Speech, Language, & Communication

Mia Grossman,
MS, CCC-SLP
Boston Children's Hospital
Center for Communication Enhancement

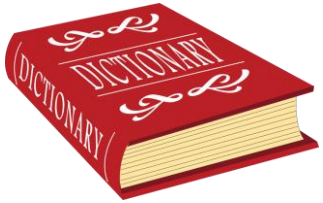
Elizabeth N. Rose,
MA, CCC-SLP II
Boston Children's Hospital
Center for Communication Enhancement
Augmentative Communication Program

Promoting Communication Development

Objectives:

- Learn about the typical development of language in 0-3 year olds
- Strategies for promoting communication skills
- Identifying common myths about AAC and when/how to introduce AAC strategies

Let’s define:



COMMUNICATION: the way we send and receive messages

- May include speech, gestures, body language, manual signs, pictures, symbols, facial expressions, etc.

SPEECH: the verbal form of communication

LANGUAGE: a socially shared code or system for representing concepts

AUGMENTATIVE COMMUNICATION: a method of compensating for the temporary or permanent inability to speak

Why are children with Down syndrome at risk for speech and language delays?

Cognitive development

Hearing Impairment

Oral motor structure and function

Cognitive Development

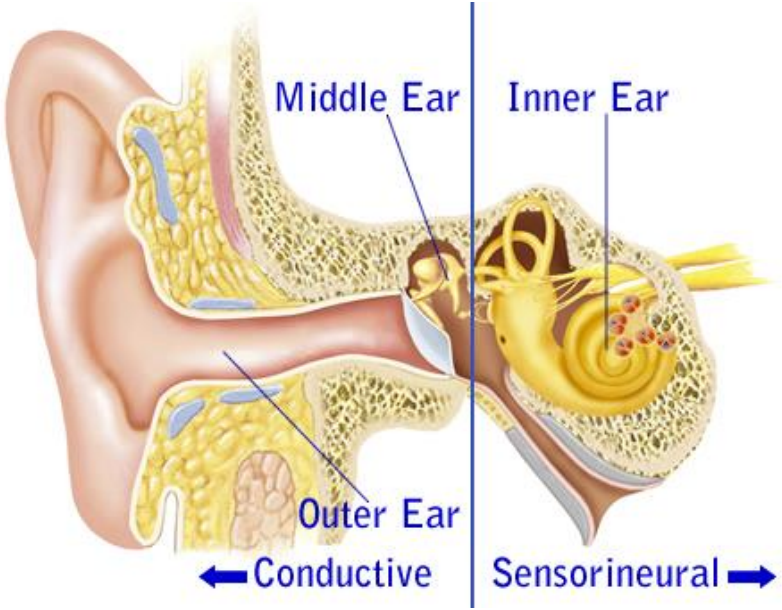
Difficulty with processing auditorily presented information, processing speed, language development, verbal memory

Strong visuospatial skills (e.g. stacking blocks, puzzles)

Strength in social skills, cooperation, sharing, reacting to other's distress

Hearing Impairments

- Affects approximately ⅔ children with Down syndrome
- Conductive hearing loss
- Sensorineural hearing loss

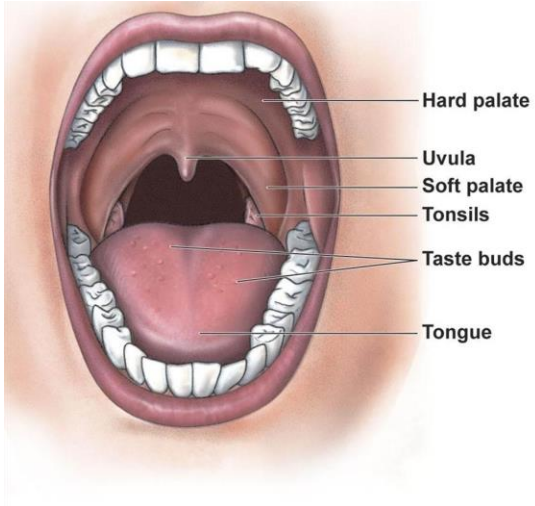


LEADS TO:

- Inability to hear speech sounds leading to decreased intelligibility
- Difficulty comprehending morphemes

Oral Motor Structure and Function

- High arched palate
- Enlarged adenoids and tonsils
- Decreased muscle tone
- Small jaw to tongue proportion



LEADS TO:

- Imprecision of oral motor movements for speech production
- Reduced speed, range of motion, and coordination

Pre-Speech and Language Skills

Early exposure to speech and language-rich environment is important- speech and language development is time-sensitive.

