

Objectives

Upon completion, participants will be able to:

- determine when AAC is the best treatment option
- select appropriate AAC devices
- use AAC strategies to improve the communication of persons with head and neck cancer
- **Augmentative Communication Strategies for Adults with Acute or Chronic Medical Conditions**
 - Ch. 11: Head and Neck Cancer
- Purpose: to demonstrate usefulness of AAC strategies & devices to enhance and supplement communication of persons following surgery for Head and Neck Cancer
- The types of cancer & surgeries include:
 - tongue (glossectomy)
 - maxilla (maxillectomy)
 - larynx (laryngectomy)

Standard Speech Rehabilitation following Head & Neck Cancer Surgery

Often involves use of a prosthesis

- Glossectomy: palatal augmentation or reverse palate
- Maxillectomy: speech obturator or surgical flap to cover defect & improve velopharyngeal closure
- Laryngectomy: tracheoesophageal voice prostheses, artificial larynges
- Rehabilitation also involves direct speech therapy for improved speech intelligibility and learning new methods of communication, such as esophageal speech

Rehabilitation Outcome

- Many become excellent communicators following rehabilitation
- Success of speech rehabilitation varies with
 - extent of surgery
 - fit of prosthesis
 - adaptability of patient
 - successful use of the chosen method of communication
- **Patient success** (Perry et al, 2003)
 - Of n = 65 with total laryngectomy @ 12 months
 - 41% TEP
 - 25% artificial larynges
 - 17% TEP+ artificial larynx
 - 10% gesturing & writing
 - 4% esophageal speech

WHY AAC?

- Not all persons achieve adequate communication with the more "standard" practices, therefore need additional strategies
- Even good communicators may have difficulty in some situations
 - (e.g., noise, grocery deli)
- Not all individuals adapt to their lack of communication without instruction

Needs Across the Lifespan

- Communication needs following surgery for head/neck cancer vary across the lifespan
 - e.g., reduced hearing, new communication partners, illness or recurrence
- AAC strategies in rehabilitation add to arsenal of communication techniques & assist in a variety of communication situations

Phases of AAC Intervention

We will discuss these phases as they relate specifically to persons with head/neck cancer...

- I. Getting Ready Phase**
- II. Immediate Post Surgical Phase**
- III. Speech Restorative Phase**
- IV. Long term AAC Phase**
- V. Medical Instability Phase**

I. Getting Ready Phase

- Occurs prior to cancer surgery
- Inform regarding expected changes
- Assess natural speech & complete the **preoperative checklist**
- Educate on methods of communication that may serve immediate & long term needs following surgery

Preoperative Checklist

Immediately after surgery. You may not be able to speak.

- Ask **Yes/No questions**
- **Mouth** words in a **slow & overexaggerated** fashion
- Point to the **1st letter** of the word as you "mouth" it
- **Write** messages (note pad /dry erase board).
- **Gesture** or act out the item or action you need
- Use a **picture communication board**

After several days, you may experience the following:

- Speaking may be more possible. Packing & sutures may be removed, making it more comfortable for you to move your mouth.
- **Slow** your speech and **overexaggerate** words
- Point to/spell the **topic or keyword** of what you're discussing
- If you had a laryngectomy, short bursts of air trapped in your esophagus may escape, enabling sound to come out of your mouth (esophageal speech).
- Use your tongue to make **clicking sounds** to get attention.

After hospitalization, ...

- **Speech Therapy** may fine-tune your communication and/or teach other options.
- Some people use prerecorded messages for frequent messages or when interacting with unfamiliar listeners.
- Some people type messages into a **device that speaks**.
 - Many of these devices are available for trial use through Speech Pathology.

Personal Communication Needs

- Complete a **communication needs assessment**
 - Gather names of family, friends, important places, etc.
 - Create a communication board
- Offer chance to record their voice for voice mail, answering machine, or pre-record digitized messages on AAC device
- Emphasize that they **WILL** be able to communicate!
- Introduce some AAC
 - dry erase board, markers or note pad, pens
 - Technology: digitized pre-recorded devices, text-to-speech, palm pilot devices, etc



GoTalk
Attainment Co.

