

# The Oregon Early Hearing Detection and Intervention (EHDI) Program



Oregon  
**Health**  
Authority

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# Why Screen for Hearing Loss?



Undetected hearing loss in infants can negatively impact speech and language acquisition, academic achievement, and social emotional development. However, these negative impacts can be reduced or eliminated altogether through early detection of hearing loss and appropriate intervention services. Due to advances in screening technology and Oregon's newborn hearing screening law, nearly 97% of Oregon babies are screened for hearing loss at birth. Early screening affords those infants with hearing loss the opportunity to receive a diagnosis and appropriate intervention services to help assure that language and communication develop and they are ready to learn when they enter kindergarten, like their hearing peers.

The Early Hearing Detection and Intervention (EHDI) program of the Oregon Health Authority collaborates with hospitals, audiologists and early intervention programs to ensure that infants with hearing loss are identified early and receive appropriate and timely intervention services for optimal developmental outcomes. The goal of the EHDI program is to maximize linguistic competence and literacy development for children who are deaf or hard of hearing. EHDI strives to achieve that aim by assuring that all Oregon births achieve the national recommendation of:

- **Universal hearing screening by 1 month of age**
- **Identification of hearing loss by 3 months of age**
- **Enrollment in Early Intervention by 6 months of age for children diagnosed with hearing loss**

Current Oregon legislation mandates newborn hearing screening for infants born in hospitals with more than 200 births a year, and establishes an unfunded hearing screening registry, tracking, and recall system to ensure timely follow-up and intervention.

The EHDI program is currently funded through federal grants from the Centers for Disease Control and Prevention (CDC) and the Health Resources and Services Administration (HRSA). The CDC grant is focused on the development, maintenance and enhancement of the EHDI information system and surveillance program. The HRSA grant is focused on improving the number of children in Oregon who receive screening, diagnosis and Early Intervention services by the 1, 3 and 6 month milestones.

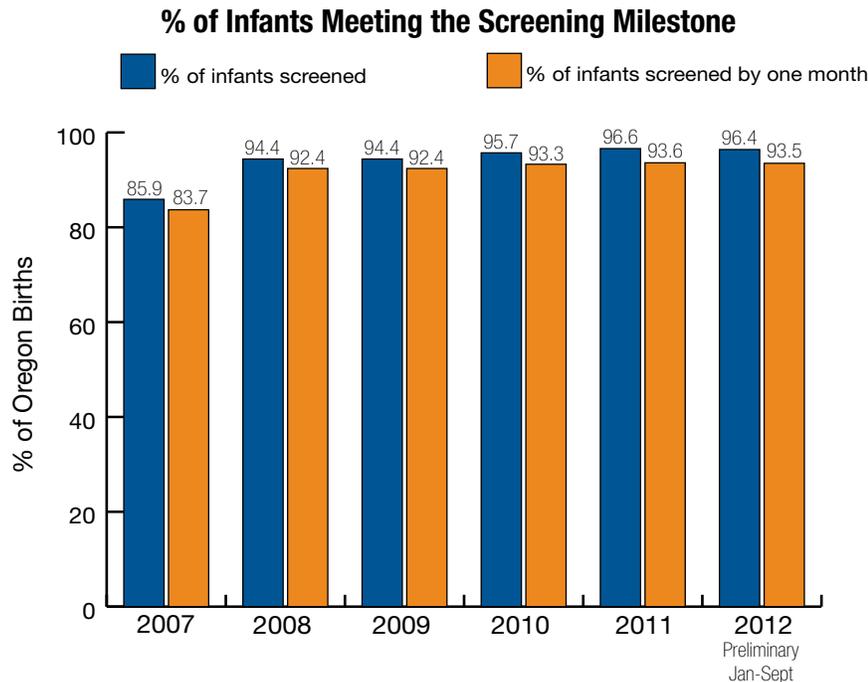


*"The success of EHDI programs depends on families working in partnership with professionals as a well-coordinated team."*

*Joint Committee on Infant Hearing (2007)*

# Screening by One Month of Age

The following graph shows the overall screening rates for the past five years.



