Language development

Dr Sue Kermond
Centre for Community Child Health
With thanks to Jill Sewell, Ruth Nicholls, Valerie Sung & Kerryn Saunders
Learning objectives

• Understand language development and approaches to assessment

• Describe speech and language problems by presenting features and symptoms

• Understand natural history of language delay - distinguish delay and disorder

• Understand use, strengths and weaknesses of Renfrew Action Picture Test and other screening tools

• Integrate above concepts in clinical assessment and prediction of outcome
Session outline

• Natural history of language development
• Language delay / disorder
  • Causes
  • Features on history/examination
  • Investigations
• Tools for language assessment
• Outcome
• Management
Case...
Patrick 2 yrs

- “My 2 year-old is not talking”
- Babbling in 1<sup>st</sup> year
- First words from 18 months
- Currently ? 10 single words
  - Mama, dada, ball...
- No phrases
- Seems to understand
Patrick 2 yrs

• How does he communicate?
  • Takes parent by the hand
  • Points
  • ? Shared attention
  • Gets frustrated ++, tantrums ++
Patrick 2 yrs

- Play / social
  - “very affectionate”, loves cuddles
  - But slow to warm up with others
  - Symbolic play
  - Doesn’t attend childcare
  - ? Play with other children
  - Likes routines
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‘Language’

- socially shared code
- system of arbitrary verbal symbols & rule-governed combinations
- to communicate ideas, convey meaning and influence the behavior of others
- variety of contexts

Aspects of Language (Bloom & Lahey, 1978)

- Form
  - Syntax
  - Morphology
  - Phonology

- Content

- Semantics

- Use
- Pragmatics
Features on history
Hx of language development

<table>
<thead>
<tr>
<th>0-12 months</th>
<th>1-2 years</th>
<th>2-3 years</th>
<th>3-4 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>babbling</td>
<td>speech sounds</td>
<td>intelligible speech</td>
<td>6+ word sentences</td>
</tr>
<tr>
<td>eye-gaze</td>
<td>vocabulary (50-300 words)</td>
<td>vocab growth (~1000 words)</td>
<td>conversationalists</td>
</tr>
<tr>
<td>positive affect</td>
<td>social games</td>
<td>sentences contain grammar</td>
<td>pre-literacy skills</td>
</tr>
<tr>
<td>1-2 words</td>
<td>emerging word combinations</td>
<td>pragmatic skills (social language)</td>
<td>grammar includes tense</td>
</tr>
<tr>
<td></td>
<td></td>
<td>questions-what &amp; who</td>
<td>concepts of time</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>storytelling abilities</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>questions-how &amp; why</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>answers questions</td>
</tr>
</tbody>
</table>
Features on Hx: First Words:
Development of Expressive Vocabulary

<table>
<thead>
<tr>
<th>Age</th>
<th>Average number of words</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 months</td>
<td>~ 2 words + mummy &amp; daddy</td>
</tr>
<tr>
<td>18 months</td>
<td>10-50 words</td>
</tr>
<tr>
<td>2 years</td>
<td>300 words</td>
</tr>
<tr>
<td>2;6 years</td>
<td>450 words</td>
</tr>
<tr>
<td>3 years</td>
<td>1000 words</td>
</tr>
<tr>
<td>4 years</td>
<td>2000 words</td>
</tr>
<tr>
<td>5 years</td>
<td>6000+ words</td>
</tr>
<tr>
<td>17 years</td>
<td>36 000 to 136 000 words</td>
</tr>
</tbody>
</table>
Language skills at school entry

- Large varied vocabulary, clear speech
- Complex sentences, interactive, generates stories
- Understand abstract questions, requests, concepts eg time, space
- Follow rules of conversation
- Recognise some letters, sounds
- Know that print has meaning
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Language Delay/Disorder

25% 14-19% 5-8%
12mth 2yr 4yr

Late bloomers?
‘Late Talkers’

• Early language delay (2-3 years of age)

• Delayed language acquisition compared with apparent typical development in other areas
  • primarily expressive delay

• By 24 months, late talkers have ~20 words in their expressive vocabulary
  • typically-developing peers have approx. 200 words
‘Late Talkers’

• Diagnostic criteria at 24 months
  • <50 words in expressive vocabulary, and/or
  • demonstrate no word combinations (i.e., no 2-word utterances)

• Estimated prevalence rate at 24 months
  • 10-15% (Rescorla, 1989; Rescorla et al., 1993)
  • 13% (Zubrick, Taylor, Rice & Slegers, 2007)
  • 20% (Reilly et al, 2007)
‘Late Talkers’ & Spontaneous Recovery

• Prevalence *generally decreases with age*

• Early language problems *may spontaneously resolve* over time

• Many children *(but not all)* get better
  ~ 24 - 79% of 2 yo LTs spontaneously improve by 3yo *(Rescorla et al, 1997)*

  ~ may resolve without treatment b/w 2-3 yo *(Law et al., 1998)*
‘Late Talkers’
& Spontaneous Recovery

Local findings: The ‘ELVS’ Study
(Reilly et al., 2006; 2007)

- 2yo: 19.7% classified as late-talkers:
  59.7% were then ‘typical’ by 4YO
  40.3% with ‘low language’ by 4YO
    (<-1.25 SD on CELF-P)
Causes of language delay

