



## **Child Cochlear Implant Profile (CHIP) Criteria**

### **Audiology CHIP Criteria**

#### **Audiological (Hearing/Hearing aid use):**

- (0) No concerns:  
A patient who has hearing loss and is within the audiologic criteria or could be determined to be an appropriate candidate based on current evidence and research. A patient who has Auditory Neuropathy Spectrum Disorder (ANSD) associated with OTOF mutations. A patient who consistently wears their hearing aids if a hearing aid trial is warranted.
- (1-3) Mild to moderate concerns:  
An audiotically borderline candidate and/or Auditory Neuropathy Spectrum Disorder (ANSD) without an associated OTOF mutation. A patient who inconsistently wears the hearing aids.
- (4-5) Severe concerns:  
A patient who is not a candidate based on their current unaided audiogram. A patient who does not wear the hearing aids and makes no effort to do so.

#### **Chronological age/ Auditory Deprivation:**

- (0) No concerns:  
A patient who was identified according to recommended guidelines and has been receiving appropriate amplification. For pre-lingual patients, we should consider less than 2-3 years of auditory deprivation no concern.
- (1-3) Mild to moderate concerns:  
A patient who was either late identified or did not receive appropriate amplification resulting in a period of auditory deprivation (4-6 years).
- (4-5) Severe concerns:  
A patient whose history includes lack of follow-up and/or late identification resulting in a prolonged period of auditory deprivation (6+ years).

#### **Functional Hearing (Speech Perception):**

- (0) No concerns:

A patient who receives less than 60% on speech perception testing or who is not meeting auditory their auditory milestones per the LittlEars or IT-MAIS auditory questionnaire.

(1-3) Mild to moderate concerns:

A patient who is performing between 60%-70% on speech perception testing or who is close to meeting their auditory milestones per the LittlEars or IT-MAIS auditory questionnaire.

(4-5) Severe concerns:

A patient who is performing at 70% and above on speech perception testing or who is meeting their auditory milestones per the LittlEars or IT-MAIS auditory questionnaire.

### **Audiology – Family Expectations:**

(0) No concerns:

A patient and/or family who have realistic expectations regarding implantation and are aware that the CI may or may not provide benefit.

(1-3) Mild to moderate concerns:

A patient and/or family that express borderline realistic expectations regarding implantation.

(4-5) Severe concerns:

A patient and/or family that do not have realistic expectations regarding implantation.

## **Developmental/Psychological Evaluation CHIP Criteria**

### **Attention and Behavior:**

(0) No concerns:

Appropriate attention and behavior is observed or reported, taking age into consideration. No concerns reported in social, emotional, or behavioral functioning at home, school, or community. Behavioral rating questionnaires and behavioral observation indicated minimal to no concerns in this area. Attention and behavior does not impact day to day functioning. No additional supports are needed.

(1-3) Mild to Moderate concerns:

Mild concerns due to young age (0-12 months) not being predictive of behavioral functioning at a later age. Mild issues with behavior or attention are observed or reported. Behavioral questionnaires, interview, or observations indicate borderline or at risk concerns for certain areas of social, emotional, or behavioral functioning. Examples would be mild levels of anxiety, social reticence, mild inattention, mild compliance issues, where a mild to moderate level of support is needed. This could also include a suspicion of a possible mental health diagnosis such as mood disorder, anxiety disorder, past history of a disorder but currently stable, past suicidal ideation, ADHD. Mild or high functioning autism spectrum disorder may fall in the moderate concerns range. Toward the moderate range, these factors may impact day to day functioning.

(4-5) Great concerns:

Clear behavioral or emotional diagnoses such as ADHD, or Anxiety Disorder, or a presentation of behavioral, social, and emotional concerns that greatly impact functioning day to day; diagnoses of moderate to severe autism spectrum disorders, with behaviors or social delays that cause significant interference with day to day functioning or

ability to participate in school and/or interventions. Child has difficulty regulating his or her emotional or behavioral functioning across settings. Examples include high levels of impulsivity, inattention, aggression, noncompliance, anxiety and current or recent suicidal ideation. A high level of support is needed.

