

Patient Provider Communication: AAC in ICU and Acute Care and Changing Role of the Speech Language Pathologist

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Costello J., Patak L., Pritchard J., *Communication vulnerable patients in the pediatric ICU: Enhancing care through augmentative and alternative communication.* Journal of Pediatric Rehabilitation Medicine: An Interdisciplinary 3 (2010) 289-301

* AAC-RERC sponsored issue



Agenda

- Communication Vulnerability and risks to care
- Children's Understanding of illness, pain and discomfort
- Cycle of Stress
- Patient Profile and clinical considerations
- Children's Hospital Boston Model of AAC Intervention in the ICU
- Pre-operative Assessment and instruction including vocabulary selection message banking
- Fast Review Domains of Assessment for ICU/Acute care











Augmentative Communication Program

Outpatient (Waltham campus)

Inpatient (Longwood campus)



Augmentative Communication Program

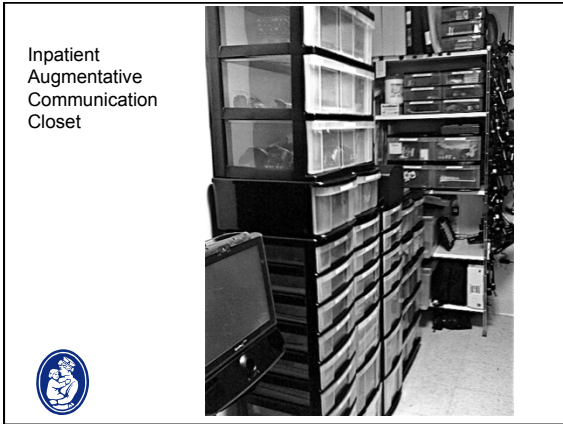


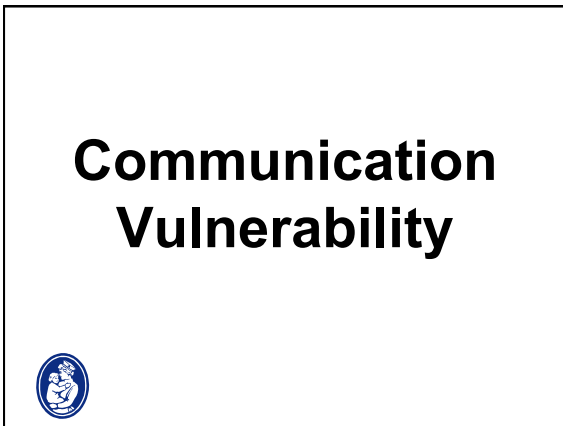
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What is communication vulnerability?


- Vision so poor that the patient is unable to read/see, even with corrective lenses*
- Inability to understand loud speech, even with hearing aids*
- Inability to produce speech that is intelligible to the team*
- Altered mental status*
- Inability to speak or understand the language of the medical team



*Serious communication disabilities in hospitalized patients.
Ebert, D. *Engl J Med*. 1998

Patients with communication vulnerability


- Congenital conditions
- Acquired conditions
- Degenerative conditions
- Condition related to medical intervention (surgery)
- Condition related to medical treatment



Guidelines for admission to Pediatric ICU
American Academy of Pediatrics and the Society of Critical Care Medicine
Pediatrics, V 103, No. 4 April 1999.

A. **Severe or potentially life threatening Pulmonary or airway disease requiring:**


- Endotracheal intubation and potential mechanical ventilation
- Rapid progressing pulmonary disease with risk of respiratory failure
- High supplement of oxygen



Guidelines for admission to Pediatric ICU
American Academy of Pediatrics and the Society of Critical Care Medicine
Pediatrics, V 103, No. 4 April 1999.

B. **Children with severe, life threatening or unstable cardiovascular conditions**


- Includes Children with high risk cardio vascular procedures



Guidelines for admission to Pediatric ICU
American Academy of Pediatrics and the Society of Critical Care Medicine
Pediatrics, V 103, No. 4 April 1999.

C. Neurological conditions or seizures


- spinal cord compressions
- Head trauma
- Progressive neuromuscular dysfunction



Guidelines for admission to Pediatric ICU
American Academy of Pediatrics and the Society of Critical Care Medicine
Pediatrics, V 103, No. 4 April 1999.

D. Hematology/oncology disease: tumors or masses compressing (or threatening to compress):


- vital vessels
- airway
- nerves of the face



Guidelines for admission to Pediatric ICU
American Academy of Pediatrics and the Society of Critical Care Medicine
Pediatrics, V 103, No. 4 April 1999.

E. Endocrine/metabolic disease

- inborn error of metabolism and acute deterioration requiring respiratory support
- acute dialysis management of intercranial hypertension



In general, these conditions include

issues of :

- airway patency/mangement of air gasses
- Muscle function, strength and coordination
- Neuro-cognitive/neuro-linguistic impairment



Communication vulnerability may be related to one or all of these



Why is this topic timely in the United States?

Changes to hospital standards for accreditation that address "communication vulnerability" in 2011 (measured as of 2012 July).

Increased focus nationally and internationally on the impact of communication vulnerability on patient care.

Increased focus on the Joint Commission International Standards of Care



Importance of communication and potential impact on patient outcomes is recognized by:

- American Association of Critical Care Nurses
- Society for Critical Care Medicine
- National Institute of Health
- The Joint Commission



WHAT IS "EFFECTIVE COMMUNICATION"?

"the successful joint establishment of meaning wherein patients and healthcare providers exchange information, enabling patients to participate actively in their care from admission through discharge, and ensuring that the responsibilities of both patients and providers are understood"

(The Joint Commission, 2010b, p. 91).

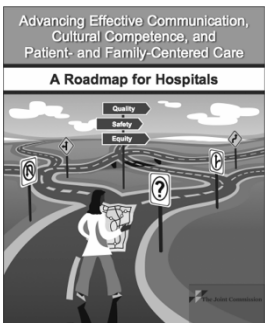


Roadmap 'Guide' to help facilities implement standards

p. 10 Recommended issues and related practice examples to address during Admission:

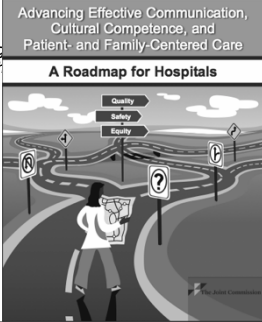
Identify whether the patient has a sensory or communication need ... "it may be necessary for the hospital to provide auxiliary aids and services or augmentative and alternative communication (AAC) resources to facilitate communication."

Identify if the patient uses any assistive devices... "make sure that any needed assistive device are available to the patient throughout the continuum of care."



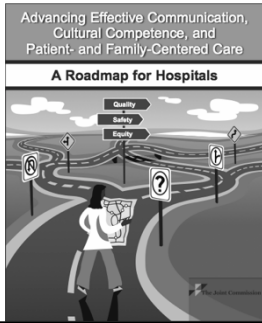
Roadmap 'Guide' to help facilities implement standards

p. 18 Monitor changes in the patient's communication status ..."
... monitor the patient has developed new or more severe communication impairments during the course of care and contact the Speech Language Pathology Department, if available. Provide AAC resources, as needed, to help during treatment."



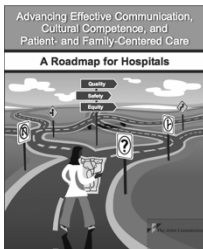
p. 59 New Standard PC.02.01.21 The hospital effectively communicates with patients when providing care, treatment, and services:

..."
"Patients may have hearing or visual needs... or be unable to speak due to their medical condition or treatment. Additionally, some communication needs may change during the course of care. Once the patient's communication needs are identified, the hospital can determine the best way to promote two-way communication between the patient and his or her providers in a manner that meets the patient's needs"



New Standard PC.02.01.21 (cont'd)

"Examples of communication needs include the need for personal devices such as hearing aids or glasses, language interpreters, communication boards and devices..."



