

Down Syndrome Association North Bay  
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Communication Development, Assessment, and Intervention for  
Infants, Toddlers and Young Children  
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## Disclaimer

The author has no financial or non-financial interests in the information presented in this workshop.

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## Learning Objectives

By the end of today's workshop on communication development, assessment, and intervention for infants, toddlers and young children, you should understand the ...

- 1) Typical communication behaviors of infants
- 2) Importance of eye gaze coupling, ritualized behavior, and game playing
- 3) Effects of baby talk (motherese), gaze, facial expression, facial presentation and head movement, and proxemics on the infant's development
- 4) Importance of joint reference, joint action, and turn-taking on the development of communication
- 5) Formal and informal tools used to assess the communication skills of infants, toddlers and young children
- 6) Indirect and direct speech and language intervention approaches for infants, toddlers and young children

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## Video

### Teach Me to Talk

<http://www.youtube.com/watch?v=fHhcUuxabjw>

- 1) What are your observations?
- 2) What is the speech-language pathologist doing to socialize and communicate with the toddler?

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## Socialization and Early Communication Birth to 2 Months

- 2 weeks: distinguish mother from stranger via eye gaze
- 3 weeks: social smile (versus internal state) for mother
- 1 month: interactional sequences (eye gaze and vocalizations)
- 3 – 6 weeks: smiles in response to external stimuli (human face, human voice, tickling)
- 6 weeks: changes gaze patterns based on partner's gaze

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## Socialization and Early Communication 2 Months

- Visually tracks mother's voice; turns away from strangers
- Increase in visual memory; associates mother with feeding and demonstrates sucking
- Produces cooing when not distressed and begins making other sounds
- Mothers imitate cooing

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### **Socialization and Early Communication 3 Months**

- Larger smile; smiles less at objects
- Caregivers must exaggerate behaviors to hold infant's attention
- Infant signals appropriateness of stimulation
- Both partners affect mutual interactions
- Increasing dialogues and turn-taking occur
- Babbling contains syllables rather than individual sounds

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### **Socialization and Early Communication 4 Months**

- Increase in alternating vocalization patterns versus concurrent vocalizations
- Caregivers pause for infant to respond
- Infant initiates vocalizations with smile or cough
- Caregiver identifies types of crying produced

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### **Socialization and Early Communication 5-6 Months**

- Facial expressions imitated by mother and infant
- Interest in toys and objects increase as eye-hand coordination improves
- Protoconversations
- Variations in vocalizations

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### **Intentionality**

- Goal directedness: ability to share goals with others, predict outcomes, encode a message for someone else
- 8-9 months: onset of intentionality through gesturing, eye contact, pointing, vocalizing
- Functions include requesting, interacting, attracting attention

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### **Perlocutionary Stage Birth to 8 months**

- Infant fails to signal specific intentions so caregiver interprets behavior as carrying intention
- Attentional interactions
- Contingency interactions
- Differentiated interactions
- Begins reaching for desired objects; becomes a pointing gesture

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### **Illocutionary Stage 8 – 12 Months**

- Uses conventional gestures, vocalizations, or both to communicate
- Gestures accompanied by eye contact
- Consistent sounds and intonational patterns of own invention signal specific intentions
- Gradually pairs gestures with vocalizing
- Phonetically consistent forms (PCFs) emerge: infant's own language with word boundaries

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### **Locutionary Stage 12 months and up**

- 1<sup>st</sup> meaningful words
- Used with or without gestures to accomplish functions previously filled by gestures

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### **Language Comprehension 6-12 Months**

- Attach meaning to symbols
- Use bracketing and clustering to divide speech into word units associated with familiar contexts and routines
- Bracketing
- Clustering

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### **Maternal Communication Behaviors Infant-Elicited Social Behavior**

- Mothers modify their behavior to facilitate interactions
- Purpose is to enhance infant's recognition and discrimination of infant behaviors
- Three characteristics
  - Exaggerated physical movements
  - Slow and elongated speech
  - Limited and frequently repeated repertoire of language

