

ABILITIES Index: A Functional Assessment Approach

**9 October, 2003
Monterrey , Mexico**

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Grant support from Centers for Disease Control & Prevention

Purpose of Presentation

- Describe functional assessment as an approach to document childhood disability
- Describe the development of the ABILITIES Index
- Illustrate its use to document the nature and severity of childhood disability for
 - Descriptive documentation- profile of functional characteristics
 - Summary documentation- derivation of weighted, aggregate index

Problems of diagnostic and categorical documentation of childhood disability

- Variable criteria for diagnoses categories
 - Biomedical
 - Psychometric
 - Clinical Judgement
- Influences on diagnoses and categories
 - Situation or test specificity
 - Age specificity
- Within group variability > between group variability
- Failure to document within child variability

Consequences of diagnostic and categorical documentation

Diagnoses and categories provide limited information about functioning

- Need to assess relative strengths and limitations
- Functional characteristics form basis for individualized interventions

Focus of assessment of functional characteristics

- ...to differentiate functional limitations from underlying etiology
- ... to document disability as a continuum; not as a static condition
- ... to recognize child-environment interaction in disablement
- ... to serve as base for match of child characteristics with environmental supports and services

Approaches to assessment of child functioning

- Method: ratings of one or more dimensions of functioning by key informant (eg. parent, professional)
- Children's Global Assessment Scale
(*Shaffer et al., 1983*)

Global descriptions of functioning are defined in decile units: 1-10 (lowest) to 91-100 (healthiest)

Approaches to assessment of child functioning: profile

- PULHESTIB (Holt, 1957)

Ordinal ratings from 1 (normal) to 4 (abnormal) across major domains of Physique, Upper Limbs, Locomotion, Hearing, Eyes, Speech, Toilet, Intelligence, Behavior

- PULTIBEC (Lindon, 1963)

Ordinal ratings from 1 (normal) to 6 (abnormal) across major physical and motor domains (Physical capacity, Upper limbs, Locomotion, Toilet) & Behavior and Communication domains (Intelligence, Behavior, Vision, Communication)

Rationale for the development of the ABILITIES Index

- Document profile of intra-individual differences
- Recognize abilities and disabilities
- Capitalizes on clinical judgment
- User friendly for caregivers
- Focus on basic areas of function not performance of skills
- Compatible with other measures and models of human functioning (ICF)
- Descriptive, not diagnostic tool

Features Defining **ABILITIES** Index

- 9 dimensions encompass major ability domains of child functioning
- ABILITIES reflect relatively stable, enduring characteristics rather than developmental skills
- For each dimension, ability is defined operationally with ratings made in terms to facilitate ratings by caregivers & parents, as well as professionals

Features Defining ABILITIES Index

- Ratings can be based on clinical judgement, including observation, knowledge of child, and/or specific information
- Ratings reflect relative rather than absolute pattern of abilities & disabilities
- Profile presents wholistic picture of child
- Profile emphasizes abilities as well as disabilities of significance for individualizing intervention
- Profile minimizes categorization & labeling

ABILITIES Index

(Simeonsson & Bailey, 1988)

DIMENSION

LIMITATIONS

	0	1	2	3	4	5	Weight
Audition (R/L)							
Behavior & social skills							
Intellectual functioning							
Limb functioning (R/L)							
Int.Communication(R/E)							
Tonicity(Hyper/Hypo)							
Integrity of physical health							
Eyes (R/L)							
Structural status							
Summary index							

ABILITIES Index Applications

- *Describe an individual child*
- *Document perspectives of different raters*
- *Compare perspectives of different raters*
- Support eligibility decisions
- Facilitate team consensus
- Identify implications for intervention planning
- Compare children within or across groups
- *Describe subgroups of children in service system*

