Missouri Newborn Hearing Screening Annual Report

MISSOURI DEPARTMENT OF HEALTH & SENIOR SERVICES

2024 Missouri
Newborn Screening Data
(Based on data in MOHSAIC in November 2025)

The Missouri Newborn Hearing Screening Annual Report is compiled each year for the purpose of presenting a summary of program data to the Missouri Newborn Hearing Screening Standing Committee (NHSSC). The NHSSC is a subcommittee of the Missouri Genetic Advisory Committee and serves as an advisory body for the Hearing Screening Program. Data used for the report is based on program data compiled each November and reflects measures defined by the Centers for Disease Control and Prevention. This report provides the NHSSC with valuable program data, enabling them to identify trends, successes, and areas for continued improvement. The report also informs partners and stakeholders, such as the Department of Elementary and Secondary Education's First Steps Program, of areas for potential collaboration.

Table of Contents

2024 Occurrent Births and Documented Screening Data

2024 Documented Screening Data

Total Occurrent Births: 68,631 (2024 Total Occurrent Births)

*(Total occurrent births reported by the Bureau of Vital Records: 68,441)**

- Total occurrent births at military facilities according to the Bureau of Vital Records: 208
- Total occurrent homebirths according to the Bureau of Vital Records: 1,706

2024 Documented Screening Data

Total Documented as Screened: 66,769 (97.29%)

Percent screened excluding infant deaths and parental refusals (98.62%)

- Total pass (most recent/final screen): 65,518 (98.13%)

  Pass before 1 month of age: 64,238 (98.05%)
- Total not passed (most recent/final screen): 1,251 (1.87%)

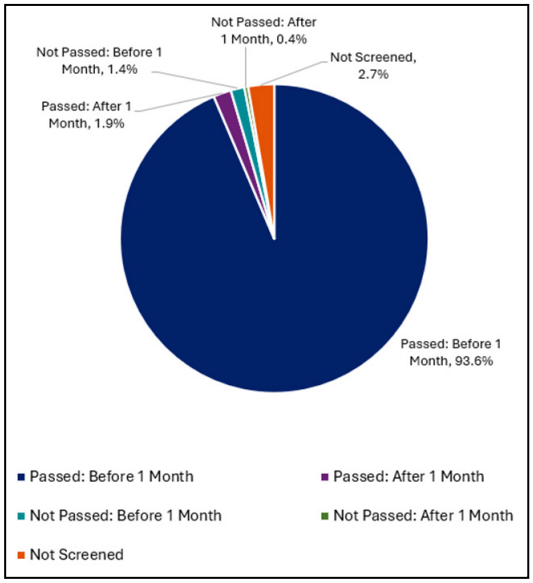
  Not passed before 1 month of age: 979 (78.26%)

Total Documented as Not Screened: 1,862 (2.71%)

- Infant died: 337 (18.10.%)
- Moved out of state: 0 (0.00%)
- Parents/Family declined services: 613 (32.92%)
- Homebirth: 482 (25.89%)
- Parents/Family contacted but unresponsive/no screening documentation (Unknown): 0 (0.00%)**
- Unable to contact: 313 (16.81%)***
- Straight to diagnostic evaluation: 0 (0.00%)†
- Unable to be screened due to medical reason: 0 (0.00%)
- Other reason: 117 (6.28%)

Loss to follow-up following birth (Parents/Family contacted but Unresponsive, Unable to contact, and Other): 430 (0.63%)

2024 Infant Screening Outcomes (Out of Occurrent Births)



Performance Measures:

- Screened (most recent/final screen) Before 1 Month of Age (of those screened, N=66,769): 65,217 (97.68%)
- Screened (most recent/final screen) Before 1 Month of Age (of total occurent births, N=68,631): 65,217 (95.03%)

* Occurrent Births refers to all live births that take place within a specific geographic boundary or region (e.g., a state or county), regardless of the mother's place of residence. The difference of 190 births between the occurrent birth count in the program data-management system, the Missouri Health Strategic Architectures and Information Cooperative (MOHSAIC), and the total occurrent births reported by the Missouri Bureau of Vital Records (VR) is the result of incomplete records that do not yet have an assigned Departmental Client Number (DCN). Incomplete records may be due to issues such as paternity and adoption. VR does not release records to MOHSAIC until the DCN assignment is complete. Complete MOHSAIC birth records are the basis of this report.

