



Assistive Technology Assessment & Service Delivery

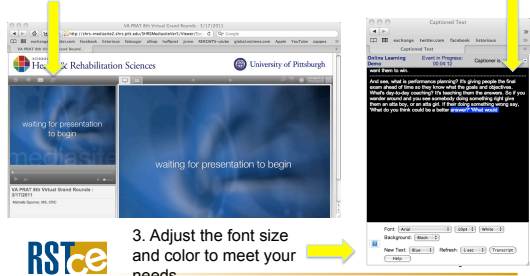
12th VA-PRC AT Labs Virtual Grand Rounds

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University of Pittsburgh
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Pittsburgh, PA

Closed Captioning Information

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Learning Objectives

- Describe the 3 components of the definition of AT
- List 4 variables to an AT assessment
- List 4 steps associated with AT assessment
- List 3 possible team members who participate in the AT service delivery process
- List 2 known outcome measures relative to AT
- List 2 resources to seek additional information



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Definition of Assistive Technology

- Any item, piece of equipment or product system whether acquired commercially off the shelf, modified, or customized that is used to increase or improve functional capabilities of individuals with disabilities.

(Assistive Technology Act, 1998, PL 105-394, S. 2432)

Service – Any method that that provides a person with a disability access to Assistive Technology



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AT & Universal Design

- No tech → Low tech → High tech solutions
- Commercial options → specialized medical technologies
- Support client function in a variety of environments (home, work, classroom, & community)
- Engage in meaningful activities (ADLs, play, learn, interact socially, work, travel...)
- Achieve maximized independence



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Examples of AT

- Wheeled Mobility & Seating Equipment
- Augmentative and Alternative Communication Devices
- Cognitive Orthotics & Learning Technologies
 - Now called Electronic Cognitive Devices
- Electronic Aids to Daily Living (EADLs)
- Adapted Computer Access
- Adapted Driving & Vehicle Modifications
- Adapted Sports & Recreation Equipment

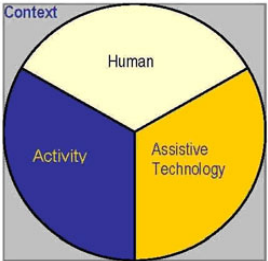


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HAAT Model

Human Activity Assistive Technology Model

Cook & Polgar (2007)



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Variables

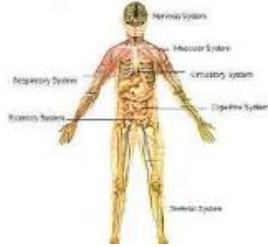
International Classification of Functioning Disability and Health (2001)

- **Body Systems** – Impairment, motor, sensory
- **Equipment** – Current & past experience
- **Functional** – Capacity, performance, participation
- **Living Situation & Support**
- **Environmental** – Physical, social, political
 - Home & Community
 - Transportation
 - Funding/Policy

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Body Systems & Structures

- Nervous
- Muscular
- Skeletal
- Cardiovascular
- Respiratory
- Digestive
- Skin
- Endocrine
- Reproductive
- Urinary



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Body Systems

- **Diagnosis**
 - Static
 - Progressive
- **Secondary Conditions**
 - Skin issues
 - Size & Weight
 - Cognitive & Sensory
 - Endurance
 - Falls
 - Pain
- **Physical Motor Abilities**
 - Mat Assessment



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Populations Served by AT

AT needs related to . . .

- | | |
|---------------------------------|---------------------------------|
| • Amputation | • Muscular Dysfunction |
| • SCI/D | • Orthopedic Conditions |
| • Polytrauma | • Cardio-Pulmonary Dz |
| • Sensory Impairment | • Diabetes/Metabolic Dz |
| • Traumatic Brain Injury | • Peripheral Vascular Dz |
| • Neurologic Dysfunction | • Cerebral Vascular Dz |
| • Learning Disability | • Aging |
| | • . . . And more |



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Activity

ADLs
Instrumental ADLs






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Activities of Daily Living

AOTA (2008). OT Practice Framework: Domain & Process 2nd Ed. AJOT, 62(6), 625-683

