More than research evidence: Considering the totality of evidence when evaluating treatments

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Context

• Reflect on: decision making, treatment choices, what constitutes knowledge, scientific practice

• Strengthen the bases of our clinical decisions
Considering the totality of evidence when evaluating treatments

Part 1

Your perspectives on evidence based practice
Considering the totality of evidence when evaluating treatments

Part 2

Decision making and evidence anthologies
2 core questions

• Is this treatment scientifically based
• What is the totality of evidence regarding this treatment and how does this influence my decision making
  o in general regarding the treatment
  o regarding use of treatment in individual cases

Underpinning all: Scientific thinking and acting including retrieval of various forms of knowledge to facilitate decision making
Scientific thinking and acting

• Understanding of theory/mechanism of action
• Application of pseudoscientific/scientific criteria
• Retrieval of knowledge/evidence
• Examining sources/reliability of knowledge
• Once used- using outcome measures to validate
Would you prefer your practice be characterised like A or B?

<table>
<thead>
<tr>
<th>Based upon empirical observation</th>
<th>Based upon an authoritative text</th>
</tr>
</thead>
<tbody>
<tr>
<td>explaining a range of empirical phenomena</td>
<td>explain what non-believers cannot even observe</td>
</tr>
<tr>
<td>being empirically tested in some meaningful way</td>
<td>cannot be tested</td>
</tr>
<tr>
<td>being confirmed rather than falsified</td>
<td>falsified or to require numerous <em>ad hoc hypotheses</em></td>
</tr>
<tr>
<td>being impersonal</td>
<td>to sustain them</td>
</tr>
<tr>
<td>being dynamic and fecund skepticism</td>
<td></td>
</tr>
<tr>
<td>skepticism</td>
<td></td>
</tr>
</tbody>
</table>
Clinical decision making

Theory

Practice evidence

‘Best’ research evidence

Patient evidence

Contextual evidence

28/09/2017

McCurtin, Morgan & Roulstone, More than research evidence
Extending traditional understandings of EBP

Patient evidence

- Patients values and preferences
- Individualised clinical evidence
- Collective patient evidence

Shared decision making

McCurtin, Morgan & Roulstone, More than research evidence
Practice evidence

- Individual therapist
- Local group
- Experts
- Collective (researched) practice evidence
Contextual factors

- Resources
- Policy
- Practicalities
- Availability
- Vested interests
And.....

- Harmful effects
- Treatment benefit vs. treatment burden
  AKA minimally disruptive treatment
  (Mini-T)
Considering the totality of evidence when evaluating treatments

Evidence anthologies examples
Child Talk: a consideration of the neglected components of evidence-based practice
Child Talk: What Works

• Preschool children
• primary speech and language impairment
• Prevalent and important group
• Mixed evidence for interventions
• Poor descriptions of interventions
Evidence Based Practice

- Parent / caregiver/child preferences
- Clinical Expertise and Experience

External research
Child Talk intervention Framework

- Speech
- Expressive Communication
- Comprehension
- Self-monitoring
- Generalisation
- Foundation Skills
- Adult-child Interaction
- Adult Understanding
- Functional Communication
Initial search: 55,271

Excluded:
Duplicates: 17,372
Study design, age group, diagnosis, non-intervention: 37,752

Retained for quality appraisal: 147

PEDRo-P (n=100); SCED (n=47)

Achieved >6: PEDRo (n=22); SCED (n=36)
Total included: 58
<table>
<thead>
<tr>
<th>Theme</th>
<th>No. of studies in theme</th>
<th>Total no. of children in the studies</th>
<th>Mean (Median) number of children per-study</th>
<th>Mean Age (Range) in months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speech</td>
<td>33</td>
<td>542</td>
<td>16.4 (4.0)</td>
<td>51.6 (32.0-66.0)</td>
</tr>
<tr>
<td>Comprehension</td>
<td>6</td>
<td>135</td>
<td>22.5 (27.0)</td>
<td>40.0 (27.5-50.0)</td>
</tr>
<tr>
<td>Expressive</td>
<td>28</td>
<td>923</td>
<td>32.9 (18.0)</td>
<td>43.2 (25.0-66.0)</td>
</tr>
<tr>
<td>Self-monitoring</td>
<td>2</td>
<td>11</td>
<td>5.5 (5.5)</td>
<td>51.8 (43.0-60.0)</td>
</tr>
<tr>
<td>Generalisation</td>
<td>26</td>
<td>210</td>
<td>8.1 (3.0)</td>
<td>50.7 (35.0-66.0)</td>
</tr>
<tr>
<td>Foundation</td>
<td>4</td>
<td>59</td>
<td>14.7 (7.0)</td>
<td>44.6 (37.0-60.0)</td>
</tr>
<tr>
<td>Functional</td>
<td>5</td>
<td>82</td>
<td>16.4 (6.0)</td>
<td>48.1 (42.0-54.0)</td>
</tr>
<tr>
<td>Adult Understanding</td>
<td>1</td>
<td>4</td>
<td>-</td>
<td>57.5 (48.0-67.0)</td>
</tr>
<tr>
<td>Adult child interaction</td>
<td>9</td>
<td>1011</td>
<td>112.3 (36.0)</td>
<td>35.9 (25.0-57.5)</td>
</tr>
</tbody>
</table>
**Perspectives on therapy: speech**