**Parents/Family Contacted but Unresponsive/No Screening Documentation – The program and/or a healthcare representative (e.g., PCP, hospital staff) had documented verbal or written communication with the family, but documentation of further screening/audiological evaluation does not exist in MOHSAIC.

***Unable to Contact – The program and/or healthcare provider could not contact parents or family because current/correct contact information was unavailable or the correct contact information is available and the contacted family was unresponsive.

†Newborns with risk factors for hearing loss (e.g., more than five days in the NICU or craniofacial anomalies) may be referred directly to diagnostics.

2024 Documented Diagnostic Data

2024 Documented Diagnostic Data

Total Infants Screened and did Not Pass their Final Screen: 1,251 (1.87%)[§]

Total with Documented Diagnosis: 900 (71.94%)

- Total diagnosed with no hearing loss: 708 (78.67%)
  No hearing loss before 3 months of age: 601 (84.89.%)
- Total diagnosed with permanent hearing loss: 124 (13.78.%)
  Permanent hearing loss before 3 months of age: 63 (50.81%)
  Prevalence of hearing loss: 1.86 per 1,000 screened
- Total diagnosed with transient hearing loss: 68 (7.56%)
  Transient hearing loss: before 3 months of age: 47 (69.12%)

Documented Diagnosis

No Hearing Loss	Permanent Hearing Loss	Transient Hearing Loss
78.7%	13.8%	7.6%

Total with No Documented Diagnosis: 351 (28.06%)

- Infant Died: 23 (6.55%)
- Non-resident/Moved out of State: 7 (1.99%)
- Parents/Family Declined Services: 20 (5.70%)
- Infant Adopted: 0 (0.00%)
- Parents/Family Contacted but Unresponsive/No Diagnostic Documentation (Unknown): 0 (0.00%)**
- Unable to Contact: 207 (58.97%)***
- Unable to Receive Diagnostic Testing due to Medical Reasons: 0 (0.00%)[‡]
- Other reason: 72 (20.51%)

Loss to Follow-up following final hearing screening (Parents/Family Contacted but Unresponsive, No Diagnostic Documentation, Unable to Contact those not passing final screen and Other): 279 (22.30%)

Of Note

[§] The value is the sum of Total Not Pass and Straight to Diagnostic Evaluation reported in Screening Data.

Performance Measures:

- Evaluated and Diagnosed Before 3 Months of Age (of those evaluated, N=900): 664 (73.78%)
- Evaluated and Diagnosed Before 3 Months of Age (of all those not passing final screen, N=1251): 664 (53.08%)

2024 Documented Early Intervention Data and Services

2024 Documented Early Intervention (EI) Data

Total Cases of Permanent Hearing Loss (PHL; diagnosed with permanent hearing loss and born in Missouri): 124

- This includes sensorineural, conductive, mixed, auditory neuropathy and unknown types of hearing loss.

Documented Intervention Services

Total Enrolled in Part C EI Services: 73 (58.87%)

