Evidence Based Practice in the Provision of Augmentative and Alternative Communication Systems for Children

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Functionally Non-Verbal !!!

Augmentative and Alternative Communication

- Functionally nonverbal child
- Assessment
- Traditional speech therapy
- Literacy
- Where to begin
- What you should know about AAC solutions
- Supporting a child with AAC
- Speech Generating Devices
- AAC and SET BC

When does a child need AAC?

- When speech is not developing within the realm of what is considered normal
- When the child is not likely to develop normal speech due to a pre-existing condition

What are the risks in waiting …

- Cognitive, social and academic progress depend on communication
  - An AAC program can tackle these related areas while teaching functional communication at the same time
  - Van Tatenhove, 1987
- Distorted relationship between caregivers and child
- Learned helplessness and behaviour issues
Is it AAC or Traditional Therapy

- It doesn’t have to be one or the other
- The introduction of AAC correlates with improvement in natural speech
- The introduction of AAC correlates with growth in linguistic abilities

Communication is …

Quality of Life Issue

Where to begin?

- Know the child’s Strengths and Abilities
  - No Universal Protocol
  - Interviews
  - Norm referenced and Non-Standardized Assessments
  - Trial and Error Skills Assessment
  - Natural Environments Observations and Trials
  - Arena assessments

An Ecological Approach

Focusing on Active Participation

Parts of Any Communication (AAC) System

- Communication Intent / Function
  - Wants and needs
  - Joint Attention
  - Social Etiquette
  - Information Sharing
- Symbol Set
  - How messages will be conveyed/stored
- Access Method
  - How the user will select the message

What do we need to know

- Linguistic
  - Receptive
  - Expressive
- Cognition
  - Level of symbolization
  - Categorization
- Access
  - Vision
  - Motor
  - Sensory
Current communication system

- What is working for the child … family … caregivers … teachers …
- What has been tried and what were the results
- What do you want the child to do that they currently cannot with the current system

Linguistic ability

- Receptive skills
- Expressive skills
- Modes of communication
- Functions of communication
- Communication Partners

Tests for Assessing Cognitive Linguistic Functioning

- Bracken Basic Concepts
- Communication and Behavior Scales Developmental Profile (Wetherby & Prizant)
- Communication Matrix (Roland)
- School Inventory of Problem-Solving Skills and Home Inventory of Problem-Solving Skills (Rowland & Schweigert)
- Stages (Pugliese)
- Tangible Symbol Systems, Levels of Representation Pre-Test (Rowland & Schweigert)
- Triple C (Checklist of Communicative Competencies) (Bloomberg & West)

Nonverbal Assessment of Intelligence

- Niglieri Nonverbal Ability Test
- Leiter International Performance scale
- TONI - Test of Nonverbal Intelligence
- UNIT – Universal Nonverbal Intelligence Test

Symbolization

“The power of AAC lies in the vast array of symbols and signals, other than those used in speech, that people can employ to send a message.”

(Bukelman and Mirenda, 2005)

Symbol Hierarchy

- In general, symbols can be arranged as follows (from transparent to opaque):
  - natural gestures, facial expressions, etc.
  - objects (visual or tactile)
  - remnants/colour photos
  - black & white photos
  - miniature objects
  - PCS symbols (and other line drawing symbols)
  - manual signs that are not pantomimes
  - Bliss Symbols
  - letters, words (includes Braille, Morse code)
Assessment of Symbolization

- Functional use Format
  - What do you do with this?
- Receptive labeling and Yes/No Formats
  - Give me, show me
  - Is this a _____?
- Alternative Visual - Matching Format
  - Single object to 2 or more symbols

Bukelman and Mirenda, 2013

Informal ways to Assess Symbolization

- Visual schedule
- Emergent literacy skills
  - Book Behaviours
- Visual recognition of environment
- Trials with PECS
  - Symbol Discrimination

SYMBOLS

- What symbol set is most appropriate?
  - Photos
  - PCS - Boardmaker
  - Symbol Stix
  - Minspeak -Unity
  - Whole words and Phrases – pictures / text
  - Spelling - Text to speech
Oppportunities for Nonsymbolic Communication