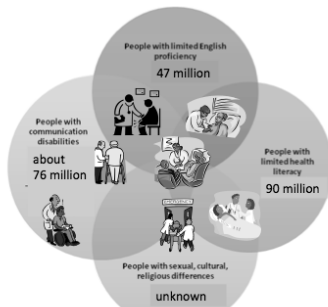
COMMUNICATION VULNERABLE PATIENTS

Individuals with

1. **Pre-existing hearing, speech, cognitive disabilities** who may (may not) have access to communication tools/supports
2. **Recent communication difficulties** occurring as a result of their disease/illness/accident/event
3. Communication difficulties that occur as a **result of medical treatment** (e.g., intubation, sedation)
4. **Linguistic differences**
5. **Limited health literacy**
6. Limited ability to **read/write**
7. **Cultural differences**



Communication vulnerable populations in the U.S.



Communication Saturday, November 14, 2009 www.patientprovidercommunication.org

In the Joint Establishment Of Meaning

Go @ @ Content Search Go

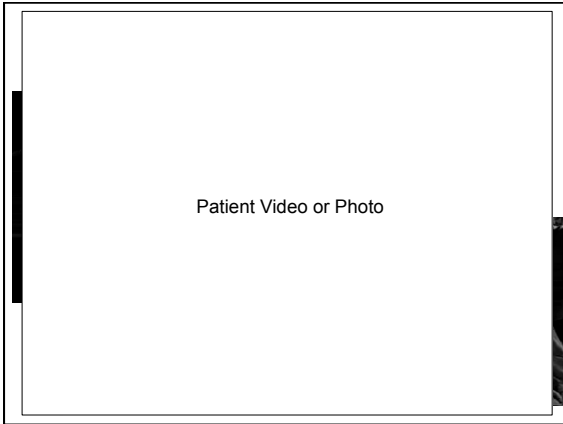
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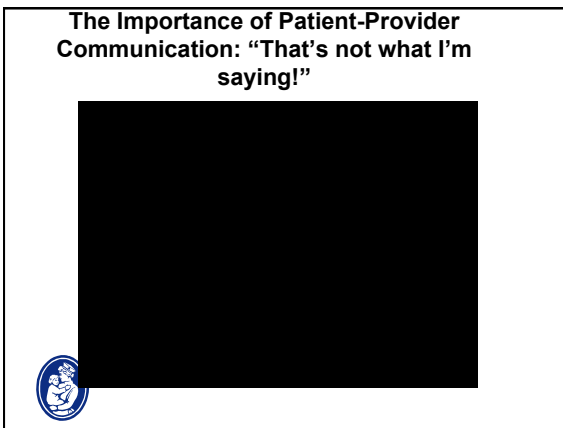
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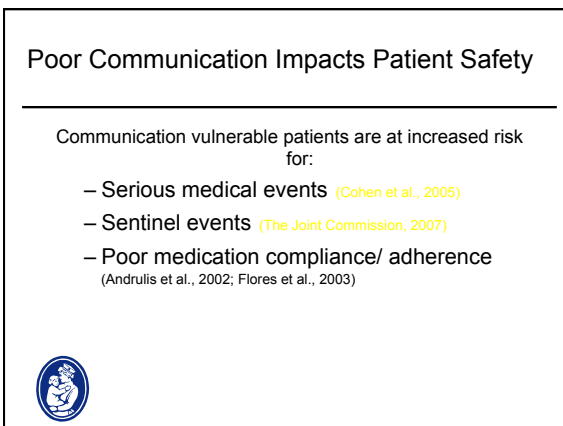
About PPC
About Patient Provider Communication
 The Patient Provider Communication Forum is a national and international effort to promote information sharing, cooperation and collaboration among individuals who are committed to seeking improvements in patient-provider communication across the entire health care continuum—from a doctor's office, emergency room, clinic, ICU, acute care and rehabilitation hospital, home health service and hospice.
 Members of the group bring together a range of perspectives and experience in the area of patient-provider communication. The group works to share knowledge and resources and to raise awareness at both the practice and policy levels of the need to overcome existing communication barriers and to increase communication access across health care settings.
 The Patient Provider Communication Forum seeks to achieve shared learning about patient-provider communication through:

- monthly conference calls among participants.
- an interactive website to share resources and tools and to seek feedback and opinions from the field.
- collaborative projects such as white papers, presentations and research studies that intersect the areas of interest and experience of group members.
- Special Interest conversations about topics, such as (e.g., emergency preparedness, intensive care units (ICUs), The Joint Commission's Proposed Standards related to effective communication, cultural competence and patient-centered care and information about specific populations and/or healthcare settings.)

<http://www.patientprovidercommunication.org/>






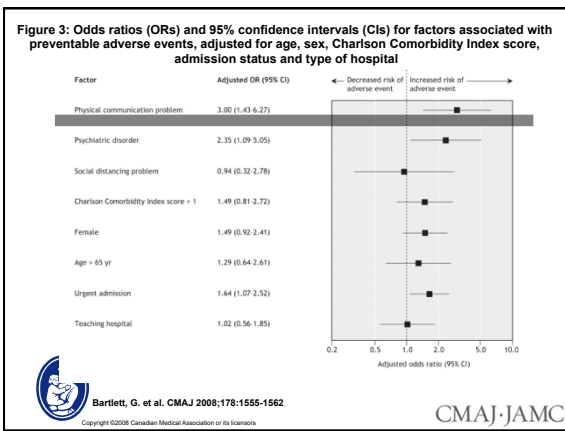


Bartlett, G. et al.
CMAJ 2008;178:1555-1562

“The presence of physical communication problems was significantly associated with an increased risk of experiencing a preventable adverse event”

“We found that patients with communication problems were three times more likely to experience preventable adverse events than patients without such problems”






Risk for Serious Medical Events

Communication-vulnerable patients are:

- Twice more likely to experience medical physical harm
- Increased risk of non-adherence to medication
- Misreported abuse
- Decreased access to medical care
- Decreased use of medical care
- Increased diagnosis of psychopathology
- More likely to leave hospital against medical advice
- Asthmatics more likely to receive intubation
- Less likely to return for follow-up appointments after Emergency Room visits



Risk for Serious Medical Events

Communication-vulnerable patients are:

- Higher rates of hospitalization
- Higher rates of drug complications
- Highest use of resources to provide care
- Lowest levels of satisfaction with care
- Increased risk of delayed care
- Increased failure to treat and prevent devastating disease states and death
- Increased risk of malpractice
- Increased length of hospital stay



Effective Communication is not supported by Health Care Systems

- No standardized system in place to identify communication needs
- Lack of supporting resources, training, and time needed to effectively communicate
- Limited evidence and awareness of best practice



Impact of Addressing Communication Needs

•Patients taught to use communication tools such as picture boards, word boards or simple communication devices, reported improved satisfaction and comfort when compared to care without communication support.

(Slovsky, Rudy & Dragoneto, 1988; Costello, 2000)

•Communication boards can also significantly reduce patient frustration.

(Patak et al. 2002, 2004)


•Provision of professional interpreter services is associated with improved clinical care and increased quality of care to LEP (Limited English Proficiency) patients.

(Karlner et al. 2006)



Call to Action


- **Improve clinical practice to incorporate a systematic & methodological approach to patient-provider communication**
- **Optimize institutional availability and use of auxiliary services/increase frequency of referrals to specialists for "COMMUNICATION" purposes**
- **Educate health care providers**
- **Revise health care policy and standards to set performance expectations for health care providers on patient-provider communication**



Formalize a Process to Manage Patient-Provider Communication at the Patient-Level

```
graph TD; A[Assess the Patient's Communication Need] --> B[Refer to Communication Specialist]; B --> C[Select a Communication Intervention]; C --> D[Evaluate the Effectiveness of the Intervention]; D --> E[Monitor for Changes in the Effectiveness of the Intervention]; E --> A;
```


Patak, et.al. 2009



Patient Video or Photo

Children's reaction to pain
Toddlers and preschoolers (2-5 yr):



- Experience pain but can not always identify the source or location
- **'Magical thinking'** may lead child to believe their pain is punishment for real or imagined misbehavior...they believe the pain is someone's fault.



Toddlers and preschoolers (2-5 yr)

Communication needs:
At this stage, children may view procedures as punishment for bad behavior


This makes it particularly important to communicate: fear, anxiety and solicit parents and loved ones for comfort, explanation and **protection**

Children's reaction to pain
School age (6 - 12 years)

- Can tell the location of pain
- know that illness is caused by germs and believe that staff's response depends on how well they express pain



Brewster, Arlene B. Chronically Ill Hospitalized Children's Concepts of Their Illness
PEDIATRICS Vol. 69 No. 3 March 1982, pp. 355-362



School age (6 - 12 years)

Communication Needs:


Children need to be able to effectively communicate matters of comfort and pain



**Children's reaction to pain
Adolescents (13 and older)**

- begin to understand that there are multiple causes of illness, that the body may respond to many different factors and illness is caused by physical weakness or susceptibility.
- children understand that different interventions may be needed to address illness and that staff act with necessary intent and empathy.