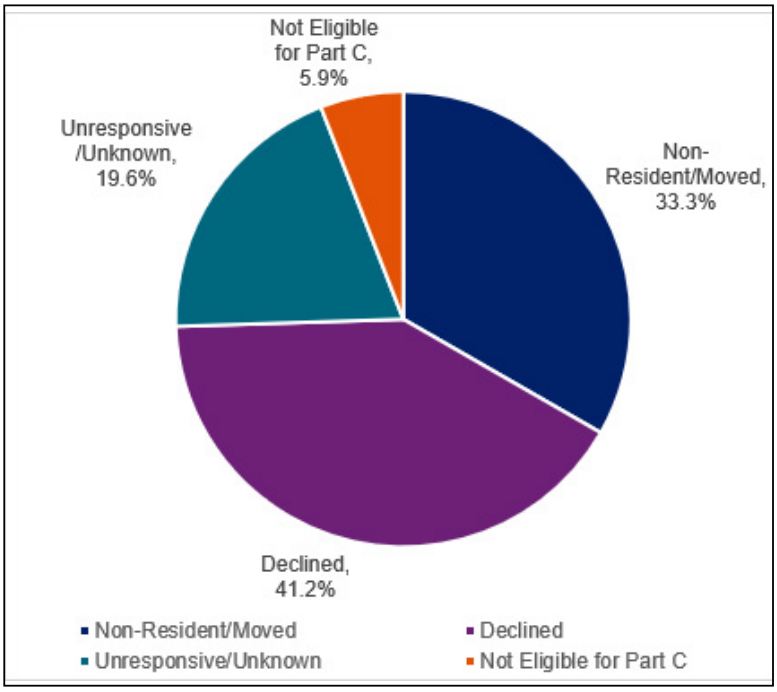
- Signed Individualized Family Service Plan (IFSP) before 6 months of age: 53 (72.60%)
- Additional cases born in Missouri and enrolled in Part C without documented confirmed diagnosis: 0

Total with No Documented Part C EI Services: 51 (41.13%)

- Not eligible for Part C services: 3 (5.88%)
- Infant died: 0 (0.00%)
- Non-resident/Moved out of state: 17 (33.33%)
- Parents/Family declined services: 21 (41.18%)
- Unable to contact: 0 (0.00%)
- Parents/Family contacted but unresponsive (Unknown): 10 (19.61%)
- Other: 0 (0.00%)

Loss to follow-up following diagnosis (Unable to Contact, Unknown and Other): 10 (8.06%)

No Documented Part C Early Intervention Services (Out of Occurrent Births)



Performance Measures:

- Enrolled in EI (signed IFSP) before 6 months of age (of those enrolled in Part C services; N=73): 53 (72.60%)
- Enrolled in EI (signed IFSP) before 6 months of age (of those with documented hearing loss; N=124): 53 (42.74%)

2024 Additional Data

1-3-6 Benchmarks

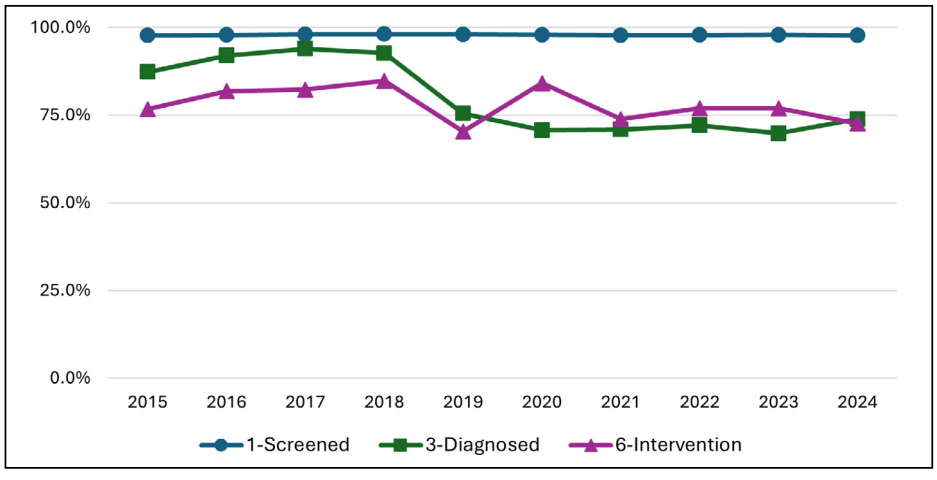
The 1-3-6 benchmarks are established Early Hearing Detection and Intervention (EHDI) guidelines designed to ensure newborns who are deaf or hard of hearing are identified and receive appropriate support in a timely manner.