Communication Needs Assessment

Demographics

Family

- Immediate family (names, relationship, etc.)
- Significant relatives (names, location, relationship)
- Which family are close in proximity? Distance?
- Recent family changes/events? (marriage, births, deaths)
- How often have family been present since surgery?
- Language spoken by family

Personal

- **Home & community**
 - Identify features, leisure interests, hobbies, home responsibilities, pets, community activities, how they move in community (walk, w/c), etc.
 - Type of neighborhood (rural/urban, etc)
 - Important people in the neighborhood (neighbors, friends, etc.)
 - Trips/vacations
 - Noisy environments frequented (restaurants, casinos, race tracks, sports events, etc)
- **Employment**
 - Job, place, FT/PT, duties, retired?, etc.
- **Phone Use**
 - Amount, who, etc.

II. Immediate Post Surgical Phase

- Usually in ICU for 1-3 days and then moved to medical/surgical floor.
- Often has tracheostomy tube & nasogastric tube; so speech attempts may be difficult and painful.
- Maxillectomy: will have surgical packing and/or obturator in place
- Glossectomy: may have sutures that limit movement of remaining oral structures

Establishing & Facilitating Basic Communication

- **Glossectomy & Maxillectomy**
 - Focus on non-vocal communication
 - Head nods, gestures, writing, alphabet boards and picture communication boards
- **Laryngectomy**
 - oral adapted alaryngeal device
- **Illegible handwriting**
 - Text-to-speech AAC device
 - e.g., Light WRITER or DynaWRITE
- **Illiterate**
 - Symbol-to-speech AAC device
 - e.g. Dynavox V or ATI mini-Mercury
- Some hospital units will agree to purchase one or more AAC devices if they will be dedicated for their use

Low or No Technology AAC

- Alphabet supplementation
- Topic boards
- Voice amplifier
- Writing



Sample Voice Amplifier



III. Speech Restorative Phase

- May transition out of hospital to outpatient or rehabilitation setting
- Medically stable, with interim obturator or prosthesis in place (as indicated)
- Likely interacting with larger group of communication partners
 - e.g. neighbors, roommates in rehabilitation, receptionists, medical personnel

Oral Communication Breakdowns

- Repair Strategies/ **Cueing Hierarchy**
 - Repeat slowly
 - Repeat with gesture
 - Provide the key or topic word
 - Provide the 1st letter
 - Rephrase the utterance
 - Tap one time for each word
 - Write



Goal: Independent Use of Strategies

- Track use of each strategy in structured & conversational speech
- Cue as needed, particularly if not moving from one strategy to another when breakdowns persist
- Instruct caregiver/staff to cue patient in similar ways

IV. Long Term AAC Phase

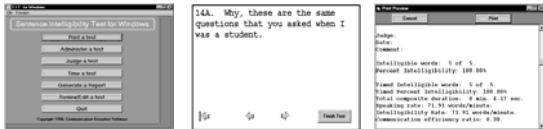
- May begin *at any point* during recovery when it is determined that oral speech is not yielding functional communication.
- Evaluate to determine the AAC device which most closely meets the communication needs of that individual
 - Match features of device with identified communication needs
- Provide training in programming & use of the AAC device.

Assess Levels of Communication

1. Intelligibility
2. Supplemented Comprehension
3. Communication Efficiency
4. Communication Effectiveness
5. Communication Interest Level
6. Communication Needs
7. Literacy
8. Co-occurring Conditions

1. Intelligibility

- Speech Intelligibility Test (SIT)- record person reading sentences of increasing length, which are decontextualized.
- **Consider use of AAC technology if sentence intelligibility is less than 80%**
 - Be sure to measure objectively, don't estimate!



2. Supplemented Comprehension

- How understandable is the speech when all available strategies/techniques are used?
 - e.g. using any or all of: gestures, slowed & exaggerated articulation, topic established, 1st letter cue
- Videotape person discussing topics introduced by SLP while using strategies.
 - "Tell me about your favorite vacation."
- **Consider AAC technology if comprehensibility is less than 90%**

3. Communication Efficiency

- Divide the overall intelligibility of speech in sentences by the speaking rate in words per minute
- Intelligibility/words per minute = efficiency
- If the speaker has to slow speech (less than 100 wpm) in order to be intelligible, then speech is no longer efficient.
- **Consider AAC technology if communication efficiency ratio is 0.70 or less.**

4. Communication Effectiveness

- Communication Effectiveness Index (CETI)
- CETI was developed as a rating scale for persons with aphasia and their communication partners.
 - (Lomas, et al 1989)
- It was adapted for use with persons following head and neck cancer surgery
 - (Sullivan, Beukelman, & Mathy-Laikko, 1993)
- **If reductions in communication effectiveness are reported in specific daily tasks, AAC technology may be appropriate**

Communication Effectiveness Index Test

Adapted from Lomas, et al

How effectively do you communicate when....

