I. INTRODUCTION

BIRTH TO THREE: A period of rapid and profound change

GOALS FOR THIS SESSION:
1. To compare and contrast the communication development of infants and toddlers who are developing normally and atypically.
2. To identify the underlying cognitive, social, motor, and perceptual developments that prepare infants for learning language.
3. To apply language research and theory to pre-linguistic and linguistic assessment and intervention in a practical setting.

HOW MUCH DO PARENTS KNOW?
- Babies are learning from the moment they are born.
- Parents’ emotional closeness with their baby can strongly influence the child’s language development.
- The things a child experiences before the age of 3 will greatly influence his/her ability to do well in school.
- The more stimulation babies receive by holding and talking to them, the more you spoil them.
- A baby can’t communicate much until he/she is able to speak at least a few words.
- The average 1-year-old can say one or two words, but understands many more words and phrases.

PARENTS ARE OFTEN THE FIRST TO FEEL THAT THERE IS SOMETHING WRONG WITH THEIR CHILD
- no attraction for mother’s face
- lack of response and interest in others
- dislike of tone/volume of voice
- dislike of being picked up or held
- little or no smiling; disjointed affect
- gaze avoidance
- more interest in objects than people

BASIC PREMISE OF THIS SHORT COURSE
The right type of intervention begins with an understanding of how language begins and what sometimes goes wrong in children.

INDIVIDUALS WITH DISABILITIES EDUCATION ACT (PART C)
- Mandates the early identification and provision of intervention for infants and toddlers with developmental disabilities.
- Considerable variability in the early stages of typical language development makes it difficult to detect delays or deviations with much precision.
II. THE RELATION BETWEEN THEORY, RESEARCH, & PRACTICE

THEORIES INFLUENCE
- Who the direct recipient of the SLP’s efforts is
- What the activity of the participants is
- What the material context is
- What the immediate object of learning is
- What the intervention is called (i.e., teach, reinforce, facilitate, motivate, illustrate, etc.)


THEORIES ALSO
- guide assessment
- serve as a general framework for interpreting intervention outcomes
- provide a map to give direction on what to do & say to parents
- offer predictions about what should happen & why

Theory and practice change over time as new research evidence becomes available

AN EXAMPLE: MIRROR NEURONS
- Neurons in the brain that fire both when performing an action and when observing the same action performed by another
- Mirror neurons may play a central role in the ability to imitate and learn by observing others.

http://www.pbs.org/wgbh/nova/sciencenow/3204/01.html

HARD-WIRED FOR ImitATION?
Infants as young as 42 minutes old copy different facial gestures


FAULTY MIRROR NEURONS? THE CASE OF AUTISM
- Mirror neurons may account for deficits in:
  - imitation
  - intention understanding
  - social communication
  - empathy
  - pretend play
  - theory of mind
  - language

PLASTICITY OF THE MIRROR SYSTEM?
- Clinical Implications:
  - Early diagnostic tool: failure to mimic facial gestures
  - Intervention: use of strategies based on imitation
- Caveats:
  - Many of these ideas are controversial
  - Current theory does not provide a complete explanation for the constellation of seemingly unrelated symptoms of autism
  - More research is necessary
SELECTED RESEARCH


THEORIES PROVIDE EXPLANATIONS

- What do infants bring to the task of learning language?
- What mechanisms drive language acquisition?
- What types of input support the language learner?

THEORETICAL ASSUMPTIONS

- Developmental
  - language does not have an independent existence for an infant
  - language grows out of earlier foundations in development

LANGUAGE DEVELOPMENT IS AFFECTED BY THE CHILD’S SKILLS IN OTHER DEVELOPMENTAL DOMAINS

- perceptual
- motor
- cognitive
- social-emotional

LANGUAGE DEVELOPMENT IS ALSO AFFECTED BY

- Biological influences
  - genetics
  - premature birth
  - prenatal exposure to toxins
  - gender
  - temperament
- Social influences
  - parent education and socioeconomic status
  - parental interactive style
  - maternal sensitivity or responsivity
  - amount and quality of verbal input
  - bilingualism and other cultural factors
RISK FACTORS: BIOLOGICAL
- Complicated birth history
- Illness/complications during infancy requiring recurrent medical care
- History of ear infections
- Diagnoses such as Down syndrome, hearing impairment
- Premature birth or very low birth weight
- Limited prenatal care
- Maternal prenatal substance use
- Immediate family members with delays, learning difficulties