- Developmental language disorder
  - Isolated expressive delay
  - Mixed expressive receptive
  - Oral motor problems
  - Receptive worse than expressive (unusual and more difficult to diagnose)
- Dyspraxia (disorder rather than delay)
- Family history 33%
Causes of language delay

- Global developmental delay
- Autism spectrum disorder
- Hearing loss
- Other:
  - Neurological / epilepsy
  - Behavioural (elective mutism)
  - Environmental deprivation
Speech disorders

• Articulation problems (unable to make certain sounds)
• Stuttering

Both of these can be within age expected norms
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Features on history

• Current language
• Development of language
• Understanding of language (?context)
• Regression
• Echolalia vs spontaneous speech
• ?Words used to communicate
• Non verbal communication
• Oro motor function
Features on history

Features of a more generalized problem

• Gross motor
• Fine motor
• Social
• Self help

Features of autism

• Abnormal play
• Obsessions, repetitive interests or behavior
• Motor mannerisms
• Sensory processing difficulties
Features on history

• Family history cluster
  • Language delay
  • Stutter
  • Autism / Asperger’s
  • Epilepsy
  • Learning difficulties

• Social context
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Investigations?

• Audiology

Only if features of wider developmental concerns:

• Molecular karyotype, fragile X, TFT, CK
• Cognitive assessment (?what age, especially consider if receptive language delay)
• EEG
• MRI
Investigations?

- Indications for EEG
  - Language regression or fluctuation
  - Motor seizures, febrile convulsions
  - Severity of language delay
  - Poor progression with speech therapy
  - Family history of epilepsy
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Tools for Language Assessment

• Parent Report Instruments

• Screening Assessments

• Standardised Language Assessment (referral to a speech pathologist is required)
Parent Report Instruments

• Parents are very accurate in reporting on *current and emerging behaviours* as opposed to giving *retrospective* accounts of developmental milestones.

• Accuracy is greater with a *checklist format* rather than a *free-response* or *diary* method.

• Receptive language hard to assess on parental report.

• For bilingual families you want information in best language.
Parent Report Instruments

- MacArthur-Bates Communicative Development Inventories (CDIs)
- Communication & Symbolic Behaviour Scales (CSBS) – Infant/Toddler Checklist
- Ages and Stages Questionnaire (ASQ)
- Receptive-Expressive Emergent Language Scale (REEL-3)
- Brigance Infant Toddler Screen (BITS)
- Ward Infant Language Screen
MacArthur-Bates Communicative Development Inventories (CDIs)

2 forms, covering 8-30 months of age

- **Words & Gestures form** (8-16 months)
  - Phrases Understood, Vocabulary Comprehension, Vocabulary Production and Gestures

- **Words & Sentences form** (16-30 months)
  - Vocabulary Production, Word Forms, Sentence Length and Sentence Complexity
Screening Assessments

Renfrew Language Scales (3-8yrs)
Catherine Renfrew (1998)

- **Renfrew Action Picture Test**
  - Grammar & informational content in short sentences

- **The Bus Story Narrative Test**
  - Grammar, information provided & sentence length when retelling a story

- **Word Finding Vocabulary Test**
  - Examines how accurately pictures of objects can be named
Renfrew Action Picture Test

• Short, easily administered and scored screening tool for expressive language and semantic skills

• Does not provide information about:
  • receptive language
  • pragmatics
  • complex language/syntax
  • spontaneous language use
  • ability to move from oral to written language
Standardised Language Assessment Batteries

• Differentiating language delay from language impairment

• Standardised Testing
  ~ Clinical Evaluation of Language Fundamentals (CELF-4)
  ~ Preschool Language Scale (PLS-4)
  ~ Test of Language Development (TOLD)
  ~ Test of Adolescent Language (TOAL)

Note: video for selective mutism
Clinical Evaluation of Language Fundamentals (CELF-Preschool & CELF-4)

- **Age Range:** 3;0 – 6;11 years and 5;0 – 21;0 years
- **Time:** 30 – 60 minutes

- Initial diagnosis of the language disorder:
  - Core, Receptive & Expressive Language Index Standard Scores
  - Normative Mean = 100, S.D/ = 15 (typical range: 85-115)

- Determine nature of the language disorder & individual language strengths and weakness:
  - Language Structure, Language Content, Language Memory, and Working Memory Index Scores.
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- 14-19% by 2yr
- 5-8% by 4yr

Late bloomers?
Longer-Term Consequences of Early Language Delay

- Early LD is a powerful predictor of later language/learning problems

- Early LD associated with:
  - poorer literacy, learning & education outcomes
  - effects classroom performance & school achievement (poorer grades)
  - difficulties in social use of language
  - impaired peer interactions & peer acceptance
  - social, emotional & behavioural problems
  - mental health morbidity
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Management of language disorder/delay

- Involvement of family & services
  - Childcare, kinder, school
- Appropriate referrals
  - Speech
  - Other allied health
- Financial support / funding access
  - Carers allowance (?eligible)
  - Medicare plans (EPC from GP)
  - Funding for school (aide if ID or severe language impairment with critical educational needs)
  - FaHSCIA funding
Speech therapy services

- **Community** (preschool, waiting lists, group vs individual)
- **Private** (EPC from GP)
- **Early intervention** (more than one area of concern, case mx model, waiting list)
- **School** (DOE and CEO)
- **FaHSCIA funding** (ASD only)
References


www.speechpathologyaustralia.org.au