Student Abilities Index

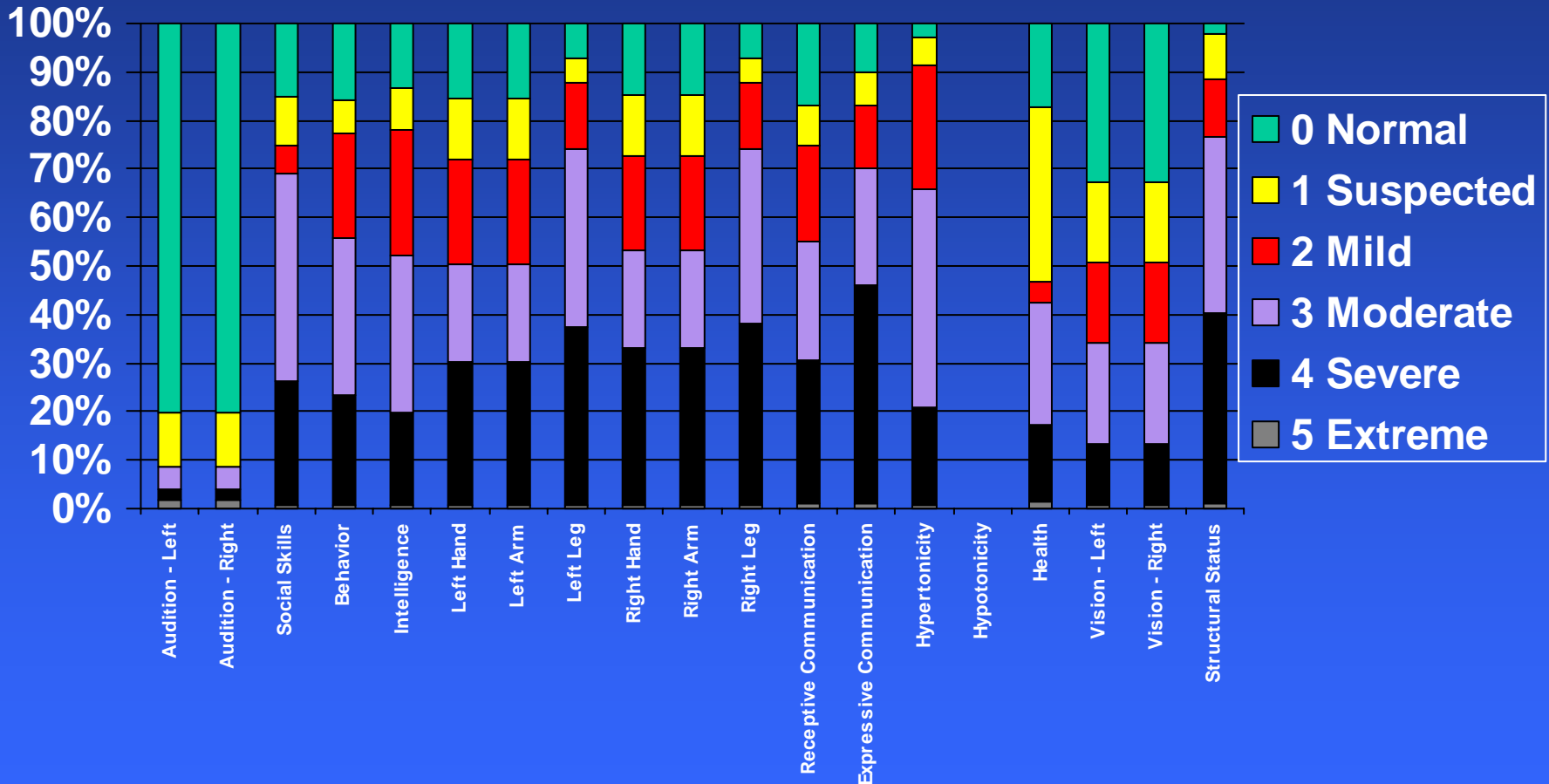
A		B		I	L					I		T		I	E		S		
Audition (Hearing) Rate Both		Behavior & Social Skills Rate Both		Intellectual Functioning	Limbs (Use of hands, arms, and legs) Rate All					Intentional Communication Rate Both		Tonicity (Muscle Tone) Rate Both		Integrity of Physical health	Eyes (Vision) Rate Both		Structural Status		
Left Ear	Right Ear	Social Skills	Inapprop. Behavior	Thinking & Reasoning	Left Hand	Left Arm	Left Leg	Right Hand	Right Arm	Right Leg	Understanding others	Communicating with others	Degree of tightness	Degree of looseness	Overall Health	Left Eye	Right Eye	Shape, Body Form & Structure	
Normal	Normal	All behaviors typical & appropriate for age		Normal for age	Complete normal use					Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Suspected hearing loss	Suspected hearing loss	Suspected disability	Suspected inapprop. behaviors	Suspected disability	Suspected difficulty					Suspected disability	Suspected disability	Suspected disability	Suspected disability	Suspected disability	Suspected health problems	Suspected vision loss	Suspected vision loss	Suspected difference or interference	
Mild hearing loss	Mild hearing loss	Mild disability	Mildly inapprop. behaviors	Mild disability	Mild difficulty					Mild disability	Mild disability	Mild disability	Mild disability	Mild disability	Minor ongoing health problems	Mild vision loss	Mild vision loss	Mild difference or interference	
Moderate hearing loss	Moderate hearing loss	Moderate disability	Moderately inapprop. behaviors	Moderate disability	Moderate difficulty					Moderate disability	Moderate disability	Moderate disability	Moderate disability	Moderate disability	Ongoing but medically-controlled health problems	Moderate vision loss	Moderate vision loss	Moderate difference or interference	
Severe hearing loss	Severe hearing loss	Severe disability	Severely inapprop. behaviors	Severe disability	Severe difficulty					Severe disability	Severe disability	Severe disability	Severe disability	Severe disability	Ongoing poorly-controlled health problems	Severe vision loss	Severe vision loss	Severe difference or interference	
Profound hearing loss	Profound hearing loss	Extreme disability	Extremely inapprop. behaviors	Profound disability	Profound difficulty					Profound disability	Profound disability	Profound disability	Profound disability	Profound disability	Extreme health problems, near total restriction of activities	Profound vision loss	Profound vision loss	Extreme difference or interference	

A. Speech language Impairment

B. Emotional Disturbance

ABILITIES Profile

Children at Neuvo Amancer (n=-172)



Parent Use of the ABILITIES Index

- Comparison of parent and professional ratings of child functioning show good agreement (80-95% within 1 point; 40-80% exact)
- Highest for hearing, vision, lowest for behavior & communication
- Mean time to complete (parents=20'; teachers 18'; therapists=12'; specialists=5')
- Parents found AI very useful (>70%), potentially useful (>20%) not useful (<5%)