Low-tech Eye Gaze: helps maintain focus and direct attention

- **Joint attention**: shared focus on one object

Auditory skills: listening to language, music, sounds in the environment

Cognitive skills: understanding cause-effect concepts, object permanence

Gesture use: reaching, pushing away, showing, greeting

Why are Prelinguistic Skills Important?

- Bring attention to communication skills
- Related to vocabulary development
- Foundation for later speech and language skills

Strategies for Promoting Pre-Linguistic Skills

- **Infant directed speech:** modified speech and language adults use to communicate with infants
  - Slowed or exaggerated speech
  - Produced directly in infant's visual field
    - Modified intonation
- **Self talk:** Narrate throughout the day

Strategies for Promoting Pre-Linguistic Skills

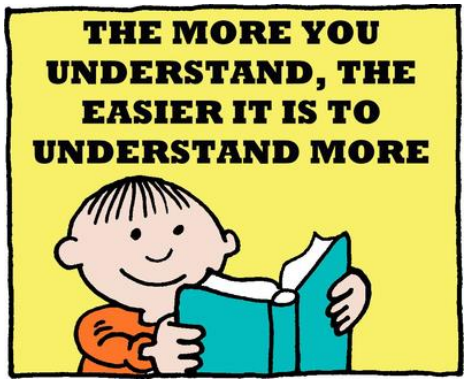
- **Referencing:** following an infant's glance then commenting on the object of the baby's focus
- Target recognizing name
- Comment on sounds in the environment to increase auditory awareness
- Promote gesture use (e.g. reaching, waving, pointing, showing)
- Imitate facial expressions, gestures and sounds

Strategies for Promoting Pre-Linguistic Skills

- Play face-to-face games such as peek-a-boo, pat-a-cake, etc.
- Games that direct child's attention to follow caregiver's movements (e.g. songs with movements)

First Comes...Receptive Language

- The foundation of expressive language
- To communicate about a topic, we must first understand it
- Procedural knowledge vs. language comprehension



Receptive Language Continued

- Early Receptive Language:
  - Orienting gaze to the speaker
  - Localizing noise
  - Responding to name
  - Recognition of early words (mama, dada, up, etc.)
- Later Receptive Language:
  - Object labels
  - Simple commands (put that down, come here, etc.), then multi-step commands (pick up your shoes and give them to me)

erstanding labels in pictures

Strategies for Promoting Receptive Language Skills

- **Self talk:** Narrate throughout the day
- Label objects in environment
- Offer cueing, phase out as appropriate
- Teaching rather than testing

Verbal Expressive Language Development

Cooing: vowel sounds

Reduplicated Babbling: repetitive syllable production (e.g. “Ba-ba-ba”)

Variegated babbling: adjacent and successive syllables are not identical (e.g. “Ma-Ba-Da”)

Jargon: long strings of unintelligible sounds with adult-like prosody and intonation patterns

Early Speech Development: Is this normal?

Typical Speech Patterns:

- Reduplication
- Consonant cluster reduction
- Assimilation
  - First sounds: p, b, d, t, g, k, h, m, w, n

First Words

- Timing of first words is variable, often delayed in children with Down syndrome
- Nouns predominate first words
- Generally consist of 3 or fewer sounds
- First intentions: request for objects
- Categories most common first 10 words: foods, toys and animals

First Words Cont.