### **Family Structure and Support:**

#### **(0) No concerns:**

Parents' relationship is intact and high functioning, parents may have higher education levels, no mental health or other health issues for family members, no history of legal problems, no other children with disabilities, no other stressors, parent (s) have regular employment and stable in their home, family has social support network nearby, such as friends, extended family members, etc., family has reliable transportation and the time/availability to provide follow up care. Family members (or adolescent) feel committed to the CI process and rate their commitment as an 8 or higher on a scale of 1-10.

#### **(1-3) Mild to Moderate concerns:**

Family lives far from this center (one hour drive or more one way); housing or job situation for parent may not be stable; limited but present social support network; mild mental health or other issues for parents; having another child with disability; single parent; younger parent with limited educational level, parent may have difficulty or have some barriers with following up with multiple appointments. Family members (or adolescent) may feel ambivalent about their commitment to the CI process, and rate their commitment as a 5-7 on a scale of 1-10.

#### **(4-5) Great concerns:**

Significant mental health concerns for parent; significant health issues for parent or other child; history of domestic violence, marital stress and/or instability, history of substance abuse for the parent; very limited to no social support network; parent is unstable with job, housing, etc. A significant amount of barriers exist, overall. Family members (or adolescent) are not committed to the CI process and rate their commitment as 4 or below on a scale of 1-10.

### **Additional Handicaps:**

#### **(0) No concerns:**

Non-verbal cognitive skills (and motor skills for an infant or young child) fall in the average or above average range; no reported additional conditions such as developmental disability or autism spectrum disorder.

#### **(1-3) Mild to Moderate concerns:**

Mild concerns due to young age (0-12 months) not being predictive of development skills at a later age. Mild concerns /delays in the area of non-verbal cognitive skills or motor skills (if an infant or young child) are observed or reported. Skills may fall in the below average to borderline range. Borderline intellectual functioning and some cases of mild intellectual disability may fall in the area of moderate concerns. In young infants or toddlers, risk factors for developmental issues can be considered in the mild to moderate concern range, such as premature birth or prenatal substance exposure.

#### **(4-5) Great concerns:**

Significant delays in non-verbal or motor skills; diagnoses of intellectual disability ranging from mild to profound range that impact day to day adaptive skills based on parent report, review of records, or direct observation.

## **Educational CHIP Criteria**

**Educational Environment:** The educational environment is where the child receives services. This can refer to the home setting if the child is under 3 years old and is receiving home based services. Once the child is 3 or older, this may refer to their school setting.

- (1) No concerns:  
Educational placement and environment are appropriate to meet the family's goals for cochlear implantation and include a listening and spoken language component for at least part of the day. No concerns reported in the home or classroom environment.
- (1-4) Mild to moderate concerns:  
Educational environment does not include a listening and spoken language component or does not meet the family's stated goals. Concerns are reported in the home or classroom environment.
- (4-5) Great concerns:  
Living in an area where an appropriate educational placement is not provided for a child with hearing loss.

**Educational Support Services:** The educational services are the services and resources the child receives within the educational environment such as speech therapy or the use of an FM system.

- (0) No concerns:  
There are rehabilitation services available and accessible by a public, private, or DHH school that supports the goals of the family and development of auditory-oral communication with a CI. Within the school, educators are willing to use an FM system, learn basic CI information, and abide by the child's IEP. School fully endorses child receiving a CI.
- (1-3) Mild to moderate concerns:  
Punctuality or absences are a problem that has not improved with coaching and support. Lack of appropriate availability and accessibility of rehabilitation services that support the goals of the family and/or the development of auditory-oral communication with a CI. School has some concerns about family commitment with CI, but supports trying.
- (4-5) Great concerns:  
Not receiving any services or living outside an area where there are no appropriate rehabilitation support services or resources for families with children with hearing loss and are unable/unwilling to obtain these services through other means. School feels family commitment to CI is limited and does not support child receiving CI.

## **Medical CHIP Criteria**

### **Medical Criteria – Medical concerns and temporal bone anatomy**

(0) No concerns

Normal imaging

No medical conditions that can increase surgical or anesthetic risks.

(1) Mild concerns

Imaging: EVA, incomplete partition type II, certain mild anatomical concerns regarding surgical approach (such as high riding (non dehiscant) jugular bulb not obstructing round window)

No medical conditions that can increase surgical or anesthetic risks.

Updated 07/20/23

(2) Mild concerns

Imaging: Incomplete partition type I, shorter cochlear length, certain mild anatomical concerns regarding surgical approach (such as high riding (non dehiscent) jugular bulb obstructing round window)

No medical conditions that can increase surgical or anesthetic risks.