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### **Baby Talk/Motherese**

- Mothers treat any infant response as a conversational turn
- Infant learns his/her behaviors result in consistent, predictable effects and gains appreciation of signal value of behavior
- Maternal utterances often occur in episodes or strings of successive utterances referring to same object, action, or event in the here and now, facilitating comprehension

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### **Maternal Eye Gaze**

- Helps maintain infant's interest and focus of attention on mother's face
- Mother's monitoring of infant gaze enables establishment of joint referencing

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### **Maternal Facial Expression**

- Complements maternal verbalizations
- Fulfills conversational functions
  - Initiation
  - Maintenance
  - Termination
  - Avoidance of interaction
- Maintains attention and aids comprehension

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## Maternal Proxemics

- Communicative use of personal space
- Very close distance used with infants
- Distance increases with age
- Decreased touching associated with increased eye contact

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## Joint Referencing Phase 1: Birth to 6 Months

- 4 – 6 weeks: caregiver places object in infant's field of vision and says "look"
- 8 weeks: infant visually follows caregiver's movements
- 12 weeks: infant attends to utterances addressed to him/her
- 4 months: infant follows line of regard
- 6 months: infant may respond to object or name or intonational pattern to establish joint attention

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## Joint Referencing Phase 2: 6-8 Months

Intention to Communicate

- 7 months: infant points or shows objects or events without looking at adult
- 8 months: infant points or shows objects or events and shifts gaze between object and caregiver
- Shift from social mode to activity mode

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## Joint Referencing

Phase 3  
Gestures and Vocalization  
(8 – 12 months)

Phase 4  
Naming and Topicalization  
(12 months)

- Paring pointing with vocalizing
- Maternal comments based on infant's actions or interest and positively related to better comprehension later
- Exchanges involve objects; mother elicits naming with questions, modeling, repetition
- As infant assumes more control, maternal questioning decreases

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## Joint Action

- Routinized activities such as game playing and daily routines
- Provide structure for learning language
- Provide means to learn turn-taking, role shifting, and conversational exchange

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## Game Playing

- Begins at birth
- 6 weeks: infant initiates games by internal alertness
- 13 weeks: infant signals readiness to play games via facial expression and body movement
- Maternal modifications to infant state
  - Adjusts timing to when infant alert
  - Moderates infant arousal to optimal state
  - Balances game playing with infant behavior



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## Social Play

- Birth to 6 months: social play without game rules
  - Peek-a-boo
- 6 – 12 months: object play increases
  - Give and take games
  - Retrieve games
  - “So big”
  - “I’m gonna get you”

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## Routines

- Examples: eating, bathing, dressing, diaper changing
- Offer conventionalized, predictable, ordered contexts
- Infant relies on order and caregiver cues to direct behavior
- Scripts have slots for infant behavior to aid interpretation of routine
- Infants learn the scripts which allows for greater participation
- Allows infant to gain event knowledge which is later translated into semantic knowledge of early language
  - World knowledge becomes word knowledge

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## Turn Taking

- Occurs throughout interactional behaviors
  - Early feeding
  - Body games
  - Protoconversations

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## Infant Communication Development Conclusions...

- 1) Infants increasingly acquire intentional behaviors which serve communication functions.
- 2) Mothers perceive infant behaviors as communicative, verbal, and meaningful.
- 3) Social interactions provide a basis for learning semantic structure and pragmatic functions.
- 4) Joint attending provides a referencing function.
- 5) Maternal responsiveness to infant behaviors facilitate the development of intentionality and language.
- 6) Communication skills develop as a result of maternal-infant dyads.
- 7) The social and communicative bases for language development can partially explain the motivation for learning speech and language. (Owens, 2016)

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## Discussion

- List five games that we commonly play with infants and toddlers.
- What are the similarities between these games and conversations, and why are these games useful in facilitating communication development?