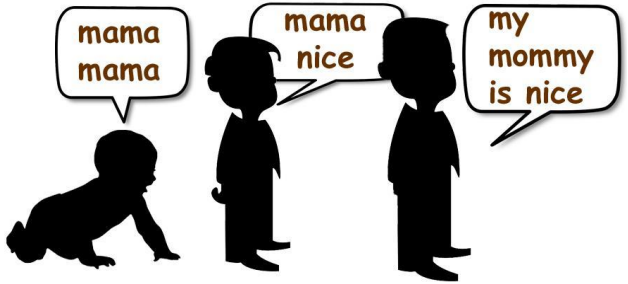
- Jargon and babbling continue after first words occur
- Children often continue to use gestures to support the language they are lacking (e.g. Pant like a dog to describe the word “dog.”)
- Verbs more conceptual and occur after first words

Vocabulary Development- What's normal?

- Vocabulary growth may be slow at first and plateau for a period
- Words can be lost as child's interest changes
- After acquisition of approximately 100 words, a "vocabulary spurt" generally occurs, though rate depends on cognitive development
- Children with more nouns generally experience faster vocabulary growth than those with a more balanced lexicon of word-types but are limited in variety of word combinations
- Children with Down syndrome generally learn new words (vocabulary) easier than syntax (grammar)

Multi-word phrases

- First, children combine gestures and words (e.g. flap arms and produce “bird”)
- Early word combinations: successive one-word phrases (e.g. “doggy bed”)
- Phrases with intent (e.g. “More juice.”)



orrect phrases with intent (e.g. “Draw car”)

Strategies for Eliciting Expressive Language

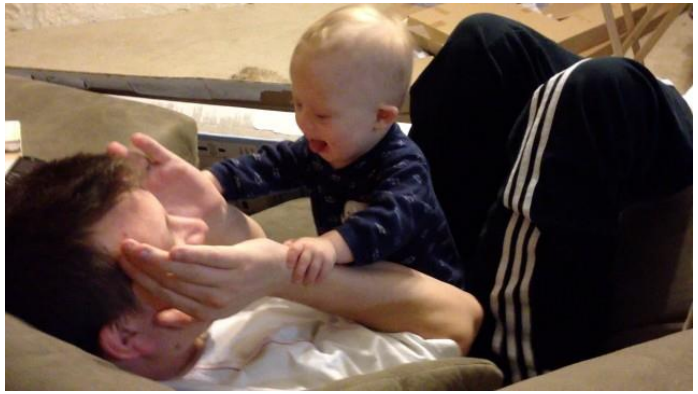
Prompting

-Elicited imitation: “Say X”

-Fill-ins: “This is a….”

-Questions: “What’s that?”

Face to face is best!



Recasting/Reformulation

Child: “Mama me go zoo ‘morrow.”

Caregiver: “Yes, tomorrow you and mama are going to the zoo!”

Strategies for Eliciting Expressive Language Cont.

Extension

- A comment or reply regarding the child's utterance
- Child: "Doggie eats."
- Caregiver: "Doggie is hungry?"

Repetition

- Children with Down syndrome need more repetitions of a word to learn vocabulary

Eliciting Expressive Language: What to Avoid

- Asking too many questions
- Testing versus teaching
- Pressuring child to show off skills

Importance of Play

Play is fun! There is no pressure to perform.

- Helps develop communicative skills:
    - Greeting (initiating play)
    - Early conversation skills (turn taking)
    - Shared attention, etc.
- Develops over time and correlates with a child's communication skills

Types of Play

- Mouth play
- Cause-effect play
- Turn taking
- Functional object use
- Pretend play

Strategies for Promoting Play Skills

Repetition and routines!

-Model use of cause-effect toys using repetition

-Model functional object use by bringing a phone to your ear, combing hair, etc.

-Imitate child's actions or vocalizations to promote early turn-taking skills

-Play anticipatory action games (e.g. Trott, Trott to Boston, tickle games, etc.)

-Use routine phrases in play and pause to allow child to complete the phrase (e.g. "1, 2, 3, go!" "Up, up, up, down!")

Strategies for Promoting Play Cont.

-Expand upon child's play schema

-Introduce role-playing

-Engage in table-top activities (puzzles, play-doh, drawing, etc.)

-Incorporate directions into play (e.g. hiding games, Simon Says, etc.)