ADLs

- Bathing, showering
- Bowel & Bladder management
- Dressing
- Eating & Feeding
- Functional mobility
- Personal device care
- Hygiene & Grooming
- Sexual activity
- Toilet hygiene

Instrumental ADLs

- Care of Others (Supervising care-givers)
- Care of pets
- Child rearing
- Communication Management
- Community mobility
- Financial management
- Health management and maintenance
- Home establishment and management
- Meal preparation and clean-up
- Religious Observance
- Safety & Emergency Maintenance
- Shopping

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Activity & Participation

Work
School
Leisure
Social
Community
Family





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Environment



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Best Practice

RESNA Wheelchair Service Delivery Guide
Approved January 26, 2011

- Assessment by a knowledgeable and trained clinician
- Face-to-face evaluation
- The individual's medical history
- Physical abilities and needs
- Functional abilities and needs
- Seating and positioning abilities and needs
- Home accessibility
- Currently used assistive devices
- Environmental considerations



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RESNA Standards of Practice

Assistive Technology Professional (ATP)

- Competence — refer out
- Abide licensure laws
- Respect other credentials
- Disclose bias and conflict of interests
- Need of consumer is paramount
- Offer range of service (start to finish)
- Direct assessment (in-person)
- Avoid unnecessary risks/disclose risks
- Continued competency (continuing education)
- Avoid fraud, dishonesty and misrepresentation
- Withdraw from practice (substance abuse/health conditions)

AT Guidelines

- RESNA Position Papers
- Clinical Practice Guidelines
 - AOTA, APTA, ASHA, VA, NRRTS, PVA
- Coverage Policies
 - Health Insurance, Medicare/Medicaid
 - Vocational Rehabilitation



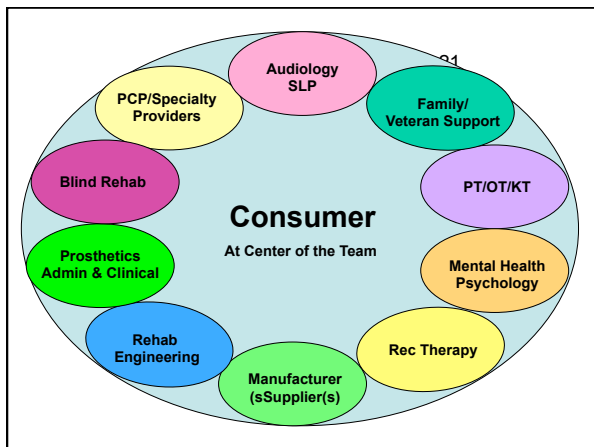
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Service Delivery Process

- Referral & Screening
- In-Depth evaluation
- Final Specifications
- Documentation
- Funding Approval
- Fittings
- Delivery / Training
- Follow-up / Outcome Measurement



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Role Delineations

Clinician

- Physical Motor
- Function / ADL
- Cognition/Perception
- Sensory
- Environmental
- Treatment Plan
- Training
- Outcome
- Documentation
- Appeal

Engineer/Technical/Supplier

- Equipment
- Integration
- Environment
- Specifications
- Funding & Policy
- Procurement
- Technical Training
- Service/Repair
- Documentation
- Outcome Management
- Appeal



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Documentation

WHY??

- Reflects Practice
- Accountability
- Tells a Story
- Funding & Policy - Justification
- Litigation
- Research



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AT Documentation Templates

- AT generic template applies to all
- AT specific templates by application
- Collaboration as related to documentation
 - Evaluation
 - Recommendations
 - Integration



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AT Clinical Evaluation

- Client Goals
 - Client Background
 - Existing AT Devices
 - Body Systems & Structures
 - Environment
 - Trials/Simulation
 - Recommendations
 - Outcome Measures
 - Implementation
- Activity Participation

 Documentation Templates www.rstce.pitt.edu

Process & Documentation

1. Client Background:

Describe the person by their age, gender, diagnoses, prognosis, medical history etc.

