Results of a universal screen for fluency for 4-5 year-olds
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Further reasons for better provision for early intervention (reach more children)

- Research findings were showing that there was more stuttering than thought hitherto.
- Conventionally 5%, but Reilly, Yairi and Ambrose (2013) put at 10% or higher.
- Together with Bercow, seemed like should be an increase in call for service provision

Funded by the Dominic Barker Trust

Bercow report (2008)

- Optimism when Bercow consultation and report were commissioned.
- Emphasis on need for early intervention

<table>
<thead>
<tr>
<th>Stuttering incidence</th>
<th>Case load at assessment</th>
<th>Case load intervention (50%)</th>
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<tbody>
<tr>
<td>5%</td>
<td>40</td>
<td>SLT1 20</td>
</tr>
<tr>
<td>10%</td>
<td>40</td>
<td>SLT2 20</td>
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<tr>
<td>10%</td>
<td>40</td>
<td>SLT3 20</td>
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<tr>
<td>10%</td>
<td>40</td>
<td>SLT4 20</td>
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<tr>
<td>10%</td>
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<td>SLT5 20</td>
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<td>10%</td>
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<td>SLT6 20</td>
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<td>10%</td>
<td>40</td>
<td>SLT7 20</td>
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<tr>
<td>10%</td>
<td>40</td>
<td>SLT8 20</td>
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<tr>
<td>10%</td>
<td>40</td>
<td>SLT9 20</td>
</tr>
<tr>
<td>10%</td>
<td>40</td>
<td>SLT10 20</td>
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Instead, pediatric services being cut (BSA)

Initial situation
One thing that happened (increase in case load)

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25% increase in assessment and intervention case loads

Another thing that happened (reduction in services offered)

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<td></td>
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25% less assessment and early intervention offered

Three things to focus on:

Established the Better Communication Research Programme (BCRP)

Recommended that it is important that “the appropriate Universal services are available in schools which include a substantive proportion of children from socially disadvantaged backgrounds and that children’s performance in such schools is closely monitored to ensure that Targeted interventions to promote oral language and literacy are in place when needed.”

Actions post Bercow

• BCRP, recommendations (accepted), universal provision, avoid disadvantage, oral/literacy separated.

• Being serviced in some domains: Language and communication problems that do not directly affect speech.

• These have been delivered in a way that has high chance of adoption (they have external validity for schools).

Examples

• Language link – fits the external validity bill - language exercises.

• Similarly test batteries for SLI and dyslexia.

• Nothing currently available (with or without external validity) to identify stuttering (BSA) or any disorder that affects speech sounds (SSD).
A reason why need early identification of SSD
(Merton as an example).

SSD and stuttering in particular (a type of SSD) have been neglected re literacy and numeracy

• SSD – early so don’t miss sensitive period.
• Waring and Knight (2012) reviewed SSD. Schools do not have routine procedures for dealing with children who have SSD.
• Waring and Knight did not consider stuttering.
• Stuttering – ECSF, S = fluency is a specialization. Separate from other SSD?
• BSA have noted lack of work on stuttering in schools.

Quiz – identification, SLT perspective
1. Is it preferable to use an audio or audio-visual recording to identify stuttering?
2. Do you agree that a short sample of one type of speech is sufficient for identifying whether a child is fluent?
3. Would you include whole-word repetitions when assessing a child’s fluency?
4. Do you think it is necessary to assess fluency in the first language of a child whose native language is not English?
5. Which of the children illustrated on the following slides are causes for concern?

Exceptions (where there has been work on stuttering in the UK)

• MPC video to inform teachers/parents/other stakeholders what is stuttering.
• Hayhow and others looked at intervention for stuttering/Lidcombe. However, bemoaned poor access to intervention data from clinics outside their group.

Q 5: When is a speech disorder seen as a serious difficulty to schools? Three real cases of stuttering?

Child 2 – Davis et al. (2002). Went to schools where one class had a child who stuttered (wanted to see social impact in school). Schools often were not aware that the child we asked about stuttered.
Q 5: When is a speech disorder seen as a serious difficulty to schools? Three real cases of stuttering?

Child 3 – Tudor et al. (2013) study on whether children who stutter show PTSD symptoms. One report: “The whole class laughed. I think that’s the image that sticks...the teacher finding it funny and...the whole class finding it funny.”

Better coordination – school perspective

- What schools want and could do.
- The impact SLT has on behavioural and academic achievement. Ensure child welfare.
- Nelson et al (2008) systematic review showed that there had been very little attention (75% of 8 issues returned no literature) to such issues for SSD in general.
- How does this affect their answers in the quiz?

Quiz – identification, school perspective

1. Is it preferable to use an audio or audio-visual recording to identify stuttering? Audio (welfare)
2. Do you agree that a short sample of one type of speech is sufficient for identifying whether a child is fluent? Yes – what they want
3. Would you include whole-word repetitions when assessing a child’s fluency? Evidence schools ignore WWR when assessing fluency (below)
4. Do you think it is necessary to assess fluency in the first language of a child whose native language is not English? Assess in English
Quiz – identification, school perspective
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4. Do you think it is necessary to assess fluency in the first language of a child whose native language is not English? Assess in English
5. Which of the children illustrated on the preceding slides are causes for concern? None – no evidence education affected

Q3 Who are schools referring (our 4-5 y.o. school data)?
- When 3% fluency threshold (Yairi & Ambrose, 2004) was applied to WWR symptoms alone, 28.6% of EAL children were classified as not fluent (only 9% of English children).
- Referral by schools – they do not refer more than 3 times as many (28.6/9 = 3.18) EAL children compared to English children for SLT.
- Schools are discounting high rates of WWR in EAL children when deciding about referrals (attributing them to WFD).