- 1 Month (Screen): All infants should receive an initial hearing screening before 1 month of age, ideally before leaving the hospital.
- 3 Months (Diagnose): Infants who do not pass the initial screening should receive a comprehensive diagnostic audiological evaluation before 3 months of age.
- 6 Months (Intervention): Infants identified with permanent hearing loss should be enrolled in early intervention services before 6 months of age.
- Visit Centers for Disease Control and Prevention for additional guidance and resources pertaining to the 1-3-6 Benchmarks.

1-3-6 Goals at a Glance

Birth Year	Screened by 1 month/Total Screened	Diagnosed by 3 months/Total Diagnosed	Early Intervention (EI) by 6 months/ Total Enrolled in EI
2024	97.68% (65,217)	73.87% (664)	72.60% (53)
2023	97.86% (64,126)	69.78% (582)	76.92% (80)
2022	97.81% (65,900)	72.06% (637)	76.92% (70)
2021	97.75% (66,329)	70.87% (489)	73.81% (62)
2020	97.90% (66,950)	70.71% (490)	84.09% (74)
2019	98.00% (70,013)	75.43% (620)	70.31% (45)
2018	98.07% (71,247)	92.67% (683)	84.72% (61)

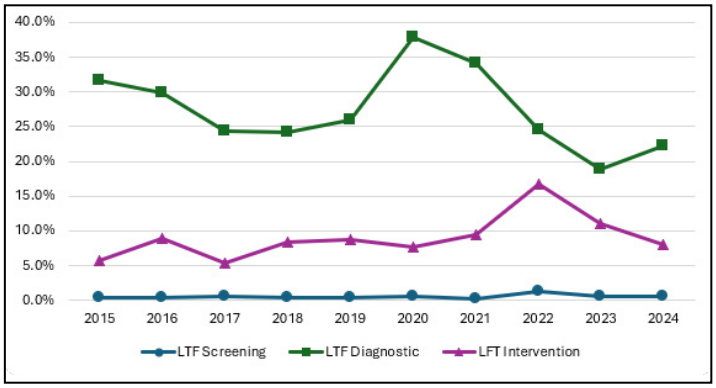
Annual Percentage Meeting 1-3-6 Benchmarks



Annual Lost to Follow-up (LTF) Percentage by Benchmark

Birth Year	LTF Screening	LTF Diagnostic	LTF Intervention
2024	0.63% (430)	22.30% (279)	8.06% (10)
2023	0.58% (388)	18.93% (208)	10.96% (16)
2022	1.32% (912)	24.49% (303)	16.80% (21)
2021	0.19% (133)	34.07% (383)	9.45% (12)
2020	0.51% (358)	37.94% (480)	7.69% (9)
2019	0.33% (240)	25.95% (307)	8.79% (8)
2018	0.30% (223)	24.13% (263)	8.42% (8)

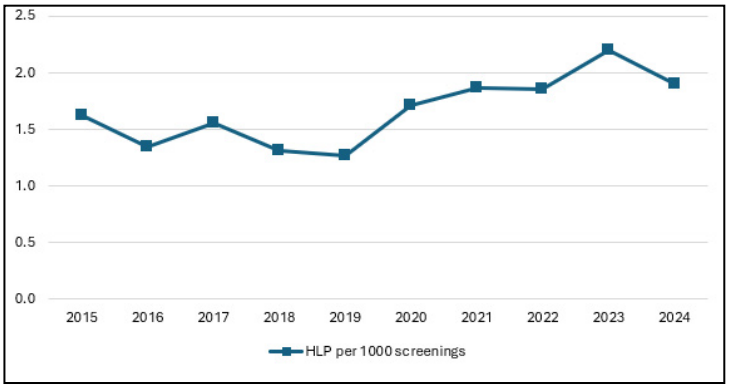
Annual LTF Percentage by Benchmark



Annual Hearing Loss Prevalence (Born in MO and failed the newborn hearing screening)

