

# Early Hearing Detection and Intervention (EHDI) Goals, Indicators and Benchmarks

## MINNESOTA EHDI PROGRAM

*The measures described in this document are based on the national goals, program objectives, and performance measures for the Early Hearing Detection and Intervention Tracking and Surveillance System from the Centers for Disease Control and Prevention (CDC). They are intended to be used to evaluate progress toward goals accepted by the Minnesota Newborn Hearing Screening Advisory Committee (NHSAC). Indicators are to be assessed annually for children reported to the Newborn Screening Program between January and December of each calendar year. The numerators and denominators explain the cohorts included in each indicator and the participation of children or their families in the services or programs offered in each indicator. Results will be reported to the NHSAC.*

Approved: May 2010, August 2010, November 2010, November 2013, August 2024

### Goal 1. All newborns will receive a hearing screen.

**1.1 Indicator:** Number and percent of infants who received a newborn hearing screen.

Numerator	Denominator (among eligible)
Infants born in MN and reported to the MN Newborn Screening Program as receiving a newborn hearing screen.	Total number of live, occurrent births in MN excluding: a) Infants who were born deceased or died before hearing screen was completed; and b) Infants that were referred right to diagnostic testing for medical reasons.

**1.2 Indicator:** Number and percent of infants who received a newborn hearing screen within 30 days.

Numerator	Denominator (among eligible)
Infants born in MN and reported as screened for hearing loss before 30 days of age.	Total number of live, occurrent births in MN excluding: a) Infants who were born deceased or died before hearing screen was completed; and b) Infants that were referred right to diagnostic testing for medical reasons.

**1.3 Indicator:** Number and percent of infants who do not pass their final inpatient or birth hearing screen (i.e. newborn hearing screen result reported to MDH is a refer/did not pass in one or both ears)

Numerator	Denominator (among served)
Infants with a refer/did not pass in one or both ears on the final inpatient or birth hearing screen result reported to MDH.	Infants with reported newborn hearing screen results.

## Goal 2. All infants who do not pass newborn hearing screen will have a diagnostic audiologic evaluation with diagnosis before 3 months of age.

**2.1 Indicator:** Number and percent of infants who had a reported refer/did not pass result on final hearing screen or who went straight to diagnostic assessment and received a diagnosis by 3 months of age.

Numerator	Denominator (among eligible)
All infants with diagnostic audiology evaluation with diagnosis by 3 months of age.	All infants who did not pass final hearing screen or referred straight to diagnostic assessment excluding: a) Infants who died prior to having an audiology exam.

**2.2 Indicator:** Number and percent of infants with a reported refer/did not pass result on their final inpatient or birth hearing screen or were referred straight to diagnostic assessment who were lost to follow-up/documentation.

Numerator	Denominator (among eligible)
Infants with a reported refer/did not pass result in one or both ears on final inpatient or birth hearing screen or who were referred straight to diagnostic assessment who are “closed” for active MDH short term follow-up with incomplete hearing screen status.	Infants with a reported refer/did not pass result in one or both ears on final inpatient or birth hearing screen or who were referred straight to diagnostic assessment excluding: a) Infants who died since screening.

**Goal 3. All infants and children identified as deaf and hard of hearing will receive timely and appropriate early intervention (special education services, family support, and access to medical specialty care).**

Medical specialty care

**3.1 Indicator:**

**A)** Number and percent of infants with congenital onset permanent hearing loss who saw ENT between 6 months before diagnosis of hearing loss and up to 30 days after hearing loss diagnosis.

Numerator	Denominator (among eligible)
Infants and children reported with congenital onset of permanent hearing loss who had an ENT evaluation 6 months prior to or up to 30 days after diagnosis.	Infants with congenital onset of permanent hearing loss.

**B)** Number and percent of infants or children with late onset permanent hearing loss who saw ENT between 6 months before diagnosis of hearing loss and up to 30 days after hearing loss diagnosis.

Numerator	Denominator (among eligible)
Infants and children reported with late onset of permanent hearing loss who had an ENT evaluation between 6 months prior to or up to 30 days after diagnosis.	Infants or children with late onset of permanent hearing loss.

