Interdisciplinary Speech-Language Pathology initiatives in the ICU: speaking valve use and other communication options

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Disclosure

- The authors have no conflict of interest to declare
Background

- Many patients in ICU are non speaking
- Difficulty in communication due to intubation, tracheostomy and head/neck surgery
- Research shows that patients experience anxiety, fear, frustration, powerlessness and distress when unable to communicate in the hospital setting (Patak et al, 2006; Happ, 2000)
- SLPs at MGH-MUHC actively involved in development of tracheostomy team implemented in 2005: increased use of speaking valves (LeBlanc, Robillard Shultz et al. 2010; DeMestral et. al. 2008)
Purpose

- Describe initiatives undertaken by SLP to improve services for non speaking patients in ICU
  - Nursing survey, multidisciplinary rounds, inservice education, communication kit
  - Provide instruction on use of speaking valves and other communication options
SLP initiatives: nursing survey

Objective:
- obtain ICU nurses opinions about nonspeaking patients’ communication needs
- determine how SLPs could be the most useful in supporting the needs of nurses and patients in the ICU
- ultimately ensure that appropriate services were being provided to patients unable to speak
SLP initiatives: nursing survey

- Nurses from 3 adult ICUs of the MUHC were solicited to answer a questionnaire* about:
  - who establishes communication methods with non-speaking patients
  - what methods they usually use
  - their beliefs about the communication needs of these patients
  - what help they feel they require with different types of communication methods
  - current and ideal referral patterns to SLP
  - whether or not they were aware of SLP services for communication with nonspeaking patients

* adapted from Braun-Jenzen et al: Canadian Journal of Speech-Language Pathology 2009
### 3. How often do you use these types of communication methods with non-speaking patients?

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<th>Always/Almost always (&gt; 90%)</th>
<th>Most of the time (50-90%)</th>
<th>Sometimes (10-50%)</th>
<th>Rarely (&lt; 10%)</th>
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### 4. Please indicate how often the following is true.

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<td>Acutely ill patients feel communication is important.</td>
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SLP initiatives: nursing survey

Sample questions:

Please indicate how often the following is true.

- Acutely ill patients feel communication is important
- Quality of care goes down when I cannot understand a patient
- Nurses have the time to set up communication methods for nonspeaking patients

2- How often are each of the following individuals currently involved in establishing communication methods for non-speaking patients?

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<td>c. Nursing staff</td>
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<td>e. Respiratory therapist</td>
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<td>g. Other (specify):</td>
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SLP initiatives: nursing survey

Conclusions:
- Nurses perceive their role as key
  - they rated their involvement significantly higher than all other professionals ($F(5, 300)=22.42$, $p<0.001$).
- they agree that communicating with these patients is important but is time consuming
- they lack the time and materials to set up supplemental communication methods
SLP initiatives: nursing survey

Conclusions:

- they recognize their need for help with these methods
  - Nurses reported needing significantly less help with “yes/no questions” as compared to all other methods except “pointing” (F(5, 335)=12.96, p<0.001).
- poor overall awareness of SLP services for the nonspeaking patient could explain the lower current referral rate
  - only 32.4% of nurses were aware of the extent of SLP services for communication (χ²₁df = 8.80, p <0.01).
- SLPs could be the most helpful to the MUHC ICU nurses for supplemental methods other than yes-no questions, pointing and writing
SLP initiatives: participation in ICU multidisciplinary rounds and communication effectiveness

- Multidisciplinary rounds
  - Purpose was to increase SLP visibility and accessibility to ICU nurses and to identify patients who could benefit from SLP services
  - Assistant nurse managers, social worker, CNS, dietician, liaison nurse
- Weekly ratings by nurses
  - Airway
    - Normal, trach, partial trach/vent, trach/vent, intubated
  - Alertness
    - Normal, partial sedation, sedation, low GCS
  - Method of Communication
    - Talking, valves, mouthing/writing, boards, gesture, no method
- Communicative Effectiveness (CE) 1-5 scale
Conclusions

- Collection of data provides useful profile of our ICU patients to compare to other settings. Some examples:
  - 55% intubated; 35% normal airway
  - 49% altered LOC; 50% normal alertness
  - 36% no method; 32% gesture/mouth; 31% talk
- Profile useful for targeting referrals
  - 72 year old female, partial trach collar/partial vent, normal alertness, CM = mouthing, CE=4
    - Begin early evaluation to monitor for speaking valve
    - Evaluate effectiveness of current method of communication
Conclusions