Preliminary 2011 data shows that almost all infants born in mandated screening hospitals receive a hearing screening, and the vast majority of these screenings occur before one month of age. Screening rates are lower for the remaining infants who are born in non-mandated hospitals or out-of-hospital settings. Screening rates are lowest for infants born at home. Screening rates increased across all birth facility categories between 2010 and 2011, with the largest increases seen in birth centers.

| Type of Birth Facility<br>(% of all births) | % of infants screened |       |                           | % of infants screened by one month |       |                           |
|---|-----------------------|-------|---------------------------|------------------------------------|-------|---------------------------|
|   | 2010                  | 2011  | 2012<br>(Prelim Jan-Sept) | 2010                               | 2011  | 2012<br>(Prelim Jan-Sept) |
| <b>Mandated screening hospital (93.5%)</b>  | 98.9%                 | 99.4% | 99.2%                     | 97.0%                              | 97.2% | 97.0%                     |
| <b>Non-mandated hospital (2.8%)</b>         | 76.1%                 | 86.6% | 87.8%                     | 73.0%                              | 82.9% | 83.6%                     |
| <b>Home birth (2.4%)</b>                    | 20.9%                 | 26.3% | 28.7%                     | 7.8%                               | 9.6%  | 12.8%                     |
| <b>Birth center (1.3%)</b>                  | 29.6%                 | 44.2% | 39.5%                     | 6.7%                               | 12.7% | 14.3%                     |
| <b>All births</b>                           | 95.7%                 | 96.6% | 96.4%                     | 93.3%                              | 93.6% | 93.5%                     |

To increase hearing screening rates, Oregon EHDl

- Places hearing screening equipment for free screening clinics
- Works with midwives to increase knowledge of the importance of hearing screening
- Sends bilingual (English/Spanish) letters to families of children with incomplete screening results
- Sends letters and requests for information to providers of children who haven't been screened
- Uses key performance measures and report cards to support quality improvement by hospital screening programs

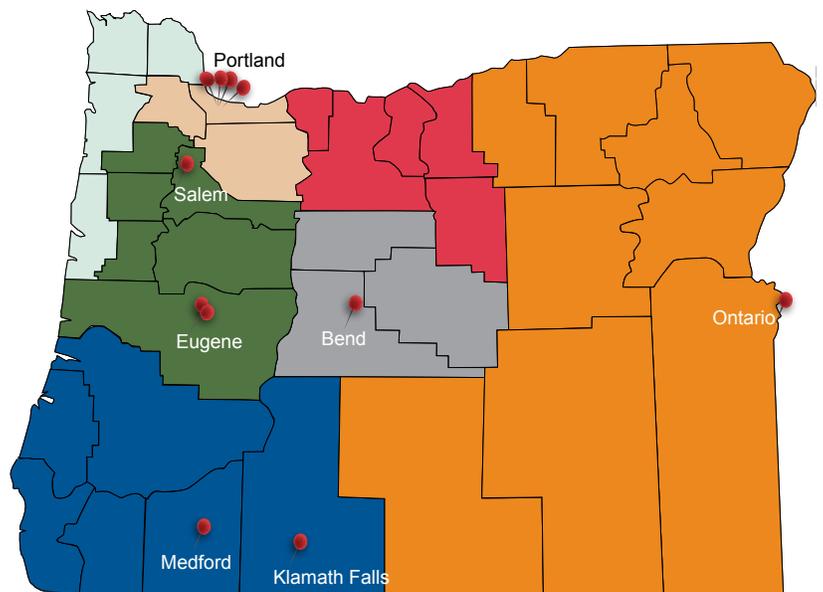
◆ *To further increase screening rates, Oregon could expand the mandate to all hospitals and birth providers.*

# Diagnostic Audiology by Three Months of Age

While the vast majority of infants in Oregon receive a newborn hearing screening, only a minority of infants needing a diagnostic evaluation are reported to have received it. In 2011, 2.8% of the infants that were screened received a “refer” result. As seen in the following table, 54% of these referred infants had a documented diagnostic evaluation; 40% of referred infants had their evaluation by three months of age.