PRELINGUISTIC SKILLS AS PRECURSORS TO LANGUAGE
- Imitation
- Attention to speech
- Attention to faces
- Eye gaze
- Turn taking
- Joint attention
- Social referencing
- Theory of mind

III. THE LEARNER: WHAT DO BABIES KNOW?

BABIES LEARN ABOUT LANGUAGE LONG BEFORE THEY UTTER THEIR FIRST WORD
- At birth, babies recognize their mother’s voice over a strange female’s
- Recognize their own language over a foreign language
- Can remember stories and songs they heard while in utero
- Can discriminate between phonemes, e.g., /b/ vs. /d/, found in all the world’s languages

NEWBORNS PREFER SPEECH OVER NON-SPEECH SOUNDS
NEWBORNS PREFER NATIVE LANGUAGE
- High amplitude sucking technique

WHAT ARE BABIES HEARING…?
- Sound penetrates into uterus
- Heavily filtered
- Prosodic information passes through most easily
  - pitch, rhythm and stress

CAREGIVERS USE PROSODY: CHILD-DIRECTED SPEECH
- Children pay attention to melodic features of acoustic signal with exaggerated prosody
- Prepares children for taking part in later language development
- Common throughout the world, but not universal
  - higher pitch
  - exaggerated pitch and pauses
  - slower in tempo
  - repetition of words
  - simplified sentence structure
  - simplified vocabulary
  - accompanied by exaggerated facial expressions
CHILD DIRECTED SPEECH (CDS) IS ALSO USED IN LANGUAGE SIGNED TO BABIES

- Features of Signed CDS
  - Exaggerated size of signs; positive facial expression
  - Repetition of signs
  - Prolonged gazing/eye contact
  - Extensive use of point
  - Intersperse nonverbal affective acts with language (tickling, tapping)
  - Long pauses between periods of signing

EARLY PERCEPTUAL ABILITIES

- Babies are biologically prepared to attend to the human voice and face
  - Prefer face-like patterns over non-face patterns

IMPORTANCE OF FACES

- Reinforcing to adult to have baby concentrate on one’s face
- Faces are the primary means by which information about emotion and intentionality are conveyed
- Infants can see adults as they speak
  - Most visible:
    - Lips
    - Jaw position
    - Less information about tongue & larynx
    - Infants note correlations between face and particular sounds
  - These early perceptual cues set the foundation for the development of language

IV. ENGAGEMENT WITH OTHERS

COMMUNICATION IS A COLLABORATIVE PROCESS
- mutual, relational, interactive

DYADIC ENGAGEMENT

- two individuals focused exclusively on each other
- Protoconversations
  - Mutual, conversation-like exchanges involving the use of multiple turn-taking
  - Coordinated and synchronous
    - Reciprocal – turn-taking alternation
    - Back channeling – overlapping behaviors
    - Chorusing – adult mirrors infant’s behavior

STILL FACE PROCEDURE

- Infant reaction
  - Increased gaze aversion
  - Less smiling
  - More negative affect
    - Fussiness
    - Anger
    - Withdrawal
  - Increased heart rate
GAMES AND ROUTINES
• Highly structured
• Predictable
• Conventionalized
• Turn-taking roles are reversible

TRIADIC ENGAGEMENT
• two or more individuals focused on some external object or event
• Joint attention requires the ability to
  – orient to a social partner
  – coordinate and shift attention between people and objects
  – share and interpret affect or emotional states

THE DEVELOPMENT OF JOINT ATTENTION

NONVERBAL BEHAVIORS THAT SIGNAL JOINT ATTENTION
• gaze direction
• pointing gestures
• vocalization
• postural cues