Book-sharing

-Encourage child to hold the book, flip pages, choose the book

-Follow child's lead!

-"Image Search"

-Remember, you don't have to read the words on the page!

-Describe pictures, label characters, etc.

Augmentative & Alternative Communication:

Considerations for qualification, implementation, and debunking the myths.

Overview & Goals

1. Review AAC basics:
   - ➔**What** does AAC of?
   - ➔**Who** is a candidate?
   - ➔**When** is an appropriate time to consider AAC?
   - ➔**Why** AAC?
   - ➔**How** does the evaluation process work?
   - ➔**Where** can you learn more?
1. Clarify AAC myths
2. Address questions

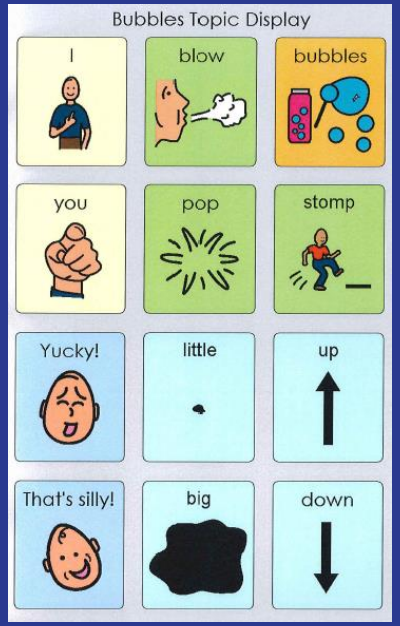
AAC: **What** does AAC involve?

What is Augmentative & Alternative Communication (AAC)

- An area of clinical practice that focuses on patients for whom speech is temporarily or permanently inadequate to meet functional communication needs.
- Any method of compensating for the temporary or permanent inability to speak.

AAC: **What**

- AAC is comprised of four integrated components:
  - **Symbols** are graphic (like Boardmaker symbols or photos) but can also be auditory, tactile, or gestural
  - **Aids** are devices (either electronic or not electronic) that transmit and/or receive messages
  - **Strategies** are agreed-upon signals, gestures, or other patient-controlled acts that have been assigned a specific meaning
  - **Techniques** include the ways in which the communication is selected and transmitted — this can be via scanning on a high tech device, looking at a chosen option, pointing, etc.



symbols

aids

strategies

techniques

AAC: **What**

Unaided

- Sign language/sign approximations,
- Gestures,
- Facial expressions,
- Designated signs/gestures (ex. look up for “yes,” blink system, etc.),
- Showing/bringing objects,
- Pointing,
- Etc.

Aided

- First/then board,
- Picture or symbol board,
- Voice Output Device,
- Writing/drawing,
- Mid-tech device
- High-tech speech generating device
- Etc.

Myth #1:
High-tech is better than low-tech

AAC is <u>not</u> a hierarchy

- Low-, mid-, and high-tech aided and unaided strategies for communication are all valid and should be supported and acknowledged.
- Different methods of communication work together to create multi-modality communication.

Just because it's high-tech doesn't mean the user is proficient!

Just because it's low-tech doesn't mean the user is incapable!

Myth #2:
Aided language = iPad

iPads are just one option! There are serious benefits and drawbacks:

- Commercially available…..but no funding
- Lots of extension options…..which distract and detract from functional communication
- My kid can find *anything* faster than I can!.....and will probably spend all of science class on YouTube Kids
- My school provided one…..and it has a password so I can't use it / it doesn't come home / I have no idea what they do with it

AAC: **Who** is a candidate?