- Indicators of cognitive development
  - Cause and effect
  - Visual reasoning
  - Basic skills with objects
  - Emotion, eye gaze, gestural communication

Organization / Design

- Whole Messages
  - One button holds an entire message
- Individual words
  - Core vocabulary
- Phrases and Categories
  - I want ____. I feel ____. 
- Situation specific
  - Art Class, Meal Time, House Keeping Centre
- Output and Input
  - Hearing Impaired, Severe Auditory Processing Disorder

Categorization / Organization

- Situation specific vocabulary
  - Places
  - Activities
- Categorization of things
  - Places
  - People
  - Objects
- Metalinguistic concepts
  - Descriptors
  - Action words - verbs

Social communicative skills

- Expression of needs and wants
- Information transfer
- Social closeness
- Social etiquette

Levels of communication Independence

- Emergent
- Context Dependent
- Independent communicator

Communication Independence Continuum

- University of Washington AugCom
**Emergent communicator**
- No reliable method of communication through symbolic language
- Uses gestures, body language facial expressions and familiar partners to figure out signals
- May have signal to show “acceptance” and “rejection”
- No reliable ‘Yes’ / ‘No’

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**Context Dependent Communicator**
- Has a reliable communication system but limited to particular partners or contexts
- May rely on:
  - AAC (but systems are not readily known to unfamiliar communication partners)
  - Severely unintelligible speech

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**Independent Communicator**
- Have reliable symbolic communication in all contexts and with all partners
- May need strategies to increase efficiency

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**Types of Solutions**
- Big Mac ~ 1 or 2
  - Ever changing single messages based on activities
  - Multiple times in a day
  - Choice making and non Choice making
- Step by Step
  - Communication routines
  - Multiple messages in a row
- Choice board
  - Pictures and photographs of favoured and non-favoured
- PECS
  - Requesting and choosing
  - All-Turn-It Spinner
  - Non-choice making participation

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**Types of solutions**
- Some of what the Emerging communicator use AND
  - Communication Boards or Books
  - Technical SDG (Speech Generating Device)
    - Dynavox
    - Prentke Romich
    - Ipads and Communication APPs
    - Sautillo
    - Tobbi
    - Attainment

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**ACCESS**
- How is the child going to access the symbols /stored the message?
  - Direct
    - Most efficient
    - Needs sufficient motor control
    - Can be with eyes, hands or head
    - User selects target directly
Access

Indirect
- Less efficient / slower
- User must wait for target then select
- Requires less motor control
- May include a joystick, scanning or single or multiple switches - any site

Access

- Joint or concurrent assessments with an Occupational Therapist
  - Hand access, target size and position
  - Seating
  - Mobility
  - Alternate access

Direct

- Access frequently changes over time
- Children with motor disabilities ride a wave of motor development that will change their access skills
- Access is a motor skill that is affected by motor memory
- Neurological Changes

We couldn’t be prouder of Mitchell! In the early days (1995 and 96) he learned the power of selecting targets with a head light to choose verses of the song ‘Wheels on the Bus’, communicate preferences and socially engage. Today he directed the evaluation by updating his history, setting the agenda for his goals, sharing his college aspirations, highlighting his personal preference for head mouse control over eye tracking and inquiring about new tech integration strategies for his Eco Speech Generating Device.

Start with NO Tech And LOW Tech
Other Key Considerations
- Portability
- Mounting
- Environmental controls
- Built-in Camera
- MP Player
- Access to internet / social media
- Access to other software
- Desk top editing for the system

One more consideration ...
- VOCABULARY SETS
- Programming vocabulary
- Standard vocabulary sets
- CORE vocabulary

Key to successful selection of an AAC System
- Know the child
- Use No-Tech and Low Tech first
- Be a team and act like a team
- Research features

David Bukelman’s Equation

MOTIVATION
Cognitive effort × Physical effort × Time

Some Help
- AAC Genie App
- SET AAC Assessment kit
- Systematic Trials

Literacy
No one is ...
- Too communicatively challenged
- Too physically handicapped
- Too cognitively impaired
- Too old
- Too young
- ... to have literacy goals
Literacy!!!