**Clinician**

..one task I do is sorting objects according to umm the sounds that we're working on, so if the child has got no word final consonants, you might have a group of objects ending 's' a little house, a mouse, a purse,.. then some ending in a 't' so a cat, a tart, a boat … you have the pictorial representation and when you bring a toy out the bag I say it I say 'mouse' and they have to put the mouse on the picture…

**Parent_TEL_517:** he had the letter sounds on the cards and then he like she'd pick up a chair and she'd say to[child] what is this, it's a chair what sound do we need a ch, a s or a k and he'd have to choose what sound it was

**Parent_TEL_603:** a monkey game in which ..she’d say the word, he’d say the word and then put the monkey on if he got it correctly
Perspectives on therapy: 
adult understanding

Clinicians

They have to accept that there is a problem, they have to accept that it is not the child being lazy, it is a difficulty that they have got and they have to accept that they are the major tool of change.

Parent_TELL_521: it was like oh my god..this is like gonna be a massive part of his development that is missing. I mean I don’t know whether I just sort of thought merrily it would all happen [laughs] it’ll be fine! Um but I really appreciated that honesty, that I mean they were really supportive, and I’ve always felt that I’ve been able to just ask them something at the end of the group.

Parent_TELL_515: ..as a parent it did seem like there was more important things to concentrate on than her using the word ‘the’ and ‘is’ but like I say I don't understand the grounding behind it I guess and the reason for doing it in that particular way.

Parent_TELL_518: Well to be honest I was sort of grateful to be receiving it at all really.
Connections?

• Focus on fun, confidence building, enjoyable sessions - appreciated by parents and experienced by children
• Parents remember and can recount activities and the purposes of interventions
• Some parents found support and reassurance
• Others experienced uncertainty and passivity
Child Talk Intervention Typology

- Speech
- Expressive Communication
- Comprehension
- Self-monitoring
- Generalisation
- Foundation Skills
- Adult-child Interaction
- Adult Understanding
- Functional Communication
Dysphagia: Thickened liquids

BACKGROUND

• Limited research evidence/ negative patient evidence/favourable practice evidence
• Development of decision support tool
• Investigation of how different forms of knowledge/evidence impact the decision to use treatment
Dysphagia: Thickened liquids

Forms of knowledge included in decision support tool

1. Treatment description
2. Theory/mechanism of action
3. Research evidence
4. Practice evidence
5. Patient evidence
6. Contextual evidence

Retrieval of knowledge

- Rigour irrespective of type
- Combination of systematic reviews, focus groups, semi-structured interviews, paper reviews
- Saturation
The aim of this treatment is to help reduce and prevent liquid going into the lungs. It does this by making liquid thicker which slows down the liquid as it moves through the mouth and throat.
There is some emerging evidence that use of TL reduces aspiration in people with dysphagia (Newman et al 2016, Steele et al 2015 etc).

There is insufficient high-level evidence that it prevents unfavourable outcomes such as aspiration pneumonia (Kaneoka et al 2016).

Most clinical guidelines say that thickeners are a suitable form of treatment for patients with dysphagia as a result of stroke (but this is not based on strong evidence) (Ryan et al in press).

Using thickened liquids resulted in increased risk of dehydration.

Using thickened liquids increased the risk of some liquid remaining in the throat.

Using thickened liquids resulted in the tongue having to work harder in the mouth.

And (based on multiple reviews…)

So this information is added to knowledge bank….
What is your response to this knowledge: – how might this impact decision making

- Limited
- Inconsistent
- Limited control, cross sectional studies
- Application to specific populations
- Side effects
- Clinical Practice Guidelines

Reading in depth rather than surface

McCurtin, Morgan & Roulstone, More than research evidence
A well established dysphagia treatment – alternative options for aspiration less employed (McCurtin & Healy 2017), Nurray et al 2014

78% of dysphagia therapists and 97% of SLTs working with PWD post stroke use TL (McCurtin & Healy 2017, Jones et al 2017)

Ranked in top three dysphagia interventions and 85% of SLTs regard it as effective (Garcia et al 2005, McCurtin & Healy 2017)

To supplement above and extrapolate decision making. (McCurtin et al in press)...

