State of Science Conference

AAC for the 21st century:
Framing the Future
(The Future AAC Context)
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June, 2012

An Enduring Theme:
It is all about COMMUNICATION!

- However, the Future of AAC will develop in a variety of Contexts:
  - Increasing Population with AAC Needs
  - Expanding Technology Availability
  - Rapid Technology Change
  - Uncertain HealthCare and Educational Policies and Practices
  - Ongoing need to integrate communication & other roles and activities

More People With AAC Needs & Access

- 1. Larger overall population
  - Longer life expectancy for overall population
    - Longer life expectancy of those with developmental disabilities
- 3. Larger number of children with disability
- 4. Changing international access to technology with AAC potential

The People: General Population Trends

- Increased Lifespan—Burgeoning Older Population
  - People who live to 65 years of age are expected to live 18.6 more years
    - (Women – 20 years; Men – 17.3 years).
  - (Over 65 years: 2000--12.9% of U.S.; 2030 -19.0%)
  - Life expectancy for people who live to 85 years is 6.8 more years for women and 5.7 years for men.
    Administration on Aging –based on U.S. Census
Predicting Who and When People will Need AAC Services (2 Examples)

Amyotrophic Lateral Sclerosis

- 5,600 diagnosed with ALS annually, 300,000 prevalence
- 80-90% people with ALS unable to speak at time of death
- Median survival rates are 32 months from onset and 19 months from diagnosis
- Nebraska database 93% required AAC at or before time of death (Ball, Beukelman, Pattee, 2004)

Patterns of AAC Use (Routine Practice)

- Survey of family members and caregivers in 8 states (215 respondents—44.7%)
  - 79% reported difficulty communicating with others (65% with family member or caregiver)
  - 45% reported having an AAC device.
- Communication topic
  - Personal needs – 73.3%
  - Caregiving issues — 43.1%
  - Family issues — 39.8%
  - Comments about day — 33.1%
  - Pain — 32.2% (Brownlee & Bruening, 2012)
**Sudden Onset Aphasia (Stroke)**

- Over 1 million people live with aphasia (1 in 300) (NIDCD, 2012)
- Up to 40% of all people with aphasia have chronic severe language impairments across modalities.
- Little information that predicts who will and who will not require AAC

**New Populations**

- Patient/provider
- Multi-modal communication for those with other disabilities
- Multiple languages and cultures
- International access to technology

**ICU**

- Surveyed 135 nurses, 100% reported that were serving patients with communication difficulties
- 95 were serving patients who could benefit from AAC
- 99% reported using AAC strategies with their patients.

**Percent of Population with Unmet Communication Needs**

- Overall U.S. Population = 4.05 million
- With complex communication needs
  - Canada—1.5% older than 4 years
  - US—1.3% older than 15 years.
  - UK—1.4%
  - Australia—1.2%

(Beukelman & Mirenda, 2013)
% of Speech Impediment by Time-Frame

- Children with Speech Impediment
  - 1986-77: 4.0%
  - 1956-47: 1.7%

- Most nation-wide demographic data are too general to identify those with Complex Communication Needs. More specific data is needed.

Disability Changes: From Physical to Cognitive or Social (Mental)

- Several decades ago the problems that most children with disabilities confronted were physical in nature. Today childhood disability more often involves a mental (cognitive or social) disorder—one that often has very difficult consequences than many physical health conditions.

  - (Wise, 2012)

Technology Shapes Ability & Disability

- Technological innovation is transforming the prevalence and functional impact(s) of disability, the scale of social disparities in disability, and perhaps the essential meaning of disability in an increasingly technology-dominated world.

  - (Wise, 2012)

New Technologies can Either Mitigate or Exacerbate Disability

- Defining disability as a “context” rather than a health condition per se highlights the social and technological contexts of the individual.

  - It follows then that home and school environments can shape disability and that new technologies can either mitigate or exacerbate disability

  - (Wise, 2012)
Rapid Technical Change

• Rapid technical change tends to emphasize universal design.
• However, rate of change impacts the functionality of technology:
  – Elderly
  – Those who require facilitator support
  – Those with highly unique technical requirements

Personal Comment: Michael Williams

• "I will say that I’m mightily concerned about these gesture-based OSs that are coming into prominence as well as the increasing use of voice recognition in everything, including television sets. These factors have serious implications for people with complex communication needs and other disabilities that aren’t being addressed or even identified by folks in our field."

Continued

• …Computer technology used to be thought of as "the great equalizer;" now I feel people with disabilities are in danger of being shut out by these added "features" that can be utilized by the public at large, but are frustrating useless to people with significant disabilities. This is what I’m concerned about."
Technological Changes: AAC
- Mobile technology
- Creating communication spaces with shared technological access
- Dynamic information gathering sharing to support AAC
- New access Strategies
  – Eye-Head tracking in universal design
  – Integrating eye tracking and physical access
  – Supported speech recognition of disordered speech signals
  – Brain Computer Interfaces that incorporated AAC strategies

Use of Technology to Develop Capability
- Physical access
- Visual access and organization of information
- Language and cognitive capability
- Strategies
  – Gaming
  – Incremental increase in complexity
  – Sharing “space” with partners

Social Changes Influenced by Technical Change
- Online participation
  – Education --Commerce --Social networking
  – Employment --Volunteerism --Recreation
  --Distance learning/instruction/coaching

Service Delivery/Policy Changes
- Mobile technology influences
- Change in support from commercial providers of AAC apps
- Declining rural populations
- Reimbursement Per Diem Caps
- Instructional support networks
- Distance instruction and practice support

There is still a pressing need to integrate communication and other technology based work, learning, and recreation.
Acknowledgements

• The Rehabilitation Engineering Research Center on Communication Enhancement (AAC-RERC) is funded under grant #H133E080011 from the National Institute on Disability and Rehabilitation Research (NIDRR) in the U.S. Department of Education's Office of Special Education and Rehabilitative Services (OSERS).