Our Team

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What is Assistive Technology?

Assistive Technology (AT) is any item, piece of equipment, software program, or product system that is used to increase, maintain, or improve the functional capabilities of persons with disabilities.

- Assistive Technology Industry Association (ATIA)
Components of Assistive Technology

- Low- and high-tech equipment used to increase independence of individuals with disabilities
- Augmentative and Alternative Communication (AAC)
- Alternative access methods (switch control, eye gaze, infrared, alternative mouse controls-gyroscopic)
- Positioning equipment including wheelchair evaluation for improved access of assistive technology
- Electronic Aids to Daily Living (EADLs), also known as Environmental Control Units (ECUs), to operate electric appliances, lights, TVs, thermostat controls, window shades...

Photo courtesy of Simple Control
Augmentative and Alternative Communication (AAC) Devices / Access / Environmental Control

The Family Center on Technology and Disability (FCTD) and PACER Center AT in Action series.
AAC – 3:42 video
https://www.youtube.com/watch?v=g95TO20hnmo

The Tech Lab at Craig Hospital in Englewood, Colorado
Electronic Aids to Daily Living (EADLs) – 2:25 video
https://www.youtube.com/watch?v=rxcZWkezXk8
What is the ATC?

- A team of healthcare professionals, including Speech Therapy, Occupational Therapy and Physical Therapy, working to meet the assistive technology needs of children with disabilities in our community.

- A new center located in the UNM Hospital Barbara and Bill Richardson Pavilion (BBRP) with access to a wide range of assistive technology equipment used for evaluation and training.

- A hub for people involved in the disabilities community to access information, make contacts and share ideas related to assistive technology.
ATC Mission

Our mission is to empower people with disabilities to use assistive technology to increase their independence and achieve their full potential in daily life through evaluation, training, and integration of community resources.
Speech Therapy

- Assess current speech, language and cognitive skills
- Augmentative and Alternative Communication (AAC)
- Identify most appropriate communication system
- Multimodal/Total communication approach
- Low, Mid, and High Tech options
- Recommendations for advancing communication skills for potential use of AAC
Speech Therapy

- Assessment
  - Family-centered, multi-disciplinary model
  - The following is identified:
    - Patient/family’s goals related to functional communication
    - Communication: partners, environment, opportunities, modes
    - Related skills: cognition- attention/memory, symbol assessment, reading, spelling, vision, potential access barriers
  - Communication Matrix- a profile that describes the types of behaviors the child is currently using (e.g., Unconventional Communication, Conventional Communication, Concrete Symbols, etc.) and the purposes for which those behaviors are being used (e.g., to refuse, to obtain something, for social purposes, and to gain information).
  
  https://communicationmatrix.org/
• **Speech Therapy**

• Low Tech/No tech- non-electronic options (communication books, PECS, eye gaze board,
  • Object-based vs. Picture-based (photographs, line drawings, Boardmaker, etc.)
  • Direct selection, eye gaze board, Partner assisted scanning
Speech Therapy

- Mid Tech - Electronic, static display, speech generating device (digital speech)
  - Direct selection, scanning
Speech Therapy

- High Tech- Electronic, dynamic display, speech-generating device (digital or synthesized speech)
  - Direct selection, scanning, eye gaze, head pointer
Occupational Therapy

- Positioning
- Access (Direct, Switch Control, Eye Gaze, Infrared)
- Vision
- Electronic Aids to Daily Living (EADLs) also known as Environmental Control Units (ECUs)
- Computers/Phones/Tablets
- Identify switch-based activities
Physical Therapy

- Positioning to increase access
- Seating Systems
- Wheelchair
- Alternate and conventional switch access
- Power Chair Controls can also function as ECUs
So what’s next?

- Training and education provided to caregivers which supports building functional skills- sustained attention, visual attention and tracking, cause-and-effect, symbolic representation, alternative access

- Supported trial and training for recommended technology for patient, family, education team, etc.

- Follow-up evaluation to re-assess skills and provide new recommendations- usually within 6 months to 1 year
Case studies/play time

- Michelle
- Alan
- Kevin
- Mateo
- Aiden

- Switch center
- Eye gaze
- Direct Access/Mid Tech AAC
“Michelle”

- 15 yo female
- Congenital spastic quadriplegia cerebral palsy affecting all extremities and trunk
- Visual acuity deficits (wears prescription glasses)
- She requires max assist for ambulation- primarily uses a wheelchair
- Spastic dysarthria greatly impacting speech intelligibility- can say yes ("ay") and no
- Relative strengths: receptive language near age appropriate, vision, more volitional movement of lower extremities
- Direct access to the device was significantly impacted by her tone in her upper extremities
- Since vision is a relative strength for access she was a good candidate for eyegaze device. She had several successful trials with use of an eyegaze unit using the PRC Accent 1400
- PRC Accent 1400 received from school
- Eyegaze unit on hold 2/2 arrival of new wheelchair
- Device training completed using bilateral switch/scanning with her knees
“Alan”

• 4yo male
• PMH - Autism Spectrum Disorder, chronic otitis media, submucosal cleft palate, laryngomalacia, tracheomalacia, plagiocephaly, vesicoureteral reflux grade 5, left hemiplegia, and right aortic arch with apparent left subclavian vein arising from descending aorta and malformation
• Strabismus and Visual acuity impairment
• Speech and Language developmental delays
• Left SNHL and recurrent episodes of OM with tube placement x3
• Current therapies include school OT, PT, SLP; hippotherapy; ABA 4 days a week; SLP at CTH for device training.