Birth Year	Documented permanent hearing loss	Prevalence of Hearing Loss per 1,000 screened
2024	124	1.86
2023	146	2.23
2022	125	1.86
2021	127	1.87
2020	117	1.71
2019	91	1.27
2018	95	1.31

Annual Hearing Loss Prevalence (HLP) per 1,000 Screenings



Appendix

Terms and Definitions

- **Bureau of Vital Records** is part of the Department of Health and Senior Services (DHSS), the state's central registry for major life events. It maintains official birth, death, and fetal death certificates along with marriage and divorce registries.
- **Early Hearing Detection and Intervention (EHDI)** refers to a public health practice dedicated to identifying infants with hearing loss as early as possible and enrolling them in early intervention and supportive care. The goal is to provide these children with medical, audiologic, and educational resources necessary to reach language and developmental milestones.
- **Early Intervention** refers to the comprehensive services and support systems provided to babies and toddlers from birth to age three with developmental delays or diagnosed conditions. Missouri's Early Intervention Program is known as First Steps, administered by the Missouri Department of Elementary and Secondary Education (DESE). Part C Early Intervention is the federal grant program First Steps utilizes under the Individuals with Disabilities Education Act (IDEA) to provide Early Intervention services.
- **Homebirth** is the practice of delivering a baby in a private residence rather than in a hospital facility or birthing center. Home births that are assisted are attended by a trained birth attendant, such as a certified midwife.
- **Individualized Family Service Plan (IFSP)** is a legal document under the Individuals with Disabilities Education Act (IDEA) that guides early intervention services for infants and toddlers (birth to age three) with developmental delays or disabilities.
- **Individuals with Disabilities Education Act (IDEA)** is a federal law that guarantees eligible children with disabilities a free appropriate public education (FAPE) and provides funding to states to support early intervention (birth to age 3) and special education services (age 3-21).
- **Loss to Follow-up (LTF)** refers to infants who do not receive recommended diagnostic testing or early intervention services after failing their initial newborn hearing screening. It also includes loss to documentation (LTF/D), which occurs when services are received but not reported to the Missouri Newborn Hearing Screening Program state data and surveillance system.
- **MOHSAIC** refers to the Missouri Health Strategic Architectures and Information Cooperative. It is an integrated web-based public health information system developed by DHSS to report, manage and track hearing screening results.
- **Occurrent Births** refers to all live births that take place within a specific geographic boundary or region (e.g., a state or county), regardless of the mother's place of residence.
- **Permanent Hearing Loss** is a non-reversible reduction in hearing ability that occurs when the delicate sensory hair cells in the inner ear (cochlea or auditory nerve) are damaged.
- **Prevalence of Hearing Loss** is the proportion of a population affected by reduced auditory function (hearing disability or impairment) at a given time. It indicates how widespread the condition is and is typically expressed as a percentage of a population or a rate per 1,000 screened.
- **Transient Hearing Loss** is a temporary hearing loss characterized by a short-term reduction in the ability to hear. It stems from either physical blockage in the ear or brief stress to the inner ear's sensory cells.
- **1-3-6 Benchmarks** refer to a set of benchmarks all states use, established by the Joint Committee on Infant Hearing, to ensure that timely diagnosis and treatment are provided to deaf or hard-of-hearing children. Access the EHDI 1-3-6 Benchmarks at Centers for Disease Control and Prevention.
    - 1 Month: All newborns receive a hearing screening before leaving the birth facility.
    - 3 Months: Infants who do not pass the initial screening receive a comprehensive diagnostic hearing evaluation.
    - 6 Months: Children diagnosed with hearing loss are enrolled in appropriate Early Intervention services.

To learn more about Newborn Hearing Screening, visit Missouri Department of Health and Senior Services Newborn Hearing Screening Program.

For additional information about Missouri's Early Intervention Program, First Steps visit Department of Elementary and Secondary Education Early Intervention.

Newborn Hearing Screening Program
Early Hearing Detection and Intervention
Health.Mo.Gov/newbornhearingscreening
573.751.6266
info@health.mo.gov