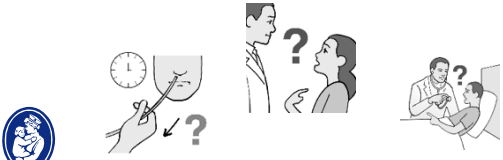
Perrin, Ellen C., Gerrity P. Susan, There's a Demon in Your Belly: Children's Understanding of Illness PEDIATRICS Vol. 67 No. 6 June 1981, pp. 841-849




Adolescents (13 and older)

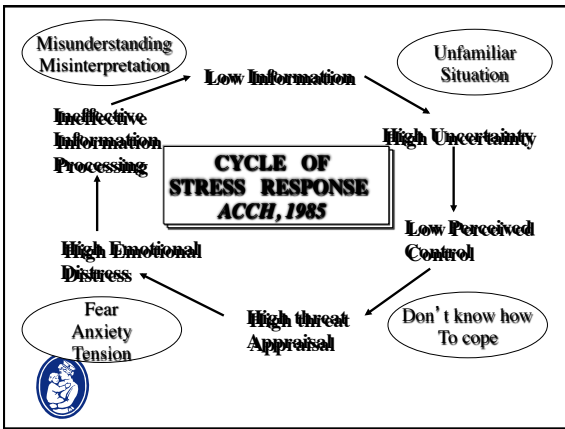
Communication need:

At this more mature stage, a child may be particularly anxious to be able to ask questions, interact with staff and understand the intent of intervention.




CYCLE OF STRESS RESPONSE
ACCH, 1985

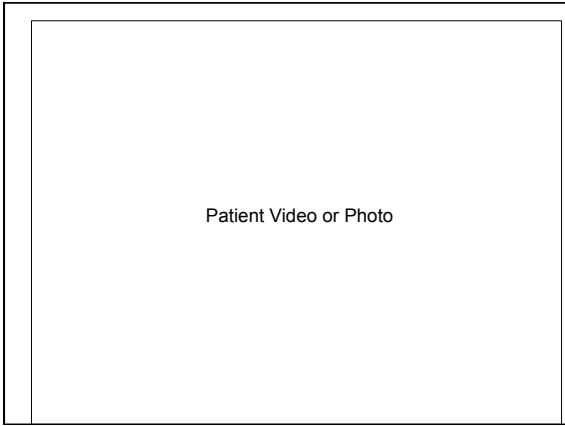


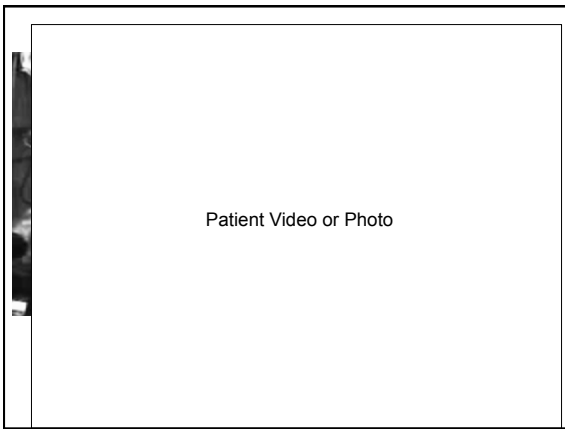


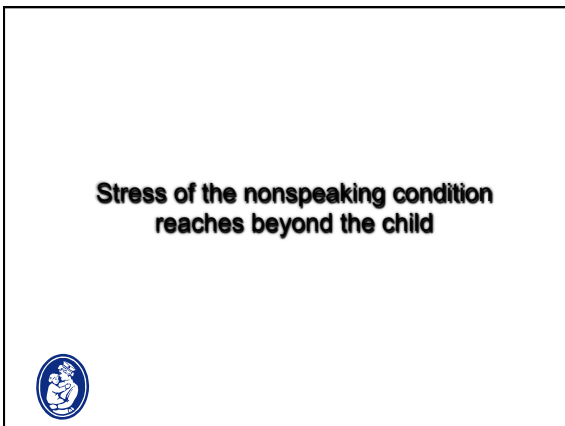
Impact of communication vulnerability:
Impact on the child

- » challenges and needs of patient
- » Powerlessness
- » Loss of Control
- » Disconnection from loved ones
- » Inability to participate in own care
- » Inability to ask questions, express needs, fears, PERSONALITY, etc.









Family/Primary Care Providers

- **Parents have expressed fear of their child's inability to communicate basic needs**
- **Fear that child may feel abandon and not be able to call for parents**
- **Parents feel helpless to assist child who is going through distress**



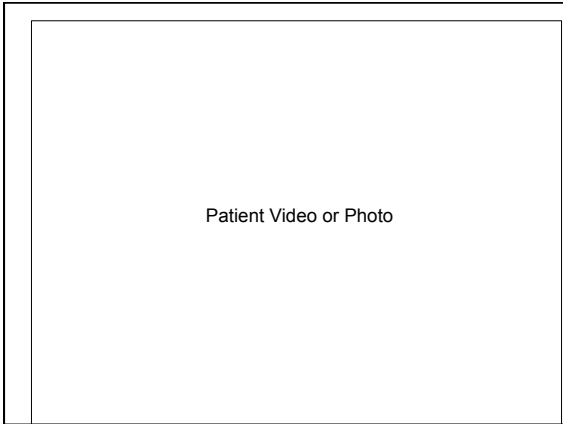
**Communication vulnerability:
Impact on Family**

- Stress for parents (Costello, 2000), fear child will feel abandoned as can not solicit loved one and has not way of advocating for self
- (Hurtzig and Dowden 09) " parents, although completely exhausted, refuse to leave or sleep due to their concern that their child will require assistance and no one will be there to interpret the child's efforts to get help"

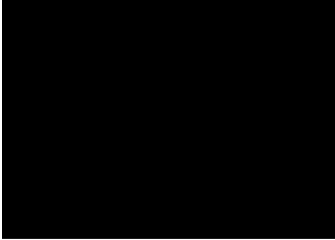


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Patient Video or Photo



My son's ability to communicate, allowed me to advocate for him


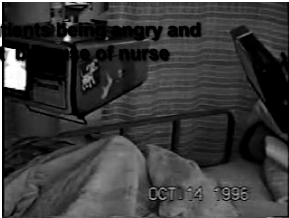


Post heart-transplant,
a mother's perspective



Medical Staff

- **The need to identify appropriate means to communicate with intubated/vent dependent patients identified as a high research priority**
- **Because of duties, medical staff must limit the time available to interpret**
- **Nurses have reported patients being angry and then abandoning attempts because of nurse inability to interpret**



**Communication Vulnerability:
Impact on staff**

1. Quality of care issue "all patients who described good communication with their providers told us they were treated in a caring, concerned and respectful manner
-Duclos, et. Al. 2005 International Journal of Quality in Health Care v 17 # 6 page 483
2. Patients inability to communicate has a negative impact on the nurse/doctors tendency to communicate with them, (Ashworth, 84)



Patient Video or Photo

**What does this mean for the
Speech-Language Pathologist?**

An increased demand for expertise in AAC with acute and intensive care patients

This will require increased training to prepare SLPs to provide AAC services for patients who are communication vulnerable in the medical setting.

There will be an increased need for AAC tools and strategies to be readily available for assessment and intervention.



What strategies (if any) are used when a patient can not speak?

