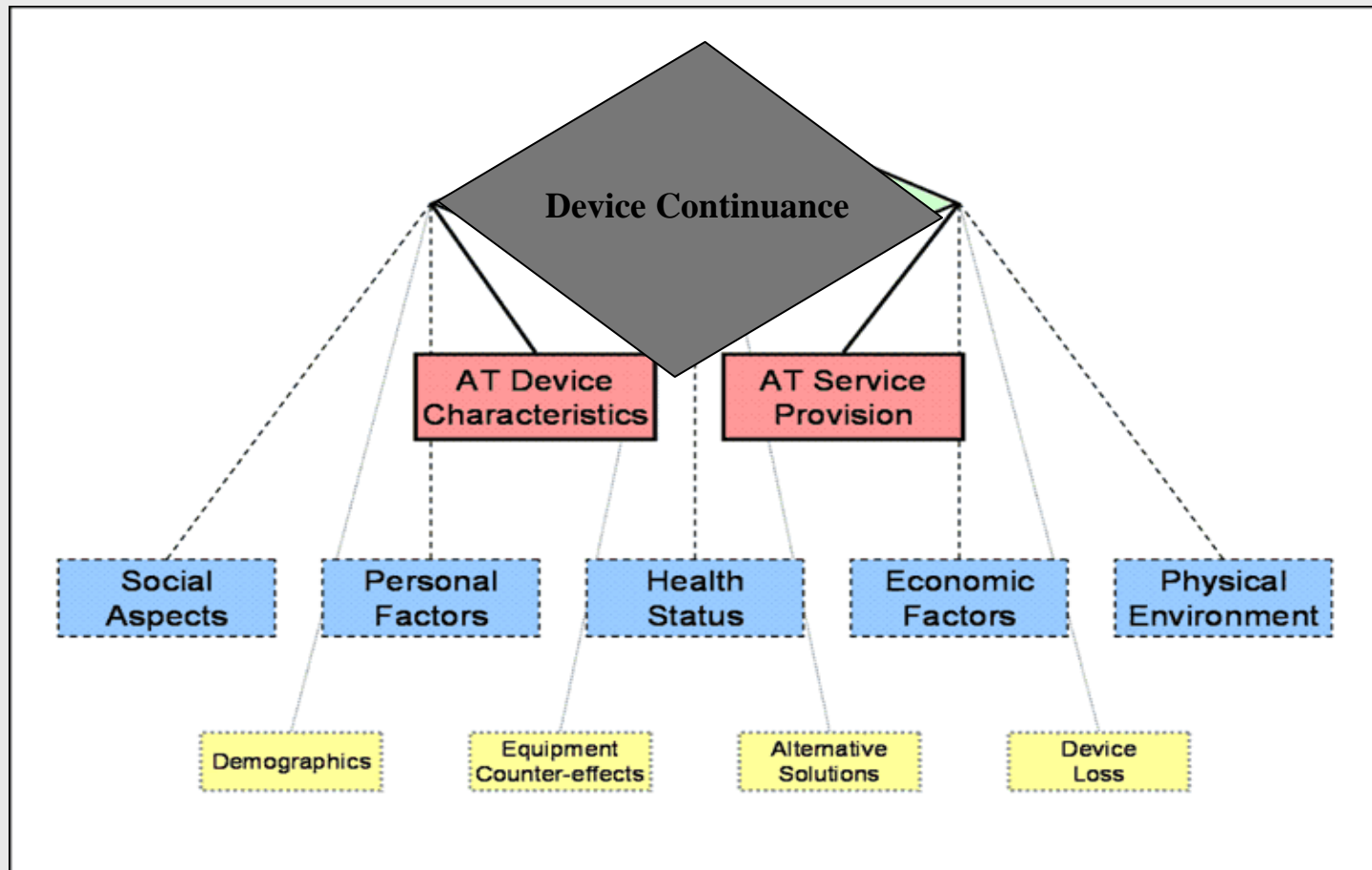
Occupational Therapist

- 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!