- Inform next step in improving SLP services to ICU
  - Use information obtained from rounds on airway, alertness, method and communication effectiveness to target patients other than valve candidates:
    - Can we help improve those with CE 2-3?
      - Further support nurses, patients and families in use of certain communication methods
        - mouthing, boards, writing
    - Confirm patient satisfaction CE 4-5
Nursing inservice followup

- Inservice education
  - Passy-Muir speaking valve
  - Low tech AAC communication kit
Passy Muir Speaking Valve
Understanding Normal Speech Production

Normal anatomy of the upper airway.

Nasopharynx
Oral Pharynx
Laryngopharynx
Larynx
Vocal Cords
Cricoid Cartilage
Esophagus
Trachea
Effects of a Cuffed Tracheostomy Tube on Speech Production
Effects of Tracheostomy on Speech Production
Passy-Muir Speaking Valve
Benefits of Speaking Valve Use

Primary benefit:

- Restores oral communication (voicing)
- Eliminates need for finger occlusion
- Improved psychosocial functions and emotional status

Secondary benefits

- Improve swallow
- Manage secretions
- Expedite weaning

Speaking Valve Candidacy: All Patients

- Pt should be awake, alert, and attempting to communicate
- Adequate oral movement for speech
- Deflated or cuffless tracheostomy tube
  - Ability to tolerate cuff deflation without risk of gross aspiration of secretions or hemodynamic instability.
- Adequate airflow around tracheostomy tube; upper airway patency
  - No granuloma, stenosis, excessive secretions, too large a tracheostomy tube
Speaking Valve Candidacy: All Patients

- Voice with finger occlusion/leak speech
- Adequate secretion management
- Generally stable medical status and vital signs:
  - Oxygen saturation level
  - Respiratory rate
  - Heart rate
Speaking Valve contraindications

Ventilator Patients
- High oxygen requirements
- High tidal volumes
- High PEEP
- High pressure support
Speaking Valve Instructions

- Deflate cuff completely prior to placing the valve (if pt has cuffed tracheostomy tube). The pt will be unable to breathe if cuff is not completely deflated.
- Remove if any indication of respiratory distress:
  - Decrease in $O_2$ saturation
  - Increase in respiratory rate
  - Increase in heart rate
  - Subjective complaint of shortness of breath, chest tightness, difficulty breathing
- Remove if pt is unable to adequately clear his secretions
- Remove if pt has no voice
- Remove for any aerosol treatments
- Remove when pt is sleeping

For more information contact:
Speech-Language Pathology - local 48028
SLP initiatives: low tech AAC kit

- Definition of augmentative and alternative communication (AAC): all communication methods that supplement natural speech including unaided (signing) or aided (writing, typing, communication boards, electronic device) techniques.

- Goal of initiative: Make available to ICU nurses basic materials for low tech AAC
Content of low tech AAC kit

- Yes-no cards
- Alphabet boards (3 sizes)
- Picture boards
- Rating scales: general and for pain
- Plastic Clipboard for writing
- Information on Pocket-talker (hearing amplifier)
Content of low tech AAC kit

- Information sheets
  - General suggestions for facilitating communication in an ICU setting (sensory aids, environment, strategies)
  - General strategies to increase how well you understand patients who are mouthing words
  - Suggestions to establish a clear yes-no signal
  - Use of alphabet boards
  - Instructions for partner-assisted letter selection for eye-gaze board
Low tech AAC kit

- Choice of AAC options depends on patient’s motor ability, sensory status (vision, hearing), oral-motor skills, cognition and literacy/language skills

- Patient’s skills may be on a continuum or fluctuate so different strategies may be necessary at different points in time and the amount of support needed may vary
General suggestions for communication

- Sensory aids: glasses, hearing aids, dentures
- Minimize background noise/distractions; optimize lighting
- Get the pt’s attention: say their name, touch them gently, lock eyes
- Increase pause time and present one chunk of info at a time; simple language
Establish a clear “yes” and “no”