**3.2 Indicator:** Number and percent of infants and children with permanent hearing loss who received a genetics evaluation within 9 months of diagnosis.

Numerator	Denominator (among eligible)
Infants and children with permanent hearing loss who had a genetics evaluation within 9 months of diagnosis.	Infants and children reported with permanent hearing loss.

**3.3 Indicator:** Number and percent of infants and children with permanent hearing loss who received an evaluation by an ophthalmologist within 3 months of diagnosis.

Numerator	Denominator (among eligible)
Infants and children with permanent hearing loss who had an ophthalmology evaluation within 3 months of diagnosis.	Infants and children reported with permanent hearing loss.

## Audiology services

**3.4 Indicator:** Number and percent of infants and children with permanent hearing loss whose parent(s) chose personal amplification and who were fitted within one month of diagnosis.

Numerator	Denominator (among served)
Infants and children with permanent hearing loss who were fitted with personal amplification within one month of diagnosis.	Infants and children with permanent hearing loss who were fitted with personal amplification.

## Special education services

**3.5 Indicator:** Number and percent of infants/children identified as deaf and hard of hearing (permanent/persistent hearing difference) before 3 years of age who were reported to be enrolled in Part C Early Intervention services.

Numerator	Denominator (among eligible)
Infants/children identified as deaf and hard of hearing before 3 years of age who were enrolled in Part C Early Intervention services (initial IFSP date).	Infants/children identified as deaf and hard of hearing before 3 years of age.

**3.6 Indicator:** Number and percent of infants identified congenitally as deaf and hard of hearing who were reported as enrolled in Part C Early Intervention services who were enrolled before 6 months of age.

Numerator	Denominator (among served)
Infants identified as deaf and hard of hearing who were reported as enrolled in Part C Early Intervention services (initial IFSP date) before 6 months of age.	Infants identified congenitally as deaf and hard of hearing who were reported as enrolled in Part C Early Intervention services.

**3.7 Indicator:** Number and percent of infants/children identified as deaf and hard of hearing before three years of age who were reported to be enrolled in Part C Early Intervention services within two months of initial hearing loss diagnosis.

Numerator	Denominator (among served)
Infants/children identified as deaf and hard of hearing before 3 years of age who were enrolled in Part C Early Intervention services (initial IFSP date) within two months of initial hearing loss diagnosis.	Infants/children identified as deaf and hard of hearing before 3 years of age who were reported as enrolled in Part C Early Intervention services.

## Family Support Services

**3.8 Indicator:** Number and percent of infants/children identified as deaf and hard of hearing before three years of age who were reported to be enrolled in the Deaf Mentor Family Program or Deaf and Hard of Hearing Adult Role Model Program.

Numerator	Denominator (among eligible)
Infants/children identified as deaf and hard of hearing before three years of age who were reported to be enrolled in the Deaf Mentor Family Program or Deaf and Hard of Hearing Adult Role Model Program.	Infants/children identified as deaf and hard of hearing before three years of age.

**3.9 Indicator:** Number and percent of families with infants/children ages 0-10 years identified as deaf and hard of hearing who received direct parent-to-parent support (i.e. phone call or personal contact) within one month of their child’s initial hearing loss diagnosis.

Numerator	Denominator (among eligible)
Infants/children ages 0-10 years identified as deaf and hard of hearing whose families were directly contacted by MDH’s current grantee for EHDI parent-to-parent support within one month of initial hearing loss diagnosis.	Infants/young children ages 0-10 years identified as deaf and hard of hearing.

**3.10 Indicator:** Number and percent of families of infants/children ages 0-6 years newly identified as deaf and hard of hearing who requested a mentor from the Deaf Mentor Family Program and began the program with a mentor within 30 days of their request.

Numerator	Denominator (among served)
Infants/children ages 0-6 newly identified as deaf and hard of hearing whose families began the program with a mentor within 30 days of requesting a mentor.	Infants/young children ages 0-6 years newly identified as deaf and hard of hearing whose parent(s) requested a mentor from the Deaf Mentor program.