- Nurses rely on lip reading
- Have a familiar family member interpret
- Gestures
- Pen and paper
- Alphabet board
- Hand drawn pictures
- Medical staff ask yes/no questions*



**Profile/Phases of Communication
Vulnerable Patient**

Phase 1: Emerging from Sedation

Phase 2: Increased wakefulness

Phase 3: Need for Broad and diverse communication access




**Phase 1
Emerging from Sedation**

- Yes - no - I don't know
- Call for nurse/modified nurse call
- Gain attention of loved ones/staff with simple voice output




Phase 2
Increased wakefulness

- **Require all of phase 1 strategies**
- **Require more relevant vocabulary**
- **Picture boards**
- **Alphabet boards**
 - **ABC**
 - **QWERTY**
- **Multi-message voice output devices**
- **Digitally recorded messages ******
- **Voice amplification**




Phase 3
Broad and Diverse Communication Access

- All options from phase 1 and 2
- Generative communication with alphabet and sophisticated page sets
- Word and grammar prediction
- Encoding strategies
- Music and video files
- Internet access
- telephone



Potential Candidates for AAC

- Communication Vulnerable at Baseline
- Acute Onset of Communication Vulnerability
- At Risk for Communication Vulnerability
- Palliative Care and End of Life



Role of the SLP

Baseline communication vulnerability:

- Assess use of current AAC system in hospital
- Adjust current system as appropriate for vocabulary, mounting, physical access
- Develop new system that is used only in hospital environment when current system can not be used.
- Adapted nurse call and tool for attention



Role of the SLP

Acute onset communication vulnerability

- **Bedside screening of communication, motor, cognitive, sensory skills.**
- Create tools that meet need of patient (refer to phases)
- Design and construct new communication supports
- Mount, train and assure access to communication tool/strategy
- Inservice communication partners
- Adapted nurse call and other access



Role of the SLP

At risk for communication vulnerability

- BCH Model of Preoperative AAC
- Message Bank when possible



Role of the SLP

Palliative Care and End of Life

- Introduce broad range of AAC tools and strategies to support:
 - Expression of needs
 - social connectedness
 - comfort
 - nurse call



Impact of AAC

Patients taught to use communication tools such as picture boards, word boards or simple communication devices, reported improved satisfaction and comfort when compared to care without communication support

(Patak et.al 2007, Costello 2000, Stovsky, Rudy & Dragonete, 1988)




First: getting the referral

KEY:
staff recognizing communication vulnerability and then recognizing that it is NOT alright

* Huge opportunity for nurse /staff training by SLP




**Who might have a Temporary
Nonspeaking condition?**



**Some non-speaking conditions may be anticipated
before surgery**


- **Maxillofacial/Orofacial surgery**
- **Organ transplantation (lung, heart)**
- **Disorders of the airway requiring tracheolaryngeal or tracheoesophageal reconstruction**
- **Oncology related interventions**
- **Scheduled ventilation supports**
- **Tracheostomy**

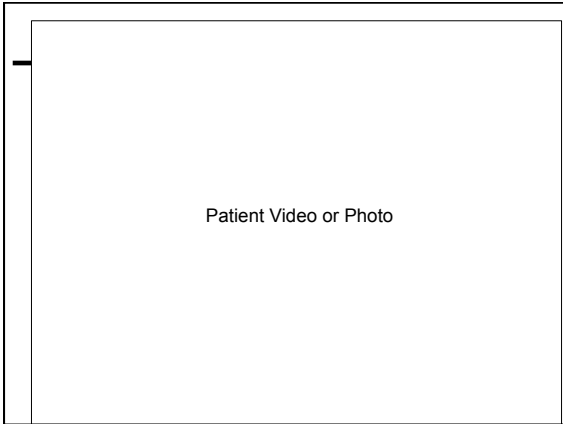


**Potential conditions leading to
nonspeaking condition:**

Airway problems
Lung problems
Other


- **Respiratory disorders**
- **Neuromuscular diseases**
- **Head injuries**
- **Spinal cord injuries**

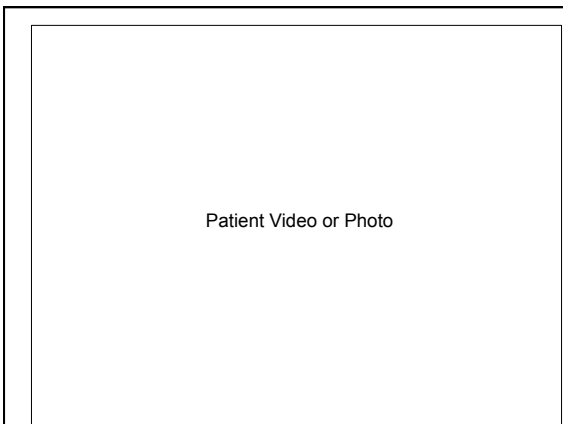





Neuromuscular Diseases Affecting Respiration

- **Arnold Chiari Malformation**
- **Cerebral palsy**
- **Muscular dystrophy**
- **Myasthenia gravis**
- **Spinal muscular atrophy**






**The Temporary Nonspeaking Condition
in the ICU = High Emotional Distress
Coupled with a Sense of Loss**



ICU stay in an inopportune time for new learning:

RESULT:


Ineffective processing of new information




Researchers have reported:

Anxiety, fear, insecurity, anger all result from ineffective information processing and the inability to speak and, contribute to interference with sleep

Mentzel, 1984




It is recognized that sleep patterns of persons in the ICU are highly irregular and disturbed - sometimes leading to ICU Psychosis.



IT IS SUGGESTED THAT ALL OF THIS MAY HAVE AN INFLUENCE ON:


- **MEDICAL RECOVERY**
- **PAIN MANAGEMENT**
- **LENGTH OF HOSPITAL STAY**



Christiano and Tarbell (1998)


Children with the lowest pain scores were given relevant information in significantly more preoperative intervals than children with higher pain scores.

This suggests that preoperative training may assist patients to cope with pain management issues better than those without preoperative training.




**The Children's Hospital Boston Model of AAC
Intervention in the ICU**

**Preoperative Intervention
Postoperative Intervention
Discharge Intervention**




**Historically, primary communication interventions
include:**

**Alphabet board
Picture boards
Small typing systems
Paper and pen
Magic slate
Electrolarynx
Eye gaze systems**



Preoperative Intervention

- **Patient expectations/education**
- **Initial introduction to communication tool**
- **Vocabulary selection**
- **Brief review of sensory/motor and literacy skills.**
- **Introduction to symbols**
- **Review of mounting and positioning options**
- **Voice and message banking******





Vocabulary

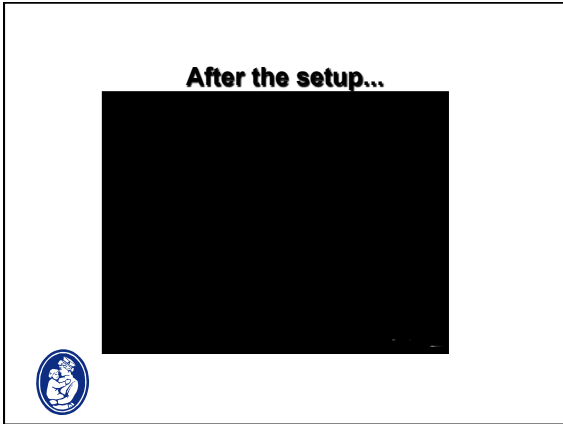
'Legacy' messages
Core vocabulary
Fringe vocabulary

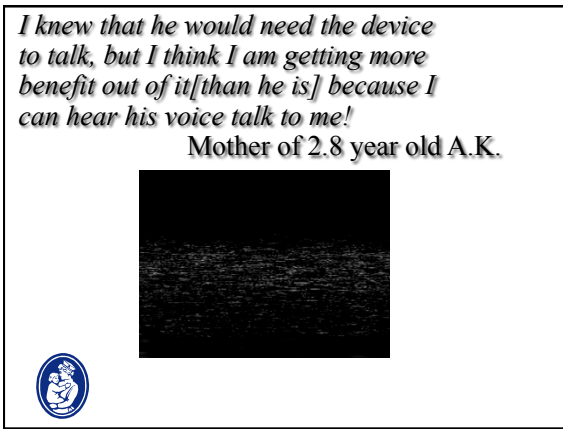


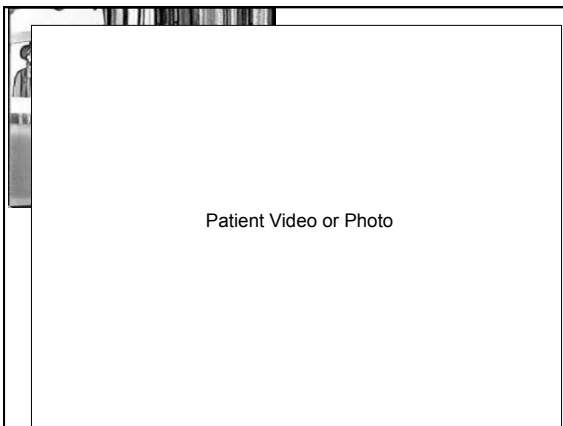
Without patient involvement, having meaningful vocabulary is as likely as finding a...