AAC: **Who**

- Candidates for AAC:
  - Communication needs are not met by speech alone

    - OR -
  - Receptive language skills (understanding) are relatively higher than expressive language skills (unaided production)

    - OR -
  - Physical status requires alternative access to environment or learning

    - OR -
  - Other factors

who

AAC: **Who**

- Candidates for AAC:
  - **Communication needs are not met by speech alone**

    - OR -
  - Receptive language skills (understanding) are higher than expressive language skills (unaided production)

    - OR -
  - Physical status requires alternative access to environment or learning

    - OR -
  - Other factors

AAC: **Who**

- Candidates for AAC:
  - Communication needs are not met by speech alone

    - OR -

  - **Receptive language skills (understanding) are relatively higher than expressive language skills (unaided production)**

    - OR -

  - Physical status requires alternative access to environment or learning

    - OR -

  - Other factors

AAC: **Who**

- Candidates for AAC:
  - Communication needs are not met by speech alone

    - OR -
  - Receptive language skills (understanding) are higher than expressive language skills (unaided production)

    - OR -
  - **Physical status requires alternative access to environment or learning**

    - OR -
  - Other factors

AAC: **Who**

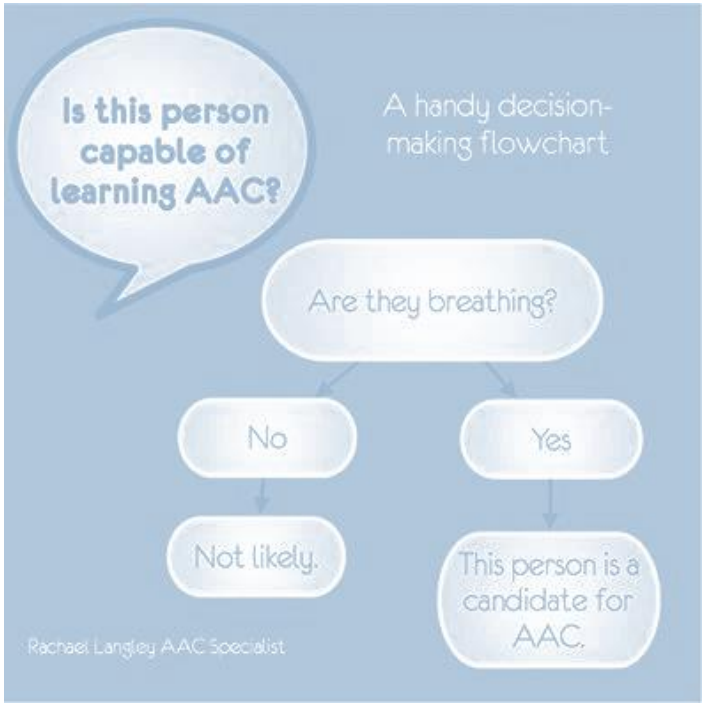
- Candidates for AAC:
  - Receptive language skills (understanding) are higher than expressive language skills (unaided production)

    - OR -
  - Communication needs are not met by speech alone

    - OR -
  - Physical status requires alternative access to environment or learning

    - OR -
  - **Other factors**

AAC: **When**



"As long as you are breathing, you are a candidate for augmentative communication."

Mirenda, 1992

Myth #3:
Only certain people “qualify” for AAC

In the past, physical status and cognitive development were seen as “prerequisites” for AAC use, especially speech generating devices (SGDs). We now know that by feature-matching an appropriate system, communication can be available for all.

(Miller & Chapman, 1980; Rice, 1983; Rice & Kemper, 1984; Turner, 1986; Romski & Sevcik, 1988; Kangas & Lloyd, 1988; Reichle & Karlan, 1988; Romski & Sevcik, 1988; Romski, Sevcik, & Pate, 1988; Mirenda & Locke, 1989; Costello & Shane, 1993; Pinder & Olswang, 1995; Romski & Sevcik, 1996; Bondy & Frost, 1998; Rowland & Schweigert, 2000; Millar, Light, & Schlosser, 2000; Romski, Sevcik, & Forrest, 2001; Romski, Sevcik, & Hyatt, 2003; Cress, 2003; Romski & Sevcik, 2005; etc.)

AAC: **When** to consider aided language

AAC: **When**

- It's never too late, but earlier is better.
- Recent research shows that 8 months is a good starting point for AAC intervention, especially with a known diagnosis that could indicate future speech and language needs.
- Allow kids to grow up using different ways to communicate. This allows adapted strategies to develop more naturalistically.