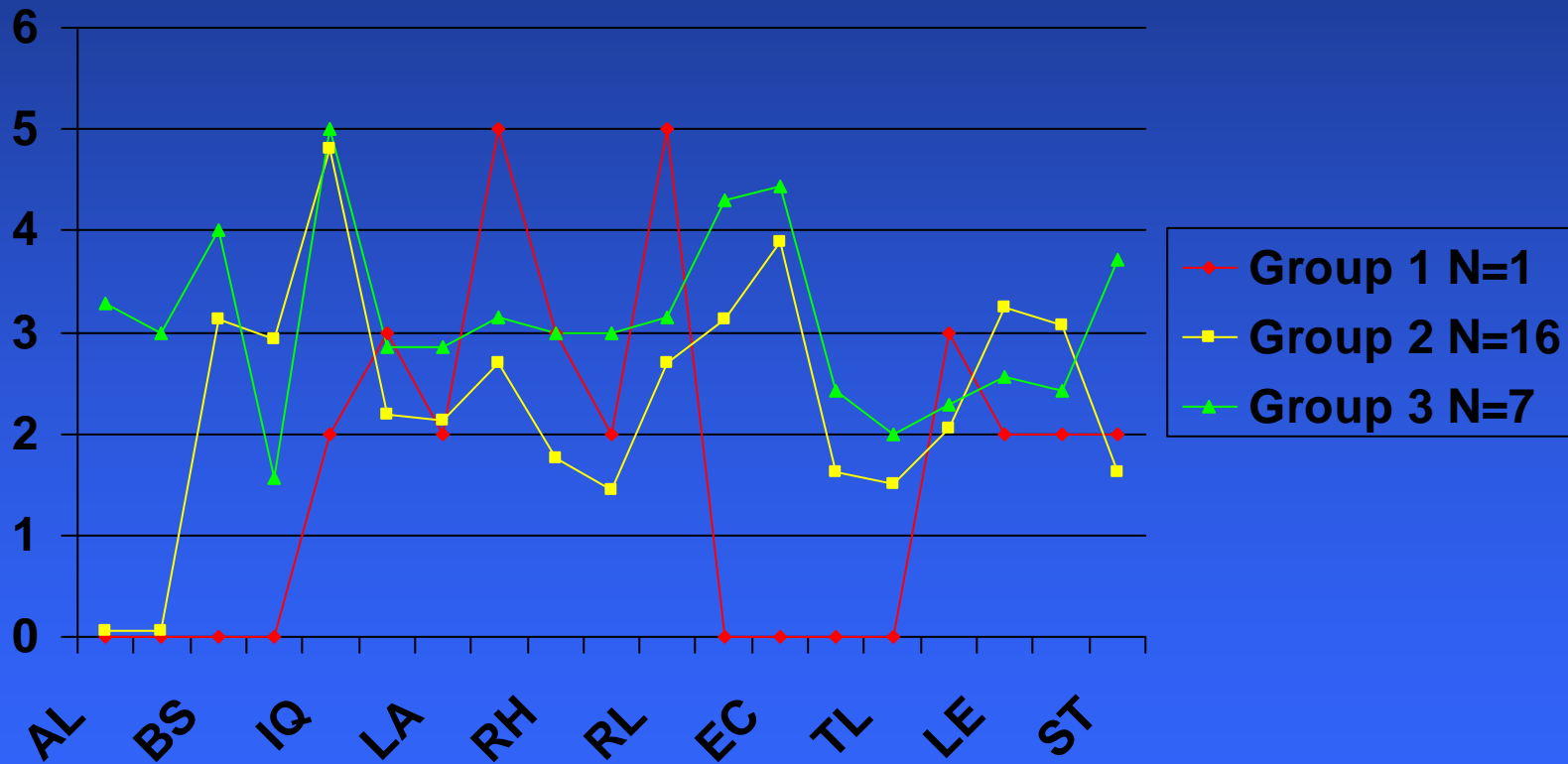
ABILITIES Index: Interdisciplinary team consensus study

- Use of Abilities Index in context of interdisciplinary assessment team
- 9 Evaluation Centers; 72 professionals; 130 children
- Independent ratings by each team member (minimum of 4) followed by consensus rating
- Weighted kappas ranged from .51-.82; lowest (audition), highest (intellectual functioning)

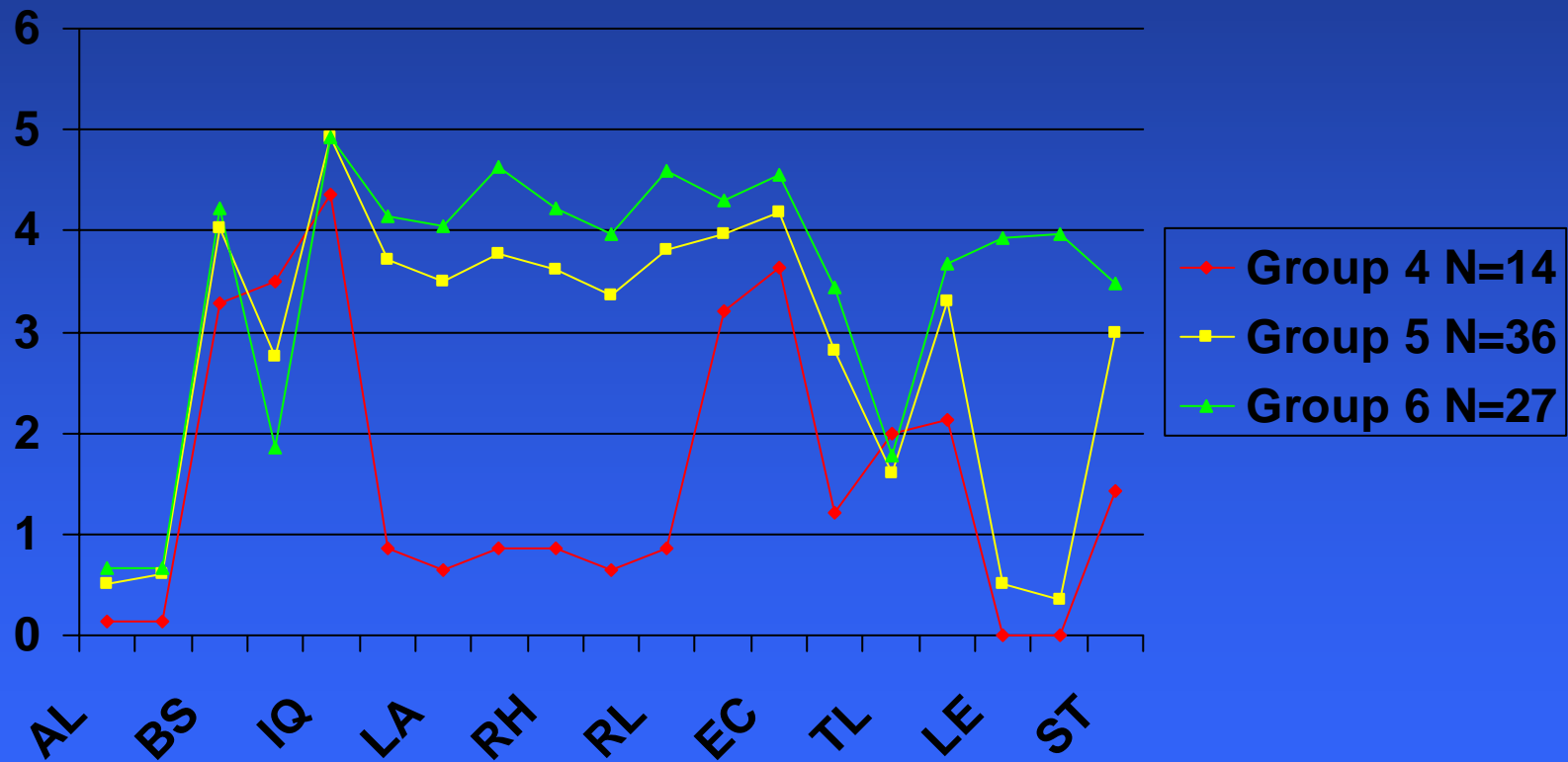
ABILITIES Ratings by children with spina bifida, parents & teachers: inter-rater reliability