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Clinical Intake Form

- NAME:
- MEDICAL RECORD NUMBER:
- ADDRESS:
- TELEPHONE NUMBER:
- EMAIL ADDRESS:
- DATE OF BIRTH:
- AGE:
- DIAGNOSES (ICD-9s):
- REFERRAL SOURCE:
- PRIMARY CARE PHYSICIAN & ADDRESS:
- REASON FOR REFERRAL:
- TYPE OF CURRENT MAE:
- HOURS PER DAY USING MAE:
- AGE OF MAE:
- PROBLEMS WITH CURRENT MAE:
- HEIGHT:
- WEIGHT:
- PREFERRED SUPPLIER:
- TRANSPORTATION RESOURCES:
- EDUCATION/EMPLOYMENT:
- LIVING SITUATION:

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2. Existing AT Devices:

List or describe current AT devices the person is using. Identify how the devices were procured, age, and why device(s) no longer meet their needs.



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Meet Pete

- 50 years old
- 26 yrs post C6-C7 ASIA A SCI
- Upper extremity repetitive strain injuries
- 6' 1" & 285lbs.
- Married
- MWC User
- Political Advocate
- Accessible Home
- Accessible Transportation
- Transition from MWC to PWC



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3. Body Systems & Structures:

Assess and describe the persons current and expected future physical-motor (i.e. strength, range of motion, coordination, balance, mobility, oral-motor), cognitive (i.e. consciousness, orientated, memory), and perceptual (i.e. vision, hearing, sensation) or other body system capacities as

relevant to the AT interventions being considered.



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Physical Motor Assessment



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Physical Motor Assessment

- **UPPER EXTREMITY FUNCTION:** Bilateral shoulder flexion limited to 120 degrees with 4/5 strength. 4/5 bilateral elbow flexion/extension and 3/5 bilateral grip.
- **LOWER EXTREMITY FUNCTION:** Full passive range of motion with no active movements or sensation below C8. Spasticity noted bilaterally.
- **POSTURE (SITTING & SUPINE):** Sits symmetrically however hips tend to splay outwards. Good static sitting balance with upper extremity support. Poor dynamic sitting balance.



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4. Activity:

- **Assess and describe the person's current ability to perform Activities of Daily Living (i.e. bathing, dressing, eating, transfers, mobility, weight shifts) as relevant to the AT interventions being considered.**



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Activities of Daily Living

- **Bathing:** Assist to transfer to shower/ commode wheelchair
- **Hygiene:** Independent @ WC level
- **Dressing:** Assist lowers
- **Eating:** Independent at WC level



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Instrumental ADLs

- Describe below how these ADLs are performed specifically with what level of assistance, equipment used including the MAE needed to get to the place where the ADL takes place within the home or community
 - Meal Preparation:
 - Housecleaning:
 - Managing Finances:
 - Shopping:
 - Medication Management:
 - Laundry:
 - Care of Others:



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Transfer Status

- Describe the method the person transfers in and out or with the MAE from the perspective of independence, safety, and quality

“Sliding board transfer with moderate assistance due to instability and has a fear of falling.”



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5. Participation:

Determine the person's current and expected near future ability to participate in activities that are meaningful to them (i.e. Instrumental Activities of Daily Living, work, leisure, community participation) as relevant to the AT interventions being considered.

Current and past education, vocation, and leisure interests should also be addressed and considered.



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6. Client Goals:

Have the client express in their own words what their goals are for AT interventions.



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Goals

- What do you want in a new system?
- What is currently working that you do not want to change?



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Pete's Goals

- Avoid pressure sores
- Get around easier
- Avoid tips & falls
- Interface with work station



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7. Environment:

Assess and describe the person's current and/or expected near future living situation or locations where AT devices will be used (i.e. location, living structure, accessibility, caregivers).

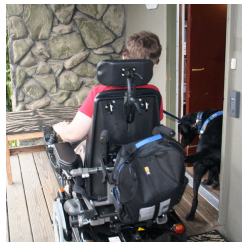
Determine their means of transportation if applicable. Determine what support systems are in place to ensure set-up, utilization, maintenance and/or repair of the AT devices.