Myth #4:
Don’t introduce AAC until communication fails

- Support is always beneficial
- AAC leads to increases in receptive language (understanding language)
- AAC increases active communication and control, which in turn creates a desire to communicate more!

Myth #5:
AAC is only for school

- Preserve your “secret language”--it’s important!
- Consider the community, age 22+, and potential emergency situations.
- AAC is all about control and independence. If we only ever teach that in an academic setting, then what?

AAC: **Why** aided language?

AAC: **Why**

- Why not? We have the opportunity to support our kids with whatever may help them.
- Technology is becoming more ubiquitous.
- Communication is a right, not a privilege.

Myth #6:
AAC will keep a child from speaking

AAC strategies, devices, and systems will **NOT** keep a child from speaking.

The literature shows exactly the opposite outcome: there's a correlation between improved speech skills after AAC intervention experience.

(Sedey, Rosin, & Miller, 1991; Miller, Sedey, Miolo, Rosin, & Murray-Branch, 1991; Adamson & Dunbar, 1991; Romski & Sevcik, 1996; Romski, Sevcik, & Adamson, 1997; Beukelman & Mirenda, 1998; Cress, 2003; Romski & Sevcik, 2005; etc.)

Myth #7:
AAC is a “last resort” option

“AAC is not only for the older child who has failed at speech development but also for a young child during the period when he or she is just developing communication and language skills, to prevent failure in communication and language development.”

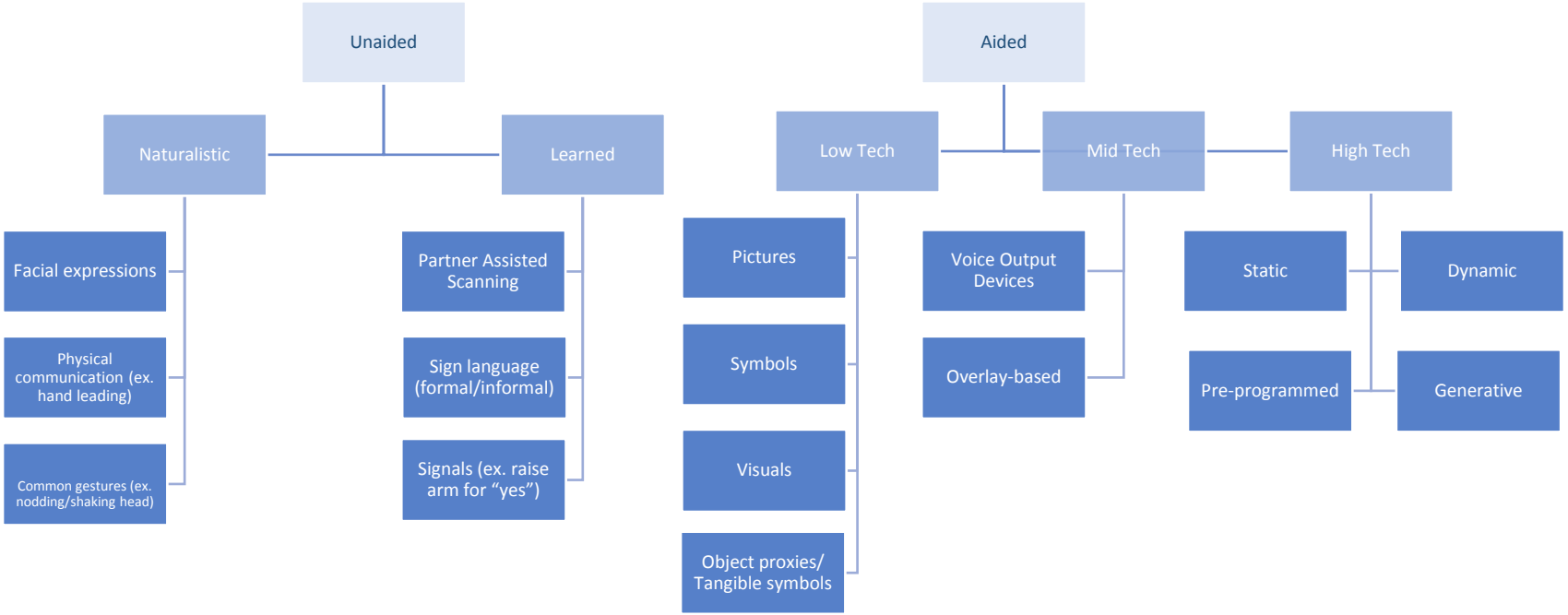
(Miller & Chapman, 1980; Cress & Marvin, 2003; Reichle, Buekelman, & Light, 2002; Romski & Sevcik, 2005)

AAC: **How** does an evaluation work?