JOINT ATTENTION AND LANGUAGE
• Critical for learning words
• Adults provide joint attention cues when speaking
• Infants make use of these cues
• Infant vocabulary acquisition increases when parents follow infants’ focus of attention
• Individual differences in responding to joint attention can be observed as early as 6 mos. of age
• These differences predict language development at 24 months of age

SOCIAL REFERENCING
• seeking emotional information from others to regulate own behavior

HOW CAN CAREGIVERS OPTIMIZE THE EARLY DEVELOPMENT OF LANGUAGE?
• Basic needs must be met.
• Provide lots of linguistic input!
• Use face, voice, child-directed speech, games, routines
• Encourage joint attention
• Respond contingently
THEORY OF MIND
• The ability to understand that another person’s perspective or motive for doing something may be different from one’s own
• A “theory” because the child infers people’s mental states—such as belief, desire, and knowledge—from their behavior and uses those concepts to predict and explain behavior
• Allows one to judge what the other might need and want to know
• Closely coupled with development of communication and language
• Precursors
  – Joint attention
  – Appreciation of intentionality
  – Use of mental state words (e.g., know, think, want)
  – Pretend play


THEORY OF MIND DEVELOPS OVER TIME

Children’s Talking About Mental States
• Eve at 2 years 3 months
  Adult: Would you like to have a cookie?
  Eve: I want some cookie. Cookies, that make me happy.
• Abe at 2 years 11 months
  Abe: I painted on them [his hands].
  Adult: Why did you?
  Abe: Because I thought my hands are paper.
• Abe at 4 years 8 months
  Abe: Did you see the clouds?
  Adult: That was smoke left over from the fireworks.
  Abe: You thought that, but I thought they was clouds.


Mother’s Talking About Mental States
• The best predictor of children’s later ToM is the tendency of mothers to talk to their infant at 6 months in mentalistic terms.
• Known as “maternal mind-mindedness”, e.g. “He wants me to do that again.” “She thinks that’s funny.”
• Mothers who use a lot of mental descriptions rather than trait or behavioral descriptions have children who learned ToM faster.

SOME COMMON REAL-LIFE SCENARIOS THAT INVOLVE THEORY OF MIND
- Hide-and-seek
- Predicting what characters in a story will do
- Understanding familiar nursery tales often depend on false appearance, trickery, deception
  - For example, children can recognize that Little Red Riding Hood *thinks* that it is her grandmother in the bed, but the child knows it is really the wicked wolf. Typically developing children recognize this by 4 yrs.

THEORY OF MIND A FOUNDATION FOR MANY KINDS OF LANGUAGE SKILLS
- Understanding and producing narratives
- The ability to take into account what one’s listener knows and doesn’t know.
- Word learning

LANGUAGE AND THEORY OF MIND ARE RECIPROCALLY RELATED
- Early ToM *drives* language development – toddlers read communicative intentions
- Both the input and the child’s own language acquisition (of mental states) *drives* ToM development.
- Together these *drive* later development of discourse and communication skills


MIRROR NEURONS AND THEORY OF MIND
- Watching someone else doing something causes the corresponding mirror neuron to fire in our brain.
- This may allow us to "read" and understand another’s intentions, and thus to develop a sophisticated "theory of mind."

WHAT WE KNOW SO FAR
- Language begins long before children utter their first words.
- Babies are biologically prepared to attend to the human voice and face; this sets the stage for the acquisition of language.
- Babies are particularly attracted to the prosodic features of speech and to the rhythmic patterning found in adult-infant dyadic interactions
- Joint attention and ToM (the capacity to interpret, explain, and predict the behavior of others in terms of their underlying mental states) are foundational skills for acquiring language.
- Parents are often the first to recognize early signs as indicators of potential problems.
- Theories provide important frameworks for explaining and predicting behavior; theories go hand in hand with practice.
V. MODES OF COMMUNICATION: GESTURE, VOCALIZATIONS, FIRST WORDS

HOW TO JUDGE WHEN CHILD IS COMMUNICATING INTENTIONALLY
1. Does the child make eye contact with partner while gesturing or vocalizing, often alternating gaze between an object and the partner?
2. Are the child’s gestures and vocalizations consistent and ritualized?
3. After a gesture or vocalization, does the child pause to wait for a response from the partner?
4. Does the child persist in attempting to communicate and, if not understood, modify behavior to communicate more clearly?