- Parent with child (N=72)
- $r=.57$
- Parent with teacher (N=41)
 $r=.62$
- Child with teacher (N=24)
- $r=.48$

ABILITIES Index: Cluster analysis of children with severe/multiple disabilities- Center for Discovery (N=101)



Cluster analysis: children at Center for Discovery N=101



Descriptive documentation using the ABILITIES Index

- **Ratings on the ABILITIES Index by children with spina-bifida and by their parents**
- **Presentation of profiles of functional characteristics using the ABILITIES Index**
- **Derivation of aggregate score (Sum of weighted domain scores)**

ABILITIES Index: weights for domains

- Audition left 1.8
- Audition right 1.8
- Behavior/social 1.4
- Behav/Inapp 1.7
- Intelligence 2.0
- Left hand 1.5
- Left arm 1.4
- Left leg 1.6
- Right hand 1.5
- Right arm 1.4
- Right leg 1.6
- Recept/comm 1.2
- Express/comm 1.0
- Tone/hyper 1.5
- Tone/hypo 1.4
- Health 1.5
- Left eye 1.7
- Right eye 1.7
- Structure/form 1.3

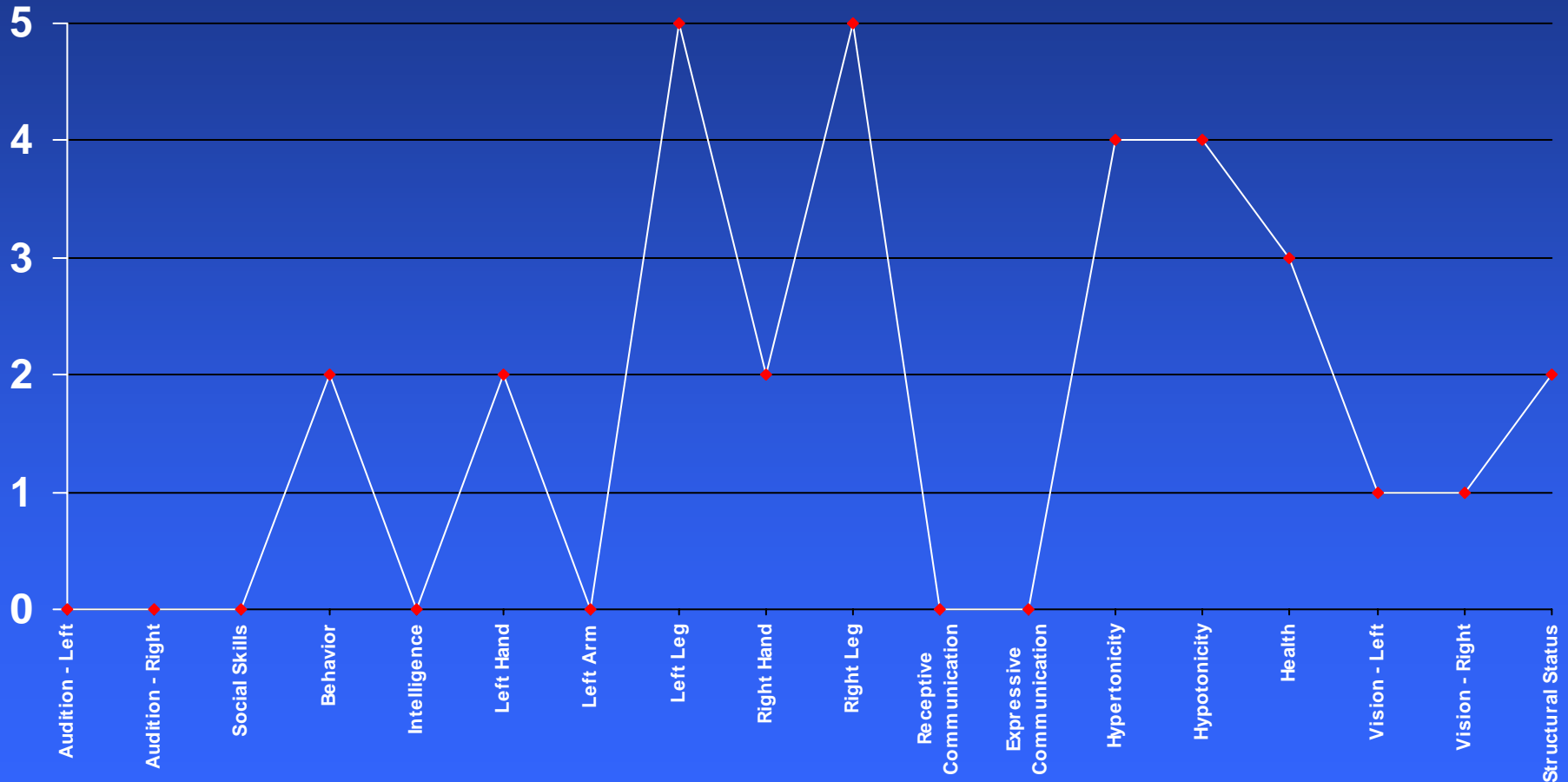
Children with spina bifida: variables

- N=137-172
- ABILITIES Index (Profile & weighted aggregate score)
- Secondary Conditions-
- (Mean; range 0=none -3=severe)
 - Physical=0.97 -Academic=1.34
 - Social=0.94 - Family=1.16
 - Personal=0.93 -Total 2nd = 1.08

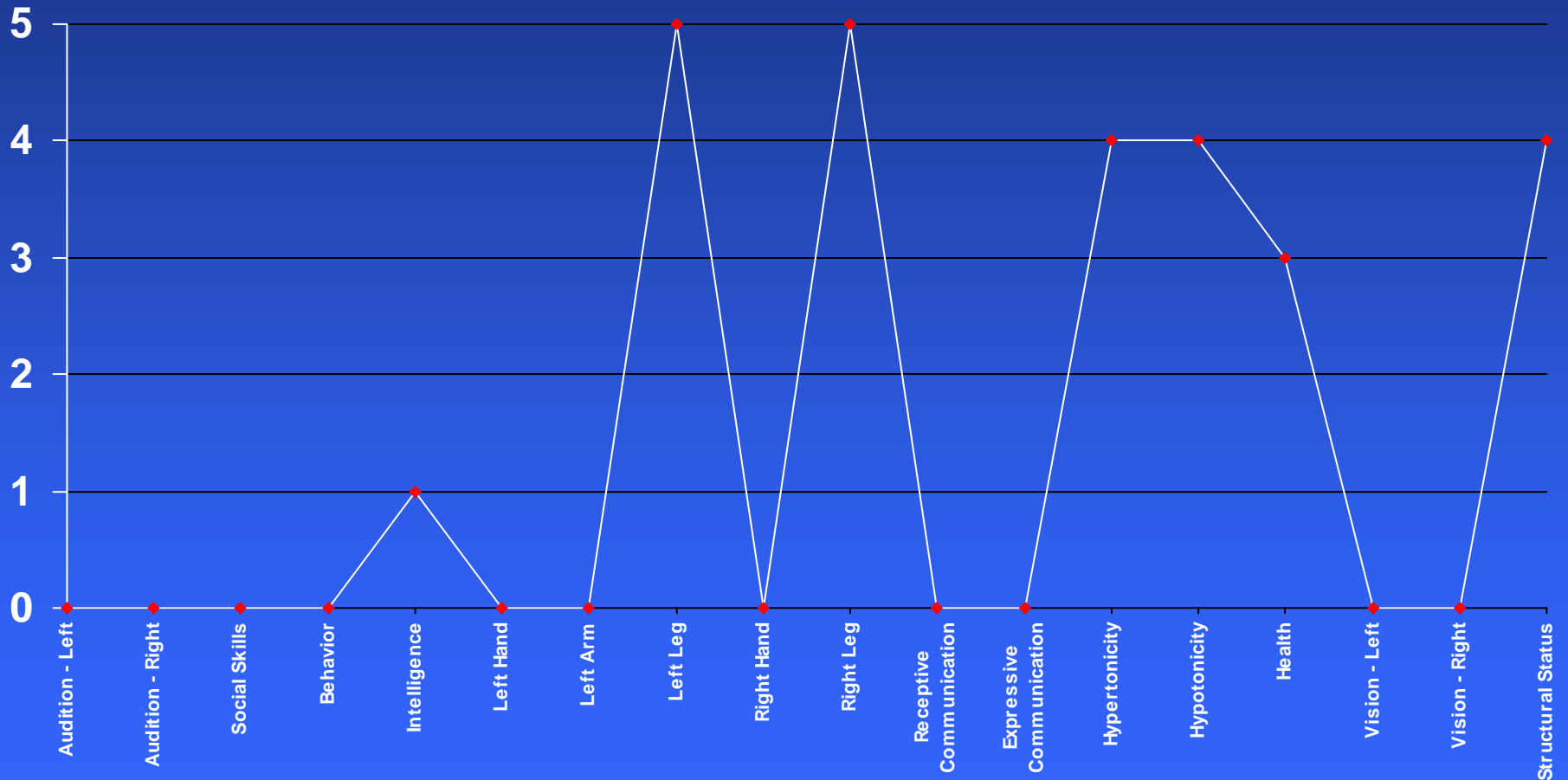
Children with spina bifida: variables

- Lesion Level (N/group)
 - Thoracic=33
 - Upper Lumbar=9
 - Lower Lumbar=56
 - Sacral=32
- WISC Scaled Scores (Mean)
 - Vocabulary= 7.19
 - Coding= 5.37
 - Arithmetic= 6.69