**Goal 4. All infants and children with late onset, progressive, or acquired hearing loss will be identified at the earliest possible time.**

**4.1 Indicator:** Number and percent of infants and children identified with late onset, progressive, or acquired hearing loss.

Numerator	Denominator (among eligible)
Infants/children identified as deaf and hard of hearing who were born after 9/1/2007 and had an initial pass result for both ears on newborn hearing screening (late onset).	Infants/children identified as deaf and hard of hearing who were born after 9/1/2007 (implementation of mandate) and whose hearing loss onset is known (congenital or late onset).

**Goal 5. All infants and children reported with permanent hearing loss will have a medical home as defined by the American Academy of Pediatrics.**

**5.1 Indicator:** Number and percent of infants and children who had a primary care provider at the time of diagnosis.

Numerator	Denominator (among eligible)
Infants and children reported with permanent hearing loss whose primary care provider was confirmed.	Infants and children reported with permanent hearing loss.

**Goal 6. Minnesota will have a complete EHDI tracking and surveillance system that will minimize loss to follow-up.**

**6.1 Indicator:** Documentation of number and percent of newborn hearing screening records matched with vital records.

Numerator	Denominator (among served)
Infants who received a newborn hearing screen whose record contains a state file number (indicating an officially registered birth that was matched to a newborn screening record).	Officially registered MN births who received a newborn hearing screen.

**6.2 Indicator:** Number and percent of cases sent from MDH to Local Public Health (LPH) to assist with screening through diagnostic follow-up with a reported outcome.

Numerator	Denominator (among served)
Number of cases sent to LPH with a reported outcome after referral to LPH.	Number of cases sent to LPH.

## Goal 7. All infants and children who are deaf and hard of hearing perform similar to their peers academically.

**7.1 Indicator:** Infants and children, birth through age 2, identified as deaf and hard of hearing with receptive communication abilities commensurate with their cognitive abilities.

Numerator	Denominator (among served)
Number of infants and children reported to both MDH and MDE with typical cognition performing at age level.	Number of infants and children with a Child Outcomes Summary (COS) report/deaf and hard of hearing (DHH) questions.

**7.2 Indicator:** Infants and children, birth through age 2, identified as deaf and hard of hearing with expressive communication abilities commensurate with their cognitive abilities.

Numerator	Denominator (among served)
Number of infants and children reported to both MDH and MDE with typical cognition performing at age level.	Number of infants and children with a COS report/DHH questions.

**7.3 Indicator:** Number and percent of 3rd graders who were reported to MDH as deaf and hard of hearing and took the Reading Proficiency test in 3rd grade who were proficient.

Numerator	Denominator (among served)
Children reported to MDH and identified as deaf and hard of hearing who have taken the MN 3rd grade Reading Proficiency test and were proficient.	Total number of children reported to MDH as deaf and hard of hearing excluding: a) Children who have not taken the MN 3rd grade Reading Proficiency test.

**7.4 Indicator:** Number and percent of 3rd graders who were reported to MDH as deaf and hard of hearing and took the Math Proficiency test in 3rd grade who were proficient.

Numerator	Denominator (among served)
Children reported to MDH and identified as deaf and hard of hearing who have taken the MN 3rd grade Math Proficiency test and were proficient.	Total number of children reported to MDH as deaf and hard of hearing excluding: a) Children who have not taken the MN 3rd grade Math Proficiency test.