WHAT ARE GESTURES?
- Actions produced with the intent to communicate
  - May involve hands, fingers, arms, face, entire body
  - May be accompanied by eye gaze and/or vocalization

Iverson, J.M. & Thal, D.J. (1998). Communicative transitions: There’s more to the hand than meets the eye. In A.M. Wetherby, S.F. Warren & J. Reichle (Eds.), Transitions in prelinguistic communication: Preintentional to intentional and presymbolic to symbolic

WHY ARE GESTURES IMPORTANT?
- Infant gestures are the earliest form of intentional communication
- Gestures serve to obtain and maintain attention with adults
- Gesture is associated with and can predict advances in receptive and expressive language (useful in identifying delays)


EARLY GESTURE DEVELOPMENT: DEICTIC GESTURES
- Reaching 6-9 months
- Giving 8-11 months
- Showing 8-13 months
- Pointing 9-14 months

FUNCTION OF DEICTIC GESTURES
- proto-imperative (9 mos.) – used to engage an adult to obtain an object
- proto-declarative (12 mos.) - used to comment or to show with the goal of gaining adult’s attention

OTHER TYPES OF GESTURES
- Symbolic play schemes (12 mos.)
  - Actions carried out on objects that depict the object in terms of its function (e.g., telephone, drinking)
- Representational or symbolic (16-24 mos.)
  - Actions that carry meaning in the absence of a referent (e.g., flapping arms to depict bird, shrugging shoulders to indicate “where”)

WHAT ARE VOCALIZATIONS?
- Sounds produced with the intent to communicate
- Sounds can be categorized into: cries, vocalizations, and speech

WHY ARE VOCALIZATIONS IMPORTANT?
- Vocalizations are the earliest form of communication
- Vocalizations are used to communicate needs, emotions, and intentions with others


WHAT ARE FIRST WORDS?
- First words are the earliest form of language production
- First words are used to refer to objects, actions, or concepts

WHY ARE FIRST WORDS IMPORTANT?
- First words are a crucial stage in language development
- First words are used to communicate with others
- First words are a sign of readiness for more complex language production

GESTURE-WORD COMBINATIONS
• Pointing often accompanies speaking in the 2nd year
  – Complementary (e.g., says “mommy” and points to mommy)
  – Supplementary (e.g., says “mommy” and points to shoe)
• Between 16-20 mos., gestures gradually decline as verbal production increases.
• Children’s use of word-gesture combinations predicts the onset of two-word combinations.

ASSESSING GESTURE
e.g., Communicative Temptations
1. Eat a desired food item (e.g., a jelly bean) in front of the child and do not offer any.
2. Activate a wind-up toy and, when it deactivates, hand it to the child.
3. Give the child four blocks to drop in a box, one at a time, and then promptly hand a small animal toy to drop in the box.
4. Open a bottle of bubbles, blow bubbles, and then close the bottle tightly and give it to the child.

FORMAL INSTRUMENTS FOR ASSESSING GESTURE
• Communication and Symbolic Behavior Scales Developmental Profile (Wetherby & Prizant, 2002)
• MacArthur–Bates Communicative Development Inventories (Fenson et al. 1993)

DO GESTURES FACILITATE LANGUAGE DEVELOPMENT IN TYPICALLY DEVELOPING CHILDREN?
• Children use symbolic gestures earlier when adults explicitly teach.
• However, there is no clear evidence that symbolic gesturing accelerates development or that there are long lasting benefits in typically developing children.
• Gestures appear to serve as a “bridge” between word comprehension and word production.