The biggest differences in this milestone were regional: infants who live outside of the Portland metro and Willamette Valley areas are less likely to have documented diagnostic evaluations. As seen in the map below, diagnostic audiology facility locations are generally clustered along the I-5 corridor.

| Geographic region of birth | % of referred infants with documented diagnostic follow-up |                  |
|----------------------------|--|------------------|
|                            | 2010   | 2011             |
| Portland Metro Area        | 66.1% (252/381)  | 67.8% (301/444)  |
| Willamette Valley          | 46.4% (90/194)   | 58.9% (206/350)  |
| Eastern Oregon             | 37.2% (35/94)  | 48.1% (39/81)    |
| Coastal/NW Oregon          | 27.6% (8/29)   | 60.0% (18/30)    |
| Southern Oregon            | 20.4% (47/230)   | 30.8% (62/201)   |
| Central Oregon             | 13.5% (10/74)  | 25.8% (23/89)    |
| North Central Oregon       | 50.0% (5/10)   | 30.0% (6/20)     |
| ALL Oregon births          | 44.2% (447/1012)   | 53.9% (655/1215) |



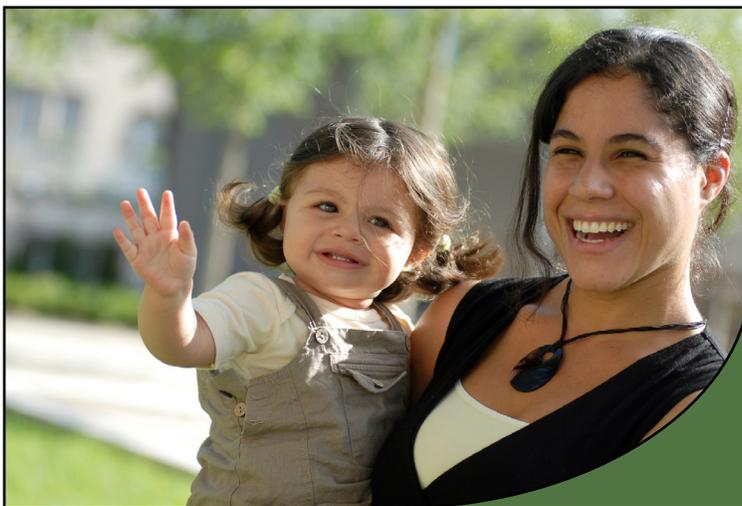
To increase diagnostic follow-up rates, Oregon EHDl:

- Implemented a web-based audiology reporting system
- Participates in a national quality improvement project to reduce loss to follow-up after screening
- Uses an audiology consultant to support open communication and best practices with providers
- Places additional diagnostic equipment in locations with high loss to follow-up
- Sends bilingual (English/Spanish) letters to families of children at risk for loss to follow-up
- Sends letters and requests for information to providers of children at risk for loss to follow-up
- Provides publications and materials for families to help them understand the process
- Partners with public health nurses to support families in seeking diagnosis.

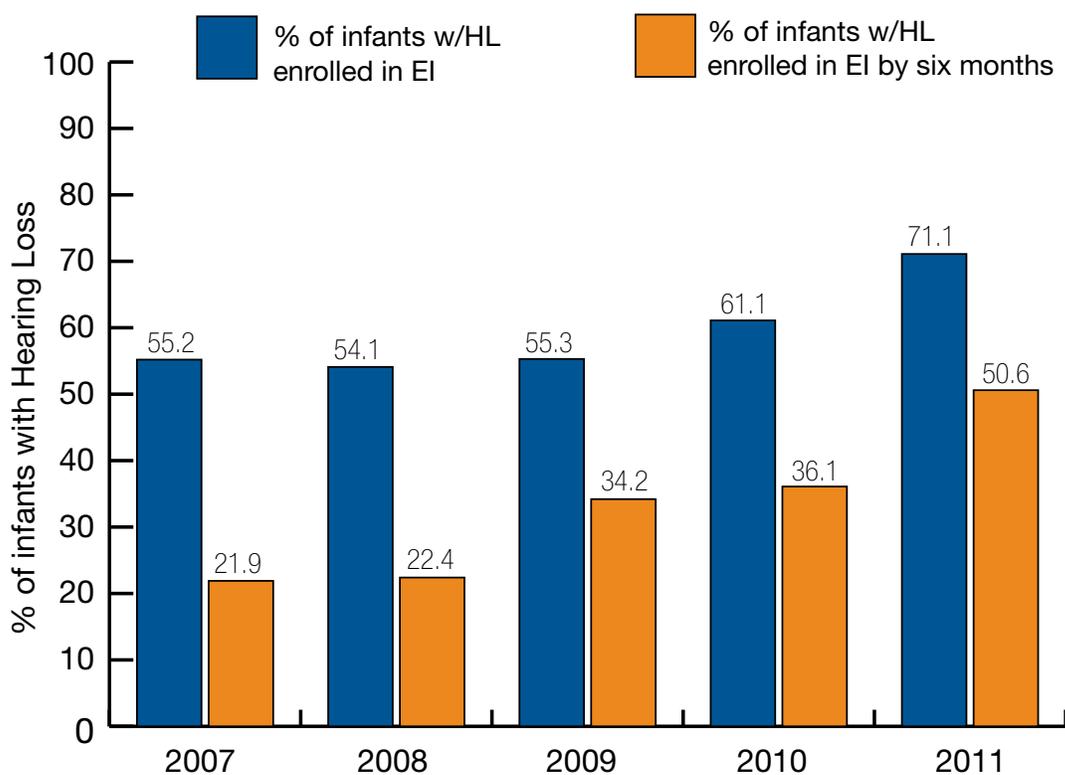
◆ *To further increase diagnostic follow-up, Oregon could provide targeted incentives or other supports for audiologists to practice in underserved areas of the state.*