Patient Video or Photo







Programmed devices awaiting patient admission



Postoperative Intervention

- **Bedside screening of awareness, sensory and motor skills**
- **Mounting of AAC device**
- **Assessment of functional use of communication tools**
- **Family and staff inservicing**



Studies reveal that nurse communication with patient is positively correlated with the patient's ability to give feedback.

Ashworth (1984)



Ashworth (1978) reported a study from five established ICUs

- 32% of verbal communication was short term info (I'm going to suction you)
- 38% were commands or requests (lift your arm)
- 21% were questions (most related to physical care)
- 7% longer information such as teaching or orienting

Tracked interaction between nurses and patients with endotracheal tubes



Patient reports in literature relative to lack of communication:

- Exhaustion (Hafsteindottir 1996)**
- Isolation Belitz 1983, (Villarie 1995)**
- Lack of control (Stovsky 1988)**
- Fear and Anxiety (Borsig & Stenacher 1982)**
- Poor recollection (Hafsteindottir 1996)**
- Frustration, sleep disturbances (Patak, Gawlinski, Fung, Doering & Berg 2004)**




What are some of the AAC assessment considerations when a patient is "Communication Vulnerable"?



Introduce tools and strategies, and learn.....

Can learn much about motor skill and access, neuro-cognition and overall communication skills.



OKAY....

BUT it is NOT all about technology.

It could be NO technology!



Special considerations pertinent to

Patient Video or Photo

Questions to ask/consider at admission

questions to ask:

- Does the patient currently have difficulty communicating and participating in the admission process?
- Does the patient have an existing augmentative communication device or strategy that he/she employs for expressive and/or receptive language?
- Is a process or procedure during hospitalization expected to induce communication vulnerability?
- Will hospitalization make the use of current and needed vision or hearing aids not possible?



Whirlwind review:



Assessment Domain
CORE Assessment considerations
Impact on system selection and feature matching.

May be a VERY dynamic process with status changing regularly



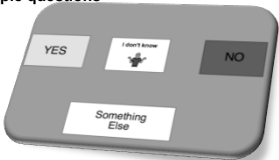

Cognitive status:

- Alertness
- Awareness
- Orientation
- Pre-morbid status





Cognitive Assessment considerations:

- Often status is first reported by bedside care providers
- Observe patient's wakefulness and fatigue (impact participation and length of assessment)
- Patient's ability to follow simple directions
- Patient's ability to respond to simple questions
(yes/ no / don't know response)


Cognitive Assessment considerations:

- Potential presence of delirium
- Impact of medications (example)
- Quality and quantity of sleep
- Potential presence of dementia


Feature match/intervention considerations

- Will determine if assessment happens over time, postponed or continued.
- May need to re-assess often and adjust recommendations frequently
- May require range of supports to be used at different times of day
- Will impact complexity of instructional language and strategies introduced
- May suggest selection of memory book or orientation strategies through visuals, visual schedule
- Use of symbols versus written word



Sensory domain:



- Vision
- Hearing
- Comparison to pre-morbid status?



Sensory Assessment considerations

- Does s/he wear glasses? If yes, are they here?
- Does s/he have hearing aids? If yes, are they here?
- If physical status will not support glasses or hearing aids (swelling, incision site, etc.), what accommodations can be made
- Have C.I.? Available?

I have NO sight in my right eye OR in the outside half of my left eye





Sensory Assessment considerations

If using ventilation mask, what type of mask (impact on


Patient Video or Photo


Feature match/intervention
Considerations (sensory)

 F.M. trainer to provide focused auditory input

 Remove one or both arms of the glasses


Ubi Duo for wireless patient-provider text based communication






Feature match/intervention
Considerations (sensory)

- Consideration for communication with family/friends via phone:
<http://ip-relay.com> OR TTY
- Use of web cam/Skype video for sign communication with family/friends



Feature match/intervention
Considerations (sensory)

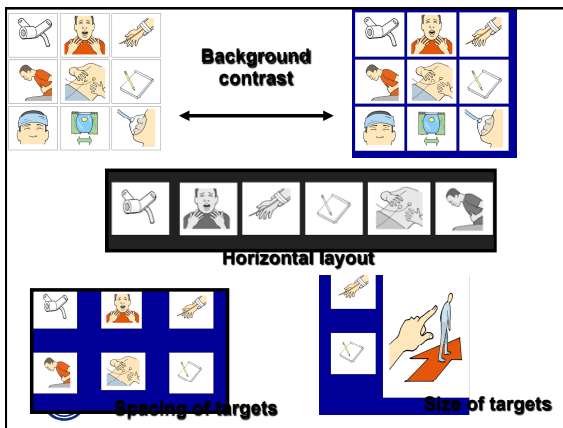
Patient Video or Photo

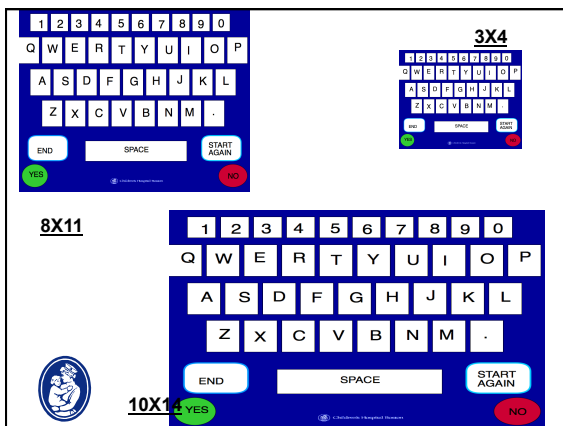


Feature match/intervention Considerations (sensory)

- Symbol set/representation selection
- characteristics of text
- Size of targets
- Color contrasts
- Complexity of layout
- Use of symbols versus text
- System that supports keyguard
- System that supports tactile markers









Motor Domain

- Use of gestures/pantomime
- Control/access
- Physical positioning
- Direct selection (hand, eyes, other?)
- Ability to write/draw





Assessment considerations

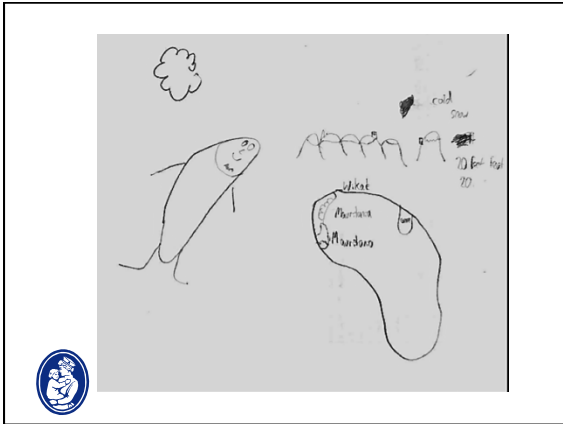
- Ability to point with hand
- Ability to point with eyes
- Ability to point with head light
- Use of splints to support pointing
- Indirect access through scanning
- Indirect access through partner assist
- Access changed by positioning?