1.....2.....3.....4.....5
 Not understood Effectively understood

1. Talking at home?
2. Talking on the telephone?
3. Talking with strangers?
4. Talking in the car?
5. Talking in front of a group?
6. Talking when excited or upset?
7. Talking with people who are hearing impaired?
8. Talking over intercoms (drive-up windows)?
9. Talking over background noise?

5. Communication Interest Level

- Ask the individual whether they wish to communicate over the phone, in social situations and whether they have family/caregiver support for AAC technology.
- **AAC technology is recommended for those expressing interest in communicating in contexts which require voice output AND when there is family/caregiver support**

6. Communication Needs

- Revisit the **communication needs assessment** to determine new or modified needs in this phase.
 - e.g. has returned to work, needs to speak with family member long distance
- **AAC is appropriate when these needs cannot be met using natural speech**

7. Literacy Level

- Establish a measure of literacy and fluency in their native language.
- Are they an English as a second Language speaker?

Literate?

Text-to-speech devices
Qwerty vs. Alphabetic



LightWRITER
Dynavox Technologies

Nonliterate?

symbol sets



Boardmaker
Mayer-Johnson

8. Co-occurring Conditions

- Vision
- Hearing
- Mobility
- Cognition
 - Folstein Mini-Mental State Examination



What Next?

- Assessment items 1-5 indicate person will likely benefit from AAC
- Assessment items 6-8 will generate a list of features necessary for that individual
- SLP then matches features and selects from all devices providing necessary features, begin trial
- When most appropriate device is identified, work with person on funding to acquire

Necessary/Helpful AAC Features for People with Head/Neck Cancer

- Alphabet input (text)
- Text-to-speech voice output
- Lightweight & easily portable
 - Unless in wheelchair, which then can be mounted
- High quality display
 - Need good visibility in multiple environments
- Direct access
 - Most likely with hands
- Message formulation ability
- Ability to preprogram and store messages
- Rate acceleration features to increase rate of message formulation
 - Word & phrase prediction

Some High Tech AAC Ideas

(Medicare calls them speech generating devices – SGD's)



DynaWRITE
Dynavox Technologies



LinkCLASSIC
Assistive Technology



Mini-Mercury
Assistive Technology



LightWRITER
Dynavox Technologies



Say-It! SAM
Words+



DynaVox
Dynavox Technologies



Palmtop
Dynavox Technologies



Cyrano Communicator
One Write Company



Spok21
Zygo



TalkingAid Wireless
Zygo

V. Medical Instability

- Recurrence of cancer
- Additional surgery
- Additional adjunctive treatments
- Temporary compromise
 - pneumonia
- Permanent compromise
 - metastasis to brain
 - hearing loss in family member

Goal: Maintain communication and modify system as necessary

- Revisit **Communication Needs Assessment**
 - add or modify communication system to address any new issues
- Reintroduce AAC options which may have been previously declined
- Re-train staff & caregivers regarding most efficient methods for communication

References

- Lomas, J., Pickard, L., Bester, S., Elbard, H., Finlayson, A., & Zoghaib, C. (1989). The communication effectiveness index: Development and psychometric evaluation of a functional communication measure for adult aphasia. *Journal of Speech and Hearing Disorders, 54*, 113-124.
- Perry, AR., Shaw, MA., & Cotton, S. (2003). An evaluation of functional outcomes (speech and swallowing) in patients attending speech pathology after head and neck cancer treatment(s): Results and analysis at 12 months post-intervention. *Journal of Laryngology & Oncology, 117*, 368-381.
- Sullivan, MD., Gaebler, CB., & Ball, LJ. (2007). AAC for people with head and neck cancer. In (Beukelman, Garrett, & Yorkston, Eds.) *Augmentative Communication Strategies for Adults with Acute or Chronic Medical Conditions*, Baltimore: Paul H. Brookes, pp. 347-367.
- Sullivan, MD., Beukelman, DR., Mathy-Laikko, P. (1993). Situational communicative effectiveness of rehabilitated individuals with total laryngectomies. *Journal of Medical Speech-Language Pathology, 1*, 73-80.
- Yorkston, K., Beukelman, DR., Hakel, M., & Dorsey, M. (2007). Speech Intelligibility Test. Lincoln, NE: Madonna Rehabilitation. Available from: email ccstratman@madonna.org or http://www.madonna.org/res_software.htm

Websites

Information on Medicare reports and billing codes for SGDs:

www.aac-rerc.com

Information on AAC and manufacturer links:

www.aac.unl.edu

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