<table>
<thead>
<tr>
<th>Word</th>
<th>Sign</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drink</td>
<td>Thumb to mouth</td>
<td>To ask for bottle</td>
</tr>
<tr>
<td>Cheerios</td>
<td>Index fingers to thumbs</td>
<td>To request more</td>
</tr>
<tr>
<td>Fish</td>
<td>Smacking lips together</td>
<td>To fish toy in tub &amp; goldfish crackers</td>
</tr>
<tr>
<td>Water</td>
<td>Rubbing palms together</td>
<td>With FISH gesture to fish in pond</td>
</tr>
<tr>
<td>Book</td>
<td>Open/Close with palms</td>
<td>With MORE gesture to ask for another book</td>
</tr>
</tbody>
</table>

WORD COMPREHENSION
• Development of receptive language begins before the expression of language (around 8-9 mos.)
• Children typically have a receptive language of 50 different words by the time they have 10 expressive words.
• Comprehension of single words is correlated with later word production.
• Children need to know about the world before they can comprehend language.
• This conceptual language does not always correspond to the adult meaning
  – Overextension: Overly broad assignment of word meaning
  – Underextension: Narrow assignment of word meaning
• Difficult to evaluate language comprehension accurately
• Easy to overestimate child’s understanding
• Must be inferred from children’s nonverbal responses
• Need to eliminate as much nonlinguistic information as possible when testing young children


ASSESSING WORD COMPREHENSION
- 8-12 months: does the child understand single words in routinized contexts?
- 12-18 months: does the child understand single words without the support of the nonlinguistic context (without eye gaze, gesture, routines)?
- 18-24 months: does the child understand two-word combinations (e.g., push the apple)?
- 24-36 months: does the child understand three-term sentences (e.g., Big bird tickles Cookie Monster)?


FORMAL INSTRUMENTS FOR ASSESSING COMPREHENSION
- Peabody Picture Vocabulary Test IV
- Receptive One Word Picture Vocabulary Test
- Infant Toddler Language Scale

VOCAL DEVELOPMENT
- Early vocal behaviors predict later language
  - The number and rate of vocalizations, particularly in interaction with others, serve as an important marker
- Children’s speech production follows a predictable sequence, however, there is a lot of variation in the age at which children reach a given milestone

STAGES OF VOCAL DEVELOPMENT

EARLY VOCALIZATIONS
- Reflexive sounds (0-8 wks)
  - Discomfort & distress (crying, fussing)
  - Vegetative (burping, coughing)
- Control of phonation (6-16 wks)
  - Cooing & gooing (mainly vowels and nasalized sounds)
    - Takes same form in all languages
    - Vowel-like sounds
    - Used when happy and contented; especially in social interactions
    - Intentional
  - First laughter
- Expansion (4-6 mos.)
  - gain increasing control over the production of sounds
    - first recognizable consonants (single syllables)
    - vocal play: “raspberries”, squeals, growls, yells, whispers, trills, snorts, and isolated vowel-like sounds
    - marginal babbling: single syllables (CV: “ba”)
  - Deaf infants display these kinds of sounds, suggesting a biological component that does not rely on input
- Canonical babbling (6-10 mos.)
  - Contain pairs of C-V sequences
  - Reduplicated babbling: repeating CV pairs (ma ma ma)
    - not used for communication
• Nonreduplicated or variegated babbling (da ma goo ga)
  — Adds intonational changes
• Jargon: more complex combinations (CVC “gom”, CCV “stee”, VCV “abu”)
  — Not yet referential; do not contain meaning

CANONICAL BABBLING IN DEAF INFANTS
• Deaf infants rarely produce canonical babbling.
• It is the first development that distinguishes the vocal development of hearing children from that of deaf children (differences are observed at around 6 mos. of age).
• Hearing speech is necessary for canonical babbling.
• Deaf infants babble manually if exposed to sign language.


BABBLING AND THE DEVELOPMENT OF WORDS
• Consonants and syllable structures that predominate in babbling parallel those that appear in early word development (stops, nasals, glides; CV syllable structures).
• Correlation between the age of onset of canonical babble and the age of onset of words.
• A child’s practice in sound production and auditory feedback of the productions appear to be critical for the development of spoken words.
  — Establishes an auditory feedback loop
  — Provides motor practice
  — Stimulates adult-infant interactions

FROM SOUND TO MEANING: PROTOWORDS
• Invented sounds that are used consistently to convey meaning (8-12 mos.)
• Used functionally rather than to name
  — (e.g., “Ma-ma,” “yum-yum,” “da”)
• Context-bound; limited in scope