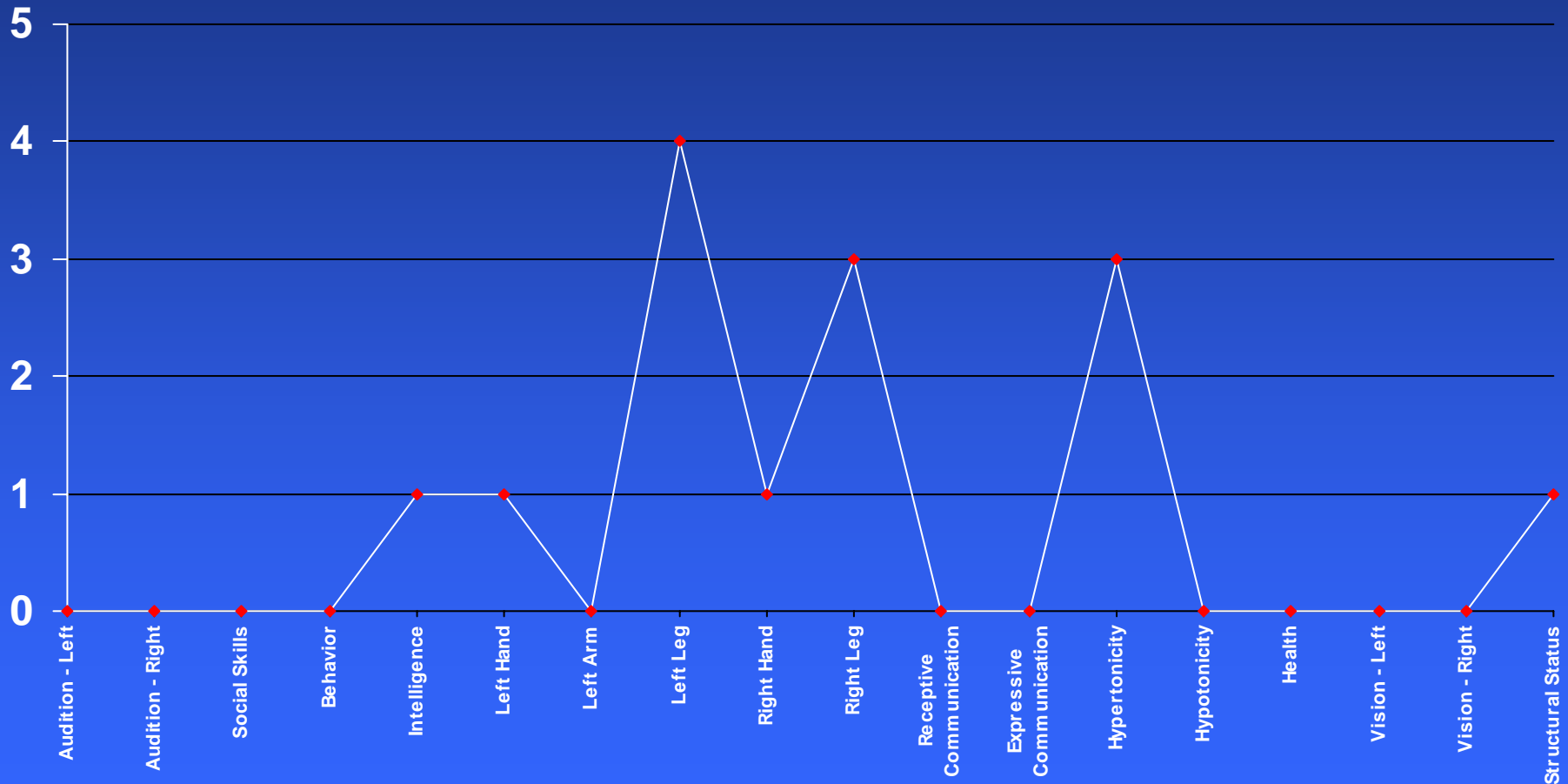
Child with Thoracic lesion: A I Profile & Aggregate Index(47.5)



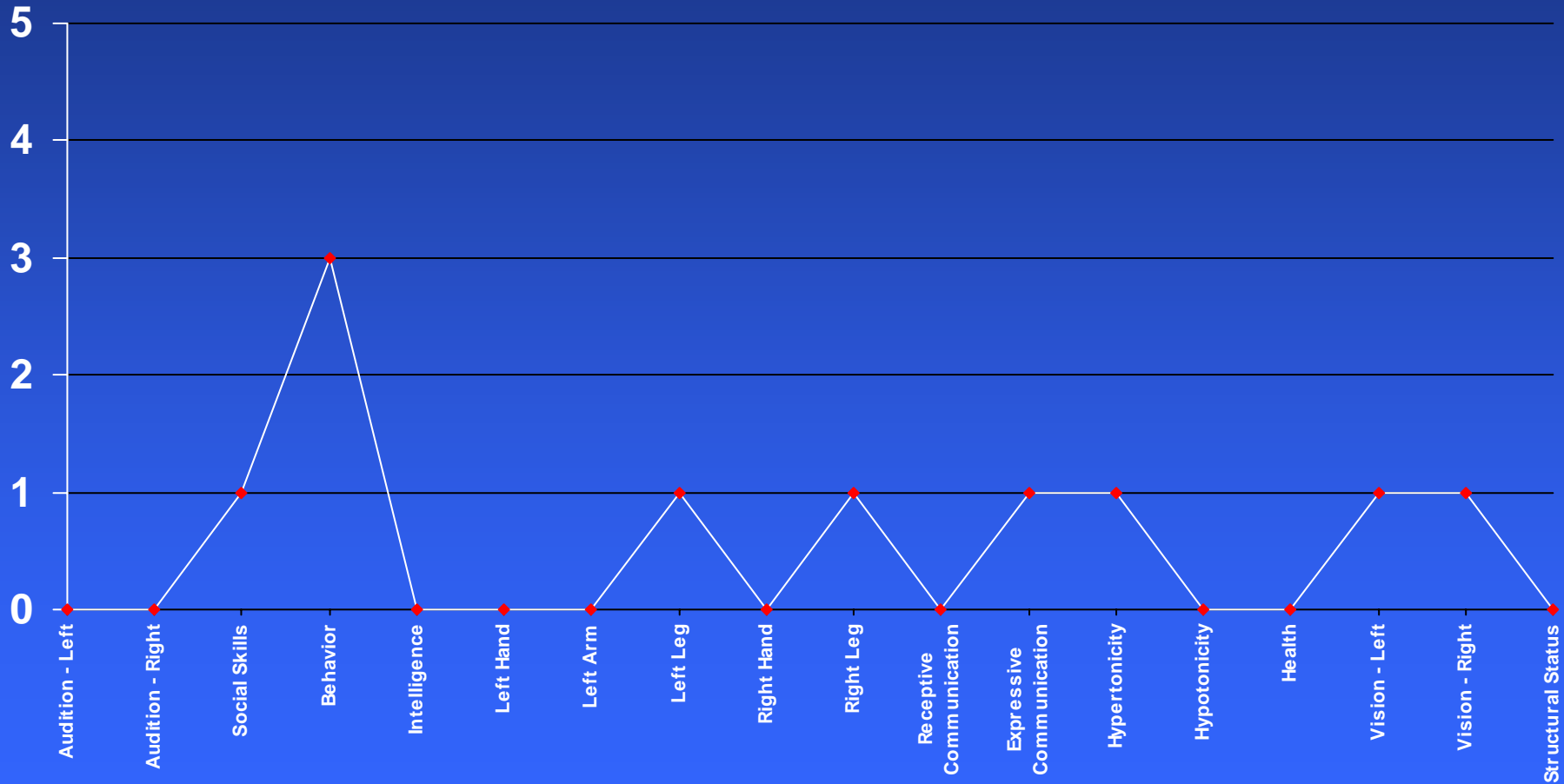
Child with U. Lumbar lesion: Profile & Aggregate Index (39.3)