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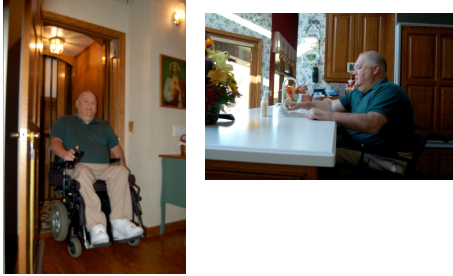
Environmental

- Access in & Out of the Home
- Accessibility within the Home
- Other Accessibility
 - Work/school
 - Community
- Terrain
- Distances



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Indoor Mobility



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Outdoor Mobility



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Transportation

- **Personal Vehicle**
 - Passenger or Driver
 - Accessibility
- **Public Transportation & Paratransit**
- **Ride in Wheelchair Vs. Transfer Out**
- **Restraint System**
- **Airlines**



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8. Clinical Trials/Simulations:

Describe AT options tried, why they were chosen, outcome, and person's impression. For real assessments, describe where the device was tried (i.e. clinic or natural setting) and for how long.



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Evaluation of AT Devices

- **Affordability**
- **Compatibility**
- **Dependability**
- **Dependability**
- **Dependability**
- **Ease of Maintenance**
- **Effectiveness**
- **Flexibility**
- **Learnability**
- **Operability**
- **Personal acceptability**
- **Physical Comfort**
- **Physical Security**
- **Portability**
- **Securability**
- **Supplier Reparability**

Ex: Apple iPad Review

- Electronic Cognitive Device (2)
 - Computer Access (4)
 - Augmentative and Alternative Communication (5)
 - Environmental Control Unit (1)
- Shared Documents
- Evaluation of Assistive Devices
- Recycle Bin



by Beau Bedore, SLP, Carmen DiGiovine, PhD & Richard M. Schein, PhD

The iPad is a tablet computer with a Multi-touch screen. The standard configuration includes apps for accessing the internet, email, electronic books, music, videos, maps, contacts and appointments. The iPad operating system (known as iOS) includes specific accessibility features which include support for playb closed-captioned content, screen reader, magnifier, white on black display, and mono audio output. Numerous free and fee-based apps are available for the iPad. These include apps designed specifically meet the needs of individuals with disabilities as well as mainstream apps that can be customized to me unique needs of individuals with disabilities. The apps most appropriate for the population of individuals

Devices Tried

“Pete was provided with an opportunity to try front, mid, and rear wheel drive power wheelchairs. He was able to drive the systems in a safe and effective manner within the clinic, corridors as well as maneuver in tight spaces such as the bathroom and elevator.”



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Client Impressions

“Pete reported that he was satisfied with the performance of the mid-wheel drive Invacare TDX-SP power wheelchair due to the maneuverability and wishes to pursue it as a reasonable alternative for safe and effective mobility within the home and community.”



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Home Assessment

For the home evaluation an Invacare TDX-SP mid-wheel drive Group 3 power wheelchair was used. He lives with his wife in a multi-level home with the entrance, living area, office, kitchen, diningroom, bedroom, and bathroom on the first floor. There is an elevator with 48” opening and 60” deep to access the garage and basement. Space is open and doorways are all wide enough for the power wheelchair. He has a roll-in shower and uses a shower/commode wheelchair.



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ATP Home Assessment cont' d

There is an accessible deck off the kitchen. He has a long sloped driveway. Mailbox is at the end of the driveway. Entrance is level with 36" doorway. He also has accessible emergency egress from the basement and off the kitchen to the deck which has a ramp to the yard. The electrical outlets are all grounded for safe battery charging. Smoke alarms are present in home on both levels. He maneuvered the TDX-SP power wheelchair throughout the home without any difficulty. The device also fit on his van lift and maneuvered within the van for transfer to the driver's seat.



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9. Recommendations:

Describe equipment recommendations (i.e. specifications, brand, manufacturer or supplier source).

For real assessments, attach copy of order, justify any upgrades or features not part of the basic equipment package.

Briefly explain why other lower cost alternatives were ruled out.