- The most important skill you can give a nonverbal child is literacy
- Not only about the ability to read and write but it becomes a means of self expression
- It is about the function of reading and writing ... It is not about the form

Setting Goals

- Linguistic competency
- Operational competency
- Strategic competency

Setting Goals

<table>
<thead>
<tr>
<th>Setting Goals</th>
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<tbody>
<tr>
<td><strong>LINGUISTIC COMPETENCY</strong></td>
<td><strong>SOCIAL COMPETENCY</strong></td>
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<tr>
<td>Monitoring</td>
<td><strong>knowledge how to communicate effectively and in a socially appropriate way</strong></td>
</tr>
<tr>
<td>Sometimes recognizes and repairs communication break down</td>
<td>Sometimes communicates with team members and prepares well for meetings</td>
</tr>
<tr>
<td>Usually recognizes and repairs communication break down</td>
<td>Usually communicates with team members and prepares well for meetings</td>
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<td>Jan 2013</td>
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<td><strong>OPERATIONAL COMPETENCY</strong></td>
<td>**knows how to **</td>
</tr>
<tr>
<td>Monitoring</td>
<td><strong>repair the equipment</strong></td>
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<tr>
<td>Sometimes recognizes needed repairs</td>
<td>Sometimes recognizes needed repairs</td>
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<td><strong>STRATEGIC COMPETENCY</strong></td>
<td><strong>do not recognize or respond to changes in the AAC system or software</strong></td>
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<tr>
<td>Monitoring</td>
<td><strong>do not recognize or respond to changes in the AAC system or software</strong></td>
</tr>
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<td>Successfully identifies and repairs communication break down</td>
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AAC Therapy

Vocabulary Building

Word Finding

Language Development

Social Skills

Intervention / Therapy

- Required intervention may be:
  - Intensive
  - Regular
  - On-going intermittent

Intervention

- Modeling of AAC
- Training Peers, Caregivers, Family
- Vocabulary updates
- Ensuring opportunities for Communication
- Opportunities for meeting other AAC users

Why is the Model Evolving Now?

- To support the overall direction in BC education
- To expand our mandate to align with UDL and RTI initiatives across the province
- To deliver services more equitably, in an efficient manner, to all BC school districts
- To provide student-based, classroom-based and district-based services
- To help build teacher capacity to support diverse learners in the classroom

The New Service Delivery Model

- District Support
  - Choice of services, flexible delivery
  - Capacity building
- Classroom Support
  - Technology solutions to support diverse learners
  - Better support for implementation and true inclusion
- Student Support
  - Intensive, ongoing and targeted to needs
  - Streamlined processes
- Program Structure
  - More cohesive and consistent to ensure equity of services

Special Education Technology
British Columbia
**Tier 1 Services**

- Intensive, individual interventions
- Ongoing team support
- Classroom-based learning interventions
- Annual project-based team support
- District-based professional development
- District-wide capacity building

**Tier 2 Services**

- Designed to build capacity of some teachers to support complex needs learners in the classroom (low incidence)
- District planning process identifies “complex needs” students that require service during school year
- Early Intervention Support
- Transition/New Team Support
- New Intervention Support
- Ongoing technology, training and implementation support
- Most similar to existing services

**Tier 3 Services**

- Designed to build capacity of some teachers to support complex needs learners in the classroom (low incidence)
- District planning process identifies “complex needs” students that require service during school year
- Early Intervention Support
- Transition/New Team Support
- New Intervention Support
- Ongoing technology, training and implementation support
- Most similar to existing services

**Resources**

- AAC Activity Day Package
- for AAC Goals
- AAC Support Materials
- Augmentative Communication News (ACN) on AAC in the Classroom
- AAC and RTI
- AAC Tech Connect: Make the “Best Choice for the Best AAC Voice.” AAC Device Assistant provides objective comparisons of a wide variety of speech generating devices
- Practically AAC
- Gail Vantatenhove

- YAACK
- Dynavox
- Prentke Romich
- Sautillo
- Attainment
- Bridges Canada