Child with L. Lumbar lesion: Profile & Aggregate Index (22.0)



Child with Sacral lesion: Profile & Aggregate Index (15.6)



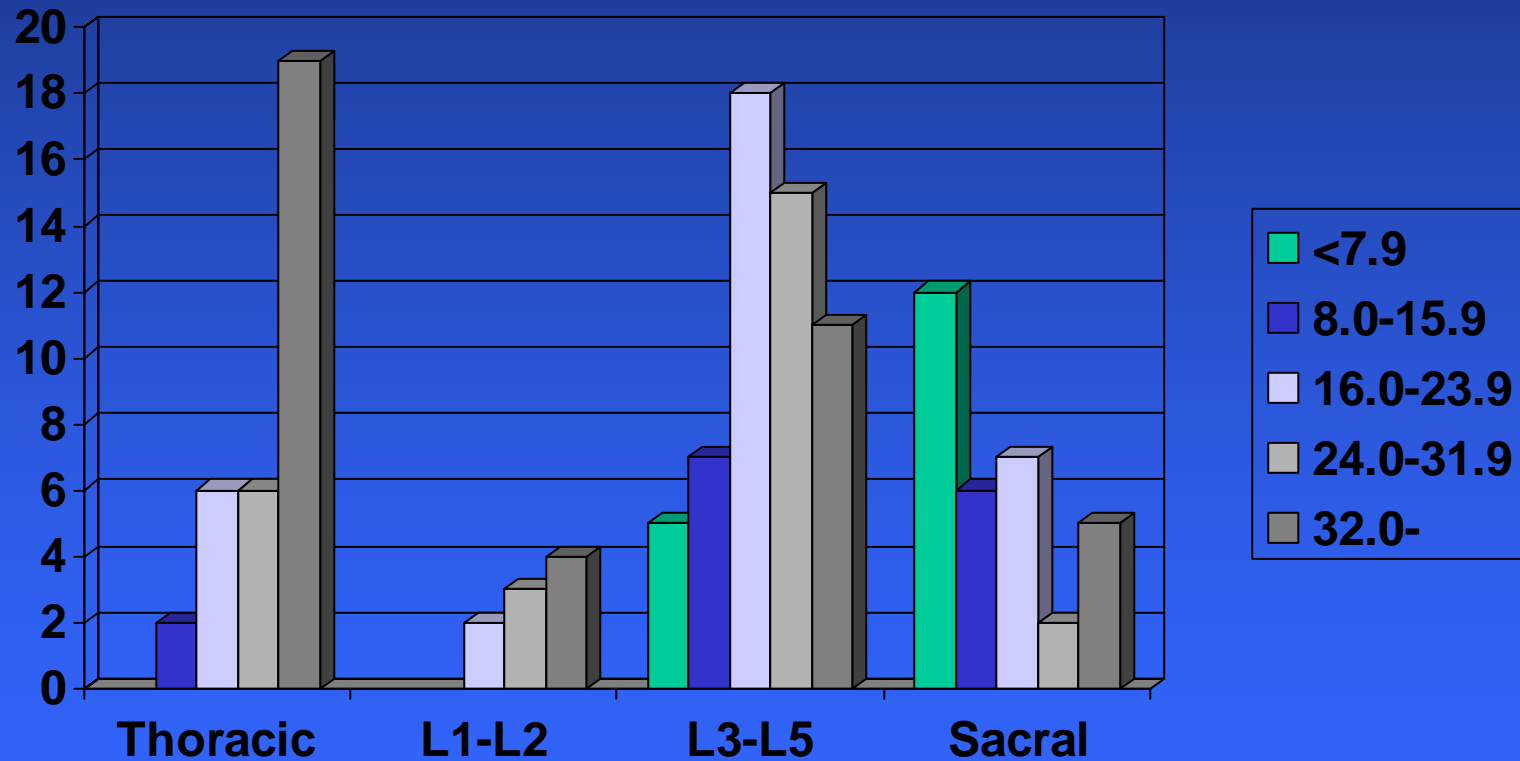
Summary documentation: ABILITIES Index aggregate scores by group (lesion level)