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Recommendations

- **Mobility Assistive Equipment:** Invacare TDX-SP Group 3 Power Wheelchair
- **Supplier:** Jim Dealer, ATP of Penn Wheelchair Supply
- **Estimated Length of Need:** 99 months/lifetime



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Specifications & Justification

- Cushion
- Lap Belt
- Seat Functions
- Seat Elevator
- Foot/Leg Support
- Backrest
- Arm Support
- Head Support
- Tires
- Anti-tippers
- Transport securement
- Batteries
- Controller



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10. Outcome Measures:

Discuss any standardized or non-standardized outcome measures used pre and post AT intervention as well as the results.



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Outcomes & Research


- Need Evidence this Stuff Works
- Need Evidence Standards Work
- Need Consistent Means of Measurement
 - Uniform & Minimum Data Set U/MDS
- Comparative Effective Research (CER)
- Patient Centered Outcomes

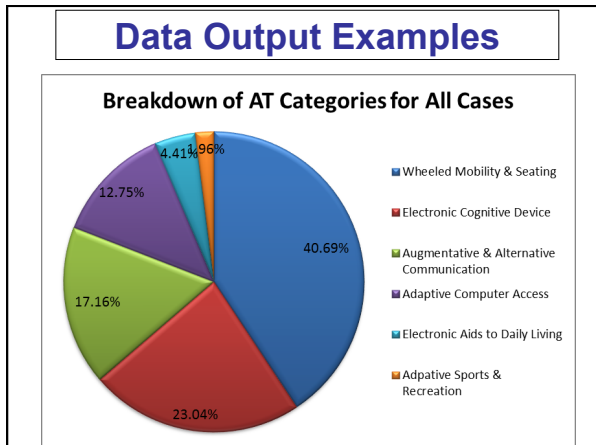


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Tools Have Evolved


- **QUEST** - Quebec User Evaluation of Satisfaction with Assistive Technology
- **FMA** – Functional Mobility Assessment
- **WST** - Wheelchair Skills Test
- **PIADS** - Psychosocial Impact of Assistive Devices Scale


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Pete Pre & Post FMA Scoring

	Pre	Post		Pre	Post
Daily Routine	1	6	Transfers	5	6
Comfort Needs	5	6	Personal Care	5	6
Health Needs	5	6	Indoor Mobility	5	6
Independence	1	6	Outdoor Mobility	1	6
Reach	2	6	Transportation	5	6
Pre-Total: 35			Post-Total: 60		


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11. Implementation:

Discuss the plan for delivery, fitting, implementation, training, maintenance, repair, upgrades, follow-up, and reassessment.



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Implementation Plan

The specifications of this prescription will be submitted to Pete's primary care physician and insurance carrier for authorization. Upon approval the specifications will be provided by Jim Dealer, ATP of Penn Wheelchair Supply and delivered to the Center for Assistive Technology for fitting and delivery. Upon delivery, Pete will be trained in the use of the mobility device and will demonstrate safe and effective use. In addition, he will be given information about its maintenance. Follow-up appointments will be scheduled as needed to modify the equipment as well as to verify that it continues to meet his needs.



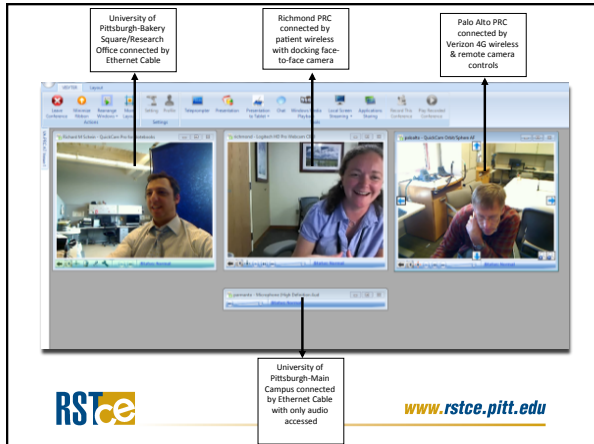
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Other Resources

- Rehabilitation & Assistive Technology Society of North America (www.resna.org)
- Listserves
- RESNA AT Listserv
- VA AT Listserv
- National Registry of Rehabilitation Technology Suppliers (www.nrrts.org)



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Questions?

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