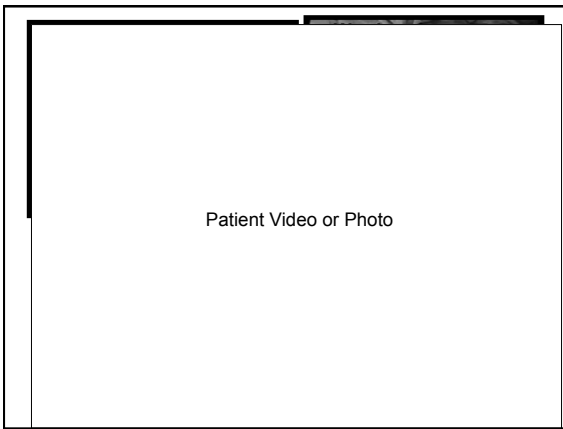


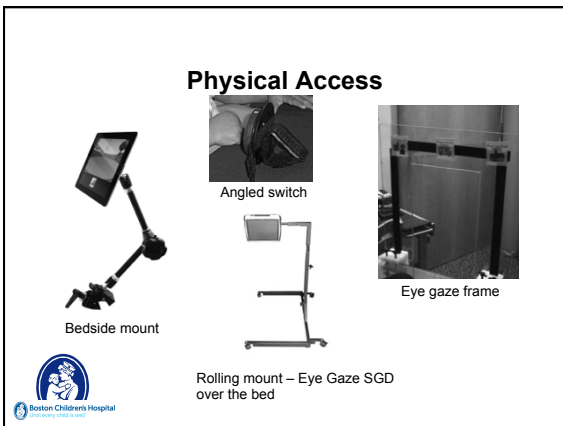
Feature match/intervention
Considerations (motor)

- Inventory of natural gestures
- Basic sign language
- Adapted nurse call system
- Keyboard
- Paper and pen
- Use of keyguard
- Single switch access to technology
- Partner assisted scanning
- Eye gaze/Etran - Eye Linking
- Eye tracking













Eye tracking
*** Feature matching consideration: Meds (ex: Baclofen)**




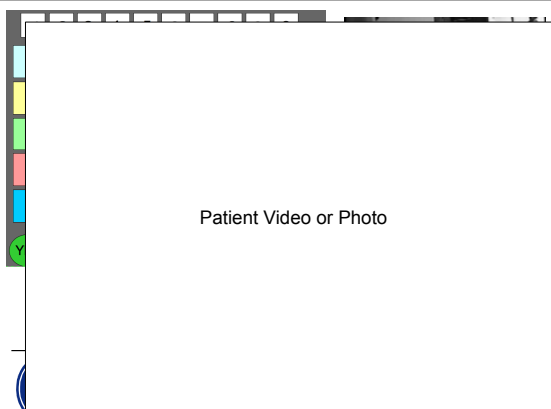


FM consideration:
Meds

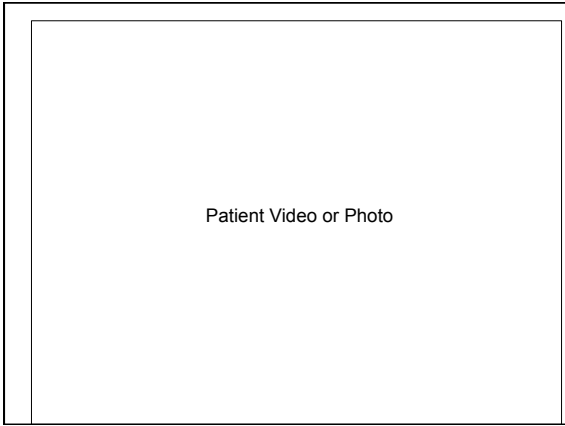


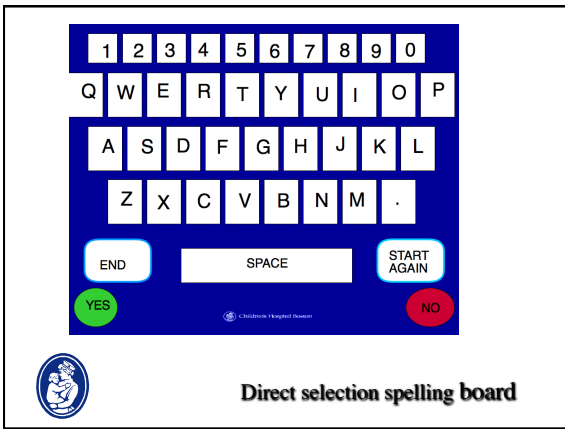
Fracture of third and fourth cervical vertebrae,
leaving him paralyzed