- Possible yes/no codes:
  - Eyes up for YES, scrunch eyes for NO
  - Thumbs up for YES, thumb in fist for NO
  - Smile for YES, pucker for NO
  - Written words for YES and NO

- Remind the pt of his yes/no codes

- Post them so that everyone uses the same ones
Low tech AAC kit: alphabet boards

- Alphabet boards (8x11, 11x14, 14x17)
- Orient the pt to the board
- Say each letter aloud to confirm choice
- Partner may guess word after a few letters and ask the pt to confirm
- May also have word/phrase boards: topics, frequent phrases (numbered for easier reference)
Low tech AAC kit: Eye-gaze letter board

- For use with the pt who is unable to point
- Letters are arranged in groupings
- Partner must watch pt’s eye movements and the direction where he is scanning
- Board in kit is 14 x17
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Low tech AAC kit: Eye-gaze letter board

- The pt first gazes at the letter group, then at the relative position of the letter.
- The partner announces each letter in the group and the pt confirms each selection by a pre-arranged yes-no signal.
- The partner summarizes the letters chosen as the patient goes on so as to not forget the selections.
- The partner may guess the word after a few letters if possible and ask the patient to confirm its accuracy.
Low tech AAC kit: Picture boards

- Multilingual Picture-Boards: CommuniKit, Trillium Health Centre, Mississauga ON
- English, French, Spanish, Italian, Chinese, Arabic, Hindi, Polish, Portuguese, Punjabi, Ukrainian, Vietnamese, Inuktitut
PATIENT COMMUNICATION CARD

- drink
- eat
- medications
- injection

- urinal
- bedpan
- brush teeth
- wash face / body

- brush / comb
- glasses
- raise bed
- lower bed

- pain
- telephone
- tissue
- bed / sleep
Low tech AAC kit

- Pain Scale*

*from Communikit Trillium Health Centre, Mississauga ON
Pain Scale

0 1 2 3 4 5 6 7 8 9 10
Low tech AAC kit

- General rating scale*

*from Communikit Trillium Health Centre, Mississauga ON
General Rating Scale

1  2  3  4  5  6  7  8  9  10

Pain Scale on Reverse
General strategies for mouthing

- Face the patient
- Tell them you need to see their teeth and tongue
- Suggest they exaggerate their mouth movements: Demonstrate
- First letter spelling/supplementation: the pt points on the alphabet board to the first letter of the word just before he says it
Case example

- 36 year old male who suffered a spinal cord injury when he dove 15 feet off a cliff into 3 feet of water while on vacation
- Underwent anterior C-spine fusion for a C5-C6 dislocation/fracture
- Referred Day 16 ICU

Profile
- Quadriplegic
- #6 LPC inflated (on ventilator)
- Normal level of consciousness
- Communication method = yes/no/mouthing, letter board with auditory scanning
Case Example

- SLP intervention:
  - Counseling to patient: slow mouthing, exaggerated articulation
  - Counseling to wife: face the patient, reviewed use of letter board including first letter plus mouthing strategy
  - Counseling in general on impact of tracheostomy on voicing and expected course
Case Example

- Day 20 # on trach collar; 6 Shiley cuff deflated
- PMSV candidacy assessed
- Inadequate upper airway patency for voicing with valve
  - Whispered voice
  - Moderate- large amount secretions, beige, thick
  - SpO2 sat 88% to 96% with suctioning; requiring frequent suctioning
  - Anxiety
- Reassess when changed to cuffless and when suctioning needs less
Case Example

- Day 27 # 6 cuffless Shiley, reduced suctioning needs
- PMSV candidacy reassessed
  - SpO2 96% HHTC 40%
  - Weak, ineffective cough
  - Weak but intelligible voice on finger occlusion
- Stable saturation 15 minute valve trial
- Subjective comfort

Recommendations:
- Supervision
  - cannot expectorate via UA
  - cannot remove independently
- 10 – 15 minutes
Case Example

- **Day 40:**
  - Back in ICU following respiratory arrest secondary to mucous plugging
  - On vent, cuff inflated, using letter board and mouthing

- **Day 47:**
  - Back on floor, cuffless trach, using speaking valve

- **Six months from onset:**
  - Secretions managed with assisted coughing, full daytime valve use
  - Tolerating 12 hours corking
  - Decannulated
  - Went to rehab
Thank you

Questions?