How do we know schools are not counting WWR as stutters (Q3)? There are a lot of EAL children

<table>
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<tr>
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<th>Percentage</th>
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<tr>
<td>English or Welsh</td>
<td>44%</td>
</tr>
<tr>
<td>Tamil</td>
<td>4%</td>
</tr>
<tr>
<td>Polish</td>
<td>5%</td>
</tr>
<tr>
<td>Urdu</td>
<td>9%</td>
</tr>
<tr>
<td>Afghani</td>
<td>3.0%</td>
</tr>
<tr>
<td>Burmese</td>
<td>15.0%</td>
</tr>
<tr>
<td>Other</td>
<td>25.1%</td>
</tr>
</tbody>
</table>

Teachers and SENCOs largely being left to own devices.
- Need to provide something to schools so they can deal with stuttering and other SSD more objectively and consistently at early ages and not make arbitrary and potentially risky decisions (e.g. WWR not a problem in EAL children).
- Bercow separates identification (we suggest school) and intervention (SLT works as at present, but needs better coordination with schools).

Q3 EAL children show high rates of WWR
- Reason there are many WWR is that may be reflection of word-finding difficulty (WFD)
- WWR becomes less frequent when fluency improves in EAL children (Hilton, 2008).

Teachers and SENCOs largely being left to own devices (continued).
- Recognize the practical issues raised – short test and not an SLT assessment (would be costly and not efficient to assess all children this way).
- Needs to have external validity for schools as well as SLTs and be universally applicable (cf BCRP quote and remember high % EAL).
How to get the process of identifying stuttering and SSD started

- Need an instrument that is available now that has been standardized.

- If take off the shelf, not likely to be perfect. Has to allow scope for revision.

- Has to address universal service provision (Bercow referred to ‘postcode lottery’, but applies to EAL children too).

- Meet requirements of all parties – school - practical and welfare of child; SLT - service provision; both - coordination.

What we did (phase one)

- Used SSI-3. Instrument that assesses speech symptoms. We recognize its limitations (allows to get started, will revise/retain features - discussed later).

- Obtain an SSI-3 according to the rules.

- Task all children can do and procedure has external validity for schools (including when applied to EAL children).

- Most children are fluent. SSI-3 has a short-form (one sample, 200 syllables and don’t transcribe). Threshold – pass/no pass, phase one.

How needs to work in schools

- Phase two. Further assessments made if a child does not pass:
  Transcriptions of whole 10-minute sample – validate, establish symptoms for other SSD, information for training and ASR packages.
  Make the same stuttering symptom counts as in SSI-3 (phase one).
  Count WWR separately (avoids EAL problem)
  Extended symptom sets for those specific to other SSD.
  Together these provide information for defining new symptom set.

Details of screen (year one)

- Screened 584 children (Male= 261, Female= 243). All aged 4-5 years (UK Reception class).

- SSI-3 threshold used as cutoff to select children as “at-risk” of SSD.
Check whether EAL children are disadvantaged

- Assessment in English is the only practical solution (schools insist). Work is ongoing about whether this disadvantages EAL children.

- EAL children may have word finding difficulty (problems in word retrieval and execution) in English, which is not necessarily linked to SSD.

- Were there more children from the EAL group that were being selected as being “at-risk” of SSD than native children? No - $X^2(1, N = 504) = 0.048, p = .83$.

Symptoms of types of SSD other than stuttering and WWR

- Obtained from systematic reviews, expert knowledge repositories

Second phase. Other SSD being targeted.

- SSI-4 (stuttering).
- Whole-word repetition.
- PDis (production disorder).
- HL (hearing loss).
- PDel (phonological delay).

Symptoms of types of SSD other than stuttering and WWR (cont’d)

Phonological disorder:
- intrusive consonant;
- vowel distortion;
- backing;
- denasalization;
- sound preference substitution;
- initial consonant deletion;
- medial consonant deletion

Symptoms of types of SSD other than stuttering and WWR (cont’d)

Hearing loss:
- hypernasality;
- hyponasality;
- voicing error;
- reduced manner contrasts;
- voice quality;
- atypical loudness level;
- atypical intonation;
- addition of syllables.
Symptoms of types of SSD other than stuttering and WWR (cont’d)

Phonological delay for 4-5 year olds:
• cluster reduction;
• weak syllable deletion;
• voicing;
• final consonant deletion;
• denasalization

SFS Scoring
• All children’s data are uploaded into SFS files.
• We use Speech Filing System (SFS) to score in detail each child above the SSI-4 score 16 cutoff

Discriminant function classification results in phase two
• Discriminant function analysis:
• fluent vs any SSD 89.3% correct;
• into types of SSD 85.7%.
• Next slide – classification when individual symptoms not grouped that allows symptoms to be automatically selected to do the best job.
Conclusions and next steps

- Screen is proving successful in identifying children who stutter and those with other SSD
- Need to see how works in areas with other demographics (Suffolk)
- Need a short-form can be used in schools by teachers and SENCos
- Have to tackle EAL children (big task). Bercow equity of access

Conclusions and next steps (continued)

- We are working on identification, not intervention.
- There needs to be some attention paid to how our work coordinates with that in clinics (topic submitted to ODC)

What the screen achieved

- Separation of identification and intervention (Bercow)
- Simple and short in first instance
- Not disruptive to school work
- Meets school requirements (audio)
- Objective/scientific basis