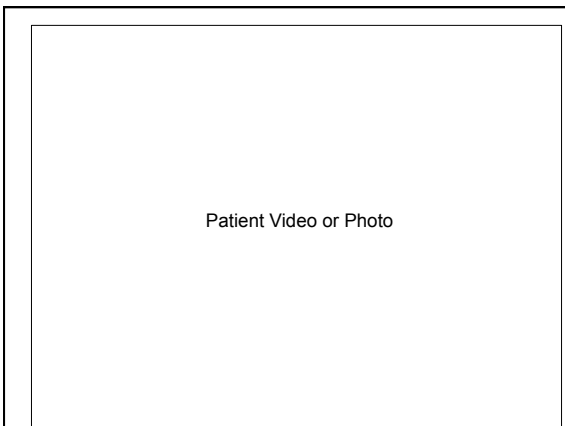


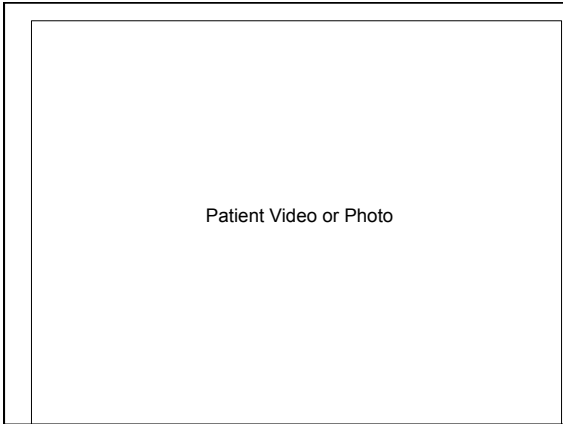


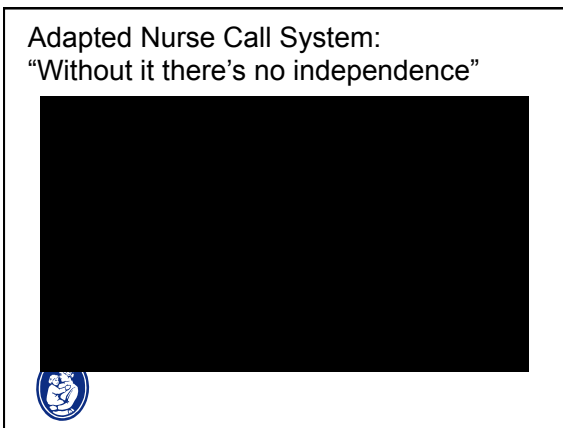
Patient Video or Photo

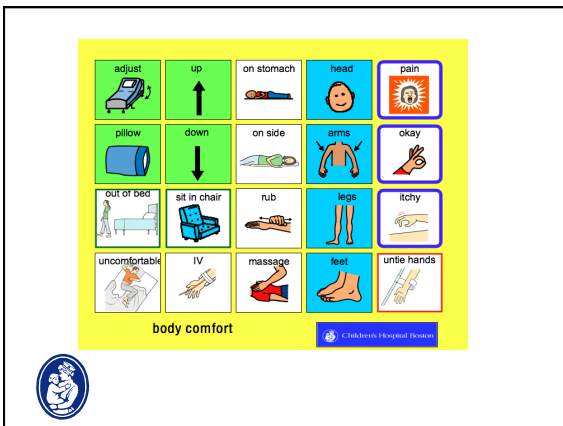


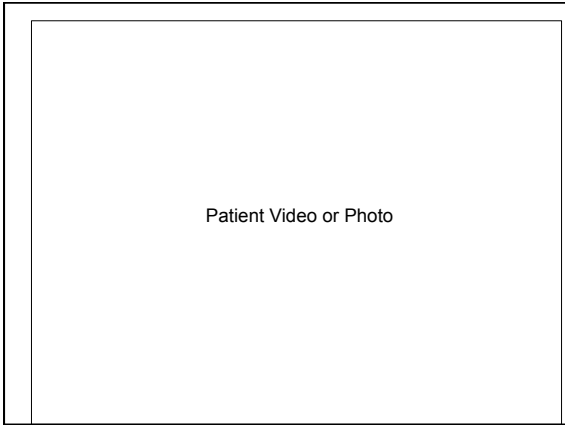


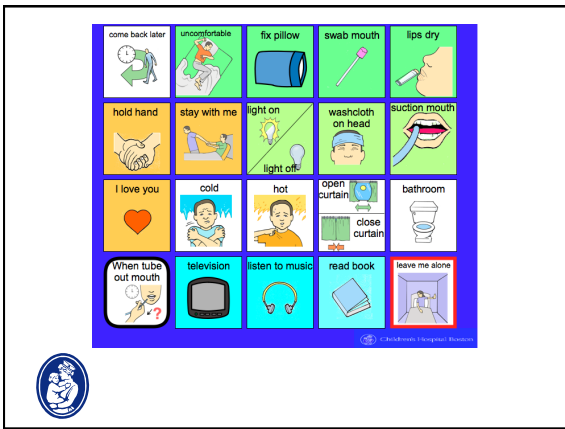


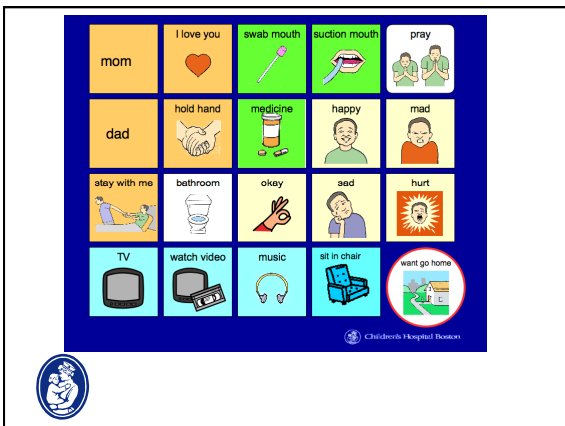




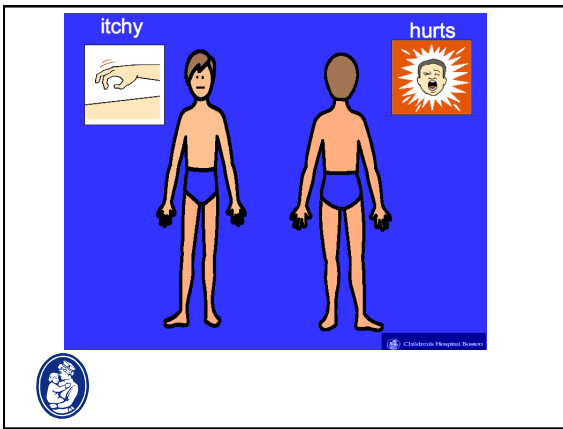


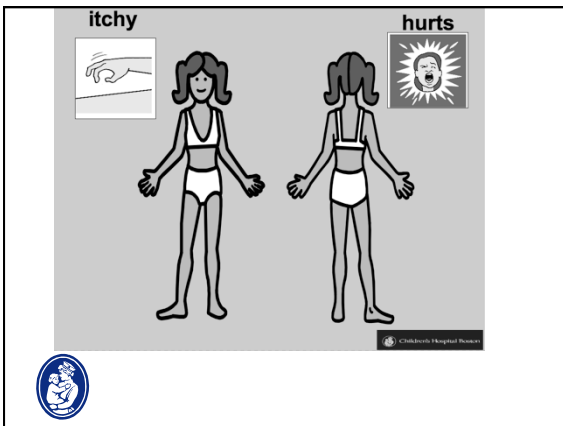


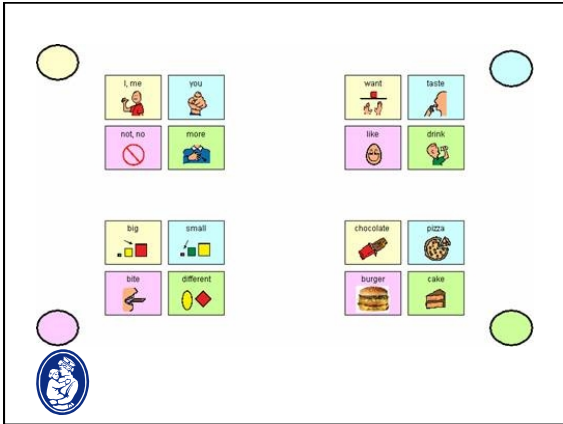


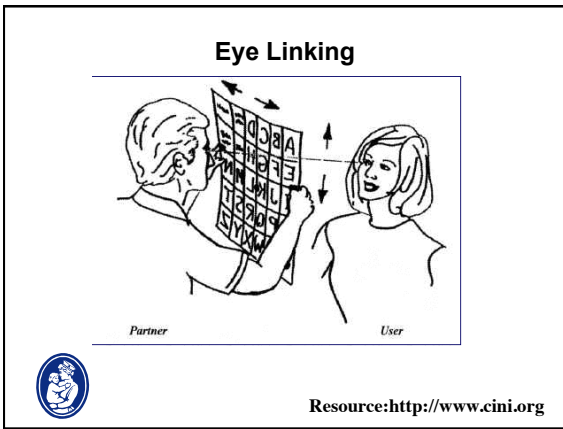




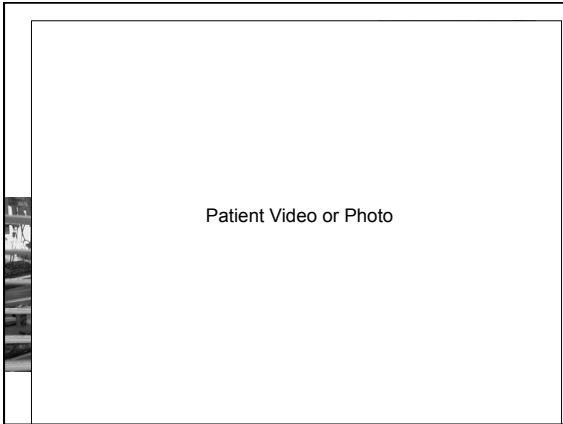


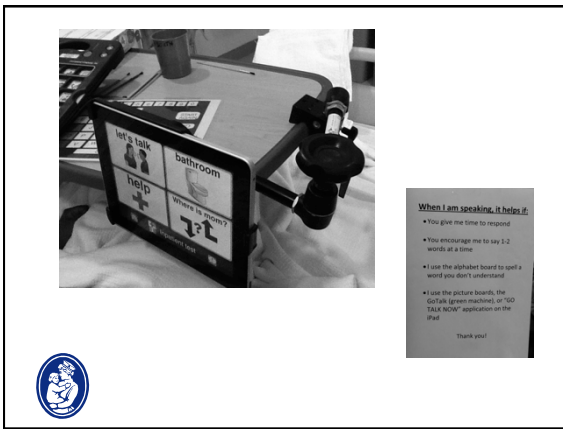


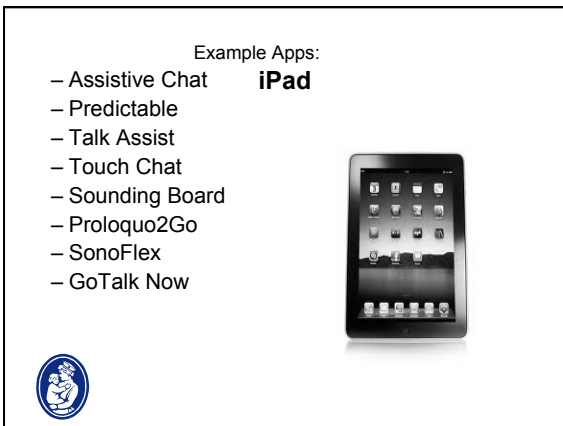














Communication applications

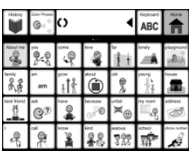
Full featured symbol based apps:
– Picture symbols and text-to-speech




Moquo2Go





TouchChat



SonoFlex



positioning






Cuff inflation may vary by positioning and impact need for AAC vs. ability to use speech.

Access skill may change with physical positioning (in bed/in chair) and require different strategies or mounts


Medical procedure may impact positioning which will impact feature match

- Example: spinal fusion/rod insertion
- reconstruction surgery with tissue graphing

Language Comprehension Domain


Native language?
Comprehension
Ability to follow directions
Able to answer yes/no questions



Feature match/intervention
Considerations (language)


Post how patient indicates yes/no in obvious space in room

- Examples: thumbs up/down
- Squeeze eyes or blink eyes
- Squeeze hand once or twice




Feature match/intervention
Considerations (language)

- Use of visuals (symbols, photos, text)
- Intervention may focus on simple single message output devices
- May focus on strategies to support control and impact on environment



Feature match/intervention
Considerations (language)

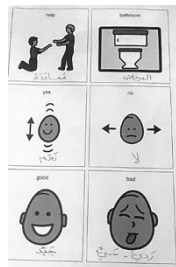
- ALWAYS use QUALIFIED MEDICAL INTERPRETER services when patient does not speak English/uses ASL
- Use of digitally recorded communication aids for communication in native language and English (approved by qualified medical interpreter)



iPad (or itouch) and iASL




Patient Video or Photo



Collaboration with
Interpreter services




Communication Boards with Language Translation



Vietnamese

Spanish




Feature match/intervention
Considerations (language)

Selection of tools/strategies with transparent organization versus requiring meta understanding of navigation/organization *


- * may change rapidly with medical status change

Selection of sophisticated tools and integrated features for environmental control, web access, etc.