Current Abilities and Challenges

• Able to make two button selections in order to request objects with periodic pointing light support and verbal cues
• Requires limited hand/hand with pointing light to utilize button to indicate need for a break
• Tends to perseverate on favorite toys/foods
• Father demonstrates understanding of basic set-up and use of device
• Mother indicates feeling overwhelmed with using the device, e.g., how to implement it without causing frustration, how to incorporate it naturally
Kevin

• 5 yo with acute flaccid myelitis
• Cognitively intact with adequate communication skills
• Volitional movement is extremely limited
• Uses power wheelchair (Permobil Koala)
• Started driving with head array, progressed to micro joystick, and now to goal post drive with normal joystick
• Is working on accessing his tablet through his wheelchair controls with joystick and buttons
• Will work on environmental controls as gets older and needs increase
Mateo: 17-year-old young man who has incomplete quadriplegia and cognitive deficits related to an anoxic brain injury following sepsis.

Initial Evaluation: Dependent with w/c mobility, minimal bilateral wrist and hand movement, poor head control, delayed processing and fatigue with cognitive tasks

Strengths include intelligible speech, bilingual, improving posture, caring family support and a patient and pleasant attitude.

Switch evaluation: Some finger flexion and thumb movement on his left hand but fatigued quickly. Shoulder retraction strongest and most consistent movement. Activated a jelly bean switch placed posterior to his left elbow with some support of the forearm. Loved golf game which was great for autonomy, visual motor, sequencing and reaction time.

OT goal: Use a switch and voice control to access computer to write and print a book report. OT trialed voice to text software from Microsoft and Dragon Naturally Speaking.

12 Months: Positioning/Power Mobility, Goal Post, Accessing iPad, Large Trackball
Aiden

- 8yr old w/ diagnosis of quadriplegic CP, CVI, Dev. Delay, and seizure disorder resulting from a hypoxic brain injury
- Significant cog delays, sustained visual attention to objects and people. Visually scanned a picture array. Demonstrated anticipation & disappointment when favorite items were removed. Follows simple 1-step commands. Working on identifying colors and shapes through school.
- Access: Direct access was affected by tone; Vision was considered a strength
- Communication Matrix: Level II (intentional behavior); emerging Level III (Unconventional Communication)
  - “Fusses” when to protest or when uncomfortable, smiles, vocalizes when happy and to gain attention, uses eye gaze to direct partner to item of interest, makes choices between two photographed objects or activities
  - Recommended high tech SGD w/eye gaze technology—being trained on using eye gaze to make choices between activities; back-up low tech system w/icons from device
Myths Regarding AAC/AT

- Myth: If we use AAC, my child will stop speaking.
- Myth: AAC has a negative impact on speech development.
- Myth: AAC should be used as a last resort after traditional speech treatment is proven ineffective.
- Myth: Assistive Technology is a “crutch” and decreases motivation to be independent.
- Myth: My child is too young for assistive technology.
Barriers to AAC/AT

- Negative stigma
- Parents, school staff and other team member “buy-in”
- Financial concerns
- Time concerns
- Implementation across environments
- Building/identifying communication opportunities

Possible Therapist Concerns:
- “Using AAC during my session takes too much time.”
- “I understand the patient and/or parents interpret the child’s speech/behaviors during my session/there doesn’t seem to be a need.”
- “I won’t know how to use the technology.”
- “How do I incorporate movement-based activities into use of device/technology?”
How to support AT in your therapy sessions

- Allow time for use (ask family to have equipment out and set up)
- Be creative in using AT (use a fan with a switch to cool down after PT session)
- Use AAC for choice making related to your session (bike or walker?)
- SLP cognitive training on directions, speed, rules of the road for mobility with a power chair
- Consult with team that recommended AT
- Duplicate opportunities of same-aged peers utilizing AAC and AT
- Total communication approach
Community Resources

- NMTAP
- APS and Rio Rancho Public Schools
- UNM and other college student support services
- Back In Use (laptop program)
- Private Therapy
- CDD Library
- UNM Carrie Tingley Hospital Assistive Technology Center
How to Refer a Patient to CTH ATC

The child will need a prescription for his or her doctor for:

1. Assistive Technology Evaluation and Treatment.
2. Must include Occupational, Physical and Speech Therapy
3. Must include patient Name, D.O.B. and Diagnosis

**Outside Referrals:** Fax prescription to 505-272-5868

**Inside UNMH System Referrals:** Send electronic referral via AdHoc System
Questions? Concerns? Comments?
Switch Play

http://www.helpkidzlearn.com/games
   Single Switch Scan
   Double Switch
   Switch Dice
http://www.scottmckay.com/MiniGolf.html
   Switch Golf
   Switch Wars