Language Outcomes: Results of a Multi-State Collaboration

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Today’s Topics

- Describe NECAP, a CDC-supported national outcomes database project
- Summarize characteristics of sample obtained to date
- Present language outcome data
NECAP Project Overview

- Collect language outcome data on deaf and hard-of-hearing children birth to 4 across the United States
  - Establish individual state databases
  - Establish national database
  - Explore feasibility of interfacing with existing EHDI databases
NECAP Project Goals

- Support states in assessing outcomes
- Assist states in using results to inform intervention
- Examine feasibility of a national outcomes database
- Determine program, child, and family characteristics related to successful outcomes
Services Provided by Colorado

- Assessments scored
- Profile sheet created
- Written report of results
- Comparison of scores to hearing and deaf/hoh norms
- Database creation and maintenance
- Annual accountability report characterizing state’s performance (including subgroups)
Benefits for Programs and States

- Provides statewide and program-specific accountability data
- Examines outcomes in subgroups of children
- Informs personnel preparation needs and areas for program improvement
- Provides networking opportunities with other states
Assessment Components

- Demographic form
- Release of audiologic information
- Minnesota Child Development Inventory
- MacArthur-Bates Communicative Development Inventories
- Additional assessments on request (e.g., play, listening skills, speech intelligibility, etc.)
Participating States

- Arizona
- California
- Colorado
- Idaho
- Indiana
- Texas
- Wisconsin
- Wyoming
Assessments Completed

- 259 assessments completed (not including Colorado)
- 162 children assessed 1 to 4 times each
- Colorado: 225 assessments per year
Participant Characteristics (excluding Colorado)

- Bilateral loss = 249; Unilateral loss = 10
- Auditory Neuropathy = 7
- English-speaking home = 239; Spanish-speaking home = 20
- No additional disabilities = 229; Have additional disabilities = 30
- Boys = 140; girls = 119
Degree of Hearing Loss

% of Sample

Degree of hearing loss

mild
mod
mod-sev
sev
sev-prof
prof
Participant Criteria for Language Outcomes Analysis

- Bilateral hearing loss
- English-speaking home
- No other disabilities that would affect speech or language development
States Represented in Current Language Outcomes Analysis

• Arizona
• Colorado
• Idaho
• New Mexico (previous participant)
• Texas
• Utah (previous participant)
• Wisconsin
• Wyoming

Note: CA and IN just initiated NECAP; no data yet
Language Outcomes Analysis: Participant Characteristics

- Chronological age
  - Range = 6 to 40 months
  - Mean = 21 months
- Boys = 130; Girls = 140
- Number of assessments = 270
Assessment 1: Minnesota Child Development Inventory (1992)

• 8 areas of development assessed
  • Language, Motor, Social, Self Help, Pre-Literacy

• Parent report
  • Parents respond “yes” or “no” to a variety of statements about their child
  • Example: “Has a vocabulary of 20 or more words”

• Scales adapted to reflect abilities in both spoken and sign language
Assessment 2: MacArthur-Bates Communicative Dev. Inventories

- Assesses spoken and sign vocabulary
  - Expressive and receptive for younger children
  - Expressive vocabulary for older children
- Parent-report instrument
Determining Language Quotient

Language Age/Chronological Age x 100

- If LQ = 100, Language Age = CA
- If LQ < 100, Language Age < CA
- If LQ > 100, Language Age > CA

LQs of 80+ are within the normal range compared to hearing children
Median Language Quotients

- Minn Exp
- Minn Comp Assessment
- Mac Vocab

Language Quotient

0 20 40 60 80 100
Percent of Scores in the Average Range (LQ = 80+)

- Minn Exp
- Minn Comp Assessment
- Mac Vocab
Minnesota CDI: Median Language Quotients

![Bar chart showing median language quotients for different states. The chart compares Exp Lang and Lang Comp. States are labeled from 1 to 8.]
MacArthur-Bates: Median Vocabulary Production Quotients

Language Quotient

State

1 2 3 4 5 6 7 8
Conclusions

- Almost 80% of children scored within the average range on the Minnesota Expressive Language subtest.
- On average, children in all states scored more poorly on cognitive-linguistic items (Minn Lang Comp) compared to more superficial language items (Minn Exp Lang).
Conclusions

- Acquiring an age-appropriate lexicon is a challenge for many children with 43% demonstrating significant delays.
- Differences in language outcomes are apparent between some states.
- As more assessments are collected, factors predictive of better language outcomes will be identified.