1 Comprehensive Phonological Assessment

- Connected/Conversational Speech Sampling
- Single Word or Citation Form Sampling
- Stimulability Testing
- Contextual Testing
- Error Pattern Identification
- Intelligibility Rating
- Severity Rating

2 Connected/Conversational Speech Sampling

- Rationale: natural, spontaneous observation of child's speech
- Considered valid and representative
- Limitation – poor speech intelligibility precludes transcribing the child's speech for relational analysis
  - i.e., difficult to determine the gloss
- Elicitation varies – speaking, reading aloud, story retelling, delayed imitation for sentences, etc.
- Audio recording is important

3 Single-Word/Citation Form Sampling

- Rationale: single word is an identifiable unit that is easily transcribed
- Transcribe the whole word
- Positive correlation between information obtained in single-word transcription and productions from spontaneous speech
- Limitation – contextual/coarticulation information is lost
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4 Eliciting Single-Word Productions

- Typically involves administering an articulation test
  - Child names pictures (objects for young children)
  - Sample consonants (initial, medial, final positions), clusters, sometimes vowels and diphthongs
  - Spontaneous preferred, but sometimes imitative (mixed research findings regarding differences)

5 Limitations of Single-Word Tests

- Test has predetermined vocabulary rather than child's own words
  - Word familiarity affects production
- Stimuli Factors
  - Multisyllabic words are mixed with monosyllabic words
  - Syllable shape and stress affect production
  - Are stimuli representative of different parts of speech (nouns, verbs, adjectives, etc.)?
- Tests often elicit one word per consonant per word position
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6 Stimulability

- Sampling the child's ability to repeat the correct form with stimulation
- Elicit in isolation; initial, medial, and final positions in syllables; all positions of words (p. 202, BBF 2009)
- Goldman-Fristoe includes a stimulability subtest
- Stimulability suggests more rapid progress in treatment, also a factor in generalization
- Poor stimulability suggests children will not correct errors without intervention

7 Contextual Testing

- Rationale: determine consistency of error patterns and/or existence of facilitating contexts
- McDonald Deep Test
  - Assess productions in varying contexts
- Secord Contextual Articulation Tests (S-CAT)

- Use of connected sample to evaluate contextual factors
  - Occasionally clusters will prove to be facilitating
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8 **Error Pattern Identification**
- Rationale: Phonological process analysis is used to determine patterns for multiple errors; idea that children's errors are systematic
- Elicitation can be single-word tests or connected speech samples
- Also effective for organizing treatment
- Examples: APP-R (Hodson), KLPA-2, Bernthal and Bankson, Smit and Hand
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9 **Considerations when Selecting Phonological Tests**
- How representative is the sample?
  - Sounds (consonants, clusters, vowels, etc.), number of contexts, level of unit (words, syllables, conversation), elicitation (picture naming, imitative versus spontaneous)
- What materials are used?
  - Attractiveness, portability, developmental level, organization and ease of use for forms
- Scoring and Analysis?
  - Articulation versus phonological analysis; ability to provide a standard score for age/gender

10 **Published Phonological Assessment Procedures**
- See Table 5.3, p. 230 in BBF 2009

11 **Transcription and Scoring**
- Two-way scoring – correct versus incorrect determination, not adequate detail if doing a phonological analysis
- Whole-word transcription is recommended, with or without diacritics as needed
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12 **Collecting Speech Data**
- Hearing screening
- Oral mechanism examination
- Spontaneous speech sample
- Phonetic/Phonemic/Syllable Inventories
- Speech tests
- Stimulability
- Intelligibility judgments/measurements
- Auditory discrimination testing
- Language screening/assessment

13 **Dentition**
- Occlusion
  - First molars should be in contact with one another
  - Upper incisors protrude about ¼ inch in front of lower teeth and cover about a third of the lower incisors
- Again, caution regarding cause/effect of dentition and articulation
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14 **Hard Palate**
- Normal coloration is pink/white
- Blue tint at midline suggests need to investigate bony framework (blue tint lateral of midline is normal)
- If suspect submucous cleft, palpate the midline mucuous membrane at the most posterior portion of the hard palate
- Height of the palatal vault is unrelated to speech problems

15 **Velopharyngeal region**
- See pages 227-228 in Bernthal Bankson

- Gagging is only recommended in rare instances
  - Velopharyngeal function for gagging is not directly correlated with velopharyngeal function for speech
  - Useful primarily if paralysis is suspected (adult patients)

16 **Tongue**

- Tongue movements for nonspeech activities are minimally related to tongue movements for speech activities, except when gross motor problems are suspected
- Diadochokinesis

17 **Phonological Process Analysis**

- See BBF 209, pp. 226-229
- Metathesis
- Coalescence
- Vocalization = Vowelization
- Process ordering – p. 229 under multiple pattern occurrence
- Sound preferences

18 **Phonological Processes for Vowel Errors**

- Vowel backing - front to back, but same height
- Vowel fronting - back to front, same height
- Centralization - front or back vowel becomes central
- Decentralization - central vowel become front or back
- Vowel raising - front or back vowel is replaced with higher tongue position
- Vowel lowering - front or back vowel is substituted with lower vowel

19 **Phonological Processes for Vowel Errors**

- Diphthongization - monophthong becomes diphthong
- Monophthongization - diphthong becomes a monophthong
- Complete Vowel Harmony - both vowels in word produced the same
- Tenseness Harmony - lax vowel becomes tense when there is another tense vowel
- Height Vowel Harmony - change in tongue height due to influence of another vowel

20 **Intelligibility**

- Judgment by clinician about how much of the utterance can be understood
- Typically subjective, perceptual judgment
- Open-set word identification - calculate the percentage of intelligible words from a speech sample
  - SALT computer program does this
- Closed-set word identification – listener identifies words read from a list
- Rating Scale

21 **Intelligibility Judgments (Fudala & Reynolds, 1994 as cited in Bauman-Wangler)**

Level 6: Sound errors are occasionally noticed in continuous speech
Level 5: Speech is intelligible, although noticeably in error
Level 4: Speech is intelligible with careful listening
Level 3: Speech intelligibility is difficult
Level 2: Speech is usually unintelligible
Level 1: Speech is unintelligible

22 **Factors that Affect Intelligibility**

- Loss of phonemic contrasts (see p. 248 BBF 2009)
  - Homonymy
- Degree of difference between the target and the production
- Consistency of the error production
- Frequency of errors overall
- Familiarity of the listener with child's productions
- Communicative context

23 **Estimating Severity - Hodson & Paden (1991)**

For children between 3 and 8 years:
Profound: Extensive omissions, Some substitutions
Severe: Extensive substitutions, some omissions
Moderate: Some deviations from mild and severe categories
Mild: Sibilant distortions, Minimal shifts place/manner
Acceptable: Utterance-final devoicing, Regional/cultural/dialectal variations

24 **Severity Measures - Percentage of Consonants Correct (PCC)**

- 5-10 min. conversational sample, tape-recorded
- using intell. words only, count the # of consonants produced correctly
- # correct/total # consonants X 100 = PCC
- Interpretation:
  - >90% correct = mild
  - 65-85% = mild-moderate
  - 50-65% = moderate-severe
  - <50% = severe