## Glossary

Among eligible	<p>CDC definition: all infants and children that are eligible to move to the next part of the EHDI process.</p> <p>For example: all newborns are eligible to receive a newborn hearing screen. Infants that referred/did not pass their newborn hearing screen or had a risk factor would be part of the eligible population for a rescreen or diagnostic test.</p>
Among served	<p>CDC definition: All infants and children that received the recommended services during each stage of the EHDI process. This is a sub-population of the eligible population.</p>
CDC	Centers for Disease Control and Prevention
Child Outcomes Summary (COS)	<p>Summarizes information on a child's functioning in three child outcome areas using a 7-point scale. In Minnesota, ECSE programs must report this data upon an eligible child's entry to and exit from Part C and Part B/619.</p> <p><a href="http://education.mn.gov/MDE/dse/early/ecse/fam/index.htm">Child and Family Outcomes (education.mn.gov/MDE/dse/early/ecse/fam/index.htm)</a></p>
Congenital hearing loss	<p>a. Any child with a permanent hearing loss who had an officially reported refer/did not pass newborn hearing screening result for at least one ear.</p> <ul style="list-style-type: none"> <li>• This EXCLUDES: <ul style="list-style-type: none"> <li>○ Children who had an officially reported pass result for both ears at the rescreen.</li> <li>○ Children who had an officially reported diagnosis of typical hearing in both ears after a refer/did not pass screening result.</li> </ul> </li> </ul> <p>b. Any child born with atresia.</p> <p>c. Any child born with a risk factor for hearing loss whose initial hearing evaluation is diagnostic.</p>
Deaf and hard of hearing	Permanent bilateral or unilateral hearing loss of any type/degree or persistent conductive hearing loss. Excludes presumed transient hearing loss.
EHDI	Early Hearing Detection and Intervention
ENT	Ear, nose and throat doctor
Initial hearing screening	The hearing screening protocol performed shortly after birth. The MDH Hearing Screening Protocol specifies that for infants who do not pass



	<p>the initial screen, hospitals should attempt one rescreen before discharge. The final screen result at time of discharge is considered to be the initial hearing screen.</p> <p>For infants born out-of-hospital, protocols specify that the initial hearing screening should be done 2-3 days after birth and that these results should be reported to MDH.</p>
Late, progressive or acquired onset	<ul style="list-style-type: none"> <li>a. Any child with a permanent hearing loss who had an officially reported pass result for one or both ears on their most recent newborn hearing screen or a diagnosis of typical hearing in both ears after a refer/did not pass result on newborn hearing screening.</li> <li>b. Any child with permanent hearing loss whose hearing loss is known to have been acquired after birth (e.g., as a result of infection or injury)</li> </ul>
Lost to Follow-Up/Lost to Documentation	<ul style="list-style-type: none"> <li>a. Infants and children who do not progress to the next step in the follow-up process, which includes cases where parents/family is contacted but are unresponsive, unable to contact, or their status is unknown.</li> <li>b. Infants and children with missing information, including those who have received hearing services but whose results have not been reported to the MDH EHDI program.</li> </ul>
MDH	Minnesota Department of Health
Outpatient re-screening	<p>Performed for infants who do not pass initial hearing screening. Complete screening protocols can be found at <a href="http://health.state.mn.us/people/childrenyouth/improveehdi/outpatient.html">Outpatient Screening: Before One Month (health.state.mn.us/people/childrenyouth/improveehdi/outpatient.html)</a>.</p>
Permanent hearing loss	Hearing levels outside the typical range that cannot be medically or surgically treated to bring levels to the typical range.
Refer/did not pass	<p>A refer/did not pass result for newborn hearing screening indicates that the child did not pass in one or both ears and that the child needs further testing to determine hearing levels. Children with a refer/did not pass result in one or both ears on initial screening should receive a rescreen before 1 month of age and children with another refer/did not pass result on rescreen should receive a comprehensive audiological evaluation before 3 months of age. Complete screening protocols are published at <a href="http://health.state.mn.us/people/childrenyouth/improveehdi/state.html">Minnesota EHDI Program (health.state.mn.us/people/childrenyouth/improveehdi/state.html)</a>.</p>

Local Public Health follow-up	Local public health nurses assist MDH in resolving lost to follow-up cases after newborn screening. Sometimes this involves assisting families in arranging transportation to a diagnostic visit or finding out the infant/children’s primary care clinic to help coordinate care. It may also involve assisting MDH in obtaining missing documentation of follow-up already completed.
Unknown onset	Any child with a permanent hearing loss who: <ul style="list-style-type: none"> <li>a) Does not have officially reported newborn hearing screen results; and</li> <li>b) Whose hearing loss onset cannot be determined based on a known cause of the hearing loss.</li> </ul>

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