FIRST WORDS
• Words that the child recognizes and can match closely will be initially selected
• To qualify as a true word:
  — It should bear some phonetic resemblance to the adult word
  — Refer consistently to the same person, object, or event

FIRST 50 WORD TYPES
• Specific nominals (daddy) 14%
• General nominals (dog, baby) 51%
• Action words (up) 13%
• Modifiers (allgone, hot) 9%
• Personal-social (bye, please) 8%
• Other 4%

PARENT REPORT MEASURES
- Size and range of vocabulary
  - Language Development Survey (Rescorla, 1993)
  - MacArthur-Bates Communicative Development Inventory (CDI; Fenson, et al., 1993).

LEXICAL ACQUISITION
- Fast: 14,000 words by age 6
- Rate changes across time: not spread out evenly
  - 0-18 months: 50 words
  - 18-30 months: 500 words
- Vocabulary spurt: rapid learning following slow growth
  - phonological memory
  - word retrieval
  - lexical organization
  - cognitive and social abilities
- Fast mapping

MOTHER’S TALK TO CHILDREN
- Undereducated & economically disadvantaged mothers produce significantly less speech to their children
- Children produce fewer words
  - What doesn’t matter: race/ethnicity, gender, birth order
  - What does matter: relative economic advantage

- Culture: Influences adult-child interactions
  - Status of children
  - Value of talk
  - Importance of parental teaching

SUMMARY
- Each newly developed skill lays the foundation for the next step in the acquisition of language
  - Gesture
  - Word comprehension
  - Vocalizations
  - First words

VI. IMPLICATIONS FOR PRACTICE

LANGUAGE IMPAIRED POPULATIONS
- Autism Spectrum Disorder
- Down Syndrome
- Hearing Impaired
- Specific Language Impairment
- Late-talkers
CHILDREN WITH AUTISM
- Less responsive to speech and other social stimuli
- Pay less attention to eyes and have more difficulty detecting eye contact and eye gaze
- Poor processing of faces
- Difficulty reading emotions

FACE PROCESSING
- When asked to identify the emotions portrayed in faces, individuals with autism showed disorganized visual processing relative to normal controls


- Play eye/face games
  - Watch My Eyes And Find The Surprise
  - I Spy
  - Simon Says
  - Sing Songs to highlight face and eyes (“If you’re mad and you know it make a frown”)

INFANTS WITH AUTISM
- Diminishing dyadic engagement and eye contact over 9 to 15 months of age
- Atypical patterns in still-face paradigm
- Failure to develop joint attention
- Significantly less use of communicative gestures (pointing, pretend play actions, symbolic gestures)
- May point to request – often without eye contact
- No use of proto-declarative gestures
- Diminished vocalization, slowing of receptive and expressive language development rates
- Onset of unusual patterns of looking & object manipulation

THEORY OF MIND AND AUTISM
- Early ToM: marked problems in shared attention, lack of following eye gaze and pointing, lack of pretend play, difficulty responding to emotions.
- Late ToM: even in higher functioning children, failure to pass “false belief tasks”.

THEORY OF MIND AND HEARING IMPAIRED

- Pre-lingually deaf children of hearing parents have significant delays in their understanding of theory of mind.
- Believed to be due to a lack of access to language rather than to any fundamental cognitive or social problem.
- Children born into families of native signers, who share a common communication system, show no such delay.
- Enriched conversation and discussion about mental states should benefit children who lack fluent conversational partners.


DOWN SYNDROME AND GESTURE

- Gesture production is a strength for children with Down syndrome relative to receptive and expressive abilities
  - Produce a variety of gestures (deictic, play schemes, symbolic, and conventional)
  - Readily produce proto-declarative gestures but show a deficit in producing proto-imperative gestures
- Produce fewer cross-modal combinations (gesture + verbal)


DOWN SYNDROME AND VOCABULARY

- Compared to age-matched peers, word comprehension and gesture are similar but delayed
- Word production more delayed than comprehension and gesture


LATE TALKERS

- Children who “catch up” in language development by age 3 (Late Bloomers)
  - Deictic and symbolic gesture development comparable to age matched peers
  - Comprehension comparable to age-matched peers
  - Gesture serves as a compensatory function