- | <u>Group</u> | <u>Mean</u> | <u>Range</u> |
|--------------|-------------|--------------|
| Thoracic | 33.6 | 14.1- 57.7 |
| Upper Lumbar | 33.3 | 17.0 - 50.1 |
| Lower Lumbar | 24.4 | 0.0 - 80.9 |
| Sacral | 16.1 | 1.3 - 57.1 |
- *T vs. LL & S
 - *UL vs. S
 - *LL vs. S

Aggregate scores based on sum of weights for 5 domains by levels of severity

- Aggregate score=
sum of 5 weighted
domains
- Audition-1.8
- Behavior- 1.4
- Intelligence - 2.0
- Limb function - 1.5
- Intentional communication- 1.2
- Associated severity
level of aggregate
scores
- Suspected < 7.0
- Mild 8.0- 15.9
- Moderate 16.0- 23.9
- Severe 24.0 - 31.9
- Extreme 32.0 +

ABILITIES Index aggregate scores by lesion level group



Clinical Implications

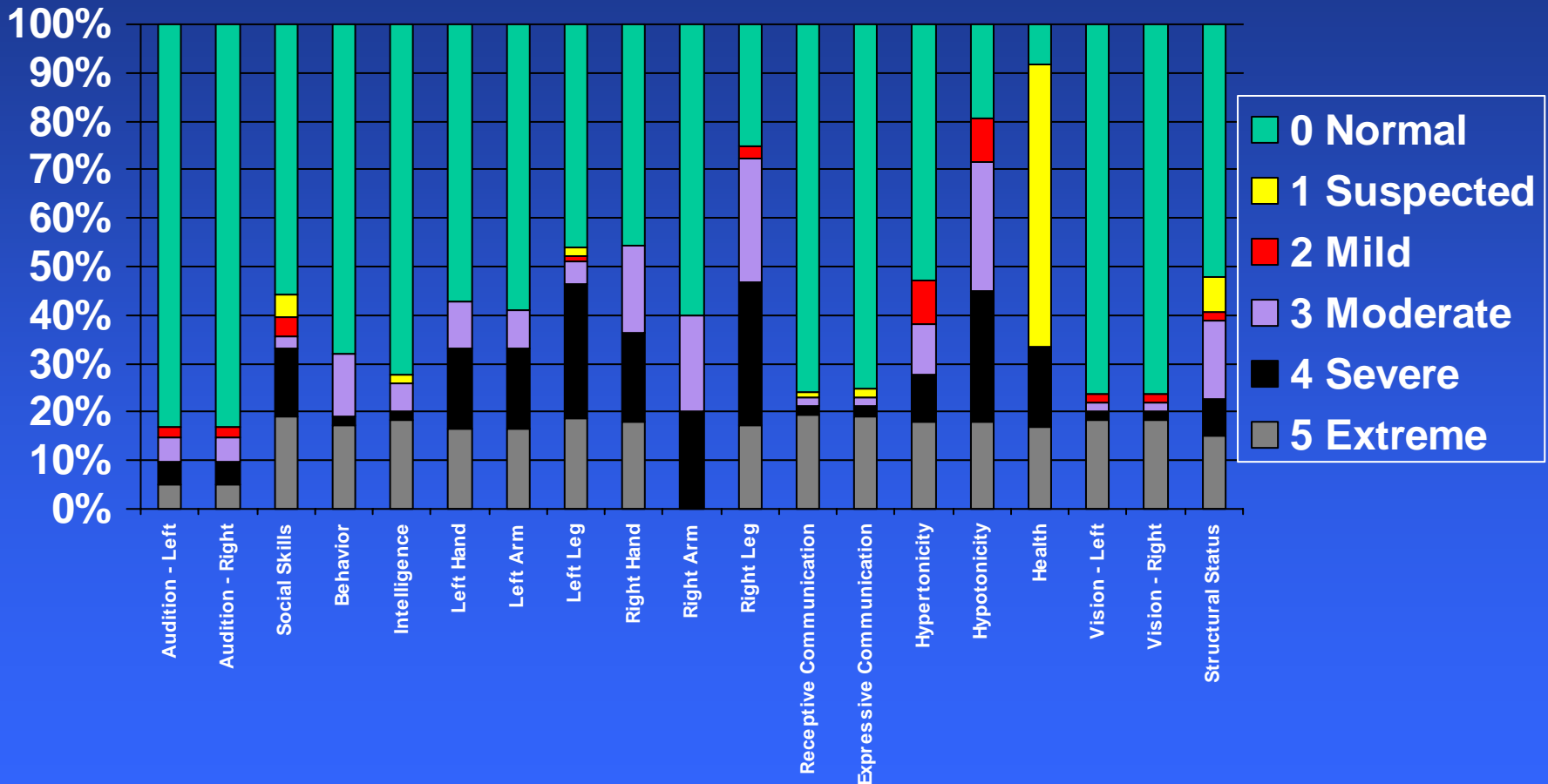
- **Functional assessment of disabilities**
- **Builds on parent's knowledge and perspective**
- **Yields profile of relative assets and limitations**
- **Personalizing interventions**

Research Implications

- **Compliments other systems (ICD-10, ICF, DSM-IV) to document childhood disability**
- **Provides mechanism for uniform data collection**
- **Promotes basis for comparing international research & policy formulation of childhood disability**

ABILITIES Profile

Ratings for Chinese Children with Orthopedic Impairments (n=22)



Policy Implications

- Non-diagnostic or categorical alternative to define eligibility for services
- Generate statistics on service utility
- Estimate resources or expenditures based on population characteristics
 - (US-specified; 1st-4th quartile of aggregate score= \$8K, 10K, 11.5K, 16K)

GRACIAS
THANKS