# Early Intervention by Six Months of Age

The percentage of infants with confirmed hearing loss who enroll in EI increased greatly between 2009 and 2011, as seen in the graph below.



**% of Infants w/Hearing Loss Enrolled in Early Intervention**



To increase timely EI enrollment, Oregon EHDl:

- Has a staff Follow-up Specialist that communicates regularly with Early Intervention programs
- Works with Guide By Your Side and public health nurses
- Works to improve data sharing between Early Intervention and EHDl
- Developed automated direct referral process from audiologists to Early Intervention programs

◆ *In addition to timely enrollment, the quality and frequency of Early Intervention services is key to supporting optimal outcomes for deaf and hard of hearing children*

# EHDI Partnerships



In addition to hospitals, audiologists and early intervention programs, Oregon EHDI has many partners working to achieve our 1, 3 and 6 month goals. Oregon EHDI enjoys the diverse representation and guidance of our legislatively mandated Advisory Committee, which has met quarterly for many years.

In partnership with Oregon Hands and Voices, we support parents of children newly diagnosed with hearing loss with trained peer mentors through the Guide By Your Side (GBYS) Program. In addition to providing information and support to families with children who are newly diagnosed as deaf or

hard of hearing, guides work to reduce loss to follow-up by contacting families by phone to encourage them to return for additional needed diagnostic evaluation.

The EHDI program also partners with local public health nurses who serve as detectives and advocates to contact families of children who are at risk of not meeting the national 1-3-6 milestones, as well as to assure that children needing additional care coordination are connected with other programs, services, and resources such as CaCoon (Care Coordination for Children with Special Health Needs). Nurses receive direct referrals for those children needing follow-up and report outcomes which are recorded in the EHDI Information System.

## Summary and Next Steps

Almost all infants born in Oregon receive a hearing screening, especially if born at a mandated screening hospital. The EHDI program is working to increase screening rates among infants born at non-mandated hospitals and out-of-hospital settings. Slightly less than half of all referred infants have documented follow-up, and referred infants outside of the Portland metro area are less likely to have a diagnostic evaluation. Increasing the rate of diagnostic follow-up for referred infants is one of Oregon EHDI's most pressing priorities. Oregon has made great strides in improving the percentage of infants with confirmed permanent hearing loss who are enrolled in early intervention services, and we continue to dialogue with our early intervention partners about ways to streamline our referral and data sharing efforts. In addition to continuing our comprehensive efforts to improve screening, diagnostic evaluation and early intervention enrollment rates, Oregon EHDI is engaged in a number of other projects and initiatives, including:

- the National Initiative for Children's Healthcare Quality (NICHQ), Improving Hearing Screening and Intervention Systems (IHSIS) project,
- the CDC Sentinel Surveillance Project,
- the Public Health Data Standards Consortium EHDI CDA Pilot Project,
- the National Early Childhood Assessment Project with the University of Colorado and
- the CDC Hearing, Screening and Follow-up Survey (HSFS).



**Contact EHDl:**

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