SPECIFIC LANGUAGE IMPAIRMENT

- Children whose language skills are not age-appropriate by age 3 (truly delayed)
  - Production of deictic and symbolic gestures poorer than age-matched peers
  - Fewer episodes of initiating and responding with communicative gestures
  - Also at greater risk if comprehension delayed 6 months or more

ASSESSING CHILD’S SKILLS

- Methods should properly sample the prelinguistic and early linguistic behaviors basic to communicative development
- Assessment should involve multiple sources of information
  - Parent interviews: child’s capacities and history
  - Informal observation: description of child’s functional communicative abilities
  - Structured methods
ASSESSING PARENT-CHILD INTERACTION

- Is parent/caregiver responsive to child’s movements, sounds, facial expression, communication?
- Does parent recognize child’s signals?
- Does parent take balanced turns?
- Does parent show positive regard/emotional attachment?
- Does parent follow child’s lead; nondirective?
- Does parent match communication level and play level to child’s?
- Does parent scaffold child’s comprehension and communication attempts (e.g., pointing with directions)?

RED FLAGS APPROACH


The following list is based on a presentation by Crais, E. (2008) TelAbility/WATCH Project:

*Using the best available evidence to identify infants and toddlers with (or at risk for) communication deficits*

DYADIC/TRIADIC ENGAGEMENT

Be concerned if the child is **not:**

- Responding to familiar adults with a social smile
- “Talking” back by vocalizing to familiar adults who talk to child
- Attentive to social games played by familiar adults (e.g., Peek-a-Boo)
- Participating in social games (e.g., hands up for “Pat-a-Cake”)
- Showing and/or giving objects to familiar adults
- Pointing to objects to indicate interest in them
- Seeking adult interaction to play with toys/look at books
- Pointing either spontaneously or by request to pictures in books

By:

- 3 months
- 8 months
- 8 months
- 12 months
- 15 months
- 18 months
- 18 months
- 24 months

INTENTIONALITY

Be concerned if the child is **not:**

- Showing any type of intentional behavior (e.g. requests, protests)
- Communicating for a variety of reasons (e.g., protesting, requesting, seeking social interaction, commenting)
- Using a variety of means (e.g., gestures, vocalizations, eye gaze)

By:

- 10 months
- 18 months
- 18 months

COMPREHENSION SKILLS

Be concerned if the child is **not:**

- Looking at objects looked at by others
- Acting on objects that are noticed
- Imitating ongoing actions
- Responding to own name
- Attending to an object mentioned
- Doing what is usually done in a situation (e.g., child puts on coat when others do)
- Using conventional behaviors (e.g., combing hair with comb)
- Acting on objects as the agent (e.g., child brushes own teeth when asked to “Brush the baby’s teeth”)

By:

- 12 months
- 12 months
- 12 months
- 15 months
- 15 months
- 18 months
- 18 months
- 24 months
Responding to many object names 24 months
Retrieving a familiar object out of sight 24 months

**VOCALIZATION**

*Be concerned if the child is not:*

- Producing cooing and gooeing sounds 6 months
- Babbling in repeated sequences of sounds (e.g., baba, gaga) 11 months
- Producing 3 different consonant sounds (e.g., b, p, m, n, d, k, t, g, w) 18 months
- Imitating any non-speech sounds (e.g., truck sound, animal sounds) 18 months
- Using sound sequences that sound like talking 24 months
- Producing (VC) syllables (e.g., up), (CVC) syllables with a single consonant (e.g., cake), and some vocalizations or words with two or more different consonants (e.g., pat, tummy) 24 months
- Producing 6 different consonants 24 months
- Producing initial consonants in most words (“at” for pat, “ot” for boat) 36 months
- Producing 10 different consonants 36 months
- Producing any final sounds (“bo” for boat”, “e” for “eat”) 36 months

**WORD PRODUCTIONS AND WORD COMBINATIONS**

*Be concerned if the child is not:*

- Producing any words or word approximations 18 months
- Producing 50+ words or word approximations 28 months
- Producing 100+ words 30 months
- Combining words 28 months