Development of a clinical assessment for dysarthria (N-DAT):
The development & implementation of a new assessment tool and use of E3BP.

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• In 2013 clinical question was raised:
  “Wanted to investigate what the current best practice is for assessment of dysarthria, including differential diagnosis processes”
• Group started to consider if we could challenge ourselves to consider the potential of applying EBP3 principles to this scenario
How we have engaged in E3BP

1. **Pose a question**: What the current best practice is for assessment of dysarthria, including differential diagnosis processes (2013)
2. **Search of databases**
4. **Evaluate the internal client evidence**
5. **Survey of local SPs** to evaluate **internal clinical evidence** (2013) & **Identification of “gap” in external & internal evidence** (2013)
6. **Made the decision** to develop an assessment tool/therapeutic pathway guidelines (2014)
7. **Application of quality improvement principles** to **evaluate the outcome of the decision** (2014) which will add to our internal clinical evidence
Critical Appraisal Early 2013 (step 2 & 3)

• Search criteria:
  – Publications from 1994-2013
  – Databases searched: Medline, PubMed, Up To Date, McMasters Plus, Cochrane, SpeechBITE
  – Search terms: dysarthria, Ax, differential diagnosis, motor speech disorders & adult
• General paucity of literature re Ax of dysarthria
• 10 articles critically appraised
• Majority of studies were level III & IV evidence
  – case series, comparative study with & without concurrent controls, pseudo-randomised control trial.
CAT Results (Step 3)

- Participant numbers 4 - 110
- All studies aimed to improve Ax methods/tools. No article was able to confidently propose a new & robust assessment tool/s
- A range of tools were proposed to measure motor speech intelligibility. However the auditory-perceptual rating systems did not demonstrate sufficient inter-rater reliability.
Survey (Step 5)

- A state-wide survey of 67 SPs was conducted via survey monkey
- Most accessible dysarthria Ax: Frenchay Dysarthria Assessment (n= 51) & ASSIDS (n=17)
- Most commonly used: Informal unspecified screener (n=30) & Frenchay Dysarthria Assessment (n=28)
- 47.0% formal vs 77.3% informal assessment (choice of both)
- Frequency of differential diagnosis:
  » Always: 17.7%
  » Often: 34.3%
  » Rarely: 44.8%
  » Never: 3.0%
Results

Comments

• “It is important for us as a profession to be differentially diagnosing our patients to ensure we are then managing them appropriately. I’d love an assessment tool that helps with the differential diagnosis.”

• “I like dysarthria assessment to be detailed enough that it yields the most appropriate goals & translates to what is required in therapy.”
Where to? (Step 6)

• Address the GAP and make a clinical decision about what we need to do for our clinicians and clients:

• 3 fold process:
  1. We need an assessment tool that’s flexible and easy to administer in a variety of service deliveries
  2. We need “something” to help with DD
  3. Can the tool help with therapy guidelines
Development of Tool – Integrate Findings

– Collated existing norms from textbooks & assessment tools
– Aim; to be quick to administer & adaptable to different clinical settings – meet the needs of SPs
– Contains key assessment tasks that have been found to yield better clinical information to assist with differential diagnosis processes – links back to known / current research to provide a evidence base for the tool
Development of DD Tool – Integrate Findings

- Differential diagnosis tool was also developed as an adjunct to the screening tool
  - An attempt was made to scaffold this tool in a way that leads the clinician through the differential diagnosis process in a structured manner. Eg:
    - Consider the links between dysarthria types & possible aetiologies
    - Ordered the assessment tasks in the sequential manner to assist with clinical decision making process

Click here to launch N-DAT
Quality Project

• Assessment circulation & feedback: HACI EBP Dysarthria Assessment was circulated among speech pathologists within the HNELHD

• Patient recordings: 5 recordings of patients were taken at RPC & TMH

• Inter-rater reliability: 11 SPs rated each of the 5 speech samples individually

• Analysis of data/ Conclusions/ future directions
SP Background

Years of experience:
- 5 SPS > 10 years
- 2 SPs > 5 years
- 3 SPS > 3 years
- 1 SP > 2 years

Type of caseload:
- 4 work in Inpatient Acute
- 4 work in Inpatient Rehabilitation
- 1 works in Outpatient Rehabilitation
- 2 work in Community
- 1 works in Brain Injury specific
Survey Results

• A state-wide survey of 48 SPs was conducted via Survey Select- Launched 18/02/2015- Closed 30/06/2015

• If you have used this tool, did you find it useful for differential diagnosis? Yes (100%)

• Did you find this tool more useful than other tools you previously or currently use? Yes (95%)

• Comments on what clinicians like & dislike about the tool.

• What would you change about the assessment tool?
DATA: Inter-Rater Reliability Results

• Data analysed most simply using Fleiss’ Kappa. Kappa (1 being perfect agreement): across 5 ratings was 0.11

• Detailed analysis of data: highest consensus for differential diagnosis was 5/11. Our lowest consensus was 3/11

• Mixed dysarthria: No less than 7/11 consensus on just one type of dysarthria
Other Findings

• Lower Consensus = higher level of perceived difficulty & higher intent to seek 2nd opinion
• SPs often seek 2nd opinion with differential diagnosis & this was higher when there was lower consensus on diagnosis
• Using this tool, SPs identified speech characteristics & accurately used these as a guide to differential diagnosis
Potential Conclusions

• In line with the literature, there was variability in SP differential diagnosis across 5 separate ratings
  – Unfamiliar with using comprehensive and structured Ax tool
  – Skill mix amongst clinicians
  – Fluctuating exposure to dysarthria Ax
  – Quality of recordings
  – Rating speech characteristics perceptually is SUBJECTIVE
Potential Conclusions

• There was an identified need for a dysarthria assessment to be developed (specified as per survey & literature search)

• A standardised assessment tool is warranted due to lack of inter-rater reliability among SPs when perceptually rating dysarthric speakers. Unsure of how using our tool may impact on this reliability versus another tool/ no tool.
Other Comments

• We haven’t compared the inter-rater reliability of dysarthria assessment using our tool versus something else
• Anecdotally clinicians within this working party felt their confidence & skills at comprehensively differentially diagnosing and describe dysarthria has improved
• This assessment can be readministered & used as an outcome measure
Unsurprising that inter judge reliability was low
Normative data is a strong feature, that is excellent.
Our scheme is better at identifying errors as a basis for treatment planning than for differential diagnosis. And that is not at all bad.
Shorten the number of tasks
Future Directions/ Recommendations

- Circulation of HACI Dysarthria assessment tool to wider SP population
- Use the tool to guide intervention & link it with a therapy clinical decision making tool
- Professional Development on perceptual ratings of dysarthric speakers
Comments or Questions???
THANK YOU!
References


• Baker, E., ‘What is E3BP? How do you integrate the findings from CAPs/CATs into everyday clinical practice?’ NSW Speech Pathology EBP Network Extravaganza, 2009