(3) Moderate concerns

Imaging: common cavity, hypoplastic cochlea, communication from cochlea/common cavity to IAC, abnormal course of the facial nerve, otitis media (controlled), partially ossified cochlear lumen (basal turn), certain moderate anatomical concerns regarding surgical approach (such as sclerotic mastoid with normal facial recess, high riding (dehiscent) jugular bulb obstructing round window)

Medical conditions that can increase surgical or anesthetic risks (mild concerns, such as patients who are ASA II)

(4) Great concerns

Imaging: extremely hypoplastic cochlea with high probability of less than 6 electrodes implanted, completely ossified cochlear lumen, otitis media (poorly controlled), certain anatomical concerns regarding surgical approach (such as sclerotic mastoid with narrow facial recess, large emissary or aberrant vasculature obstructing access to middle ear/mastoid)

Medical conditions (e.g., seizures, bleeding disorders, immunosuppressed patients, etc.) that increase mild/moderately the surgical or anesthetic risks

Healing disorders (connective tissue disorders). Patients who are ASA III.

(5) Great concerns – not cochlear implant candidates

Imaging: absent cochlea, otitis media (not controlled)

Patients who are ASA IV

## **Medical Criteria- Cochleovestibular nerves / brain imaging**

(0) No concerns

Cochleovestibular nerve status: Birman class 5 (4 nerves in lateral IAC, cochlear nerve normal size)

Normal brain anatomy.

(1) Mild concerns

Cochleovestibular nerve status: Birman class 5 (4 nerves in lateral IAC, cochlear nerve normal size)

Mild neurological impairments, normal brain MRI

(2) Mild concerns

Cochleovestibular nerve status: Birman class 5 (4 nerves in lateral IAC, cochlear nerve normal size)

Mild neurological impairments, nonspecific brain abnormalities on MRI

(3) Moderate concerns

Cochleovestibular nerve status: Birman class 4 (4 nerves in lateral IAC but cochlear nerve is small when compared to facial nerve)

Moderate neurological impairments with or without more specific brain abnormalities on MRI

Updated 07/20/23

(4) Moderate concerns

Cochleovestibular nerve status: Birman class 2-3 (2 or 3 nerves in lateral IAC)

Severe neurological impairments and/or significant brain abnormalities

(5) Great concerns

Cochleovestibular nerve status: Birman class 0 (IAC too stenotic to determine neural contents) or Birman class 1 (1 nerve in lateral IAC)

Severe neurologic condition and/or severe brain abnormality

## **Speech CHIP Criteria**

(0) No Concerns

- Typical or near typical receptive and expressive language abilities but with errors apparent in functional listening testing due to hearing loss. This may include post-lingual progressive or sudden hearing loss.
- Pre-lingual 6-18 months with some functional listening abilities and emerging speech and language skills.

(1-3) Mild to Moderate Concerns

- (1) Pre-lingual child 0-6 months. Due to young age assessment scores might not be predictive of speech and language abilities at a later age.
- (1-2) Pre-lingual child 6-24 months with limited or inconsistent functional listening abilities and moderate to severe speech and language development with appropriate amplification.
- (2-3) Pre-lingual child 24 months to 3.5 years with limited or inconsistent functional listening abilities and moderate to severe speech and language development with appropriate amplification.
- (2-3) Child older than 3.5 who demonstrates typical or near typical acquisition of a signed language and is able demonstrate complex communication (e.g., exchange ideas, opinions, and needs).

(4-5) Severe Concerns

- (4) Child older than 3.5 years who does not demonstrate complex communication (e.g., exchange of ideas, opinions and needs) with either oral or a signed language at a level expected for the length of time of exposure to the communication modality.
- (5) Pre-lingual child 3.5 years of age or older, who has been unable to develop speech and language either oral or a sign language
- (4-5) Severe speech impairment not accounted for in the Developmental Evaluation (e.g., severe oral motor deficits and/or apraxia) which is not due to hearing loss.
- (4-5) Limited use of pre-linguistic communication skills including turn-taking, communicative intent, and joint attention.

- (4-5) Child 3.5 years of age and older who shows limited motivation to using voice and hearing to communicate but whose family is interested in obtaining a cochlear implant.