A safe starting point

Patients and the product

Factors in the acute context

So this information is added to knowledge bank....
**Table 5. Core reasons underpinning use of Thickened liquids (TL)**

(McCurtin et al in press)

<table>
<thead>
<tr>
<th>Reason</th>
<th>Explanation for use</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Comparison-based</strong></td>
<td>TL is the best treatment available currently for managing aspiration.</td>
</tr>
<tr>
<td></td>
<td>There are no other viable options.</td>
</tr>
<tr>
<td><strong>Safety</strong></td>
<td>TL targets safety which is an SLT priority when managing the dysphagic patient.</td>
</tr>
<tr>
<td></td>
<td>TL is a starter treatment which should only to be used short-term until patient improves sufficiently and other compensatory and rehabilitatory interventions can be incorporated into management of the people with dysphagia.</td>
</tr>
<tr>
<td><strong>Oral intake</strong></td>
<td>TL aligns with neuroplasticity principles:</td>
</tr>
<tr>
<td></td>
<td>Oral intake even if thickened, is encouraging oral and swallow skill rehabilitation.</td>
</tr>
<tr>
<td></td>
<td>Patients are getting some nutrition orally which maintains the oral route and helps normalise eating and drinking.</td>
</tr>
<tr>
<td><strong>Hydration</strong></td>
<td>Hydration can be supported and achieved by offering thickened drinks.</td>
</tr>
<tr>
<td><strong>Ease of use &amp; familiarity</strong></td>
<td>TL is an easy treatment to implement especially when other staff have been educated about it.</td>
</tr>
<tr>
<td></td>
<td>It compares well to other treatment options in this way.</td>
</tr>
<tr>
<td></td>
<td>Staff are familiar with it and accepting of it on the whole.</td>
</tr>
</tbody>
</table>
What is your response to this knowledge: How might it influence decision making

- Individual SLT
- Local group
- Professional culture
- Contradictions
- Experts

e.g. ↓

| TL is a treatment of choice of SLTs. | SLTs know people with dysphagia don’t like TL. |
75% of patients so not like TL (McQueen et al. 2003)

PWD would prefer to risk pneumonia and use other techniques than use TL (Logemann et al. 2008)

Other patients and health profession would prefer to sacrifice years of their life than use TL (Lim et al. 2016)

To retrieve stroke specific patient evidence (McCurtin et al. 2017)...

Uncertainty

An unpleasant experience

A trade off

So this information is added to knowledge bank....
What is your response to this knowledge: – how might this impact decision making

Individual patient

Impairment

Support

Research
If a patient with stroke gets pneumonia from aspiration while in hospital, this results in longer hospital stays, increased cost, greater disability and poor nutrition while in hospital.

Thickeners are currently available on the GMS and community drug schemes. The drugs refund scheme does not cover them. A tin costs around €9.

One in ten patients are not able to open thickener packages and therefore drink independently.

One in four patients feel they are not offered enough fluid when in hospital and a third believe their fluid consumption is not monitored enough when in hospital.

Nearly half of therapists say that hospital staff are not routinely trained in how to thicken fluids.

Even therapists who prescribe this treatment are not reliably able to reproduce accurate consistencies when mixing thickened drinks.

Sometimes thickened drinks are not drunk immediately or quickly enough and thickener can dissolve and not be as effective.

If a patient with stroke gets pneumonia from aspiration while in hospital, this results in longer hospital stays, increased cost, greater disability and poor nutrition while in hospital.
What's your response to this knowledge: – how might this impact decision making

Have you asked yourself how these factors might influence your treatment decisions.....

Ease of use

Vested interests

Training

Monitoring
Finally……..

• Ask yourself how you weight the various types of knowledge/evidence

• Do you know the bases of most clinical decisions irrespective of discipline?
Considering the totality of evidence when evaluating treatments

Part 4

Applications to your SLT practice
Make sure you are sitting at a table with SLTs who have similar areas of interest/practice

• In your group, agree a specific intervention for discussion/analysis

• Describe the treatment
• describe its method – mechanism of action
• its theoretical basis
• the parameters for determining candidacy for tx
• the results or outcomes of efficacy research
• criteria for evaluation of the methods
• the remaining questions to be answered

Creaghead 1999
Knowledge identification

• Identify all the forms of knowledge/evidence you need to help clinical and shared decision making

• Populate each form of knowledge with content
Now ask the following:

• What evidence supports its use?
• Is the evidence reliable? (What are your rules for evidence / knowledge when judging therapies?)
• What evidence / knowledge gaps exist?
• How do you/others plug the gaps?
• What does the combined evidence say about this therapy?
• Now answer this question – why do you think SLTs use this treatment?

• Is this an “evidence based” treatment?
Considering the totality of evidence when evaluating treatments

EBP challenges for SLTs and ways forward
EBP challenges for SLT's and ways forward

- Gaps in research evidence
- Marrying practice and research
- 'belief is not enough'
- Plugging gaps
Creating evidence

• Collective
• Building individual patient evidence e.g. Measuring progress and using outcomes
• Acting scientifically
Using evidence based resources
ASHA ‘Evidence maps, www.ncemaps.org,
Speech Pathology Australia Speech BITE http://www.speechbite.com
Patient perspective PROMS http://phi.uhce.ox.ac.uk/home.php
#PROMS2017
Learning outcomes

KEY OUTCOMES – did you………

• Engage with the concept of totality of evidence

• Learn about how scientific principles and rigour apply to all forms of evidence/knowledge

• Using exemplars, consider how the totality of evidence can facilitate comprehensive engagement with and understanding of treatments