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## Communication Assessment Infants, Toddlers and Young Children

- Red Flags**
- Prelinguistic delay (e.g. difficulty with gestures/symbolic gestures, joint attention, intentionality)
  - Receptive language delay (e.g. difficulty following simple requests or understanding very early vocabulary)
  - Expressive language delay (e.g. limited or no word production)
  - Phonological delay (e.g. quiet, limited phonetic inventory, limited complexity of babbling)
  - Pragmatic delay (e.g. difficulties with eye contact, taking turns, maintaining topics)
  - Behavior issues (e.g. high activity level, poor attention span, limited compliance) (Rescorla & Dale, 2013)



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## Speech and Language Assessment Procedures

1. Background history; prior records of early intervention services (e.g. IFSP)
2. Parent report information (why?)
3. Formal comprehensive assessment of receptive and expressive language, speech production, oral-motor and feeding, and pragmatic skills with caregiver in room
4. Informal assessment of receptive and expressive language, speech production, oral-motor and feeding, and pragmatic skills

(Shipley & McAfee, 2016)

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## Receptive-Expressive Emergent Language Test – Third Edition REEL-3

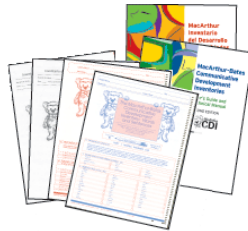
- Authors: Bzoch & League (2003)
- Parent report assessment tool
- Normed on infants and toddlers ages birth to 3 years
- Receptive and expressive language subtests
- Receptive language ability (RLA), expressive language ability (ELA), and language ability score (LAS)
- Standard scores, percentile ranks, age equivalents, descriptive ratings



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## MacArthur-Bates Communicative Development Inventories (CDIs), Second Edition

- Authors: Fenson, Marchman, Thal, Dale, Reznick & Bates (2007)
- English and Spanish versions
- Observational tool completed by caregiver
- Words and gestures form: Documents understanding and use of early vocabulary by semantic categories, as well as use of communicative and symbolic gestures, for ages 8-18 mos.
- Words and sentences form: Documents production of vocabulary and early grammar for ages 16-30 mos.
- CDI-III: extension of expressive vocabulary and grammar for 30-37 mos.
- Excellent for use with older children who have developmental delays, including children who benefit from AAC



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## The Rossetti Infant-Toddler Language Scale

- Author: Louis Rossetti (1995)
- Play based formal assessment tool
- Toddlers ages birth to 3 years
- Criterion referenced with developmental ages and severity ratings provided
- English and Spanish versions
- Assesses preverbal and verbal areas of:
  - Interaction-Attachment
  - Pragmatics
  - Gesturing
  - Play
  - Language Comprehension
  - Language Expression



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## Preschool Language Scale – 5<sup>th</sup> Edition PLS-5

- Authors: Zimmernan, Steiner, & Pond  
English Version (2011)  
Spanish Version (2012)
- Play based assessment tool with picture manual and manipulatives
- Normed on ages birth to 7;11
- Auditory Comprehension (AC), Expressive Communication (EC), and Total Language Score (TLS)
- Supplemental measures for Articulation Screener and Language Sample Checklist
- Standard scores, percentile ranks, and age equivalents



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## Informal Assessment

- Behavioral observations of the child during play
- Parent-child interactions
- Spontaneous speech and language sampling and analysis
- Informal assessment of oral-motor and feeding skills
- Informal assessment of pragmatic skills  
(Shipley & McAfee, 2016)

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## Assessment Recommendations

- No intervention or follow-up needed
- No intervention with follow-up
  - Provide home program
  - Re-evaluate in 6 or 12 months
  - May recommend placement in infant/toddler center-based program
- Speech and language therapy recommended
  - Frequency (e.g. 1 or 2 times per week)
  - Length of time (e.g. 30 minute sessions)
  - Duration (e.g. 6 months, 12 months)
- Additional recommendations
  - Other referrals (e.g. special education teacher, psychologist, audiologist, physical/occupational therapist, developmental specialist, infant/toddler program)
- Factors regarding recommendations
  - Regional center eligibility criteria
  - Insurance coverage
  - Etc.
 (Shipley & McAfee, 2016)