Literacy Domain Feature Match considerations

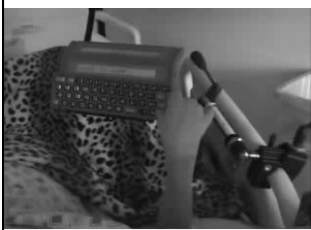
- Use of written words
- Use of alphabet for generative communication
- Encoding strategies
- Use of keyboard based systems
- Keep pen and paper at bedside along with easily accessible strategy to request (simple voice output tool)

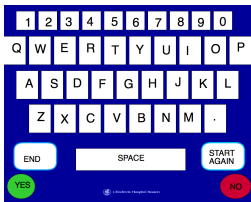


Literacy Domain Feature Match considerations

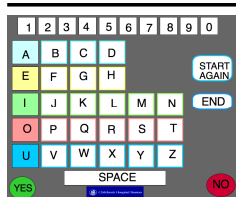
- Use of cell phone/text messaging for communication
- Use of letter cues/topic cues
- ***Note: good decoding skills and reading comprehension does not mean patient has good encoding skills
 - **May be able to use canned text but not generate novel text.**

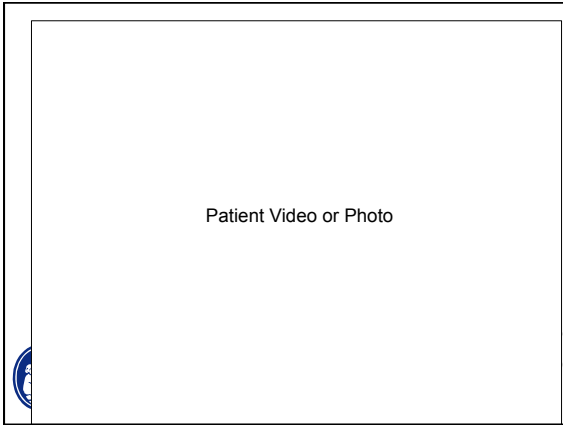


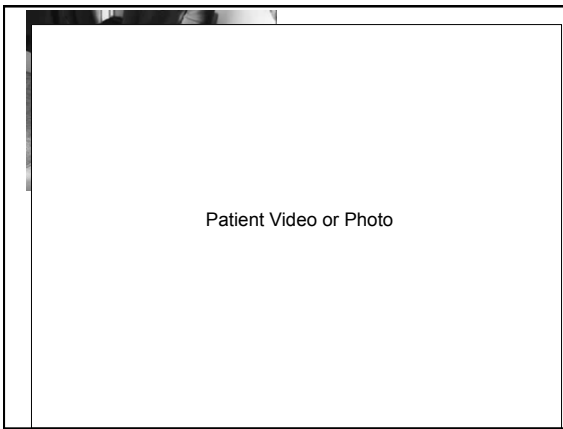




Feature Match: QWERTY vs Alphabetical








Letter Cue board


THE WORD BEGINS WITH.....



Q	W	E	R	T	Y	U	I	O	P
A	S	D	F	G	H	J	K	L	
Z	X	C	V	B	N	M	<i>Start again</i>		
br	cr	fr	gr	tr	pl	str	<i>Next word</i>		
bl	cl	fl	gl	sw	dw	tw	<i>End</i>		
sl	sc	sk	sm	sn	sp				
sw	squ	spl	spr	scr					



Topic Cue board

People	Food	Emotions
Places	Colors	Questions
Animals	Entertainment	Body
School	Home	Community








Speech Production

Reduced volume?
Tracheostomy



- Why?
- Type (cuffed/cuffless)?
- Airleak?
- Changes with positioning?
- Candidate for speaking valve?
- Tolerance of valve?

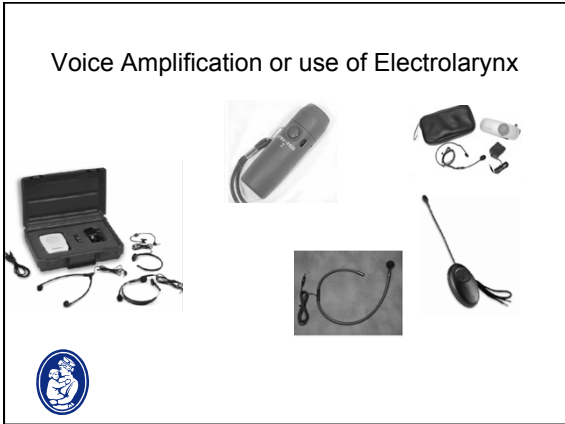
Vent?

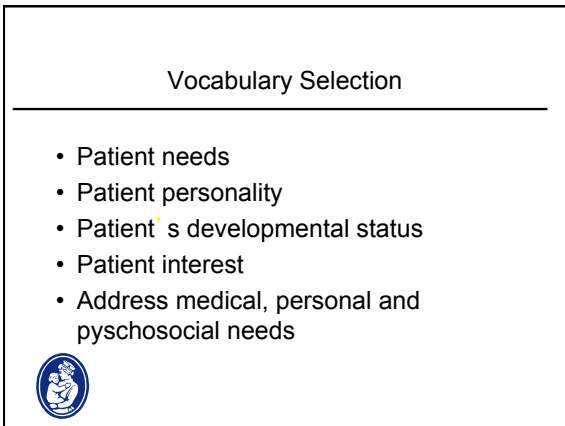



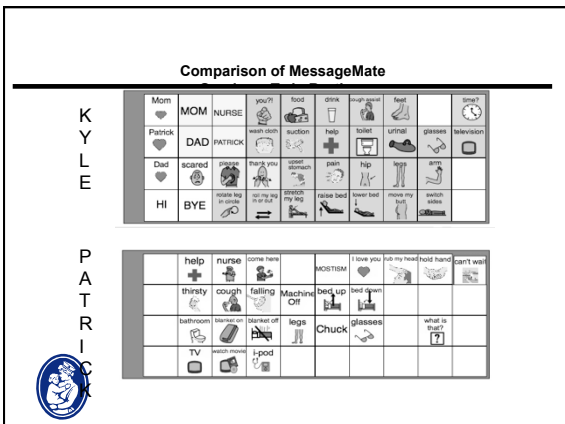
Speech Production

- Moderately compromised intelligibility?
- Severely compromised intelligibility?
- Type of intubation/ cannula ?
- Impacted by cpap/bipap mask and type of mask?
- Impacted by fixation or other hardware?








Patient Video or Photo



Domain of Assessment: Environmental

- Lighting
- Noise (including noise from vent and other medical equipment)
- Available real estate/furniture for Mounting/ access
- Nurse route of access maintained



Electromagnetic Interference (EMI)

- Current evidence based data demonstrates Electromagnetic Interference (EMI) affects medical devices. Currently, types of wireless devices include but are not limited to:
 - ✓ all cell phones
 - ✓ hand held messaging devices (Blackberry, touch, ipad, etc..)
- multi-communication devices that combine the use of Wi-Fi, Blue tooth and cellular-capable computers (Kindle, blue tooth ear pieces. Etc..)
- Integrated SGD' s




Electromagnetic Interference (EMI)

The Emergency Care Research Institute (ECRI) addresses the issue of whether the use of cell phones should be restricted in health care facilities because of problems concerning EMI with medical devices.

Recommended Practice:

When using a wireless device, a minimum distance of at least 1 meter, an "arm's length" from medical devices is recommended.



cell phones should be prohibited in highly instrumented clinical areas and should be powered off by patients and visitors in these areas.



Electromagnetic Interference (EMI)

EMI events have included:

- loss of control of dialysis machines,
- ventilator malfunctions,
- infusion pump shutdowns and rate changes

Patient Video or Photo