AAC: **How**

- Domains of Assessment:
  - Hearing
  - Vision
  - Tone/management
  - Seating/positioning
  - Mobility
  - Medical status
  - Medications
  - Familiarity
  - Comfort/pain management
  - Seizures/management
  - Nutrition
  - Diagnosis/progression
  - Family/team support
  - Financial/funding
  - Attention/focus (neurological, behavioral or psychological)

AAC: **How**


Unaided
Naturalistic
Learned
Facial expressions
Physical communication (ex. hand leading)
Common gestures (ex. nodding/shaking head)
Partner Assisted Scanning
Sign language (formal/informal)
Signals (ex. raise arm for "yes")
Aided
Low Tech
Mid Tech
High Tech
Pictures
Symbols
Visuals
Object proxies/ Tangible symbols
Voice Output Devices
Overlay-based
Static
Dynamic
Pre-programmed
Generative

Myth #8:

"All the students in our school use ___."

Communication is not a one-size fits all. Just like our kids' needs aren't a one size fits all!

AAC: **Where** can you learn more?

AAC: **Where**

Boston Children's Hospital's Augmentative Communication Program (ACP)

- Full AAC evaluation for pediatrics and adults
- Ongoing re-evaluation and/or diagnostic therapy as needed
- Care coordination across other settings (school/home/outpatient)
- Collaboration across providers, "long term" plan for communication

Contact our clinic coordinator, Lynne Moran: Lynne.Moran@childrens.harvard.edu

Call our clinic at 781-216-2209

Email me directly: Elizabeth.Rose@childrens.harvard.edu

Myth #9:

Using AAC, my child will be stuck with “I want ___”

- “I want” is often a go-to for learning a new way of communication, but it’s not the end goal!

- Remember: the SGD (or other method of communication) is just an interface.

Myth #10:
Individuals who have AAC strategies can only use AAC

- AAC is one of many options for communication!
- We always continue to work on verbal speech, sign, and any other methods of communication. Total communication, multi-modality communication, and multi-sensory input is key.

Takeaways

Review

- There’s no “qualification” for candidacy
- It’s never too late, but earlier is better
- Don’t wait for a child to fail before trying AAC
- There’s more than just the iPad!
- Multi-modality and multi-sensory options are best! Don’t limit to one way of communicating

Review

- Presume competence
- Don’t assume that strategies and devices are a “one size fits all”
- Remember to provide options for different scenarios, settings, communication partners, positions, etc.
- Build a foundation for language learning and provide a language-rich environment

Questions?


YOUR CHILD
IS CAPABLE
OF THINGS
NO ONE
CAN PREDICT.
- Natan Gendelman, D.O.M.P

Contact Information

Mia Grossman, MS, CCC-SLP
mia.grossman@childrens.harvard.edu

Elizabeth N. Rose, MA, CCC-SLP II
elizabeth.rose@childrens.harvard.edu

References:

Abbeduto, Leonard, Steven F. Warren, and Frances A. Conners. "Language development in Down syndrome: From the prelinguistic period to the acquisition of literacy." Developmental Disabilities Research Reviews 13.3 (2007): 247-261.

Martin, Gary E., et al. "Language characteristics of individuals with Down syndrome." Topics in Language Disorders 29.2 (2009): 112.

Owens, R. E. (2012). *Language development: an introduction* (8th ed.). Boston: Pearson.

Silverman, Wayne. "Down syndrome: cognitive phenotype." *Mental retardation and developmental disabilities research reviews* 13.3 (2007): 228-236.

THANK YOU!