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## Speech and Language Therapy Goals and Objectives

- Receptive language 6-month goals/objectives
  - Early vocabulary
  - Early concepts
  - Following one-step and two-step directions
- Expressive language 6-month goal/objectives
  - Prelinguistic skills for eye gaze
  - Joint attending
  - Intentionality
  - First words
  - Two-word combinations
  - 3-4 word combinations
  - Early morpho-syntactic structures (Kumin, 2015; Roth & Worthington, 2016)



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## More Speech and Language Therapy Goals and Objectives

- Phonology goals and objectives re: intelligibility and/or sound production
  - Increased vocalizing
  - Improved verbal imitation
  - Increased phonetic inventory
  - Improved production of specific sound
  - Elimination of specific phonological process errors
- Pragmatic 6-month goal and objectives
  - Eye contact
  - Joint attending
  - Topic initiation and maintenance
  - Turn-taking
- Parent training and education goal/s
  - Speech and language modeling skills
  - Interactive/engagement skills
 (Kumin, 2015; Roth & Worthington, 2016)

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## Types of Service Delivery

- Caregiver training and education without direct intervention with infant/toddler
- Caregiver training and education plus direct clinical interaction with infant/toddler
- Other possible service delivery decisions
  - Individual versus group services
  - Home and/or center-based services
  - School-based services
  - Private services

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## Caregiver Training and Education Responsivity Education

- 1) Child oriented behaviors to initiate interactions
  - Wait and listen
  - Follow the child's lead
  - Join in and play
  - Be face to face
- 2) Interaction promoting strategies to foster balanced turn-taking
  - Use a variety of questions
  - Encourage turn-taking
  - Scan to match turns with child's turns
- 3) Language modeling strategies to expand receptive/expressive language
  - Imitate the child's verbalizations
  - Use a variety of labels
  - Expand on what the child says
  - Extend the topic
 (Weitzman, Girolametto & Drake, 2017)

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## Direct Intervention Focused Stimulation

- Exposure to multiple examples of targeted specific words and grammatical constructions within meaningful interactions
  - Two versions
    - Expected to produce constructions
    - Not obligated to produce constructions
  - Imitation not used; attempt to elicit spontaneous productions
  - Targeted language practiced a minimum of 10 times per session in natural conversational contexts
  - If expected to produce constructions, child is prompted by direct requests to label object during games for a more natural context
  - If not obligated to produce constructions, spontaneous production of target is positively reinforced
- (Weismer, Venker & Roberston, 2017)

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## Direct Intervention Conversational Recast Intervention

- Can be combined with focused stimulation
- Recasts: language model expansions, e.g. child says “cow ”; adult recast consists of “cow jump; the cow is jumping”
- Target specific vocabulary and grammatical forms
- Frequency of modeling of linguistic targets is increased

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## Speech and Language Therapy Conclusions...

Best Practices for Speech and Language Therapy with Infants/Toddlers/Young Children

- Adult modeling of speech and language stimuli
- Child imitation of speech and language stimuli
- Positive and specific reinforcement
- Speech and language training at a level slightly more complex than the child’s current level
- Engagement in contextually based social routines and scripts (e.g. storybook reading, preferred play scenarios, preferred games)
- Active engagement with the adult communication partner
- Scaffolding to support speech and language attempts
- Collaboration with adult caregivers via indirect therapy

(Fey, McCauley & Gillam, 2017)

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## Discussion

- What information would be most useful for a caregiver to have from the SLP working with his/her infant/toddler/young child?
- What information would be most useful for a caregiver to provide to the SLP working with his/her infant/toddler/young child?

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## Thank you!

Questions?

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