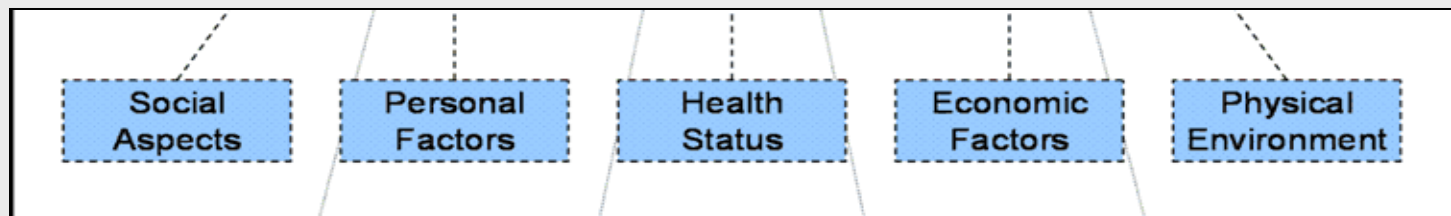
Prescribing Rehabilitation Equipment



Equipment Suitability



Equipment Suitability



Culture

Support

Motivation

Perception of Self

Age

Gender

Education

Diagnosis

Chronic

Changing

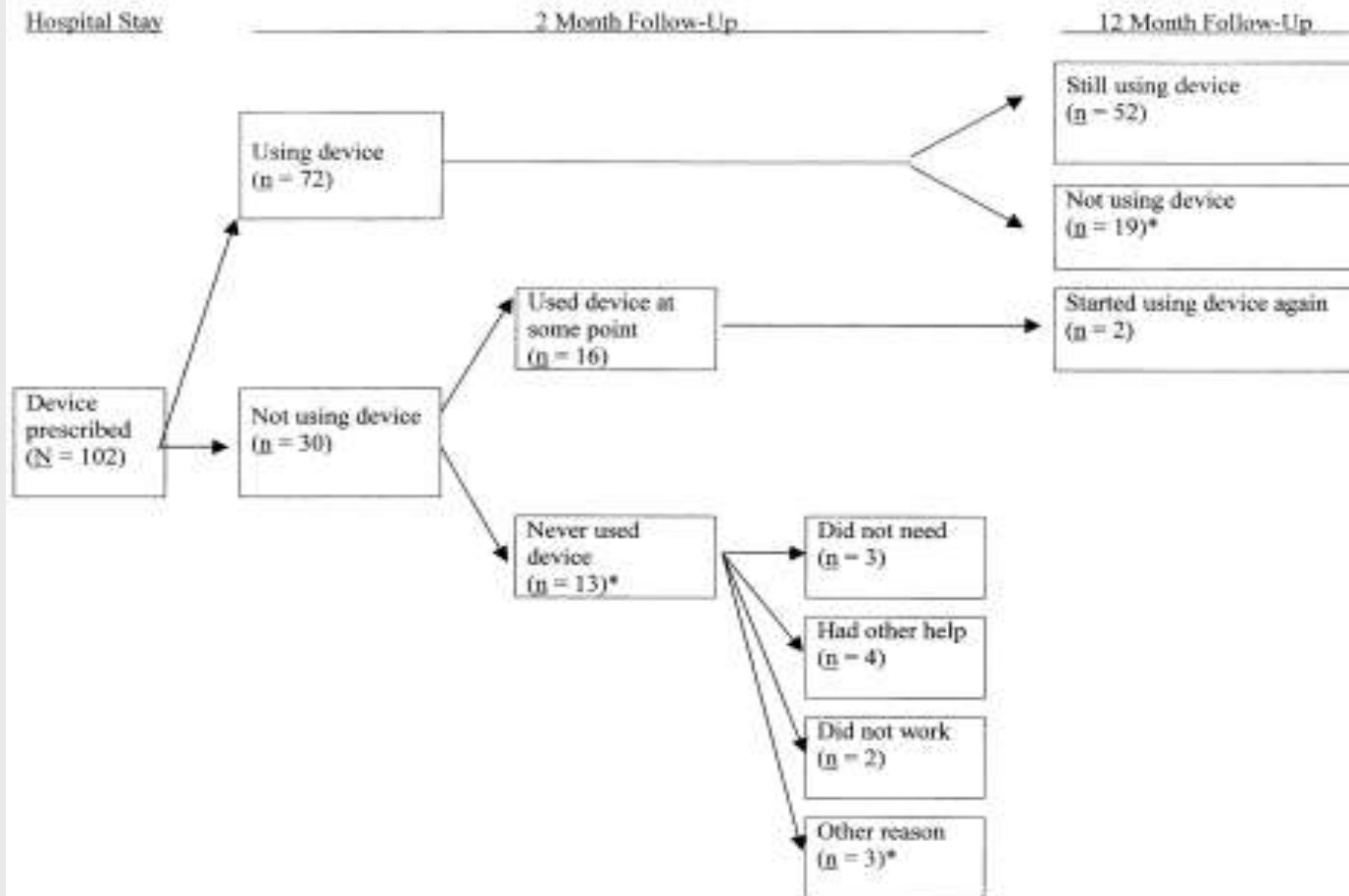
Acute

Rural/City

Rent/Own

Stairs

Example: Long Handle Sponge



Example: Saeboflex



\$1690

Steps Needed to Issue an Assistive Device

- Selection of a device for an activity
- Site and method of instruction
- Time to introduce device during hospitalization
- Reinforcement of its use
- Written justification to insurance company

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

Who pays?

- User
- Insurance
 - Private
 - managed care
 - fee-for-services
 - Medicare
 - Medicaid
- VA
- Grants / Loans

Access to Equipment and Rehabilitation Services

(Bingham and Beatty, 2003)

>50% needed assistive equipment in last 12 months
30% were unable to get needed equipment

40% needed rehabilitation services in last 3 months
>50% did not receive those services

How this all relates to product development

- Involve all stakeholders
 - ❖ End users
 - ❖ Rehab team / therapist
 - ❖ Family members
- What already exists
 - ❖ Modification vs designing from the ground up
- Price!

Other Resources

- Cook and Hussey (2007), *Assistive Technologies: Principles and Practice* (3rd edition): Mosby
- Kraskowsky and Finlayson (2001). Factors Affecting Older Adults' Use of Adaptive Equipment: Review of the Literature, *American Journal of Occupational Therapy* 55,303-310

Website Links

- Abledata
<http://www.abledata.com/>
- North Coast Mecial
<http://www.ncmedical.com/>
- Smith & Nephew
<http://global.smith-nephew.com/master/6600.htm>